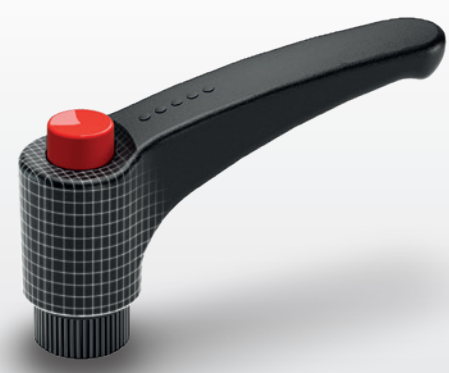
elesa+GANTER





DESIGNED
FOR ENGINEERING



DESIGNED
FOR ENGINEERING

TWO COMPANIES
ONE WORLD OF STANDARD PARTS

ELESA+GANTER is a worldwide sales joint-venture set-up to offer the widest product range of standard machine elements for the mechanical industry. Highly reliable products ensuring perfect functionality with a unique design represents the ELESA+GANTER distinctive quality code.



ABOUT ELESA+GANTER

ELESA+GANTER is the worldwide sales joint-venture between Elesa S.p.A. (Italy) and Otto Ganter GmbH & Co. KG (Germany). In 1995, after more than 20 years of successful cooperation, the two companies started setting up a combined product range and a common sales network under the trademark ELESA+GANTER.

The combination of ELESA know-how in design and manufacturing of engineering plastics with GANTER expertise and precision in metal parts makes ELESA+GANTER a unique range.

Customers soon started appreciating it from all over the world. Subsidiaries were established initially in Austria, Spain, Poland and then in China, Czech Republic, India and Turkey.

ELESA+GANTER subsidiaries offer a pool of specialised engineers, constantly in contact with R&D departments at both the parent companies in Italy and Germany, to develop special executions or new technical solutions meeting customers' specific requirements.

Stock availability on site ensures local customers receive standard elements with reduced delivery times whilst providing timely and reliable answers.

Over 60.000 product codes distributed in more than 70 industrialised countries with local presence and the highest technical consultancy.



Elesa+Ganter Austria GmbH



Elesa-Ganter Ibérica S.L.



Elesa+Ganter Polska Sp. z o.o.



Elesa+Ganter China CO., LTD.



Elesa+Ganter CZ s.r.o.



Elesa and Ganter India PVT LTD



Elesa+Ganter Türkiye

DESIGNED FOR ENGINEERING

Designing and manufacturing technical solutions for the mechanical industry represent the achievement and the commitment of Elesa and Ganter.

A guarantee for leading-edge benefits for the customers.

DESIGNED
FOR ENGINEERING

POINTS OF STRENGTH

- Technological background from two established parent companies
- Innovation in combination with decades of experience
- Unique design
- Optimised and widest product range of standard machine elements, driven by the market
- Worldwide distribution network
- Full stock availability with fast delivery times
- Customised solutions
- Perfect service including technical assistance

QUALITY AND DESIGN

To always offer unique and recognizable products anywhere in the world: a commitment since 1977.
ELESA+GANTER product range contributes to improve the quality of the machines and equipment they are destined for. Constant research on ergonomics, production materials and functionality results in a range characterised by a quality that can be appreciated by hand, and a unique design as proven by **45 industrial design awards** by the most prestigious **international juries**.

reddot design award

Reddot Design
(**2**)

Good Design

Good Design

FLUIDTRANS COMPOMAC

Fluidtrans
Compomac

IF DESIGN AWARD

IF Design Awards
(**29**)

design stuttgart

Design Stuttgart
(**5**)

Premio Compasso d'oro

Compasso d'Oro
(**2**)

PRODUKT ROKU

Produkt Roku
(**3**)

HaPes Award

PPMA Industry Awards WINNER 2014

PPMA Industry

THE ITALIAN PARENT COMPANY

For over 75 years ELESA has been the international reference for standard components destined to the mechanical and machinery industrial equipment sectors.



Elesa S.p.A. Headquarters Monza (Milan) Italy



Elesa France S.A.



Elesa (UK) Ltd



Elesa USA Corporation



Elesa Scandinavia AB (SE)

ABOUT ELESA

Established in 1941 in Italy, ELESA has earned the status as a reference point for designers and machine builders.
An excellent combination of technology and design has given rise to a diverse production thanks to the constant commitment to follow developments in engineering plastics and their processing technology.

A corporate culture strongly committed to product quality combined with an innate sensitivity for design and ergonomic research has led to the creation of products unique and recognisable worldwide as ELESA products. An authentical "Made in Italy" which has become popular around the world and particularly appreciated by the most qualified machine manufacturers.

Since the 50's, ELESA has been actively involved in the cultural revision of machine tool aesthetics, that was taking shape around that time, by innovating the design of accessories and components for the mechanical industry, machinery and industrial equipment.

An ongoing commitment to which ELESA has always been loyal over the decades, as proven by the 39 industrial design awards from the most prestigious juries, received in the last 40 years and the 180 patents and registered designs. ELESA continues to invest in R & D and in particular in the innovation of its production technologies aiming to creating new products or to further improve performances and reliability of the existing ones.

Tens of millions of pieces are produced every year at the parent company in Monza using the latest automated production technologies.

A keen dedication to product quality combined with Italian design represent in brief ELESA company culture.

Environmentally Conscious Manufacturing



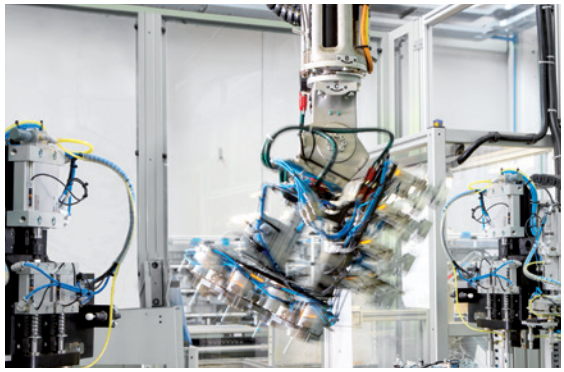
Production facilities in Monza



Logistic centre



R&D Department - Test Laboratory



Automatic production unit

Italian Association of Machine Tool Manufacturers

Italian Packaging Machinery Manufacturers Association

ITALIAN INSTITUTE OF UNIFICATION

All standard products in the ELESA range are subject to mechanical, physical, chemical and durability testing in order to provide correct and reliable technical data.
Most of the tests are carried out in the ELESA laboratory, a modern facility equipped with the most advanced testing instruments which is also at the disposal of customers for carrying out tests that simulate specific or particularly heavy conditions of use.

bsi. ISO 9001 Quality Management FM 23747 — Quality Management

bsi. ISO 14001 Environmental Management EMS 518430 — Environmental Management

bsi. OHSAS 18001 Occupational Health and Safety Management OHS 584384 — Occupational Health and Safety Management

THE GERMAN PARENT COMPANY

GANTER's well proven expertise with more than 120 years of market-leadership in standard parts for every sector of the industry speaks for itself.



Otto Ganter GmbH & Co. KG Headquarters in Furtwangen (Germany)



Ganter Logistic Center



Production plant in Rheinhausen



Otto Ganter published the first catalogue for standard parts in 1912.

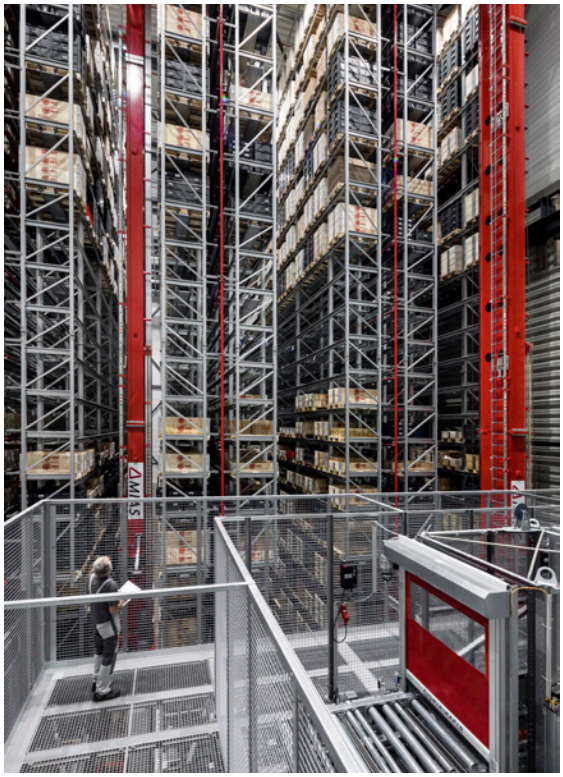
ABOUT GANTER

Established in 1894 as a mechanical workshop, Ganter released the first catalogue for standard parts as early as 1912 – five years before the foundation of the Deutsche Industrie Norm (DIN). The idea of standardizing industrial products, manufacturing them in economical lot sizes, storing and selling them individually was entirely new at that time. Right to this day, this principle has been the foundation of our actions which, thanks to broad availability and the latest in production engineering, guarantee ultimate benefits for the customer.

LEADING WORLDWIDE

Ganter is at the leading edge in the development, production and marketing of standard parts for the entire industry. Quality and volume of production selection set the standards across all industries. Ganter's standard parts are offered worldwide through an efficient sales network. Quality, advice and availability are thus guaranteed – wherever you are located.

GANTER customers appreciate and benefit from a strong service orientation for special requests, automated warehouses with everything on stock and a quick service. German accuracy is found in each standard and customized part at every branch location.



Automated Warehouse



Test laboratory



Production unit

SERVICE INCLUSIVE

Ganter's unique range of standard parts has the appropriate product for virtually every possible application – or if not, help is at hand for customized solutions. One thing is certain, though: Standard parts from Ganter come from a single source and offer the best possible support to the design and procurement process.

QUICK AND DIRECT

Thanks to an efficient logistics approach, Ganter is capable of delivering standard parts in the shortest possible time – anywhere in the world.



WORLDWIDE SALES NETWORK

Elesa+Ganter distribution network reaches more than 70 different countries worldwide. Thanks to the close relationship with the headquarters, ELESA+GANTER subsidiaries and distributors are able to provide customers with the highest technical support.



AMERICA

Argentina
Brazil
Canada
Mexico
USA

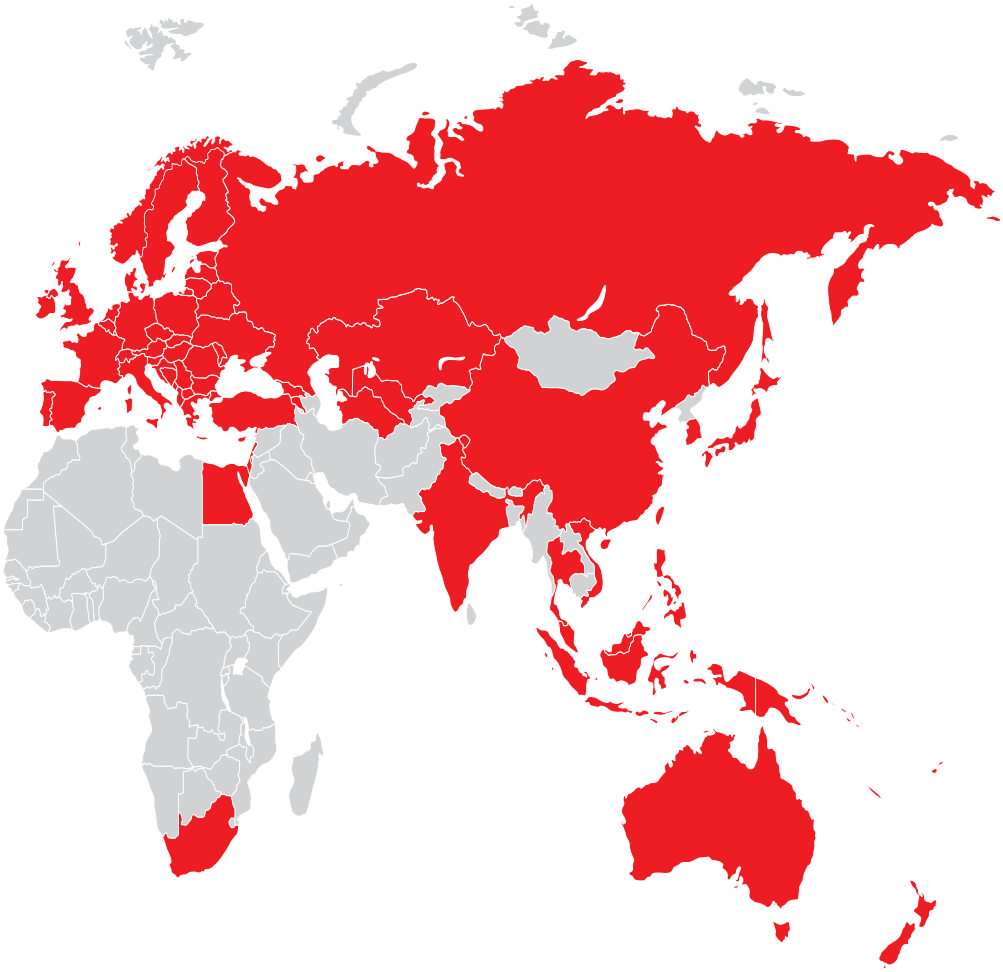
AFRICA

Egypt
South Africa

ASIA

China
Georgia
Hong Kong
India
Indonesia
Israel
Japan
Kazakhstan
Malaysia
Philippines
Singapore
South Korea
Taiwan
Thailand
Turkmenistan
Uzbekistan
Vietnam

Find ELESA+GANTER
in your country on
elesa-ganter.com



EUROPE

Austria
Belarus
Belgium
Bosnia-Herzegovina
Bulgaria
Croatia
Cyprus
Czech Republic
Denmark
Eire
Estonia
Finland
France
Germany
Great Britain
Greece
Hungary
Iceland
Italy
Kosovo
Latvia
Lithuania
Luxemburg
Macedonia
Moldova
Montenegro
Netherlands
Norway
Poland
Portugal
Romania
Russia
Serbia
Slovakia
Slovenia
Spain
Sweden
Switzerland
Turkey
Ukraine

OCEANIA

Australia
New Zealand

HIGH PERFORMING ITEMS

Standard components with innovative features, ergonomic design in compliance with strict directives to meet specific needs and applications.

STAINLESS STEEL CORROSION RESISTANCE



Due to its high corrosion resistance, stainless steel is one of the most sought-after materials in many sectors of the mechanical industry.
ELESA+GANTER product range includes a wide assortment of special AISI stainless steel products throughout all product groups. It covers both stainless steel standard elements as well as technopolymer standard elements with stainless steel metal inserts.

Designed for: food-processing, chemical and pharmaceutical industries, difficult environmental conditions and for all applications where provisions of law make it mandatory to use corrosion resistant materials.

WHITE FOR DIRT-PROOF SURFACES



RAL 9002 white colour is particularly suitable in medical enviroments, as it allows the prompt identification of any dust or dirt traces, making cleaning operations easier. From a psychological point of view, it also gives the operators and the patients a sense of sterility and maximum cleanliness.
Compact shapes and lack of cavities allow avoiding any deposit of dirt, dust and machining residues.
ELESA+GANTER product range includes an assortment of handles and clamping knobs in white technopolymer, also with stainless steel inserts.

Designed for: medical and hospital equipment.

SANITATION AGAINST BACTERIAL INFECTION



SAN LINE products avoid reproduction of any undesired organisms such as microbes, bacteria, mildew and fungi which can cause unpleasant odours, discoloration, degradation and formation of biofilm on surfaces.
Handles and knobs containing antimicrobial additives (mixture of silver ions on an inorganic ceramic base without chemicals, antibiotics or pesticides) or coated with a special finishing material to offer an adequate protection.

Designed for: disability aids, medical and hospital equipment.

COMFORTABLE AND SAFE GRIP



SOFT-TOUCH product line features a soft and slip-proof surface to ensure a safer and more stable ergonomic grip even under unfavourable conditions of use such as in the presence of moisture and grease.
Moreover, SOFT-TOUCH allows a better force transfer between hand and operating elements and ensures the absorption of vibrations during operations.

Designed for: disability aids, high-precision instruments, fitness machines, gardening and unfavourable climatic conditions.

CONDUCTIVE TECHNOPOLYMER



ESD line products are suitable in EPA environments (ESD Protected Areas) where components are susceptible to electrostatic discharges and have to be handled with the minimum risk of damage. The special conductive technopolymer (ESD-C Electrostatic Discharge Conductive) prevents the accumulation of electrostatic charge between bodies with different electric potential.
The special mark ESD-C is laser-engraved indelibly on each element according to EN 100015/1 and IEC 61340-5-1.

Designed for: assembly lines for electronical components, ESD-Protected Area (EPA).

COMPLIANT WITH ATEX EUROPEAN DIRECTIVE



Components complying with health and safety requirements according to 94/9/EC ATEX European directive (explosive atmospheres) for equipment in Group II, category 2GD.
ELESA+GANTER extensive range of oil level sight glasses and plugs provides solutions for highly demanding requirements, such as high temperatures, high pressure loads or aggressive substances.

Designed for: equipment and machines, such as hydraulic components and gears, for use in environments subject to explosion risk.

SELF-EXTINGUISHING TECHNOPOLYMER



Standard elements for applications in public environments where there is risk of fire, such as in the lighting sector.
ELESA+GANTER elements made in self-extinguishing special technopolymer certified "V0" in accordance with UL-94 V (Underwriters Laboratories). This classification is used to describe the reaction of plastics to flames. Laboratory tests proved that under vertical burning each individual sample requires less than 10 seconds to exhinguish flames.

Designed for: entertainment equipment, urban and public fittings.

STANDARD MACHINE ELEMENTS FOR PROFILE SYSTEMS



Standard elements in this product line are compatible with the most common aluminium profile systems. Using matching assembly sets, the ELESA+GANTER standard elements are easily and cost-effectively connected with the profiles without time-consuming compiling of individual parts in the order.

- Compatible with the common profile systems
- For groove widths of 6, 8 and 10 mm
- For profiles 30, 40 and 45 mm

Designed for: assembly on common profile systems for various different sectors.

STAINLESS STEEL PRODUCTS

Standard parts made of rustproof stainless steel have been designed for use in the food sector, in the chemical industry, for aggressive ambient conditions or for outdoor use.



INOX STAINLESS STEEL

STAINLESS STEEL PRODUCT LINE

Standard parts made of rust-proof Stainless Steel grades- designed for use in the food industry, the chemical industry or in general for use in aggressive atmospheres or outdoors. Normally made with galvanic surface treatment, standard parts in the Stainless Steel product family are not only corrosion-resistant, but also precisely fitting and environmentally friendly.

- Excellent corrosion resistance
- Durable
- Robust

ERGONOMICS AND DESIGN

Good design and ergonomics should start with a thorough understanding of the product's functions and the interaction between man and machine, taking into account the full set of movements involved in each operation.

FIVE POINTS
a discrete trademark that distinguishes all ERGOSTYLE® products



elecolors®

ERGOSTYLE® by ELESA

ERGOSTYLE® PRODUCT LINE

ERGOSTYLE® products combine perfectly with the machines and equipment they are destined for, contributing to enhance their value and quality.

ERGOSTYLE® was conceived at the beginning of the '90s, for a series of new markets such as hospital, medical, sports and leisure equipment, scientific instrumentation and office furniture requiring, in addition to pure functionality, a particular care in ergonomics and design.
Nowadays, ERGOSTYLE® is accepted and requested by a growing number of traditional industrial sectors where machines and equipment have undergone, over the last few decades, a profound aesthetic and design renovation.

- Perfect functionality
- Modern lines and ergonomic shapes
- Inserts in six standard ELECOLORS®

ERGOSTYLE® obtained several of the world's most distinguished recognitions in Industrial Design

reddot award 2015 winner

HYGIENIC DESIGN

In the food industry, medical technology and the pharmaceutical industry, product safety and consumer protection are becoming increasingly important.

Due to their specific properties, standard parts in Hygienic Design can assist the production process in these sensitive areas and facilitate the manufacture of products with a long shelf life, which are free from preservatives.



HD

HYGIENIC DESIGN PRODUCT LINE

Standard parts of the Hygienic Design product family are labeled with the HD icon. They combine high surface quality, freedom from dead spaces, non-scooped outer surfaces, and sealed bolting areas. A sealing concept based on FEM calculations ensures reliable contact pressure after installation.
Hygienic Design also means that the time and material needed for regular cleaning is significantly reduced – which also noticeably lowers operating costs.

Less and shorter cleaning work (this can be up to 25% of the production time), therefore

- More time available for production
- Less fresh water consumption
- Lower energy consumption
- Less cleaning agent required
- Less production of waste water
- Lower total costs and saving of resources

SUPER-TECHNOPOLYMER

Technopolymer with high mechanical and thermal performances.
The latest evolution in engineering polymer materials for the industrial sector.



SUPER-TECHNOPOLYMER PRODUCT LINE

The most technologically advanced industries, such as automotive, aerospace and electronics, have long ago understood the many benefits arising from the use of engineering plastics.

- High mechanical performance
- Corrosion resistance
- Lightness
- Non magnetic
- Low coefficient of friction
- Maintenance free
- Thermal insulation

This evolution goes beyond the simple use of high performance engineering plastics as an alternative to metal. In fact, to manufacture technopolymer products suitable for applications which generally required metal products, the design phase needs to be performed with great expertise by optimising shapes and thickness, to benefit from all the typical characteristics of polymeric materials.

The range presents several components made of SUPER-Technopolymer able to combine favourably the advantages of engineering plastics with those of metal.

CUSTOMISED SOLUTIONS

ELESA's and GANTER's modern and automated production facilities, together with their know-how in design and manufacture are at the disposal of all customers for the development of new technical solutions and customised production.



FULL TECHNICAL AND MANUFACTURING COMPETENCE

In addition to the wide range of standard machine elements, the strong customer orientation and production flexibility of the two parent companies allow for the offering of customised technical solutions meeting specific requirements.
Both Technical Departments are able to provide a cost-effective solution by modifying an existing ELESA+GANTER standard part or by going all the way back to the drawing board.

- Special shapes, dimensions, threads.
- Special colours
  non standard colour options.
- Special surface treatments
  plastic powder coating, zinc, nickel and chrome plating, anodising.
- Special product branding
  logos and texts by tampoprinting, laser-engraving and moulding.

ELESA-GANTER.COM

You can browse on ELESA+GANTER website the General Catalogue from your desktop and mobile devices.



Follow us on Youtube

WEBSITE CONTENTS

The online catalogue offers the design-engineer the possibility to search for the right element either by browsing the catalogue or using the online search engine performing a new filter functionality which allows to look for the right standard element.
Moreover, **My E+G** area allows to download 2D and 3D CAD drawings, ask for quotations and manage personal favourites list!

2D & 3D CAD drawings in your required format

News Extra contents regarding products, applications and corporate highlights

Newsletter Subscribe to the newsletter and stay tuned about new products and interesting technical details

Videos and 3D animations To deepen applications, technical features and usage of ELESA+GANTER products

HOW TO SELECT A PRODUCT

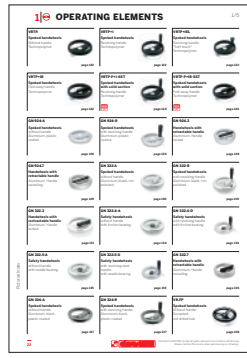
A quick guide to use at the best ELESA+GANTER General Catalogue.

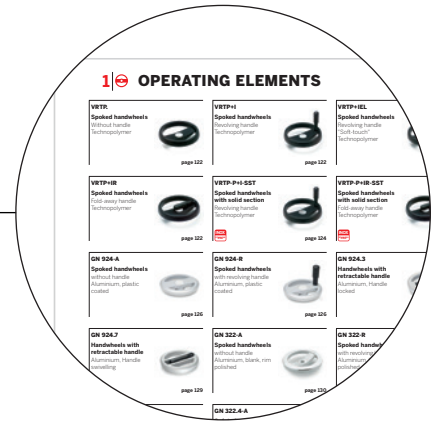
1. General index
to select a product group



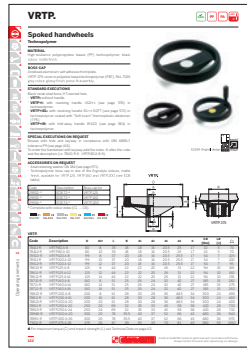


2. Pictorial index
to select a product series





3. Product data sheet
Containing technical features, mounting instructions, available executions and how to select a product code





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DESIGNED
FOR ENGINEERING

GENERAL INDEX

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Solid handwheels
Arm handwheels
Crank handles



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Wing knobs



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Revolving handles
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Joints



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14 Toggle, power and hook clamps

page 1558

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Power clamps
Hook clamps



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Technopolymer wheels
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18 Retaining magnets

page 2020

Disc-shaped
Rod-shaped
U-Magnets
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Technical data
A1

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A54

1 OPERATING ELEMENTS

VRTP.
Spoked handwheels
Without handle
Technopolymer



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VRTP+I
Spoked handwheels
Revolving handle
Technopolymer



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VRTP+IEL
Spoked handwheels
Revolving handle
"Soft-touch"
Technopolymer



page 122

VRTP+IR
Spoked handwheels
Fold-away handle
Technopolymer



page 122

VRTP-P+I-SST
Spoked handwheels with solid section
Revolving handle
Technopolymer



INOX STAINLESS STEEL

page 124

VRTP-P+IR-SST
Spoked handwheels with solid section
Fold-away handle
Technopolymer



INOX STAINLESS STEEL

page 124

GN 924-A
Spoked handwheels
without handle
Aluminium, plastic coated



page 126

GN 924-R
Spoked handwheels
with revolving handle
Aluminium, plastic coated



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GN 924.3
Handwheels with retractable handle
Aluminium, Handle locked



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GN 924.7
Handwheels with retractable handle
Aluminium, Handle swivelling



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GN 322-A
Spoked handwheels
without handle
Aluminium, blank, rim polished



page 130

GN 322-R
Spoked handwheels
with revolving handle
Aluminium, blank, rim polished



page 130

GN 322.3
Handwheels with rectractable handle
Aluminium, Handle locked



page 131

GN 322.4-A
Safety handwheels
without handle
with friction bearing



page 134

GN 322.4-D
Safety handwheels
with revolving handle
with friction bearing



page 134

GN 322.5-A
Safety handwheels
without handle
with needle bearing



page 135

GN 322.5-D
Safety handwheels
with revolving steel handle
with needle bearing



page 135

GN 322.7
Handwheels with retractable handle
Aluminium, Handle swivelling



page 136

GN 324-A
Spoked handwheels
without handle
Aluminium, black, plastic coated



page 137

GN 324-R
Spoked handwheels
with revolving handle
Aluminium, black, plastic coated



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VR.FP
Spoked handwheels
Without handle
Duroplast, not drilled hub



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VR.FP+I
Spoked handwheels
Revolving handle
Duroplast,
not drilled hub

page 138

VRU.
Spoked handwheels
Without handle
Duroplast,
large diameter hub

page 139

VRU+I
Spoked handwheels
Revolving handle
Duroplast,
large diameter hub

page 139

DIN 950-A
Spoked handwheels
without handle
Cast iron / Aluminium

page 140

DIN 950-F
Spoked handwheels
with fixed handle
Cast iron / Aluminium

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DIN 950-D
Spoked handwheels
with revolving handle
Cast iron / Aluminium

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GN 950.1-A
Spoked handwheels
without handle
with large hub

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GN 950.1-D
Spoked handwheels
with revolving handle
with large hub

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GN 950.6-A
Stainless Steel-
Spoked handwheels
without handle

INOX STAINLESS STEEL
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GN 950.6-F
Stainless Steel-
Spoked handwheels
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GN 949-A
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GN 949-D
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Handwheels
with revolving handle

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GN 227.2-A
Stainless Steel-
Handwheels
without handle
AISI 304 (A2)

INOX STAINLESS STEEL
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GN 227.2-D
Stainless Steel-
Handwheels
with revolving handle
AISI 304 (A2)

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GN 227.1
Pressed steel
handwheels

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GN 227
Pressed steel
handwheels
for valves

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GN 227.4
Stainless Steel-
Handwheels
AISI 316L (A4)

INOX STAINLESS STEEL
page 151

EMW+IEL
Monospoke
handwheels
Revolving handle
"Soft touch"
Technopolymer

ERGOSTYLE®
page 152

EMW+IR
Monospoke
handwheels
Fold-away handle
Technopolymer

ERGOSTYLE®
page 152

EYK.
Three-arm
handwheels
Technopolymer

ERGOSTYLE®
page 153

ETK.
Three-arm handwheel
Technopolymer

ERGOSTYLE®
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VDS.
Solid handwheels
Without handle
Technopolymer

INOX STAINLESS STEEL
page 156

VDS+I
Solid handwheels
Revolving handle
Technopolymer

INOX STAINLESS STEEL
page 156

VDS+IEL
Solid handwheels
Revolving handle
"Soft-touch"
Technopolymer

page 156

VDS+IR
Solid handwheels
Fold-away handle
Technopolymer

page 156

VDS+IRS
Solid handwheels
Safety fold-away handle
Technopolymer

page 156

VDT.
Solid handwheels
Without handle
Technopolymer

page 160

VDT+I
Solid handwheels
Revolving handle
Technopolymer

page 160

VDT+IR
Solid handwheels
Fold-away handle
Technopolymer

page 160

VDN.FP-A
Solid handwheels
Without handle,
drilled hub
Duroplast

page 162

VDN.FP+I-A
Solid handwheels
Revolving handle,
drilled hub
Duroplast

page 162

VDN.FP+IR-A
Solid handwheels
Fold-away handle,
drilled hub
Duroplast

page 162

VDN.FP+IRS-A
Solid handwheels
Safety fold-away handle,
drilled hub
Duroplast

page 162

VDN.FP
Solid handwheels
Without handle,
plain hub
Duroplast

page 162

VDN.FP-SST
Solid handwheels
Without handle,
stainless steel plain hub
Duroplast

INOX STAINLESS STEEL
page 162

VDN.FP+I
Solid handwheels
Revolving handle,
plain hub
Duroplast

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VDN.FP+I-SST
Solid handwheels
Revolving handle,
stainless steel plain hub
Duroplast

INOX STAINLESS STEEL
page 162

VDN.FP+IR
Solid handwheels
Fold-away handle,
plain hub
Duroplast

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VD.FP+I+ST
Safety solid handwheels
Duroplast

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GN 923-A
Disc handwheels
without handle
Aluminium, plastic coated

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GN 923-R
Disc handwheels
with revolving handle
Aluminium, plastic coated

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GN 923.3
Handwheels with retractable handle
Aluminium, Handle locked

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GN 923.7
Handwheels with retractable handle
Aluminium, Handle swivelling

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GN 321-A
Disc handwheels
without handle
Aluminium, blank, rim polished

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GN 321-R
Disc handwheels
with revolving handle
Aluminium, blank, rim polished

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GN 323-A
Disc handwheels
without handle
Aluminium, black, plastic coated

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GN 323-R
Disc handwheels
with revolving handle
Aluminium, black, plastic coated

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GN 323.4-A
Safety handwheels
without handle
friction bearing

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GN 323.4-D
Safety handwheels
with revolving steel handle
friction bearing

page 176

GN 323.5-A
Safety handwheels
without handle
needle bearing

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GN 323.5-D
Safety handwheels
with revolving steel handle
needle bearing

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GN 321.4-A
Safety handwheels
without handle
friction bearing

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GN 321.4-D
Safety handwheels
with revolving steel handle
friction bearing

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GN 321.5-A
Safety handwheels
without handle
needle bearing

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GN 321.5-D
Safety handwheels
with revolving steel handle
needle bearing

page 179

GN 321.6-A
Safety handwheels
without handle
Aluminium, with needle bearings

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GN 321.6-D
Safety handwheels
with revolving handle
Aluminium, with needle bearings

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GN 327-A
Safety handwheels
without handle
Aluminium, fixed bearing flange

page 182

GN 327-D
Safety handwheels
with revolving handle
Aluminium, fixed bearing flange

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GN 000.4
Coupling attachments
for safety handwheels, with friction bearing

page 184

GN 000.5
Coupling attachments
for safety handwheels, with needle bearing

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DIN 3670
Disc handwheels
Aluminium

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VBR.2
Two-arm handwheels
Technopolymer and steel

page 187

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VBR.4
Four-arm handwheels
Technopolymer and steel

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GN 213
Turret levers
Steel, blackened

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ERFW+I
Crank handles
Technopolymer
ERGOSTYLE®

page 189

MT.
Crank handles
Revolving handle, drilled hub
Technopolymer

page 190

MT-AS
Crank handles
Revolving handle, boss with square hole
Technopolymer

page 190

MT+IR
Crank handles
Fold-away handle, drilled hub
Technopolymer

page 190

MT-AT
Crank handles
Revolving handle
Technopolymer

page 192

MT-AT+IR
Crank handles
Fold-away handle
Technopolymer

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EKH.
Crank handles
Technopolymer
ERGOSTYLE®

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GN 269
Stainless Steel-Cranked handles
INOX STAINLESS STEEL

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GN 369
Cranks
Steel

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GN 471
Cranked handles
Aluminium

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GN 471.1
Cranked handles
Zinc die casting

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GN 471.3
Cranked handles with rectractable handle
Aluminium

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GN 472.3
Cranked handles with retractable handle
Aluminium

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DIN 468
Cranked handles
Cast iron

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DIN 469
Cranked handles
Cast iron

page 201

GN 558
Indexing cranked handles
Cast iron

page 202

GN 112.1
Control handles
Zinc die casting

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GN 10
Tri-ball handles
Steel

page 203

ME. METP.
Balanced crank handles
Duroplast

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VB.639-A
Three-arm knobs
Black-oxide steel boss, plain blind hole
Technopolymer

Page 208

VB.639-B
Three-arm knobs
Brass boss, threaded blind hole
Technopolymer

Page 208

VB.639-FP
Three-arm knobs
Brass boss, threaded pass-through hole
Technopolymer

Page 208

VB.639-p
Three-arm knobs
Zinc-plated steel threaded stud
Technopolymer

Page 208

VB.639-SST
Three-arm knobs
Stainless steel boss, threaded blind hole
Technopolymer

Page 208

VTT
Knobs with solid section
Brass boss, threaded hole
Technopolymer, easy cleaning

Page 210

VTT-SST
Knobs with solid section
AISI 304 stainless steel boss, threaded hole
Technopolymer, easy cleaning

Page 210

VTT-p
Knobs with solid section
Zinc-plated steel threaded stud
Technopolymer, easy cleaning

Page 210

VTT-SST-p
Knobs with solid section
AISI 304 stainless steel threaded stud
Technopolymer, easy cleaning

Page 210

VTT-CLEAN
Knobs with solid section
Technopolymer, easy cleaning

Page 211

VTT-B-LP
Knobs with solid section
Brass boss, threaded hole
with retaining chain, technopolymer

Page 212

VTT-SST-LP
Knobs with solid section
AISI 304 stainless steel boss, threaded hole
with retaining chain, technopolymer

Page 212

VTT-p-LP
Knobs with solid section
Zinc-plated steel threaded stud
with retaining chain, technopolymer

Page 212

VTT-SST-p-LP
Knobs with solid section
AISI 304 stainless steel threaded stud
with retaining chain, technopolymer

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GN 5345
Stainless Steel-Three lobe knobs
Material AISI 303 (A2)

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GN 5345.4
Stainless Steel-Three lobe knobs
Material AISI 316L (A4)

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VCT-A
Lobe knobs
Black-oxide steel boss, plain hole, with cap
Technopolymer

Page 214

VCT-B
Lobe knobs
Brass boss, threaded hole, with cap
Technopolymer

Page 214

VCT.FP
Lobe knobs
Brass boss, threaded pass-through hole, without cap
Technopolymer

Page 214

VCT-p
Lobe knobs
Zinc-plated steel threaded stud, with cap
Technopolymer

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VCT.AE-V0
Lobe knobs
Technopolymer certified self-extinguish

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VCT-B-LP

Lobe knobs
Threaded hole
with retaining chain,
technopolymer



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VCT-p-LP

Lobe knobs
Threaded stud
with retaining chain,
technopolymer



Page 218

VCT-B-SOFT

Lobe knobs
Threaded hole
"Soft-touch"
technopolymer

SOFT



Page 220

VCT-p-SOFT

Lobe knobs
Threaded stud
"Soft-touch"
technopolymer

SOFT



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VC.692-B

Lobe knobs with solid section
Brass boss, threaded hole
Technopolymer, easy cleaning



Page 222

VC.692-SST

Lobe knobs with solid section
Stainless steel boss, threaded hole
Technopolymer, easy cleaning

INOX STAINLESS STEEL



Page 222

VC.692-p

Lobe knobs with solid section
Zinc-plated steel threaded stud
Technopolymer, easy cleaning



Page 222

VC.692-SST-p

Lobe knobs with solid section
Stainless steel threaded stud
Technopolymer, easy cleaning

INOX STAINLESS STEEL



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VC.692-CLEAN

Lobe knobs
Technopolymer, easy cleaning

CLEAN INOX STAINLESS STEEL



Page 224

VC.692-CR

Lobe knobs
Technopolymer
chrome-plate



Page 224

VC.692-SST-p-P

Lobe knobs with pad
Technopolymer, solid section, easy cleaning

INOX STAINLESS STEEL



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VC.192-A

Lobe knobs
Black-oxide steel boss, plain hole
Duroplast, easy cleaning



Page 226

VC.192-B

Lobe knobs
Brass boss, plain or threaded hole
Duroplast, easy cleaning



Page 226

VC.192-SST

Lobe knobs
Stainless steel boss, threaded hole
Duroplast, easy cleaning

INOX STAINLESS STEEL



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VC.192-p

Lobe knobs
Zinc-plated steel threaded stud
Duroplast, easy cleaning



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VC.192-SST-p

Lobe knobs
Stainless steel threaded stud
Duroplast, easy cleaning

INOX STAINLESS STEEL



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VC.253

Shortened lobe knobs
Duroplast



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VC.254

Lobe knobs
Duroplast



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GN 5334

Stainless Steel-Star knobs
with female thread

INOX STAINLESS STEEL



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GN 5334

Stainless Steel-Star knobs
with threaded bolt

INOX STAINLESS STEEL



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GN 5334.4

Stainless Steel-Star knobs
with female thread

INOX STAINLESS STEEL



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GN 5334.4
Stainless Steel-Star knobs
with threaded bolt
INOX STAINLESS STEEL

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GN 5336
Star knobs
Aluminium

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GN 5335.4
Stainless Steel-Star knobs
Stainless Steel AISI 316L (A4)
INOX STAINLESS STEEL

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GN 5335
Stainless Steel-Star knobs
with female thread
INOX STAINLESS STEEL

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GN 5335
Stainless Steel-Star knobs
with threaded bolt
INOX STAINLESS STEEL

Page 232

DIN 6335-GG
Hand knobs
Cast iron

Page 234

DIN 6335-NI
Hand knobs
Stainless Steel
INOX STAINLESS STEEL

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DIN 6335-AL
Hand knobs
Aluminium

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GN 6335.4
Hand knobs
Cast iron / Threaded bolt, Steel

Page 236

GN 6336.4
Star knobs
Cast iron / Threaded bolt, Steel

Page 236

GN 6335.5-AM
Hand knobs
Aluminium, matt

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GN 6335.5-AP
Hand knobs
Aluminium, polished

Page 237

GN 6335.5-ES
Hand knobs
Stainless Steel
INOX STAINLESS STEEL

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DIN 6336-GG
Star knobs
Cast iron

Page 238

DIN 6336-NI
Star knobs
Stainless Steel
INOX STAINLESS STEEL

Page 238

DIN 6336-AL
Star knobs
Aluminium

Page 238

GN 6336.5-AM
Star knobs
Aluminium, matt

Page 240

GN 6336.5-AP
Star knobs
Aluminium, polished

Page 240

GN 6336.5-ES
Star knobs
Stainless Steel
INOX STAINLESS STEEL

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GN 6303.1
Quick release knurled nuts

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GN 6336.3
Quick release star knobs
Plastic, bushing steel

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GN 6336.3-NI

Quick release star knobs

Plastic,
bushing Stainless Steel



INOX STAINLESS STEEL

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GN 6335.9

Hand knobs

with increased clamping force



Page 243

VCTS-Z

Safety lobe knobs

Black-oxide steel
threaded hole
Technopolymer, push action



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VCTS-Z-SST

Safety lobe knobs

Stainless steel threaded hole
Technopolymer, push action



INOX STAINLESS STEEL

Page 244

VCTS-Z-p

Safety lobe knobs

Black-oxide steel
threaded screw
Technopolymer, push action



Page 244

VCTS-Z-SST-p

Safety lobe knobs

Stainless steel threaded screw
Technopolymer, push action



INOX STAINLESS STEEL

Page 244

VLS-B

Security lobe knobs

Boss, threaded hole
Technopolymer



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VLS-SST-p

Security lobe knobs

Threaded stud
Technopolymer



INOX STAINLESS STEEL

Page 246

VLSK-B

Safety lobe knobs

Boss, threaded hole, with cap
Technopolymer, with lock



SUPER TECHNO POLYMER

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VLSK-FP

Safety lobe knobs

Boss, threaded hole, without cap
Technopolymer, with lock



SUPER TECHNO POLYMER

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VLSK-p

Safety lobe knobs

Threaded stud, with cap
Technopolymer, with lock



SUPER TECHNO POLYMER

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VCRT-N

Shortened lobe knobs

Brass reinforcement, square hole
Technopolymer, square or threaded hole



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VCRT-FP

Shortened lobe knobs

Brass boss, threaded hole
Technopolymer, square or threaded hole



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VCR.192

Shortened lobe knobs

Duroplast, square hole



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GFL

Lobe threaded nut

Technopolymer



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VTR-B

Knobs

Brass boss, threaded blind hole
Technopolymer



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VTR-FP

Knobs

Brass boss, threaded pass-through hole
Technopolymer



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VTR-N

Knobs

Square pass-through hole
Technopolymer



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VTR-p

Knobs

Zinc-plated steel threaded stud
Technopolymer



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GN 5339.5

Stainless Steel-Triangular knobs



INOX STAINLESS STEEL

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VTL-B

Lobe knobs

Brass boss, threaded hole
Technopolymer



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VTL-p
Lobe knobs
Zinc-plated steel
threaded stud
Technopolymer

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ELK-A
Knobs with rear lobes
Black-oxide steel boss,
plain hole
Technopolymer
ERGOSTYLE®

Page 254

ELK-B
Knobs with rear lobes
Brass boss, threaded
hole
Technopolymer
ERGOSTYLE®

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ELK-FP
Knobs with rear lobes
Black-oxide steel boss,
plain pass-through hole
Technopolymer
ERGOSTYLE®

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ELK-p
Knobs with rear lobes
Zinc-plated steel
threaded stud
Technopolymer
ERGOSTYLE®

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VL.640 FP
Lobe knobs
Technopolymer

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VL.140 FP
Lobe knobs
Duroplast

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VL.140
Lobe knobs
Duroplast

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VL.155-A
Lobe knobs
Black-oxide steel boss,
plain hole
Duroplast

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VL.155-B
Lobe knobs
Brass boss, plain or
threaded hole
Duroplast

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VL.155-p
Lobe knobs
Zinc-plated steel
threaded stud
Duroplast

Page 257

VH.153-A
Lobe knobs
Black-oxide steel boss,
plain hole
Duroplast

Page 258

VH.153-B
Lobe knobs
Brass boss, plain or
threaded hole
Duroplast

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VH.153-p
Lobe knobs
Zinc-plated steel
threaded stud
Duroplast

Page 258

BT-B-ESD
Fluted grip knobs
Brass boss, threaded
blind hole
ESD conductive
technopolymer

Page 259

BT-FP-ESD
Fluted grip knobs
Brass boss, threaded
pass-through hole
ESD conductive
technopolymer

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BT-p-ESD
Fluted grip knobs
Zinc-plated steel
threaded stud
ESD conductive
technopolymer

Page 259

BT-B
Fluted grip knobs
Brass boss, threaded
blind hole
Technopolymer

Page 260

BT-SST
Fluted grip knobs
Stainless steel boss,
threaded blind hole
Technopolymer

Page 260

BT-FP
Fluted grip knobs
Brass boss, threaded
pass-through hole
Technopolymer

Page 260

BT-SST-FP
Fluted grip knobs
Stainless steel boss,
threaded pass-through
hole
Technopolymer

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BT-p

Fluted grip knobs
Zinc-plated steel
threaded stud
Technopolymer



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BT-SST-p

Fluted grip knobs
Stainless steel threaded stud
Technopolymer



INOX STAINLESS STEEL

Page 260

B.193-B

Knurled grip knobs
Brass boss, threaded blind hole
Duroplast



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B.193-SST

Knurled grip knobs
Stainless steel boss, threaded blind hole
Duroplast



INOX STAINLESS STEEL

Page 262

B.193-FP

Knurled grip knobs
Brass boss, threaded pass-through hole
Duroplast



Page 262

B.193-p

Knurled grip knobs
Zinc-plated steel
threaded stud
Duroplast



Page 262

B.193-SST-p

Knurled grip knobs
Stainless steel threaded stud
Duroplast



INOX STAINLESS STEEL

Page 262

B.259-B

Knurled grip knobs
Brass boss, threaded hole
Duroplast



Page 264

B.259-p

Knurled grip knobs
Zinc-plated steel
threaded stud
Duroplast



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B.259-CLEAN

Knurled grip knobs
Stainless steel threaded stud
Duroplast



CLEAN INOX STAINLESS STEEL

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B.220

Knurled grip knobs
Duroplast



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GN 535

Stainless Steel-Knurled screws



INOX STAINLESS STEEL

Page 266

GN 536

Stainless Steel-Knurled nuts



INOX STAINLESS STEEL

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DIN 6303

Knurled nuts
Steel



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DIN 6303-NI

Knurled nuts
Stainless Steel



INOX STAINLESS STEEL

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DIN 464

Knurled screws
Steel



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DIN 464-NI

Knurled screws
Stainless Steel



INOX STAINLESS STEEL

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DIN 466

Knurled nuts
Steel



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DIN 466-NI

Knurled nuts
Stainless Steel



INOX STAINLESS STEEL

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DIN 467

Flat knurled nuts
Steel



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DIN 467-NI

Flat knurled nuts
Stainless Steel



INOX STAINLESS STEEL

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DIN 653
Flat knurled screws
Steel

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DIN 653-NI
Flat knurled screws
Stainless Steel

INOX STAINLESS STEEL
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GN 653.2
Knurled screws
Steel

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GN 653.2-NI
Knurled screws
Stainless Steel

INOX STAINLESS STEEL
Page 272

GN 653.10
Flat knurled screws
Steel

Page 273

GN 653.10-NI
Flat knurled screws
Stainless Steel

INOX STAINLESS STEEL
Page 273

MCT.
Fluted grip knobs
Technopolymer, assembly with screws

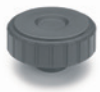
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MBT-B
Diamond cut knurled knobs
Brass boss, plain or threaded hole
Technopolymer

Page 276

MBT.p
Diamond cut knurled knobs
Zinc-plated steel threaded stud
Technopolymer

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MBT-B-SOFT
Fluted grip knobs
Brass boss, threaded hole
"Soft-touch" Technopolymer

SOFT
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MBT-p-SOFT
Fluted grip knobs
Zinc-plated steel threaded stud
"Soft-touch" Technopolymer

SOFT
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GN 7336
Knurled knobs
with female thread, Steel

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GN 7336
Knurled knobs
with female thread, Stainless Steel

INOX STAINLESS STEEL
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GN 7336
Knurled screws
with threaded bolt, Steel

Page 280

GN 7336
Knurled screws
with threaded bolt, Stainless Steel

INOX STAINLESS STEEL
Page 280

GN 7336.5
Knurled screws
Brass / Plastic / Spherical pivot

INOX STAINLESS STEEL
Page 282

GN 3663
Torque knurled knobs

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GN 3663
Torque knurled knob screws

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CTD-B
Torque limiting wing knobs
Threaded hole
Technopolymer

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CTD-p
Torque limiting wing knobs
Threaded stud
Technopolymer

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EWN-B
Wing knobs
Brass boss, threaded hole, with cap
Technopolymer

ERGOSTYLE®
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EWN-SST

Wing knobs

Stainless steel boss, threaded hole, with cap
Technopolymer



INOX ERGOSTYLE®

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EWN-FP

Wing knobs

Brass boss, threaded hole, without cap
Technopolymer



ERGOSTYLE®

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EWN-SST-FP

Wing knobs

Stainless steel boss, threaded hole, without cap
Technopolymer



INOX ERGOSTYLE®

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EWN-p

Wing knobs

Zinc-plated steel threaded stud
Technopolymer



ERGOSTYLE®

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EWN-SST-p

Wing knobs

Stainless steel threaded stud
Technopolymer



INOX ERGOSTYLE®

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EWN-SST-p-P

Wing knobs

Technopolymer, pad



INOX ERGOSTYLE®

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EWNM-SST

Wing knobs

Threaded blind hole
Stainless steel



INOX ERGOSTYLE®

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EWNM-SST-FP

Wing knobs

Threaded pass-through hole
Stainless steel



INOX ERGOSTYLE®

Page 292

EWNM-SST-p

Wing knobs

Threaded pin
Stainless steel



INOX ERGOSTYLE®

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ESN.

Single wing nuts

Technopolymer



ERGOSTYLE®

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CWN-B

Wing knobs

Brass boss, threaded blind hole
Technopolymer



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CWN-FP

Wing knobs

Brass boss, threaded pass-through hole
Technopolymer



Page 294

CWN-p

Wing knobs

Zinc-plated steel threaded stud
Technopolymer



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GN 834

Stainless Steel-Wing nuts



INOX

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GN 835

Stainless Steel-Wing screws



INOX

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CT.476-B

Wing knobs

Brass boss, threaded blind hole
Technopolymer



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CT.476-FP

Wing knobs

Brass boss, threaded pass-through hole
Technopolymer



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CT.476-p

Wing knobs

Zinc-plated steel threaded stud
Technopolymer



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CT.476-SST-p

Wing knobs

Stainless steel threaded stud
Technopolymer



INOX

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CTL.476-B

Wing knobs

Brass boss, threaded blind hole
Technopolymer



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CTL.476-FP

Wing knobs

Brass boss, threaded pass-through hole
Technopolymer



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CTL.476-p

Wing knobs

Zinc-plated steel
threaded stud
Technopolymer



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GN 431

Stainless Steel-Wing screws



INOX STAINLESS STEEL

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GN 432

Stainless Steel-Wing nuts



INOX STAINLESS STEEL

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GN 433

Stainless Steel-Wing screws



INOX STAINLESS STEEL

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GN 434

Stainless Steel-Wing nuts



INOX STAINLESS STEEL

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3 CLAMPING LEVERS

ERX-B
Adjustable handles
Brass boss,
threaded hole
Technopolymer

ERGOSTYLE®
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ERX-p
Adjustable handles
Zinc-plated steel
threaded stud
Technopolymer

ERGOSTYLE®
page 304

ERX-SST
Adjustable handles
Stainless steel boss,
threaded hole
Technopolymer

INOX STAINLESS STEEL ERGOSTYLE®
page 304

ERX-SST-p
Adjustable handles
Stainless steel
threaded stud
Technopolymer

INOX STAINLESS STEEL ERGOSTYLE®
page 304

ERX-CR
Adjustable handles
Technopolymer
chrome-plated

ERGOSTYLE®
page 309

ERX-AV-B
Adjustable handles
Brass boss,
threaded hole
Quick assembly,
technopolymer

ERGOSTYLE®
page 310

ERX-AV-p
Adjustable handles
Zinc-plated steel
threaded stud
Quick assembly,
technopolymer

ERGOSTYLE®
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ERS-A
Safety adjustable handles
Black-oxide steel boss,
threaded hole
Push action,
technopolymer

ERGOSTYLE®
page 311

ERS-B
Safety adjustable handles
Brass boss, threaded
hole
Push action,
technopolymer

ERGOSTYLE®
page 311

ERS-p
Safety adjustable handles
Brass boss, threaded
hole Push action,
technopolymer

ERGOSTYLE®
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ERZ-A
Adjustable handles
Black-oxide steel
clamping element,
threaded hole
Technopolymer

ERGOSTYLE®
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ERZ-p
Adjustable handles
Black-oxide steel
clamping element,
threaded screw
Technopolymer

ERGOSTYLE®
page 312

ERZ-SST
Adjustable handles
Stainless steel clamping
element, threaded hole
Technopolymer

INOX STAINLESS STEEL ERGOSTYLE®
page 312

ERZ-SST-p
Adjustable handles
Stainless steel clamping
element, threaded
screw
Technopolymer

INOX STAINLESS STEEL ERGOSTYLE®
page 312

ERM-A
Adjustable handles
Black-oxide steel
clamping element,
threaded hole
Zinc alloy

ERGOSTYLE®
page 316

ERM-p
Adjustable handles
Black-oxide steel
clamping element,
threaded screw
Zinc alloy

ERGOSTYLE®
page 316

ERM-SST
Adjustable handles
Stainless steel clamping
element, threaded hole
Zinc alloy

INOX STAINLESS STEEL ERGOSTYLE®
page 316

ERM-SST-p
Adjustable handles
Stainless steel clamping
element, threaded
screw
Zinc alloy

INOX STAINLESS STEEL ERGOSTYLE®
page 316

GN 300
Adjustable hand levers
with threaded insert
Zinc die casting,
Bushing
Steel

page 320

GN 300
Adjustable hand levers
with threaded stud
Zinc die casting,
Threaded bolt
Steel

page 320

GN 300.1
Adjustable hand levers
with threaded insert
Zinc die casting,
Bushing
Stainless Steel

page 324

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GN 300.1
Adjustable hand levers
with threaded stud
Zinc die casting,
Threaded bolt
Stainless Steel

page 324

GN 300.5
Adjustable Stainless Steel-Hand levers
with threaded insert
matt shot-blasted
INOX STAINLESS STEEL

page 327

GN 300.5
Adjustable Stainless Steel-Hand levers
with threaded stud
matt shot-blasted
INOX STAINLESS STEEL

page 327

GN 300.6
Adjustable Stainless Steel-Hand levers
with threaded insert
electropolished
INOX STAINLESS STEEL

page 330

GN 300.6
Adjustable Stainless Steel-Hand levers
with threaded stud
electropolished
INOX STAINLESS STEEL

page 330

GN 300.4
Adjustable hand levers
with threaded insert
Zinc die casting /
with increased
clamping force

page 333

GN 300.4
Adjustable hand levers
with threaded stud
Zinc die casting /
with increased
clamping force

page 333

GN 303
Adjustable hand levers
with threaded insert
with push button /
Zinc die casting,
Bushing Steel

page 334

GN 303
Adjustable hand levers
with threaded stud
with push button /
Zinc die casting,
Threaded bolt Steel

page 334

GN 303.1
Adjustable hand levers
with threaded insert
with push button/
Zinc die casting,
Bushing Stainless Steel

page 337

GN 303.1
Adjustable hand levers
with threaded stud
with push button/
Zinc die casting,
Threaded bolt
Stainless Steel

page 337

GN 306
Adjustable hand levers
with special tipped
threaded studs

page 340

MRX-B
Adjustable handles
Brass boss,
threaded hole
Technopolymer

page 344

MRX-SST
Adjustable handles
Stainless steel boss,
threaded hole
Technopolymer
INOX STAINLESS STEEL

page 344

MRX-p
Adjustable handles
Zinc-plated steel
threaded stud
Technopolymer

page 344

MRX-SST-p
Adjustable handles
Stainless steel
threaded stud
Technopolymer
INOX STAINLESS STEEL

page 344

MR-A
Adjustable handles
Black-oxide steel boss,
plain or threaded hole
Technopolymer

page 348

MR-B
Adjustable handles
Brass boss,
threaded hole
Technopolymer

page 348

MR-p
Adjustable handles
Black-oxide steel
threaded stud
Technopolymer

page 348

GN 101
Adjustable hand levers
with internal thread

page 350

GN 101
Adjustable hand levers
with threaded stud

page 350

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3 CLAMPING LEVERS

GN 101.1
Adjustable hand levers
with internal thread

INOX
page 352

GN 101.1
Adjustable hand levers
with threaded stud

INOX
page 352

MRT-B
Adjustable handles
Brass boss,
threaded hole
Technopolymer

page 354

MRT-SST
Adjustable handles
Stainless steel boss,
threaded hole
Technopolymer

INOX
page 354

MRT-p
Adjustable handles
Zinc-plated steel
threaded stud
Technopolymer

page 354

MRT-SST-p
Adjustable handles
Stainless steel
threaded stud
Technopolymer

INOX
page 354

ERW-B
Adjustable handles
Brass boss,
threaded hole
Flat lever,
technopolymer

ERGOSTYLE®
page 356

ERW-p
Adjustable handles
Zinc-plated steel
threaded stud
Flat lever,
technopolymer

ERGOSTYLE®
page 356

ERW-SST
Adjustable handles
Stainless steel boss,
threaded hole
Flat lever,
technopolymer

INOX ERGOSTYLE®
page 356

ERW-SST-p
Adjustable handles
Stainless steel
threaded stud
Flat lever,
technopolymer

INOX ERGOSTYLE®
page 356

GN 302
Adjustable hand levers
with threaded insert

page 360

GN 302
Adjustable hand levers
with threaded stud

page 360

GN 212.3
Adjustable tension levers
with threaded insert
Steel,
blackened

page 363

GN 212.3
Adjustable tension levers
with threaded stud
Steel,
blackened

page 363

GN 212.5
Adjustable Stainless Steel-Tension levers
with threaded insert

INOX
page 366

GN 212.5
Adjustable Stainless Steel-Tension levers
with threaded stud

INOX
page 366

GN 6337.3
Adjustable clamping levers
with threaded insert
Steel,
blackened

page 368

GN 6337.3
Adjustable clamping levers
with threaded stud
Steel,
blackened

page 368

GN 125
Adjustable Flat tension levers
with threaded insert
Steel,
blackened

page 370

GN 125
Adjustable Flat tension levers
with threaded stud
Steel,
blackened

page 370

GN 125.5
Adjustable Stainless Steel-Flat tension levers
with threaded insert

INOX
page 372

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GN 125.5
Adjustable Stainless Steel-Flat tension levers
with threaded stud
INOX

page 372

GN 312
Safety tension levers
with threaded insert
Push to engage
Steel,
blackened

page 374

GN 312
Safety tension levers
with threaded stud
Push to engage
Steel,
blackened

page 374

GN 927
Clamping levers with eccentrical cam
with threaded insert
Steel,
Lever zinc die casting

page 376

GN 927
Clamping levers with eccentrical cam
with threaded stud
Steel,
Lever zinc die casting

page 376

GN 927.4
Clamping levers with eccentrical cam
with threaded insert
Stainless Steel,
Lever zinc die casting

page 379

GN 927.4
Clamping levers with eccentrical cam
with threaded stud
Stainless Steel,
Lever zinc die casting

page 379

GN 927.3
Clamping levers with eccentrical cam
with threaded insert
Steel,
Lever Steel

page 382

GN 927.3
Clamping levers with eccentrical cam
with threaded stud
Steel,
Lever Steel

page 382

GN 927.5
Stainless Steel-Clamping levers with eccentrical cam
with threaded insert
Contact plate Plastic
INOX

page 384

GN 927.5
Stainless Steel-Clamping levers with eccentrical cam
with threaded stud
Contact plate Plastic
INOX

page 384

GN 927.7
Stainless Steel-Clamping levers with eccentrical cam
with threaded insert Contact plate Stainless Steel
INOX

page 386

GN 927.7
Stainless Steel-Clamping levers with eccentrical cam
with threaded stud Contact plate Stainless Steel
INOX

page 386

LAC.
Cam levers
Without adjustable ring-nut
Technopolymer
SUPER TECHNO POLYMER INOX

page 388

LAC-R
Cam levers
With adjustable ring-nut
Technopolymer
SUPER TECHNO POLYMER INOX

page 388

ERF-B
Lever handles
Brass boss,
threaded hole
Technopolymer
ERGOSTYLE®

page 390

ERF-N
Lever handles
Cylindrical or
square hole
Technopolymer
ERGOSTYLE®

page 390

ERF-p
Lever handles
Zinc-plated steel
threaded stud
Technopolymer
ERGOSTYLE®

page 390

ERFW.
Flat lever handles
Technopolymer
ERGOSTYLE®

page 391

MF-B
Lever handles
Brass boss,
threaded hole
Technopolymer

page 392

MF-N
Lever handles
Cylindrical or
square hole
Technopolymer

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MF-p
Lever handles
Zinc-plated steel
threaded stud
Technopolymer

page 392

GN 316
Ratchet spanner

page 393

GN 211
Control levers
Steel, blackened

page 394

DIN 6337
Ball levers
Steel, blackened

page 395

GN 212-ST
Tension levers
Steel

page 396

GN 212-NI
Tension levers
Stainless Steel
INOX STAINLESS STEEL

page 396

DIN 99
Clamping levers
Steel

page 398

DIN 99-NI
Clamping levers
Stainless Steel
INOX STAINLESS STEEL

page 398

GN 99.2
Clamping levers
with threaded insert

page 400

GN 99.2
Clamping levers
with threaded stud

page 400

GN 99.5
Clamp nuts

page 402

GN 99.6
Stainless Steel-Clamp nuts
INOX STAINLESS STEEL

page 402

GN 204
Short clamping levers
Steel

page 403

GN 223
Control levers
Steel, blackened

page 403

GN 99.7
Clamp nuts with double lever
Steel

page 404

GN 99.8
Stainless Steel-Clamp nuts with double lever
INOX STAINLESS STEEL

page 404

GN 206
Clamp nuts
Cast iron

page 405

GN 206-NI
Clamp nuts
Stainless Steel
INOX STAINLESS STEEL

page 405

GN 206.1
Clamp nuts with double lever
Cast iron

page 405

GN 206.1-NI
Clamp nuts with double lever
Stainless Steel
INOX STAINLESS STEEL

page 405

GN 150
Split hubs
Steel

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GN 150.5

Stainless Steel-Split hubs



INOX STAINLESS STEEL

page 406

DIN 6304

Tommy screws
with fixed bar
Steel



page 407

DIN 6305

Tommy nuts
with fixed bar
Steel



page 408

DIN 6306

Tommy screws
with movable bar
Steel



page 409

DIN 6307

Tommy nuts
with moveable bar



page 410

GN 6305.1

Quick release toogle nuts



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GN 565
Cabinet "U" handles
Aluminium

page 414

GN 565.5
Stainless Steel-Cabinet "U" handles

page 415

GN 565.1
Cabinet "U" handles
Aluminium

page 416

GN 565.2
Inclined cabinet "U" handles
Aluminium

page 417

GN 565.7
Inclined Stainless Steel-Cabinet "U" handles

page 418

GN 564
Cabinet "U" handles
Polyurethane foam rubber

page 419

M.843
Bridge handles
Technopolymer

page 420

M.243
Bridge handles
Duroplast

page 421

M.643
Bridge handles
Threaded blind holes for back mounting
Technopolymer

page 422

M.643R
Bridge handles
Threaded blind holes for back mounting (reduced version)
Technopolymer

page 422

M.643-FM
Bridge handles
Pass-through holes for front mounting
Technopolymer

page 422

M.643 HT
Bridge handles
Technopolymer with high thermic resistance

page 424

ADT
Adapters for assembly on tubes of M.643-FM handles
Technopolymer

page 425

MMT.
Handles for heat insulation
Steel and technopolymer

page 426

GN 225
Cabinet "U" handles
Cast iron

page 427

EBP.
Bridge handles
Pass-through holes for front mounting
Technopolymer

page 428

EBP-B
Bridge handles
Brass boss, threaded blind holes for back mounting
Technopolymer

page 428

DS-EBP.
Spacer sleeves for EBP. bridge handles
Technopolymer

page 428

EBP.SAN
Bridge handle
Technopolymer with antimicrobial protection

page 430

EBP.FLX
Flexible bridge handles
Technopolymer with elastomer

page 431

EBR-SW
Handle with microswitch
Technopolymer

page 432

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EBR-PN
Handle with pneumatic valve
Technopolymer
ERGOSTYLE®

page 434

M.543
Bridge handles
Technopolymer

page 435

M.443-CH
Bridge handles
Polyamide, for cylindrical head screws
Technopolymer

page 436

M.443-N-CH
Bridge handles
Polypropylene, for cylindrical head screws
Technopolymer

page 436

M.443-SH
Bridge handles
Polyamide, for countersunk head screws
Technopolymer

page 436

M.443-EH
Bridge handles
Polyamide, for cylindrical-head screws, hexagonal-head screws or lock nuts
Technopolymer

page 436

M.443 AE-V0
Bridge handles
Self-extinguish technopolymer

page 438

M.443 ESD
Bridge handles
ESD conductive technopolymer

page 439

GN 668
Flat cabinet "U" handles
Aluminium

page 440

GN 728
Cabinet "U" handles
Aluminium

page 441

GN 728.5
Stainless Steel-Cabinet "U" handles

page 441

M.943
Rack handles
Technopolymer

page 442

GN 565.3
Cabinet "U" handles
Aluminium

page 443

GN 423-ELS
Rack Handles
Anodized, black, Handle shanks black, matt

page 444

GN 423-ESS
Rack Handles
Anodized, natural colour, Handle shanks black

page 444

GN 423-ELG
Rack Handles
Anodized, natural colour, Handle shanks light grey

page 444

GN 428
Cabinet "U" handles
Aluminium

page 445

M.478
Bridge handle
Technopolymer

page 446

M.479
Bridge handle
Technopolymer

page 447

GN 559
Cabinet "U" handles
Aluminum

page 448

GN 424.1
Arch handles
Steel

page 449

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GN 424.5
Stainless Steel-Arch handles

INOX
page 449

GN 565.4
Arch handles
Aluminium

page 450

GN 665
Arch handles
Aluminium

page 451

GN 565.9
Stainless Steel-Arch handles

INOX
page 451

MFH
Finger handles
Technopolymer

CLEAN
page 452

GN 224.1
Finger handles
Steel

page 453

GN 224.5
Stainless Steel-Finger handles

INOX
page 453

GN 425
Cabinet "U" handles
Steel

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GN 425-NI
Cabinet "U" handles
Stainless Steel

INOX
page 454

GN 425-A4
Cabinet "U" handles
Stainless Steel

INOX
page 454

GN 425-AL
Cabinet "U" handles
Aluminium

page 454

GN 425.3
Cabinet "U" handles
Steel

page 457

GN 425.3-NI
Cabinet "U" handles
Stainless Steel

INOX
page 457

GN 425.1
Cabinet "U" handles
Steel

page 458

GN 425.1-NI
Cabinet "U" handles
Stainless Steel

INOX
page 458

GN 425.1-A4
Cabinet "U" handles
Stainless Steel

INOX
page 458

GN 425.1-AL
Cabinet "U" handles
Aluminium

page 458

GN 426.3
Cabinet "U" handles
for welding, made of seamless steel tubing

INOX
page 460

GN 427
Cabinet "U" handles
Aluminium

page 461

GN 427.5
Stainless Steel-Cabinet "U" handles

INOX
page 461

GN 426
Cabinet "U" handles
Aluminium

SAN CLEAN
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GN 426.5

Stainless Steel-Cabinet "U" handles



INOX STAINLESS STEEL

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GN 426.1

Cabinet "U" handles

Aluminium



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GN 426.6

Stainless Steel-Cabinet "U" handles



INOX STAINLESS STEEL

page 465

GN 425.2

Folding handles

Steel



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GN 425.2-NI

Folding handles

Stainless Steel



INOX STAINLESS STEEL

page 466

GN 425.5

Folding handles

Handle Steel



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GN 425.5-NI

Folding handles

Handle Stainless Steel



INOX STAINLESS STEEL

page 467

GN 425.8-CR

Folding handles with recessed tray

Handle Steel



page 468

GN 425.8-NI

Folding handles with recessed tray

Handle Stainless Steel



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MPR

Folding handles with recessed tray

with return springs, technopolymer



CLEAN

page 469

MPE

Folding handles

with return springs, technopolymer



CLEAN

page 470

GN 730

Ledge handles

Aluminium



page 471

GN 730.5

Stainless Steel-Ledge handle



INOX STAINLESS STEEL

page 471

GN 430

Ledge handles

Aluminum, Plastic



page 472

GN 430.1

Ledge handles

with lettering block Aluminum, Plastic



page 473

M.990

Guard safety handles

Technopolymer



page 474

MSP.

Guard safety handles

Technopolymer



page 475

ESP.

Guard safety handles

Technopolymer



page 476

EWP.

Guard wing handles

Technopolymer



page 477

PR-PF

Flush pull handles

for snap-in assembly, technopolymer



CLEAN

page 478

PR-PF-AE-V0

Flush pull handles

for snap-in assembly, technopolymer certified self-extinguishing



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EPR-PF

Flush pull handles
for snap-in assembly, technopolymer



CLEAN ERGOSTYLE®

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EPR-PF-AE-V0

Flush pull handles
for snap-in assembly, technopolymer certified self-extinguishing



ERGOSTYLE®

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EPR.

Flush pull handles
for screw mounting, technopolymer



ERGOSTYLE®

page 482

ERB-PF

Bi-directional flush pull handles
for snap-in assembly, technopolymer



CLEAN

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ERB-PF-AE-V0

Bi-directional flush pull handles
for snap-in assembly, technopolymer certified self-extinguishing



page 485

ERB.

Bi-directional flush pull handles
for screw mounting, technopolymer



CLEAN ERGOSTYLE®

page 486

MLP

Side handles with protection
Technopolymer



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GN 181

Fastening sets
for cabinet "U" handles



page 488

GN 333.3-SW

Tubular handles
Aluminium, plastic coated
with movable handle shanks



page 489

GN 333.3-ELS

Tubular handles
Aluminium, natural colour
with movable handle shanks



page 489

GN 333.3-ELG

Tubular handles
Aluminum, plastic coated, silver
with movable handle shanks



page 489

GN 331

Tubular handles
with power switching function



page 490

GN 332

Tubular handles
with power switching function



page 492

GN 333.1-SW

Tubular handles
Aluminium, plastic coated, black



page 496

GN 333.1-EL

Tubular handles
Aluminium, natural colour



page 496

GN 333.1-ES

Tubular handles
Aluminium, plastic coated, silver



page 496

GN 333-SW

Tubular handles
Aluminium, plastic coated, black



page 498

GN 333-EL

Tubular handles
Aluminium, natural colour



page 498

GN 333-ES

Tubular handles
Aluminium, plastic coated, silver



page 498

GN 333.2-SW

Tubular handles
Aluminium, plastic coated, black
with movable handle shanks



page 500

GN 333.2-ELS

Tubular handles
Aluminium, natural colour
with movable handle shanks



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GN 333.2-ELG

Tubular handles
Aluminium, plastic coated, silver with movable handle shanks



page 500

GN 333.8

Handle shank
for tubular handles, inclined



page 501

GN 333.9

Handle shanks
for tubular handles, straight



page 501

M.1053-EP

Offset tubular handles
Aluminium tube with epoxy resin coating, technopolymer shanks in black colour



page 502

M.1053-AN-BK

Offset tubular handles
Anodised aluminium tube, technopolymer shanks in black colour



page 502

M.1053-AN-GR

Offset tubular handles
Anodised aluminium tube, technopolymer shanks in grey colour



page 502

M.1053-CLEAN

Offset tubular handles
Aluminium tube with coating and technopolymer shanks in white colour



page 502

M.1053-P-EP

Offset tubular handles
Aluminium tube with epoxy resin coating, technopolymer shanks in black colour



page 504

M.1053-P-AN-BK

Offset tubular handles
Anodised aluminium tube, technopolymer shanks in black colour



page 504

M.1053-P-AN-GR

Offset tubular handles
Anodised aluminium tube, technopolymer shanks in grey colour



page 504

M.1053-P-CLEAN

Offset tubular handles
Aluminium tube with coating and technopolymer shanks in white colour



page 504

GN 333.5

Stainless Steel-Tubular handles



page 506

GN 669

System handles
Aluminium



page 507

GN 666.5

Stainless Steel-Tubular handles
Mounting from the back



page 508

GN 666.7

Stainless Steel-Tubular handles
Mounting from the operator´s side



page 510

GN 666-SW

Tubular handles
Aluminium, plastic coated, black



page 512

GN 666-EL

Tubular handles
Aluminium, natural colour



page 512

GN 666-ELG

Tubular handles
Aluminium, natural colour



page 512

GN 666-NG

Tubular handles
Stainless Steel



page 512

GN 666.1-SW

Tubular handles
Aluminium, plastic coated



page 513

GN 666.1-EL

Tubular handles
Aluminium, natural colour



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GN 666.1-ELG

Tubular handles
Aluminium, natural colour



page 513

GN 666.1-NG

Tubular handles
Stainless Steel



INOX STAINLESS STEEL

page 513

M.1043-EP

Tubular handles
Aluminium tube with epoxy resin coating, front mounting
Technopolymer shanks



page 514

M.1043-AN

Tubular handles
Anodised aluminium tube, front mounting
Technopolymer shanks



page 514

M.1043-SST

Tubular handles
Stainless steel tube, front mounting
Technopolymer shanks



INOX STAINLESS STEEL

page 514

M.1043-BM-EP

Tubular handles
Aluminium tube with epoxy resin coating, back mounting
Technopolymer shanks



page 514

M.1043-BM-AN

Tubular handles
Anodised aluminium tube, back mounting
Technopolymer shanks



page 514

M.1043-BM-SST

Tubular handles
Stainless steel tube, back mounting
Technopolymer shanks



INOX STAINLESS STEEL

page 514

M.1043-HEI

Tubular handles for electrical insulation
Technopolymer and polyester
Technopolymer shanks



page 517

DS-M.1043

Spacer sleeves for M.1043 tubular handles
Technopolymer



page 514

ETH-EP

Tubular handles
Aluminium tube with epoxy resin coating
Technopolymer



ERGOSTYLE®

page 518

ETH-AN

Tubular handles
Anodised aluminium tube
Technopolymer



ERGOSTYLE®

page 518

ETH-CLEAN

Tubular handles
Aluminium tube with white coating
Technopolymer



CLEAN ERGOSTYLE®

page 518

M.1066 BM-CLEAN

Tubular handles
Technopolymer



CLEAN

page 520

GN 334-SW

Oval tubular handles
Aluminium, plastic coated, black
Mounting from the back side



page 522

GN 334-EL

Oval tubular handles
Aluminium, natural colour
Mounting from the back side



page 522

GN 334-ES

Oval tubular handles
Aluminium, plastic coated, silver
Mounting from the back side



page 522

GN 334.1-SW

Oval tubular handles
Aluminium, plastic coated, black
Mounting from the operator´s side



page 523

GN 334.1-EL

Oval tubular handles
Aluminium, natural colour
Mounting from the operator´s side



page 523

GN 334.1-ES

Oval tubular handles
Aluminium, plastic coated, silver
Mounting from the operator´s side



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GN 366-SW

Oval tubular handles
Aluminium, plastic coated, black



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GN 366-ELS

Oval tubular handles
Aluminium, natural colour



page 524

GN 366-ELG

Oval tubular handles
Aluminium, plastic coated, silver



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GN 666.4-SW

Tubular arch handles
Aluminium, plastic coated, black



page 525

GN 666.4-EL

Tubular arch handles
Aluminium, natural colour
Handle shanks black



page 525

GN 666.4-ES

Tubular arch handles
Aluminium, natural colour
Handle shanks silver



page 525

GN 666.4-NG

Tubular arch handles
Stainless Steel



INOX STAINLESS STEEL

page 525

GN 930

Handle tubes
with screw channel



page 526

GN 481

Edge handles



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L.652-B
T-Handles
Plain or threaded hole
Technopolymer

page 530

L.652-p
T-Handles
Threaded stud
Technopolymer

page 530

L.652-S-B
Safety T-Handles
Threaded hole
Technopolymer, push action

page 532

L.652-S-p
Safety T-Handles
Threaded stud
Technopolymer, push action

page 532

L.652-X-B
Adjustable T-Handles
Threaded hole
Technopolymer

page 533

L.652-X-p
Adjustable T-Handles
Threaded stud
Technopolymer

page 533

GN 563.2
T-Handles
Aluminium

page 534

I.622
Tapered handles
Technopolymer

page 535

I.622 N
Tapered handles
Technopolymer

CLEAN
page 536

I.222
Tapered handles
Threaded hole

page 537

I.222-N
Tapered handles
Self-locking boss

page 537

DIN 319-KU
Ball knobs
Plastic Duroplast

page 538

DIN 319-KT
Ball knobs
Plastic Technopolymer

page 538

DIN 319-ST
Ball knobs
Steel

page 538

DIN 319-AL
Ball knobs
Aluminium

page 538

DIN 319-NI
Ball knobs
Stainless Steel

INOX STAINLESS STEEL
page 538

DIN 319-KU Press on type
Ball knobs
Plastic, Duroplast

page 538

DIN 319-KT Press on type
Ball knobs
Plastic, Technopolymer

page 538

GN 319.2
Revolving ball knobs
Shaft Steel

page 541

GN 319.5
Revolving ball knobs
Shaft Stainless Steel

INOX STAINLESS STEEL
page 541

P.111
Spherical handles
Duroplast

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SH.N
Spherical handles
Duroplast, with lens

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IH.N
Tapered handles
Technopolymer with lens

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IEL.N-H SOFT
Mushroom handles
"Soft-touch" technopolymerwith lens

SOFT
page 545

IEL.N SOFT
Mushroom handles
"Soft-touch" technopolymer

SOFT
page 546

EBK-C SOFT
Mushroom lobe handles
"Soft-touch" technopolymer

SOFT ERGOSTYLE®
page 547

EBK-B-SOFT
Mushroom lobe handles
Threaded hole "Soft-touch"t technopolymer

SOFT ERGOSTYLE®
page 548

EBK-p-SOFT
Mushroom lobe handles
Threaded stud "Soft-touch" technopolymer

SOFT ERGOSTYLE®
page 548

EBK-H SOFT
Mushroom lobe handles
"Soft-touch" technopolymer with magnifying lens

SOFT ERGOSTYLE®
page 550

MA.
Labels with marks and symbols
Self-adhesive vinyl film

page 551

EKK-B
Knurled grip knobs
Threaded hole Technopolymer

ERGOSTYLE®
page 552

EKK-p
Knurled grip knobs
Threaded stud Technopolymer

ERGOSTYLE®
page 552

GN 676.1
Knobs

page 553

GN 676.5
Stainless Steel-Knobs

INOX
page 553

P.131
Mushroom knobs
Threaded hole Duroplast

page 554

P.131-p
Mushroom knobs
Threaded stud Duroplast

page 554

I.150
Mushroom knobs
Duroplast

page 554

GN 75
Waist shaped knobs

page 555

GN 75.5
Stainless Steel-Waist shaped knobs

INOX
page 555

P.390
Tapered handles
Duroplast

page 556

I.307
Tapered handles
Duroplast

page 556

I.168 SOFT
Knurled handle
"Soft touch" technopolymer

SOFT
page 557

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I.137
Tapered handles
Duroplast

page 558

I.218
Shaped handle
Duroplast

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I.142
Tapered handles
Duroplast

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I.195
Tapered handles
Duroplast

page 559

I.147
Tapered handles
Duroplast

page 560

I.149
Tapered handles
Duroplast

page 560

I.580 N
Cylindrical handles
Technopolymer

page 561

I.680 SOFT
Cylindrical handles
"Soft-touch" technopolymer

SOFT
page 561

EGH.SOFT
Cylindrical lobe handle
"Soft-touch" technopolymer

SOFT ERGOSTYLE®
page 562

I.780
Cylindrical handles
Technopolymer

page 563

I.167 p
Tapered handles
with protection, Duroplast

page 563

IF
Cylindrical handles
with protection, technopolymer

page 564

IFF
Cylindrical handles
with double protection, technopolymer

page 564

DIN 39
Fixed handles
Steel

page 565

DIN 39-A4
Fixed handles
Stainless Steel

INOX STAINLESS STEEL
page 565

DIN 39-KT
Fixed handles
Technopolymer

page 565

GN 310
Gear lever handles
Steel

page 566

GN 310 - NI
Gear lever handles
Stainless Steel

INOX STAINLESS STEEL
page 566

I.280
Cylindrical handles
Threaded hole
Duroplast

page 568

I.280-p
Cylindrical handles
Threaded stud
Duroplast

page 568

I.281
Cylindrical revolving handles
Plain pass-through hole
Duroplast

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I.281+x
Cylindrical revolving handles
Chrome-plated steel pin
Duroplast

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I.281+x-SST
Cylindrical revolving handles
AISI 304 stainless steel pin
Duroplast
INOX STAINLESS STEEL

page 569

I.281+x+Gh
Cylindrical revolving handles
Steel pin and locking nut
Duroplast

page 569

EBK+x
Spherical revolving handles
Technopolymer

ERGOSTYLE®
page 570

EBS+x
Spherical revolving handles
Technopolymer

ERGOSTYLE®
page 570

EBS+x SOFT
Spherical revolving handles
"Soft-touch" technopolymer

ERGOSTYLE®
page 571

P.111+x
Spherical revolving handles
Duroplast

page 571

IEL+x SOFT
Mushroom revolving handles
"Soft-touch" technopolymer

SOFT
page 572

GN 598
Cylindrical Revolving handles
Spindle Steel, zinc plated

page 573

I.644
Tapered handle
Technopolymer with antimicrobial pretection

SAN
page 573

I.301+x
Cylindrical revolving handles
Duroplast

INOX STAINLESS STEEL
page 574

I.481+x
Cylindrical revolving handles
Duroplast

page 575

I.601+x
Cylindrical revolving handles
Technopolymer

INOX STAINLESS STEEL
page 575

I.621+x
Revolving handles
Zinc-plated steel bolt pin
Technopolymer

page 576

I.621+x-SST
Revolving handles
Stainless steel pin
Technopolymer

INOX STAINLESS STEEL
page 576

I.621+Gx
Revolving handles
Zinc-plated pin and locking nut
Technopolymer

page 576

GN 798
Cylindrical Revolving handles
Spindle steel, zinc plated

page 577

GN 798.1
Revolving Stainless Steel-Handles

INOX STAINLESS STEEL
page 578

GN 798.2
Cylindrical Revolving handles
Spindle Steel, zinc plated / with female thread

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DIN 98
Revolving handles

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I.631+x
Revolving handle
Technopolymer

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5 FIXED AND REVOLVING HANDLES

I.701+x
Revolving handles
Technopolymer



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I.731+x
Revolving handles
Technopolymer



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I.741+x
Revolving handles
Technopolymer



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I.135
Tapered flanged handles
Duroplast



page 582

SI.134
Revolving handles
Duroplast



page 582

EFH.620
Fold-away handles
Technopolymer



ERGOSTYLE®

page 583

IR.620
Fold-away handles
Technopolymer



INOX STAINLESS STEEL

page 584

GN 598.3
Retractable handles
Rectractable mechanism Steel, with hold in both positions



page 585

GN 598.5
Retractable handles
Rectractable mechanism Stainless Steel, with hold in both positions



INOX STAINLESS STEEL

page 585

GN 798.3
Rectractable handles
Rectractable mechanism Steel, with hold in both positions



page 586

GN 798.5
Rectractable handles
Rectractable mechanism Stainless Steel, with hold in both positions



INOX STAINLESS STEEL

page 586

GN 798.7
Safety retractable handles
automatic return to the retracted position



page 587

IRS.802
Safety fold-away handles
Duroplast



INOX STAINLESS STEEL

page 588

IRS.820
Safety fold-away handles
Technopolymer



INOX STAINLESS STEEL

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GN 164
Scale rings
Steel, blank



page 592

GN 164
Scale rings
Steel, matt chrome plated



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Graduations
Graduation for control knobs



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GN 374
Flat springs
Accessories for scaling sets



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GN 264
Graduated rings
Steel, blank



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GN 264
Graduated rings
Steel, matt chrome plated



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GN 268
Collar bushes
Accessories for scaling sets



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GN 726
Knurled Control knobs
Aluminium



page 599

GN 726.1
Knurled Control knobs
Aluminium



page 600

GN 726.2
Knurled Control knobs
Aluminum



page 601

GN 436
Stainless Steel-Control knobs



INOX STAINLESS STEEL

page 602

GN 436.1
Stainless Steel-Knurled Control knobs



INOX STAINLESS STEEL

page 603

GN 723.4
Knurled Control knobs
Aluminium



page 604

GN 723.3
Reference flanges
for control knobs
GN 723.4



page 605

IZN.380
Knurled control knobs
Plain
Technopolymer



page 606

IZN.380+K
Knurled control knobs
With triangular index
Technopolymer



page 606

IZN.380+FGS
Knurled control knobs
With graduation
Technopolymer



page 606

IZP.
Knurled control knobs
Plain
Technopolymer



page 608

IZP+K
Knurled control knobs
With triangular index
Technopolymer



page 608

IZP+GS
Knurled control knobs
With graduation
Technopolymer



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F.N
Flanges for graduations
Plain for IZN. 380 control knobs



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F.K
Flanges for graduations
With triangular index for IZN. 380 control knobs

page 609

F.GS
Flanges for graduations
With graduation for IZN. 380 control knobs

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MS.
Ball and spring
for control elements, stainless steel

INOX STAINLESS STEEL
page 610

MI.204
Indicator knobs
Duroplast

page 611

VC.192+F
Lobe knobs
with flange and pointer, Duroplast

page 612

VC.192+IN
Lobe knobs
with pointer, Duroplast

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GN 729
Control knobs
Aluminium

page 614

EGK.SOFT
Grip knobs
arranged for clicking operation

INOX STAINLESS STEEL SOFT ERGOSTYLE®
page 615

GN 736
Control handwheels
Aluminium black, anodized

page 616

GN 736.1
Control handwheels with scale lug
Aluminium

page 617

GN 736.1
Control handwheels with scale lug
Aluminium, with standard scale

page 617

MBT+I
Diamond cut knurled control knobs
with revolving handle, technopolymer

page 618

VL.140+I
Control handwheels
with revolving handle, Duroplast

page 619

GN 727
Control knobs with adjustable spindle

page 620

GN 200-A
Indexing mechanisms
without scale

page 622

GN 200-AS
Indexing mechanisms
with scale

page 622

GN 200-B
Indexing mechanisms
with 1 tension lever

page 622

GN 200-C
Indexing mechanisms
with 2 tension levers

page 622

GN 200-A-NI
Indexing mechanisms
Stainless Steel, without scale

INOX STAINLESS STEEL
page 622

GN 200-AS-NI
Indexing mechanisms
Stainless Steel, with scale

INOX STAINLESS STEEL
page 622

GN 700
Adjustable knobs
with stepless positioning

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GN 750
Control levers
Steel, blackened

page 626

LBR-A
Control levers
With black-oxide steel boss, plain hole arranged for clicking operation, technopolymer

page 628

LBR-N
Control levers
Without boss, with plain hole and flat face arranged for clicking operation, technopolymer

page 628

ELC.
Control levers
arranged for clicking operation, technopolymer

INOX STAINLESS STEEL ERGOSTYLE®
page 630

ELCR.
Control lever
arranged for clicking operation, technopolymer

ERGOSTYLE®
page 632

GN 215
Indexing levers

page 634

GN 711
Rulers
Plastic
self-adhesive

page 636

GN 711-NI
Rulers
Stainless Steel
self-adhesive

INOX STAINLESS STEEL
page 636

GN 711.2
Rulers
with mounting holes
Ø 3.3

page 638

GN 711.1
Indicator arrows for rulers
self-adhesive

INOX STAINLESS STEEL
page 640

GN 711.3
Indicator arrow scale for GN 711.2
with mounting holes
Ø 3.3

page 640

GN 2402
Linear slides
with no extension

page 644

GN 2404
Telescopic linear slides
with partial extension

page 645

GN 2406
Telescopic linear slides
with one side extension, S-shaped

page 646

GN 2408
Telescopic linear slides
with H-shaped rail

page 647

GN 2410
Telescopic linear slides
with full extension, dual configuration

page 648

GN 2422
Cam roller linear guide rails
for linear guide rail systems, C-profile

page 654

GN 2424
Cam roller carriages
for cam roller linear guide rails GN 2422

page 656

GN 2424.1
Open-end wrenches
for cam roller carriages GN 2424

page 656

GN 2426
Cam rollers
for cam roller linear guide rails GN 2422

page 658

GN 2428
Wipers
for cam roller linear guide rails GN 2422

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6 CONTROL ELEMENTS

GN 900
Adjustable slide units
Aluminum



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GN 900.1
Fastening units
for adjustable slide units GN 900



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GN 900.2
Connecting sets X-Y
for adjustable slide units GN 900



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GN 900.3
Connecting sets X-Z
for adjustable slide units GN 900



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GN 900.4
Mounting plates
for adjustable slide units GN 900



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GN 900.5
Rotary plates
for adjustable slide units GN 900



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GN 900.6
Rotary tables



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GN 2277.1
Adjustment plates
for bull´s eye levels GN 2277



INOX STAINLESS STEEL

page 679

GN 2278
Bull´s eye levels
for insertion into bore holes



page 679

GN 2277
Bull´s eye levels
with mounting flange



page 680

GN 2279
Bull´s eye levels
for surface mounting



page 682

GN 2280
Bull´s eye levels
adjustable



page 683

GN 2281
Bull´s eye levels
for installation in plates and housings



page 684

GN 2282
Screw-on levels
for mounting with screws



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GA01 - GA02 - GA05
Position indicators
gravity drive, steel

page 694

GA11 - GA12
Position indicators
gravity drive, technopolymer

page 695

MBT-GA
Knobs with integral indicator
gravity drive, technopolymer

page 696

GW12
Digital-analogue position indicators
gravity drive, technopolymer

page 697

MBT-GW
Knobs with digital-analogue position indicator
gravity drive, technopolymer

page 698

PA01 PA02 PA05
Position indicators
positive drive, steel

page 699

PA11 PA12
Position indicators
positive drive, technopolymer

page 700

PW12
Digital-analogue position indicators
positive drive, technopolymer

page 701

IZN-XX
Knurled grip knobs for position indicators
Technopolymer

page 702

MBT-GXX
Diamond cut knurled knobs for position indicators
Technopolymer

page 703

VHT-XX
Lobe knobs for position indicators
Technopolymer
INOX STAINLESS STEEL

page 704

VC.792-XX
Lobe knobs for position indicators
Technopolymer

page 705

VDSC-GXX2+I
Handwheels for positions indicators
With revolving handle
Technopolymer
INOX STAINLESS STEEL

page 706

VDSC-GXX2+IR
Handwheels for positions indicators
Fold-away handle
Technopolymer
INOX STAINLESS STEEL

page 706

EWW-XX
Handwheel for position indicators
Technopolymer
ERGOSTYLE®

page 708

VDN-XX
Handwheels for position indicators
Duroplast

page 709

VDC-GXX
Handwheels for positions indicators
For gravity drive indicators, without handle
Duroplast

page 710

VDC-GXX+I VDC-PXX+I
Handwheels for positions indicators
With revolving handle
Duroplast

page 710

VRTP-GXX2
Handwheels for positions indicators
Without handle
Technopolymer

page 712

VRTP-GXX2+I
Handwheels for positions indicators
With revolving handle
Technopolymer

page 712

VAD-GXX VAD-PXX
Handwheels for position indicators
Without handle
Aluminium

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VAD-GXX+I VAD-PXX+I
Handwheels for position indicators
With revolving handle
Aluminium

page 713

SC-XX
Housings
for position indicator, technopolymer

page 715

CP-XX
Covers
Technopolymer

page 715

DD50
Digital position indicators
direct drive, 3-digit counter, technopolymer

INOX STAINLESS STEEL
page 716

RB50
Hole reduction sleeve for DD50
Steel or stainless steel

INOX STAINLESS STEEL
page 716

DD51
Digital position indicators
direct drive, 4-digit counter, technopolymer

INOX STAINLESS STEEL
page 718

RB51
Hole reduction sleeve for DD51
Steel or stainless steel

INOX STAINLESS STEEL
page 718

BS51
Spacer plate
Technopolymer

page 718

GN 954.6
Clamping plates
for position indicators DD51

page 718

DD52R
Digital position indicator
direct drive, 5-digit counter, technopolymer

INOX STAINLESS STEEL
page 721

RB52
Reduction sleeves for DD52R
Steel or stainless steel

INOX STAINLESS STEEL
page 721

BS52R
Spacer plate
Technopolymer

page 721

PE.6-10
Pin for DD52R
Technopolymer

page 721

GN 953.6
Clamping plates
for position indicators DD52R

page 721

DD51-E
Electronic position indicators
direct drive, 5-digit display, technopolymer

INOX STAINLESS STEEL
page 724

DD52R-E
Electronic position indicators
direct drive, 6-digit display, technopolymer

INOX STAINLESS STEEL
page 726

BSA52-E
Spindle locking bases for DD52R-E
Zinc alloy

page 726

DE51
Electronic position indicators
absolute reading, direct drive, technopolymer

page 728

MD51
Fluted grip knob for digital indicators DD51 and DE51
Technopolymer

page 730

GN 957
Control knobs
for position indicators

page 731

MPI-15
Magnetic measuring system
Length and angle modes

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GN 617
Indexing plungers
Steel

page 744

GN 617-NI
Indexing plungers
Stainless Steel, with plastic knob

page 744

GN 617-NI
Indexing plungers
Stainless Steel

page 744

GN 617.1
Indexing plungers
Steel
with rest position

page 746

GN 617.1-NI
Indexing plungers
Stainless Steel,
with plastic knob
with rest position

page 746

GN 617.1-NI
Indexing plungers
Stainless Steel
with rest position

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GN 613
Indexing plungers
Steel

page 748

GN 613-NI
Indexing plungers
Stainless Steel, with plastic knob

page 748

GN 613-NI
Indexing plungers
Stainless Steel

page 748

PMT.100-A
Indexing plungers
Black-oxide steel
plunger, without locking nut
SUPER-technopolymer
body

page 750

PMT.100-AK
Indexing plungers
Black-oxide steel
plunger, with locking nut
SUPER-technopolymer
body

page 750

PMT.100-SST-AK
Indexing plungers
AISI 303 stainless steel
plunger, without locking nut
SUPER-technopolymer
body

page 750

PMT.100-SST-AK
Indexing plungers
AISI 303 stainless steel
plunger, with locking nut
SUPER-technopolymer
body

page 750

PMT.101-A
Indexing plungers
Black-oxide steel
plunger, without locking nut
Rest position,
SUPER-technopolymer
body

page 752

PMT.101-AK
Indexing plungers
Black-oxide steel
plunger, with locking nut
Rest position,
SUPER-technopolymer
body

page 752

PMT.101-SST-A
Indexing plungers
AISI 303 stainless steel
plunger, without locking nut
Rest position,
SUPER-technopolymer
body

page 752

PMT.101-SST-AK
Indexing plungers
AISI 303 stainless steel
plunger, with locking nut
Rest position,
SUPER-technopolymer
body

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GN 817
Indexing plungers
Steel

page 754

GN 817 (red knob)
Indexing plungers
Steel

page 754

GN 817-NI
Indexing plungers
Stainless Steel

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GN 817-NI (red knob)
Indexing plungers
Stainless Steel

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GN 817.8
Indexing plungers
Steel,
removable

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GN 817.8-NI
Indexing plungers
Stainless Steel,
removable

INOX STAINLESS STEEL
page 756

GN 817.2
Indexing plungers
Steel,
with long knob

page 758

GN 817.2-NI
Indexing plungers
Stainless Steel,
with long knob

INOX STAINLESS STEEL
page 758

GN 618
Indexing plungers
without thread,
without rest position

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GN 817.4
Indexing plungers
Steel

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GN 817.4-NI
Indexing plungers
Stainless Steel

INOX STAINLESS STEEL
page 761

GN 817.1
Indexing plungers
with or without rest
position

page 762

GN 817.9
Indexing plungers
removable, with or
without rest position

page 763

GN 717
Indexing plungers
Steel

page 764

GN 717-NI
Indexing plungers
Stainless Steel

INOX STAINLESS STEEL
page 764

GN 7017
Indexing plungers
Steel

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GN 7017-NI
Indexing plungers
Stainless Steel

INOX STAINLESS STEEL
page 767

GN 413
Indexing plungers
Steel

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GN 413-NI
Indexing plungers
Stainless Steel

INOX STAINLESS STEEL
page 768

GN 607
Indexing plungers
Steel

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GN 607-NI
Indexing plungers
Stainless Steel

INOX STAINLESS STEEL
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GN 607.1
Indexing plungers
Steel

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GN 607.1-NI
Indexing plungers
Stainless Steel

INOX STAINLESS STEEL
page 770

GN 607.2
Indexing plungers
for installation in thin
walled equipment,
without rest position

page 771

GN 607.3
Indexing plungers
for installation in thin
walled equipment,
with rest position

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GN 607.4
Indexing plungers
for welding, without rest position

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GN 607.5
Indexing plungers
for welding, with rest position

page 774

GN 822.6
Mini indexing plungers
with and without rest position

page 775

GN 608
Indexing plungers
without rest position

page 776

GN 608.5
Indexing plungers with Stainless Steel-Plunger
without rest position

page 777

GN 608.1
Indexing plungers
with rest position

page 778

GN 608.6
Indexing plungers with Stainless Steel-Plunger
with rest position

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GN 822
Mini indexing plungers
Steel

page 780

GN 822-NI
Mini indexing plungers
Stainless Steel

page 780

GN 822.1
Mini indexing plungers
Steel, open indexing mechanism

page 782

GN 822.1-NI
Mini indexing plungers
Stainless Steel, open indexing mechanism

page 782

GN 822.7
Stainless Steel-Mini indexing plungers
Stainless Steel / Plastic knob

page 784

GN 822.7-NI
Stainless Steel-Mini indexing plungers
Stainless Steel

page 784

GN 822.9-B/C
Stainless Steel-Mini indexing plungers
with and without rest position

page 786

GN 822.9-BN/CN
Stainless Steel-Mini indexing plungers
with and without rest position

page 786

GN 822.8
Mini indexing plungers
with and without rest position

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GN 412
Indexing plungers
with and without rest position

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GN 416
Spring latches

page 790

GN 416.1
Locators
for spring latches GN 416

page 791

GN 417
Indexing plungers
without rest position

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GN 417-C
Indexing plungers
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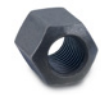
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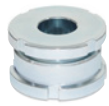
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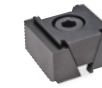
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GN 917.1
Stainless Steel-Double cam levers

INOX STAINLESS STEEL
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GN 411.2
Centring bore clamps

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GN 920.1
Wedge clamps

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GN 920.2
Pull-down plates
for wedge clamps GN 920.1

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GN 928
Shaft clamping units "trueround"

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GN 418.2
Cam point screws

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DIN 580
Lifting eye bolts
Steel

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DIN 580-NI
Lifting eye bolts
Stainless Steel

INOX STAINLESS STEEL
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DIN 580-A4
Lifting eye bolts
Stainless Steel

INOX STAINLESS STEEL
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DIN 582
Lifting eye nuts
Steel

page 1077

DIN 582-NI
Lifting eye nuts
Stainless Steel A2

INOX STAINLESS STEEL
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DIN 582-A4
Lifting eye nuts
Stainless Steel A4

INOX STAINLESS STEEL
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GN 581
Lifting eye bolts (rotating)

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GN 581.5
Stainless Steel-Lifting eye bolts (rotating)
INOX STAINLESS STEEL

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GN 583
Lifting eye nuts (rotating)

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GN 5860
Load rings

page 1084

GN 5862
Load hooks

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GN 586.1
Load rings (rotating)

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GN 587
Load rings
for welding

page 1090

GN 589
Lifting points
for welding

page 1092

GN 584
Shackles
straight version

page 1094

GN 585
Shackles
cranked version

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GN 1130
Lifting pins
Steel

page 1096

GN 1130-NI
Lifting pins
Stainless Steel
INOX STAINLESS STEEL

page 1096

GN 1132
Holding bushings
for lifting pins GN 1130

INOX STAINLESS STEEL
page 1098

GN 509.3
Spring rings
Retainers for ball transfer units GN 509 / GN 509.1

INOX STAINLESS STEEL
page 1099

GN 509
Ball transfer units
Stainless Steel / Steel housing

INOX STAINLESS STEEL
page 1100

GN 509.1
Ball transfer units
Heavy duty Stainless Steel / Steel housing, with collar

INOX STAINLESS STEEL
page 1102

GN 509.4
Ball transfer units
Heavy duty Steel-housing, without collar

page 1104

GN 753
Guide rollers

page 1106

RLT-U
Roller elements for ELEROLL roller tracks
Technopolymer and polyurethane

page 1111

RLT-U15
Roller elements for ELEROLL roller tracks
For packages with reduced size, technopolymer

page 1112

RLS-U
Ball elements for ELEROLL roller tracks
Technopolymer

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RLT-AL

Profiles for ELEROLL roller tracks
Aluminium



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RLT-H

Headers for ELEROLL roller tracks
Technopolymer



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RLT-CE

Containment edge for ELEROLL roller tracks
Technopolymer



page 1116

RLT-B

Brakes for ELEROLL roller tracks
Technopolymer



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RLT-M

Bracket and support for ELEROLL roller tracks
Technopolymer



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DIN 808
Universal joints
Steel, friction bearing

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DIN 808-NI
Universal joints
Stainless Steel, friction bearing

INOX STAINLESS STEEL
page 1126

DIN 808
Universal joints
Steel, needle bearing

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GN 9080
Universal joints
for ordinary applications

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GN 808.1
Gaiters
for universal joints DIN 808

page 1131

GN 808.2
Universal joint shafts with friction bearing
with longitudinal compensation

page 1132

GN 808.3
Universal joint shafts with needle bearing
with longitudinal compensation

page 1133

GN 648.1
Ball joint heads with female thread

page 1136

GN 648.2
Ball joints heads with threaded bolt

page 1138

GN 648.5
Stainless Steel-Ball joint heads with female thread

INOX STAINLESS STEEL
page 1140

GN 648.6
Stainless Steel-Ball joint heads with threaded bolt

INOX STAINLESS STEEL
page 1142

BJT.
Rod ends
Technopolymer

page 1144

GN 648.8
Ball joints

page 1145

GN 648.9
Stainless Steel-Ball joints

INOX STAINLESS STEEL
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GN 751.1
Fork joints
with rotating shaft

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GN 751-ST
Fork joints
Steel

page 1148

GN 751-AL
Fork joints
Aluminium

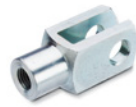
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GN 751-NI
Fork joints
Stainless Steel

INOX STAINLESS STEEL
page 1148

FJT.
Forks
Technopolymer

page 1151

DIN 71752
Fork heads
Steel

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DIN 71752-AL
Fork heads
Aluminium

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DIN 71752-NI
Fork heads
Stainless Steel

INOX STAINLESS STEEL
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GN 752
Joint pieces
Steel

page 1154

GN 752-NI
Joint pieces
Stainless Steel

INOX STAINLESS STEEL
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DIN 71802
Angled ball joints
Steel

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DIN 71802-NI
Angled ball joints
Stainless Steel-Angled ball joints

INOX STAINLESS STEEL
page 1155

GN 710
Dust caps
for angled ball joints DIN 71802

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GN 782
Axial ball joints

page 1159

GN 784
Swivel ball joints
Aluminum

page 1160

GN 784.1
Flanges
for mounting clamps with swivel ball joint GN 784

INOX STAINLESS STEEL
page 1162

GN 240
Quick-fit couplings
with radial off-set compensation

page 1163

GN 240.1
Quick-fit couplings
with radial off-set compensation

page 1164

GN 240.2
Quick-fit couplings
with angle- and radial off-set compensation

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LX
Levelling elements
Technopolymer base, steel or stainless steel stem

INOX STAINLESS STEEL
page 1168

LX-HS
Levelling elements
Technopolymer base, steel stem with hexagon socket at the upper end

page 1171

LS.A
Levelling elements
Technopolymer base, steel stem

page 1174

LS.A-SST
Levelling elements
Technopolymer base, stainless steel stem

INOX STAINLESS STEEL
page 1176

LSQ.A-SST
Levelling elements
Technopolymer base, stainless steel stem

INOX STAINLESS STEEL
page 1178

GN 638-ST
Ball jointed levelling feet
Steel, Thrust pad Plastic

page 1180

GN 638-NI
Ball jointed levelling feet
Stainless Steel, Thrust pad Plastic

INOX STAINLESS STEEL
page 1180

GN 638-NV
Ball jointed levelling feet
Stainless Steel

INOX STAINLESS STEEL
page 1180

GN 339
Levelling mount
Steel

page 1183

GN 339
Levelling mount
Stainless Steel

INOX STAINLESS STEEL
page 1183

GN 343.3
Levelling feet
Foot plastic, female thread

page 1184

GN 343.7
Levelling feet
Foot plastic / female thread Stainless Steel

INOX STAINLESS STEEL
page 1185

GN 343.2
Levelling feet
Foot, threaded stud steel

page 1186

GN 343.6
Stainless Steel-Levelling feet
Adjustable spindle

ESD INOX STAINLESS STEEL
page 1188

GN 343.1
Levelling mounts
Foot, female thread

ESD
page 1190

GN 343.5
Stainless Steel-Levelling feet
Female thread

ESD INOX STAINLESS STEEL
page 1191

LV.A
Levelling elements
Technopolymer base, steel stem

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LV.A-SST
Levelling elements
Technopolymer base, stainless steel stem

INOX STAINLESS STEEL
page 1195

LV.A-ESD-C
Levelling elements
ESD conductive technopolymer base, steel stem

ESD
page 1198

LV.A-SST-ESD-C
Levelling elements
ESD conductive technopolymer base, stainless steel stem

ESD INOX STAINLESS STEEL
page 1201

LVQ.A-SST
Levelling elements
Technopolymer base, stainless steel stem

INOX STAINLESS STEEL
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LV.F

Levelling elements for ground mounting
Technopolymer base, steel stem



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LV.F-SST

Levelling elements for ground mounting
Technopolymer base, stainless steel stem



INOX STAINLESS STEEL

page 1209

LVQ.F-SST

Levelling elements for ground mounting
Technopolymer base, stainless steel stem



INOX STAINLESS STEEL

page 1212

LV.FO

Levelling elements for ground mounting
Technopolymer base, steel or stainless steel stem



INOX STAINLESS STEEL

page 1214

LVQ.FO-SST

Levelling elements for ground mounting
Technopolymer base, stainless steel stem



INOX STAINLESS STEEL

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LV.A-125-ACV

Levelling elements
Technopolymer base, steel stem



page 1218

LV.F-125-ACV

Levelling elements for ground mounting
Technopolymer base, steel stem



page 1219

LV.A-125-APS

Levelling elements
Technopolymer base, steel stem



page 1220

LV.F-125-APS

Levelling elements for ground mounting
Technopolymer base, steel stem



page 1221

LV.A-ELK

Levelling elements
Technopolymer base and knob, steel stem



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NT.

Nuts for levelling elements
Steel or stainless steel



INOX STAINLESS STEEL

page 1223

BASE LS.A - LV.A - LV.F - LV.FO

Levelling element bases
Technopolymer



page 1224

BASE LV.A-ESD-C - LV.F-ESD-C

Levelling element bases
ESD conductive technopolymer



ESD

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SM.

Stems for levelling elements
Steel or stainless steel



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SMQ-SST

Stems for levelling elements
Stainless steel



INOX STAINLESS STEEL

page 1228

GN 30-S/SK

Levelling feet
External hexagon at the bottom
Steel sheet metal, zinc plated / with Rubber underlay



page 1230

GN 30-U/UK

Levelling feet
Hexagon socket at the top
Steel sheet metal, zinc plated / with Rubber underlay



page 1230

GN 30-X

Levelling feet
External hexagon
Steel sheet metal, zinc plated / with Rubber underlay



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GN 31-S/SK

Stainless Steel-Levelling mounts
External hexagon at the bottom
with Rubber underlay



INOX STAINLESS STEEL

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GN 31-T/TK

Stainless Steel-Levelling mounts
Wrench flat at the bottom
with Rubber underlay



INOX STAINLESS STEEL

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GN 31-U/UK

Stainless Steel-Levelling mounts
Hexagon socket at the top
with Rubber underlay



INOX STAINLESS STEEL

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GN 31-V/VK

Stainless Steel-Levelling mounts
External hexagon at the top
with Rubber underlay



INOX

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GN 31-W

Stainless Steel-Levelling mounts
Hygienic version
with Rubber underlay



INOX

page 1234

GN 31-X

Stainless Steel-Levelling mounts
External hexagon
with Rubber underlay



INOX

page 1234

GN 20-A

Levelling feet
without mounting holes
Hygienic Design



HD INOX

page 1248

GN 20-B

Levelling feet
with mounting holes
Hygienic Design



HD INOX

page 1248

GN 21-S/SK

Stainless Steel-Levelling feet
External hexagon at the bottom
with turned base plate,
without mounting bore



INOX

page 1250

GN 21-T/TK

Stainless Steel-Levelling feet
Wrench flat at the bottom
with turned base plate,
without mounting bore



INOX

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GN 21-U/UK

Stainless Steel-Levelling feet
Hexagon socket at the top
with turned base plate,
without mounting bore



INOX

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GN 21-V/VK

Stainless Steel-Levelling feet
External hexagon at the top
with turned base plate,
without mounting bore



INOX

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GN 21-W

Stainless Steel-Levelling feet
Hygienic version
with turned base plate,
without mounting bore



INOX

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GN 21-X

Stainless Steel-Levelling feet
External hexagon
with turned base plate,
without mounting bore



INOX

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GN 23-S/SK

Stainless Steel-Levelling feet
External hexagon at the bottom with turned base plated, with mounting holes



INOX

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GN 23-T/TK

Stainless Steel-Levelling feet
Wrench flat at the bottom
with turned base plated,
with mounting holes



INOX

page 1255

GN 23-U/UK

Stainless Steel-Levelling feet
Hexagon socket at the top
with turned base plated,
with mounting holes



INOX

page 1255

GN 23-V/VK

Stainless Steel-Levelling feet
External hexagon at the top
with turned base plated,
with mounting holes



INOX

page 1255

GN 23-W

Stainless Steel-Levelling feet
Hygienic version
with turned base plated,
with mounting holes



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GN 23-X

Stainless Steel-Levelling feet
External hexagon
with turned base plated,
with mounting holes



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GN 32-S/SK

Levelling feet
External hexagon at the bottom
Steel sheet metal, zinc plated / with fixing lug



page 1262

GN 32-U/UK

Levelling feet
Hexagon socket at the top
Steel sheet metal, zinc plated / with fixing lug



page 1262

GN 32-X

Levelling feet
External hexagon
Steel sheet metal, zinc plated / with fixing lug



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GN 33-S/SK

Stainless Steel-Levelling feet
External hexagon at the bottom
with fixing lug



INOX

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GN 33-T/TK
Stainless Steel-Levelling feet
Wrench flat at the bottom
with fixing lug
INOX STAINLESS STEEL

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GN 33-U/UK
Stainless Steel-Levelling feet
Hexagon socket at the top
with fixing lug
INOX STAINLESS STEEL

page 1266

GN 33-V/VK
Stainless Steel-Levelling feet
External hexagon at the top
with fixing lug
INOX STAINLESS STEEL

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GN 33-W
Stainless Steel-Levelling feet
Wrench flat at the bottom
with fixing lug
INOX STAINLESS STEEL

page 1266

GN 33-X
Stainless Steel-Levelling feet
External hexagon
with fixing lug
INOX STAINLESS STEEL

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GN 40-S/SK
Levelling feet
External hexagon at the bottom
Steel zinc plated,
without fixing lug

page 1274

GN 40-U/UK
Levelling feet
Hexagon socket at the top
Steel zinc plated,
without fixing lug

page 1274

GN 40-X
Levelling feet
External hexagon
Steel zinc plated,
without fixing lug

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GN 41-S/SK
Stainless Steel-Levelling feet
External hexagon at the bottom
without fixing lug
INOX STAINLESS STEEL

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GN 41-T/TK
Stainless Steel-Levelling feet
Wrench flat at the bottom
without fixing lug
INOX STAINLESS STEEL

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GN 41-U/UK
Stainless Steel-Levelling feet
Hexagon socket at the top
without fixing lug
INOX STAINLESS STEEL

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GN 41-V/VK
Stainless Steel-Levelling feet
External hexagon at the top
without fixing lug
INOX STAINLESS STEEL

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GN 41-W
Stainless Steel-Levelling feet
Wrench flat at the bottom
without fixing lug
INOX STAINLESS STEEL

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GN 41-X
Stainless Steel-Levelling feet
External hexagon
without fixing lug
INOX STAINLESS STEEL

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GN 42-S/SK
Levelling feet
External hexagon at the bottom
Steel, zinc plated, with fixing lug

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GN 42-U/UK
Levelling feet
Hexagon socket at the top
Steel, zinc plated, with fixing lug

page 1291

GN 42-X
Levelling feet
External hexagon
Steel, zinc plated, with fixing lug

page 1291

GN 43-S/SK
Stainless Steel-Levelling feet
External hexagon at the bottom
with fixing lug
INOX STAINLESS STEEL

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GN 43-T/TK
Stainless Steel-Levelling feet
Wrench flat at the bottom
with fixing lug
INOX STAINLESS STEEL

page 1295

GN 43-U/UK
Stainless Steel-Levelling feet
Hexagon socket at the top
with fixing lug
INOX STAINLESS STEEL

page 1295

GN 43-V/VK
Stainless Steel-Levelling feet
External hexagon at the top
with fixing lug
INOX STAINLESS STEEL

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GN 43-W
Stainless Steel-Levelling feet
Wrench flat at the bottom with fixing lug
INOX STAINLESS STEEL

page 1295

GN 43-X
Stainless Steel-Levelling feet
External hexagon with fixing lug
INOX STAINLESS STEEL

page 1295

LW.A
Vibration-damping levelling elements
Steel base and stem

page 1302

GN 148
Levelling feet with vibration damping element

page 1304

GN 148.2
Rubber pads
for levelling feet GN 148

page 1307

GN 342.1
Levelling feet
with vibration damping / female thread

page 1308

GN 342.2
Levelling feet
with vibration damping / threaded stud

page 1309

GN 6311.3
Foot plates
for grub screws DIN 6332 / tommy screws DIN 6304 / DIN 6306

page 1311

GN 6311.4
Levelling feet
Steel, zinc plated

page 1312

GN 355
Levelling parts
Steel

page 1314

GN 355-NI
Levelling parts
Stainless Steel
INOX STAINLESS STEEL

page 1314

GN 355.1
Assembly tools
for levelling parts GN 355

page 1315

NDX.Q
Square end-caps for tubes
Technopolymer

page 1316

NDX.T
Round end-caps for tubes
Technopolymer

page 1318

ND.Q
Square end-caps for tubes
heavy loads, technopolymer

page 1320

NDL.Q
End-caps for square tubes
Technopolymer

page 1321

NDL.T
End-caps for round tubes
Technopolymer

page 1322

GN 992
Insert bushings
Aluminium / for round tube and square tube

page 1323

GN 992.5
Stainless Steel-Insert bushings
for round tube and square tube
INOX STAINLESS STEEL

page 1324

STC-1A
Square tube connectors
Monodimensional connector Technopolymer and steel

page 1325

STC-2A
Square tube connectors
Bidimensional connector. Technopolymer and steel

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STC-3A
Square tube connectors
Tridimensional connector.
Technopolymer and steel

page 1325

STC-A
Square tube connectors
with adjustable angle, technopolymer

page 1328

NDA.Q
End-caps for square tubes
with adjustable height levelling element, technopolymer

page 1329

NDA.T
End-caps for round tubes
with adjustable height levelling element, technopolymer

page 1330

NDE.Q
Square tube expander end-caps
Technopolymer

page 1331

NDE.T
Round tube expander end-caps
Technopolymer

page 1332

RTE
Round tube expander connectors
Technopolymer

page 1333

STE
Square tube expander connectors
Technopolymer

page 1334

NIL.Q
Ribbed tube end plugs
For square tubes.
Polyethylene

page 1335

NIL.R
Ribbed tube end plugs
For rectangular tubes.
Polyethylene

page 1335

NIL.T
Ribbed tube end plugs
For round tubes.
Polyethylene

page 1335

GN 349
Mounts for levelling feet

page 1338

APC
Adapter for PC support clamp for round tubes
Technopolymer

page 1339

PC
Panel support clamp
Technopolymer

page 1340

PPR
Support clamp for panels and electro-welded mesh
mounting of the panel without drilling

page 1341

BAG2-120
Bipod supports
Technopolymer

page 1343

BAG2-180
Bipod supports
Technopolymer

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BAS2
Bipod supports
Technopolymer

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BAS3
Tripod supports
Technopolymer

page 1346

GC.
Connection joints
Technopolymer

page 1347

MPG
Guide rail clamps
Technopolymer

page 1348

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MPG-2
Guide rail clamps
Technopolymer and stainless steel



INOX STAINLESS STEEL

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MPG-S
Guide rail clamps
Technopolymer and stainless steel



INOX STAINLESS STEEL

page 1350

SPR.V
Guide rail brackets
for linear and angular positioning, technopolymer



page 1351

SPR.
Guide rail brackets
for linear and angular positioning, technopolymer



page 1352

SPF.
Guide rail brackets
for linear positioning, technopolymer



page 1353

TSLA.
Side mounting top brackets
Technopolymer



page 1354

TSLB.
Side mounting top brackets
Technopolymer



page 1354

TTA.
Support bases
Technopolymer



page 1355

TTB.
Support bases
Technopolymer



page 1355

UCF
Self-aligning brackets
square flanged, technopolymer



page 1356

UCFB
Self-aligning brackets
side flanged, technopolymer



page 1357

UCFL
Self-aligning brackets
oval flanged, technopolymer



page 1358

UCP
Self-aligning brackets
for shafts at 90°, technopolymer



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CFA.

Hinges
Technopolymer



Page 1370

CFA-SL

Hinges with slotted holes of adjustment
Technopolymer



Page 1373

CFAX.

Hinges
Technopolymer rotating pin



Page 1374

CFA-F

Hinges with detent position at 90°
Technopolymer



Page 1376

CFA-ERS

Hinges with friction brake
Technopolymer



Page 1377

CFT.

Hinges with screw-covers
Technopolymer



Page 1378

CFTX.

Hinges
Technopolymer



Page 1379

CFQ.

Hinges with screw-covers
Technopolymer



Page 1380

CFL.

Hinges
Technopolymer



Page 1381

CFM.

Hinges
SUPER-technopolymer



Page 1382

CFMR.

Spring hinges
for automatic return, SUPER-technopolymer



Page 1384

CFH.

Hinges
Technopolymer



Page 1385

GN 237-ZD

Hinges
Zinc die casting



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GN 237-NI

Hinges
Stainless Steel



Page 1386

GN 237-AL

Hinges
Aluminium



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GN 237-A4

Hinges
Stainless Steel A4



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GN 237-ZD-extended

Hinges
Zinc die casting



Page 1388

GN 237-NI-extended

Hinges
Stainless Steel



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CMM-AL

Hinges
Aluminium



Page 1389

GN 238

Hinges
adjustable / with cover / Zinc die casting



Page 1390

GN 2370

Stainless Steel-Spacer plates
for hinges GN 237, GN 337, CFMY, CFM and GN 437



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GN 2372

Stainless Steel-Plates with tapped holes
for hinges GN 237, GN 337, CFMY and CFM



INOX STAINLESS STEEL

Page 1393

GN 2374

Rubber bumper stops
for hinges GN 237, GN 237.1, GN 337 and CFMY.



Page 1393

CFJ.

Tamperproof hinges
Technopolymer



Page 1394

GN 136

Sheet metal hinges
Steel



Page 1395

GN 136-NI

Sheet metal hinges
Stainless Steel



INOX STAINLESS STEEL

Page 1395

CFR.

Hinge with adjusting inserts
SUPER-technopolymer



SUPER TECHNO POLYMER

Page 1396

GN 127

Hinges
adjustable / Zinc die casting



Page 1397

CFD.

Hinges for thin doors
Technopolymer



Page 1398

CMDX-AL

Hinge for thin doors
Aluminium



Page 1400

GN 138

Hinges
Zinc die casting



Page 1401

CFE.

Hinges
Technopolymer



Page 1402

CFF.

Hinges for thin doors
Technopolymer



Page 1404

CFG.

Hinges for profiles
Technopolymer



Page 1406

CFI.

Double hinges for profiles
Technopolymer



Page 1408

GN 161

Hinges
Accessory for profile systems / Zinc die casting



Page 1410

CFB.

Hinge for thin doors
Technopolymer



Page 1412

CFC.

Thin hinge
Technopolymer



Page 1413

CFN.

In line lift-off hinges
Technopolymer



Page 1414

CFO.

Offset lift-off hinge
Technopolymer



Page 1416

GN 161.1

Hinges
detachable / Zinc die casting



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INOX STAINLESS STEEL

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DIN 908
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GN 442
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GN 882
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Brass, 100 °C



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GN 883
Breather valves
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GN 884
Breather filters
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technopolymer
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Oil level indicators
with prismatic window,
technopolymer
up to 100 °C

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HGFT-HT-PR

Oil level indicators
with prismatic window, high temperatures, technopolymer
up to 140 °C



page 1735

GN 7403-AL

Breather strainers
Aluminum
100 °C



page 1736

GN 7403-NI

Breather strainers
Stainless Steel
100 °C



INOX STAINLESS STEEL

page 1736

GN 7405

Stainless Steel-Strainer fittings
100 °C



INOX STAINLESS STEEL

page 1737

GN 7403.1

Stainless Steel-Strainers
100 °C



INOX STAINLESS STEEL

page 1738

GN 744

Oil level sight glasses
Aluminum / crystal-clear plastic



page 1739

HFTX.

Oil level indicators
Technopolymer
up to 100 °C



page 1740

HFTX-PR

Oil level indicators
with prismatic window, technopolymer
up to 100 °C



page 1741

HFTR-PR

Oil level indicators
with prismatic window, technopolymer
up to 100 °C



page 1741

HRT.

Oil level indicators
push-fit, technopolymer
up to 100 °C



page 1742

HRT-T

Oil level indicators
push- fit with temperature reading, technopolymer
up to 100 °C



page 1742

HE.

Oil level indicators
push- fit, polycarbonate
up to 100 °C



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GH.

Nuts
Brass



page 1743

GN 537

Oil level sight glasses
Aluminium / Perspex / without thread



page 1744

HCFE.

Oil circulation sights
Technopolymer
up to 100 °C



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HCFE-C

Oil circulation sights
Technopolymer
up to 100 °C



page 1745

HCFE-EX

Oil circulation sights
Technopolymer
up to 80 °C



Ex

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HVF.

Visual flow indicators
Technopolymer ends



page 1747

HCZ.

Column level indicators
with or without protection frame, technopolymer



SUPER TECHNO POLYMER

page 1752

HCZ-VT

Column level indicators
SUPER-technopolymer assembly screws, with or without protection frame



SUPER TECHNO POLYMER

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HCX.

Column level indicators
Technopolymer



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HCX-SST
Column level indicators
stainless steel assembly screws, technopolymer
INOX STAINLESS STEEL

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HCX-VT
Column level indicators
SUPER-technopolymer assembly screws
SUPER TECHNO POLYMER

page 1760

HCX-BW-SST
Column level indicators
for hot water, technopolymer
INOX STAINLESS STEEL

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HCX-AR
Column level indicators
for use with fluids containing alcohol, technopolymer

page 1763

HCX-PT
Column level indicators
Zinc steel screws, nuts and washers
SUPER TECHNO POLYMER INOX STAINLESS STEEL

page 1764

HCX-PT-SST
Column level indicators
Stainless steel screws, AISI 304 stainless steel nuts and washers

page 1764

HCX-PT-VT
Column level indicators
SUPER-technopolymer screws, AISI 304 stainless steel nuts and washers

page 1764

HCX-P
Column level indicators
technopolymer, with zinc alloy protection frame

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FM Kit
Fast Mounting Kit
Steel and rubber

page 1768

HCX-LT
Column level indicator
with float for indirect level reading, technopolymer

page 1769

HCK.
Column level indicators
with or without transparent protection, technopolymer

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HCK-GL
Column level indicators
with transparent protection for glycol-based solutions, technopolymer
INOX STAINLESS STEEL

page 1772

SLCK
Kit for the electric control of a fluid level
for HCK. and HCK-GL column level indicators

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HCL.
Column level indicators
with U shaped protection, technopolymer

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HCX-ST
Column level indicators
with MAX temperature electrical sensor, technopolymer

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HCX-STL
Column level indicators
with temperature electrical probe, technopolymer

page 1780

HCX-E
Column level indicators
with MIN level electrical sensor, technopolymer

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HCX-E-ST
Column level indicators
with MIN level and MAX temperature electrical sensors, technopolymer

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HCX-E-STL
Column level indicators
with MIN level electrical sensor and temperature electrical probe, technopolymer

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HCV-ST
Column level indicators
with MAX temperature electrical sensor

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HCV-STL
Column level indicators
with temperature electrical probe

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HCV-E

Column level indicators
with MIN level electrical sensor, connector with side output, technopolymer



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HCV-E-ST

Column level indicators
with MIN level and MAX temperature electrical sensors



page 1794

HCV-E-STL

Column level indicators
with MIN level electrical sensor and temperature electrical probe



page 1796

HCY-E

Column level indicators
with MIN level electrical sensor, technopolymer



page 1798

HCY-E-ST

Column level indicators
with MIN level and MAX temperature electrical sensors, technopolymer



page 1800

HFL-E

Rapid levels with float
Technopolymer



page 1802

HFLT-E

Rapid levels with float
Technopolymer



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GN 131
Two-way connector clamps
Aluminium

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GN 131-NI
Two-way connector clamps
Stainless Steel

INOX STAINLESS STEEL
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GN 132.5
Stainless Steel-Two-way connector clamps

INOX STAINLESS STEEL
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GN 132
Two-way connector clamps
Aluminium

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GN 135
Two-way connector clamps
Aluminium / multi part assembly / unequal bore dimensions d_1 / s_1 and d_2 / s_2

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GN 133
Two-way connector clamps
Aluminium, different bore diameter d_1 / d_2

page 1816

GN 134
Two-way connector clamps
Aluminium / multi part assembly, same bore dimensions d_1/d_2 and s_1/s_2

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GN 141
Flanged two-way connector clamps
Aluminium / multi part assembly

page 1820

GN 145
Flanged connector clamps
Aluminiuml, with 2 mounting holes

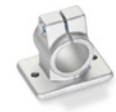
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GN 145-NI
Flanged connector clamps
Stainless Steel / with 2 mounting holes

INOX STAINLESS STEEL
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GN 146
Flanged connector clamps
Aluminium / with 4 retaining bores

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GN 146.3
Flanged connector clamps
Aluminium / with 2 retaining bores

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GN 146.5
Stainless Steel-Flanged connector clamps
with 4 holes

INOX STAINLESS STEEL
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GN 146.6
Stainless Steel-Flanged connector clamps
with 2 holes

INOX STAINLESS STEEL
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GN 147
Flanged connector clamps
Aluminum / split assembly, with 4 mounting holes

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GN 162
Base plate connector clamps
Aluminium / with 4 mounting holes

INOX STAINLESS STEEL
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GN 162-NI
Base plate connector clamps
Stainless Steel / with 4 mounting holes

INOX STAINLESS STEEL
page 1827

GN 162.3
Base plate connector clamps
Aluminium / with 2 mounting holes

INOX STAINLESS STEEL
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GN 162.3-NI
Base plate connector clamps
Aluminium / with 2 mounting holes

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GN 163
Base plate connector clamps
Aluminium

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GN 163.5
Stainless Steel-Base plate connector clamps

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GN 166
Off-set base plate connector clamps
Aluminium / split assembly

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GN 167
Wide base plate connector clamps
Aluminium / split assembly

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T-Angle connector clamps
Aluminium

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GN 191-NI
T-Angle connector clamps
Stainless Steel
INOX STAINLESS STEEL

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GN 195
T-Angle connector clamps
Aluminium / multi part assembly

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GN 192
T-Angle connector clamps
Aluminium

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GN 192.5
Stainless Steel-T-Angle connector clamps
INOX STAINLESS STEEL

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GN 193
T-Angle connector clamps
Aluminium / split assembly

page 1838

GN 194
T-Angle connector clamps
Aluminium / multi part assembly

page 1840

GN 196
Angle connector clamps
Aluminium

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GN 241
Tube connector joints
Aluminium / split assembly

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GN 231
Tube supports
Aluminium / split assembly

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GN 242
Tube connector joints
Aluminum

page 1846

GN 271
Swivel clamp connector bases
Aluminum

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GN 272
Swivel clamp connector bases
Aluminum

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GN 273
Swivel clamp connectors
Aluminium

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GN 274
Swivel clamp connectors
Aluminium

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GN 276
Swivel clamp connectors
Aluminium

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GN 275
Swivel clamp connectors
Aluminium

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GN 277
Swivel clamp connectors
Aluminium

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Aluminium

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GN 279
Swivel clamp connectors
Aluminium / split assembly

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GN 281
Swivel clamp connector joints
Aluminium

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GN 282
Swivel clamp connector joints
Aluminium

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GN 283
Swivel clamp connector joints
Aluminium

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GN 285
Swivel clamp connector joints
Aluminium

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GN 287
Swivel clamp connector joints
Aluminium

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GN 284
Swivel clamp connector joints
Aluminium

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GN 286
Swivel clamp connector joints
Aluminium

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GN 288
Swivel clamp connector joints
Aluminium

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GN 289
Swivel clamp connector joints
Aluminium / with two-part clamp pieces

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Sensor holders
Aluminium

page 1872

GN 272.4
Sensor holders
Aluminium

page 1872

GN 273.4
Sensor holders
Aluminium

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GN 911
Clamping lever kits
adjustable, for connector clamps

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GN 911.3
Stainless Steel-Clamping lever kits
adjustable, for connector clamps

INOX STAINLESS STEEL
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GN 473
Base plate clamp mountings
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GN 477
Clamp mountings
Aluminium

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GN 474
Two-way clamp mountings
Aluminium

page 1880

GN 474.1
Two-way clamp mountings
Aluminium

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GN 475
Twistable two-way clamp mountings
Aluminium

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GN 478
Clamp mountings
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Flanged bolts
for clamp mountings

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GN 490
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Aluminium

page 1886

GN 485
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Aluminium

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GN 480.7
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Barbed fitting / Thread

INOX STAINLESS STEEL
page 1888

GN 480.8
Stainless Steel-Thread adapters
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GN 483
T-swivel clamp mountings
Aluminium

page 1891

GN 484
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Aluminium

page 1892

GN 511
Clamping lever kits
adjustable, for clamp mountings

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GN 511.1
Clamping kits
for swivel clamp mountings

page 1894

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for clamp mountings with threaded holes GN 478 / GN 484

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GN 479.1
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for slot widhts 8 / 10, assembly with T-Nuts / T-Slot bolts

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Angled pieces for profile systems 30 / 40
for slot widths 6 / 8, assembly with T-nuts with guide step GN 506

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Angles for profile structures
Technopolymer

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GN 963
Cover caps
for angle pieces for profile systems

page 1900

GN 991
Tube end plugs
for construction tubes GN 990

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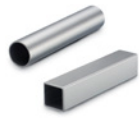
GN 990
Construction tubes
Steel

page 1902

GN 990-AL
Construction tubes
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GN 990-NI
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INOX STAINLESS STEEL
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GN 480.1
Retaining rods / Retaining tubes
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GN 480.1-NI
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Stainless Steel

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Base
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page 1906

MSX-C
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page 1906

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Device clamp
Technopolymer

page 1906

MSR.60-B
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Base
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MSR.60-C
Connecting clamps
Two-way clamp
Technopolymer and aluminium

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MSR.60-TA-TB-TC-TD-TE-TF
Connecting clamps
Device clamps
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MSR.60-T13
Connecting clamps
Connecting tubes
Technopolymer and aluminium

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GN 291
Linear actuators
Steel / Stainless Steel, with right or left hand thread

INOX STAINLESS STEEL
page 1912

GN 292
Linear actuators
Steel / Stainless Steel, with right and left hand thread

INOX STAINLESS STEEL
page 1914

GN 293
Linear actuators
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page 1916

GN 131.1
Linear actuator connectors
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for linear actuators Ø18, for single axis system

page 1918

GN 131.1-NI
Linear actuator connectors
Stainless Steel
for linear actuators Ø18, for single axis system

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GN 131.2
Linear actuator connectors
Aluminium
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GN 131.2-NI
Linear actuator connectors
Stainless Steel
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GN 132.1
Linear actuator connectors
for linear actuators Ø30, Ø40, Ø50 and Ø60, single axis system

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GN 132.2
Linear actuator connectors
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GN 145.1
Flanged linear actuator connectors
Aluminium, for linear actuators Ø18

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GN 145.1-NI
Flanged linear actuator connectors
Stainless Steel, for linear actuators Ø18
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GN 146.1
Flanged linear actuator connectors
Aluminium, for linear actuators Ø30, Ø40, Ø50, Ø60

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GN 162.1
Base plate linear actuator connectors
Aluminium, for linear actuators Ø18
INOX STAINLESS STEEL

page 1924

GN 162.1-NI
Base plate linear actuator connectors
Stainless Steel, for linear actuators Ø18
INOX STAINLESS STEEL

page 1924

GN 163.1
Base plate linear actuator connectors
for linear actuators Ø30, Ø40, Ø50, Ø60

page 1925

GN 191.1
T-Angle linear actuator connectors
Aluminium, for linear actuators Ø18

page 1926

GN 191.1-NI
T-Angle linear actuator connectors
Stainless Steel, for linear actuators Ø18
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page 1926

GN 192.1
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for linear actuators Ø30, Ø40, Ø50, Ø60

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GN 273.1
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GN 274.1
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for linear actuators Ø30, Ø40, Ø50

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GN 291.1
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with right or left hand thread

page 1930

GN 134.1
Linear actuator connectors
Aluminium, same bore dimensions d_1 / s_1 and d_2 / s_2

page 1931

GN 135.1
Linear actuator connectors
Aluminium / multi part assembly / unequal bore dimensions, d_1 / s_1 and d_2 / s_2

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GN 147.1
Linear actuators connectors
Aluminum, for square linear actuators

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GN 165.1
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Aluminum, for square linear actuators

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for linear actuators Ø 18

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GN 923.30
Disc handwheel Ø 100
for linear actuators Ø 30

page 1935

GN 923.40
Disc handwheel Ø 100
for linear actuators Ø 40

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GN 924.40
Spoked handwheel Ø 125
for linear actuators Ø 40

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GN 924.50
Spoked handwheel Ø 140
for linear actuators Ø 50

page 1937

GN 924.60
Spoked handwheel Ø 160
for linear actuators Ø 60

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GN 295

Installation kits
for position indicators used on linear actuators GN 291, GN 292, GN 293, GN 391



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GN 296

Installation kits
for position indicators used on square linear actuators GN 291.1



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GN 391-SCR

Drive / Transfer units
Steel



page 1940

GN 391-NI

Drive / Transfer units
Stainless Steel



page 1940

GN 297

Bevel gear wheels
with spiral bevel for linear actuators / transfer units with angular gear



page 1941

GN 298

Housings
for angular gears / T-gears



page 1942

GN 491

Double tube linear actuators
with right or left hand thread, single slider



page 1948

GN 492

Double tube linear actuators
with right or left hand thread, double slider



page 1952

GN 491.1

Installation kits
for position indicators used on linear actuators GN 491 / GN 492



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RE.F5
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Aluminium centre body

page 1958

RE.F5-N
Mould-on polyurethane wheels
Steel sheet bracket

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RE.F5-H
Mould-on polyurethane wheels
Steel sheet bracket for medium-heavy loads

page 1961

RE.F2
Soft polyurethane wheels
Aluminium centre body

page 1963

RE.F2-N
Soft polyurethane wheels
Steel sheet bracket

page 1964

RE.F2-H
Soft polyurethane wheels
Steel sheet bracket for medium-heavy loads

page 1966

RE.F2-WH
Soft polyurethane wheels
Electro-welded steel bracket for heavy loads

page 1968

RE.F4
Mould-on polyurethane wheels
Cast iron centre body

page 1970

RE.F4-H
Mould-on polyurethane wheels
Steel sheet bracket for medium-heavy loads

page 1972

RE.F4-WH
Mould-on polyurethane wheels
Electro-welded steel bracket for heavy loads

page 1974

RE.F4-WEH
Mould-on polyurethane wheels
Electro-welded steel bracket for extra-heavy loads

page 1976

RE.G5
Mould-on polyurethane rollers
Steel centre body

page 1978

RE.FF
Injected polyurethane wheels
Technopolymer centre body

page 1979

RE.FF-N
Injected polyurethane wheels
Steel or stainless steel sheet bracket

page 1980

RE.F8
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RE.F8-N
Technopolymer wheels
Steel or stainless steel sheet bracket

page 1984

RE.F8-H
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RE.F8-WH
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RE.F7-N-HT
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RE.G1
Thermoplastic rubber wheels
Technopolymer centre body

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RE.G1-N
Thermoplastic rubber wheels
Steel or stainless steel sheet bracket

page 1993

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RE.E2

Vulcanised rubber wheels
Technopolymer centre body



page 1995

RE.E2-N

Vulcanised rubber wheels
Steel sheet bracket



page 1996

RE.E3

Vulcanised rubber wheels
Steel centre body



page 1998

RE.E3-N

Vulcanised rubber wheels
Steel sheet bracket



page 1999

RE.G2

Elastic rubber wheels
Aluminium centre body



page 2001

RE.G2-H

Elastic rubber wheels
Steel sheet bracket for medium-heavy loads



page 2002

RE.C6

Wheels for the general public
Injected polyurethane covering



page 2004

RE.C6-G

Twin wheels for the general public
Injected polyurethane covering



page 2006

RE.C7

Wheels for the general public
Vulcanised rubber coating



page 2008

RE.C7-G

Twin wheels for the general public
Vulcanised rubber coating



page 2010

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GN 50.1
Retaining magnets
disc-shaped,
without thread

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GN 50.2
Retaining magnets
disc-shaped,
with female thread

page 2025

GN 50.3
Retaining magnets
disc-shaped,
with threaded stud

page 2026

GN 50.25
Stainless Steel-Retaining magnets
disc-shaped,
with female thread

INOX STAINLESS STEEL
page 2026

GN 50.4
Retaining magnets
disc-shaped, with bore
or female thread

page 2027

GN 50.45
Stainless Steel-Retaining magnets
disc-shaped, with bore

INOX STAINLESS STEEL
page 2028

GN 50.6
Retaining magnets
disc-shaped,
with hook / with eyelet

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GN 50.5
Retaining magnets
disc-shaped,
with female thread

page 2030

GN 58
Pot magnets
with bore

page 2030

GN 51.5
Retaining magnets
disc-shaped,
with female thread,
with rubber jacket

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GN 51.4
Retaining magnets
disc-shaped, with bore,
with rubber jacket

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GN 51.6
Retaining magnets
disc-shaped,
with 2 female thread,
with rubber jacket

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GN 51.2
Retaining magnets
disc-shaped,
with female thread,
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GN 51.3
Retaining magnets
disc-shaped,
with threaded stud,
with rubber jacket

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GN 54.1
Retaining magnets
rod-shaped,
without bore

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GN 52.1
Retaining magnets
rod-shaped,
without bore

page 2036

GN 52.2
Retaining magnets
rod-shaped,
with female thread

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GN 52.4
Retaining magnets
rod-shaped,
with threaded stud

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GN 52.3
Retaining magnets
rod-shaped,
with female thread

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GN 52.5
Stainless Steel-Retaining magnets
rod-shaped,
with gummed adhesive
surface

INOX STAINLESS STEEL
page 2040

GN 60
Button-type magnets
with bore

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GN 62
U-Magnets
with bore

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Magnets

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GN 51.7
Magnets
with ball knob / with key ring, with rubber jacket

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GN 251.6
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with retaining magnet

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GN 913.6
Grub screws
with retaining magnet

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Raw magnets
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GN 55.2
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GN 55.3
Raw magnets
rod-shaped

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GN 55.4
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GN 56
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for profile systems

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GN 70
Holding discs
Steel

page 2051

GN 70-NI
Holding discs
Stainless Steel

page 2051

GN 70.1
Adhesive discs
self-adhesive, for retaining magnets

page 2051

Pictorial Index

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Guide to reading the symbols

High performing items

Self-extinguish technopolymer	HT Technopolymer for high temperatures	ESD Antistatic special technopolymer
CHROMIUM Chrome-plated technopolymer	SAN Antimicrobial technopolymer	SUPER TECHNO POLYMER SUPER-Technopolymer
Ex Products complying with 94/9/EC ATEX European Directive (explosive atmospheres)	INOX STAINLESS STEEL Products with metallic inserts or completely made out of stainless steel	LONG LIFE For several machining cycles and heavy duties
SOFT Technopolymer with "Soft-touch" elastomer coating	CLEAN RAL 9002 white technopolymer	Compatible for assembly on profile systems
HD Hygienic Design		

Symbols of technical features

PP Polypropylene based technopolymer	PF Phenolic based Duroplast	PC Polycarbonate	HF Ferrite
PA Polyamide based technopolymer	PF PAINTED Phenolic based Duroplast with epoxy resin coating	FKM Fluorine rubber	ND Neodymium iron boron
PA-T Transparent polyamide based technopolymer	TPE Thermoplastic elastomer	NBR Nitrilic synthetic rubber	SC Samarium cobalt
PA-T AR "Alcohol Resistant"	POM Acetal resin based technopolymer		AN Aluminium nickel cobalt

IP40 IP54 IP65 IP67

International Protection

Products which are in compliance with the EN 60529 directive: protection degree of the cases of electric and electronic devices against intrusion of solid or liquid foreign bodies.

RoHS

RoHS compliance

It concerns the series for which the production after 31/05/2011 is in compliance with the European Directive 2002/95/CE (Restiction of Hazardous Substances).

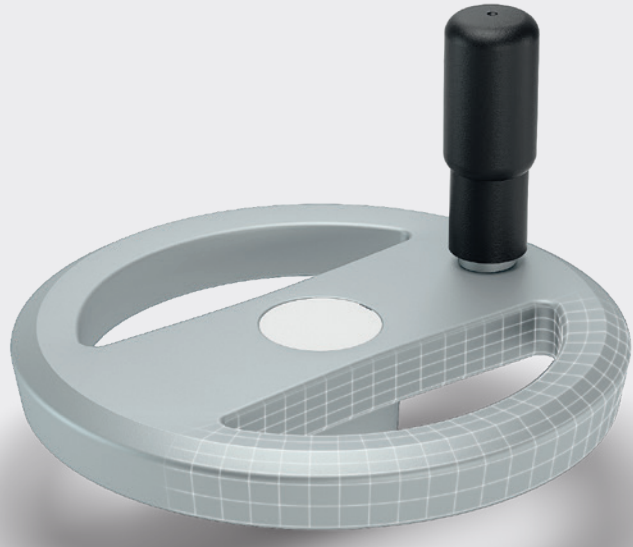
+100° -20°

Temperature

Symbol of minimum and maximum operating temperature.

For further information concerning the symbols shown on this page see the introduction (pages 10 - 15) and the Technical Data in the catalogue appendix (pages A1 - A53).





DESIGNED
FOR ENGINEERING

1 Operating elements



Spoked handwheels

Solid handwheels

Arm handwheels

Crank handles

RoHS PP PA +80° 0°

Spoked handwheels

Technopolymer



MATERIAL
High-resilience polypropylene based (PP) technopolymer, black colour, matte finish.

BOSS-CAP
Anodised aluminium self-adhesive front plate.
VRTP. 375: cover in polyester based technopolymer (PBT), RAL 7035 grey colour, glossy finish, press-fit assembly.

STANDARD EXECUTIONS
Black-oxide steel boss, H7 reamed hole.
- **VRTP.:** without handle.
- **VRTP+I:** with revolving handle I.621+x (see page 576) in technopolymer.
- **VRTP+IEL:** with revolving handle IEL+x-SOFT (see page 572) in technopolymer coated with "Soft touch" thermoplastic elastomer (TPE).
- **VRTP+IR:** with fold-away handle IR.620 (see page 584) in technopolymer.

SPECIAL EXECUTIONS ON REQUEST
Bosses with hole and keyway in compliance with DIN 6885/1 tolerance P9 (see page A16).
To order the handwheel with keyway add the index -K after the code and the description (i.e. 78411-R-K VRTP.80 A-8-K).

ELESA Original design

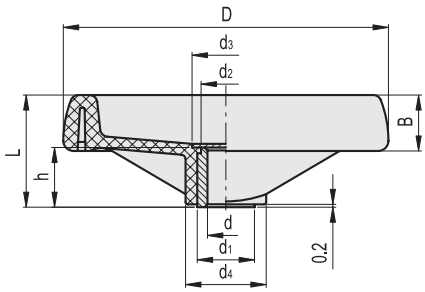
ACCESSORIES ON REQUEST
- Axial retaining washer GN 184 (see page 971).
- Technopolymer boss cap in one of the Ergostyle colours, matte finish, available for VRTP.125, VRTP.160 and VRTP.200 (see ECB table).

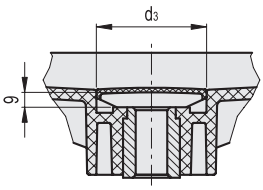
Code	Description	Boss cap for
29552-*	ECB.T2-*	VRTP.125
29553-*	ECB.T3-*	VRTP.160
29554-*	ECB.T4-*	VRTP.200

* Complete with colour index (C1, ..., C6).

C1 RAL7021 C2 RAL2004 C3 RAL7035 C4 RAL1021 C5 RAL5024 C6 RAL3000

VRTP.





VRTP.375

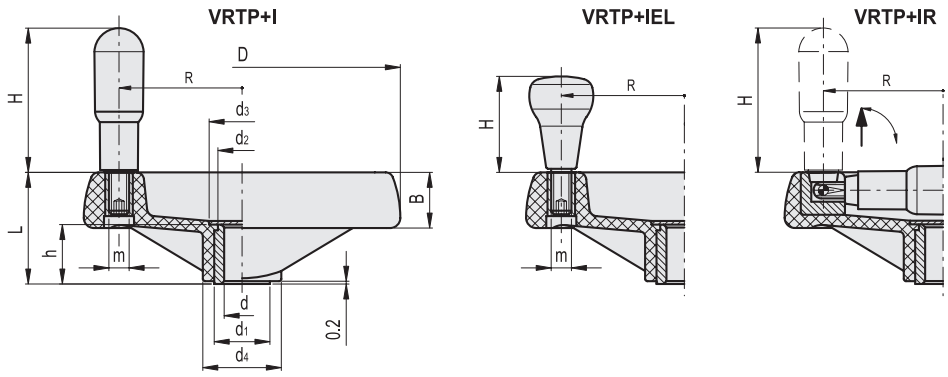
VRTP.

Code	Description	D	dH7	L	B	d1	d2	d3	d4	h	C# [Nm]	L# [J]	⚖
78411-R	VRTP.80 A-8	80	8	35	18	18	16	20.5	25	17	32	5	74
78412-R	VRTP.80 A-10	80	10	35	18	18	16	20.5	25	17	32	5	70
78510-R	VRTP.100 A-8	99	8	37	20	18	16	20.5	25.5	17	54	7	105
78511-R	VRTP.100 A-10	99	10	37	20	18	16	20.5	25.5	17	54	7	100
78512-R	VRTP.100 A-12	99	12	37	20	18	16	20.5	25.5	17	54	7	95
78610-R	VRTP.125 A-8	125	8	44	22	22	20	26	31	22	94	10	165
78611-R	VRTP.125 A-12	125	12	44	22	22	20	26	31	22	94	10	160
78612-R	VRTP.125 A-14	125	14	44	22	22	20	26	31	22	94	10	155
78710-R	VRTP.160 A-8	160	8	51	25	26	24	32	40	27	185	15	282
78711-R	VRTP.160 A-14	160	14	51	25	26	24	32	40	27	185	15	275
78712-R	VRTP.160 A-16	160	16	51	25	26	24	32	40	27	185	15	263
78810-R	VRTP.200 A-8	200	8	61	28	30	28	36	48.5	34	300	24	490
78811-R	VRTP.200 A-16	200	16	61	28	30	28	36	48.5	34	300	24	460
78813-R	VRTP.200 A-20	200	20	61	28	30	28	36	48.5	34	300	24	430
78911-R	VRTP.250 A-20	250	20	69	32	35	33	45	58	38	420	28	730
78913-R	VRTP.250 A-24	250	24	69	32	35	33	45	58	38	420	28	710
78948-R	VRTP.300 A-20	300	20	78	35.5	40	37	52	66	43	480	36	940
78951-R	VRTP.300 A-26	300	26	78	35.5	40	37	52	66	43	480	36	970
79011-R	VRTP.375 A-26	375	26	87	39	35	33	70	81	43	380	55	1350

For maximum torque (C) and impact strength (L) see Technical Data on page A3.

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VRTP. | Spoked handwheels



VRTP+I

Code	Description	D	dH7	L	B	d1	d2	d3	d4	h	H	m	R	C# [Nm]	L# [J]	⚖
78421-R	VRTP.80+I A-8	80	8	35	18	18	16	20.5	25	17	45	M6	29	32	5	104
78422-R	VRTP.80+I A-10	80	10	35	18	18	16	20.5	25	17	45	M6	29	32	5	100
78520-R	VRTP.100+I A-8	99	8	37	20	18	16	20.5	25.5	17	60	M6	37	54	7	150
78521-R	VRTP.100+I A-10	99	10	37	20	18	16	20.5	25.5	17	60	M6	37	54	7	145
78522-R	VRTP.100+I A-12	99	12	37	20	18	16	20.5	25.5	17	60	M6	37	54	7	140
78620-R	VRTP.125+I A-8	125	8	44	22	22	20	26	31	22	65	M8	48	94	10	250
78621-R	VRTP.125+I A-12	125	12	44	22	22	20	26	31	22	65	M8	48	94	10	245
78622-R	VRTP.125+I A-14	125	14	44	22	22	20	26	31	22	65	M8	48	94	10	240
78720-R	VRTP.160+I A-8	160	8	51	25	26	24	32	40	27	73	M8	65	185	15	363
78721-R	VRTP.160+I A-14	160	14	51	25	26	24	32	40	27	73	M8	65	185	15	356
78722-R	VRTP.160+I A-16	160	16	51	25	26	24	32	40	27	73	M8	65	185	15	339
78820-R	VRTP.200+I A-8	200	8	61	28	30	28	36	48.5	34	80	M8	84	300	24	579
78821-R	VRTP.200+I A-16	200	16	61	28	30	28	36	48.5	34	80	M8	84	300	24	552
78823-R	VRTP.200+I A-20	200	20	61	28	30	28	36	48.5	34	80	M8	84	300	24	525
78921-R	VRTP.250+I A-20	250	20	69	32	35	33	45	58	38	90	M10	103	420	28	904
78923-R	VRTP.250+I A-24	250	24	69	32	35	33	45	58	38	90	M10	103	420	28	888
78958-R	VRTP.300+I A-20	300	20	78	35.5	40	37	52	66	43	90	M10	127	480	36	1050
78961-R	VRTP.300+I A-26	300	26	78	35.5	40	37	52	66	43	90	M10	123	480	36	1111
79021-R	VRTP.375+I A-26	375	26	87	39	35	33	70	81	43	90	M10	160	380	55	1240

VRTP+IEL

78926-R	VRTP.250+IEL A-20	250	20	69	32	35	33	45	58	38	65	M10	103	420	28	914
78928-R	VRTP.250+IEL A-24	250	24	69	32	35	33	45	58	38	65	M10	103	420	28	818
78964-R	VRTP.300+IEL A-20	300	20	78	35.5	40	37	52	66	43	65	M10	127	480	36	1060
78966-R	VRTP.300+IEL A-26	300	26	78	35.5	40	37	52	66	43	65	M10	127	480	36	1121
79026-R	VRTP.375+IEL A-26	375	26	87	39	35	33	70	81	43	65	M10	160	380	55	1260

VRTP+IR

Code	Description	D	dH7	L	B	d1	d2	d3	d4	h	H	R	C# [Nm]	L# [J]	⚖
78431-R	VRTP.80+IR A-8	80	8	35	18	18	16	20.5	25	17	45	29	32	5	102
78432-R	VRTP.80+IR A-10	80	10	35	18	18	16	20.5	25	17	45	29	32	5	98
78530-R	VRTP.100+IR A-8	99	8	37	20	18	16	20.5	25.5	17	60	37	54	7	170
78531-R	VRTP.100+IR A-10	99	10	37	20	18	16	20.5	25.5	17	60	37	54	7	163
78532-R	VRTP.100+IR A-12	99	12	37	20	18	16	20.5	25.5	17	60	37	54	7	155
78630-R	VRTP.125+IR A-8	125	8	44	22	22	20	26	31	22	65	48	94	10	235
78631-R	VRTP.125+IR A-12	125	12	44	22	22	20	26	31	22	65	48	94	10	230
78632-R	VRTP.125+IR A-14	125	14	44	22	22	20	26	31	22	65	48	94	10	225
78730-R	VRTP.160+IR A-8	160	8	51	25	26	24	32	40	27	73	65	185	15	395
78731-R	VRTP.160+IR A-14	160	14	51	25	26	24	32	40	27	73	65	185	15	388
78732-R	VRTP.160+IR A-16	160	16	51	25	26	24	32	40	27	73	65	185	15	380
78830-R	VRTP.200+IR A-8	200	8	61	28	30	28	36	48.5	34	80	84	300	24	625
78831-R	VRTP.200+IR A-16	200	16	61	28	30	28	36	48.5	34	80	84	300	24	593
78833-R	VRTP.200+IR A-20	200	20	61	28	30	28	36	48.5	34	80	84	300	24	560
78931-R	VRTP.250+IR A-20	250	20	69	32	35	33	45	58	38	90	105	420	28	932
78933-R	VRTP.250+IR A-24	250	24	69	32	35	33	45	58	38	90	105	420	28	892
78968-R	VRTP.300+IR A-20	300	20	78	35.5	40	37	52	66	43	90	123	480	36	1080
78971-R	VRTP.300+IR A-26	300	26	78	35.5	40	37	52	66	43	90	123	480	36	1210
79031-R	VRTP.375+IR A-26	375	26	87	39	35	33	70	81	43	90	160	380	55	1350

For maximum torque (C) and impact strength (L) see Technical Data on page A3.

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VRTP-P-SST

INOX STAINLESS STEEL · RoHS · PP-FDA · PA-FDA · +80° 0°

Spoked handwheels with solid section

Technopolymer



ELESA Original design

MATERIAL

High-resilience polypropylene based (PP) technopolymer, black colour, matte finish.
Certified in compliance with FDA (U.S. Food and Drug Administration).

BOSS-CAP

AISI 304 stainless steel self-adhesive front plate (adhesive certified in compliance with FDA U.S. Food and Drug Administration).

STANDARD EXECUTIONS

AISI 304 stainless steel boss, H7 reamed hole.

- **VRTP-P+I-SST**: with revolving handle type I.621+x-SST in polyamide based (PA) technopolymer, certified in compliance with FDA.
- **VRTP-P+IR-SST**: with fold-away handle type IR.620 in polyamide based (PA) technopolymer, certified in compliance with FDA. AISI 304 stainless steel pin, bushing and internal components, AISI 316L stainless steel support.

SPECIAL EXECUTIONS ON REQUEST

- Bosses with hole and keyway in compliance with DIN 6885/1 tolerance P9 (see page A16).

To order the handwheel with keyway add the index -K after the code and the description (i.e. 79111-K VRTP.80-P+I-SST-8-K).

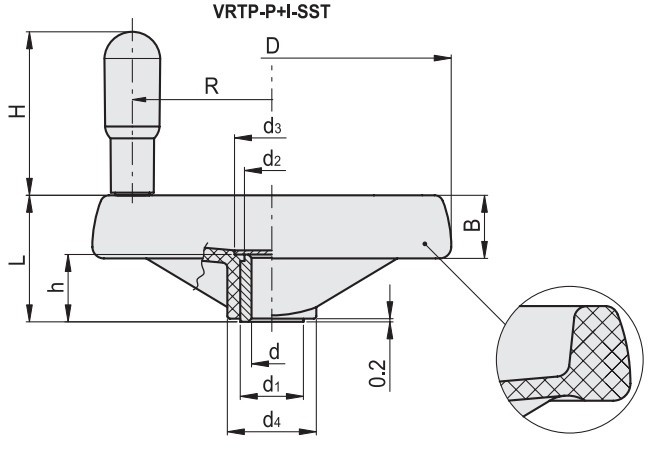
ACCESSORIES ON REQUEST

Axial retaining washer GN 184.5 (see page 971).

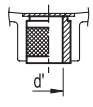
FEATURES AND APPLICATIONS

The solid rim of the handwheel allows the maximum cleaning thanks to the absence of rear recesses. For this reason, being the technopolymer polypropylene based and the metal components in AISI 304 stainless steel, this version of VRTP. handwheel is designed for applications in food, pharmaceutical and medical fields.

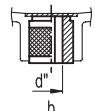
VRTP-P+I-SST



Solid rim without recesses maximum cleaning



d' Max diameter permissible



d'' Max diameter for hole with keyway

VRTP-P+I-SST — **STAINLESS STEEL**

Code	Description	D	dH7	L	B	d1	d2	d3	d4	h	H	R	d'	d''	t	b	C# [Nm]	L# [J]	⚖
79111-R	VRTP.80-P+I-SST-8	80	8	35	18	18	16	20.5	25	17	45	29	14	10	11.4	3	32	5	104
79161-R	VRTP.100-P+I-SST-10	99	10	37	20	18	16	20.5	25.5	17	60	37	14	10	11.4	3	54	7	145
79211-R	VRTP.125-P+I-SST-12	125	12	44	22	22	20	26	31	22	65	48	18	12	13.8	4	94	10	245
79261-R	VRTP.160-P+I-SST-14	160	14	51	25	26	24	32	40	27	73	65	20	16	18.3	5	185	15	356
79311-R	VRTP.200-P+I-SST-16	200	16	61	28	30	28	36	50	34	80	84	24	18	20.8	6	300	24	552

For maximum applicable torque (C) and impact strength (L) see Technical Data on page A3.

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VRTP-P-SST | Spoked handwheels with solid section



Material suitable for food contact

Technopolymer handwheel and handle.
Certified in compliance with FDA (U.S. Food and Drug Administration).

Corrosion resistance

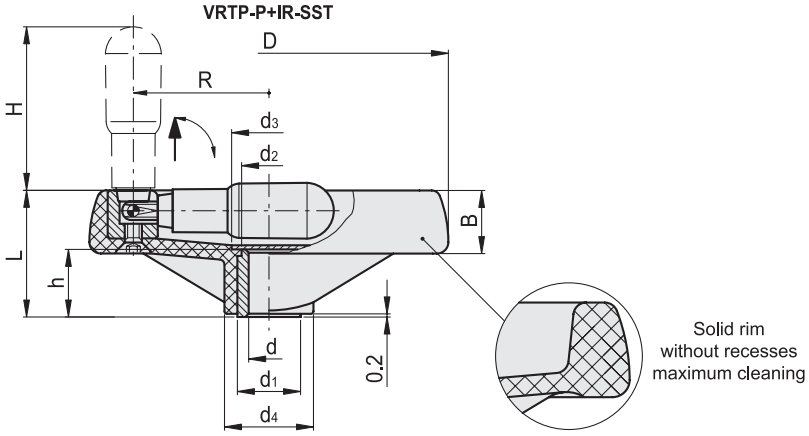
1. AISI 304 stainless steel handwheel central boss
2. AISI 304 stainless steel revolving handle pin
3. AISI 304 stainless steel pin, bushing and internal components, AISI 316L stainless steel support

Easy cleaning

4. Solid rim
5. Hub without recesses







VRTP-P+IR-SST **STAINLESS STEEL**

Code	Description	D	dH7	L	B	d1	d2	d3	d4	h	H	R	d'	d''	t	b	C# [Nm]	L# [J]	⚖
79121-R	VRTP.80-P+IR-SST-8	80	8	35	18	18	16	20.5	25	17	45	29	14	10	11.4	3	32	5	102
79171-R	VRTP.100-P+IR-SST-10	99	10	37	20	18	16	20.5	25.5	17	60	37	14	10	11.4	3	54	7	163
79221-R	VRTP.125-P+IR-SST-12	125	12	44	22	22	20	26	31	22	65	48	18	12	13.8	4	94	10	230
79271-R	VRTP.160-P+IR-SST-14	160	14	51	25	26	24	31	40	27	73	65	20	16	18.3	5	185	15	388
79321-R	VRTP.200-P+IR-SST-16	200	16	61	28	30	28	36	50	34	80	84	24	18	20.8	6	300	24	593

For maximum applicable torque (C) and impact strength (L) see Technical Data on page A3.

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Spoked handwheels

Aluminium, plastic coated



reddot design award

SPECIFICATION

Types

- Type **A**: without handle
- Type **R**: with revolving handle

Bore codes

- Version **B**: without keyway
- Version **K**: with keyway

Aluminium pressure die casting

- Hub machined
- Rim turned
- plastic coated

black, RAL 9005, textured finish **SW**
silver, RAL 9006, textured finish **SR**

Rim concentric and square to bore < 0.4

Cylindrical Revolving handles GN 798.2 (see page 578)
Plastic, Technopolymer
black, matt

INFORMATION

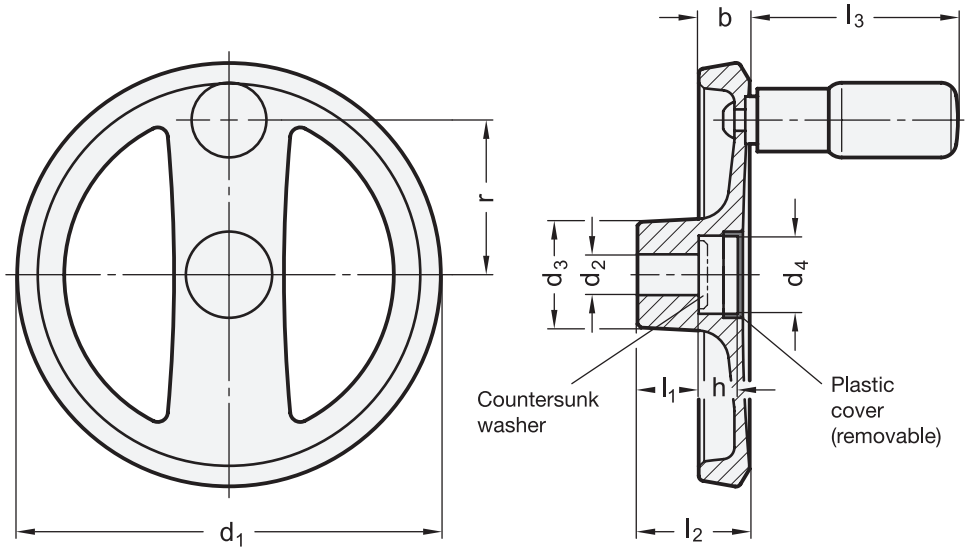
Spoked handwheels GN 924 are distinguished by modern design. The removable plastic cover shrouds the fixing components such as screws, countersunk washers as well as the shaft end.

ACCESSORY

- Countersunk washers GN 184 (see page 971) are to be ordered separately

TECHNICAL INFORMATION

- Keyway P9 DIN 6885 (see page A16)
- Cross holes GN 110 (see page A17)
- ISO-Fundamental Tolerances (see page A21)



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GN 924

Spoked handwheels



* Complete with colour index of the Handwheels (SW or SR)

GN 924-A

Description	d1	d2 H7	d3	d4	b	h	l1	l2 ≈	Recommended countersunk washer	⚖
GN 924-125-B12-A-*	125	12	31	23	15	11	18	33.5	GN 184-20	255
GN 924-125-K12-A-*	125	12	31	23	15	11	18	33.5	GN 184-20	255
GN 924-125-B14-A-*	125	14	31	23	15	11	18	33.5	GN 184-20	250
GN 924-125-K14-A-*	125	14	31	23	15	11	18	33.5	GN 184-20	250
GN 924-140-B14-A-*	140	14	36	28.5	16.5	13	19	36.5	GN 184-25	340
GN 924-140-K14-A-*	140	14	36	28.5	16.5	13	19	36.5	GN 184-25	340
GN 924-140-B16-A-*	140	16	36	28.5	16.5	13	19	36.5	GN 184-25	340
GN 924-140-K16-A-*	140	16	36	28.5	16.5	13	19	36.5	GN 184-25	340
GN 924-160-B14-A-*	160	14	36	28.5	18	14.5	20	39.5	GN 184-25	460
GN 924-160-K14-A-*	160	14	36	28.5	18	14.5	20	39.5	GN 184-25	460
GN 924-160-B16-A-*	160	16	36	28.5	18	14.5	20	39.5	GN 184-25	460
GN 924-160-K16-A-*	160	16	36	28.5	18	14.5	20	39.5	GN 184-25	460
GN 924-200-B18-A-*	200	18	42	36	20.5	16	24	45.5	GN 184-32	730
GN 924-200-K18-A-*	200	18	42	36	20.5	16	24	45.5	GN 184-32	730
GN 924-200-B20-A-*	200	20	42	36	20.5	16	24	45.5	GN 184-32	730
GN 924-200-K20-A-*	200	20	42	36	20.5	16	24	45.5	GN 184-32	730

GN 924-R

Description	d1	d2 H7	d3	d4	b	h	l1	l2 ≈	l3 ≈	r	Ø Handle	Recommended countersunk washer	⚖
GN 924-125-B12-R-*	125	12	31	23	15	11	18	33.5	61.5	45.5	22	GN 184-20	340
GN 924-125-K12-R-*	125	12	31	23	15	11	18	33.5	61.5	45.5	22	GN 184-20	340
GN 924-125-B14-R-*	125	14	31	23	15	11	18	33.5	61.5	45.5	22	GN 184-20	340
GN 924-125-K14-R-*	125	14	31	23	15	11	18	33.5	61.5	45.5	22	GN 184-20	340
GN 924-140-B14-R-*	140	14	36	28.5	16.5	13	19	36.5	76.5	52	24	GN 184-25	450
GN 924-140-K14-R-*	140	14	36	28.5	16.5	13	19	36.5	76.5	52	24	GN 184-25	440
GN 924-140-B16-R-*	140	16	36	28.5	16.5	13	19	36.5	76.5	52	24	GN 184-25	450
GN 924-140-K16-R-*	140	16	36	28.5	16.5	13	19	36.5	76.5	52	24	GN 184-25	440
GN 924-160-B14-R-*	160	14	36	28.5	18	14.5	20	39.5	76.5	61	24	GN 184-25	560
GN 924-160-K14-R-*	160	14	36	28.5	18	14.5	20	39.5	76.5	61	24	GN 184-25	560
GN 924-160-B16-R-*	160	16	36	28.5	18	14.5	20	39.5	76.5	61	24	GN 184-25	570
GN 924-160-K16-R-*	160	16	36	28.5	18	14.5	20	39.5	76.5	61	24	GN 184-25	570
GN 924-200-B18-R-*	200	18	42	36	20.5	16	24	45.5	85	77.5	25	GN 184-32	890
GN 924-200-K18-R-*	200	18	42	36	20.5	16	24	45.5	85	77.5	25	GN 184-32	890
GN 924-200-B20-R-*	200	20	42	36	20.5	16	24	45.5	85	77.5	25	GN 184-32	880
GN 924-200-K20-R-*	200	20	42	36	20.5	16	24	45.5	85	77.5	25	GN 184-32	880

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Handwheels with retractable handle

Aluminium, Handle locked



reddot design award

SPECIFICATION

Type
- Type **R**: with retractable handle

Bore codes
- Version **B**: without keyway
- Version **K**: with keyway

Aluminium pressure die casting
- Hub machined
- Rim turned
- plastic coated

black, RAL 9005, textured finish **SW**
silver, RAL 9006, textured finish **SR**

Rim concentric and square to bore < 0.4

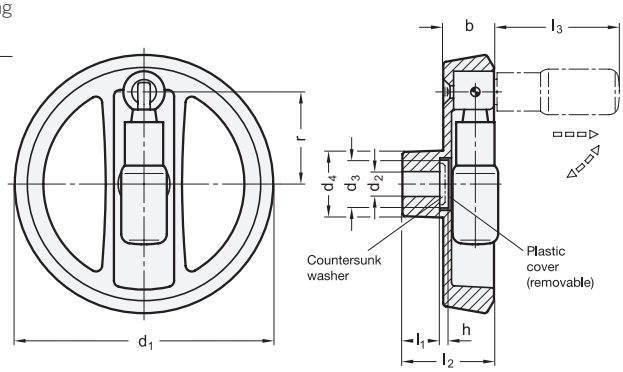
Retractable handles GN 798.3 (see page 586)
Plastic, Technopolymer
black, matt

Retracting mechanism
Steel, blackened

INFORMATION

The handle in these handwheels is locked in a conical bore in the operating position.
For reversal, it must first be pulled from the cone in axial direction.
A pressure spring holds the handle in both positions. When swung out, it automatically engages again.

TECHNICAL INFORMATION
- Keyway DIN 6885 (see page A16)
- Cross holes GN 110 (see page A17)
- ISO-Fundamental Tolerances (see page A21)



*Complete with colour index of the Handwheels (SW or SR)

SW RAL9005 SR RAL9006

GN 924.3

Description	d1	d2 H7	d3	d4	b	h	l1	l2 ≈	l3 ≈	r ≈	Ø Handle	Recommended countersunk washer	⚖
GN 924.3-125-B12-R-*	125	12	23	31	24.5	4	18	45	60.5	45.5	22	GN 184-22	465
GN 924.3-125-K12-R-*	125	12	23	31	24.5	4	18	45	60.5	45.5	22	GN 184-22	465
GN 924.3-125-B14-R-*	125	14	23	31	24.5	4	18	45	60.5	45.5	22	GN 184-22	450
GN 924.3-125-K14-R-*	125	14	23	31	24.5	4	18	45	60.5	45.5	22	GN 184-22	450
GN 924.3-140-B14-R-*	140	14	23	36	26	4	19	47	75.5	52	24	GN 184-22	600
GN 924.3-140-K14-R-*	140	14	23	36	26	4	19	47	75.5	52	24	GN 184-22	590
GN 924.3-160-B14-R-*	160	14	23	36	26	4	20	48	75.5	61	24	GN 184-22	700
GN 924.3-160-K14-R-*	160	14	23	36	26	4	20	48	75.5	61	24	GN 184-22	690
GN 924.3-140-B16-R-*	140	16	23	36	26	4	19	47	75.5	52	24	GN 184-22	600
GN 924.3-140-K16-R-*	140	16	23	36	26	4	19	47	75.5	52	24	GN 184-22	590
GN 924.3-160-B16-R-*	160	16	23	36	26	4	20	48	75.5	61	24	GN 184-22	700
GN 924.3-160-K16-R-*	160	16	23	36	26	4	20	48	75.5	61	24	GN 184-22	690
GN 924.3-200-B18-R-*	200	18	23	42	27	4	24	53	85.5	80.5	25	GN 184-22	900
GN 924.3-200-K18-R-*	200	18	23	42	27	4	24	53	85.5	80.5	25	GN 184-22	890
GN 924.3-200-B20-R-*	200	20	23	42	27	4	24	53	85.5	80.5	25	GN 184-22	1060
GN 924.3-200-K20-R-*	200	20	23	42	27	4	24	53	85.5	80.5	25	GN 184-22	1000

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GN 924.7

Handwheels with retractable handle

Aluminium, Handle swivelling

SPECIFICATION

Type
- Type **R**: with retractable handle

Bore codes
- Version **B**: without keyway
- Version **K**: with keyway

Aluminium pressure die casting
- Hub machined
- Rim turned
- plastic coated

black, RAL 9005, textured finish **SW**
silver, RAL 9006, textured finish **SR**

Rim concentric and square to bore < 0.4

Safety retractable handles GN 798.7 (see page 587)
Plastic, Technopolymer
black, matt

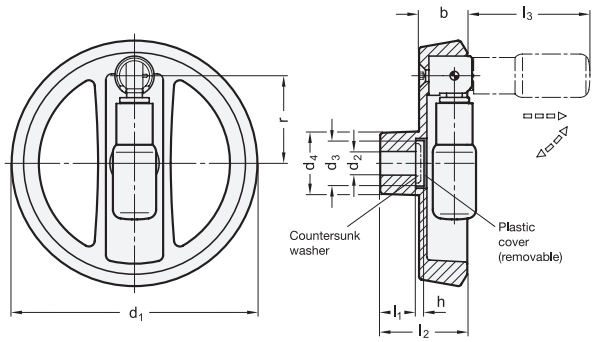
Retracting mechanism
Steel, blackened



reddot design award

INFORMATION

Retractable handwheels GN 924.7 are distinguished by modern design.
These spoked handwheels are suitable for applications where the handle must not remain in the operating position.
In order to bring the handle into this position it has to be turned first through 90° to a stop against a torsion spring and then it is pushed against spring pressure into its hold position. By maintaining the forward thrust on the handle the handwheel can easily be rotated.
When releasing the handle the springs returns it back to the retracted position.



*Complete with colour index of the Handwheels (SW or SR)

SW RAL9005 SR RAL9006

GN 924.7

Description	d1	d2 H7	d3	d4	b	h	l1	l2 ≈	l3 ≈	r ≈	Ø Handle	Recommended countersunk washer	⚖
GN 924.7-125-B12-R-*	125	12	23	31	24.5	4	18	45	62	45.5	22	GN 184-22	460
GN 924.7-125-K12-R-*	125	12	23	31	24.5	4	18	45	62	45.5	22	GN 184-22	460
GN 924.7-125-B14-R-*	125	14	23	31	24.5	4	18	45	62	45.5	22	GN 184-22	450
GN 924.7-125-K14-R-*	125	14	23	31	24.5	4	18	45	62	45.5	22	GN 184-22	450
GN 924.7-140-B14-R-*	140	14	23	36	26	4	19	47	77.5	52	24	GN 184-22	580
GN 924.7-140-K14-R-*	140	14	23	36	26	4	19	47	77.5	52	24	GN 184-22	580
GN 924.7-160-B14-R-*	160	14	23	36	26	4	20	48	77.5	61	24	GN 184-22	700
GN 924.7-160-K14-R-*	160	14	23	36	26	4	20	48	77.5	61	24	GN 184-22	700
GN 924.7-140-B16-R-*	140	16	23	36	26	4	19	47	77.5	52	24	GN 184-22	590
GN 924.7-140-K16-R-*	140	16	23	36	26	4	19	47	77.5	52	24	GN 184-22	590
GN 924.7-160-B16-R-*	160	16	23	36	26	4	20	48	77.5	61	24	GN 184-22	710
GN 924.7-160-K16-R-*	160	16	23	36	26	4	20	48	77.5	61	24	GN 184-22	700
GN 924.7-200-B18-R-*	200	18	23	42	27	4	24	53	87.5	80.5	25	GN 184-22	1050
GN 924.7-200-K18-R-*	200	18	23	42	27	4	24	53	87.5	80.5	25	GN 184-22	1050
GN 924.7-200-B20-R-*	200	20	23	42	27	4	24	53	87.5	80.5	25	GN 184-22	1035
GN 924.7-200-K20-R-*	200	20	23	42	27	4	24	53	87.5	80.5	25	GN 184-22	1035

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Spoked handwheels

Aluminium, blank, rim polished



SPECIFICATION

Types

- Type **A**: without handle
- Type **R**: with revolving handle

Bore codes

- Version **B**: without keyway
- Version **K**: with keyway

Aluminium

- Hub machined
- Rim turned

Rim concentric and square to bore < 0.4

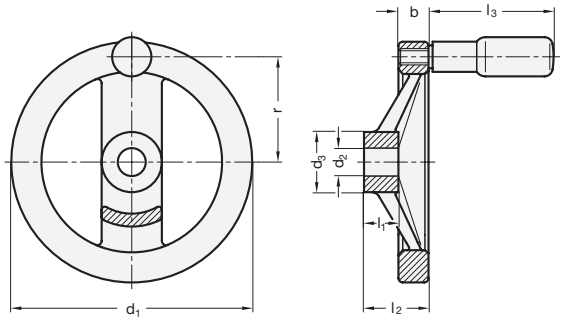
Wheel body

- Rim high-polished
- unmachined body matt shot-blasted

Cylindrical Revolving handles GN 798 (see page 577)
Plastic, Technopolymer
black, matt

TECHNICAL INFORMATION

- Keyway P9 DIN 6885 (see page A16)
- Cross holes GN 110 (see page A17)
- ISO-Fundamental Tolerances (see page A21)



* Complete with Bore codes of the Handwheel (B or K)

B without keyway K with keyway

GN 322-A

Description	d1	d2 H7	d3	b	l1	l2	⚖
GN 322-125-*12-A	125	12	31	15	18	33	311
GN 322-125-*14-A	125	14	31	15	18	33	308
GN 322-140-*14-A	140	14	36	16.5	19	36	411
GN 322-140-*16-A	140	16	36	16.5	19	36	394
GN 322-160-*14-A	160	14	36	18	20	39	539
GN 322-160-*16-A	160	16	36	18	20	39	530
GN 322-200-*18-A	200	18	42	20.5	24	45	892
GN 322-200-*20-A	200	20	42	20.5	24	45	885
GN 322-250-*22-A	250	22	48	23	28	51	1478
GN 322-250-*26-A	250	26	48	23	28	51	1454

GN 322-R

Description	d1	d2 H7	d3	b	l1	l2	l3	r	Ø Handle	⚖
GN 322-125-*12-R	125	12	31	15	18	33	61.5	54	22	396
GN 322-125-*14-R	125	14	31	15	18	33	61.5	54	22	393
GN 322-140-*14-R	140	14	36	16.5	19	36	76.5	61	24	411
GN 322-140-*16-R	140	16	36	16.5	19	36	76.5	61	24	405
GN 322-160-*14-R	160	14	36	18	20	39	76.5	71	24	613
GN 322-160-*16-R	160	16	36	18	20	39	76.5	71	24	610
GN 322-200-*18-R	200	18	42	20.5	24	45	86.5	89	25	1017
GN 322-200-*20-R	200	20	42	20.5	24	45	86.5	89	25	1010
GN 322-250-*22-R	250	22	48	23	28	51	86.5	113	25	1603
GN 322-250-*26-R	250	26	48	23	28	51	86.5	113	25	1579

Weight type B

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GN 322.3

Handwheels with rectractable handle

Aluminium, Handle locked



SPECIFICATION

Type

- Type **R**: with retractable handle

Bore codes

- Version **B**: without keyway
- Version **K**: with keyway

Aluminium

- Hub machined
- Rim turned and polished
- Unmachined body matt shot-blasted

Rim concentric and square to bore < 0.4

Retractable handles GN 798.3 (see page 586)
Plastic, Technopolymer
black, matt

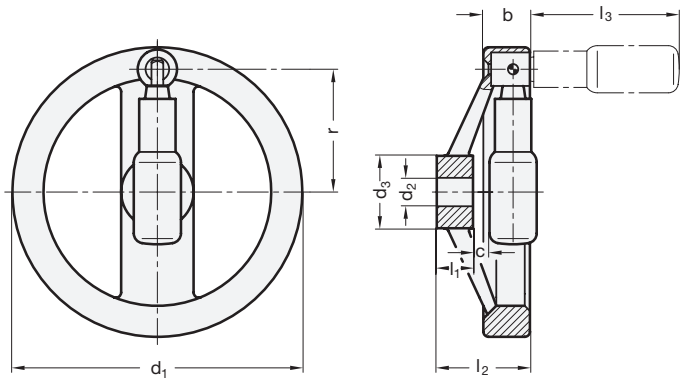
Retracting mechanism
Steel, blackened

INFORMATION

The handle in the handwheels GN 322.3 is locked in a conical bore in the operating position.
For reversal, it must first be pulled from the cone in axial direction. A pressure spring holds the handle in both positions. When swung out, it automatically engages again.

TECHNICAL INFORMATION

- Keyway P9 DIN 6885 (see page A16)
- Cross holes GN 110 (see page A17)
- ISO-Fundamental Tolerances (see page A21)



GN 322.3

Description	d1	d2 H7	d3	b	c	l1	l2	l3	r	Ø Handle	⚖
GN 322.3-125-B12-R	125	12	31	24.5	6.5	18	44	60	50	22	390
GN 322.3-125-K12-R	125	12	31	24.5	6.5	18	44	60	50	22	390
GN 322.3-140-B14-R	140	14	36	24.5	6	19	45.5	75	57.5	24	541
GN 322.3-140-K14-R	140	14	36	24.5	6	19	45.5	75	57.5	24	541
GN 322.3-160-B14-R	160	14	36	25	6.5	20	47	75	67.5	24	653
GN 322.3-160-K14-R	160	14	36	25	6.5	20	47	75	67.5	24	653
GN 322.3-160-B16-R	160	16	36	25	6.5	20	47	75	67.5	24	649
GN 322.3-160-K16-R	160	16	36	25	6.5	20	47	75	67.5	24	649
GN 322.3-200-B18-R	200	18	42	25	7.5	24	52.5	85	84	25	954
GN 322.3-200-K18-R	200	18	42	25	7.5	24	52.5	85	84	25	954
GN 322.3-200-B20-R	200	20	42	25	7.5	24	52.5	85	84	25	949
GN 322.3-200-K20-R	200	20	42	25	7.5	24	52.5	85	84	25	949
GN 322.3-250-B22-R	250	22	48	26.5	12	28	61	85	111	25	1364
GN 322.3-250-K22-R	250	22	48	26.5	12	28	61	85	111	25	1364

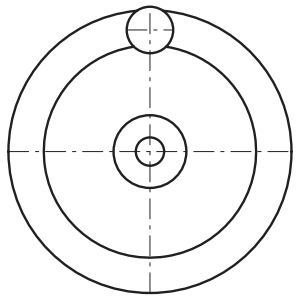
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Safety handwheels

Overview of types

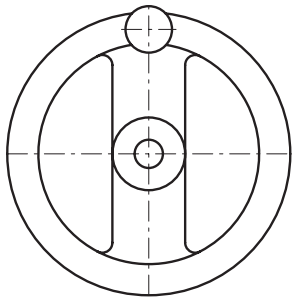
DISC HANDWHEELS GN 321 (see page 172)
Aluminium
Rim polished

Cylindrical revolving handles GN 598 (see page 573)
Steel
plastic coated
black, textured finish



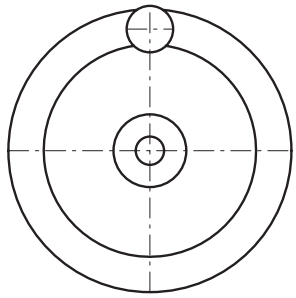
SPOKED HANDWHEELS GN 322 (see page 130)
Aluminium
Rim polished

Cylindrical revolving handles GN 598 (see page 573)
Steel
plastic coated
black, textured finish



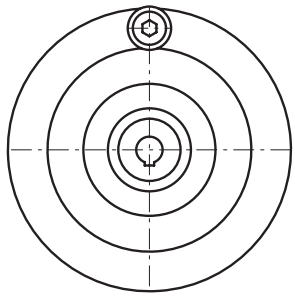
DISC HANDWHEELS GN 323 (see page 174)
Aluminium
plastic coated
black, textured finish

Cylindrical revolving handles GN 598 (see page 573)
Steel
plastic coated
black, textured finish



SAFETY SOLID HANDWHEELS VDN.FP+I+ST (see page 166)
Duroplast

Revolving handles I.301+x (see page 574)
Duroplast



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Safety handwheels

Instruction - Application guide

The relevant health and safety at work provisions state that handwheels must be attached to spindles such that they are not turned along together with the machine drive assembly. Safety handwheels meet this requirement:

- If not in operation, the wheel is disengaged. Shifting it in axial direction (pushing or pulling) will intermesh two serrated bushings, formlocking the wheel with the shaft.
- After releasing, the wheel will disengage again automatically.

A number of user notices for various design types are listed below. These notices are non-binding and given without liability. They do not constitute a warranty of proper function. The user must in any case determine whether the safety handwheels are suitable for the intended purpose and use.

1. Safety handwheels with coupling attachment GN 000.4 (friction bearing)

All coupling elements are housed in an enclosed component known as coupling attachment. It is designed such that it can be installed in all current types of handwheels and also in other machine elements.

Optionally, the same coupling attachment can be mounted in the handwheel such that the axial movement for dis-engagement is either "pulling" or "pushing" for disengaging. The "pushing" version is safer in terms of health and safety at work because the risk of inadvertent engagement is lower.

Type A (without handle)

As there is no unbalance (handle), this handwheel will also turn along with the drive, but it can be stopped by hand.

With the wheel moving along, the bearing is not put under excessive strain, with the effect that this type is particularly suitable for continuous operation. At higher speeds, the unbalanced handwheel may cause vibrations, however. Also, the friction heat which develops when braking the wheel must be kept in mind.

Type D (with handle)

The handle (unbalance) causes the disengaged handwheel to stop while the shaft is turning. Owing to the type of construction and bearing design of these couplings, the use of these handwheels is usually limited to relatively slow-turning spindle speeds or spindle speeds running at higher speed for short periods. A high risk of dirt deposits (grinding dust) and dry-running can limit the user options even further.

If the handwheel and its handle are deliberately or inadvertently set in (concurrent) motion while the shaft is turning, bearing friction may cause the wheel to turn permanently. At higher speeds, this may cause vibrations and, considering the rotating mass of the handle, can result in injuries also if disengaged. This risk / operating status must therefore be avoided at all cost.

Coupling attachments GN 000.4 (see page 184)
Safety handwheels GN 321.4 (see page 178)

2. Safety handwheels with coupling attachment GN 000.5 (needle bearing)

The details given under 1. above apply in principle also to these safety handwheels.

With their needle bearings, they have the advantage over friction bearings that they can be used for somewhat higher speeds due to their substantially lower friction, lower wear and tear and lower sensitivity to lubrication.

Owing to their larger construction length and lower friction (hardened contact surfaces) and finer intermeshing, these wheels are also easier to engage.

Coupling attachments GN 000.5 (see page 185)
Safety handwheels GN 321.5 (see page 179) and VDN.FP+I+ST (see page 166)

3. Safety handwheels with hub cap GN 321.6

These handwheels are an advance development of the safety handwheels with coupling attachment GN 000.5 (needle bearing).

The coupling elements have been specially developed for this type of handwheel and are therefore not intended for general use. Also, they are only intended for the "pulling" mode of engagement.

The user notices listed under 1. and/or 2. above also apply here. Owing to their type of construction, especially the cap, these handwheels are largely protected from dirt.

Safety handwheels GN 321.6 (see page 180)

4. Safety handwheels with fixed bearing flange GN 327

The safety handwheels described under 1. to 3. above are characterised by the fact that they require no special machine-side measures for attaching. They are simply pushed over the shaft. However, the inevitable bearing friction generates a link between shaft and handwheel which needs to be kept in mind as specified above.

For applications with very high rotary speed, ultimate levels of safety at work and under continuous operation, the safety handwheel with fixed bearing flange is the best possible solution. The separate bearing configuration means that the user notices given for types 1. to 3. do not apply.

However, this safety handwheel is more complex, with a number of requirements to be met at the machine side.

Safety handwheels GN 327 (see page 182)

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Safety handwheels

with friction bearing

SPECIFICATION

Types

- Type **A**: without handle
- Type **D**: with revolving steel handle

Coding

- Version **ZI**: engage by pulling
- Version **DR**: engage by pushing

Aluminium

- Hub machined
- Rim turned

Rim concentric and square to bore < 0.4

Wheel body

- Rim high-polished
- unmachined body matt shot-blasted

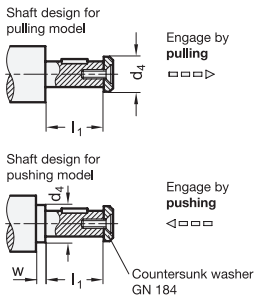
Cylindrical Revolving handles GN 598 (see page 573)
Steel, plastic coated, black, matt

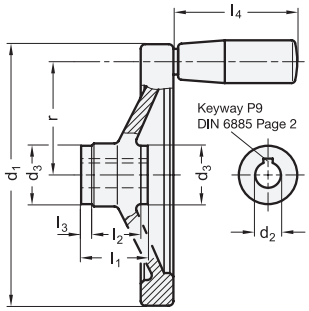


INFORMATION

The use of coupling attachments in handwheels other than specified is also possible.

- Instructions for safety handwheels (see page 133)





*Complete with Coding of the Handwheels (ZI or DR)

ZI	DR
Engage by pulling	Engage by pushing

GN 322.4-A

Description	d1	d2 H7	d3	d4 max.	l1 max.	l2	l3	w min.	Coupling	⚖
GN 322.4-125-K12-A-*	125	K 12	28	17	28.5	18	5	4	GN 000.4-1	368
GN 322.4-140-K12-A-*	140	K 12	28	17	28.5	19	5	4	GN 000.4-1	505
GN 322.4-140-K14-A-*	140	K 14	32	21	32.5	19	6	4	GN 000.4-2	499
GN 322.4-140-K16-A-*	140	K 16	32	21	32.5	19	6	4	GN 000.4-2	486
GN 322.4-160-K14-A-*	160	K 14	32	21	32.5	20	6	4	GN 000.4-2	615
GN 322.4-160-K16-A-*	160	K 16	32	21	32.5	20	6	4	GN 000.4-2	602
GN 322.4-200-K18-A-*	200	K 18	38	26	36.5	24	6	4	GN 000.4-3	1032
GN 322.4-200-K20-A-*	200	K 20	38	26	36.5	24	6	4	GN 000.4-3	1015
GN 322.4-250-K22-A-*	250	K 22	45	30	47.5	28	12	4	GN 000.4-4	1740

GN 322.4-D

Description	d1	d2 H7	d3	d4 max.	l1 max.	l2	l3	l4 ≈	r	w min.	Ø Handle	Coupling	⚖
GN 322.4-125-K12-D-*	125	K 12	28	17	28.5	18	5	67.5	54	4	23	GN 000.4-1	552
GN 322.4-140-K12-D-*	140	K 12	28	17	28.5	19	5	67.5	61	4	23	GN 000.4-1	660
GN 322.4-140-K14-D-*	140	K 14	32	21	32.5	19	6	67.5	61	4	23	GN 000.4-2	640
GN 322.4-140-K16-D-*	140	K 16	32	21	32.5	19	6	67.5	61	4	23	GN 000.4-2	620
GN 322.4-160-K14-D-*	160	K 14	32	21	32.5	20	6	82.5	71	4	26	GN 000.4-2	907
GN 322.4-160-K16-D-*	160	K 16	32	21	32.5	20	6	82.5	71	4	26	GN 000.4-2	894
GN 322.4-200-K18-D-*	200	K 18	38	26	36.5	24	6	82.5	89	4	26	GN 000.4-3	1324
GN 322.4-200-K20-D-*	200	K 20	38	26	36.5	24	6	82.5	89	4	26	GN 000.4-3	1307
GN 322.4-250-K22-D-*	250	K 22	45	30	47.5	28	12	82.5	113	4	28	GN 000.4-4	2122

Weight coding ZI

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GN 322.5

Safety handwheels

with needle bearing



SPECIFICATION

Types

- Type **A**: without handle
- Type **D**: with revolving steel handle

Coding

- Version **ZI**: engage by pulling
- Version **DR**: engage by pushing

Aluminium

- Hub machined
- Rim turned

Rim concentric and square to bore < 0.4

Wheel body

- Rim high-polished
- unmachined body matt shot-blasted

Cylindrical Revolving handles GN 598 (see page 573)
Steel, plastic coated
black, matt

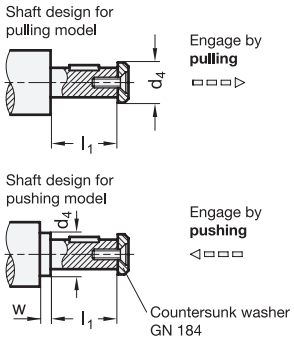
INFORMATION

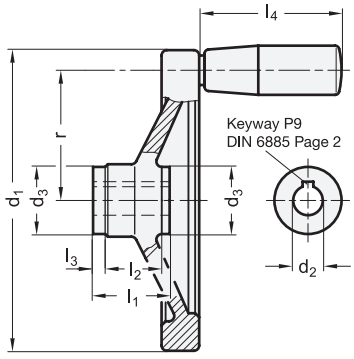
The use of coupling attachments in handwheels other than specified is also possible.

- Instructions for safety handwheels (see page 133)

TECHNICAL INFORMATION

- Keyway DIN 6885 (see page A16)
- ISO-Fundamental Tolerances (see page A21)





*Complete with Coding of the Handwheels (ZI or DR)

ZI Engage by pulling
DR Engage by pushing

GN 322.5-A

Description	d1	d2 H7	d3	d4 max.	l1 max.	l2	l3	w min.	Coupling	⚖
GN 322.5-125-K12-A-*	125	K 12	29	17	42	18	12	4	GN 000.5-1	414
GN 322.5-140-K12-A-*	140	K 12	29	17	42	19	12	4	GN 000.5-1	522
GN 322.5-140-K14-A-*	140	K 14	33	21	48	19	14	4	GN 000.5-2	515
GN 322.5-160-K14-A-*	160	K 14	33	21	48	20	14	4	GN 000.5-2	686
GN 322.5-200-K18-A-*	200	K 18	39	26	50	24	13	4	GN 000.5-3	1117
GN 322.5-250-K22-A-*	250	K 22	46	30	54	28	13	4	GN 000.5-4	1781

GN 322.5-D

Description	d1	d2 H7	d3	d4 max.	l1 max.	l2	l3	l4 ≈	r	w min.	Ø Handle	Coupling	⚖
GN 322.5-125-K12-D-*	125	K 12	29	17	42	18	12	67.5	54	4	23	GN 000.5-1	597
GN 322.5-140-K12-D-*	140	K 12	29	17	42	19	12	67.5	61	4	23	GN 000.5-1	705
GN 322.5-140-K14-D-*	140	K 14	33	21	48	19	14	67.5	61	4	23	GN 000.5-2	690
GN 322.5-160-K14-D-*	160	K 14	33	21	48	20	14	82.5	71	4	26	GN 000.5-2	978
GN 322.5-200-K18-D-*	200	K 18	39	26	50	24	13	82.5	89	4	26	GN 000.5-3	1409
GN 322.5-250-K22-D-*	250	K 22	46	30	54	28	13	82.5	113	4	28	GN 000.5-4	2173

Weight coding ZI

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Handwheels with retractable handle

Aluminium, Handle swivelling

SPECIFICATION

Type

- Type **R**: with retractable handle

Bore codes

- Version **B**: without keyway
- Version **K**: with keyway

Aluminium

- Hub machined
- Rim turned and polished
- Unmachined body matt shot-blasted

Rim concentric and square to bore < 0.4

Safety retractable handles GN 798.7 (see page 587)
Plastic, Technopolymer
black, matt

Retracting mechanism
Steel, blackened

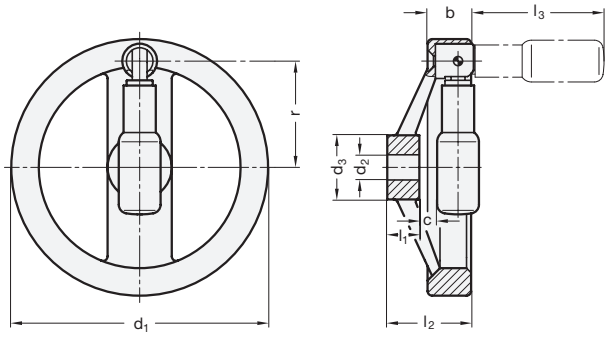


INFORMATION

Spoked handwheels GN 322.7 are suitable for applications where the handle must not remain in the operating position. In order to bring the handle into this position it has to be turned first through 90° to a stop against a torsion spring and then it is pushed against spring pressure into its hold position.
By maintaining the forward thrust on the handle the handwheel can easily be rotated. When releasing the handle the springs returns it back to the retracted position.

TECHNICAL INFORMATION

- Keyway P9 DIN 6885 (see page A16)
- Cross holes GN 110 (see page A17)
- ISO-Fundamental Tolerances (see page A21)



GN 322.7

Description	d1	d2 H7	d3	b	c	l1	l2	l3	r	Ø Handle	⚖
GN 322.7-125-B12-R	125	12	31	24.5	7.5	18	44	61.5	50	22	438
GN 322.7-125-K12-R	125	12	31	24.5	7.5	18	44	61.5	50	22	438
GN 322.7-140-B14-R	140	14	36	24.5	7	19	45.5	76.5	57.5	24	548
GN 322.7-140-K14-R	140	14	36	24.5	7	19	45.5	76.5	57.5	24	530
GN 322.7-160-B14-R	160	14	36	25	7.5	20	47	76.5	67.5	24	660
GN 322.7-160-K14-R	160	14	36	25	7.5	20	47	76.5	67.5	24	640
GN 322.7-160-B16-R	160	16	36	25	7.5	20	47	76.5	67.5	24	560
GN 322.7-160-K16-R	160	16	36	25	7.5	20	47	76.5	67.5	24	550
GN 322.7-200-B18-R	200	18	42	25	8.5	24	52.5	86.5	84	25	970
GN 322.7-200-K18-R	200	18	42	25	8.5	24	52.5	86.5	84	25	960
GN 322.7-200-B20-R	200	20	42	25	8.5	24	52.5	86.5	84	25	945
GN 322.7-200-K20-R	200	20	42	25	8.5	24	52.5	86.5	84	25	935
GN 322.7-250-B22-R	250	22	48	26.5	13	28	61	86.5	111	25	1380
GN 322.7-250-K22-R	250	22	48	26.5	13	28	61	86.5	111	25	1330

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GN 324

Spoked handwheels

Aluminium, black, plastic coated



SPECIFICATION

Types

- Version **A**: without handle
- Version **R**: with revolving handle

Bore codes

- Version **B**: without keyway
- Version **K**: with keyway

Aluminium

- Hub machined
- Rim turned

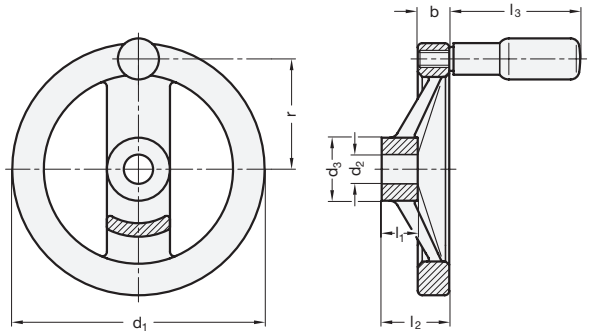
Rim concentric and square to bore < 0.4

Body plastic coated
black, textured finish

Cylindrical Revolving handles GN 798 (see page 577)
Plastic, Technopolymer
black, matt

TECHNICAL INFORMATION

- Keyway DIN 6885 (see page A16)
- Cross holes GN 110 (see page A17)
- ISO-Fundamental Tolerances (see page A21)



*Complete with Bore codes of the Handwheel (B or K)

B without keyway **K** with keyway

GN 324-A

Description	d1	d2 H7	d3	b	l1	l2	⚖
GN 324-125-*12-A	125	12	31	15	18	33	316
GN 324-125-*14-A	125	14	31	15	18	33	310
GN 324-140-*14-A	140	14	36	16.5	19	36	408
GN 324-140-*16-A	140	16	36	16.5	19	36	400
GN 324-160-*14-A	160	14	36	18	20	39	540
GN 324-160-*16-A	160	16	36	18	20	39	530
GN 324-200-*18-A	200	18	42	20.5	24	45	911
GN 324-200-*20-A	200	20	42	20.5	24	45	894
GN 324-250-*22-A	250	22	48	23	28	51	1503
GN 324-250-*26-A	250	26	48	23	28	51	1497

GN 324-R

Description	d1	d2 H7	d3	b	l1	l2	l3	r	Ø Handle	⚖
GN 324-125-*12-R	125	12	31	15	18	33	61.5	54	22	390
GN 324-125-*14-R	125	14	31	15	18	33	61.5	54	22	380
GN 324-140-*14-R	140	14	36	16.5	19	36	76.5	61	24	510
GN 324-140-*16-R	140	16	36	16.5	19	36	76.5	61	24	490
GN 324-160-*14-R	160	14	36	18	20	39	76.5	71	24	635
GN 324-160-*16-R	160	16	36	18	20	39	76.5	71	24	620
GN 324-200-*18-R	200	18	42	20.5	24	45	86.5	89	25	1036
GN 324-200-*20-R	200	20	42	20.5	24	45	86.5	89	25	1019
GN 324-250-*22-R	250	22	48	23	28	51	86.5	113	25	1628
GN 324-250-*26-R	250	26	48	23	28	51	86.5	113	25	1600

Weight type B

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RoHS PF +110° -20°

Spoked handwheels

Duroplast, not drilled hub

MATERIAL
High-strength, reinforced phenolic based (PF) Duroplast, black colour, glossy finish.

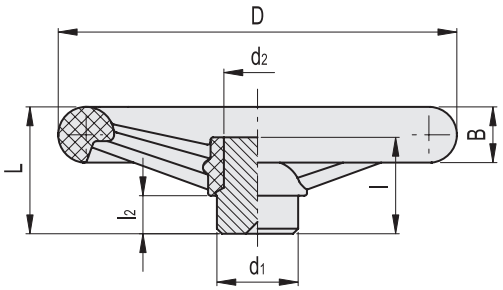
STANDARD EXECUTIONS
Black-oxide steel hub, uncovered front end, not drilled. See table for maximum permissible boring diameter d' and d".
- **VR.FP:** without handle.
- **VR.FP+I:** with revolving handle I.301+x (see page 574) in Duroplast.

ACCESSORIES ON REQUEST
Axial retaining washer GN 184 (see page 971).

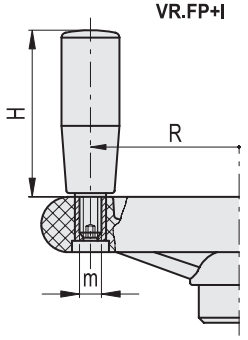


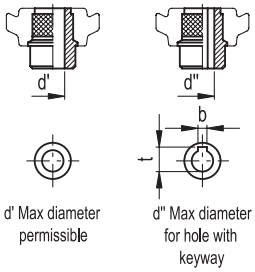
ELESA Original design

VR.FP



VR.FP+I





VR.FP

Code	Description	D	L	B	d1	d2	l	l2	d'	d''	t	b	C# [Nm]	L# [J]	⚖
77111	VR.100 FP	98	40	14	24	20	36	12	16	13	15.3	5	67	5	175
77211	VR.125 FP	124	45	18	24	20	36	12	16	13	15.3	5	120	8	240
77311	VR.140 FP	139	47	20	32	24	38	15	20	16	18.3	5	165	12	390
77411	VR.160 FP	157	50	22	32	24	38	15	20	16	18.3	5	165	12	455
77511	VR.180 FP	180	56	24	40	31	43	15	26	22	24.8	6	280	15	700
77611	VR.200 FP	198	56	24	40	31	43	15	26	22	24.8	6	300	16	750
77711	VR.250 FP	247	66	30	49	38	44	15	34	27	30.3	8	405	19	1235
77811	VR.300 FP	288	78	32	58	47	56	18	42	34	37.3	10	800	33	2060
77901	VR.375 FP	375	108	40	58	58	77	26	45	40	43.3	12	1450	70	3900

VR.FP+I

Code	Description	D	L	B	d1	d2	l	l2	H	m	R	d'	d''	C# [Nm]	L# [J]	⚖
77121	VR.100 FP+I	98	40	14	24	20	36	12	40	M6	37	16	13	67	5	205
77221	VR.125 FP+I	124	45	18	24	20	36	12	50	M8	47	16	13	120	8	300
77321	VR.140 FP+I	139	47	20	32	24	38	15	65	M8	53	20	16	165	12	475
77421	VR.160 FP+I	157	50	22	32	24	38	15	65	M8	59	20	16	165	12	540
77521	VR.180 FP+I	180	56	24	40	31	43	15	80	M10	68	26	22	280	15	830
77621	VR.200 FP+I	198	56	24	40	31	43	15	80	M10	76	26	22	300	16	880
77721	VR.250 FP+I	247	66	30	49	38	44	15	90	M10	98	34	27	405	19	1420
77821	VR.300 FP+I	288	78	32	58	47	56	18	100	M12	113	42	34	800	33	2335
77911	VR.375 FP+I	375	108	40	58	58	77	26	100	M12	160	45	40	1450	70	4170

For maximum torque (C) and impact strength (L) see Technical Data on page A3.

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Spoked handwheels

Duroplast, large diameter hub



ELESA Original design

MATERIAL

High-strength, reinforced phenolic based (PF) Duroplast black colour, glossy finish.

STANDARD EXECUTIONS

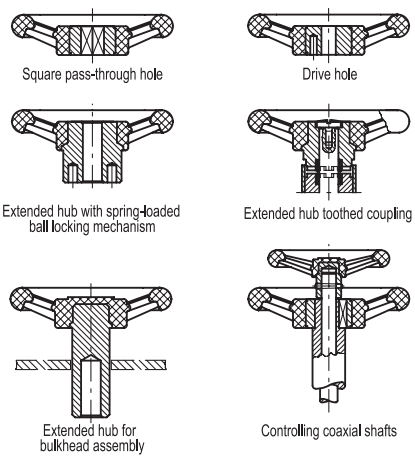
Large diameter black-oxide steel hub, uncovered front end with spot-drilling.

- **VRU.:** without handle.
- **VRU+I:** with revolving handle I.301+x (see page 574) in Duroplast.

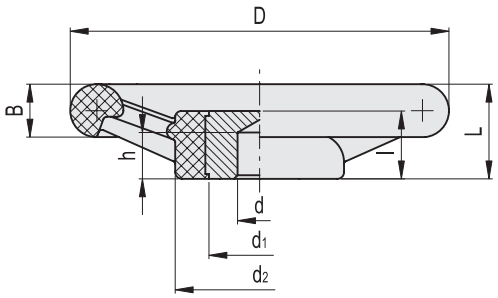
ACCESSORIES ON REQUEST

Axial retaining washer GN 184 (see page 971).

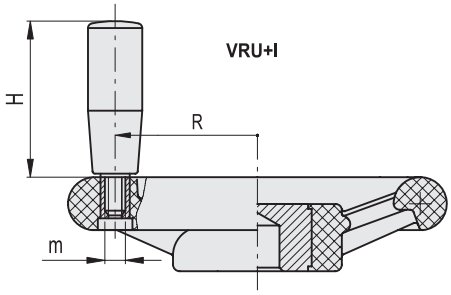
Execution examples for special applications



VRU.



VRU+I



VRU.

Code	Description	D	dH9	L	B	d1	d2	l	h	C# [Nm]	L# [J]	⚖
80001	VRU.125	125	10	28	18	32	55	22	15	220	9	315
80101	VRU.160	160	10	35	22	42	70	26	17	350	13	615
80201	VRU.200	199	12	40	26	53	85	27	20	450	20	990
80301	VRU.250	249	12	49	30	68	105	30	22	650	25	1770

VRU+I

Code	Description	D	dH9	L	B	d1	d2	l	h	H	m	R	C# [Nm]	L# [J]	⚖
80011	VRU.125+I	125	10	28	18	32	55	22	15	65	M8	47	220	9	400
80111	VRU.160+I	160	10	35	22	42	70	26	17	65	M8	60	350	13	700
80211	VRU.200+I	199	12	40	26	53	85	27	20	80	M10	75	450	20	1130
80311	VRU.250+I	249	12	49	30	68	105	30	22	80	M10	99	650	25	1910

For maximum torque (C) and impact strength (L) see Technical Data on page A3.

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Spoked handwheels

Cast iron / Aluminium



SPECIFICATION

Types

- Type **A**: without handle
- Type **F**: with fixed handle
- Type **D**: with revolving handle

Bore codes

- Version **B**: without keyway
- Version **K**: with keyway
- Version **V**: with square

Cast iron **GG**

- Hub machined
- Rim turned and polished

Aluminium **AL**

- Hub machined
- Rim turned and polished
- unmachined body shot-blasted

Rim concentric and square to bore < 0.4

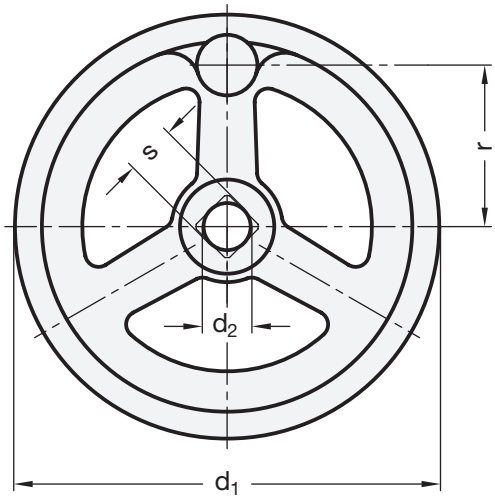
Fixed handles DIN 39 (see page 565)
Revolving handles DIN 98 (see page 579)
Steel, zinc plated respectively
Plastic, Technopolymer black

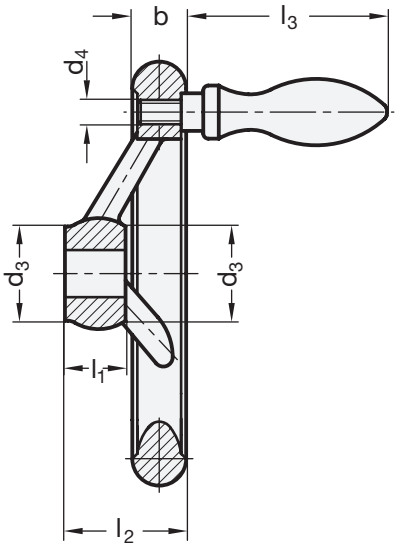
INFORMATION

Handwheels DIN 950 in cast iron are supplied with handles made of zinc plated steel. In aluminum they are supplied with handles made of plastic (Type D) and made of zinc plated steel (Type F).
The official standard sheet only provides for types A (without handle) and G (without handle, but with thread d_4), also without the handwheel diameter $d_1 = 180$.

TECHNICAL INFORMATION

- Keyway P9 DIN 6885 (see page A16)
- Square DIN 79 (see page A16)
- Cross holes GN 110 (see page A17)
- ISO-Fundamental Tolerances (see page A21)





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DIN 950 | Spoked handwheels

*Complete with material of the Spoked handwheels (GG or AL)

GG Cast iron **AL** Aluminium

DIN 950-A

Description	d1	d2 H7	s H11	d3 ≈	b	l1	l2 ≈	No. of spokes	⚖
DIN 950-*-80-V9-A	80	-	V 9	24	14	16	29	3	105
DIN 950-*-80-B10-A	80	10	-	24	14	16	29	3	100
DIN 950-*-80-K10-A	80	10	-	24	14	16	29	3	100
DIN 950-*-80-B12-A	80	12	-	24	14	16	29	3	110
DIN 950-*-80-K12-A	80	12	-	24	14	16	29	3	100
DIN 950-*-100-V9-A	100	-	V 9	26	15	17	33	3	190
DIN 950-*-100-B10-A	100	10	-	26	15	17	33	3	187
DIN 950-*-100-K10-A	100	10	-	26	15	17	33	3	185
DIN 950-*-100-B12-A	100	12	-	26	15	17	33	3	185
DIN 950-*-100-K12-A	100	12	-	26	15	17	33	3	183
DIN 950-*-125-V11-A	125	-	V 11	28	16	18	36	3	265
DIN 950-*-125-B12-A	125	12	-	28	16	18	36	3	240
DIN 950-*-125-K12-A	125	12	-	28	16	18	36	3	230
DIN 950-*-125-B14-A	125	14	-	28	16	18	36	3	259
DIN 950-*-125-K14-A	125	14	-	28	16	18	36	3	257
DIN 950-*-140-B14-A	140	14	-	30	17	19	39	3	339
DIN 950-*-140-K14-A	140	14	-	30	17	19	39	3	337
DIN 950-*-140-B16-A	140	16	-	30	17	19	39	3	327
DIN 950-*-140-K16-A	140	16	-	30	17	19	39	3	325
DIN 950-*-160-V12-A	160	-	V 12	33	18	20	40	3	460
DIN 950-*-160-B14-A	160	14	-	33	18	20	40	3	458
DIN 950-*-160-K14-A	160	14	-	33	18	20	40	3	450
DIN 950-*-160-B15-A	160	15	-	33	18	20	40	3	450
DIN 950-*-160-K15-A	160	15	-	33	18	20	40	3	445
DIN 950-*-160-B16-A	160	16	-	33	18	20	40	3	440
DIN 950-*-160-K16-A	160	16	-	33	18	20	40	3	435
DIN 950-*-180-B16-A	180	16	-	35	20	22	43	3	615
DIN 950-*-180-K16-A	180	16	-	35	20	22	43	3	611
DIN 950-*-180-B18-A	180	18	-	35	20	22	43	3	604
DIN 950-*-180-K18-A	180	18	-	35	20	22	43	3	600
DIN 950-*-200-V14-A	200	-	V 14	38	22	24	45	3	820
DIN 950-*-200-B18-A	200	18	-	38	22	24	45	3	806
DIN 950-*-200-K18-A	200	18	-	38	22	24	45	3	800
DIN 950-*-200-B20-A	200	20	-	38	22	24	45	3	795
DIN 950-*-200-K20-A	200	20	-	38	22	24	45	3	730
DIN 950-*-200-B22-A	200	22	-	38	22	24	45	3	799
DIN 950-*-200-K22-A	200	22	-	38	22	24	45	3	795
DIN 950-*-250-V17-A	250	-	V 17	48	26	28	50	5	1435
DIN 950-*-250-B22-A	250	22	-	48	26	28	50	5	1429
DIN 950-*-250-K22-A	250	22	-	48	26	28	50	5	1424
DIN 950-*-250-B24-A	250	24	-	48	26	28	50	5	1419
DIN 950-*-250-K24-A	250	24	-	48	26	28	50	5	1414
DIN 950-*-250-B26-A	250	26	-	48	26	28	50	5	1398
DIN 950-*-250-K26-A	250	26	-	48	26	28	50	5	1393
DIN 950-*-315-V19-A	315	-	V 19	53	28	33	56	5	2230
DIN 950-*-315-B26-A	315	26	-	53	28	33	56	5	2204
DIN 950-*-315-K26-A	315	26	-	53	28	33	56	5	2200
DIN 950-*-315-B28-A	315	28	-	53	28	33	56	5	2322
DIN 950-*-315-K28-A	315	28	-	53	28	33	56	5	2314
DIN 950-*-315-B30-A	315	30	-	53	28	33	56	5	2000
DIN 950-*-315-K30-A	315	30	-	53	28	33	56	5	1990
DIN 950-*-400-V24-A	400	-	V 24	65	32	38	63	5	4000
DIN 950-*-400-B30-A	400	30	-	65	32	38	63	5	3653
DIN 950-*-400-K30-A	400	30	-	65	32	38	63	5	3644
DIN 950-*-400-B32-A	400	32	-	65	32	38	63	5	3638
DIN 950-*-400-K32-A	400	32	-	65	32	38	63	5	3629

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DIN 950 | Spoked handwheels

*Complete with material of the Spoked handwheels (GG or AL)

GG Cast iron
AL Aluminium

DIN 950-A

Description	d1	d2 H7	s H11	d3 ≈	b	l1	l2 ≈	No. of spokes	⚖
DIN 950-*-400-K32-A	400	32	-	65	32	38	63	5	3629
DIN 950-*-400-B34-A	400	34	-	65	32	38	63	5	3619
DIN 950-*-400-K34-A	400	34	-	65	32	38	63	5	3610
DIN 950-*-500-V27-A	500	-	V 27	78	34	45	72	5	5485
DIN 950-*-500-B34-A	500	34	-	78	34	45	72	5	5470
DIN 950-*-500-K34-A	500	34	-	78	34	45	72	5	5460
DIN 950-*-500-B36-A	500	36	-	78	34	45	72	5	5440
DIN 950-*-500-K36-A	500	36	-	78	34	45	72	5	5430
DIN 950-*-500-B40-A	500	40	-	78	34	45	72	5	5400
DIN 950-*-500-K40-A	500	40	-	78	34	45	72	5	5390

DIN 950-F

Description	d1	d2 H7	s H11	d3 ≈	d4	b	l1	l2 ≈	l3	r	Ø Handle	No. of spokes	⚖
DIN 950-*-80-V9-F	80	-	V 9	24	M 6	14	16	29	48.5	27	16	3	146
DIN 950-*-80-B10-F	80	10	-	24	M 6	14	16	29	48.5	27	16	3	160
DIN 950-*-80-K10-F	80	10	-	24	M 6	14	16	29	48.5	27	16	3	146
DIN 950-*-80-B12-F	80	12	-	24	M 6	14	16	29	48.5	27	16	3	144
DIN 950-*-80-K12-F	80	12	-	24	M 6	14	16	29	48.5	27	16	3	142
DIN 950-*-100-V9-F	100	-	V 9	26	M 6	15	17	33	48.5	36	16	3	227
DIN 950-*-100-B10-F	100	10	-	26	M 6	15	17	33	48.5	36	16	3	228
DIN 950-*-100-K10-F	100	10	-	26	M 6	15	17	33	48.5	36	16	3	226
DIN 950-*-100-B12-F	100	12	-	26	M 6	15	17	33	48.5	36	16	3	224
DIN 950-*-100-K12-F	100	12	-	26	M 6	15	17	33	48.5	36	16	3	222
DIN 950-*-125-V11-F	125	-	V 11	28	M 8	16	18	36	62	47	20	3	349
DIN 950-*-125-B12-F	125	12	-	28	M 8	16	18	36	62	47	20	3	370
DIN 950-*-125-K12-F	125	12	-	28	M 8	16	18	36	62	47	20	3	349
DIN 950-*-125-B14-F	125	14	-	28	M 8	16	18	36	62	47	20	3	324
DIN 950-*-125-K14-F	125	14	-	28	M 8	16	18	36	62	47	20	3	322
DIN 950-*-140-B14-F	140	14	-	30	M 8	17	19	39	62	52	20	3	426
DIN 950-*-140-K14-F	140	14	-	30	M 8	17	19	39	62	52	20	3	424
DIN 950-*-140-B16-F	140	16	-	30	M 8	17	19	39	62	52	20	3	437
DIN 950-*-140-K16-F	140	16	-	30	M 8	17	19	39	62	52	20	3	422
DIN 950-*-160-V12-F	160	-	V 12	33	M 10	18	20	40	77	62	25	3	593
DIN 950-*-160-B14-F	160	14	-	33	M 10	18	20	40	77	62	25	3	593
DIN 950-*-160-K14-F	160	14	-	33	M 10	18	20	40	77	62	25	3	590
DIN 950-*-160-B15-F	160	15	-	33	M 10	18	20	40	77	62	25	3	591
DIN 950-*-160-K15-F	160	15	-	33	M 10	18	20	40	77	62	25	3	588
DIN 950-*-160-B16-F	160	16	-	33	M 10	18	20	40	77	62	25	3	588
DIN 950-*-160-K16-F	160	16	-	33	M 10	18	20	40	77	62	25	3	585
DIN 950-*-180-B16-F	180	16	-	35	M 10	20	22	43	77	72	25	3	750
DIN 950-*-180-K16-F	180	16	-	35	M 10	20	22	43	77	72	25	3	746
DIN 950-*-180-B18-F	180	18	-	35	M 10	20	22	43	77	72	25	3	746
DIN 950-*-180-K18-F	180	18	-	35	M 10	20	22	43	77	72	25	3	742
DIN 950-*-200-V14-F	200	-	V 14	38	M 10	22	24	45	77	80	25	3	961
DIN 950-*-200-B18-F	200	18	-	38	M 10	22	24	45	77	80	25	3	945
DIN 950-*-200-K18-F	200	18	-	38	M 10	22	24	45	77	80	25	3	941
DIN 950-*-200-B20-F	200	20	-	38	M 10	22	24	45	77	80	25	3	925

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DIN 950 | Spoked handwheels

*Complete with material of the Spoked handwheels (GG or AL)

GG Cast iron **AL** Aluminium

DIN 950-F

Description	d1	d2 H7	s H11	d3 ≈	d4	b	l1	l2 ≈	l3	r	Ø Handle	No. of spokes	⚖
DIN 950-*-200-K20-F	200	20	-	38	M 10	22	24	45	77	80	25	3	921
DIN 950-*-200-B22-F	200	22	-	38	M 10	22	24	45	77	80	25	3	910
DIN 950-*-200-K22-F	200	22	-	38	M 10	22	24	45	77	80	25	3	906
DIN 950-*-250-V17-F	250	-	V 17	48	M 12	26	28	50	96.5	101	32	5	4800
DIN 950-*-250-B22-F	250	22	-	48	M 12	26	28	50	96.5	101	32	5	1784
DIN 950-*-250-K22-F	250	22	-	48	M 12	26	28	50	96.5	101	32	5	1779
DIN 950-*-250-B24-F	250	24	-	48	M 12	26	28	50	96.5	101	32	5	1774
DIN 950-*-250-K24-F	250	24	-	48	M 12	26	28	50	96.5	101	32	5	1769
DIN 950-*-250-B26-F	250	26	-	48	M 12	26	28	50	96.5	101	32	5	1753
DIN 950-*-250-K26-F	250	26	-	48	M 12	26	28	50	96.5	101	32	5	1748
DIN 950-*-315-V19-F	315	-	V 19	53	M 12	28	33	56	96.5	132	32	5	2695
DIN 950-*-315-B26-F	315	26	-	53	M 12	28	33	56	96.5	132	32	5	2685
DIN 950-*-315-K26-F	315	26	-	53	M 12	28	33	56	96.5	132	32	5	2677
DIN 950-*-315-B28-F	315	28	-	53	M 12	28	33	56	96.5	132	32	5	2677
DIN 950-*-315-K28-F	315	28	-	53	M 12	28	33	56	96.5	132	32	5	2669
DIN 950-*-315-B30-F	315	30	-	53	M 12	28	33	56	96.5	132	32	5	2668
DIN 950-*-315-K30-F	315	30	-	53	M 12	28	33	56	96.5	132	32	5	2660
DIN 950-*-400-V24-F	400	-	V 24	65	M 12	32	38	63	96.5	171	32	5	4190
DIN 950-*-400-B30-F	400	30	-	65	M 12	32	38	63	96.5	171	32	5	4173
DIN 950-*-400-K30-F	400	30	-	65	M 12	32	38	63	96.5	171	32	5	4164
DIN 950-*-400-B32-F	400	32	-	65	M 12	32	38	63	96.5	171	32	5	4158
DIN 950-*-400-K32-F	400	32	-	65	M 12	32	38	63	96.5	171	32	5	4149
DIN 950-*-400-B34-F	400	34	-	65	M 12	32	38	63	96.5	171	32	5	4139
DIN 950-*-400-K34-F	400	34	-	65	M 12	32	38	63	96.5	171	32	5	4130
DIN 950-*-500-V27-F	500	-	V 27	78	M 12	34	45	72	96.5	220	32	5	6009
DIN 950-*-500-B34-F	500	34	-	78	M 12	34	45	72	96.5	220	32	5	5984
DIN 950-*-500-K34-F	500	34	-	78	M 12	34	45	72	96.5	220	32	5	5974
DIN 950-*-500-B36-F	500	36	-	78	M 12	34	45	72	96.5	220	32	5	6050
DIN 950-*-500-K36-F	500	36	-	78	M 12	34	45	72	96.5	220	32	5	5942
DIN 950-*-500-B40-F	500	40	-	78	M 12	34	45	72	96.5	220	32	5	5914
DIN 950-*-500-K40-F	500	40	-	78	M 12	34	45	72	96.5	220	32	5	5904

DIN 950-D

Description	d1	d2 H7	s H11	d3 ≈	d4	b	l1	l2 ≈	l3	r	Ø Handle	No. of spokes	⚖
DIN 950-*-80-V9-D	80	-	V 9	24	M 6	14	16	29	53	27	16	3	156
DIN 950-*-80-B10-D	80	10	-	24	M 6	14	16	29	53	27	16	3	150
DIN 950-*-80-K10-D	80	10	-	24	M 6	14	16	29	53	27	16	3	136
DIN 950-*-80-B12-D	80	12	-	24	M 6	14	16	29	53	27	16	3	134
DIN 950-*-80-K12-D	80	12	-	24	M 6	14	16	29	53	27	16	3	130
DIN 950-*-100-V9-D	100	-	V 9	26	M 6	15	17	33	53	36	16	3	237
DIN 950-*-100-B10-D	100	10	-	26	M 6	15	17	33	53	36	16	3	220
DIN 950-*-100-K10-D	100	10	-	26	M 6	15	17	33	53	36	16	3	215
DIN 950-*-100-B12-D	100	12	-	26	M 6	15	17	33	53	36	16	3	225
DIN 950-*-100-K12-D	100	12	-	26	M 6	15	17	33	53	36	16	3	220
DIN 950-*-125-V11-D	125	-	V 11	28	M 8	16	18	36	65	47	20	3	332
DIN 950-*-125-B12-D	125	12	-	28	M 8	16	18	36	65	47	20	3	330
DIN 950-*-125-K12-D	125	12	-	28	M 8	16	18	36	65	47	20	3	320
DIN 950-*-125-B14-D	125	14	-	28	M 8	16	18	36	65	47	20	3	341
DIN 950-*-125-K14-D	125	14	-	28	M 8	16	18	36	65	47	20	3	339

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DIN 950 | Spoked handwheels

*Complete with material of the Spoked handwheels (GG or AL)

GG Cast iron

AL Aluminium

DIN 950-D

Description	d1	d2 H7	s H11	d3 ≈	d4	b	l1	l2 ≈	l3	r	Ø Handle	No. of spokes	⚖
DIN 950-*-140-B14-D	140	14	-	30	M 8	17	19	39	65	52	20	3	340
DIN 950-*-140-K14-D	140	14	-	30	M 8	17	19	39	65	52	20	3	320
DIN 950-*-140-B16-D	140	16	-	30	M 8	17	19	39	65	52	20	3	378
DIN 950-*-140-K16-D	140	16	-	30	M 8	17	19	39	65	52	20	3	375
DIN 950-*-160-V12-D	160	-	V 12	33	M 10	18	20	40	80	62	25	3	480
DIN 950-*-160-B14-D	160	14	-	33	M 10	18	20	40	80	62	25	3	460
DIN 950-*-160-K14-D	160	14	-	33	M 10	18	20	40	80	62	25	3	440
DIN 950-*-160-B15-D	160	15	-	33	M 10	18	20	40	80	62	25	3	550
DIN 950-*-160-K15-D	160	15	-	33	M 10	18	20	40	80	62	25	3	500
DIN 950-*-160-B16-D	160	16	-	33	M 10	18	20	40	80	62	25	3	500
DIN 950-*-160-K16-D	160	16	-	33	M 10	18	20	40	80	62	25	3	490
DIN 950-*-180-B16-D	180	16	-	35	M 10	20	22	43	80	72	25	3	910
DIN 950-*-180-K16-D	180	16	-	35	M 10	20	22	43	80	72	25	3	890
DIN 950-*-180-B18-D	180	18	-	35	M 10	20	22	43	80	72	25	3	755
DIN 950-*-180-K18-D	180	18	-	35	M 10	20	22	43	80	72	25	3	751
DIN 950-*-200-V14-D	200	-	V 14	38	M 10	22	24	45	80	80	25	3	830
DIN 950-*-200-B18-D	200	18	-	38	M 10	22	24	45	80	80	25	3	800
DIN 950-*-200-K18-D	200	18	-	38	M 10	22	24	45	80	80	25	3	740
DIN 950-*-200-B20-D	200	20	-	38	M 10	22	24	45	80	80	25	3	950
DIN 950-*-200-K20-D	200	20	-	38	M 10	22	24	45	80	80	25	3	932
DIN 950-*-200-B22-D	200	22	-	38	M 10	22	24	45	80	80	25	3	919
DIN 950-*-200-K22-D	200	22	-	38	M 10	22	24	45	80	80	25	3	915
DIN 950-*-250-V17-D	250	-	V 17	48	M 12	26	28	50	102	101	32	5	1630
DIN 950-*-250-B22-D	250	22	-	48	M 12	26	28	50	102	101	32	5	1600
DIN 950-*-250-K22-D	250	22	-	48	M 12	26	28	50	102	101	32	5	1580
DIN 950-*-250-B24-D	250	24	-	48	M 12	26	28	50	102	101	32	5	1450
DIN 950-*-250-K24-D	250	24	-	48	M 12	26	28	50	102	101	32	5	1420
DIN 950-*-250-B26-D	250	26	-	48	M 12	26	28	50	102	101	32	5	1590
DIN 950-*-250-K26-D	250	26	-	48	M 12	26	28	50	102	101	32	5	1550
DIN 950-*-315-V19-D	315	-	V 19	53	M 12	28	33	56	102	132	32	5	2400
DIN 950-*-315-B26-D	315	26	-	53	M 12	28	33	56	102	132	32	5	1700
DIN 950-*-315-K26-D	315	26	-	53	M 12	28	33	56	102	132	32	5	2300
DIN 950-*-315-B28-D	315	28	-	53	M 12	28	33	56	102	132	32	5	2487
DIN 950-*-315-K28-D	315	28	-	53	M 12	28	33	56	102	132	32	5	2300
DIN 950-*-315-B30-D	315	30	-	53	M 12	28	33	56	102	132	32	5	2615
DIN 950-*-315-K30-D	315	30	-	53	M 12	28	33	56	102	132	32	5	2600
DIN 950-*-400-V24-D	400	-	V 24	65	M 12	32	38	63	102	171	32	5	4200
DIN 950-*-400-B30-D	400	30	-	65	M 12	32	38	63	102	171	32	5	4000
DIN 950-*-400-K30-D	400	30	-	65	M 12	32	38	63	102	171	32	5	3800
DIN 950-*-400-B32-D	400	32	-	65	M 12	32	38	63	102	171	32	5	4206
DIN 950-*-400-K32-D	400	32	-	65	M 12	32	38	63	102	171	32	5	4197
DIN 950-*-400-B34-D	400	34	-	65	M 12	32	38	63	102	171	32	5	4000
DIN 950-*-400-K34-D	400	34	-	65	M 12	32	38	63	102	171	32	5	3900
DIN 950-*-500-V27-D	500	-	V 27	78	M 12	34	45	72	102	220	32	5	5600
DIN 950-*-500-B34-D	500	34	-	78	M 12	34	45	72	102	220	32	5	5500
DIN 950-*-500-K34-D	500	34	-	78	M 12	34	45	72	102	220	32	5	5480
DIN 950-*-500-B36-D	500	36	-	78	M 12	34	45	72	102	220	32	5	6002
DIN 950-*-500-K36-D	500	36	-	78	M 12	34	45	72	102	220	32	5	5992
DIN 950-*-500-B40-D	500	40	-	78	M 12	34	45	72	102	220	32	5	5962
DIN 950-*-500-K40-D	500	40	-	78	M 12	34	45	72	102	220	32	5	5900

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GN 950.1

Spoked handwheels

with large hub

SPECIFICATION

Types

- Type **A**: without handle
- Type **D**: with revolving handle

Bore codes

- Version **B**: without keyway
- Version **K**: with keyway

Cast iron **GG**

- Hub machined
- Rim turned and polished

Rim concentric and square to bore < 0.4

Revolving handles DIN 98 (see page 579)
Steel, zinc plated

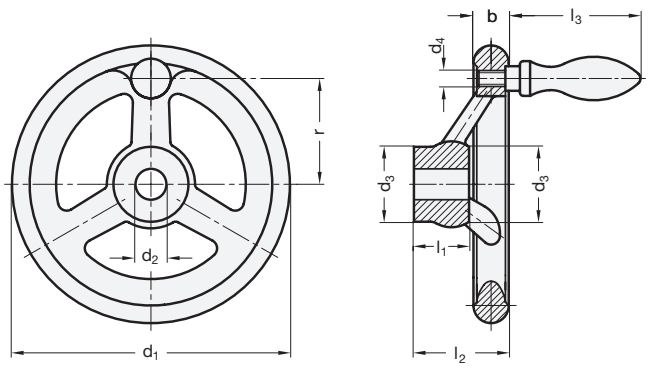


INFORMATION

Handwheels GN 950.1 differ from normal handwheels DIN 950 (see page 140) only by the larger hub.

TECHNICAL INFORMATION

- Keyway P9 DIN 6885 (see page A16)
- Cross holes GN 110 (see page A17)
- ISO- Fundamental Tolerances (see page A21)



GN 950.1-A

Description	d1	d2 H7	d3	b	l1	l2 ≈	No. of spokes	⚖
GN 950.1-GG-125-B14-A	125	14	34	16	26	45	3	750
GN 950.1-GG-125-K14-A	125	14	34	16	26	45	3	740
GN 950.1-GG-160-B16-A	160	16	45	18	32	52	3	1300
GN 950.1-GG-160-K16-A	160	16	45	18	32	52	3	1280
GN 950.1-GG-200-B20-A	200	20	50	22	38	59	3	2306
GN 950.1-GG-200-K20-A	200	20	50	22	38	59	3	1290
GN 950.1-GG-250-B24-A	250	24	56	26	44	66	3	4108
GN 950.1-GG-250-K24-A	250	24	56	26	44	66	3	4000

GN 950.1-D

Description	d1	d2 H7	d3	b	l1	l2 ≈	l3 ≈	r	Ø Handle	No. of spokes	⚖
GN 950.1-GG-125-B14-D	125	14	34	16	26	45	65	47	20	3	886
GN 950.1-GG-125-K14-D	125	14	34	16	26	45	65	47	20	3	882
GN 950.1-GG-160-B16-D	160	16	45	18	32	52	80	62	25	3	1557
GN 950.1-GG-160-K16-D	160	16	45	18	32	52	80	62	25	3	1551
GN 950.1-GG-200-B20-D	200	20	50	22	38	59	80	80	25	3	2515
GN 950.1-GG-200-K20-D	200	20	50	22	38	59	80	80	25	3	2508
GN 950.1-GG-250-B24-D	250	24	56	26	44	66	102	101	32	3	4410
GN 950.1-GG-250-K24-D	250	24	56	26	44	66	102	101	32	3	4400

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GN 950.6

Stainless Steel-Spoked handwheels



SPECIFICATION

Types

- Type **A**: without handle
- Type **F**: with fixed handle

Bore codes

- Version **B**: without keyway
- Version **K**: with keyway

Stainless Steel precision casting

- AISI 316
- acid-resistant (A4-Quality)
- Hub machined
- Rim turned and polished
- unmachined surface matt shot-blasted

Stainless Steel-Handle

INFORMATION

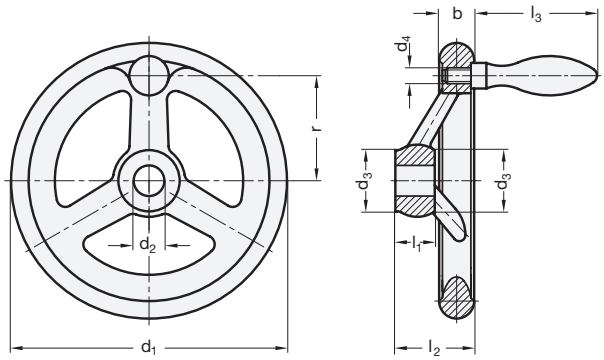
The dimensions of the Stainless Steel-Handwheels GN 950.6 comply extensively with Handwheels DIN 950 (see page 140).

ON REQUEST

- other bore-Ø
- with square

TECHNICAL INFORMATION

- Keyway P9 DIN 6885 (see page A16)
- Cross holes GN 110 (see page A17)
- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)



*Complete with Bore codes of the Handwheels (B or K)

B	K
wihout keyway	with keyway

GN 950.6-A — STAINLESS STEEL

Description	d1	d2 H9	d3 ≈	b	l1	l2 ≈	No. of spokes	⚖
GN 950.6-100-*10-A	100	10	25.5	14.5	17	33	3	433
GN 950.6-125-*12-A	125	12	27	15.8	18	35.5	3	659
GN 950.6-140-*14-A	140	14	29	17	19	38.5	3	865
GN 950.6-160-*14-A	160	14	31	17.5	20	39.5	3	1156
GN 950.6-200-*18-A	200	18	37	20	24	44.5	3	1938

GN 950.6-F — STAINLESS STEEL

Description	d1	d2 H9	d3 ≈	d4	b	l1	l2 ≈	l3	r	Ø Handle	No. of spokes	⚖
GN 950.6-100-*10-F	100	10	25.5	M 6	14.5	17	33	48.5	36	16	3	480
GN 950.6-125-*12-F	125	12	27	M 8	15.8	18	35.5	62	47	20	3	770
GN 950.6-140-*14-F	140	14	29	M 8	17	19	38.5	62	52	20	3	940
GN 950.6-160-*14-F	160	14	31	M 10	17.5	20	39.5	77	62	25	3	1320
GN 950.6-200-*18-F	200	18	37	M 10	20	24	44.5	77	80	25	3	2060

Weight bore code B

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GN 949

Stainless Steel-Handwheels

SPECIFICATION

Types

- Type **A**: without handle
- Type **D**: with revolving handle

Bore codes

- Version **B**: without keyway
- Version **K**: with keyway

Stainless Steel precision casting

- AISI CF-8
- Hub machined
- Rim turned
- matt shot-blasted

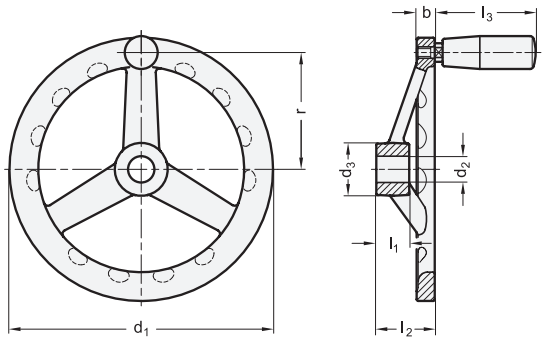
Revolving handles

- Plastic Duroplast, black, shiny finish
- Spindle Stainless Steel AISI 304



INFORMATION

The design of Stainless Steel-Handwheels GN 949 complies with the requirements of hygiene standards.
The revolving handles are made of Duroplast which, in general, provides good resistance to the impact of chemical agents.



* Complete with Bore codes of the Handwheels (B or K)

B wihout keyway **K** with keyway

GN 949-A STAINLESS STEEL

Description	d1	d2 H8	d3	b	l1	l2 ≈	No. of spokes	⚖
GN 949-100-*10-A	100	10	20	7	15	27.5	3	222
GN 949-100-*12-A	100	12	20	7	15	27.5	3	200
GN 949-125-*12-A	125	12	24	9	16	28.5	3	425
GN 949-125-*14-A	125	14	24	9	16	28.5	3	410
GN 949-140-*14-A	140	14	28	10	18	30.5	3	640
GN 949-140-*16-A	140	16	28	10	18	30.5	3	600
GN 949-160-*14-A	160	14	31	11	20	35.5	3	825
GN 949-160-*16-A	160	16	31	11	20	35.5	3	805
GN 949-200-*18-A	200	18	36	14	23	39	3	1442
GN 949-200-*20-A	200	20	36	14	23	39	3	1400

GN 949-D STAINLESS STEEL

Description	d1	d2 H8	d3	b	l1	l2 ≈	l3 ≈	r	Ø Handle	No. of spokes	⚖
GN 949-100-*10-D	100	10	20	7	15	27.5	45	44	18	3	255
GN 949-100-*12-D	100	12	20	7	15	27.5	45	44	18	3	240
GN 949-125-*12-D	125	12	24	9	16	28.5	55	55	21	3	420
GN 949-125-*14-D	125	14	24	9	16	28.5	55	55	21	3	405
GN 949-140-*14-D	140	14	28	10	18	30.5	70.5	62	23	3	700
GN 949-140-*16-D	140	16	28	10	18	30.5	70.5	62	23	3	680
GN 949-160-*14-D	160	14	31	11	20	35.5	70.5	71	23	3	920
GN 949-160-*16-D	160	16	31	11	20	35.5	70.5	71	23	3	900
GN 949-200-*18-D	200	18	36	14	23	39	70.5	90	23	3	1544
GN 949-200-*20-D	200	20	36	14	23	39	70.5	90	23	3	1495

Weight bore code B

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Stainless Steel-Handwheels

AISI 304 (A2)



SPECIFICATION

Types

- Type **A**: without handle
- Type **D**: with revolving handle

Bore codes

- Version **B**: without keyway
- Version **K**: with keyway
- Version **V**: with square

Stainless Steel A2

- AISI 304
- matt shot-blasted
- Wheel body, pressed Stainless Steel
- Hub welded

Revolving handles

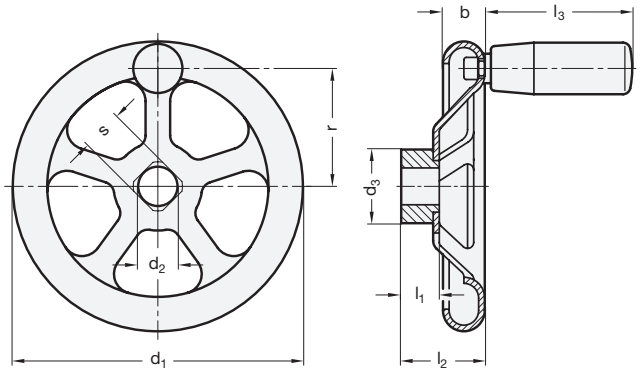
- Plastic, Duroplast, black, shiny finish
- Spindle Stainless Steel AISI 304

INFORMATION

The hub lengths of the pressed Stainless Steel-Handwheels GN 227.2 conform to DIN 950 (see page 140).
Stainless Steel-Handwheels GN 227.2 are renowned for their high mechanical strength. They are not affected by shock and knocks.

TECHNICAL INFORMATION

- Keyway P9 DIN 6885 (see page A16)
- Square DIN 79 (see page A16)
- Cross holes GN 110 (see page A17)
- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)



*Complete with Bore codes of the Handwheel (B, K or V)

B	K	V
without keyway	with keyway	with square

GN 227.2-A — STAINLESS STEEL

Description	d1	d2 H9	s H11	b	d3	l1	l2 ≈	No. of spokes	Thickness	⚖
GN 227.2-160-*12-A	160	12	V 12	22	30	20	39	4	2	430
GN 227.2-200-*14-A	200	14	V 14	22	40	24	44	4	2.5	824
GN 227.2-250-*17-A	250	17	V 17	30	45	28	52	5	3	1477
GN 227.2-315-*19-A	315	19	V 19	36	55	33	64	5	3	2330
GN 227.2-400-*24-A	400	24	V 24	43	65	38	81	5	3	4210

GN 227.2-D — STAINLESS STEEL

Description	d1	d2 H9	s H11	b	d3	l1	l2 ≈	l3	r	Ø Handle	No. of spokes	Thickness	⚖
GN 227.2-160-*12-D	160	12	V 12	22	30	20	39	83	68	26	4	2	530
GN 227.2-200-*14-D	200	14	V 14	22	40	24	44	83	88	26	4	2.5	924
GN 227.2-250-*17-D	250	17	V 17	30	45	28	52	93	108	28	5	3	1565
GN 227.2-315-*19-D	315	19	V 19	36	55	33	64	93	138	28	5	3	2400
GN 227.2-400-*24-D	400	24	V 24	43	65	38	81	93	178	28	5	3	4300

Weight type B

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GN 227.1

Pressed steel handwheels

SPECIFICATION

Bore codes

- Version **B**: without keyway
- Version **K**: with keyway
- Version **V**: with square

Pressed Steel
plastic coated
black, textured finish **SW**

Hub
Steel, welded



INFORMATION

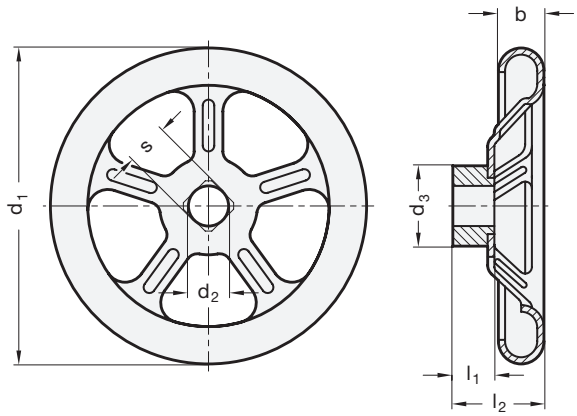
The hub lengths of the pressed steel handwheels GN 227.1 conform to DIN 950 (see page 140).
Pressed steel handwheels GN 227.1 are renowned for their high mechanical strength. They are not affected by shock and knocks.

ON REQUEST

- with conical square VK
- with revolving handle

TECHNICAL INFORMATION

- Keyway P9 DIN 6885 (see page A16)
- Square DIN 79 (see page A16)
- Cross holes GN 110 (see page A17)
- ISO-Fundamental Tolerances (see page A21)



GN 227.1

Description	d1	d2 H9	s H11	b	d3	l1	l2 ≈	No. of spokes	Thickness	⚖
GN 227.1-125-B11-SW	130	11	-	18	30	18	29	3	1.5	300
GN 227.1-125-K11-SW	125	11	-	18	30	18	29	3	1.5	325
GN 227.1-125-V11-SW	125	-	V 11	18	30	18	29	3	1.5	280
GN 227.1-160-B12-SW	160	12	-	22	30	20	37	4	1.5	400
GN 227.1-160-K12-SW	160	12	-	22	30	20	37	4	1.5	380
GN 227.1-160-V12-SW	160	-	V 12	22	30	20	37	4	1.5	360
GN 227.1-200-B14-SW	200	14	-	22	40	24	46	4	2.5	850
GN 227.1-200-K14-SW	200	14	-	22	40	24	46	4	2.5	830
GN 227.1-200-V14-SW	200	-	V 14	22	40	24	46	4	2.5	785
GN 227.1-250-B17-SW	250	17	-	30	45	28	52	5	2.5	1520
GN 227.1-250-K17-SW	250	17	-	30	45	28	52	5	2.5	1470
GN 227.1-250-V17-SW	250	-	V 17	30	45	28	52	5	2.5	1460
GN 227.1-315-B19-SW	315	19	-	35	55	33	64	5	2.5	2350
GN 227.1-315-K19-SW	315	19	-	35	55	33	64	5	2.5	2340
GN 227.1-315-V19-SW	315	-	V 19	35	55	33	64	5	2.5	2280
GN 227.1-400-B24-SW	400	24	-	40	65	38	82	5	3	4140
GN 227.1-400-K24-SW	400	24	-	40	65	38	82	5	3	4100
GN 227.1-400-V24-SW	400	-	V 24	40	65	38	82	5	3	4070

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Pressed steel handwheels

for valves

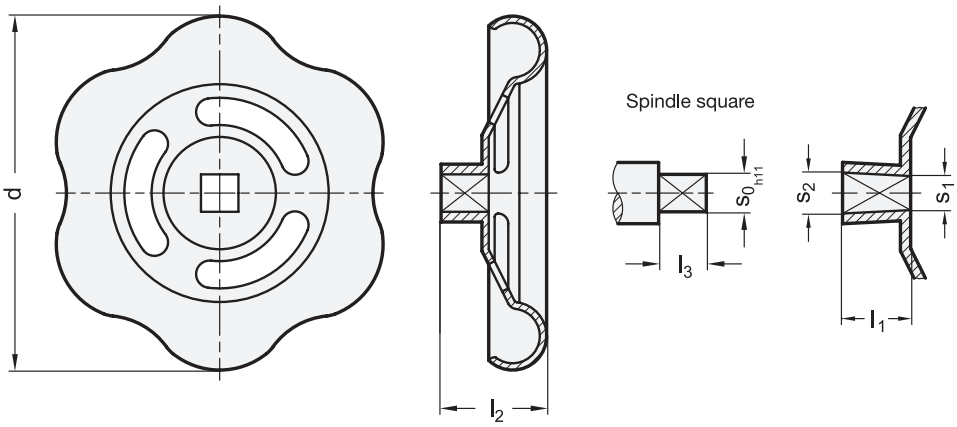
SPECIFICATION

Pressed steel
plastic coated
black, RAL 9005 **SW**
red, RAL 3000 **RT**
uncoated **RH**

INFORMATION

Pressed steel handwheels GN 227 have been specially developed for valves and they offer definite advantages:
They consist of a single unwelded piece of pressed sheet metal manufactured by a special process to give a reinforced hub. They offer high mechanical strength and are not affected by shocks and knocks.
They are resistant to temperature and fire and not weakened by any ageing process.
The slightly tapered square hole allows easy installation and firm seating on a spindle.





* Complete with colour index of the Handwheels (SW, RT or RH)

SW RAL 9005 | RT RAL 3000 | RH uncoated

GN 227

Description	d	s_0	s_1 -0.1	s_2 -0.1	l_1 ±0.5	l_2	l_3 -1	No. of spokes	⚖
GN 227-50-V6-*	50	V 6	5.8	6.15	9	15.5	8	3	20
GN 227-50-V7-*	50	V 7	6.8	7.15	9	15.5	8	3	20
GN 227-60-V6-*	60	V 6	5.8	6.15	9	16.5	8	3	29
GN 227-60-V7-*	60	V 7	6.8	7.15	10	17.5	9	3	29
GN 227-70-V7-*	70	V 7	6.8	7.15	10	19	9	3	39
GN 227-70-V8-*	70	V 8	7.8	8.15	10	19	9	3	37
GN 227-80-V8-*	80	V 8	7.8	8.15	11	20	10	3	59
GN 227-80-V9-*	80	V 9	9	9.15	12	20	11	3	56
GN 227-90-V9-*	90	V 9	8.8	9.15	12	24	11	3	76
GN 227-100-V9-*	100	V 9	9	9.2	13	24	12	4	101
GN 227-100-V10-*	100	V 10	9.8	10.2	13	24	12	4	101
GN 227-120-V11-*	120	V 11	11	11.2	14	31	13	4	165
GN 227-120-V12-*	120	V 12	12	12.25	16	32.5	14	4	165
GN 227-140-V12-*	140	V 12	12	12.25	16	32.5	14	4	215
GN 227-160-V14-*	160	V 14	14	14.25	20	37	18	4	280

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Stainless Steel-Handwheels

AISI 316L (A4)

SPECIFICATION

Type

- Type **A**: without handle

Bore codes

- Version **B**: without keyway
- Version **K**: with keyway
- Version **V**: with square

Stainless Steel A4

- AISI 316L
- matt shot-blasted
- Wheel body, pressed Stainless Steel
- Hub welded

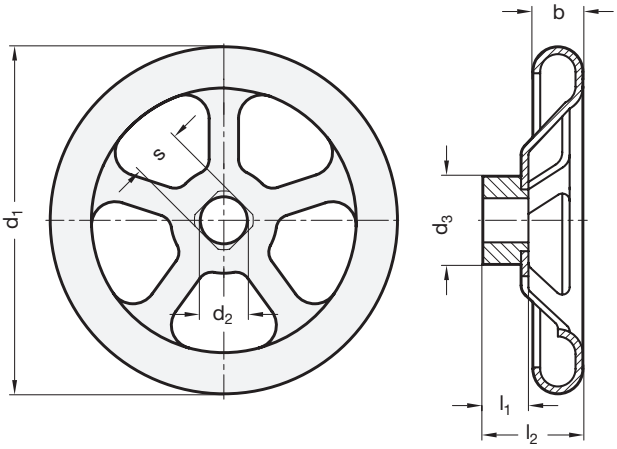


INFORMATION

The hub lengths of the pressed Stainless Steel-Handwheels GN 227.4 conform to DIN 950 (see page 140).
Stainless Steel-Handwheels GN 227.4 are renowned for their high mechanical strength. They are not affected by shock and knocks.
Stainless Steel-Handwheels GN 227.4 (A4 quality) are only available in type A (without handle).

TECHNICAL INFORMATION

- Keyway P9 DIN 6885 (see page A16)
- Square DIN 79 (see page A16)
- Cross holes GN 110 (see page A17)
- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)



GN 227.4 — **STAINLESS STEEL**

Description	d1	d2 H9	s H11	b	d3	l1	l2 ≈	No. of spokes	Thickness	⚖
GN 227.4-160-B12-A	160	12	-	22	30	20	39	4	2	431
GN 227.4-160-K12-A	160	12	-	22	30	20	39	4	2	430
GN 227.4-160-V12-A	160	-	V 12	22	30	20	39	4	2	431
GN 227.4-200-B14-A	200	14	-	22	40	24	44	4	2.5	812
GN 227.4-200-K14-A	200	14	-	22	40	24	44	4	2.5	812
GN 227.4-200-V14-A	200	-	V 14	22	40	24	44	4	2.5	800
GN 227.4-250-B17-A	250	17	-	30	45	28	52	5	3	1470
GN 227.4-250-K17-A	250	17	-	30	45	28	52	5	3	1470
GN 227.4-250-V17-A	250	-	V 17	30	45	28	52	5	3	1400
GN 227.4-315-B19-A	315	19	-	36	55	33	64	5	3	2300
GN 227.4-315-K19-A	315	19	-	36	55	33	64	5	3	2300
GN 227.4-315-V19-A	315	-	V 19	36	55	33	64	5	3	2250
GN 227.4-400-B24-A	400	24	-	43	65	38	81	5	3	4300
GN 227.4-400-K24-A	400	24	-	43	65	38	81	5	3	4300
GN 227.4-400-V24-A	400	-	V 24	43	65	38	81	5	3	4250

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RoHS PP +80° 0°

Monospoke handwheels

Technopolymer



MATERIAL
Glass-fibre reinforced polypropylene based (PP) technopolymer black colour, matte finish.

BOSS CAP
Polyester based technopolymer (PBT) in Ergostyle colours, glossy finish, press-fit mounting.
Available also as accessory sold separately (see table ECB.).

Code	Description	Boss cap for
29451-*	ECB.I3-*	EMW.350

* Complete with colour index (C1, ..., C6).

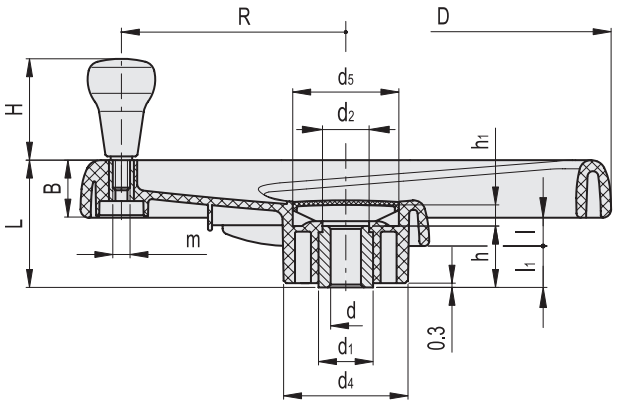
STANDARD EXECUTIONS
Black-oxide steel boss, H7 reamed hole.
- **EMW+IEL:** with revolving handle IEL+x-SOFT (see page 572) in technopolymer coated with "Soft touch" thermoplastic elastomer (TPE).
- **EMW+IR:** with fold-away handle IR.620 (see page 584) in technopolymer.

ACCESSORIES ON REQUEST
Axial retaining washer GN 184 (see page 971).

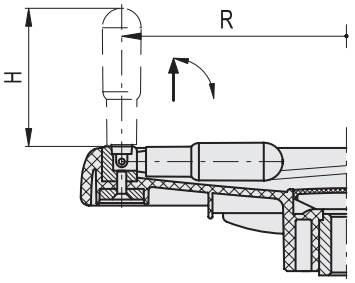
SPECIAL EXECUTIONS ON REQUEST
Bosses with hole and keyway in compliance with DIN 6885/1 tolerance P9 (see page A16).
To order the handwheel with keyway complete code and description with the index -K (i.e. 204611-K- EMW.350+IEL A-20-K).
For sufficient quantities: executions with locking device (Elesa patent) (see page 155).

ERGOSTYLE® design award 2005

EMW+IEL



EMW+IR





* Complete with colour index, example: 204611-C2 EMW.350+IEL A-20-C2

C1 RAL7021 | C2 RAL2004 | C3 RAL7035 | C4 RAL1021 | C5 RAL5024 | C6 RAL3000

EMW+IEL

Code	Description	D	dH7	L	B	d1	d2	d4	d5	l	l1	h	h1	H	m	R	C# [Nm]	L# [J]	⚖
204611-*	EMW.350+IEL-A-20-*	350	20	82	38	35	33	82	70	19	25	38	14	65	M10	148	380	14	1195

EMW+IR

Code	Description	D	dH7	L	B	d1	d2	d4	d5	l	l1	h	h1	H	R	C# [Nm]	L# [J]	⚖
204711-*	EMW.350+IR-A-20-*	350	20	82	38	35	33	82	70	19	25	38	14	90	148	380	14	1240

For maximum torque (C) and impact strength (L) see Technical Data on page A3.

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Three-arm handwheels

Technopolymer

MATERIAL
Glass-fibre reinforced polypropylene based (PP) technopolymer, black colour, matte finish.

BOSS CAP
Polyester based technopolymer (PBT) in Ergostyle colours, glossy finish, press-fit mounting.
Available also as accessory sold separately (see table ECB.).

Code	Description	Boss cap for
29451-*	ECB.I3-*	EYK.275/400

* Complete with colour index (C1, ..., C6).

STANDARD EXECUTION
Black-oxide steel boss, H7 reamed hole.
Revolving handle EBS+x (see page 570) in technopolymer, not removable.

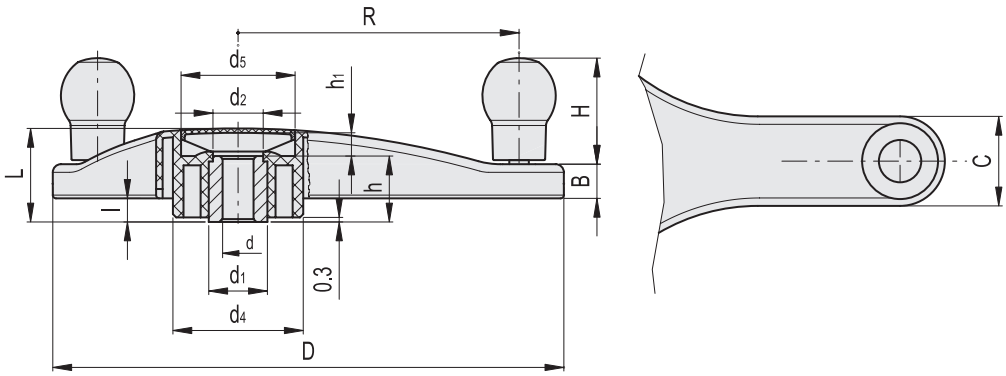
ACCESSORIES ON REQUEST
Axial retaining washer GN 184 (see page 971).

SPECIAL EXECUTION ON REQUEST
Black-oxide steel bosses with hole and keyway in compliance with DIN 6885/1 tolerance P9 (see page A16).
To order the handwheel with keyway add the index -K after the code and the description (i.e. 208311-K- EYK.400+I A-20-K-).
For sufficient quantities: executions with locking device (Elesa patent) (see page 155).
ETK. steering handwheel can be customised with marks, logo or special graphics (tampoprinting). The handwheels or handles can be supplied also in special coloured technopolymer.



ERGOSTYLE®

ERGONOMY AND DESIGN
The three equidistant arms (120°) offer a perfect grip and the greatest operational easiness, also to disable people. The rounded lines, the special compact and ergonomic shape of EYK. handwheel design together with the absence of cavities offer an excellent level of safety for hands during the steering operations.



*Complete with colour index, example: 208111-C2 EYK.275+I A-20-C2

C1 RAL7021 | C2 RAL2004 | C3 RAL7035 | C4 RAL1021 | C5 RAL5024 | C6 RAL3000

Code	Description	D	dH7	L	B	d1	d2	d4	d5	h	h1	I	C	H	R	C# [Nm]	L# [J]	⚖
208111-*	EYK.275+I A-20-*	275	20	54	21	35	33	76	70	38	14	19.5	50	65	112.5	270	12	769
208311-*	EYK.400+I A-20-*	400	20	54	21	35	33	80	70	38	14	12	55	65	172.5	270	16	955

For maximum applicable torque (C) and impact strength (L) see Technical Data on page A3.

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Three-arm handwheel

Technopolymer



MATERIAL
Glass-fibre reinforced polypropylene based (PP) technopolymer, black colour, matte finish.

BOSS CAP
Polyester based technopolymer (PBT) in Ergostyle colours, glossy finish, press-fit mounting.
Available also as accessory sold separately (see table ECB.).

Code	Description	Boss cap for
29451-*	ECB.I3-*	ETK.400

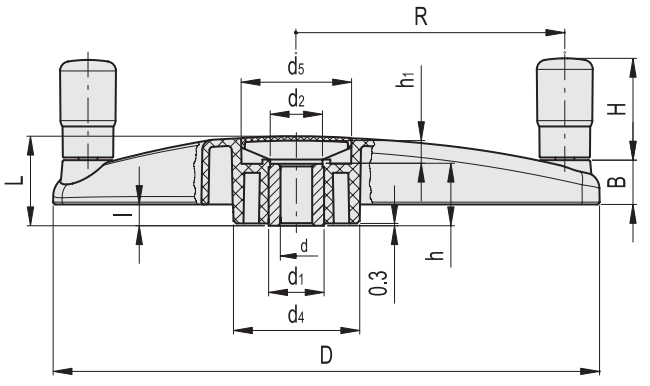
* Complete with colour index (C1, ..., C6).

STANDARD EXECUTION
Black-oxide steel boss, H7 reamed hole.
Revolving handle I.631+x (see page 580) in technopolymer, not removable.

SPECIAL EXECUTIONS ON REQUEST
Bosses with hole and keyway in compliance with DIN 6885/1 tolerance P9 (see page A16).
To order the handwheel with keyway add the index -K after the code and the description (i.e. 207731-K- ETK.400+I A-20-K-).
For sufficient quantities: executions with locking device (Elesa patent), (see page 155).
The three-arm handwheels can be customised with marks, logo or special graphics (tampoprinting). The handwheels or handles can be supplied also in special coloured technopolymer.

ACCESSORIES ON REQUEST
Axial retaining washer GN 184 (see page 971).

ERGONOMY AND DESIGN
The three equidistant arms (120°) offer a perfect grip and the greatest operational easiness, also to disabled people. The rounded lines, the special compact and ergonomic shape of ETK. handwheel design together with the absence of cavities offer an excellent level of safety for hands during the steering operations.





* Complete with colour index, example: 207731-C2 ETK.400+I A-20-C2

C1 RAL7021 | C2 RAL2004 | C3 RAL7035 | C4 RAL1021 | C5 RAL5024 | C6 RAL3000

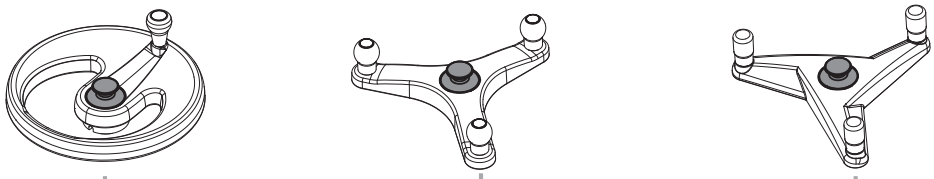
Code	Description	D	dH7	L	B	d1	d2	d4	d5	h	h1	l	H	R	C# [Nm]	L# [J]	⚖
207731-*	ETK.400+I A-20-*	400	20	54	28	35	33	80	70	38	14	12	65	178	320	18	980

For maximum applicable torque (C) and impact strength (L) see Technical Data on page A3.

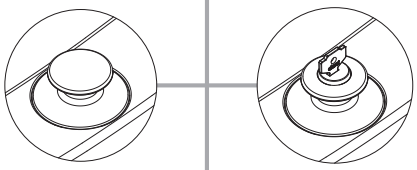
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Executions on request with locking and status indicators

Elesa European and US patent

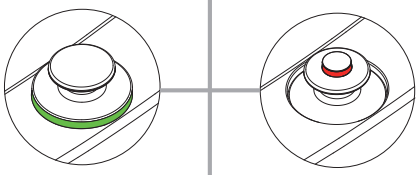


- **L Simple actuator**
  By pressing the actuator the rotation of the handwheel locks. Also available with label customizable with graphic symbols, marks or special graphics.



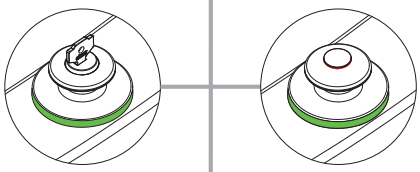
- **L-K Actuator with lock**
  By pressing the actuator the rotation of the handwheel locks. By turning the key by 180° the actuator remains in the locked position.

- **LCV Actuator with green collar**
  The green collar indicates that the handwheel is free and it can be operated. By pressing the actuator the rotation of the handwheel locks (the green collar is no longer visible).



- **L-R Actuator with red ring**
  By pressing the actuator the rotation of the handwheel locks. The red ring comes out from the actuator and indicates that the handwheel is locked.

- **LCV-K Actuator with green collar and lock**
  The green collar indicates that the handwheel is free and it can be operated. By pressing the actuator the rotation of the handwheel locks (the green collar is no longer visible). By turning the key by 180° the actuator remains in the locked position.

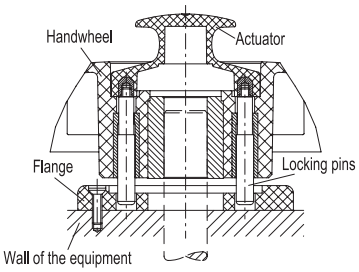


- **LCV-R Actuator with green collar and red ring**
  The green collar indicates that the handwheel is free and it can be operated (the red ring is not visible).
  By pressing the actuator the rotation of the handwheel locks. The red ring comes out from the actuator and indicates that the handwheel is locked (the green collar is no longer visible).

- **PHCV "Push-push" actuator with green collar**
  The green collar indicates that the handwheel is free and it can be operated. By pressing the actuator the rotation of the handwheel locks or unlocks. It is the ideal solution also for disabled operators according to ADA regulations (Americans with Disability Act).

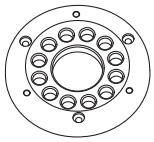


- **PHCV-R "Push-push" actuator with green collar and red ring**
  The green collar indicates that the handwheel is free and it can be operated (the red ring is not visible).
  By pressing the actuator the rotation of the handwheel locks or unlocks. The red ring comes out from the actuator and indicates that the handwheel is locked (the green collar is no longer visible). It is the ideal solution also for disabled operators according to ADA regulations (Americans with Disability Act).



Fitting to shaft by means of a transversal screw

- **FF Locking flange (accessory)**
  Polyamide-based SUPER-technopolymer (PA), black colour, matte finish. The flange is provided with 12 holes (radially positioned every 30 °) for the engagement of the locking pins of the handwheel. Mounting of the flange on the wall of the equipment by means of 3 holes for countersunk head screws. Additional 3 holes to position any reference pin.



- **PP Pre-loaded pins**
  Locking pins with preloading spring for automatic fitting into the locking holes (Applicable to all executions).

To request the handwheels with locking device, contact Elesa sales office specifying: type of handwheel (eg. EYK.), locking device (eg. LCV), any pre-loaded pin (PP) and locking flange (FF).

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Solid handwheels

Technopolymer

MATERIAL
High-resilience polypropylene based (PP) technopolymer, black colour, matte finish.

BOSS CAP
Acetal resin based (POM) technopolymer, light-grey colour, push-fit assembly.

STANDARD EXECUTIONS
Black-oxide steel boss, H7 reamed hole.
- **VDS.:** without handle.
- **VDS+I:** with revolving handle I.621+x (see page 576) in technopolymer.
- **VDS+IEL:** with revolving handle IEL+x-SOFT (see page 572) in technopolymer coated with "Soft touch" thermoplastic elastomer (TPE).
- **VDS+IR:** with fold-away handle IR.620 (see page 584) in technopolymer.
- **VDS+IRS:** with safety fold-away handle IRS.820 (see page 589) in technopolymer.

AISI 304 stainless steel boss, H7 reamed hole.
- **VDS-SST**: without handle.
- **VDS+I-SST**: with revolving handle I.621+x-SST (see page 576) in technopolymer.
- **VDS+IR-SST**: with fold-away handle IR.620-SST (see page 584) in technopolymer.
- **VDS+IRS-SST**: with safety fold-away handle IRS.820-SST (see page 589) in technopolymer.

SPECIAL EXECUTIONS ON REQUEST
Bosses with hole and keyway in compliance with DIN 6885/1tolerance P9 (see page A16).
To order the handwheel with keyway add the index -K after the code and the description (i.e. 72661-R-K VDS.100 A-10-K).

ACCESSORIES ON REQUEST
- Axial retaining washer in black-oxide steel GN 184 (see page 971) or in AISI 303 stainless steel GN 184.5 (see page 971).
- VDS.125, VDS.150 and VDS.175 are available also with technopolymer boss caps in one of the Ergostyle colours (see ECB. table).

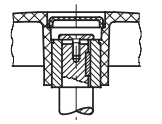


ELESA Original design

Code	Description	Boss cap for
29582-*	ECB.D2-*	VDS.125
29583-*	ECB.D3-*	VDS.150
29584-*	ECB.D4-*	VDS.175

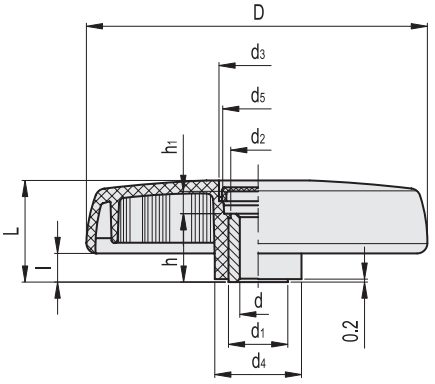
* Complete with colour index (C1, ..., C6).

C1 RAL7021 C2 RAL2004 C3 RAL7035 C4 RAL1021 C5 RAL5024 C6 RAL3000

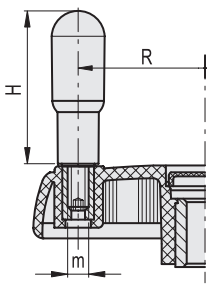


Assembly example with keyway and axial set screw

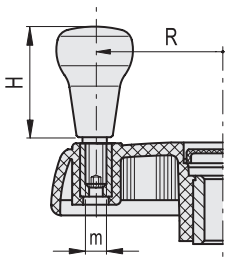
VDS.
VDS-SST



VDS+I
VDS+I-SST



VDS+IEL



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VDS.

Code	Description	D	dH7	L	d1	d2	d3	d4	d5	l	h	h1	C# [Nm]	L# [J]	⚖
72641-R	VDS.80-A-8	83	8	29	18	16	21	26	19	9	17	8	34	6	84
72642-R	VDS.80-A-10	83	10	29	18	16	21	26	19	9	17	8	34	6	86
72660-R	VDS.100 A-8	102	8	34	22	20	27	30	25	10	22	9	60	13	145
72661-R	VDS.100 A-10	102	10	34	22	20	27	30	25	10	22	9	60	13	140
72662-R	VDS.100 A-12	102	12	34	22	20	27	30	25	10	22	9	60	13	135
72740-R	VDS.150 A-8	150	8	44	26	24	34	38	30	12	30	10	180	26	335
72741-R	VDS.150 A-14	150	14	44	26	24	34	38	30	12	30	10	180	26	315
72840-R	VDS.200 A-8	200	8	53	40	38	44	50	40	14	36	13	320	27	620
72841-R	VDS.200 A-20	200	20	53	40	38	44	50	40	14	36	13	320	27	590

VDS-SST

STAINLESS STEEL

Code	Description	D	dH7	L	d1	d2	d3	d4	d5	l	h	h1	C# [Nm]	L# [J]	⚖
72665-R	VDS.100-SST-10	102	10	34	22	20	27	30	25	10	22	9	60	13	141
72745-R	VDS.150-SST-14	150	14	44	26	24	34	38	30	12	30	10	180	26	318
72845-R	VDS.200-SST-20	200	20	53	40	38	44	50	40	14	36	13	320	27	596

VDS+I

Code	Description	D	dH7	L	d1	d2	d3	d4	d5	l	h	h1	H	m	R	C# [Nm]	L# [J]	⚖
72651-R	VDS.80+I A-8	83	8	29	18	16	21	26	19	9	17	8	45	M6	30.5	34	6	106
72652-R	VDS.80+I A-10	83	10	29	18	16	21	26	19	9	17	8	45	M6	30.5	34	6	108
72670-R	VDS.100+I A-8	102	8	34	22	20	27	30	25	10	22	9	60	M6	39	60	13	180
72671-R	VDS.100+I A-10	102	10	34	22	20	27	30	25	10	22	9	60	M6	39	60	13	174
72672-R	VDS.100+I A-12	102	12	34	22	20	27	30	25	10	22	9	60	M6	39	60	13	168
72700-R	VDS.125+I A-8	125	8	39.5	26	24	31	35	28	11	27	11	60	M6	49	125	25	282
72701-R	VDS.125+I A-12	125	12	39.5	26	24	31	35	28	11	27	11	60	M6	49	125	25	270
72702-R	VDS.125+I A-14	125	14	39.5	26	24	31	35	28	11	27	11	60	M6	49	125	25	258
72750-R	VDS.150+I A-8	150	8	44	26	24	34	38	30	12	30	10	65	M8	56.5	180	26	399
72751-R	VDS.150+I A-14	150	14	44	26	24	34	38	30	12	30	10	65	M8	56.5	180	26	379
72752-R	VDS.150+I A-16	150	16	44	26	24	34	38	30	12	30	10	65	M8	56.5	180	26	359
72800-R	VDS.175+I A-8	176	8	49	35	33	39	44	35	13	28	16	80	M10	70	195	26	530
72801-R	VDS.175+I A-16	176	16	49	35	33	39	44	35	13	28	16	80	M10	70	195	26	500
72802-R	VDS.175+I A-20	176	20	49	35	33	39	44	35	13	28	16	80	M10	70	195	26	470
72850-R	VDS.200+I A-8	200	8	53	40	38	44	50	40	14	36	13	90	M10	81	320	27	714
72851-R	VDS.200+I A-20	200	20	53	40	38	44	50	40	14	36	13	90	M10	81	320	27	674
72852-R	VDS.200+I A-24	200	24	53	40	38	44	50	40	14	36	13	90	M10	81	320	27	634
72911-R	VDS.250+I A-20	250	20	60	40	38	50	57	48	17	36	19	90	M10	104	500	30	934
72961-R	VDS.300+I A-20	300	20	66	40	36.5	68.5	72	66	20	44	20	90	M10	124	500	30	1260

VDS+I-SST

STAINLESS STEEL

Code	Description	D	dH7	L	d1	d2	d3	d4	d5	l	h	h1	H	m	R	C# [Nm]	L# [J]	⚖
72675-R	VDS.100+I-SST-10	102	10	34	22	20	27	30	25	10	22	9	60	M6	39	60	13	175
72705-R	VDS.125+I-SST-12	125	12	42	26	24	31	35	28	11	27	11	60	M6	49	125	25	273
72755-R	VDS.150+I-SST-14	150	14	44	26	24	34	38	30	12	30	10	65	M8	56.5	180	26	383
72855-R	VDS.200+I-SST-20	200	20	53	40	38	44	50	40	14	36	13	90	M10	81	320	27	681

VDS+IEL

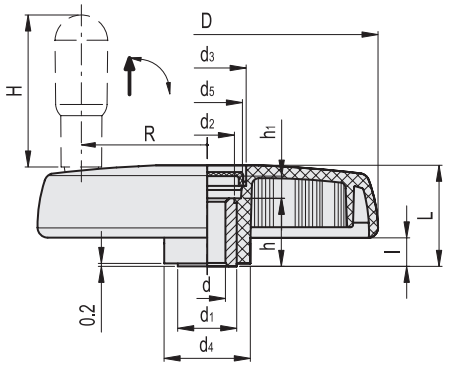
Code	Description	D	dH7	L	d1	d2	d3	d4	d5	l	h	h1	H	m	R	C# [Nm]	L# [J]	⚖
72966-R	VDS.300+IEL A-20	300	20	66	40	36.5	68.5	72	66	20	44	20	65	M10	124	500	30	1270

For maximum torque (C) and impact strength (L) see Technical Data on page A3.

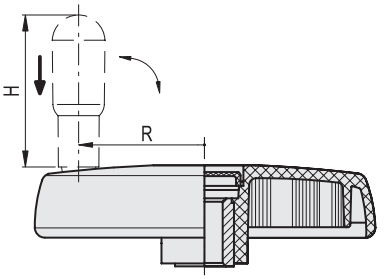
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VDS. | Solid Handwheels

VDS+IR
VDS+IR-SST



VDS+IRS
VDS+IRS-SST



VDS+IR

Code	Description	D	dH7	L	d1	d2	d3	d4	d5	l	h	h1	H	R	C# [Nm]	L# [J]	⚖
72656-R	VDS.80+IR A-8	83	8	38	18	16	16.5	25	13.5	18.5	17	3.5	45	28	34	6	133
72657-R	VDS.80+IR A-10	83	10	38	18	16	16.5	25	13.5	18.5	17	3.5	45	28	34	6	129
72680-R	VDS.100+IR A-8	102	8	34	22	20	27	30	25	10	22	9	45	39	60	14	177
72681-R	VDS.100+IR A-10	102	10	34	22	20	27	30	25	10	22	9	45	39	60	14	170
72682-R	VDS.100+IR A-12	102	12	34	22	20	27	30	25	10	22	9	45	39	60	14	163
72710-R	VDS.125+IR A-8	125	8	39.5	26	24	31	35	28	11	27	11	60	49	125	14	311
72711-R	VDS.125+IR A-12	125	12	39.5	26	24	31	35	28	11	27	11	60	49	125	14	307
72712-R	VDS.125+IR A-14	125	14	39.5	26	24	31	35	28	11	27	11	60	49	125	14	303
72760-R	VDS.150+IR A-8	150	8	44	26	24	34	38	30	12	30	10	65	56.5	180	15	450
72761-R	VDS.150+IR A-14	150	14	44	26	24	34	38	30	12	30	10	65	56.5	180	15	432
72762-R	VDS.150+IR A-16	150	16	44	26	24	34	38	30	12	30	10	65	56.5	180	15	415
72810-R	VDS.175+IR A-8	176	8	49	35	33	39	44	35	13	28	16	80	70	195	20	588
72811-R	VDS.175+IR A-16	176	16	49	35	33	39	44	35	13	28	16	80	70	195	20	577
72812-R	VDS.175+IR A-20	176	20	49	35	33	39	44	35	13	28	16	80	70	195	20	565
72860-R	VDS.200+IR A-8	200	8	53	40	38	44	50	40	14	36	13	90	81	320	27	750
72861-R	VDS.200+IR A-20	200	20	53	40	38	44	50	40	14	36	13	90	81	320	27	710
72862-R	VDS.200+IR A-24	200	24	53	40	38	44	50	40	14	36	13	90	81	320	27	670
72921-R	VDS.250+IR A-20	250	20	60	40	38	50	57	48	17	36	19	90	104	500	30	997
72971-R	VDS.300+IR A-20	300	20	66	40	36.5	68.5	72	66	20	44	20	90	124	500	30	1375

VDS+IR-SST — **STAINLESS STEEL**

Code	Description	D	dH7	L	d1	d2	d3	d4	d5	l	h	h1	H	R	C# [Nm]	L# [J]	⚖
72685-R	VDS.100+IR-SST-10	102	10	34	22	20	27	30	25	10	22	9	45	39	60	14	171
72715-R	VDS.125+IR-SST-12	125	12	42	26	24	31	35	28	11	27	11	60	49	125	14	310
72765-R	VDS.150+IR-SST-14	150	14	44	26	24	34	38	30	12	30	10	65	56.5	180	15	436
72865-R	VDS.200+IR-SST-20	200	20	53	40	38	44	50	40	14	36	13	90	81	320	27	717

VDS+IRS

Code	Description	D	dH7	L	d1	d2	d3	d4	d5	l	h	h1	H	R	C# [Nm]	L# [J]	⚖
72770-R	VDS.150+IRS A-8	150	8	44	26	24	34	38	30	12	30	10	65	56.5	180	15	455
72771-R	VDS.150+IRS A-14	150	14	44	26	24	34	38	30	12	30	10	65	56.5	180	15	445
72772-R	VDS.150+IRS A-16	150	16	44	26	24	34	38	30	12	30	10	65	56.5	180	15	435
72820-R	VDS.175+IRS A-8	176	8	49	35	33	39	44	35	13	28	16	80	70	195	20	590
72821-R	VDS.175+IRS A-16	176	16	49	35	33	39	44	35	13	28	16	80	70	195	20	580
72822-R	VDS.175+IRS A-20	176	20	49	35	33	39	44	35	13	28	16	80	70	195	20	570
72870-R	VDS.200+IRS A-8	200	8	53	40	38	44	50	40	14	36	13	90	81	320	27	770
72871-R	VDS.200+IRS A-20	200	20	53	40	38	44	50	40	14	36	13	90	81	320	27	730
72872-R	VDS.200+IRS A-24	200	24	53	40	38	44	50	40	14	36	13	90	81	320	27	690
72931-R	VDS.250+IRS A-20	250	20	60	40	38	50	57	48	17	36	19	90	104	500	30	955
72981-R	VDS.300+IRS A-20	300	20	66	40	36.5	68.5	72	66	20	44	20	90	124	500	30	1285

VDS+IRS-SST — **STAINLESS STEEL**

Code	Description	D	dH7	L	d1	d2	d3	d4	d5	l	h	h1	H	R	C# [Nm]	L# [J]	⚖
72775-R	VDS.150+IRS-SST-14	150	14	44	26	24	34	38	30	12	30	10	65	56.5	180	15	450
72875-R	VDS.200+IRS-SST-20	200	20	53	40	38	44	50	40	14	36	13	90	81	320	27	737

For maximum torque (C) and impact strength (L) see Technical Data on page A3.

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Solid handwheels

Technopolymer

MATERIAL
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

BOSS CAP
Acetal resin based (POM) technopolymer, black colour, matte finish, push-fit assembly.

RING
Matte anodised aluminium.
(ELESA original design - Reg. U.S. Pat.& TM Off.)

STANDARD EXECUTIONS
Black-oxide steel boss, H7 reamed hole.
- **VDT.:** without handle.
- **VDT+I:** with revolving handle I.621+x (see page 576) in technopolymer.
- **VDT+IR:** with fold-away handle IR.620 (see page 584) in technopolymer.

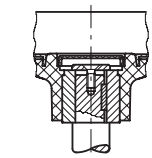
SPECIAL EXECUTIONS ON REQUEST
Black-oxide steel bosses with hole and keyway in compliance with DIN 6885/1 tolerance P9 (see page A16).
To order the handwheel with keyway complete code and description with the index -K (i.e. 170307-K VDT.100 A-10-K).

ACCESSORIES ON REQUEST
Axial retaining washer type GN 184 (see page 971).

ERGONOMY
The rim with internal rear scallops makes the grip and the manoeuvre of the handwheel easier.

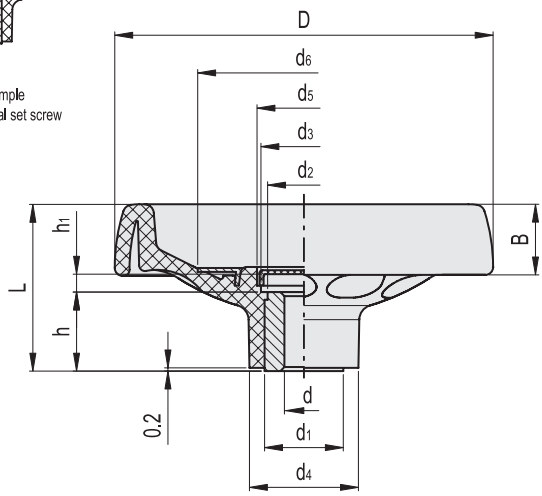


ELESA Original design 2003



Assembly example
with keyway and axial set screw

VDT.



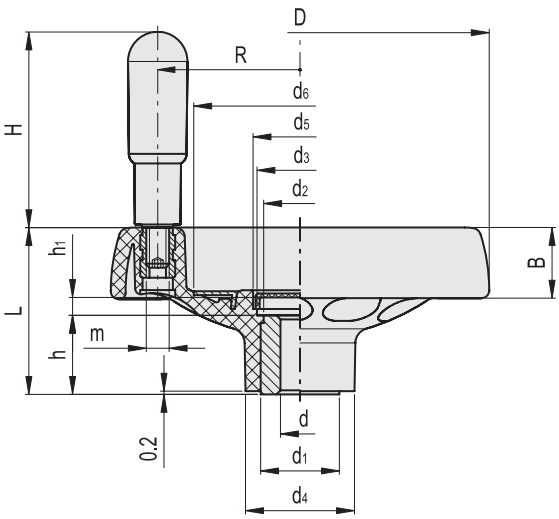
VDT.

Code	Description	D	dH7	L	B	d1	d2	d3	d4	d5	d6	h	h1	C# [Nm]	L# [J]	⚖
170307	VDT.100 A-10	100	10	49	22	22	20	26	32	28	54	22	5.5	180	21	155
170505	VDT.125 A-12	125	12	57	24	26	24	28	36	31	70	27	7	200	23	285
170707	VDT.160 A-14	160	14	64	27	35	33	38	46	40	90	28	11	400	25	505
170907	VDT.200 A-20	200	20	68	30	40	38	50	51	52	110	31	9	600	35	730

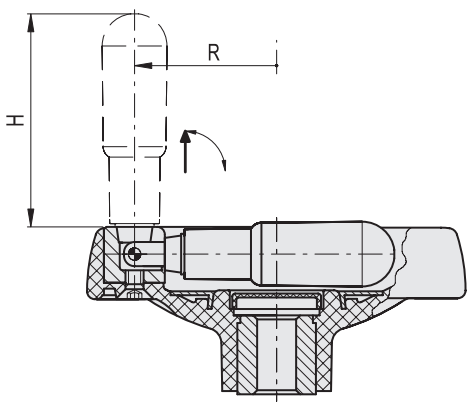
For maximum torque (C) and impact strength (L) see Technical Data on page A3.

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VDT+I



VDT+IR



VDT+I

Code	Description	D	dH7	L	B	d1	d2	d3	d4	d5	d6	h	h1	H	m	R	C# [Nm]	L# [J]	⚖
170317	VDT.100+I A-10	100	10	49	22	22	20	26	32	28	54	22	5.5	60	M6	37	180	21	185
170515	VDT.125+I A-12	125	12	57	24	26	24	28	36	31	70	27	7	65	M8	47	200	23	355
170717	VDT.160+I A-14	160	14	64	27	35	33	38	46	40	90	28	11	80	M8	62	400	25	585
170917	VDT.200+I A-20	200	20	68	30	40	38	50	51	52	110	31	9	90	M10	78	600	35	820

VDT+IR

Code	Description	D	dH7	L	B	d1	d2	d3	d4	d5	d6	h	h1	H	R	C# [Nm]	L# [J]	⚖
170327	VDT.100+IR A-10	100	10	49	22	22	20	26	32	28	54	22	5.5	60	37	180	21	195
170525	VDT.125+IR A-12	125	12	57	24	26	24	28	36	31	70	27	7	65	47	200	23	365
170727	VDT.160+IR A-14	160	14	64	27	35	33	38	46	40	90	28	11	80	62	400	25	600
170927	VDT.200+IR A-20	200	20	68	30	40	38	50	51	52	110	31	9	90	78	600	35	875

For maximum torque (C) and impact strength (L) seeTechnical Data on page A3.

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Solid handwheels

Duroplast

MATERIAL
High-strength, reinforced phenolic based (PF) Duroplast, black colour, glossy finish.

RING
Matte anodised aluminium.
(ELESA Original design - Reg. U.S. Pat. & TM Off.)

STANDARD EXECUTIONS
- **VDN.FP-A**: without handle, black-oxide steel hub, H7 reamed hole.
- **VDN.FP+I-A**: with revolving handle I.301+x (see page 574) in Duroplast. Black-oxide steel hub, H7 reamed hole.
- **VDN.FP+IR-A**: with fold-away handle IR.407 in Duroplast. Black-oxide steel hub, H7 reamed hole.
- **VDN.FP+IRS-A**: with automatic fold-away safety handle "Fold-O-matic"® type IRS.820 (see page 589) in technopolymer. Black-oxide steel hub, H7 reamed hole.
- **VDN.FP**: without handle, black-oxide steel hub, not drilled.
- **VDN.FP-SST**: without handle, AISI 303 stainless steel hub, not drilled.
- **VDN.FP+I**: with revolving handle I.301+x (see page 574) in Duroplast. Black-oxide steel hub, not drilled.
- **VDN.FP+I-SST**: with revolving handle I.301+x-SST (see page 574) in Duroplast. AISI 303 stainless steel hub, not drilled.
- **VDN.FP+IR**: with fold-away handle IR.407 in Duroplast. Black-oxide steel hub, not drilled.

SPECIAL EXECUTIONS ON REQUEST
- Hub with hole and keyway in compliance with DIN 6885/1 tolerance P9 (see page A16)

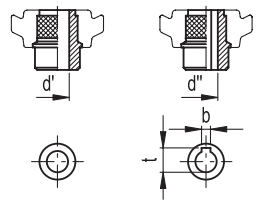
To order the handwheel with keyway complete code and description with the index -K (i.e. 73710-10-K VDN.100 FP+I-A-10-K).
- Handlwheels with incorporated balancing counterweights.

ACCESSORIES ON REQUEST
Axial retaining washer in black-oxide steel GN 184 (see page 971) or in AISI 303 stainless steel GN 184.5 (see page 971).

ERGONOMY
The rim with internal rear scallops makes the grip and the manoeuvre of the handwheel easier.



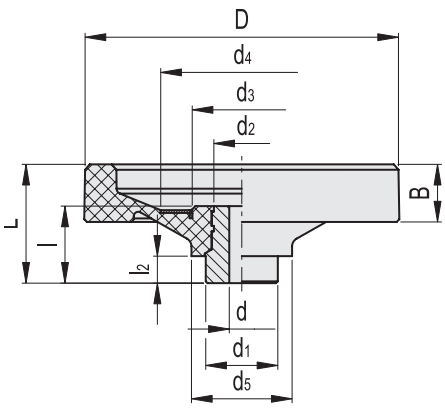
ELESA Original design



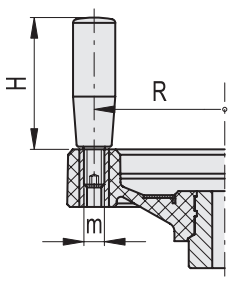
d' Max diameter permissible

d'' Max diameter for hole with keyway

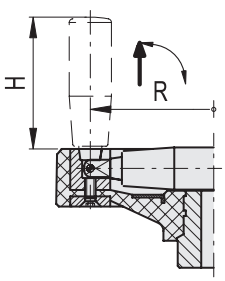
VDN.FP-A



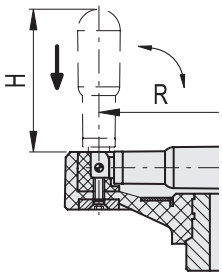
VDN.FP+I-A



VDN.FP+IR-A



VDN.FP+IRS-A



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VDN.FP-A

Code	Description	D	dH7	L	B	d1	d2	d3	d4	d5	l	l2	d'	d''	t	b	C# [Nm]	L# [J]	⚖
73650-10	VDN.50 FP-A-10	50	10	22	12	16	16	-	25	26	19	9	12	10	11.4	3	55	3	50
73670-10	VDN.63 FP-A-10	63	10	28	13	20	20	-	31	28	24	10	13	11	12.8	4	75	4	100
73690-10	VDN.80 FP-A-10	80	10	31	14	20	18	28	43	30	28	10	13	11	12.8	4	120	5	120
73690-12	VDN.80 FP-A-12	80	12	31	14	20	18	28	43	30	28	10	13	11	12.8	4	120	5	115
73709-10	VDN.100 FP-A-10	100	10	40	15	24	22	35	54	39	36	12	16	13	15.3	5	150	6	324
73709-12	VDN.100 FP-A-12	100	12	40	15	24	22	35	54	39	36	12	16	13	15.3	5	150	6	322
73719-12	VDN.125 FP-A-12	125	12	44	15	32	26.5	44	70	46	38	15	20	16	18.3	5	300	8	493
73719-14	VDN.125 FP-A-14	125	14	44	15	32	26.5	44	70	46	38	15	20	16	18.3	5	300	8	490
73723-14	VDN.140 FP-A-14	140	14	46	19	32	26.5	44	70	48	38	15	20	16	18.3	5	350	10	430
73729-14	VDN.150 FP-A-14	150	14	49	18	32	26.5	44	70	48	38	15	20	16	18.3	5	400	14	662
73729-16	VDN.150 FP-A-16	150	16	49	18	32	26.5	44	70	48	38	15	20	16	18.3	5	400	14	659
73739-16	VDN.175 FP-A-16	175	16	54	19	40	33	55	90	56	43	15	26	22	24.8	6	500	16	991
73739-18	VDN.175 FP-A-18	175	18	54	19	40	33	55	90	56	43	15	26	22	24.8	6	500	16	985
73749-18	VDN.200 FP-A-18	200	18	58	21	40	33	55	90	60	43	15	26	22	24.8	6	600	18	1196
73749-20	VDN.200 FP-A-20	200	20	58	21	40	33	55	90	60	43	15	26	22	24.8	6	600	18	1192
73769-22	VDN.250 FP-A-22	249	22	65	25	49	40	66	110	70	44	15	35	27	30.3	8	1000	28	1982
73780-26	VDN.300 FP-A-26	301	26	75	25	58	58	94	148	82	56	18	42	38	41.3	10	1100	35	2685

VDN.FP+I-A

Code	Description	D	dH7	L	B	d1	d2	d3	d4	d5	l	l2	H	m	R	d'	d''	t	b	C# [Nm]	L# [J]	⚖
73651-10	VDN.50 FP+I-A-10	50	10	22	12	16	16	-	25	26	19	9	28	M6	19	12	10	11.4	3	55	3	63
73671-10	VDN.63 FP+I-A-10	63	10	28	13	20	20	-	31	28	24	10	40	M6	24	13	11	12.8	4	75	4	127
73691-10	VDN.80 FP+I-A-10	80	10	31	14	20	18	28	43	30	28	10	40	M6	32	13	11	12.8	4	120	5	157
73691-12	VDN.80 FP+I-A-12	80	12	31	14	20	18	28	43	30	28	10	40	M6	32	13	11	12.8	4	120	5	147
73710-10	VDN.100 FP+I-A-10	100	10	46	21	24	20	35	54	39	33.5	12	50	M6	39	16	13	15.3	5	150	6	361
73710-12	VDN.100 FP+I-A-12	100	12	46	21	24	20	35	54	39	33.5	12	50	M6	39	16	13	15.3	5	150	6	358
73720-12	VDN.125 FP+I-A-12	125	12	57	28	32	26.5	44	70	46	38	15	65	M8	50	20	16	18.3	5	300	8	568
73720-14	VDN.125 FP+I-A-14	125	14	57	28	32	26.5	44	70	46	38	15	65	M8	50	20	16	18.3	5	300	8	565
73724-14	VDN.140 FP+I-A-14	140	14	55	28	32	26.5	44	70	48	38	15	65	M8	58	20	16	18.3	5	350	10	575
73730-14	VDN.150 FP+I-A-14	150	14	61	30	32	26.5	50	80	48	38	15	65	M8	62	20	16	18.3	5	400	14	737
73730-16	VDN.150 FP+I-A-16	150	16	61	30	32	26.5	50	80	48	38	15	65	M8	62	20	16	18.3	5	400	14	734
73740-16	VDN.175 FP+I-A-16	175	16	66	32	40	33	55	90	56	43	15	80	M10	72.5	26	22	24.8	6	500	16	1089
73740-18	VDN.175 FP+I-A-18	175	18	66	32	40	33	55	90	56	43	15	80	M10	72.5	26	22	24.3	6	500	16	1087
73750-18	VDN.200 FP+I-A-18	200	18	68	32	40	33	55	90	60	43	15	90	M10	82	26	22	24.8	6	600	18	1314
73750-20	VDN.200 FP+I-A-20	200	20	68	32	40	33	55	90	60	43	15	90	M10	82	26	22	24.8	6	600	18	1308
73760-20	VDN.225 FP+I-A-20	225	20	71	33	49	40	66	110	66	44.5	15	90	M10	94	34	27	30.3	8	900	25	1708
73760-22	VDN.225 FP+I-A-22	225	22	71	33	49	40	66	110	66	44.5	15	90	M10	94	34	27	30.3	8	900	25	1702
73770-22	VDN.250 FP+I-A-22	249	22	76	36	49	40	66	110	70	44.5	15	90	M10	106	35	27	30.3	8	1000	28	2100
73770-24	VDN.250 FP+I-A-24	249	24	76	36	49	40	66	110	70	44.5	15	90	M10	106	35	27	30.3	8	1000	28	2097
73781-26	VDN.300 FP+I-A-26	301	26	87	36	58	58	94	148	82	56	18	90	M10	132	42	38	41.3	10	1100	35	2803

VDN.FP+IR-A

Code	Description	D	dH7	L	B	d1	d2	d3	d4	d5	l	l2	H	R	d'	d''	t	b	C# [Nm]	L# [J]	⚖
73711-10	VDN.100 FP+IR-A-10	100	10	51	26	24	20	35	54	39	33.5	12	56	37	16	13	15.3	5	150	6	427
73721-12	VDN.125 FP+IR-A-12	125	12	57	28	32	26.5	44	70	46	38	15	56	48	20	16	18.3	5	300	8	596
73731-14	VDN.150 FP+IR-A-14	150	14	61	30	32	26.5	50	80	48	38	15	65	57	20	16	18.3	5	400	14	803
73741-16	VDN.175 FP+IR-A-16	175	16	66	32	40	33	55	90	56	43	15	80	68	26	22	24.8	6	500	16	1147
73751-20	VDN.200 FP+IR-A-20	200	20	68	32	40	33	55	90	60	43	15	90	76.5	26	22	24.8	6	600	18	1462
73761-20	VDN.225 FP+IR-A-20	225	20	71	33	49	40	66	110	66	44.5	15	90	88	34	27	30.3	8	900	25	1856
73771-22	VDN.250 FP+IR-A-22	249	22	76	36	49	40	66	110	70	44.5	15	90	100	35	27	30.3	8	1000	28	2248
73782-26	VDN.300 FP+IR-A-26	301	26	87	36	58	58	94	148	82	56	18	90	124	42	38	41.3	10	1100	35	3212

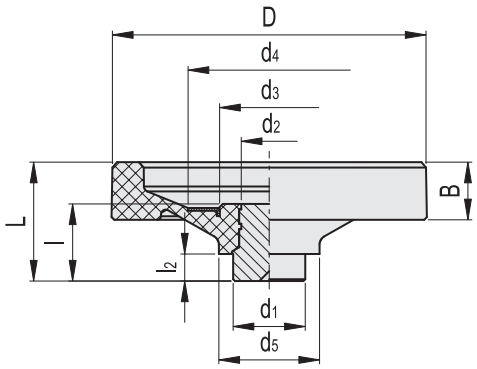
VDN.FP+IRS-A

Code	Description	D	dH7	L	B	d1	d2	d3	d4	d5	l	l2	H	R	d'	d''	t	b	C# [Nm]	L# [J]	⚖
73732-14	VDN.150 FP+IRS-A-14	150	14	61	30	32	26.5	50	80	48	38	15	65	57	20	16	18.3	5	400	14	733
73742-16	VDN.175 FP+IRS-A-16	175	16	66	32	40	33	55	90	56	43	15	80	68	26	22	24.8	6	500	16	1053
73752-20	VDN.200 FP+IRS-A-20	200	20	68	32	40	33	55	90	60	43	15	90	74.5	26	22	24.8	6	600	18	1252
73762-20	VDN.225 FP+IRS-A-20	225	20	71	33	49	40	66	110	66	44.5	15	90	86	34	27	30.3	8	900	25	1646
73772-22	VDN.250 FP+IRS-A-22	249	22	76	36	49	40	66	110	70	44.5	15	90	98	35	27	30.3	8	1000	28	2038

For maximum torque (C) and impact strength (L) see Technical Data on page A3.

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VDN.FP
VDN.FP-SST



VDN.FP

Code	Description	D	L	B	d1	d2	d3	d4	d5	l	l2	d'	d''	t	b	C# [Nm]	L# [J]	⚖
73650	VDN.50 FP	50	22	12	16	16	-	25	26	19	9	12	10	11.4	3	55	3	60
73670	VDN.63 FP	63	28	13	20	20	-	31	28	24	10	13	11	12.8	4	75	4	115
73690	VDN.80 FP	80	31	14	20	18	28	43	30	28	10	13	11	12.8	4	120	5	145
73709	VDN.100 FP	100	40	15	24	22	35	54	39	36	12	16	13	15.3	5	150	6	324
73719	VDN.125 FP	125	44	15	32	26.5	44	70	46	38	15	20	16	18.3	5	300	8	493
73723	VDN.140 FP	140	46	19	32	26.5	44	70	48	38	15	20	16	18.3	5	350	10	465
73729	VDN.150 FP	150	49	18	32	26.5	44	70	48	38	15	20	16	18.3	5	400	14	662
73739	VDN.175 FP	175	54	19	40	33	55	90	56	43	15	26	22	24.8	6	500	16	991
73749	VDN.200 FP	200	58	21	40	33	55	90	60	43	15	26	22	24.8	6	600	18	1196
73759	VDN.225 FP	225	63	23	49	40	66	110	66	44	15	34	27	30.3	8	900	25	1590
73769	VDN.250 FP	249	65	25	49	40	66	110	70	44	15	35	27	30.3	8	1000	28	1982
73780	VDN.300 FP	301	75	25	58	58	94	148	82	56	18	42	38	41.3	10	1100	35	2920
73790	VDN.350 FP	350	92	38	58	58	94	148	90	56	18	42	38	41.3	10	1200	36	3960

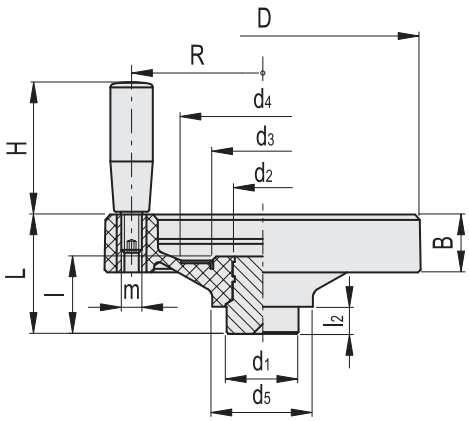
VDN.FP-SST **STAINLESS STEEL**

Code	Description	D	L	B	d1	d2	d3	d4	d5	l	l2	d'	d''	t	b	C# [Nm]	L# [J]	⚖
73695	VDN.80 FP-SST	80	31	14	20	18	28	43	30	28	10	13	11	12.8	4	120	5	146
73713	VDN.100 FP-SST	100	40	15	24	22	35	54	39	36	12	16	13	15.3	5	150	6	325
73722	VDN.125 FP-SST	125	44	15	32	26.5	44	70	46	38	15	20	16	18.3	5	300	8	494
73733	VDN.150 FP-SST	150	49	18	32	26.5	44	70	48	38	15	20	16	18.3	5	400	14	663
73753	VDN.200 FP-SST	200	58	21	40	33	55	90	60	43	15	26	22	24.8	6	600	18	1197
73773	VDN.250 FP-SST	249	65	25	49	40	66	110	70	44	15	35	27	30.3	8	1000	28	1982
73785	VDN.300 FP-SST	301	75	25	58	58	94	148	82	56	18	42	38	41.3	10	1100	35	1591

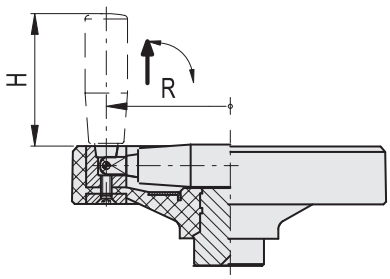
For maximum torque (C) and impact strength (L) see Technical Data on page A3.

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VDN.FP+I
VDN.FP+I-SST



VDN.FP+IR



VDN.FP+I

Code	Description	D	L	B	d1	d2	d3	d4	d5	l	l2	H	m	R	d'	d''	t	b	C# [Nm]	L# [J]	⚖
73651	VDN.50 FP+I	50	22	12	16	16	-	25	26	19	9	28	M6	19	12	10	11.4	3	55	3	88
73671	VDN.63 FP+I	63	28	13	20	20	-	31	28	24	10	40	M6	24	13	11	12.8	4	75	4	172
73691	VDN.80 FP+I	80	31	14	20	18	28	43	30	28	10	40	M6	32	13	11	12.8	4	120	5	207
73710	VDN.100 FP+I	100	46	21	24	20	35	54	39	33.5	12	50	M6	39	16	13	15.3	5	150	6	361
73720	VDN.125 FP+I	125	57	28	32	26.5	44	70	46	38	15	65	M8	50	20	16	18.3	5	300	8	568
73724	VDN.140 FP+I	140	55	28	32	26.5	44	70	48	38	15	65	M8	58	20	16	18.3	5	300	14	575
73730	VDN.150 FP+I	150	61	30	32	26.5	50	80	48	38	15	65	M8	62	20	16	18.3	5	400	14	737
73740	VDN.175 FP+I	175	66	32	40	33	55	90	56	43	15	80	M10	72.5	26	22	24.8	6	500	16	1089
73750	VDN.200 FP+I	200	68	32	40	33	55	90	60	43	15	90	M10	82	26	22	24.8	6	600	18	1314
73760	VDN.225 FP+I	225	71	33	49	40	66	110	66	44.5	15	90	M10	94	34	27	30.3	8	900	25	1708
73770	VDN.250 FP+I	249	76	36	49	40	66	110	70	44.5	15	90	M10	106	35	27	30.3	8	1000	28	2100
73781	VDN.300 FP+I	301	87	36	58	58	94	148	82	56	18	90	M10	132	42	38	41.3	10	1100	35	3138
73791	VDN.350 FP+I	350	92	38	58	58	94	148	90	56	18	102	M10	157	42	38	41.3	10	1200	36	4243

VDN.FP+I-SST **STAINLESS STEEL**

Code	Description	D	L	B	d1	d2	d3	d4	d5	l	l2	H	m	R	d'	d''	t	b	C# [Nm]	L# [J]	⚖
73715	VDN.100 FP+I-SST	100	46	21	24	20	35	54	39	33.5	12	50	M6	39	16	13	15.3	5	150	6	361
73725	VDN.125 FP+I-SST	125	57	28	32	26.5	44	70	46	38	15	65	M8	50	20	16	18.3	5	300	8	568
73735	VDN.150 FP+I-SST	150	61	30	32	26.5	50	80	48	38	15	65	M8	62	20	16	18.3	5	400	14	737
73755	VDN.200 FP+I-SST	200	68	32	40	33	55	90	60	43	15	90	M10	82	26	22	24.8	6	600	18	1314
73775	VDN.250 FP+I-SST	249	76	36	49	40	66	110	70	44.5	15	90	M10	106	35	27	30.3	8	1000	28	2100
73786	VDN.300 FP+I-SST	301	87	36	58	58	94	148	82	56	18	90	M10	132	42	38	41.3	10	1100	35	3138

VDN.FP+IR

Code	Description	D	L	B	d1	d2	d3	d4	d5	l	l2	H	R	d'	d''	t	b	C# [Nm]	L# [J]	⚖
73711	VDN.100 FP+IR	100	51	26	24	20	35	54	39	33.5	12	56	37	16	13	15.3	5	150	6	427
73721	VDN.125 FP+IR	125	57	28	32	26.5	44	70	46	38	15	56	48	20	16	18.3	5	300	8	596
73731	VDN.150 FP+IR	150	61	30	32	26.5	50	80	48	38	15	65	57	20	16	18.3	5	400	14	803
73741	VDN.175 FP+IR	175	66	32	40	33	55	90	56	43	15	80	68	26	22	24.8	6	500	16	1147
73751	VDN.200 FP+IR	200	68	32	40	33	55	90	60	43	15	90	76.5	26	22	24.8	6	600	18	1462
73761	VDN.225 FP+IR	225	71	33	49	40	66	110	66	44.5	15	90	88	34	27	30.3	8	900	25	1856
73771	VDN.250 FP+IR	249	76	36	49	40	66	110	70	44.5	15	90	100	35	27	30.3	8	1000	28	2248
73782	VDN.300 FP+IR	301	87	36	58	58	94	148	82	56	18	90	124	42	38	41.3	10	1100	35	3212

For maximum torque (C) and impact strength (L) see Technical Data on page A3.

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Safety solid handwheels

Duroplast

MATERIAL
High-strength, reinforced phenolic based (PF) Duroplast, black colour, glossy finish.

RING
Matte anodised aluminium.
(ELESA Original design - Reg. U.S. Pat. & TM Off.)

STANDARD EXECUTION
Safety coupling bushing with "Pull-coupling" assembly GN 000.5 (see page 185) hardened steel with ground sliding surfaces, reamed assembly hole and keyway in compliance with DIN 6885/2 tolerance P9 (see page A16).
Revolving handle I.301+x (see page 574) in Duroplast.

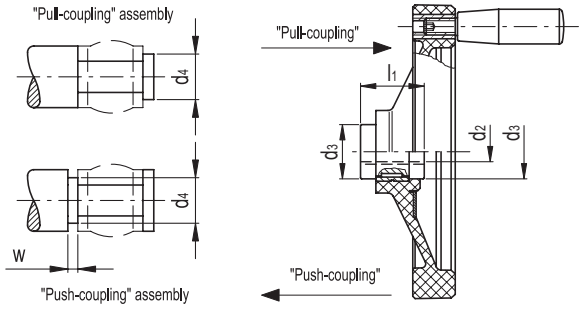
SPECIAL EXECUTIONS ON REQUEST
These handwheels can be supplied with "Push-coupling". By inserting the bushing the other way round, the handwheel operates opposite to the standard way.

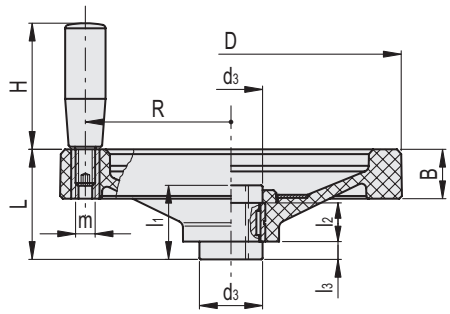
INSTRUCTIONS OF USE
Safety handwheels are designed in accordance with accident prevention rules: in case of push or accidental pressure when the machine is operating, the handwheel is disengaged and is in the rest position. Only by "Pulling" the handwheel parallel to the axis can the shaft operate: the two toothed elements inside the bushing fit into each other in order to couple the handwheel to the shaft. The handwheel returns automatically to its rest position when it is released after the operation.

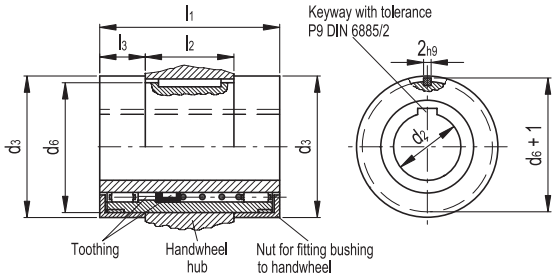
ERGONOMY
The rim with internal rear scallops makes the grip and the manoeuvre of the handwheel easier.

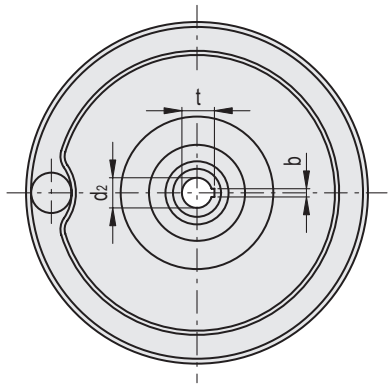


ELESA Original design









Code	Description	D	d2 H7	L	B	d3	d4 max	d6	l1	l2 ±0.2	l3	H	m	R	wmin	t	b	⚖
73728	VDN.125 FP+I+ST12	125	12	58	28	29	17	25 -0.05	42	18	12	65	M8	50	4	13.1	4	465
73738	VDN.150 FP+I+ST14	150	14	67	30	33	21	29 -0.05	48	20	14	65	M8	62	4	15.3	5	650
73748	VDN.175 FP+I+ST14	175	14	69	32	33	21	29 -0.05	48	20	14	80	M10	72.5	4	15.3	5	810
73758	VDN.200 FP+I+ST18	200	18	72	32	39	26	35 -0.05	50	24	13	90	M10	82	4	19.7	6	1220
73778	VDN.250 FP+I+ST22	249	22	82	36	46	30	41 -0.05	54	28	13	90	M10	106	4	23.7	6	1670

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Disc handwheels

Aluminium, plastic coated



reddot design award

SPECIFICATION

Types

- Type **A**: without handle
- Type **R**: with revolving handle

Bore codes

- Version **B**: without keyway
- Version **K**: with keyway

Aluminium pressure die casting

- Hub machined
- Rim turned
- plastic coated

black, RAL 9005, textured finish **SW**
silver, RAL 9006, textured finish **SR**

Rim concentric and square to bore < 0.4

Cylindrical Revolving handles GN 798.2 (see page 578)
Plastic, Technopolymer
black, matt

INFORMATION

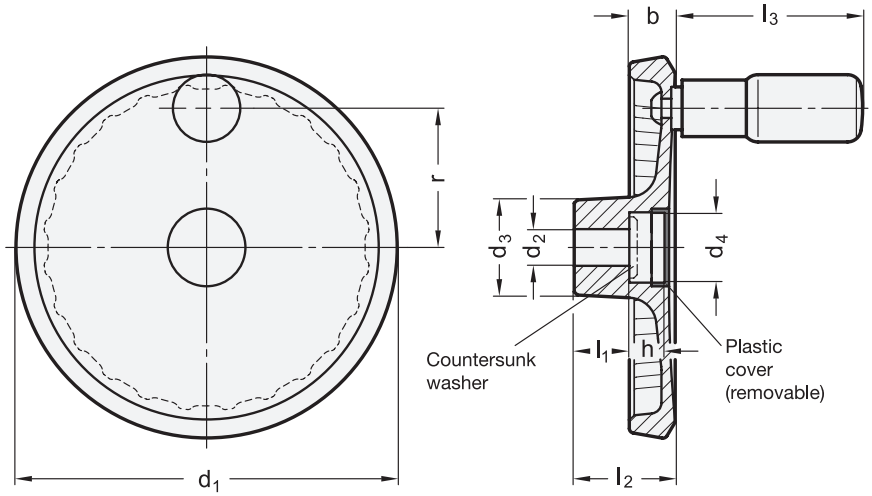
Disc handwheels GN 923 are distinguished by modern design. The removable plastic cover shrouds the fixing components such as screws, countersunk washers as well as the shaft end.

ACCESSORY

- Countersunk washers GN 184 (see page 971) are to be ordered separately
  screws, countersunk washers as well as the shaft end.

TECHNICAL INFORMATION

- Keyway P9 DIN 6885 (see page A16)
- Cross holes GN 110 (see page A17)
- ISO-Fundamental Tolerances (see page A21)



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GN 923 | Disc handwheels

*Complete with colour index of the Handwheels (SW or SR)

SW RAL9005 SR RAL9006

GN 923-A

Description	d1	d2 H7	d3	d4	b	h	l1	l2 ≈	Recommended countersunk washer	⚖
GN 923-80-B10-A-*	80	10	26	17	13	7	16	26	GN 184-16	101
GN 923-80-K10-A-*	80	10	26	17	13	7	16	26	GN 184-16	101
GN 923-80-B12-A-*	80	12	26	17	13	7	16	26	GN 184-16	100
GN 923-80-K12-A-*	80	12	26	17	13	7	16	26	GN 184-16	100
GN 923-100-B10-A-*	100	10	28	22	14	9.5	17	30	GN 184-20	153
GN 923-100-K10-A-*	100	10	28	22	14	9.5	17	30	GN 184-20	153
GN 923-100-B12-A-*	100	12	28	22	14	9.5	17	30	GN 184-20	150
GN 923-100-K12-A-*	100	12	28	22	14	9.5	17	30	GN 184-20	150
GN 923-125-B12-A-*	125	12	31	22	15	11	18	33	GN 184-20	260
GN 923-125-K12-A-*	125	12	31	22	15	11	18	33	GN 184-20	260
GN 923-125-B14-A-*	125	14	31	22	15	11	18	33	GN 184-20	261
GN 923-125-K14-A-*	125	14	31	22	15	11	18	33	GN 184-20	261
GN 923-140-B14-A-*	140	14	36	28.5	16.5	13	19	36	GN 184-25	338
GN 923-140-K14-A-*	140	14	36	28.5	16.5	13	19	36	GN 184-25	338
GN 923-140-B16-A-*	140	16	36	28.5	16.5	13	19	36	GN 184-25	337
GN 923-140-K16-A-*	140	16	36	28.5	16.5	13	19	36	GN 184-25	330
GN 923-160-B14-A-*	160	14	36	28.5	18	14.5	20	39	GN 184-25	460
GN 923-160-K14-A-*	160	14	36	28.5	18	14.5	20	39	GN 184-25	460
GN 923-160-B16-A-*	160	16	36	28.5	18	14.5	20	39	GN 184-25	449
GN 923-160-K16-A-*	160	16	36	28.5	18	14.5	20	39	GN 184-25	445
GN 923-200-B18-A-*	200	18	42	36	20.5	16	24	45	GN 184-32	780
GN 923-200-K18-A-*	200	18	42	36	20.5	16	24	45	GN 184-32	780
GN 923-200-B20-A-*	200	20	42	36	20.5	16	24	45	GN 184-32	765
GN 923-200-K20-A-*	200	20	42	36	20.5	16	24	45	GN 184-32	765

GN 923-R

Description	d1	d2 H7	d3	d4	b	h	l1	l2 ≈	l3 ≈	r	Ø Handle	Recommended countersunk washer	⚖
GN 923-80-B10-R-*	80	10	26	17	13	7	16	26	43.5	27.5	16	GN 184-16	120
GN 923-80-K10-R-*	80	10	26	17	13	7	16	26	43.5	27.5	16	GN 184-16	120
GN 923-80-B12-R-*	80	12	26	17	13	7	16	26	43.5	27.5	16	GN 184-16	100
GN 923-80-K12-R-*	80	12	26	17	13	7	16	26	43.5	27.5	16	GN 184-16	100
GN 923-100-B10-R-*	100	10	28	22	14	9.5	17	30	58	36	18	GN 184-20	186
GN 923-100-K10-R-*	100	10	28	22	14	9.5	17	30	58	36	18	GN 184-20	186
GN 923-100-B12-R-*	100	12	28	22	14	9.5	17	30	58	36	18	GN 184-20	182
GN 923-100-K12-R-*	100	12	28	22	14	9.5	17	30	58	36	18	GN 184-20	182
GN 923-125-B12-R-*	125	12	31	22	15	11	18	33	61	45.5	22	GN 184-20	340
GN 923-125-K12-R-*	125	12	31	22	15	11	18	33	61	45.5	22	GN 184-20	340
GN 923-125-B14-R-*	125	14	31	22	15	11	18	33	61	45.5	22	GN 184-20	340
GN 923-125-K14-R-*	125	14	31	22	15	11	18	33	61	45.5	22	GN 184-20	339
GN 923-140-B14-R-*	140	14	36	28.5	16.5	13	19	36	76	52	24	GN 184-25	420
GN 923-140-K14-R-*	140	14	36	28.5	16.5	13	19	36	76	52	24	GN 184-25	418
GN 923-140-B16-R-*	140	16	36	28.5	16.5	13	19	36	76	52	24	GN 184-25	420
GN 923-140-K16-R-*	140	16	36	28.5	16.5	13	19	36	76	52	24	GN 184-25	400
GN 923-160-B14-R-*	160	14	36	28.5	18	14.5	20	39	76	61	24	GN 184-25	540
GN 923-160-K14-R-*	160	14	36	28.5	18	14.5	20	39	76	61	24	GN 184-25	535
GN 923-160-B16-R-*	160	16	36	28.5	18	14.5	20	39	76	61	24	GN 184-25	540
GN 923-160-K16-R-*	160	16	36	28.5	18	14.5	20	39	76	61	24	GN 184-25	540
GN 923-200-B18-R-*	200	18	42	36	20.5	16	24	45	85	77.5	25	GN 184-32	880
GN 923-200-K18-R-*	200	18	42	36	20.5	16	24	45	85	77.5	25	GN 184-32	860
GN 923-200-B20-R-*	200	20	42	36	20.5	16	24	45	85	77.5	25	GN 184-32	889
GN 923-200-K20-R-*	200	20	42	36	20.5	16	24	45	85	77.5	25	GN 184-32	885

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Handwheels with retractable handle

Aluminium, Handle locked

SPECIFICATION

Type
- Type **R**: with retractable handle

Bore codes
- Version **B**: without keyway
- Version **K**: with keyway

Aluminium pressure die casting
- Hub machined
- Rim turned
- plastic coated

black, RAL 9005, textured finish **SW**
silver, RAL 9006, textured finish **SR**

Rim concentric and square to bore < 0.4

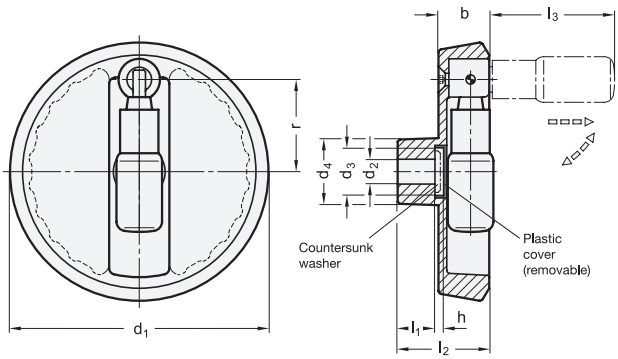
Retractable handles GN 798.3 (see page 586)
Plastic, Technopolymer
black, matt

Retracting mechanism
Steel, blackened



INFORMATION

The handle in these disc handwheels is locked in a conical bore in the operating position.
For reversal, it must first be pulled from the cone in axial direction.
A pressure spring holds the handle in both positions. When swung out, it automatically engages again.



*Complete with colour index of the Handwheels (SW or SR)

SW RAL9005 SR RAL9006

GN 923.3

Description	d1	d2 H7	d3	d4	b	h	l1	l2 ≈	l3 ≈	r	Ø Handle	Recommended countersunk washer	⚖
GN 923.3-100-B10-R-*	100	10	18	28	20	4	17	39	56.5	35	18	GN 184-16	252
GN 923.3-100-K10-R-*	100	10	18	28	20	4	17	39	56.5	35	18	GN 184-16	240
GN 923.3-100-B12-R-*	100	12	18	28	20	4	17	39	56.5	35	18	GN 184-16	260
GN 923.3-100-K12-R-*	100	12	18	28	20	4	17	39	56.5	35	18	GN 184-16	260
GN 923.3-125-B12-R-*	125	12	23	31	24.5	4	18	45	60.5	44.5	22	GN 184-22	460
GN 923.3-125-K12-R-*	125	12	23	31	24.5	4	18	45	60.5	44.5	22	GN 184-22	460
GN 923.3-125-B14-R-*	125	14	23	31	24.5	4	18	45	60.5	44.5	22	GN 184-22	440
GN 923.3-125-K14-R-*	125	14	23	31	24.5	4	18	45	60.5	44.5	22	GN 184-22	440
GN 923.3-140-B14-R-*	140	14	23	36	26	4	19	47	75.5	52	24	GN 184-22	590
GN 923.3-140-K14-R-*	140	14	23	36	26	4	19	47	75.5	52	24	GN 184-22	590
GN 923.3-140-B16-R-*	140	16	23	36	26	4	19	47	75.5	52	24	GN 184-22	550
GN 923.3-140-K16-R-*	140	16	23	36	26	4	19	47	75.5	52	24	GN 184-22	540
GN 923.3-160-B14-R-*	160	14	23	36	26	4	20	48	75.5	61	24	GN 184-22	740
GN 923.3-160-K14-R-*	160	14	23	36	26	4	20	48	75.5	61	24	GN 184-22	740
GN 923.3-160-B16-R-*	160	16	23	36	26	4	20	48	75.5	61	24	GN 184-22	730
GN 923.3-160-K16-R-*	160	16	23	36	26	4	20	48	75.5	61	24	GN 184-22	730
GN 923.3-200-B18-R-*	200	18	23	42	27	4	24	53	85.5	80.5	25	GN 184-22	1100
GN 923.3-200-K18-R-*	200	18	23	42	27	4	24	53	85.5	80.5	25	GN 184-22	1100
GN 923.3-200-B20-R-*	200	20	23	42	27	4	24	53	85.5	80.5	25	GN 184-22	921
GN 923.3-200-K20-R-*	200	20	23	42	27	4	24	53	85.5	80.5	25	GN 184-22	915

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GN 923.7

Handwheels with retractable handle

Aluminium, Handle swivelling

SPECIFICATION

Type
- Type **R**: with retractable handle

Bore codes

- Version **B**: without keyway
- Version **K**: with keyway

Aluminium pressure die casting

- Hub machined
- Rim turned
- plastic coated

black, RAL 9005, textured finish **SW**
silver, RAL 9006, textured finish **SR**

Rim concentric and square to bore < 0.4

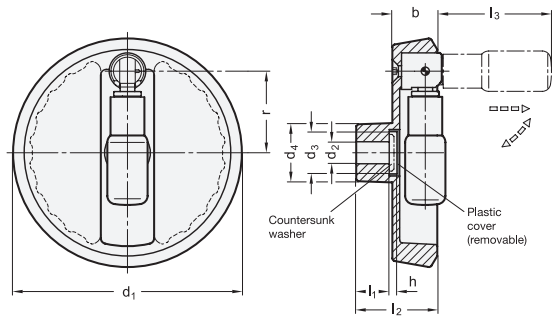
Safety retractable handles GN 798.7 (see page 587)
Plastic, Technopolymer
black, matt

Retracting mechanism
Steel, blackened



INFORMATION

Disc handwheels GN 923.7 are distinguished by modern design.
These handwheels are suitable for applications where the handle must not remain in the operating position.
In order to bring the handle into this position it has to be turned first through 90° to a stop against a torsion spring and then it is pushed against spring pressure into its hold position. By maintaining the forward thrust on the handle the handwheel can easily be rotated.
When releasing the handle the springs returns it back to the retracted position.



*Complete with colour index of the Handwheels (SW or SR)

SW RAL9005 SR RAL9006

GN 923.7

Description	d1	d2 H7	d3	d4	b	h	l1	l2 ≈	l3 ≈	r	Ø Handle	Recommended countersunk washer	⚖
GN 923.7-125-B12-R-*	125	12	23	31	24.5	4	18	45	62.5	44.5	22	GN 184-22	460
GN 923.7-125-K12-R-*	125	12	23	31	24.5	4	18	45	62.5	44.5	22	GN 184-22	440
GN 923.7-125-B14-R-*	125	14	23	31	24.5	4	18	45	62.5	44.5	22	GN 184-22	420
GN 923.7-125-K14-R-*	125	14	23	31	24.5	4	18	45	62.5	44.5	22	GN 184-22	420
GN 923.7-140-B14-R-*	140	14	23	36	26	4	19	47	77.5	52	24	GN 184-22	589
GN 923.7-140-K14-R-*	140	14	23	36	26	4	19	47	77.5	52	24	GN 184-22	589
GN 923.7-140-B16-R-*	140	16	23	36	26	4	19	47	77.5	52	24	GN 184-22	580
GN 923.7-140-K16-R-*	140	16	23	36	26	4	19	47	77.5	52	24	GN 184-22	580
GN 923.7-160-B14-R-*	160	14	23	36	26	4	20	48	77.5	61	24	GN 184-22	750
GN 923.7-160-K14-R-*	160	14	23	36	26	4	20	48	77.5	61	24	GN 184-22	730
GN 923.7-160-B16-R-*	160	16	23	36	26	4	20	48	77.5	61	24	GN 184-22	700
GN 923.7-160-K16-R-*	160	16	23	36	26	4	20	48	77.5	61	24	GN 184-22	580
GN 923.7-200-B18-R-*	200	18	23	42	27	4	24	53	87.5	80.5	25	GN 184-22	1070
GN 923.7-200-K18-R-*	200	18	23	42	27	4	24	53	87.5	80.5	25	GN 184-22	1050
GN 923.7-200-B20-R-*	200	20	23	42	27	4	24	53	87.5	80.5	25	GN 184-22	1140
GN 923.7-200-K20-R-*	200	20	23	42	27	4	24	53	87.5	80.5	25	GN 184-22	1080

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Disc handwheels

Aluminium, blank, rim polished



SPECIFICATION

Types

- Type **A**: without handle
- Type **R**: with revolving handle

Bore codes

- Version **B**: without keyway
- Version **K**: with keyway

Aluminium

- Hub machined
- Rim turned

Rim concentric and square to bore < 0.4

Wheel body

- Rim high-polished
- unmachined body matt shot-blasted

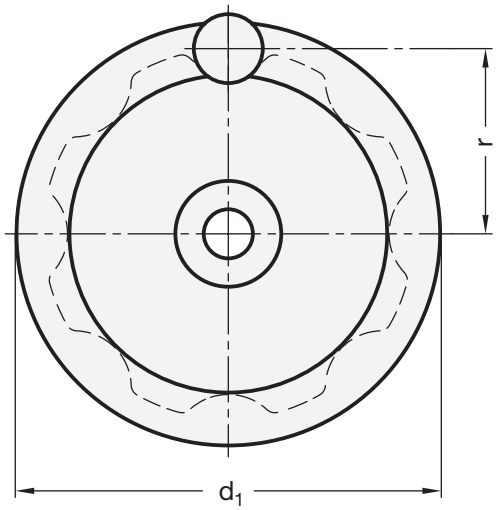
Cylindrical Revolving handles GN 798 (see page 577)
Plastic, Technopolymer
black, matt

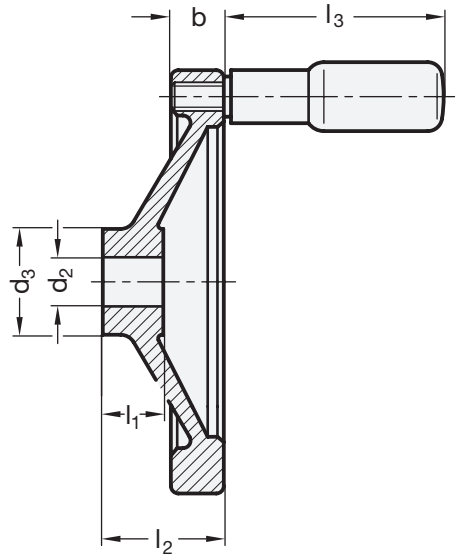
INFORMATION

Disc handwheels GN 321 have recessed grips at their back.
- Countersunk washers GN 184 (for axial fixing) (see page 971)

TECHNICAL INFORMATION

- Keyway P9 DIN 6885 (see page A16)
- Cross holes GN 110 (see page A17)
- ISO-Fundamental Tolerances (see page A21)





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GN 321

Disc handwheels

*Complete with Bore codes of the Handwheel (B or K)

B without keyway **K** with keyway

GN 321-A

Description	d1	d2 H7	d3	b	l1	l2 ≈	⚖
GN 321-80-*10-A	80	10	28	13	16	26	134
GN 321-80-*12-A	80	12	28	13	16	26	127
GN 321-100-*10-A	100	10	28	14	17	30	200
GN 321-100-*12-A	100	12	28	14	17	30	190
GN 321-125-*12-A	125	12	31	15	18	33	318
GN 321-125-*14-A	125	14	31	15	18	33	290
GN 321-140-*14-A	140	14	36	16.5	19	36	431
GN 321-140-*16-A	140	16	36	16.5	19	36	427
GN 321-160-*14-A	160	14	36	18	20	39	460
GN 321-160-*16-A	160	16	36	18	20	39	450
GN 321-200-*18-A	200	18	45	20.5	24	45	885
GN 321-200-*20-A	200	20	45	20.5	24	45	875
GN 321-250-*22-A	250	22	48	23	28	51	1522
GN 321-250-*26-A	250	26	48	23	28	51	1479

GN 321-R

Description	d1	d2 H7	d3	b	l1	l2 ≈	l3 ≈	r	Ø Handle	⚖
GN 321-80-*10-R	80	10	28	13	16	26	44	33.5	16	153
GN 321-80-*12-R	80	12	28	13	16	26	44	33.5	16	149
GN 321-100-*10-R	100	10	28	14	17	30	58.5	42.5	18	215
GN 321-100-*12-R	100	12	28	14	17	30	58.5	42.5	18	213
GN 321-125-*12-R	125	12	31	15	18	33	61.5	54	22	403
GN 321-125-*14-R	125	14	31	15	18	33	61.5	54	22	383
GN 321-140-*14-R	140	14	36	16.5	19	36	76.5	61	24	431
GN 321-140-*16-R	140	16	36	16.5	19	36	76.5	61	24	427
GN 321-160-*14-R	160	14	36	18	20	39	76.5	71	24	665
GN 321-160-*16-R	160	16	36	18	20	39	76.5	71	24	655
GN 321-200-*18-R	200	18	45	20.5	24	45	86.5	89	25	940
GN 321-200-*20-R	200	20	45	20.5	24	45	86.5	89	25	930
GN 321-250-*22-R	250	22	48	23	28	51	86.5	113	25	1520
GN 321-250-*26-R	250	26	48	23	28	51	86.5	113	25	1480

Weight bore code B

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Disc handwheels

Aluminium, black, plastic coated



SPECIFICATION

Types

- Type **A**: without handle
- Type **R**: with revolving handle

Bore codes

- Version **B**: without keyway
- Version **K**: with keyway

Aluminium

- Hub machined
- Rim turned

Rim concentric and square to bore < 0.4

Wheel body
plastic coated
black, textured finish

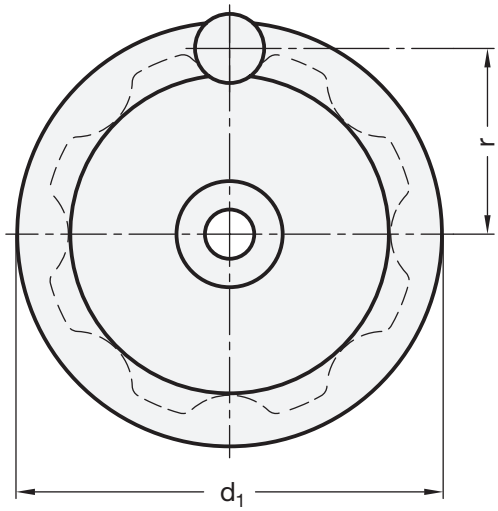
Cylindrical Revolving handles GN 798 (see page 577)
Plastic, Technopolymer
black, matt

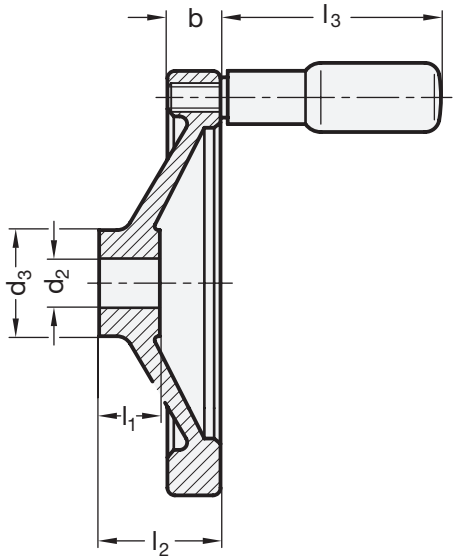
INFORMATION

Disc handwheels GN 323 have recessed grips at their back.
- Countersunk washers GN 184 (for axial fixing) (see page 971)

TECHNICAL INFORMATION

- Keyway P9 DIN 6885 (see page A16)
- Cross holes GN 110 (for axial fixing) (see page A17)
- ISO-Fundamental tolerances (see page A21)





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GN 323 | Disc handwheels

GN 323-A

Description	d1	d2 H7	d3	b	l1	l2 ≈	⚖
GN 323-80-B10-A	80	10	26	13	16	26	136
GN 323-80-K10-A	80	10	26	13	16	26	134
GN 323-80-B12-A	80	12	26	13	16	26	130
GN 323-80-K12-A	80	12	26	13	16	26	128
GN 323-100-B10-A	100	10	28	14	17	30	211
GN 323-100-K10-A	100	10	28	14	17	30	200
GN 323-100-B12-A	100	12	28	14	17	30	216
GN 323-100-K12-A	100	12	28	14	17	30	214
GN 323-125-B12-A	125	12	31	15	18	33	321
GN 323-125-K12-A	125	12	31	15	18	33	300
GN 323-125-B14-A	125	14	31	15	18	33	316
GN 323-125-K14-A	125	14	31	15	18	33	313
GN 323-140-B14-A	140	14	36	16.5	19	36	380
GN 323-140-K14-A	140	14	36	16.5	19	36	377
GN 323-140-B16-A	140	16	36	16.5	19	36	431
GN 323-140-K16-A	140	16	36	16.5	19	36	400
GN 323-160-B14-A	160	14	36	18	20	39	535
GN 323-160-K14-A	160	14	36	18	20	39	520
GN 323-160-B16-A	160	16	36	18	20	39	568
GN 323-160-K16-A	160	16	36	18	20	39	560
GN 323-200-B18-A	200	18	45	20.5	24	45	926
GN 323-200-K18-A	200	18	45	20.5	24	45	920
GN 323-200-B20-A	200	20	45	20.5	24	45	896
GN 323-200-K20-A	200	20	45	20.5	24	45	891
GN 323-250-B22-A	250	22	48	23	28	51	1546
GN 323-250-K22-A	250	22	48	23	28	51	1541
GN 323-250-B26-A	250	26	48	23	28	51	1416
GN 323-250-K26-A	250	26	48	23	28	51	1400

GN 323-R

Description	d1	d2 H7	d3	b	l1	l2 ≈	l3 ≈	r	Ø Handle	⚖
GN 323-80-B10-R	80	10	26	13	16	26	44	33.5	16	155
GN 323-80-K10-R	80	10	26	13	16	26	44	33.5	16	150
GN 323-80-B12-R	80	12	26	13	16	26	44	33.5	16	160
GN 323-80-K12-R	80	12	26	13	16	26	44	33.5	16	155
GN 323-100-B10-R	100	10	28	14	17	30	58.5	42.5	18	220
GN 323-100-K10-R	100	10	28	14	17	30	58.5	42.5	18	210
GN 323-100-B12-R	100	12	28	14	17	30	58.5	42.5	18	200
GN 323-100-K12-R	100	12	28	14	17	30	58.5	42.5	18	190
GN 323-125-B12-R	125	12	31	15	18	33	61.5	54	22	390
GN 323-125-K12-R	125	12	31	15	18	33	61.5	54	22	385
GN 323-125-B14-R	125	14	31	15	18	33	61.5	54	22	380
GN 323-125-K14-R	125	14	31	15	18	33	61.5	54	22	375
GN 323-140-B14-R	140	14	36	16.5	19	36	76.5	61	24	440
GN 323-140-K14-R	140	14	36	16.5	19	36	76.5	61	24	438
GN 323-140-B16-R	140	16	36	16.5	19	36	76.5	61	24	430
GN 323-140-K16-R	140	16	36	16.5	19	36	76.5	61	24	420
GN 323-160-B14-R	160	14	36	18	20	39	76.5	71	24	660
GN 323-160-K14-R	160	14	36	18	20	39	76.5	71	24	650
GN 323-160-B16-R	160	16	36	18	20	39	76.5	71	24	643
GN 323-160-K16-R	160	16	36	18	20	39	76.5	71	24	640
GN 323-200-B18-R	200	18	45	20.5	24	45	86.5	89	25	1051
GN 323-200-K18-R	200	18	45	20.5	24	45	86.5	89	25	1040
GN 323-200-B20-R	200	20	45	20.5	24	45	86.5	89	25	1021
GN 323-200-K20-R	200	20	45	20.5	24	45	86.5	89	25	1010
GN 323-250-B22-R	250	22	48	23	28	51	86.5	113	25	1671
GN 323-250-K22-R	250	22	48	23	28	51	86.5	113	25	1660
GN 323-250-B26-R	250	26	48	23	28	51	86.5	113	25	1536
GN 323-250-K26-R	250	26	48	23	28	51	86.5	113	25	1520

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Safety handwheels

friction bearing

SPECIFICATION

Types

- Type **A**: without handle
- Type **D**: with revolving steel handle

Coding

- Version **ZI**: engage by pulling
- Version **DR**: engage by pushing

Aluminium

- Hub machined
- Rim turned

Rim concentric and square to bore < 0.4

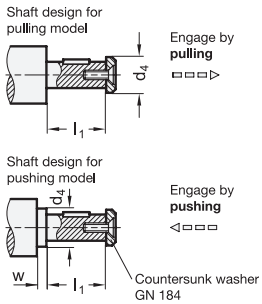
Wheel body
plastic coated
black, textured finish

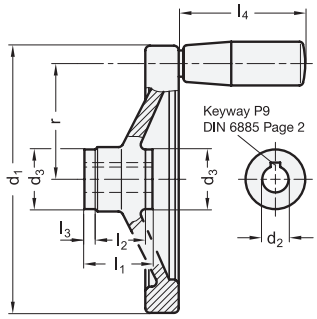
Cylindrical Revolving handles GN 598 (see page 573)
Steel, plastic coated
black, matt



INFORMATION

The use of coupling attachments in handwheels other than specified is also possible.
- Instructions for safety handwheels (see page 133)





*Complete with Coding of the Handwheels (ZI or DR)

ZI	DR
Engage by pulling	Engage by pushing

GN 323.4-A

Description	d1	d2 H7	d3	d4 max.	l1 max.	l2	l3	w min.	Coupling	⚖
GN 323.4-125-K12-A-*	125	K 12	28	17	28.5	18	5	4	GN 000.4-1	405
GN 323.4-140-K12-A-*	140	K 12	28	17	28.5	19	5	4	GN 000.4-1	493
GN 323.4-140-K14-A-*	140	K 14	32	21	32.5	19	6	4	GN 000.4-2	450
GN 323.4-140-K16-A-*	140	K 16	32	21	32.5	19	6	4	GN 000.4-2	440
GN 323.4-160-K14-A-*	160	K 14	32	21	32.5	20	6	4	GN 000.4-2	632
GN 323.4-160-K16-A-*	160	K 16	32	21	32.5	20	6	4	GN 000.4-2	619
GN 323.4-200-K18-A-*	200	K 18	38	26	36.5	24	6	4	GN 000.4-3	1035
GN 323.4-200-K20-A-*	200	K 20	38	26	36.5	24	6	4	GN 000.4-3	1018
GN 323.4-250-K22-A-*	250	K 22	45	30	47.5	28	12	4	GN 000.4-4	1796

GN 323.4-D

Description	d1	d2 H7	d3	d4 max.	l1 max.	l2	l3	l4	r	w min.	Ø Handle	Coupling	⚖
GN 323.4-125-K12-D-*	125	K 12	28	17	28.5	18	5	67.5	54	4	23	GN 000.4-1	620
GN 323.4-140-K12-D-*	140	K 12	28	17	28.5	19	5	67.5	61	4	23	GN 000.4-1	678
GN 323.4-140-K14-D-*	140	K 14	32	21	32.5	19	6	67.5	61	4	23	GN 000.4-2	660
GN 323.4-140-K16-D-*	140	K 16	32	21	32.5	19	6	67.5	61	4	23	GN 000.4-2	650
GN 323.4-160-K14-D-*	160	K 14	32	21	32.5	20	6	82.5	71	4	26	GN 000.4-2	905
GN 323.4-160-K16-D-*	160	K 16	32	21	32.5	20	6	82.5	71	4	26	GN 000.4-2	900
GN 323.4-200-K18-D-*	200	K 18	38	26	36.5	24	6	82.5	89	4	26	GN 000.4-3	1328
GN 323.4-200-K20-D-*	200	K 20	38	26	36.5	24	6	82.5	89	4	26	GN 000.4-3	1311
GN 323.4-250-K22-D-*	250	K 22	45	30	47.5	28	12	92.5	113	4	28	GN 000.4-4	2181

Weight Coding ZI

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GN 323.5

Safety handwheels

needle bearing



SPECIFICATION

Types

- Type **A**: without handle
- Type **D**: with revolving steel handle

Coding

- Version **ZI**: engage by pulling
- Version **DR**: engage by pushing

Aluminium

- Hub machined
- Rim turned

Rim concentric and square to bore < 0.4

Wheel body
plastic coated
black, textured finish

Cylindrical Revolving handles GN 598 (see page 573)
Steel, plastic coated
black, matt

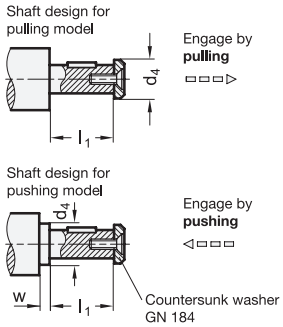
INFORMATION

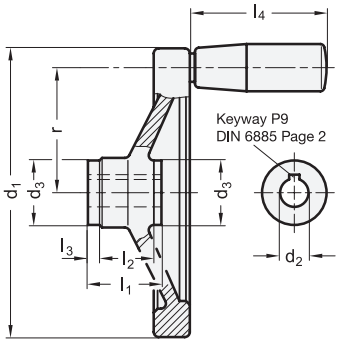
The use of coupling attachments in handwheels other than specified is also possible.

- Instructions for safety handwheels (see page 133)

TECHNICAL INFORMATION

- Keyway DIN 6885 (see page A16)
- ISO-Fundamental tolerances (see page A21)





*Complete with Coding of the Handwheels (ZI or DR)

ZI	DR
Engage by pulling	Engage by pushing

GN 323.5-A

Description	d1	d2 H7	d3	d4 max.	l1 max.	l2	l3	Coupling	⚖
GN 323.5-125-K12-A-*	125	K 12	29	17	42	18	12	GN 000.5-1	423
GN 323.5-140-K12-A-*	140	K 12	29	17	42	19	12	GN 000.5-1	512
GN 323.5-140-K14-A-*	140	K 14	33	21	48	19	14	GN 000.5-2	500
GN 323.5-160-K14-A-*	160	K 14	33	21	48	20	14	GN 000.5-2	715
GN 323.5-200-K18-A-*	200	K 18	39	26	50	24	13	GN 000.5-3	1127
GN 323.5-250-K22-A-*	250	K 22	46	30	54	28	13	GN 000.5-4	1837

GN 323.5-D

Description	d1	d2 H7	d3	d4 max.	l1 max.	l2	l3	l4	r	Ø Handle	Coupling	⚖
GN 323.5-125-K12-D-*	125	K 12	29	17	42	18	12	67.5	54	23	GN 000.5-1	611
GN 323.5-140-K12-D-*	140	K 12	29	17	42	19	12	67.5	61	23	GN 000.5-1	697
GN 323.5-140-K14-D-*	140	K 14	33	21	48	19	14	67.5	61	23	GN 000.5-2	680
GN 323.5-160-K14-D-*	160	K 14	33	21	48	20	14	82.5	71	26	GN 000.5-2	1008
GN 323.5-200-K18-D-*	200	K 18	39	26	50	24	13	82.5	89	26	GN 000.5-3	1425
GN 323.5-250-K22-D-*	250	K 22	46	30	54	28	13	92.5	113	28	GN 000.5-4	2130

Weight Coding ZI

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Safety handwheels

friction bearing



SPECIFICATION

Types

- Type **A**: without handle
- Type **D**: with revolving steel handle

Coding

- Version **ZI**: engage by pulling
- Version **DR**: engage by pushing

Aluminium

- Hub machined
- Rim turned

Rim concentric and square to bore < 0.4

Wheel body

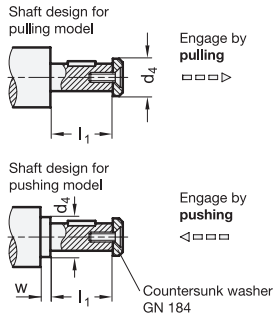
- Rim high-polished
- unmachined body matt shot-blasted

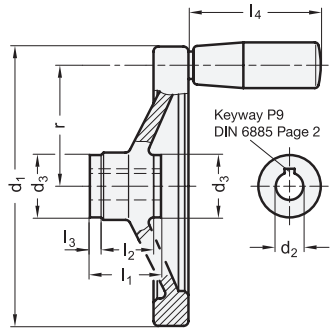
Cylindrical Revolving handles GN 598 (see page 573)
Steel, plastic coated
black, matt

INFORMATION

The use of coupling attachments in handwheels other than specified is also possible.

- Instructions for safety handwheels (see page 133)





*Complete with Coding of the Handwheels (ZI or DR)

ZI	DR
Engage by pulling	Engage by pushing

GN 321.4-A

Description	d1	d2 H7	d3	d4 max.	l1 max.	l2	l3	w min.	Coupling	⚖
GN 321.4-125-K12-A-*	125	K 12	28	17	28.5	18	5	4	GN 000.4-1	377
GN 321.4-140-K12-A-*	140	K 12	28	17	28.5	19	5	4	GN 000.4-1	466
GN 321.4-140-K14-A-*	140	K 14	32	21	32.5	19	6	4	GN 000.4-2	440
GN 321.4-140-K16-A-*	140	K 16	32	21	32.5	19	6	4	GN 000.4-2	420
GN 321.4-160-K14-A-*	160	K 14	32	21	32.5	20	6	4	GN 000.4-2	644
GN 321.4-160-K16-A-*	160	K 16	32	21	32.5	20	6	4	GN 000.4-2	631
GN 321.4-200-K18-A-*	200	K 18	38	26	36.5	24	6	4	GN 000.4-3	1210
GN 321.4-200-K20-A-*	200	K 20	38	26	36.5	24	6	4	GN 000.4-3	1190
GN 321.4-250-K22-A-*	250	K 22	45	30	47.5	28	12	4	GN 000.4-4	1800

GN 321.4-D

Description	d1	d2 H7	d3	d4 max.	l1 max.	l2	l3	l4 ≈	r	w min.	Ø Handle	Coupling	⚖
GN 321.4-125-K12-D-*	125	K 12	28	17	28.5	18	5	67.5	54	4	23	GN 000.4-1	559
GN 321.4-140-K12-D-*	140	K 12	28	17	28.5	19	5	67.5	61	4	23	GN 000.4-1	651
GN 321.4-140-K14-D-*	140	K 14	32	21	32.5	19	6	67.5	61	4	23	GN 000.4-2	630
GN 321.4-140-K16-D-*	140	K 16	32	21	32.5	19	6	67.5	61	4	23	GN 000.4-2	610
GN 321.4-160-K14-D-*	160	K 14	32	21	32.5	20	6	82.5	71	4	26	GN 000.4-2	937
GN 321.4-160-K16-D-*	160	K 16	32	21	32.5	20	6	82.5	71	4	26	GN 000.4-2	924
GN 321.4-200-K18-D-*	200	K 18	38	26	36.5	24	6	82.5	89	4	26	GN 000.4-3	1335
GN 321.4-200-K20-D-*	200	K 20	38	26	36.5	24	6	82.5	89	4	26	GN 000.4-3	1318
GN 321.4-250-K22-D-*	250	K 22	45	30	47.5	28	12	92.5	113	4	28	GN 000.4-4	1916

Weight coding ZI

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GN 321.5

Safety handwheels

needle bearing



SPECIFICATION

Types

- Type **A**: without handle
- Type **D**: with revolving steel handle

Coding

- Version **ZI**: engage by pulling
- Version **DR**: engage by pushing

Aluminium

- Hub machined
- Rim turned

Rim concentric and square to bore < 0.4

Wheel body

- Rim high-polished
- unmachined body matt shot-blasted

Cylindrical Revolving handles GN 598 (see page 573)
Steel, plastic coated
black, matt

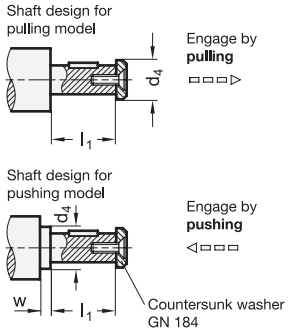
INFORMATION

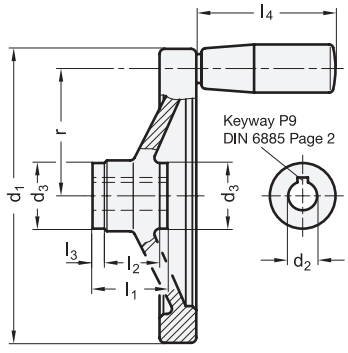
The use of coupling attachments in handwheels other than specified is also possible.

- Instructions for safety handwheels (see page 133)

TECHNICAL INFORMATION

- Keyway DIN 6885 (see page A16)
- ISO-Fundamental tolerances (see page A21)





* Complete with Coding of the Handwheels (ZI or DR)

ZI	DR
Engage by pulling	Engage by pushing

GN 321.5-A

Description	d1	d2 H7	d3	d4 max.	l1 max.	l2	l3	Coupling	⚖
GN 321.5-125-K12-A-*	125	K 12	29	17	42	18	12	GN 000.5-1	423
GN 321.5-140-K12-A-*	140	K 12	29	17	42	19	12	GN 000.5-1	512
GN 321.5-140-K14-A-*	140	K 14	33	21	48	19	14	GN 000.5-2	500
GN 321.5-160-K14-A-*	160	K 14	33	21	48	20	14	GN 000.5-2	600
GN 321.5-200-K18-A-*	200	K 18	39	26	50	24	13	GN 000.5-3	800
GN 321.5-250-K22-A-*	250	K 22	46	30	54	28	13	GN 000.5-4	1900

GN 321.5-D

Description	d1	d2 H7	d3	d4 max.	l1 max.	l2	l3	l4 ≈	r	Ø Handle	Coupling	⚖
GN 321.5-125-K12-D-*	125	K 12	29	17	42	18	12	67.5	54	23	GN 000.5-1	608
GN 321.5-140-K12-D-*	140	K 12	29	17	42	19	12	67.5	61	23	GN 000.5-1	697
GN 321.5-140-K14-D-*	140	K 14	33	21	48	19	14	67.5	61	23	GN 000.5-2	677
GN 321.5-160-K14-D-*	160	K 14	33	21	48	20	14	82.5	71	26	GN 000.5-2	1008
GN 321.5-200-K18-D-*	200	K 18	39	26	50	24	13	82.5	89	26	GN 000.5-3	1420
GN 321.5-250-K22-D-*	250	K 22	46	30	54	28	13	92.5	113	28	GN 000.5-4	2133

Weight Coding ZI

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Safety handwheels

Aluminium, with needle bearings



SPECIFICATION

Types

- Type **A**: without handle
- Type **D**: with revolving handle

Handwheel body

- Aluminium
- Rim turned and polished
- unmachined surfaces plastic coated black, matt

Coupling elements

- Steel, hardened
- Glide surfaces honed

Cover cap
Plastic, light grey

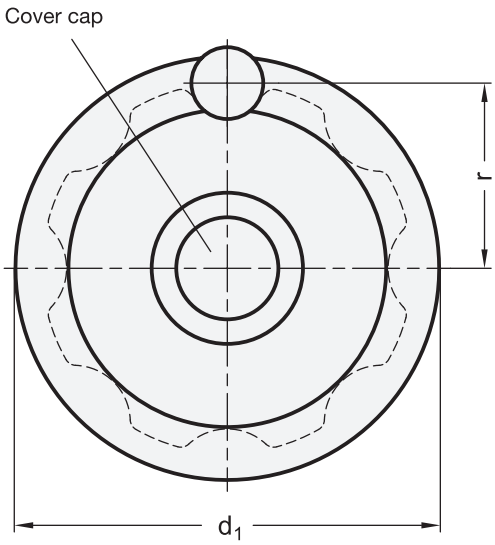
Cylindrical Revolving handles GN 598 (see page 573)
Steel, plastic coated
black, matt

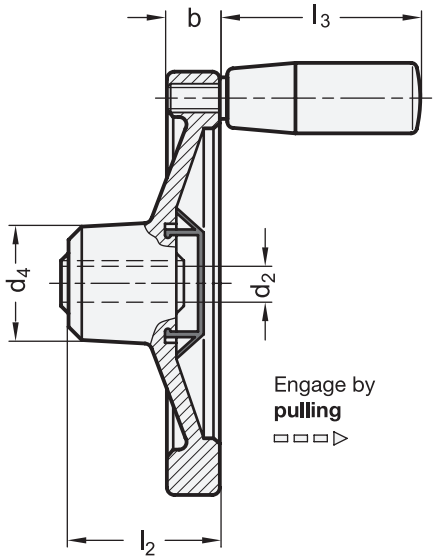
INFORMATION

The hub cap protects the bearing from the ingress of dust and at the same time acts as a shroud for the mounting components.
The wheel hub is fitted with an inside groove to retain the hub cap on its segmented edge.
The hub cap is pushed into position by hand and it can be removed by levering it away at the relieved point with a screw driver.
The needle bearings are greased on assembly which should be ample for permanent lubrication.

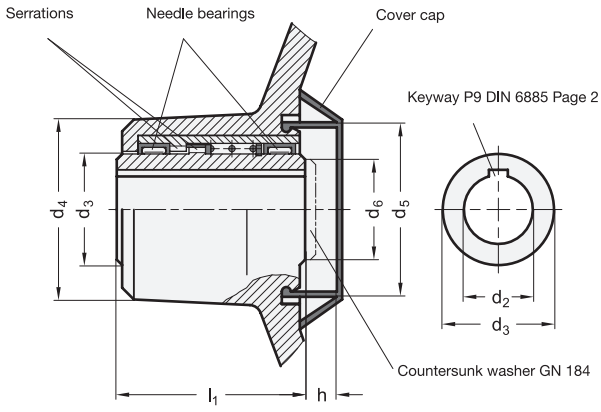
TECHNICAL INFORMATION

- Keyway P9 DIN 6885 (see page A16)
- ISO-Fundamental Tolerances (see page A21)





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GN 321.6-A

Description	d1	d2 H7	d3	d4	d5	d6 max.	b	h	l1	l2	⚖
GN 321.6-140-K12-A	140	K 12	24	42	40	23	16.5	7	45	58	540
GN 321.6-140-K14-A	140	K 14	24	42	40	23	16.5	7	45	58	520
GN 321.6-140-K16-A	140	K 16	24	42	40	23	16.5	7	45	58	504
GN 321.6-160-K12-A	160	K 12	24	42	40	23	18	7	45	58	659
GN 321.6-160-K14-A	160	K 14	24	42	40	23	18	7	45	58	644
GN 321.6-160-K16-A	160	K 16	24	42	40	23	18	7	45	58	628

GN 321.6-D

Description	d1	d2 H7	d3	d4	d5	d6 max.	b	h	l1	l2	l3	r	Ø Handle	⚖
GN 321.6-140-K12-D	140	K 12	24	42	40	23	16.5	7	45	58	67.5	61	23	720
GN 321.6-140-K14-D	140	K 14	24	42	40	23	16.5	7	45	58	67.5	61	23	705
GN 321.6-140-K16-D	140	K 16	24	42	40	23	16.5	7	45	58	67.5	61	23	690
GN 321.6-160-K12-D	160	K 12	24	42	40	23	18	7	45	58	82.5	71	26	952
GN 321.6-160-K14-D	160	K 14	24	42	40	23	18	7	45	58	82.5	71	26	937
GN 321.6-160-K16-D	160	K 16	24	42	40	23	18	7	45	58	82.5	71	26	920

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Safety handwheels

Aluminium, fixed bearing flange



SPECIFICATION

Types

- Type **A**: without handle
- Type **D**: with revolving handle

Identification no.

- Version **1**: with bearing bush
- Version **2**: with centring ring

Handwheel body
Aluminium
Rim turned and polished

Coupling elements

- Steel, nitrided
- Bearing surface ground and / or PTFE-coated
- Bearing flange blackened

Cylindrical Revolving handles GN 598 (see page 573)
Plastic, Duroplast
black, shiny finish

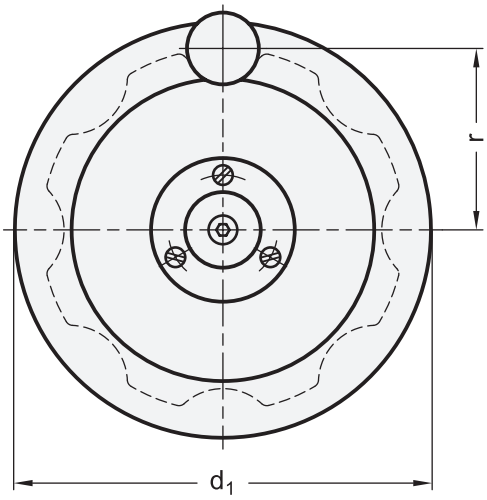
INFORMATION

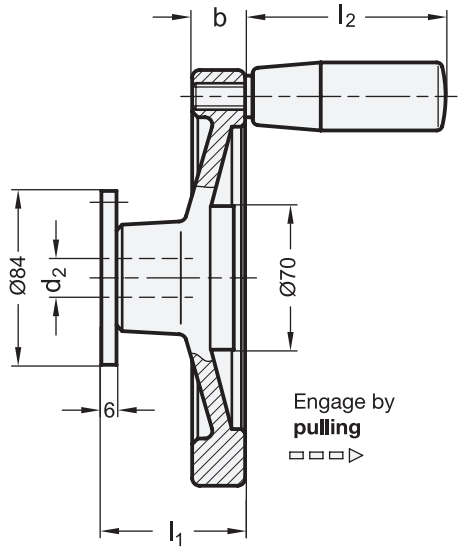
Safety handwheels GN 327 feature the ultimate in health and safety at work standards because the handwheel, if disengaged, is mounted on a fixed component, the bearing flange. The wheel is fully disengaged from the rotating shaft.
The bearing flange can also accept the bearing of the shaft via the bearing bushing (code No. 1). This bearing bushing is a dry bearing (DU bushing). Normally, the shaft has a separate bearing and the bearing bushing serves to center the bearing flange.
Centering can also be effected by a centering ring (code No. 2) if the appropriate bore hole has been made at the machine side. In this case there is no need for the bearing bushes and no bearing friction (heating) will occur.

- Instructions for safety handwheels (see page 133)

TECHNICAL INFORMATION

- Keyway P9 DIN 6885 (see page A16)
- ISO-Fundamental Tolerances (see page A21)





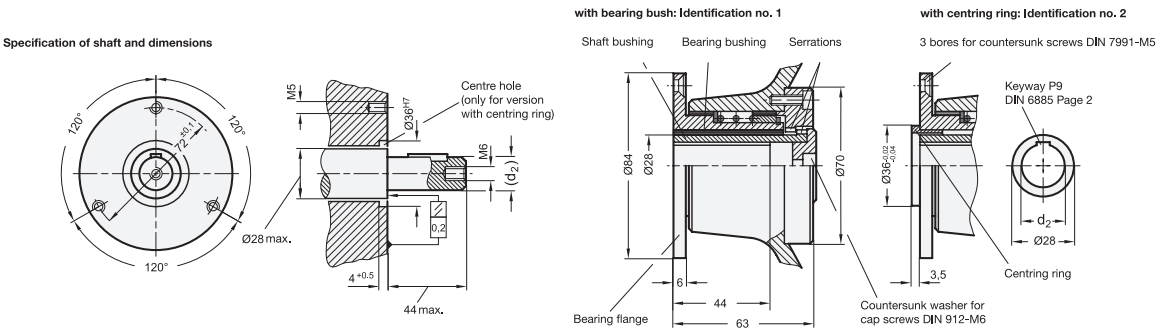
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ASSEMBLY INSTRUCTIONS

Shaft bush and countershaft pulley are delivered in two separate components. Before assembly, make sure that the shaft bush can be pushed smoothly and free-moving over the shaft.
Proper function is guaranteed only if:
- shaft bush and bearing surface are level with each other
- the shaft axis lies at a right angle to the bearing surface on the machine side.

Design with bearing bush (Mode 1)
Push the handwheel and the shaft bush at the same time over the shaft, bolt down the bearing flange, and fix the shaft bush axially with the countershaft pulley

Design with centring ring (Mode 2)
The handwheel can be bolted at once through the centring ring above the bearing flange. Then push the shaft bush onto the shaft and fix it axially with the countershaft pulley.



*Complete with Identification no. of the Handwheel (1 or 2)

1	2
bearing bush	centring ring

GN 327-A

Description	d1	d2 H7	b	l1	⚖
GN 327-160-K14-A-*	160	K 14	18	66	1706
GN 327-160-K16-A-*	160	K 16	18	66	1690
GN 327-160-K18-A-*	160	K 18	18	66	1670
GN 327-160-K20-A-*	160	K 20	18	66	1649
GN 327-200-K14-A-*	200	K 14	20.5	68	2047
GN 327-200-K16-A-*	200	K 16	20.5	68	2031
GN 327-200-K18-A-*	200	K 18	20.5	68	2011
GN 327-200-K20-A-*	200	K 20	20.5	68	1990

GN 327-D

Description	d1	d2 H7	b	l1	l2	r	Ø Handle	⚖
GN 327-160-K14-D-*	160	K 14	18	66	82.5	71	26	1820
GN 327-160-K16-D-*	160	K 16	18	66	82.5	71	26	1794
GN 327-160-K18-D-*	160	K 18	18	66	82.5	71	26	1774
GN 327-160-K20-D-*	160	K 20	18	66	82.5	71	26	1753
GN 327-200-K14-D-*	200	K 14	20.5	68	82.5	89	26	2151
GN 327-200-K16-D-*	200	K 16	20.5	68	82.5	89	26	2135
GN 327-200-K18-D-*	200	K 18	20.5	68	82.5	89	26	2117
GN 327-200-K20-D-*	200	K 20	20.5	68	82.5	89	26	2094

Weight Identification no. 1

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RoHS

Coupling attachments

for safety handwheels, with friction bearing

SPECIFICATION

Steel
nitrided

Bearing surface ground and / or PTFE-coated

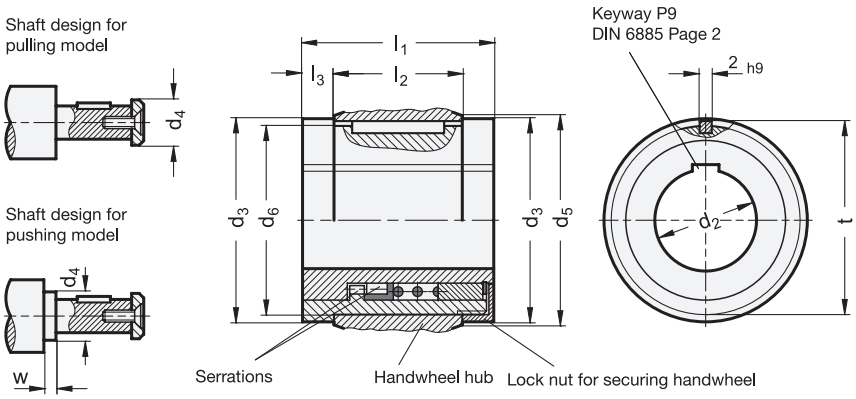
INFORMATION

The PTFE-coated surfaces of the coupling attachments GN 000.4 provide minimal friction between bearing surfaces even when lubrication is being neglected.
An oil-hole is provided which in the completely assembled safety handwheel connects with the wheel hub.

TECHNICAL INFORMATION

- Keyway P9 DIN 6885 (see page A16)
- ISO-Fundamental Tolerances (see page A21)





GN 000.4

Description	No.	d1 Ø Handwheel GN 321 GN 322 GN 323	d2 H7	d3	d4 max.	d5 Mini-mum-Ø of handwheel hub	d6 -0.03 Bore-Ø of hub d6 H7	l1	l2 ±0.1	l3	t	w min.	⚖
GN 000.4-1-K12	1	125	K 12	28	17	29	25	28.5	18 | 19	5	26	4	81
GN 000.4-2-K14	2	140	K 14	32	21	33	29	32.5	19 | 20	6	30	4	123
GN 000.4-2-K16	2	140	K 16	32	21	33	29	32.5	19 | 20	6	30	4	110
GN 000.4-3-K18	3	160	K 18	38	26	39	35	36.5	24	6	36	4	190
GN 000.4-3-K20	3	200	K 20	38	26	39	35	36.5	24	6	36	4	173
GN 000.4-4-K22	4	250	K 22	45	30	46	41	47.5	28	12	42	4	349

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GN 000.5

Coupling attachments

for safety handwheels, with needle bearing

SPECIFICATION

Steel
hardened

Bearing surfaces ground

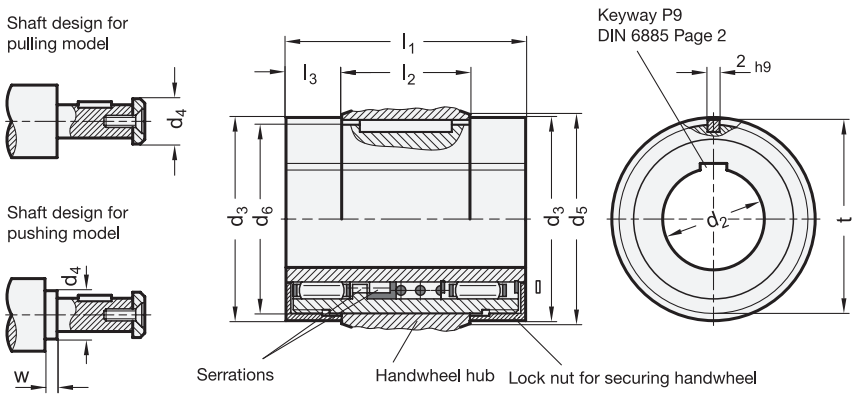
INFORMATION

The use of needle bearings and the hardened bearing surfaces make the clutch engagement extremely easy. This is also assisted by the finer teeth of the clutch and the increased length of the coupling attachment.
It is suitability for high shaft speeds, especially when these are maintained for long periods, is a further advantage of the needle bearing.
An oil-hole is provided which in the completely assembled safety handwheel connects with the wheel hub.

TECHNICAL INFORMATION

- Keyway P9 DIN 6885 (see page A16)
- ISO-Fundamental Tolerances (see page A21)





GN 000.5

Description	No.	d1 Ø Handwheel GN 321 GN 322 GN 323	d2 H7	d3	d4 max.	d5	d6 -0.05 Bore-Ø of hub d6 H7	l1	l2 ±0.1	l3	t	w min.	⚖
GN 000.5-1-K12	1	125	K 12	29	17	29	25	42	18 | 19	12	26	4	130
GN 000.5-2-K14	2	140	K 14	33	21	33	29	48	19 | 20	14	30	4	193
GN 000.5-3-K18	3	200	K 18	39	26	39	35	50	24	13	36	4	275
GN 000.5-4-K22	4	160	K 22	46	30	46	41	54	28	13	42	4	390

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Disc handwheels

Aluminium

SPECIFICATION

Bore codes

- Version **B**: without keyway
- Version **K**: with keyway

Aluminium

- Hub machined
- Rim turned and polished
- Unmachined body shot-blasted

Rim concentric and square to bore < 0.4

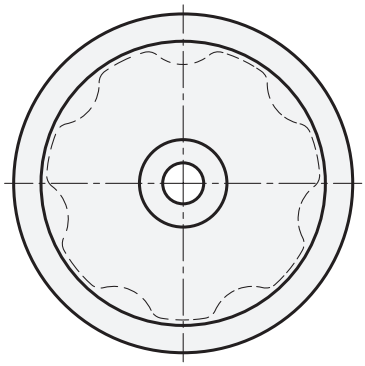


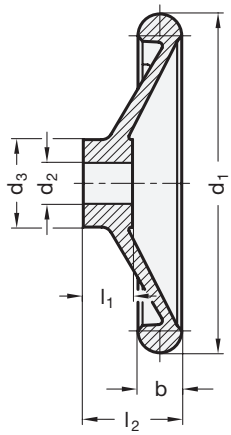
INFORMATION

Disc handwheels DIN 3670 have recessed grips at their back. As a rule they are supplied without handle, but the mounting of a handle is possible.
The handwheel diameter d_1=80 and d_1=400 are not provided in the official standard sheet.

TECHNICAL INFORMATION

- Keyway P9 DIN 6885 (see page A16)
- Cross holes GN 110 (see page A17)
- ISO-Fundamental Tolerances (see page A21)





*Complete with Bore codes of the Handwheel (B or K)

B without keyway **K** with keyway

DIN 3670

Description	d1	d2 H7	d3	b	l1	l2 ≈	⚖
DIN 3670-80-*-10	80	10	26	14	16	29	128
DIN 3670-80-*-12	80	12	26	14	16	29	127
DIN 3670-100-*-10	100	10	28	15	17	33	188
DIN 3670-100-*-12	100	12	28	15	17	33	185
DIN 3670-125-*-12	125	12	31	16	18	36	306
DIN 3670-125-*-14	125	14	31	16	18	36	304
DIN 3670-160-*-14	160	14	36	18	20	40	514
DIN 3670-160-*-16	160	16	36	18	20	40	480
DIN 3670-200-*-18	200	18	42	22	24	45	943
DIN 3670-200-*-20	200	20	42	22	24	45	938
DIN 3670-200-*-22	200	22	42	22	24	45	934
DIN 3670-250-*-22	250	22	48	26	28	50	1608
DIN 3670-250-*-24	250	24	48	26	28	50	1596
DIN 3670-250-*-26	250	26	48	26	28	50	1582
DIN 3670-315-*-26	315	26	56	28	33	56	2695
DIN 3670-315-*-28	315	28	56	28	33	56	2689
DIN 3670-315-*-30	315	30	56	28	33	56	2683
DIN 3670-400-*-30	400	30	65	32	38	63	4370
DIN 3670-400-*-32	400	32	65	32	38	63	4342

Weight bore code B

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VBR.2

Two-arm handwheels

Technopolymer and steel

MATERIAL
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, glossy finish.

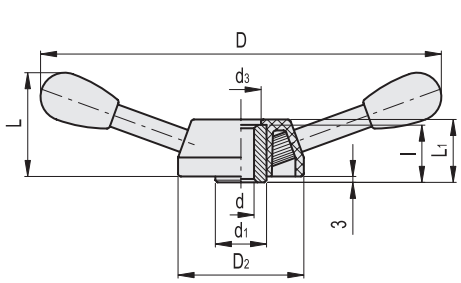
ARMS
Matte chrome-plated steel complete with handles type I.622 (see page 535) in technopolymer.

STANDARD EXECUTION
Black-oxide steel boss, uncovered front end with pre-drilled pass-through hole.

ACCESSORIES ON REQUEST
Axial retaining washer GN 184 (see page 971).



ELESA Original design



Code	Description	D	dH9	L	L1	D2	d1	d3	l	C# [Nm]	⚖
65801	VBR.2/200	200	10	60	42	86	35	34	38	195	600
65811	VBR.2/280	274	10	74	42	86	35	34	38	195	715
65821	VBR.2/320	312	10	80	42	86	35	34	38	195	780
65831	VBR.2/370	363	10	90	42	86	35	34	38	195	865

For maximum applicable torque (C) and impact strength (L) see Technical Data on page A3.

VBR.4

Four-arm handwheels

Technopolymer and steel

MATERIAL
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, glossy finish.

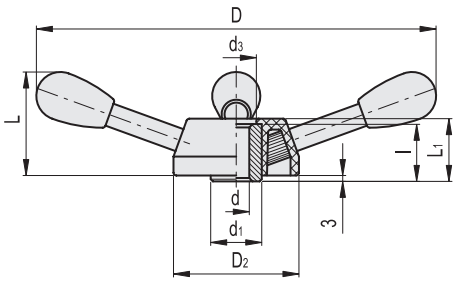
ARMS
Matte chrome-plated steel complete with handles type I.622 (see page 535) in technopolymer.

STANDARD EXECUTION
Black-oxide steel boss, uncovered front end with pre-drilled pass-through hole.

ACCESSORIES ON REQUEST
Axial retaining washer GN 184 (see page 971).



ELESA Original design



Code	Description	D	dH9	L	L1	D2	d1	d3	l	C# [Nm]	⚖
65901	VBR.4/200	200	10	60	42	86	35	34	38	195	780
65911	VBR.4/280	274	10	74	42	86	35	34	38	195	1030
65921	VBR.4/320	312	10	80	42	86	35	34	38	195	1150
65931	VBR.4/370	363	10	90	42	86	35	34	38	195	1315

For maximum applicable torque (C) and impact strength (L) see Technical Data on page A3.

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GN 213

RoHS

Turret levers

Steel, blackened

SPECIFICATION

Steel
blackened

Ball knobs DIN 319 (see page 538)
Plastic, Duroplast
black, shiny finish

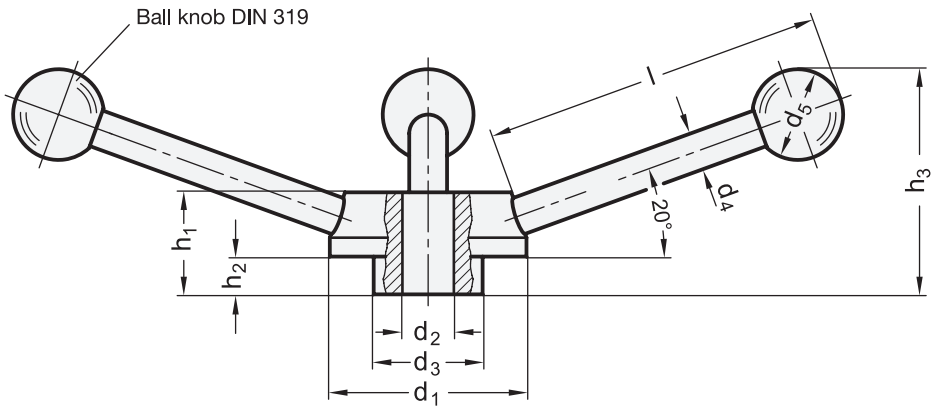
INFORMATION

Turret levers GN 213 can also be supplied as standard with:
Square DIN 79 **V** + Bore-Ø
Keyway DIN 6885 **K** + Bore-Ø



TECHNICAL INFORMATION

- Keyway P9 DIN 6885 (see page A16)
- ISO Fundamental Tolerances (see page A21)



GN 213

Description	d1	d2 H7	d3	d4	d5	h1	h2	h3 ≈	l ≈	⚖
GN 213-50-B12	50	B 12	28	8	20	26	9	53	82	382
GN 213-50-V12	50	V 12	28	8	20	26	9	53	82	375
GN 213-50-K12	50	K 12	28	8	20	26	9	53	82	380
GN 213-55-B14	55	B 14	30	10	25	28	10	61	96	544
GN 213-55-V14	55	V 14	30	10	25	28	10	61	96	536
GN 213-55-K14	55	K 14	30	10	25	28	10	61	96	541
GN 213-60-B15	60	B 15	32	10	25	30	11	64	96	633
GN 213-60-V15	60	V 15	32	10	25	30	11	64	96	590
GN 213-60-K15	60	K 15	32	10	25	30	11	64	96	630
GN 213-65-B16	65	B 16	35	12	30	32	12	71	110	848
GN 213-65-V16	65	V 16	35	12	30	32	12	71	110	833
GN 213-65-K16	65	K 16	35	12	30	32	12	71	110	860
GN 213-72-B18	72	B 18	40	12	32	36	14	80	124	1097
GN 213-72-V18	72	V 18	40	12	32	36	14	80	124	1087
GN 213-72-K18	72	K 18	40	12	32	36	14	80	124	1092
GN 213-80-B20	80	B 20	44	14	35	40	16	89	138	1531
GN 213-80-V20	80	V 20	44	14	35	40	16	89	138	1517
GN 213-80-K20	80	K 20	44	14	35	40	16	89	138	1525
GN 213-100-B24	100	B 24	54	16	40	52	24	113	170	2781
GN 213-100-V24	100	V 24	54	16	40	52	24	113	170	2769
GN 213-100-K24	100	K 24	54	16	40	52	24	113	170	2775

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Crank handles

Technopolymer

MATERIAL

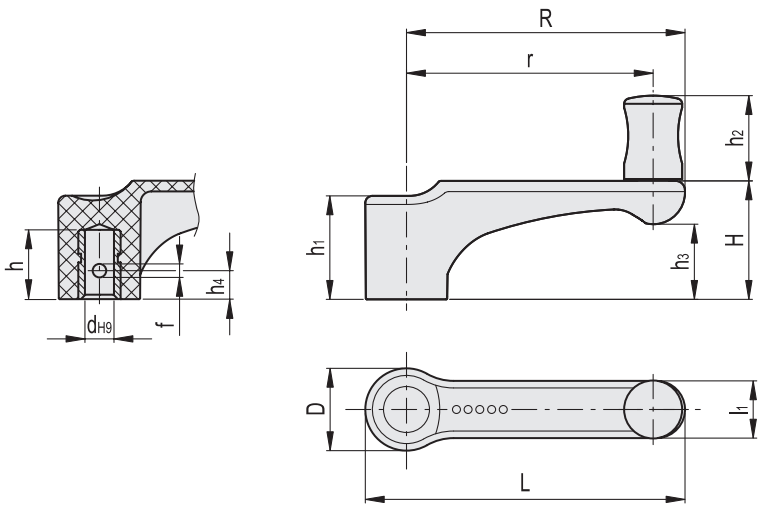
Glass-fibre reinforced polyamide based (PA) technopolymer, greyblack colour, matte finish.

STANDARD EXECUTIONS

Brass boss, cylindrical blind hole, transversal semi-machined hole for pinning to shaft.
Revolving handle I.741+x (see page 581) in technopolymer.
The grooves cut into the cylindrical surface allow an effective and ergonomic grip, though necessarily limited to the fingertips, due to the small size of the handle.



ERGOSTYLE®



Code	Description	R	dH9	L	D	l1	h	h1	h2	h3	h4	H	r	f	⚖
232411-C1	ERFW.44 N-6+I-C1	44	6	52	15.5	11	15	19	20	12.5	7	21	38	3	18
232431-C1	ERFW.63 N-8+I-C1	63	8	73.5	19	13.5	20	24.5	23	18.5	8	28.5	56	4	28
232451-C1	ERFW.78 N-10+I-C1	78	10	90.5	23	16	25	29.5	23	18	9	30	71	4	43

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Crank handles

Technopolymer



ELESA Original design

MATERIAL
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

SELF-ADHESIVE FRONT PLATE
Anodised aluminium.

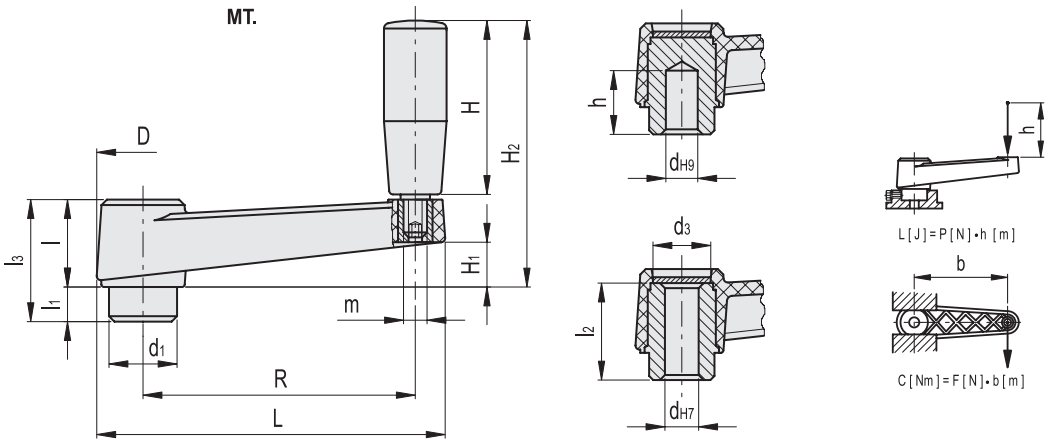
STANDARD EXECUTIONS
- **MT.:** with revolving handle I.601+x (see page 575) in technopolymer. Black-oxide steel hub, H9 blind hole or H7 reamed pass-through hole.
- **MT-AS:** with revolving handle I.601+x (see page 575) in technopolymer. Black-oxide steel boss with H9 square pass-through hole.

MT.50-AS H9 square pass-through hole with brass reinforcement.
- **MT+IR:** with fold-away handle IR.602 in technopolymer. Black-oxide steel hub, H9 blind hole or H7 reamed pass-through hole.

FEATURES AND APPLICATIONS
The reticular structure of the crank arm and the technopolymer used make this handle very strong and therefore suitable for transmitting high torque values.

ACCESSORIES ON REQUEST
Axial retaining washer GN 184 (see page 971).

MT.



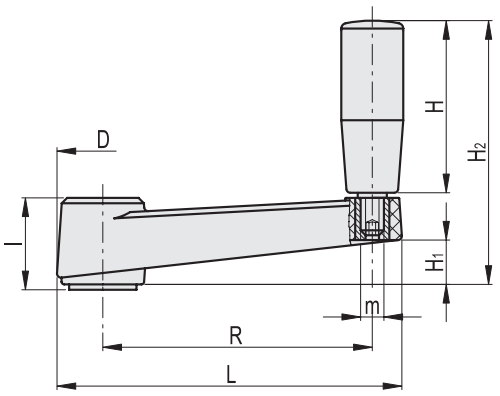
MT.

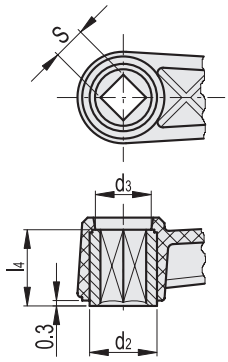
Code	Description	R	dH7	dH9	L	D	d1	d3	l	l1	l2	l3	h	H	H1	H2	m	C# [Nm]	L# [J]	⚖
44051	MT.50 A-6	50	6	-	69	23	16	13	21	10	28	31	-	28	10	49	-	60	7	65
44091	MT.64	64	-	6	86	27	18	16	23	10	29	33	18	40	10	63	M6	120	11	100
44101	MT.64 A-8	64	8	-	86	27	18	16	23	10	29	33	-	40	10	63	M6	120	11	95
44102	MT.64-A10	64	10	-	86	27	18	16	23	10	29	33	-	40	10	63	M6	120	11	93
44191	MT.80	80	-	6	105	30	22	17	26	10	32	36	26	50	13	76	M6	180	15	145
44201	MT.80 A-10	80	10	-	105	30	22	17	26	10	32	36	-	50	13	76	M6	180	15	130
44291	MT.100	100	-	8	128	34	24	21	30	10	37	40	28	65	15	96	M8	200	27	240
44301	MT.100 A-12	100	12	-	128	34	24	21	30	10	37	40	-	65	15	96	M8	200	27	225
44391	MT.130	130	-	10	162	40	28	25	35	14	44	49	30	80	20	115	M8	350	45	345
44401	MT.130 A-14	130	14	-	162	40	28	25	35	14	44	49	-	80	20	115	M8	350	45	310
44491	MT.160	160	-	10	198	45	34	27	40	15	49	55	30	90	23	130	M10	450	55	495
44501	MT.160 A-16	160	16	-	198	45	34	27	40	15	49	55	-	90	23	130	M10	450	55	435
44601	MT.210	212	-	12	252	50	40	31	45	15	53	60	30	90	26	136	M10	950	80	705

For maximum applicable torque (C) and impact strength (L) see Technical Data on page A3.

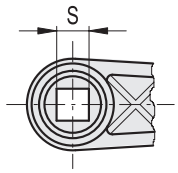
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MT-AS





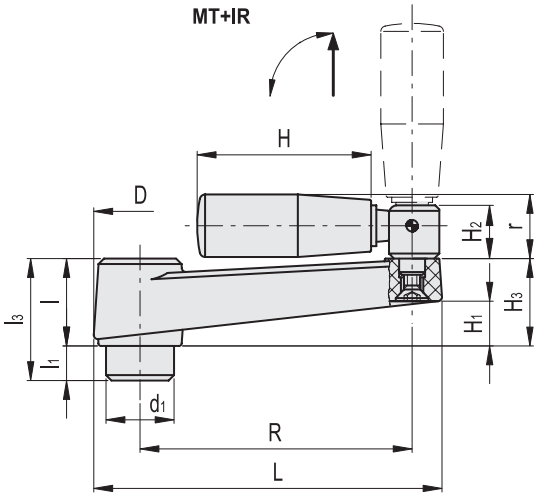
MT-AS-50

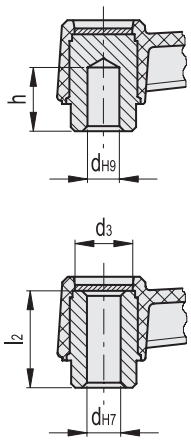


MT-AS

Code	Description	R	SH9	L	D	d2	d3	l	l4	H	H1	H2	m	C# [Nm]	L# [J]	⚖
44052	MT.50 AS-6x6	50	6	69	23	-	13	21	18	28	10	49	-	60	7	35
44111	MT.64 AS-8x8	64	8	86	27	18	16	23	19	40	10	63	M6	120	11	78
44211	MT.80 AS-10x10	80	10	105	30	20	17	26	22	50	13	76	M6	180	15	105
44311	MT.100 AS-12x12	100	12	128	34	25	21	30	27	65	15	96	M8	200	27	190
44411	MT.130 AS-14x14	130	14	162	40	28	25	35	30	80	20	115	M8	350	45	255
44511	MT.160 AS-17x17	160	17	198	45	30	27	40	34	90	23	130	M10	450	55	335

MT+IR





MT+IR

Code	Description	R	dH7	dH9	L	D	d1	d3	l	l1	l2	l3	h	H	H1	H2	H3	r	C# [Nm]	L# [J]	⚖
44216	MT.80+IR	80	-	6	105	30	22	17	26	10	32	36	26	56	13	15	27	19	180	15	177
44221	MT.80+IR A-10	80	10	-	105	30	22	17	26	10	32	36	-	56	13	15	27	19	180	15	163
44316	MT.100+IR	100	-	8	128	34	24	21	30	10	37	40	28	65	15	20	31	22	200	27	285
44321	MT.100+IR A-12	100	12	-	128	34	24	21	30	10	37	40	-	65	15	20	31	22	200	27	265
44416	MT.130+IR	130	-	10	162	40	28	25	35	14	44	49	30	65	20	20	35	22	350	45	385
44421	MT.130+IR A-14	130	14	-	162	40	28	25	35	14	44	49	-	65	20	20	35	22	350	45	340
44516	MT.160+IR	160	-	10	198	45	34	27	40	15	49	55	30	80	23	20	40	24	450	55	525
44521	MT.160+IR A-16	160	16	-	198	45	34	27	40	15	49	55	-	80	23	20	40	24	450	55	473
44621	MT.210+IR	212	-	12	252	50	40	31	45	15	53	60	30	90	26	23	46	27	950	80	840

For maximum applicable torque (C) and impact strength (L) see Technical Data on page A3.

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Crank handles

Technopolymer

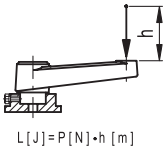
MATERIAL
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

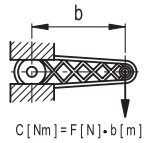
STANDARD EXECUTIONS
Black-oxide steel boss, H9 reamed hole.
- **MT-AT:** with revolving handle I.621+x (see page 576) in technopolymer, not removable.
- **MT-AT+IR:** with fold-away handle IR.620 (see page 584) in technopolymer.

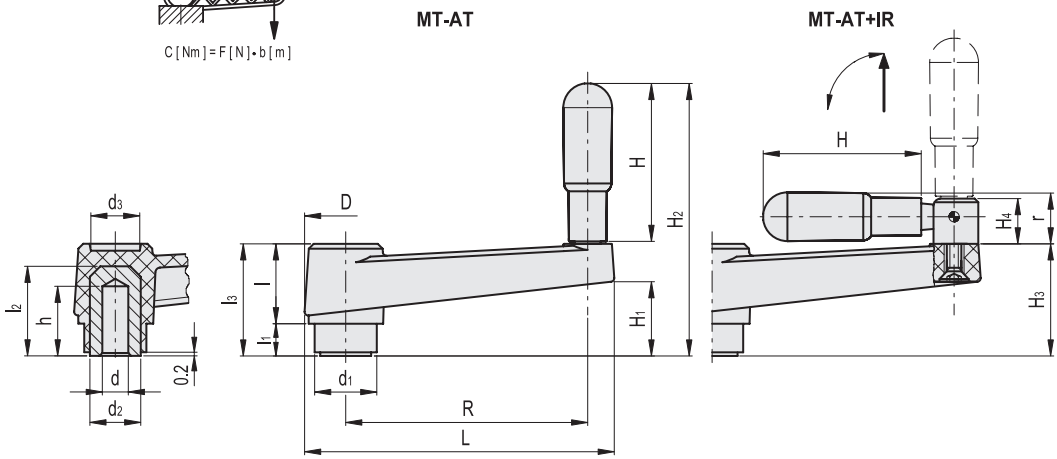
FEATURES AND APPLICATIONS
The reticular structure of the crank arm and the technopolymer used make this handle very strong and therefore suitable for transmitting high torque values.



ELESA Original design







MT-AT

Code	Description	R	dH9	L	D	d1	d2	d3	l	l1	l2	l3	h	H	H1	H2	C# [Nm]	L# [J]	⚖
44053	MT.50-AT	50	6	69	22.5	18	15	13	20.5	9	23	29.5	18	35	18.5	66	80	7	55
44113	MT.64-AT	64	8	86	26.5	20	15	16	22.5	9	25	31.5	20	45	17.5	78	120	11	82
44213	MT.80-AT	80	10	106	30	24	18	17	26	11	31	37	25	60	23.5	99	200	15	118
44313	MT.100-AT	100	12	128	33.5	24	18	21	30.5	10	31	40.5	24	65	25	106	210	27	190
44413	MT.130-AT	130	14	162	39	34	26	25	35	14	43	49	30	65	32.5	113	350	45	335
44513	MT.160-AT	160	16	197	44	34.5	26	27	39.5	15	43	54.5	30	80	36	136	470	55	375

MT-AT+IR

Code	Description	R	dH9	L	D	d1	d2	d3	l	l1	l2	l3	h	H	H1	H3	H4	r	C# [Nm]	L# [J]	⚖
44117	MT.64-AT+IR	64	8	86	26.5	20	15	16	22.5	9	25	31.5	20	45	17.5	31	14	16	120	11	89
44217	MT.80-AT+IR	80	10	106	30	24	18	17	26	11	31	37	25	60	23.5	37	14	16.5	200	15	130
44317	MT.100-AT+IR	100	12	128	33.5	24	18	21	30.5	10	31	40.5	24	65	25	39	18.5	20.5	210	27	200
44417	MT.130-AT+IR	130	14	162	39	34	26	25	35	14	43	49	30	65	34	49	18.5	20.5	350	45	330
44517	MT.160-AT+IR	160	16	197	44	34.5	26	27	39.5	15	43	54.5	30	80	36	54	18.5	22	470	55	370

For maximum torque (C) and impact strength (L) see Technical Data on page A3.

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Crank handles

Technopolymer

MATERIAL
Glass-fibre reinforced polyamide based (PA) technopolymer, grey-black colour, matte finish.

HUB CAP
Glass-fibre reinforced polyamide based (PA) technopolymer, in Ergostyle colours, matte finish, press-fit assembly.
Available also as accessory sold separately (see table ECM.).

Code	Description	Boss cap for
29633-*	ECM.K3-*	EKH.100
29634-*	ECM.K4-*	EKH.125

* Complete with colour index (C1, ..., C6).

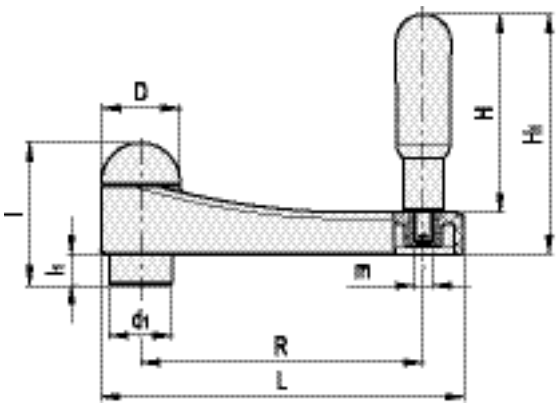
STANDARD EXECUTION
Black-oxide steel hub, H7 reamed hole.
Revolving handle I.621+x (see page 576) in technopolymer.

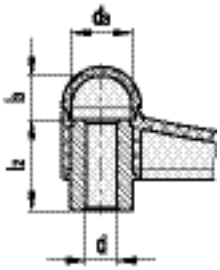
FEATURES AND APPLICATIONS
The reticular structure of the crank arm and the technopolymer used make this handle very strong and therefore suitable for transmitting high torque values.

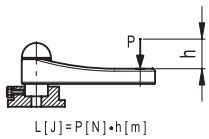
ACCESSORIES ON REQUEST
Axial retaining washer GN 184 (see page 971).



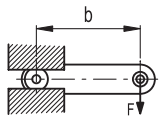
ERGOSTYLE® design 96/97 stuttgart — INDUSTRIE FORUM DESIGN HANNOVER 1995







L[J]=P[N]•h[m]



C[Nm]=F[N]•b[m]



*Complete with colour index, example: 210241-C2 EKH.100 A-12-C2

C1	C2	C3	C4	C5	C6
RAL7021	RAL2004	RAL7035	RAL1021	RAL5024	RAL3000

Code	Description	R	dH7	L	D	d1	d3	l	l1	l2	l3	H	H1	m	C# [Nm]	L# [J]	⚖
210241-*	EKH.100 A-12-*	101	12	131.5	30.5	24	23.5	52.5	10	33	17	65	81	M8	200	27	231
210251-*	EKH.125 A-14-*	126	14	161.5	35	28	26.5	62	14	40	18	80	98.5	M8	350	45	316

For maximum applicable torque (C) and impact strength (L) see Technical Data on page A3.

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Stainless Steel-Cranked handles

SPECIFICATION

Body

- Stainless Steel precision die casting
- AISI CF-8
- Face of the hub machined

Revolving handles
Plastic, Duroplast
black, shiny finish

Spindle
Stainless Steel AISI 304



INFORMATION

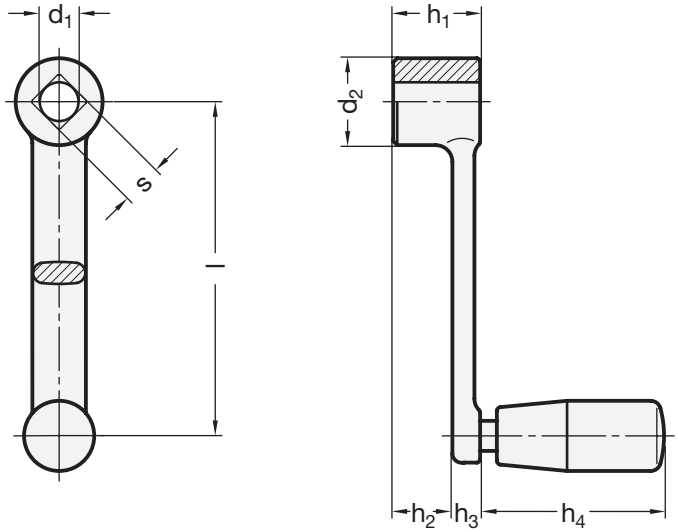
Stainless Steel-Cranked handles GN 269 have been designed to comply with stringent hygiene requirements.
The cylindrical handles are made of thermoset material which in general provides good stability when exposed to chemicals.

ON REQUEST

- Stainless Steel-Cranked handles with retractable handle GN 798.5 (see page 586)

TECHNICAL INFORMATION

- Square DIN 79 (see page A16)
- Cross holes GN 110 (see page A17)
- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)



GN 269 — **STAINLESS STEEL**

Description	l	d1 H9	s H11	d2	h1	h2 ≈	h3	h4 ≈	Ø Handle	⚖
GN 269-80-B10	80	B 10	-	22	22	15.4	6.6	45	18	127
GN 269-80-V10	80	-	V 10	22	22	15.4	6.6	45	18	124
GN 269-100-B12	100	B 12	-	26	26	17.7	8.3	55	21	200
GN 269-100-V12	100	-	V 12	26	26	17.7	8.3	55	21	187
GN 269-125-B14	125	B 14	-	28	28	18.8	9.2	71	23	305
GN 269-125-V14	125	-	V 14	28	28	18.8	9.2	71	23	291
GN 269-160-B17	160	B 17	-	32	32	22.6	9.4	71	23	396
GN 269-160-V17	160	-	V 17	32	32	22.6	9.4	71	23	372

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GN 369

Cranks

Steel



SPECIFICATION

Types

- Type **A**: without slot
- Type **N**: with slot

Steel

- shot-blasted and nickel plated
- Crank butt-welded

Plastic cap
black

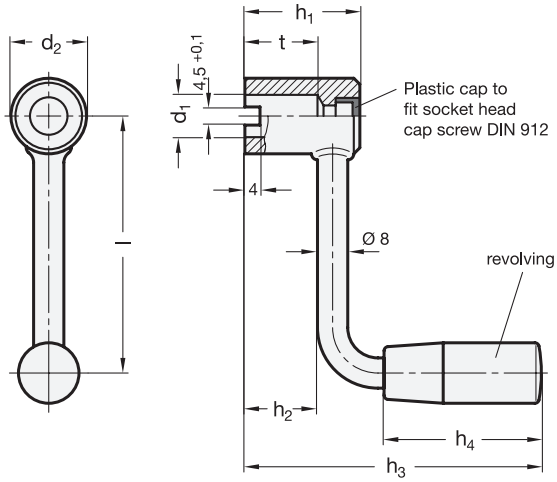
Cylindrical Revolving handles GN 598 (see page 573)
Plastic, Duroplast
black, shiny finish

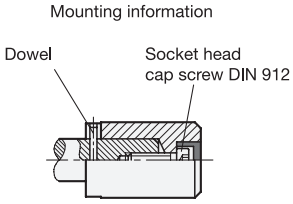
INFORMATION

Cranks GN 369 are for light duty applications and are of extremely good value.
A suitable dowel in the shaft and the slot in the handle provides a cheap connection to the shaft. To secure the handle permanently to the shaft, remove the plastic cap and insert screw.
Due to the production method which is not dependent on a specific shape, these cranked handles can be produced as specials at a competitive price.

TECHNICAL INFORMATION

- Cross holes GN 110 (see page A17)
- ISO-Fundamental Tolerances (see page A21)





GN 369

Description	l	d1 H9	d2	h1	h2 ≈	h3 ≈	h4 ≈	t +0.5	Ø Handle	For screws DIN 912	⚖
GN 369-63-B10-A	63	B 10	18	28	18	74	40	18	18	M5	88
GN 369-63-B10-N	63	B 10	18	28	18	74	40	18	18	M5	87
GN 369-80-B10-A	80	B 10	18	28	18	74	40	18	18	M5	94
GN 369-80-B10-N	80	B 10	18	28	18	74	40	18	18	M5	93
GN 369-100-B12-A	100	B 12	20	30	20	88	50	20	21	M6	122
GN 369-100-B12-N	100	B 12	20	30	20	88	50	20	21	M6	121
GN 369-125-B12-A	125	B 12	20	30	20	88	50	20	21	M6	135
GN 369-125-B12-N	125	B 12	20	30	20	88	50	20	21	M6	131

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Cranked handles

Aluminium

SPECIFICATION

Body

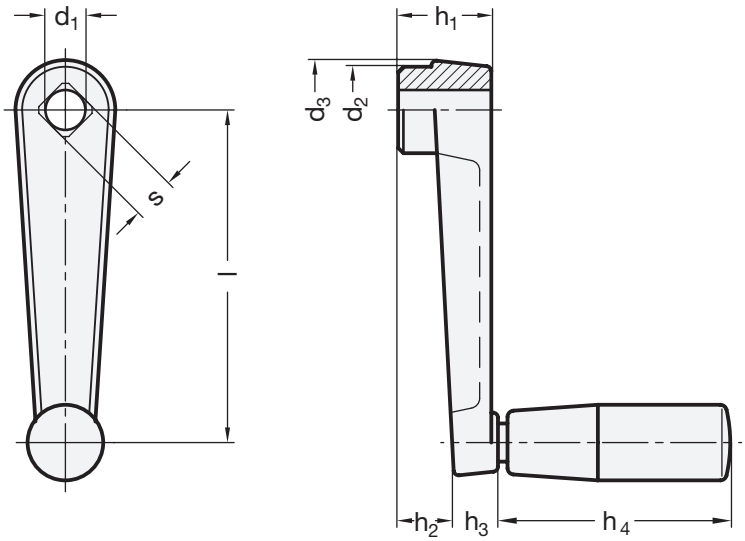
- Aluminium
- plastic coated, black, textured finish
- hub machined

Cylindrical Revolving handles GN 598 (see page 573)
Plastic, Technopolymer
black, matt

TECHNICAL INFORMATION

- Square DIN 79 (see page A16)
- Cross holes GN 110 (see page A17)
- ISO-Fundamental Tolerances (see page A21)





GN 471

Description	l	d1 H7	s H11	d2	d3	h1	h2 ≈	h3	h4 ≈	Ø Handle	⚖
GN 471-80-B10	80	B 10	-	23	26	24	14	14	52.5	21	120
GN 471-80-V10	80	-	V 10	23	26	24	14	14	52.5	21	98
GN 471-100-B12	100	B 12	-	27	30	28	17	15	67.5	23	170
GN 471-100-V12	100	-	V 12	27	30	28	17	15	67.5	23	150
GN 471-125-B14	125	B 14	-	32	35	34	22	18	82.5	26	255
GN 471-125-V14	125	-	V 14	32	35	34	22	18	82.5	26	240
GN 471-160-B17	160	B 17	-	35	39	38	26	18	82.5	26	301
GN 471-160-V17	160	-	V 17	35	39	38	26	18	82.5	26	280

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GN 471.1

Cranked handles

Zinc die casting

SPECIFICATION

Body

- Zinc die casting
- plastic coated, black, textured finish
- hub machined

Cylindrical Revolving handles GN 598 (see page 573)
Plastic, Technopolymer, black matt

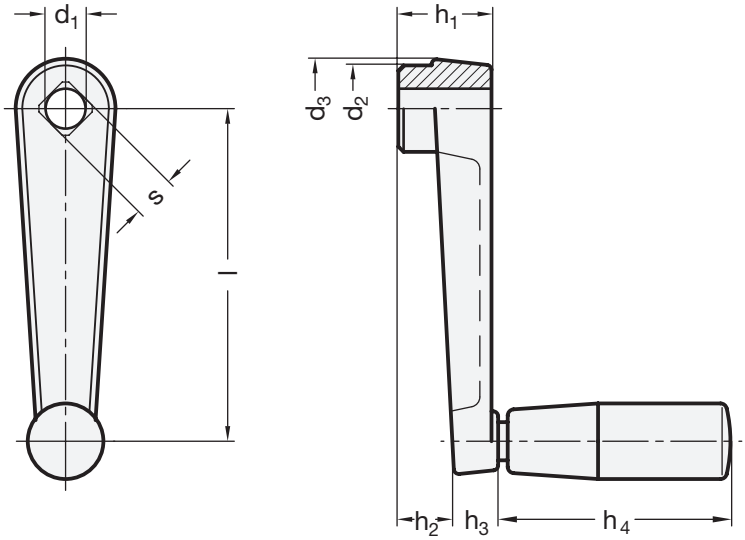
INFORMATION

- Cranked handles GN 471 (see page 196)

TECHNICAL INFORMATION

- Square DIN 79 (see page A16)
- Cross holes GN 110 (see page A17)
- ISO-Fundamental Tolerances (see page A21)





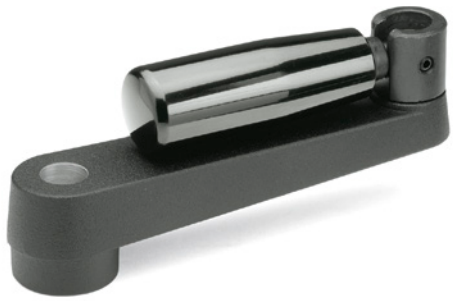
GN 471.1

Description	l	d1 H7	s H11	d2	d3	h1	h2	h3	h4 ≈	Ø Handle	⚖
GN 471.1-50-B8	50	B 8	-	16	18	18	10	10	28.5	14	70
GN 471.1-50-V8	50	-	V 8	16	18	18	10	10	28.5	14	58
GN 471.1-64-B10	64	B 10	-	19	22	20	11	12	42.5	18	100
GN 471.1-64-V10	64	-	V 10	19	22	20	11	12	42.5	18	97
GN 471.1-80-B10	80	B 10	-	23	26	24	14	14	52.5	21	170
GN 471.1-80-V10	80	-	V 10	23	26	24	14	14	52.5	21	162
GN 471.1-100-B12	100	B 12	-	27	30	28	17	15	67.5	23	275
GN 471.1-100-V12	100	-	V 12	27	30	28	17	15	67.5	23	270

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Cranked handles with rectractable handle

Aluminium



SPECIFICATION

Body

- Aluminium
- plastic coated, black, textured finish
- hub machined

Retractable handles GN 598.3 (see page 585)
Plastic, Duroplast
black, shiny finish

Retractable mechanism
Steel, blackened

INFORMATION

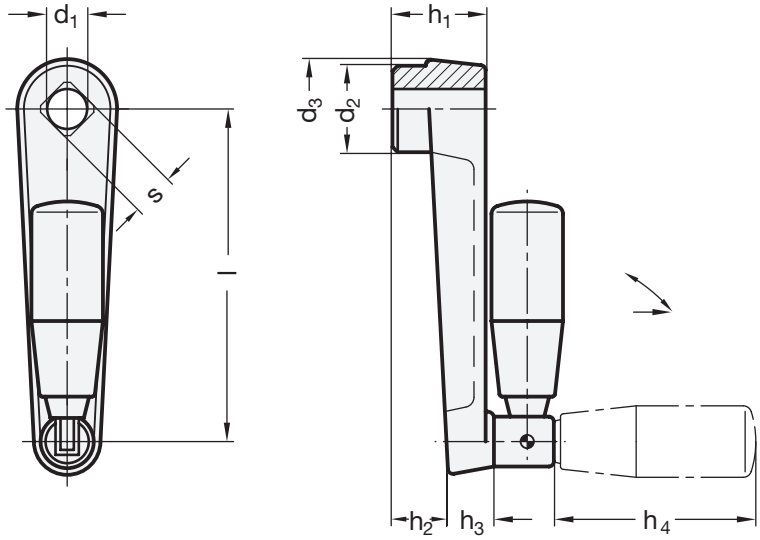
The handpiece of cranked handles GN 471.3 is locked in a tapered bore in the operating position.
For tilting, the handle must first be pulled out of the taper in axial direction.
A compression spring holds the handle in both end positions. When folded out, it automatically re-engages.

ON REQUEST

- with retractable handle GN 598.5 (retractable mechanism Stainless Steel) (see page 585)

TECHNICAL INFORMATION

- Square DIN 79 (see page A16)
- Cross holes GN 110 (see page A17)
- ISO-Fundamental Tolerances (see page A21)



GN 471.3

Description	l	d1 H7	s H11	d2	d3	h1	h2	h3	h4 ≈	Ø Handle	⚖
GN 471.3-100-B12	100	B 12	-	27	30	28	17	13	67.5	23	199
GN 471.3-100-V12	100	-	V 12	27	30	28	17	13	67.5	23	194
GN 471.3-125-B14	125	B 14	-	32	35	34	22	14	67.5	23	254
GN 471.3-125-V14	125	-	V 14	32	35	34	22	14	67.5	23	247
GN 471.3-160-B17	160	B 17	-	35	39	38	26	16	82.5	26	346
GN 471.3-160-V17	160	-	V 17	35	39	38	26	16	82.5	26	340

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GN 472.3

Cranked handles with retractable handle

Aluminium



SPECIFICATION

Body
Aluminium

plastic coated
black, RAL 9005, textured finish **SW**
silver, RAL 9006, textured finish **SR**

hub machined

Hub cover
light grey

Retractable handles GN 798.3 (see page 586)
Plastic, Technopolymer
black, matt finish

Retractable mechanism
Steel, blackened

INFORMATION

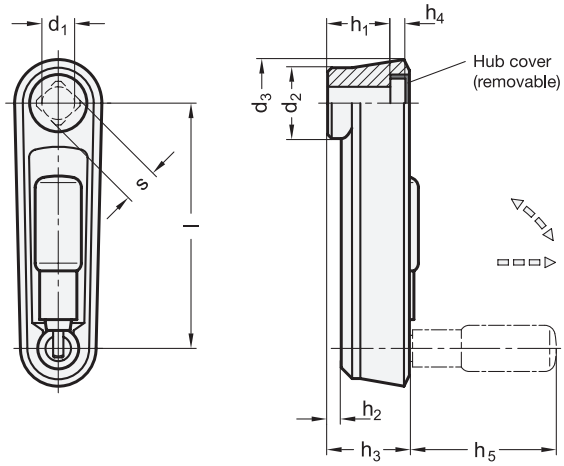
The handpiece of cranked handles GN 472.3 is locked in a tapered bore in the operating position.
For tilting, the handle must first be pulled out of the taper in axial direction.
A compression spring holds the handle in both end positions. When folded out, it automatically re-engages.

ON REQUEST

- Retractable handle GN 798.5 (retractable mechanism Stainless Steel) (see page 586)

TECHNICAL INFORMATION

- Square DIN 79 (see page A16)
- Cross holes GN 110 (see page A17)
- ISO-Fundamental Tolerances (see page A21)



*Complete with colour index of the clamping lever body (SW or SR)

SW RAL9005 SR RAL9006

GN 472.3

Description	l	d1 H7	s H11	d2	d3	h1	h2	h3	h4	h5 ≈	Ø Handle	⚖
GN 472.3-80-B10-*	80	B 10	-	23	29	20	4	26	4.3	43	16	131
GN 472.3-80-V10-*	80	-	V 10	23	29	20	4	26	4.3	43	16	130
GN 472.3-100-B12-*	100	B 12	-	26	34	24	5.5	30	4.2	57.5	18	190
GN 472.3-100-V12-*	100	-	V 12	26	34	24	5.5	30	4.2	57.5	18	180
GN 472.3-125-B14-*	125	B 14	-	28	36	31	10.5	37	4.2	76.5	24	270
GN 472.3-125-V14-*	125	-	V 14	28	36	31	10.5	37	4.2	76.5	24	260

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Cranked handles

Cast iron

SPECIFICATION

Types

- Type **F**: with fixed handle
- Type **D**: with revolving handle

Crank handle body
Cast iron (GG)

- plastic coated, black, textured finish
- hub machined

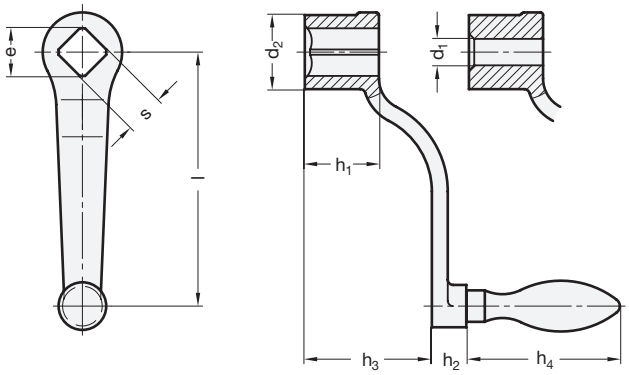
Fixed handles DIN 39 (see page 565)
Steel zinc plated, blue passivated

Revolving handles DIN 98 (see page 579)
Steel zinc plated, blue passivated

INFORMATION

The hub bores d1 H7 are not provided for in the official standard sheet.





*Complete with types of the Cranked handles (F or D)

F	D
fixed handle	revolving handle

DIN 468

Description	l	s H11	e min.	d1 H7	d2	h1	h2	h3 ≈	h4 ≈ Type D	h4 ≈ Type F	Ø Handle	⚖
DIN 468-63-B6-*	63	-	13.1	B 6	20	20	11	32	54.5	50	16	123
DIN 468-63-V10-*	63	V 10	13.1	-	20	20	11	32	54.5	50	16	114
DIN 468-80-B8-*	80	-	13.1	B 8	24	24	13	38	61	56	18	195
DIN 468-80-V10-*	80	V 10	13.1	-	24	24	13	38	61	56	18	150
DIN 468-80-V12-*	80	V 12	13.1	-	24	24	13	38	61	56	18	173
DIN 468-100-B10-*	100	-	16.1	B 10	28	28	13	48	67	64	20	293
DIN 468-100-V12-*	100	V 12	16.1	-	28	28	13	48	67	64	20	281
DIN 468-100-V14-*	100	V 14	16.1	-	28	28	13	48	67	64	20	268
DIN 468-125-B10-*	125	-	18.1	B 10	34	34	14	55	76	72	22	463
DIN 468-125-V14-*	125	V 14	18.1	-	34	34	14	55	76	72	22	434
DIN 468-125-V17-*	125	V 17	18.1	-	34	34	14	55	76	72	22	413
DIN 468-160-B14-*	160	-	22.2	B 14	38	38	14	65	83	80	25	697
DIN 468-160-V17-*	160	V 17	22.2	-	38	38	14	65	83	80	25	650
DIN 468-160-V19-*	160	V 19	22.2	-	38	38	14	65	83	80	25	630
DIN 468-200-B17-*	200	-	25.2	B 17	44	44	21	78	96.5	90	28	1043
DIN 468-200-V19-*	200	V 19	25.2	-	44	44	21	78	96.5	90	28	999
DIN 468-200-V22-*	200	V 22	25.2	-	44	44	21	78	96.5	90	28	942
DIN 468-250-B17-*	250	-	28.2	B 17	48	48	21	90	105.5	100	32	1517
DIN 468-250-V22-*	250	V 22	28.2	-	48	48	21	90	105.5	100	32	1427
DIN 468-250-V24-*	250	V 24	28.2	-	48	48	21	90	105.5	100	32	1374
DIN 468-315-B20-*	315	-	32.2	B 20	54	54	26	105	117	112	36	2298
DIN 468-315-V24-*	315	V 24	32.2	-	54	54	26	105	117	112	36	2123
DIN 468-315-V27-*	315	V 27	32.2	-	54	54	26	105	117	112	36	2047

Weight type F

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Cranked handles

Cast iron

SPECIFICATION

Types

- Type **F**: with fixed handle
- Type **D**: with revolving handle

Crank handle body
Cast iron (GG)

- plastic coated, black, textured finish
- hub machined

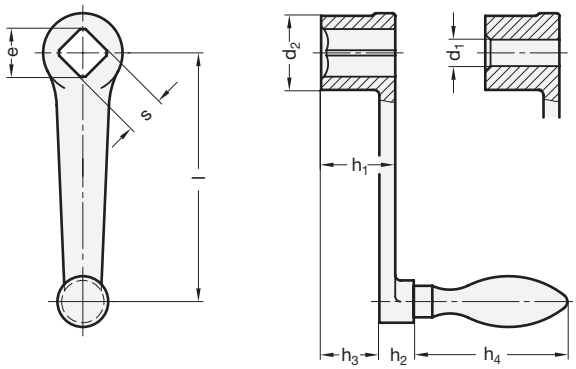
Fixed handles DIN 39 (see page 565)
Steel zinc plated, blue passivated

Revolving handles DIN 98 (see page 579)
Steel zinc plated, blue passivated

INFORMATION

The hub bores d1 H7 are not provided for in the official standard sheet.





*Complete with types of the Cranked handles (F or D)

F
fixed handle

D
revolving handle

DIN 469

Description	l	s H11	e min.	d1 H7	d2	h1	h2	h3 ≈	h4 ≈ Type D	h4 ≈ Type F	Ø Handle	⚖
DIN 469-63-B6-*	63	-	13.1	B 6	20	20	11	15	54.5	50	16	125
DIN 469-63-V10-*	63	V 10	13.1	-	20	20	11	15	54.5	50	16	110
DIN 469-80-B8-*	80	-	13.1	B 8	24	24	13	18	61	56	18	203
DIN 469-80-V10-*	80	V 10	13.1	-	24	24	13	18	61	56	18	179
DIN 469-80-V12-*	80	V 12	13.1	-	24	24	13	18	61	56	18	170
DIN 469-100-B10-*	100	-	16.1	B 10	28	28	13	21	67	64	20	288
DIN 469-100-V12-*	100	V 12	16.1	-	28	28	13	21	67	64	20	271
DIN 469-100-V14-*	100	V 14	16.1	-	28	28	13	21	67	64	20	264
DIN 469-125-B10-*	125	-	18.1	B 10	34	34	14	26	76	72	22	458
DIN 469-125-V14-*	125	V 14	18.1	-	34	34	14	26	76	72	22	434
DIN 469-125-V17-*	125	V 17	18.1	-	34	34	14	26	76	72	22	414
DIN 469-160-B14-*	160	-	22.2	B 14	38	38	14	29	83	80	25	677
DIN 469-160-V17-*	160	V 17	22.2	-	38	38	14	29	83	80	25	642
DIN 469-160-V19-*	160	V 19	22.2	-	38	38	14	29	83	80	25	604
DIN 469-200-B17-*	200	-	25.2	B 17	44	44	21	34	96.5	90	28	1021
DIN 469-200-V19-*	200	V 19	25.2	-	44	44	21	34	96.5	90	28	998
DIN 469-200-V22-*	200	V 22	25.2	-	44	44	21	34	96.5	90	28	970
DIN 469-250-B17-*	250	-	28.2	B 17	48	48	21	36	105.5	100	32	1412
DIN 469-250-V22-*	250	V 22	28.2	-	48	48	21	36	105.5	100	32	1332
DIN 469-250-V24-*	250	V 24	28.2	-	48	48	21	36	105.5	100	32	1281

Weight type F

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Indexing cranked handles

SPECIFICATION

Bores

- Bore **B**: without keyway
- Bore **K**: with keyway

Body
Cast iron (GGG)

- deburred and shot-blasted
- hub machined

Handle
Steel, blackened

Indexing pin
Steel, hardened



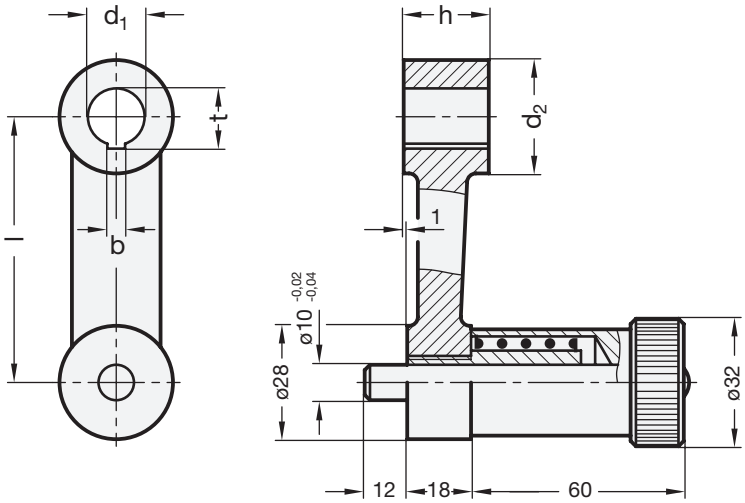
INFORMATION

Indexing cranked handles GN 558 are for positioning mechanisms. Standard machine elements for positioning of spindles:

- Indexing mechanisms GN 200 (see page 622)
- Indexing levers GN 215 (see page 634)
- Adjustable knobs GN 700 (see page 624)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Keyway P9 DIN 6885 (see page A16)



GN 558

Description	l	d1 H7	d2	h	bP9	t	⚖
GN 558-75-B16	75	B 16	32	24	-	-	544
GN 558-75-K16	75	K 16	32	24	5	17.3	540
GN 558-90-B18	90	B 18	34	26	-	-	588
GN 558-90-K18	90	K 18	34	26	6	19.7	583
GN 558-110-B20	110	B 20	36	30	-	-	684
GN 558-110-K20	110	K 20	36	30	6	21.7	680
GN 558-135-B22	135	B 22	42	32	-	-	823
GN 558-135-K22	135	K 22	42	32	6	23.7	818
GN 558-165-B24	165	B 24	44	36	-	-	994
GN 558-165-K24	165	K 24	44	36	8	25.7	988

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GN 112.1

Control handles

Zinc die casting

SPECIFICATION

Body
Zinc die casting
plastic coated
black, textured finish

Cylindrical Revolving handles GN 598 (see page 573)
Plastic, Technopolymer
black, matt finish

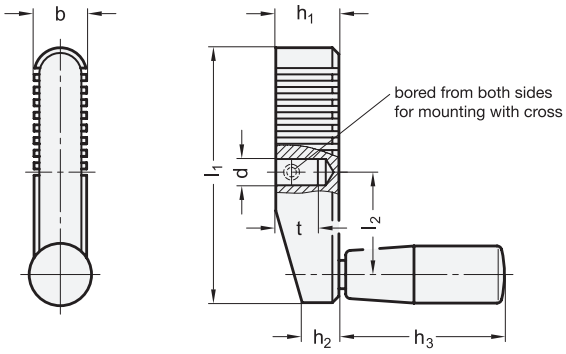
INFORMATION

Control handles GN 112.1 allow fine adjustment.
They are connected to a shaft by means of a cross pin. To simplify the installation threre is a centred drilling on both sides.

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)





GN 112.1

Description	l1	d H7	b	h1	h2	h3 ≈	l2	t min.	Ø Handle	⚖
GN 112.1-70-S8	70	S 8	17	19	11.5	42.5	26.5	12	18	125
GN 112.1-80-S8	80	S 8	18	21	12.5	52.5	31	12	21	170
GN 112.1-90-S10	90	S 10	19	23	13.5	52.5	35.5	15	21	251
GN 112.1-100-S10	100	S 10	20	25	14	67.5	40	17	23	320
GN 112.1-100-S12	100	S 12	20	25	14	67.5	40	17	23	295

GN 10

Tri-ball handles

Steel

SPECIFICATION

Type
- Type **F**: with fixed handle

Steel

- turned
- zinc plated, blue passivated

Fixed handles DIN 39 (see page 565)
Steel zinc plated, blue passivated

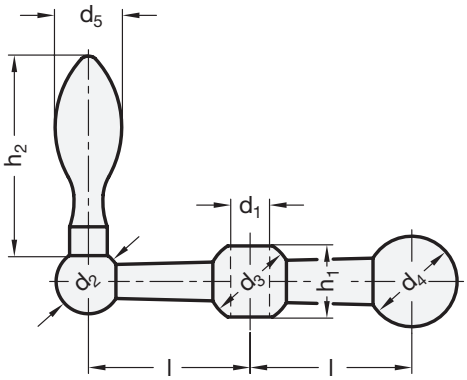
INFORMATION

Tri-ball handles GN 10 allow fine adjustment.
An alternative in modern design are control handles GN 112.1 (see page 203)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)





GN 10

Description	No.	d1 H7	d2	d3	d4	d5	h1	h2 ≈	l	⚖
GN 10-100-B7-F	100	B 7	13	16	18	10	13	31	25	60
GN 10-101-B8-F	101	B 8	15	19	20	13	17	40	28	102
GN 10-102-B8-F	102	B 8	16	20	22	14	17	45	34	136
GN 10-103-B10-F	103	B 10	18	23	25	16	19.5	50	41	194
GN 10-104-B12-F	104	B 12	20	26	28	18	21.5	56	50	283

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Balanced crank handles

Duroplast

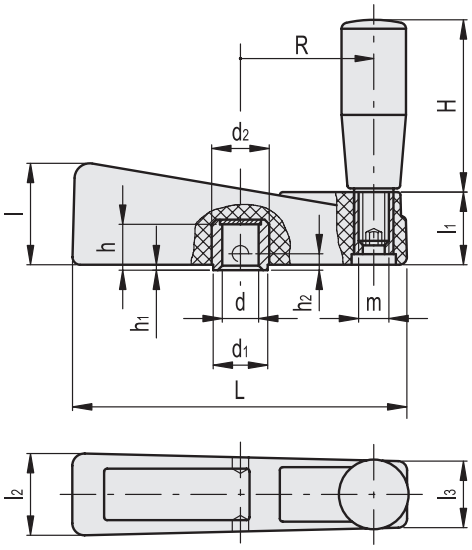
MATERIAL
Reinforced phenolic based (PF) Duroplast. Polyamide based (PA) technopolymer for ME.95, black colour, glossy finish. Balancing by means of an incorporated counterweight

FRONT PLATE
Matte anodised aluminium (ELESA original design).

STANDARD EXECUTION
Black-oxide steel boss, H7 reamed hole. Reamed hole provided with centres already drilled for pinning to shaft. Use pins with smaller diameter than the one of the already drilled hole to avoid local stress. Revolving handle I.301+x (see page 574) in Duroplast.



ELESA Original design



Code	Description	dH7	L	d1	d2	l	l1	l2	l3	h	h1	h2	H	m	R	⚖
38001	ME.65	8	65	13	14	23	18	22	19	13	1.5	6.5	40	M6	23	93
38101	ME.80	10	80	14	15	26	20	24	20	16	1.5	8	40	M6	30	102
38201	ME.95	10	94	14	15	29	22	26	22	19	1.5	8	50	M8	36	133
38301	ME.110	12	110	18	19	34	24	28	22	17.5	1.5	9	65	M10	44	260
38401	ME.140	12	140	18	19	37	26	30	24	17.5	1.5	9	80	M10	57	335

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Balanced crank handle

Technopolymer



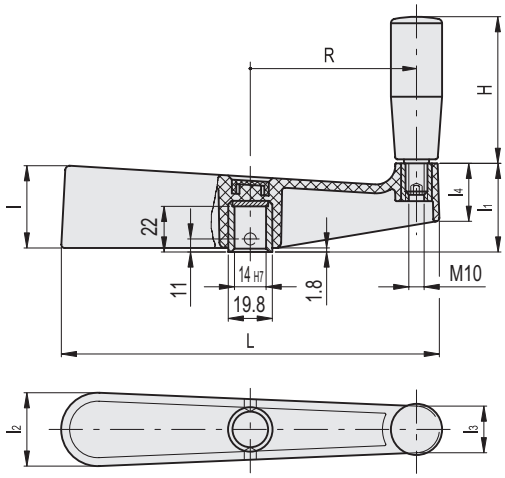
MATERIAL
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour matte finish. Balancing by means of an incorporated counterweight.

CENTRE CLOSING CAP
Technopolymer, black colour. On request and for sufficient quantities it can be supplied in other colours and customised with marks or words.

STANDARD EXECUTION
Black-oxide steel boss, H7 reamed hole.
Reamed hole provided with centres already drilled for pinning to shaft.
Revolving handle I.601+x (see page 575) in technopolymer.

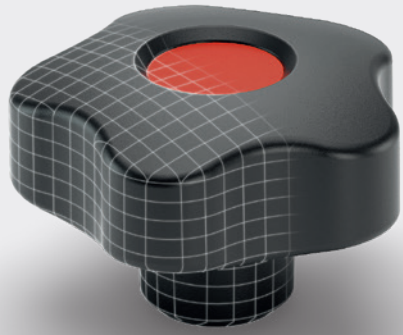
FEATURES
Its surface with matte finish allows a sensible grip during operation, even in case of short approach controls. The revolving handle makes high-speed rotation easier.

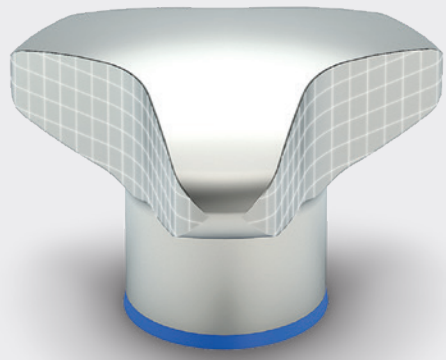
ELESA Original design



Code	Description	dH7	L	I	I1	I2	I3	I4	H	R	⚖
38901	METP.170	14	170	37	39	33	21	25	65	74	275

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DESIGNED
FOR ENGINEERING

2 Clamping knobs



Lobe knobs

Star knobs

Knurled knobs

Wing knobs

VB.639

Three-arm knobs

Technopolymer

MATERIAL

Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.
VB.639/130: glass-fibre reinforced polypropylene based (PP) technopolymer, black colour, matte finish.

STANDARD EXECUTIONS

- **VB.639-A**: black-oxide steel boss, plain blind hole.
- **VB.639-B**: brass boss, threaded blind hole.
- **VB.639-FP**: brass boss, threaded pass-through hole.
- **VB.639-p**: zinc-plated steel threaded stud with chamfered flat end as in UNI 947 : ISO 4753 (see Technical data on page A11).
- **VB.639-SST**: AISI 303 stainless steel boss, threaded blind hole.

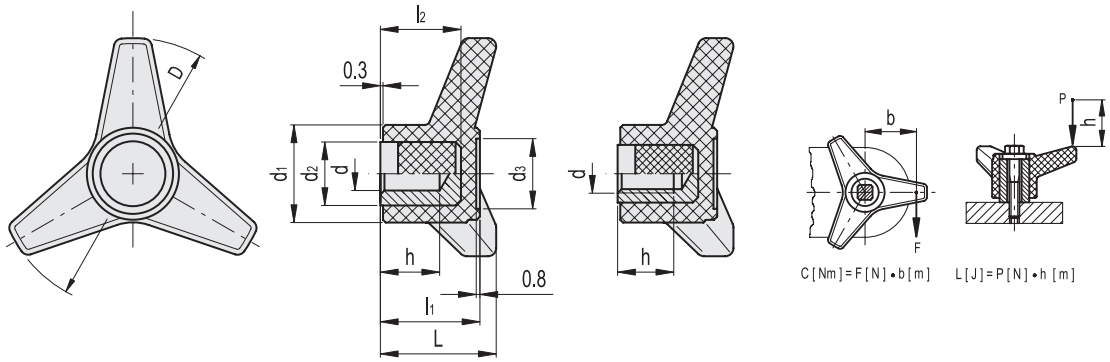
APPLICATIONS

This knob has been designed for heavy duty work where the use of a hammer for a firmer clamping action is required.



ELESA Original design

VB.639-A **VB.639-B**



VB.639-A

Code	Description	D	dH9	L	d1	d2	d3	l1	l2	h	C# [Nm]	L* [J]	⚖
65531	VB.639/45 A-6	45	6	25	19	12	12	22.5	17	14	11	2	40
65631	VB.639/63 A-6	63	6	28	26	15	18	25	23	18	30	7	55
65672	VB.639/80 A-8	80	8	35	32	15	21	30	25	20	80	6	75
65702	VB.639/100 A-10	100	10	42	36	20	25	36	25	21	110	8	130
65742	VB.639/130 A-12	130	12	47	43	20	29	40	31	24	135	9	180

VB.639-B

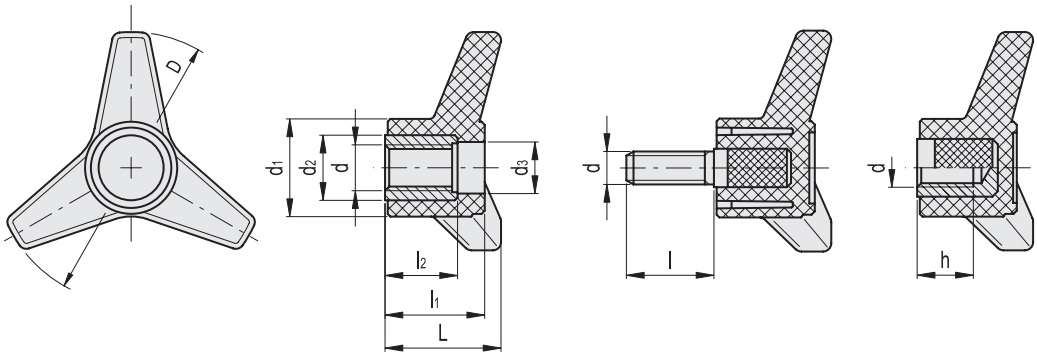
Code	Description	D	d6H	L	d1	d3	l1	h	C# [Nm]	L* [J]	⚖
65541	VB.639/45 B-M6	45	M6	25	19	12	22.5	12	11	2	33
65545	VB.639/45 B-M8	45	M8	25	19	12	22.5	13	11	2	30
65635	VB.639/63 B-M8	63	M8	28	26	18	25	15	30	7	48
65636	VB.639/63 B-M10	63	M10	28	26	18	25	17	30	7	40
65675	VB.639/80 B-M10	80	M10	35	32	21	30	17	80	6	60
65676	VB.639/80 B-M12	80	M12	35	32	21	30	17	80	6	67
65705	VB.639/100 B-M12	100	M12	42	36	25	36	20	110	8	96
65706	VB.639/100 B-M14	100	M14	42	36	25	36	20	110	8	105
65745	VB.639/130 B-M16	130	M16	47	43	29	40	22	135	9	162

"Max limit Tightening torque" means the max torque value at which the metal insert, in normal conditions of use, is perfectly and strongly anchored to the plastic material.

***For impact strength (L) see Technical Data on page A3.

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VB.639 | Three-arm knobs



VB.639-FP

Code	Description	D	d6H	L	d1	d2	d3	l1	l2	C# [Nm]	L* [J]	⚖
65551	VB.639/45 FP-M6	45	M6	25	19	8	9	22.5	12	11	2	30
65555	VB.639/45 FP-M8	45	M8	25	19	11	10	22.5	12	11	2	27
65641	VB.639/63 FP-M10	63	M10	28	27	16	13	25	21	30	7	47
65642	VB.639/63 FP-M12	63	M12	28	27	16	13	25	21	30	7	50
65681	VB.639/80 FP-M12	80	M12	35	32	18	17	30	25	80	7	77
65711	VB.639/100 FP-M16	100	M16	42	36	20	20	37	31	110	8	105
65751	VB.639/130 FP-M16	130	M16	47	43	24	22	40	34	135	9	157

VB.639-p

Code	Description	D	d6g	L	d1	d3	l	l1	C# [Nm]	L* [J]	⚖
65561	VB.639/45 p-M6x20	45	M6	25	19	12	20	22.5	10	2	29
65565	VB.639/45 p-M8x25	45	M8	25	19	12	25	22.5	23	2	31
65652	VB.639/63 p-M8x25	63	M8	28	26	18	25	25	30	7	44
65692	VB.639/80 p-M10x30	80	M10	35	32	21	30	30	80	7	78
65722	VB.639/100 p-M12x40	100	M12	42	36	25	40	36	110	8	126

VB.639-SST **STAINLESS STEEL**

Code	Description	D	d6H	L	d1	d3	l1	h	C# [Nm]	L* [J]	⚖
65548	VB.639/45 SST-M6	45	M6	25	19	12	22.5	12	11	2	34
65638	VB.639/63-SST-M8	63	M8	28	26	18	25	15	30	7	49
65678	VB.639/80-SST-M10	80	M10	35	32	21	30	17	80	6	61
65708	VB.639/100-SST-M12	100	M12	42	36	25	36	20	110	8	97
65748	VB.639/130-SST-M16	130	M16	47	43	29	40	22	135	9	164

"Max limit Tightening torque" means the max torque value at which the metal insert, in normal conditions of use, is perfectly and strongly anchored to the plastic material.

***For impact strength (L) see Technical Data on page A3.

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Knobs with solid section

Technopolymer, easy cleaning

MATERIAL

Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

STANDARD EXECUTIONS

- **VTT**: brass boss, threaded blind hole.
- **VTT-SST**: AISI 304 stainless steel boss, threaded blind hole.
- **VTT-p**: zinc-plated steel threaded stud, chamfered flat end according to UNI 947 : ISO 4753 (see Technical data on page A11).
- **VTT-SST-p**: AISI 304 stainless steel threaded stud, chamfered flat end according to UNI 947 : ISO 4753 (see Technical data on page A11).

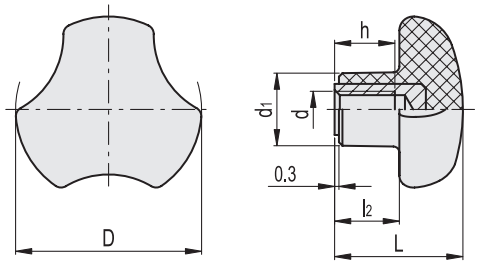
FEATURES AND APPLICATIONS

The three-lobe shape with large recesses is particularly ergonomic also for smaller knobs, ensuring an effective grip even with work gloves. The design without rear recesses, generally suitable for reducing thickness, prevents unhealthy residues from depositing, ensuring maximum easy cleaning. Particularly suitable for applications on machines and equipment whose parts must be frequently cleaned by using water jets or steam.

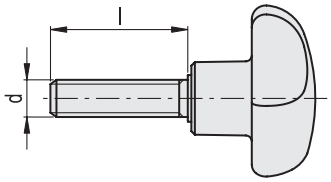


ELESA Original design

VTT-B
VTT-SST



VTT-p
VTT-SST-p



VTT

Code	Description	D	d6H	L	d1	l2	h	⚖
167106	VTT.25-B-M5	25	M5	20	12	10	10	9
167216	VTT.32-B-M6	32	M6	23	14	11.5	10	19
167336	VTT.40-B-M8	40	M8	27	16	13.5	13	23
167466	VTT.50-B-M10	50	M10	30	19	15	17	36

VTT-SST **STAINLESS STEEL**

Code	Description	D	d6H	L	d1	l2	h	⚖
167116	VTT.25-SST-M5	25	M5	20	12	10	10	9
167226	VTT.32-SST-M6	32	M6	23	14	11.5	10	19
167346	VTT.40-SST-M8	40	M8	27	16	13.5	13	24
167476	VTT.50-SST-M10	50	M10	30	19	15	17	37

VTT-p

Code	Description	D	d6g	L	d1	l	l2	⚖
167151	VTT.25-p-M5x10	25	M5	20	12	10	10	8
167152	VTT.25-p-M5x16	25	M5	20	12	16	10	9
167252	VTT.32-p-M6x16	32	M6	23	14	16	11.5	15
167253	VTT.32-p-M6x20	32	M6	23	14	20	11.5	16
167254	VTT.32-p-M6x30	32	M6	23	14	30	11.5	19
167371	VTT.40-p-M8x20	40	M8	27	16	20	13.5	27
167373	VTT.40-p-M8x30	40	M8	27	16	30	13.5	31
167375	VTT.40-p-M8x40	40	M8	27	16	40	13.5	35
167481	VTT.50-p-M10x20	50	M10	30	19	20	15	46
167483	VTT.50-p-M10x30	50	M10	30	19	30	15	56
167485	VTT.50-p-M10x40	50	M10	30	19	40	15	66

VTT-SST-p **STAINLESS STEEL**

Code	Description	D	d6g	L	d1	l	l2	⚖
167161	VTT.25-SST-p-M5x10	25	M5	20	12	10	10	8
167162	VTT.25-SST-p-M5x16	25	M5	20	12	16	10	9
167262	VTT.32-SST-p-M6x16	32	M6	23	14	16	11.5	15
167263	VTT.32-SST-p-M6x20	32	M6	23	14	20	11.5	16
167264	VTT.32-SST-p-M6x30	32	M6	23	14	30	11.5	19
167381	VTT.40-SST-p-M8x20	40	M8	27	16	20	13.5	28
167383	VTT.40-SST-p-M8x30	40	M8	27	16	30	13.5	32
167385	VTT.40-SST-p-M8x40	40	M8	27	16	40	13.5	36
167491	VTT.50-SST-p-M10x20	50	M10	30	19	20	15	47
167493	VTT.50-SST-p-M10x30	50	M10	30	19	30	15	57
167495	VTT.50-SST-p-M10x40	50	M10	30	19	40	15	67

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VTT-CLEAN

Knobs with solid section

Technopolymer, easy cleaning

MATERIAL
Glass-fibre reinforced polyamide based (PA) technopolymer, white colour similar to RAL 9002, matte finish.

STANDARD EXECUTION
AISI 304 stainless steel boss, threaded blind hole.



ELESA Original design

Ergonomic Design

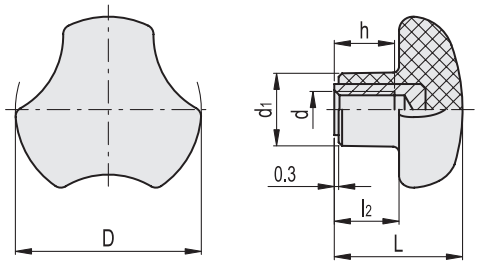
Three ample lobes to offer a safe and effective grip to the operator even with smaller diameters when wearing gloves too.





Easy cleaning

The absence of recesses prevent unhealthy residues or dust from depositing ensuring maximum cleaning.



STAINLESS STEEL

Code	Description	D	d6H	L	d1	l2	h	⚖
151752	VTT.25-SST-M5 CLEAN	25	M5	20	12	10	10	9
151762	VTT.32-SST-M6 CLEAN	32	M6	23	14	11.5	10	19
151772	VTT.40-SST-M8 CLEAN	40	M8	27	16	13.5	13	24
151782	VTT.50-SST-M10 CLEAN	50	M10	30	19	15	17	37

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INOX STAINLESS STEEL · RoHS · PA · POM · +60° 0°

Knobs with solid section

with retaining chain, technopolymer



ELESA Original design

MATERIAL

Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.
Elastic fork in acetal based technopolymer (POM), black colour.

RETAINING CHAIN

Ball cable and coupling heads in acetal resin based (POM) technopolymer, black colour.
NERINOX treated stainless steel ring with two coils.
Head fastening by means of a self-tapping screw ø4.8 mm UNI EN ISO 7050 or a M5 countersunk-head screw UNI EN ISO 10642.

STANDARD EXECUTIONS

- **VTT-B-LP**: brass boss, threaded blind hole.
- **VTT-SST-LP**: AISI 304 stainless steel boss, threaded blind hole.
- **VTT-p-LP**: zinc-plated steel threaded stud, chamfered flat end according to UNI 947 : ISO 4753 (see Technical Data on page A11).
- **VTT-SST-p-LP**: AISI 304 stainless steel threaded stud, chamfered flat end according to UNI 947 : ISO 4753 (see Technical Data on page A11).

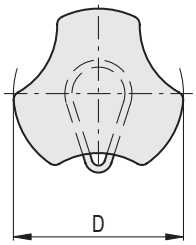
FEATURES AND APPLICATIONS

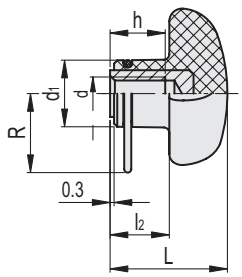
Suitable where it is necessary to prevent the loss of the knob.
The elastic fork, housed in the groove of the knob can turn freely. The coiled ring connects the fork to the chain.
The three-lobe shape with large recesses is particularly ergonomic also for smaller knobs, ensuring an effective grip even with work gloves.
The design without rear cavities, generally suitable for reducing thickness, prevents unhealthy residues from depositing, ensuring easy cleaning. Particularly suitable for applications on machines and equipment whose parts must be frequently cleaned by using water jets or steam.

SPECIAL EXECUTIONS ON REQUEST

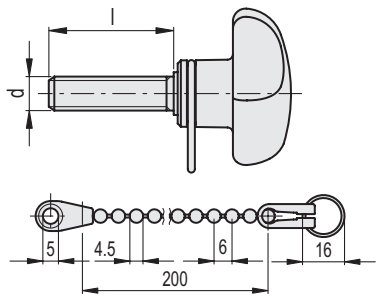
- Chain in different lengths.
- Knob with stainless steel cable GN 111 (see page 904), GN 111.2 (see page 906) and GN 111.4 (see page 908).

VTT-B-LP
VTT-SST-LP





VTT-p-LP
VTT-SST-p-LP



VTT-B-LP **VTT-SST-LP** **STAINLESS STEEL**

Code	Description	Code	Description	D	d6H	L	d1	l2	h	R	⚖
168106	VTT.25-B-M5-LP	168116	VTT.25-SST-M5-LP	25	M5	20	12	10	10	20	12
168216	VTT.32-B-M6-LP	168226	VTT.32-SST-M6-LP	32	M6	23	14	11.5	10	21	22
168336	VTT.40-B-M8-LP	168346	VTT.40-SST-M8-LP	40	M8	27	16	13.5	13	21.5	26
168466	VTT.50-B-M10-LP	168476	VTT.50-SST-M10-LP	50	M10	30	19	15	17	22.5	39

VTT-p-LP **VTT-SST-p-LP** **STAINLESS STEEL**

Code	Description	Code	Description	D	d6g	L	d1	l	l2	R	⚖
168152	VTT.25-p-M5x16-LP	168162	VTT.25-SST-p-M5x16-LP	25	M5	20	12	16	10	20	12
168253	VTT.32-p-M6x20-LP	168263	VTT.32-SST-p-M6x20-LP	32	M6	23	14	20	11.5	21	19
168373	VTT.40-p-M8x30-LP	168383	VTT.40-SST-p-M8x30-LP	40	M8	27	16	30	13.5	21.5	34
168485	VTT.50-p-M10x40-LP	168495	VTT.50-SST-p-M10x40-LP	50	M10	30	19	40	15	22.5	69

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GN 5345

Stainless Steel-Three lobe knobs

Material AISI 303 (A2)

SPECIFICATION

Types

- Type **A**: without bore
- Type **E**: with threaded blind bore
- Type **D**: with threaded through bore
- Type **C**: with plain blind bore H7

Stainless Steel AISI 303
Stainless Steel AISI 316L (A4)
matt shot-blasted

INFORMATION

Stainless Steel-Three lobe knobs GN 5345 have a smooth and sealed surface. They are particularly suitable for use where hygiene requirements are high. Their shape allows relatively high torques to be applied.

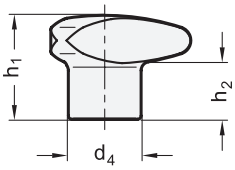
ON REQUEST

- highly polished (PL)

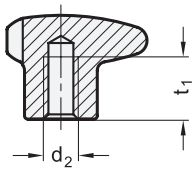
TECHNICAL INFORMATION

- Cross holes GN 110 (see page A17)
- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)

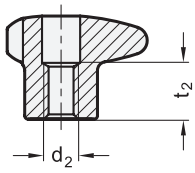
Type **A**

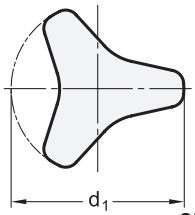


Type **E**

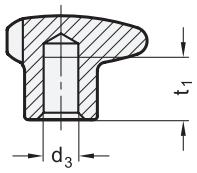


Type **D**





Type **C**



GN 5345 STAINLESS STEEL

Description	d1	d2	d3 H7	d4	h1	h2	t1 min.	t2	⚖
GN 5345-40-A	40	-	-	18	26	15	-	-	76
GN 5345-50-A	50	-	-	21	30	17	-	-	127
GN 5345-60-A	60	-	-	25	35	18	-	-	216
GN 5345-40-B8-C	40	-	B 8	18	26	15	15	-	70
GN 5345-50-B10-C	50	-	B 10	21	30	17	18	-	114
GN 5345-60-B12-C	60	-	B 12	25	35	18	22	-	195
GN 5345-40-M6-D	40	M 6	-	18	26	15	-	13	70
GN 5345-40-M8-D	40	M 8	-	18	26	15	-	13	67
GN 5345-50-M8-D	50	M 8	-	21	30	17	-	16	115
GN 5345-50-M10-D	50	M 10	-	21	30	17	-	16	109
GN 5345-60-M10-D	60	M 10	-	25	35	18	-	20	193
GN 5345-60-M12-D	60	M 12	-	25	35	18	-	20	185
GN 5345-40-M6-E	40	M 6	-	18	26	15	12	-	74
GN 5345-40-M8-E	40	M 8	-	18	26	15	15	-	70
GN 5345-50-M8-E	50	M 8	-	21	30	17	15	-	119
GN 5345-50-M10-E	50	M 10	-	21	30	17	18	-	115
GN 5345-60-M10-E	60	M 10	-	25	35	18	18	-	202
GN 5345-60-M12-E	60	M 12	-	25	35	18	22	-	195

GN 5345.4

Stainless Steel-Three lobe knobs

Material AISI 316L (A4)



GN 5345.4 STAINLESS STEEL

Description	d1	d2	d3 H7	d4	h1	h2	t1 min.	t2	⚖
GN 5345.4-40-A	40	-	-	18	26	15	-	-	96
GN 5345.4-50-A	50	-	-	21	30	17	-	-	128
GN 5345.4-60-A	60	-	-	25	35	18	-	-	219
GN 5345.4-40-B8-C	40	-	B 8	18	26	15	15	-	70
GN 5345.4-50-B10-C	50	-	B 10	21	30	17	18	-	115
GN 5345.4-60-B12-C	60	-	B 12	25	35	18	22	-	192
GN 5345.4-40-M6-D	40	M 6	-	18	26	15	-	13	60
GN 5345.4-40-M8-D	40	M 8	-	18	26	15	-	13	67
GN 5345.4-50-M8-D	50	M 8	-	21	30	17	-	16	117
GN 5345.4-50-M10-D	50	M 10	-	21	30	17	-	16	111
GN 5345.4-60-M10-D	60	M 10	-	25	35	18	-	20	197
GN 5345.4-60-M12-D	60	M 12	-	25	35	18	-	20	188
GN 5345.4-40-M6-E	40	M 6	-	18	26	15	12	-	77
GN 5345.4-40-M8-E	40	M 8	-	18	26	15	15	-	71
GN 5345.4-50-M8-E	50	M 8	-	21	30	17	15	-	120
GN 5345.4-50-M10-E	50	M 10	-	21	30	17	18	-	115
GN 5345.4-60-M10-E	60	M 10	-	25	35	18	18	-	202
GN 5345.4-60-M12-E	60	M 12	-	25	35	18	22	-	195

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RoHS PP +90° 0° PA +150° -30°

Lobe knobs

Technopolymer

MATERIAL

High-resilience polypropylene based (PP) technopolymer, black colour, matte finish. VCT.25: glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

COLOURED CENTRE CAP

Technopolymer, matte finish. Not available for VCT.25.
To order, add the index of the desired colour (C9, ..., C6) to the code and the description.
On request and for sufficient quantities it can be supplied in other colours or with customised graphic symbols, marks or writings.

STANDARD EXECUTIONS

- **VCT-A**: black-oxide steel boss, plain blind hole.
- **VCT-B**: brass boss, threaded blind hole (VCT.25 - 95) or threaded pass-through hole (VCT.32 - 40 - 50 - 63 - 74).
- **VCT.FP**: brass boss, threaded pass-through hole.
- **VCT-p:** zinc-plated steel threaded stud, chamfered flat end according to UNI 947 : ISO 4753 (see Technical data on page A11).

ACCESSORIES ON REQUEST

Coloured centre caps (see table).



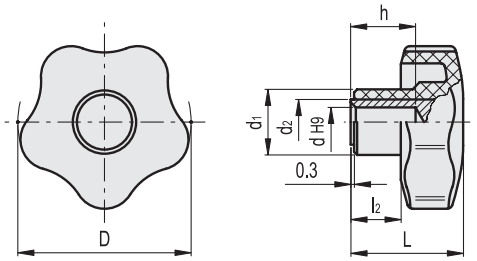
ELESA Original design

Cap for	C9	C2	C3	C4	C5	C6	Description
	Code						
VCT.32	6900	6903	6904	6905	6906	6901	CA.VCT.32-*
VCT.40	6910	6913	6914	6915	6916	6911	CA.VCT.40-*
VCT.50	6920	6923	6924	6925	6926	6921	CA.VCT.50-*
VCT.63-74-95	6930	6933	6934	6935	6936	6931	CA.VCT.63-74-95-*

* Complete with colour index (C9, ..., C6).

C9 RAL9005 C2 RAL2004 C3 RAL7035 C4 RAL1021 C5 RAL5024 C6 RAL3000

VCT-A





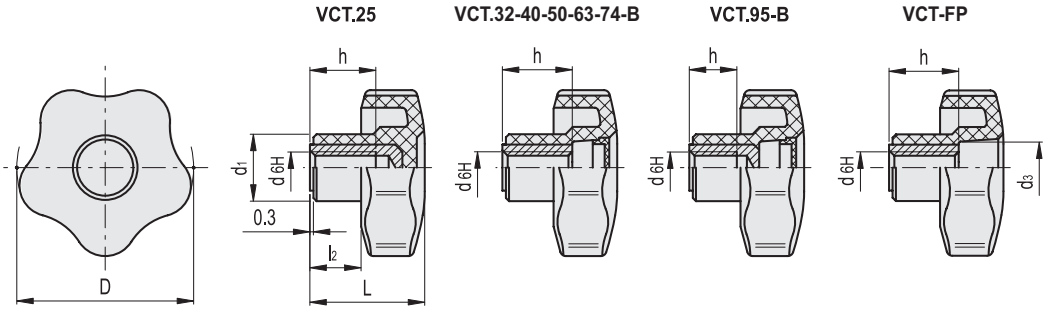
*Complete with colour index, example: 69841-C2 VCT.32 A-6-C2

C9 RAL9005 C2 RAL2004 C3 RAL7035 C4 RAL1021 C5 RAL5024 C6 RAL3000

VCT-A

Code	Description	D	dH9	L	d1	d2	l2	h	⚖
69892-*	VCT.40 A-8-*	40	8	27	17	12	12	14	36
69951-*	VCT.50 A-8-*	50	8	32	19	12	14	14	37
69952-*	VCT.50 A-10-*	50	10	32	19	15	14	16	34
70001-*	VCT.63 A-8-*	63	8	37	22	15	16	20	52
70002-*	VCT.63 A-10-*	63	10	37	22	16	16	21	49
70051-*	VCT.74 A-8-*	74	8	43.5	26	15	22	20	65

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*Complete with colour index, example: 69843-C2 VCT.32 B-M5-C2

C9	C2	C3	C4	C5	C6
RAL9005	RAL2004	RAL7035	RAL1021	RAL5024	RAL3000

VCT-B

Code	Description	D	d6H	L	d1	l2	h	C# [Nm]	⚖
69811-C9	VCT.25 B-M4-C9	25	M4	19	13	8	10	6	7
69812-C9	VCT.25 B-M5-C9	25	M5	19	13	8	10	7	6
69813-C9	VCT.25 B-M6-C9	25	M6	19	13	8	10	7	5
69843-*	VCT.32 B-M5-*	32	M5	23	15	10	12	10	11
69844-*	VCT.32 B-M6-*	32	M6	23	15	10	12	10	10
69845-*	VCT.32 B-M8-*	32	M8	23	15	10	12	10	9
69893-*	VCT.40 B-M6-*	40	M6	27	17	12	18	16	26
69894-*	VCT.40 B-M8-*	40	M8	27	17	12	18	18	24
69895-*	VCT.40 B-M10-*	40	M10	27	17	12	17	18	23
69953-*	VCT.50 B-M8-*	50	M8	32	19	14	20	25	38
69954-*	VCT.50 B-M10-*	50	M10	32	19	14	20	27	34
69955-*	VCT.50 B-M12-*	50	M12	32	19	14	20	27	30
70012-*	VCT.63 B-M8-*	63	M8	37	22	16	26	48	45
70013-*	VCT.63 B-M10-*	63	M10	37	22	16	26	50	42
70014-*	VCT.63 B-M12-*	63	M12	37	22	16	26	50	40
70062-*	VCT.74 B-M12-*	74	M12	43.5	26	22	26	60	57
70063-*	VCT.74 B-M14-*	74	M14	43.5	26	22	26	65	53
70064-*	VCT.74 B-M16-*	74	M16	43.5	26	22	31	69	55
70097-*	VCT.95 B-M16-*	95	M16	46	32	21	22	100	109

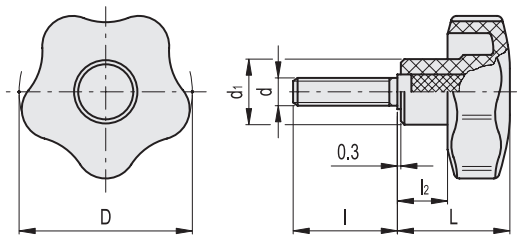
VCT.FP

Code	Description	D	d6H	L	d1	d3	l2	h	⚖
69847	VCT.32 FP-M5	32	M5	23	15	10	10	12	11
69848	VCT.32 FP-M6	32	M6	23	15	10	10	12	10
69849	VCT.32 FP-M8	32	M8	23	15	10	10	12	9
69897	VCT.40 FP-M6	40	M6	27	17	12	12	18	26
69898	VCT.40 FP-M8	40	M8	27	17	12	12	18	24
69899	VCT.40 FP-M10	40	M10	27	17	12	12	17	23
69956	VCT.50 FP-M8	50	M8	32	19	15	14	20	38
69957	VCT.50 FP-M10	50	M10	32	19	15	14	20	34
69958	VCT.50 FP-M12	50	M12	32	19	15	14	20	30
70016	VCT.63 FP-M8	63	M8	37	22	19	16	26	44
70017	VCT.63 FP-M10	63	M10	37	22	19	16	26	42
70018	VCT.63 FP-M12	63	M12	37	22	19	16	26	40
70067	VCT.74 FP-M12	74	M12	43.5	26	17	22	26	56
70068	VCT.74 FP-M14	74	M14	43.5	26	17	22	26	52
70069	VCT.74 FP-M16	74	M16	43.5	26	17	22	31	54

"Max limit Tightening torque" means the max torque value at which the metal insert, in normal conditions of use, is perfectly and strongly anchored to the plastic material.

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VCT-p





*Complete with colour index, example: 69872-C2 VCT.32 p-M5x20-C2

C9 RAL9005 | C2 RAL2004 | C3 RAL7035 | C4 RAL1021 | C5 RAL5024 | C6 RAL3000

VCT-p

Code	Description	D	d6g	L	d1	l	l2	C# [Nm]	⚖
69816-C9	VCT.25 p-M4x6-C9	25	M4	19	13	6	8	5	5
69817-C9	VCT.25 p-M4x10-C9	25	M4	19	13	10	8	5	6
69821-C9	VCT.25 p-M5x10-C9	25	M5	19	13	10	8	6	7
69822-C9	VCT.25 p-M5x16-C9	25	M5	19	13	16	8	6	8
69823-C9	VCT.25 p-M5x20-C9	25	M5	19	13	20	8	6	9
69824-C9	VCT.25 p-M5x25-C9	25	M5	19	13	25	8	6	10
69825-C9	VCT.25 p-M5x30-C9	25	M5	19	13	30	8	6	12
69826-C9	VCT.25 p-M5x40-C9	25	M5	19	13	40	8	6	14
69831-C9	VCT.25 p-M6x10-C9	25	M6	19	13	10	8	6	8
69832-C9	VCT.25 p-M6x16-C9	25	M6	19	13	16	8	6	9
69833-C9	VCT.25 p-M6x20-C9	25	M6	19	13	20	8	6	10
69835-C9	VCT.25 p-M6x25-C9	25	M6	19	13	25	8	6	11
69834-C9	VCT.25 p-M6x30-C9	25	M6	19	13	30	8	6	13
69836-C9	VCT.25 p-M6x40-C9	25	M6	19	13	40	8	6	15
69872-*	VCT.32 p-M5x20-*	32	M5	23	15	20	10	6	13
69851-*	VCT.32 p-M6x16-*	32	M6	23	15	16	10	8	13
69852-*	VCT.32 p-M6x20-*	32	M6	23	15	20	10	8	14
69853-*	VCT.32 p-M6x25-*	32	M6	23	15	25	10	8	15
69854-*	VCT.32 p-M6x30-*	32	M6	23	15	30	10	8	16
69856-*	VCT.32 p-M6x40-*	32	M6	23	15	40	10	8	18
69858-*	VCT.32 p-M6x50-*	32	M6	23	15	50	10	8	20
69859-*	VCT.32 p-M8x16-*	32	M8	23	15	16	10	8	14
69861-*	VCT.32 p-M8x20-*	32	M8	23	15	20	10	8	18
69863-*	VCT.32 p-M8x30-*	32	M8	23	15	30	10	8	21
69865-*	VCT.32 p-M8x40-*	32	M8	23	15	40	10	8	24
69867-*	VCT.32 p-M8x50-*	32	M8	23	15	50	10	8	26
69901-*	VCT.40 p-M6x20-*	40	M6	27	17	20	12	13	18
69902-*	VCT.40 p-M6x25-*	40	M6	27	17	25	12	13	19
69903-*	VCT.40 p-M6x30-*	40	M6	27	17	30	12	13	20
69911-*	VCT.40 p-M8x16-*	40	M8	27	17	16	12	16	23
69912-*	VCT.40 p-M8x20-*	40	M8	27	17	20	12	16	24
69913-*	VCT.40 p-M8x25-*	40	M8	27	17	25	12	16	26
69914-*	VCT.40 p-M8x30-*	40	M8	27	17	30	12	16	27
69915-*	VCT.40 p-M8x35-*	40	M8	27	17	35	12	16	28
69916-*	VCT.40 p-M8x40-*	40	M8	27	17	40	12	16	30
69917-*	VCT.40 p-M8x45-*	40	M8	27	17	45	12	16	32
69918-*	VCT.40 p-M8x50-*	40	M8	27	17	50	12	16	35
69919-*	VCT.40 p-M8x55-*	40	M8	27	17	55	12	16	36
69931-*	VCT.40 p-M10x20-*	40	M10	27	17	20	12	18	26
69933-*	VCT.40 p-M10x25-*	40	M10	27	17	25	12	18	28
69935-*	VCT.40 p-M10x30-*	40	M10	27	17	30	12	18	30
69937-*	VCT.40 p-M10x40-*	40	M10	27	17	40	12	18	32
69939-*	VCT.40 p-M10x50-*	40	M10	27	17	50	12	18	34

VCT-p

Code	Description	D	d6g	L	d1	l	l2	C# [Nm]	⚖
69960-*	VCT.50 p-M8x16-*	50	M8	32	19	16	14	16	26
69961-*	VCT.50 p-M8x20-*	50	M8	32	19	20	14	16	28
69962-*	VCT.50 p-M8x25-*	50	M8	32	19	25	14	16	30
69963-*	VCT.50 p-M8x30-*	50	M8	32	19	30	14	16	31
69965-*	VCT.50 p-M8x40-*	50	M8	32	19	40	14	16	33
69967-*	VCT.50 p-M8x50-*	50	M8	32	19	50	14	16	35
69971-*	VCT.50 p-M10x20-*	50	M10	32	19	20	14	23	36
69972-*	VCT.50 p-M10x25-*	50	M10	32	19	25	14	23	39
69973-*	VCT.50 p-M10x30-*	50	M10	32	19	30	14	23	41
69975-*	VCT.50 p-M10x40-*	50	M10	32	19	40	14	23	46
69977-*	VCT.50 p-M10x50-*	50	M10	32	19	50	14	23	51
69979-*	VCT.50 p-M10x60-*	50	M10	32	19	60	14	23	55
69981-*	VCT.50 p-M12x20-*	50	M12	32	19	20	14	25	39
69983-*	VCT.50 p-M12x30-*	50	M12	32	19	30	14	25	44
69985-*	VCT.50 p-M12x40-*	50	M12	32	19	40	14	25	49
69987-*	VCT.50 p-M12x50-*	50	M12	32	19	50	14	25	54
69989-*	VCT.50 p-M12x60-*	50	M12	32	19	60	14	25	59
70021-*	VCT.63 p-M10x20-*	63	M10	37	22	20	16	37	54
70023-*	VCT.63 p-M10x30-*	63	M10	37	22	30	16	37	59
70025-*	VCT.63 p-M10x40-*	63	M10	37	22	40	16	37	64
70027-*	VCT.63 p-M10x50-*	63	M10	37	22	50	16	37	69
70029-*	VCT.63 p-M10x60-*	63	M10	37	22	60	16	37	74
70032-*	VCT.63 p-M12x30-*	63	M12	37	22	30	16	46	67
70033-*	VCT.63 p-M12x40-*	63	M12	37	22	40	16	46	73
70036-*	VCT.63 p-M12x50-*	63	M12	37	22	50	16	46	79
70039-*	VCT.63 p-M12x60-*	63	M12	37	22	60	16	46	85
70083-*	VCT.74 p-M12x30-*	74	M12	43.5	26	30	22	68	86
70085-*	VCT.74 p-M12x50-*	74	M12	43.5	26	50	22	68	98
70087-*	VCT.74 p-M12x70-*	74	M12	43.5	26	70	22	68	110
70095-*	VCT.74 p-M14x50-*	74	M14	43.5	26	50	22	78	106
70099-*	VCT.95 p-M16x50-*	95	M16	46	32	50	21	138	175

"Max limit Tightening torque" means the max torque value at which the metal insert, in normal conditions of use, is perfectly and strongly anchored to the plastic material.

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VCT.AE-V0

Lobe knobs

Technopolymer certified self-extinguish

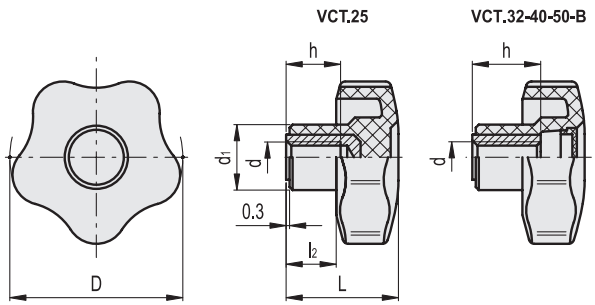
MATERIAL
Glass-fibre reinforced polyamide based (PA) technopolymer certified self-extinguishing UL-94 V0.

STANDARD EXECUTION
Brass boss with threaded blind hole (VCT.25) or pass-through hole (VCT. from 32 to 50).

TECHNICAL DATA
In long-term thermal ageing tests, with a maximum decrease in critical mechanical properties by 50%, the relative temperature index UL 746 B (RTI) was equal to 65.
The "V0" certification in accordance with UL-94 V (Underwriters Laboratories) (see page A5) indicates that on a plastic test sample with specific shape and dimensions, in the vertical position, the flame is extinguished within 10 seconds, without generating incandescent drops.



ELESA Original design



Code	Description	D	d6H	L	d1	l2	h	⚖
150534	VCT.25 AE-V0 B-M5	25	M5	19	13	8	10	6
150544	VCT.32 AE-V0 B-M6	32	M6	23	15	10	12	11
150564	VCT.40 AE-V0 B-M8	40	M8	27	17	12	18	24
150584	VCT.50 AE-V0 B-M10	50	M10	32	19	14	26	34

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RoHS PP POM +60° 0°

Lobe knobs

with retaining chain, technopolymer



ELESA Original design

MATERIAL

High-resilience polypropylene based (PP) technopolymer, black colour, matte finish.
Technopolymer centre cap, black colour, matte finish. Not available for VCT.25.
Elastic fork in acetal based technopolymer (POM), black colour.

RETAINING CHAIN

Ball cable and coupling heads in acetal resin based (POM) technopolymer, black colour.
NERINOX treated stainless steel ring with two coils.
Head fastening by means of a self-tapping screw ø4.8 mm UNI EN ISO 7050 or a M5 countersunk-head screw UNI EN ISO 10642.

STANDARD EXECUTION

- **VCT-B-LP**: brass boss, threaded pass-through hole.
- **VCT-p-LP**: zinc-plated steel threaded stud chamfered flat end according to UNI 947: ISO 4753 (see Technical data on page A11).

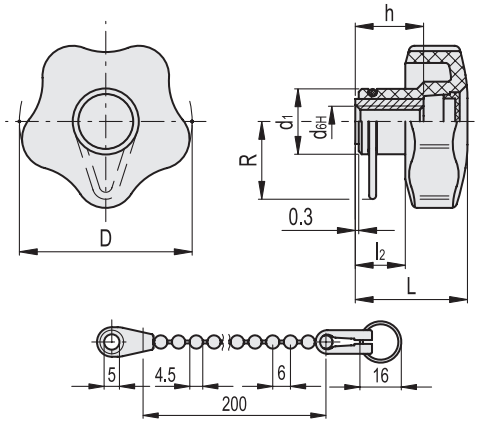
FEATURES AND APPLICATIONS

The elastic fork, housed in the groove of the knob can turn freely. The coiled ring connects the fork to the chain.
Suitable where it is necessary to prevent the loss of the knob.

SPECIAL EXECUTIONS ON REQUEST

- Chain in different lengths.
- Knob with stainless steel cable GN 111 (see page 904), GN 111.2 (see page 906) and GN 111.4 (see page 908).

VCT-B-LP



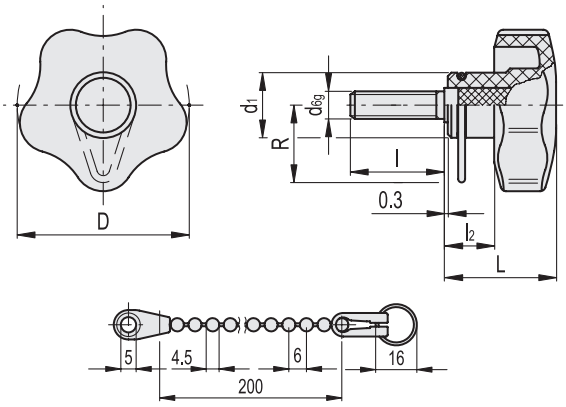
VCT-B-LP

Code	Description	D	d6H	L	d1	l2	h	R	C# [Nm]	⚖
69512-C9	VCT.25 B-M5-LP-C9	25	M5	19	13	8	10	20	7	10
69544-C9	VCT.32 B-M6-LP-C9	32	M6	23	15	10	12	21	10	14
69594-C9	VCT.40 B-M8-LP-C9	40	M8	27	17	12	18	21.5	18	24
69654-C9	VCT.50 B-M10-LP-C9	50	M10	32	19	14	20	22.5	27	34
69714-C9	VCT.63 B-M12-LP-C9	63	M12	37	22	16	26	24	50	44

"Max limit Tightening torque" means the max torque value at which the metal insert, in normal conditions of use, is perfectly and strongly anchored to the plastic material.

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VCT-p-LP



VCT-p-LP

Code	Description	D	d6g	L	d1	l	l2	R	C# [Nm]	⚖
69521-C9	VCT.25 p-M5x10-LP-C9	25	M5	19	13	10	8	20	6	9
69522-C9	VCT.25 p-M5x16-LP-C9	25	M5	19	13	16	8	20	6	10
69523-C9	VCT.25 p-M5x20-LP-C9	25	M5	19	13	20	8	20	6	11
69524-C9	VCT.25 p-M5x25-LP-C9	25	M5	19	13	25	8	20	6	12
69551-C9	VCT.32 p-M6x16-LP-C9	32	M6	23	15	16	10	21	8	15
69552-C9	VCT.32 p-M6x20-LP-C9	32	M6	23	15	20	10	21	8	16
69553-C9	VCT.32 p-M6x25-LP-C9	32	M6	23	15	25	10	21	8	17
69554-C9	VCT.32 p-M6x30-LP-C9	32	M6	23	15	30	10	21	8	18
69612-C9	VCT.40 p-M8x20-LP-C9	40	M8	27	17	20	12	21.5	16	26
69613-C9	VCT.40 p-M8x25-LP-C9	40	M8	27	17	25	12	21.5	16	28
69614-C9	VCT.40 p-M8x30-LP-C9	40	M8	27	17	30	12	21.5	16	29
69616-C9	VCT.40 p-M8x40-LP-C9	40	M8	27	17	40	12	21.5	16	32
69671-C9	VCT.50 p-M10x20-LP-C9	50	M10	32	19	20	14	22.5	23	38
69672-C9	VCT.50 p-M10x25-LP-C9	50	M10	32	19	25	14	22.5	23	41
69673-C9	VCT.50 p-M10x30-LP-C9	50	M10	32	19	30	14	22.5	23	43
69675-C9	VCT.50 p-M10x40-LP-C9	50	M10	32	19	40	14	22.5	23	48
69733-C9	VCT.63 p-M12x30-LP-C9	63	M12	37	22	30	16	24	46	69
69735-C9	VCT.63 p-M12x40-LP-C9	63	M12	37	22	40	16	24	46	75
69736-C9	VCT.63 p-M12x50-LP-C9	63	M12	37	22	50	16	24	46	82

"Max limit Tightening torque" means the max torque value at which the metal insert, in normal conditions of use, is perfectly and strongly anchored to the plastic material.

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SOFT RoHS PP TPE +80° 0°

Lobe knobs

“Soft-touch“ technopolymer



ELESA Original design

MATERIAL

High-resilience polypropylene based (PP) technopolymer, coated with thermoplastic elastomer (TPE) "soft-touch" chemically bonded, hardness 70 Shore A.
The coating material is certified according to FDA (U.S. Food and Drug administration), black colour, matte finish.

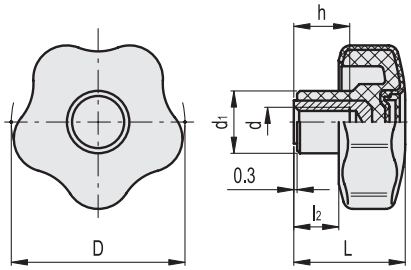
COLOURED CENTRE CAP

Polypropylene based (PP) technopolymer, in the six standard colours, matte finish.
On request and for sufficient quantities, it can be supplied in other colours or with customised graphic symbols, marks or writings.

STANDARD EXECUTIONS

- **VCT-B-SOFT:** brass boss, threaded blind hole.
- **VCT-p-SOFT:** zinc-plated steel threaded stud with chamfered flat end as in UNI 947 : ISO 4753 (see Technical data on page A11).

VCT-B-SOFT





*Complete with colour index, example: 169894-C2 VCT.43 B-M8-SOFT-C2

C9	C2	C3	C4	C5	C6
RAL9005	RAL2004	RAL7035	RAL1021	RAL5024	RAL3000

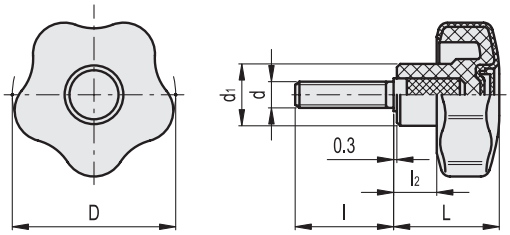
VCT-B-SOFT

Code	Description	D	d6H	L	d1	l2	h	C# [Nm]	⚖
169892-*	VCT.43 B-M6-SOFT-*	43	M6	29	17	11	12	15	22
169894-*	VCT.43 B-M8-SOFT-*	43	M8	29	17	11	13	18	20
169952-*	VCT.53 B-M8-SOFT-*	53	M8	34	19	13	15	25	33
169954-*	VCT.53 B-M10-SOFT-*	53	M10	34	19	13	17	27	36
170013-*	VCT.66 B-M10-SOFT-*	66	M10	38.5	21.5	15.5	17	50	44
170015-*	VCT.66 B-M12-SOFT-*	66	M12	38.5	21.5	15.5	17	50	42
170062-*	VCT.77 B-M12-SOFT-*	77	M12	46	26	21	20	60	51

"Max limit Tightening torque" means the max torque value at which the metal insert, in normal conditions of use, is perfectly and strongly anchored to the plastic material.

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VCT-p-SOFT





*Complete with colour index, example: 169903-C2 VCT.43 p-M6x25-SOFT-C2

C9	C2	C3	C4	C5	C6
RAL9005	RAL2004	RAL7035	RAL1021	RAL5024	RAL3000

VCT-p-SOFT

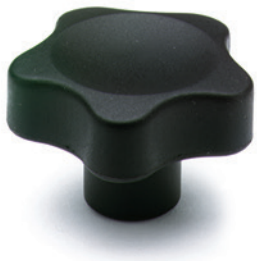
Code	Description	D	d6g	L	d1	l	l2	C# [Nm]	⚖
169901-*	VCT.43 p-M6x16-SOFT-*	43	M6	29	17	16	11	13	18
169902-*	VCT.43 p-M6x20-SOFT-*	43	M6	29	17	20	11	13	19
169903-*	VCT.43 p-M6x25-SOFT-*	43	M6	29	17	25	11	13	20
169905-*	VCT.43 p-M6x30-SOFT-*	43	M6	29	17	30	11	13	21
169911-*	VCT.43 p-M8x16-SOFT-*	43	M8	29	17	16	11	16	19
169912-*	VCT.43 p-M8x20-SOFT-*	43	M8	29	17	20	11	16	20
169913-*	VCT.43 p-M8x25-SOFT-*	43	M8	29	17	25	11	16	22
169915-*	VCT.43 p-M8x30-SOFT-*	43	M8	29	17	30	11	16	24
169961-*	VCT.53 p-M8x16-SOFT-*	53	M8	34	19	16	13	16	33
169963-*	VCT.53 p-M8x20-SOFT-*	53	M8	34	19	20	13	16	34
169965-*	VCT.53 p-M8x30-SOFT-*	53	M8	34	19	30	13	16	36
169967-*	VCT.53 p-M8x40-SOFT-*	53	M8	34	19	40	13	16	38
169971-*	VCT.53 p-M10x20-SOFT-*	53	M10	34	19	20	13	23	36
169973-*	VCT.53 p-M10x30-SOFT-*	53	M10	34	19	30	13	23	40
169975-*	VCT.53 p-M10x40-SOFT-*	53	M10	34	19	40	13	23	44
169977-*	VCT.53 p-M10x50-SOFT-*	53	M10	34	19	50	13	23	48
170021-*	VCT.66 p-M10x20-SOFT-*	66	M10	38.5	21.5	20	15.5	37	46
170023-*	VCT.66 p-M10x30-SOFT-*	66	M10	38.5	21.5	30	15.5	37	49
170025-*	VCT.66 p-M10x40-SOFT-*	66	M10	38.5	21.5	40	15.5	37	52
170027-*	VCT.66 p-M10x50-SOFT-*	66	M10	38.5	21.5	50	15.5	37	56
170033-*	VCT.66 p-M12x30-SOFT-*	66	M12	38.5	21.5	30	15.5	46	52
170035-*	VCT.66 p-M12x40-SOFT-*	66	M12	38.5	21.5	40	15.5	46	56
170037-*	VCT.66 p-M12x50-SOFT-*	66	M12	38.5	21.5	50	15.5	46	60
170083-*	VCT.77 p-M12x30-SOFT-*	77	M12	46	26	30	21	68	53
170085-*	VCT.77 p-M12x40-SOFT-*	77	M12	46	26	40	21	68	57
170087-*	VCT.77 p-M12x50-SOFT-*	77	M12	46	26	50	21	68	62

"Max limit Tightening torque" means the max torque value at which the metal insert, in normal conditions of use, is perfectly and strongly anchored to the plastic material.

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Lobe knobs with solid section

Technopolymer, easy cleaning





ELESA Original design

MATERIAL

Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

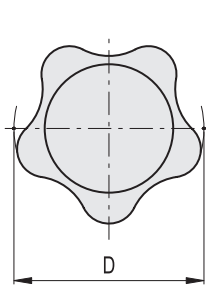
STANDARD EXECUTIONS

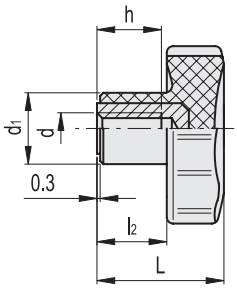
- **VC.692-B:** brass boss, threaded blind hole.
- **VC.692-SST:** AISI 303 stainless steel boss, threaded blind hole.
- **VC.692-p:** zinc-plated steel threaded stud, chamfered flat end according to UNI 947 : ISO 4753 (see Technical data on page A11).
- **VC.692-SST-p:** AISI 303 stainless steel threaded stud, chamfered flat end according to UNI 947 : ISO 4753 (see Technical data on page A11).

FEATURES AND APPLICATIONS

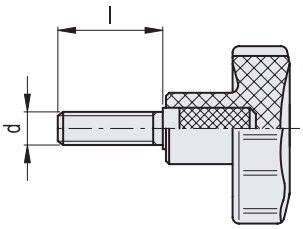
The exclusive five-lobe shape (ELESA original design) offers the operator's fingers a proper grip and prevents unhealthy residues from depositing thanks to its solid shape without cavities.
The metal insert in AISI 303 stainless steel can be used in sectors where corrosion resistant materials are required.

VC.692-B
VC.692-SST





VC.692-p
VC.692-SST-p



VC.692-B

Code	Description	D	d6H	L	d1	l2	h	⚖
166111	VC.692/25 B-M4	25	M4	20	12	10	10	7
166112	VC.692/25 B-M5	25	M5	20	12	10	10	7
166113	VC.692/25 B-M6	25	M6	20	12	10	10	7
166221	VC.692/32 B-M5	32	M5	22.5	14	12.5	10	15
166222	VC.692/32 B-M6	32	M6	22.5	14	12.5	10	14
166223	VC.692/32 B-M8	32	M8	22.5	14	12.5	10	13
166341	VC.692/40 B-M6	40	M6	26	15	14	12	25
166342	VC.692/40 B-M8	40	M8	26	15	14	13	23
166471	VC.692/50 B-M8	50	M8	31	18	17	15	44
166472	VC.692/50 B-M10	50	M10	31	18	17	17	40
166551	VC.692/60 B-M10	60	M10	36.5	21	21	20	63
166552	VC.692/60 B-M12	60	M12	36.5	21	21	20	54

VC.692-SST **STAINLESS STEEL**

Code	Description	D	d6H	L	d1	l2	h	⚖
166116	VC.692/25-SST-M5	25	M5	20	12	10	10	7
166117	VC.692/25-SST-M6	25	M6	20	12	10	10	7
166225	VC.692/32 SST-M5	32	M5	22.5	14	12.5	10	15
166226	VC.692/32-SST-M6	32	M6	22.5	14	12.5	10	15
166345	VC.692/40 SST-M6	40	M6	26	15	14	12	26
166346	VC.692/40-SST-M8	40	M8	26	15	14	13	24
166475	VC.692/50 SST-M8	50	M8	31	18	17	15	45
166476	VC.692/50-SST-M10	50	M10	31	18	17	17	42
166555	VC.692/60 SST-M10	60	M10	36.5	21	21	17	64
166556	VC.692/60-SST-M12	60	M12	36.5	21	21	20	54

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VC.692 | Lobe knobs with solid section

VC.692-p

Code	Description	D	d6g	L	d1	l	l2	⚖
166131	VC.692/25 p-M4x6	25	M4	20	12	6	10	6
166132	VC.692/25 p-M4x10	25	M4	20	12	10	10	7
166141	VC.692/25 p-M5x10	25	M5	20	12	10	10	8
166142	VC.692/25 p-M5x16	25	M5	20	12	16	10	9
166143	VC.692/25 p-M5x20	25	M5	20	12	20	10	10
166151	VC.692/25 p-M6x10	25	M6	20	12	10	10	10
166152	VC.692/25 p-M6x16	25	M6	20	12	16	10	11
166153	VC.692/25 p-M6x20	25	M6	20	12	20	10	12
166154	VC.692/25 p-M6x25	25	M6	20	12	25	10	13
166155	VC.692/25 p-M6x30	25	M6	20	12	30	10	14
166156	VC.692/25 p-M6x35	25	M6	20	12	35	10	15
166242	VC.692/32 p-M6x16	32	M6	22.5	14	16	12.5	15
166243	VC.692/32 p-M6x20	32	M6	22.5	14	20	12.5	16
166244	VC.692/32 p-M6x25	32	M6	22.5	14	25	12.5	17
166245	VC.692/32 p-M6x30	32	M6	22.5	14	30	12.5	19
166246	VC.692/32 p-M6x35	32	M6	22.5	14	35	12.5	20
166247	VC.692/32 p-M6x40	32	M6	22.5	14	40	12.5	22
166252	VC.692/32 p-M8x16	32	M8	22.5	14	16	12.5	14
166253	VC.692/32 p-M8x20	32	M8	22.5	14	20	12.5	16
166254	VC.692/32 p-M8x25	32	M8	22.5	14	25	12.5	17
166255	VC.692/32 p-M8x30	32	M8	22.5	14	30	12.5	18
166256	VC.692/32 p-M8x35	32	M8	22.5	14	35	12.5	19
166350	VC.692/40 p-M6x10	40	M6	26	15	10	14	14
166351	VC.692/40 p-M6x16	40	M6	26	15	16	14	16
166352	VC.692/40 p-M6x20	40	M6	26	15	20	14	17
166353	VC.692/40 p-M6x25	40	M6	26	15	25	14	18
166354	VC.692/40 p-M6x30	40	M6	26	15	30	14	19
166356	VC.692/40 p-M6x40	40	M6	26	15	40	14	20
166361	VC.692/40 p-M8x16	40	M8	26	15	16	14	23
166362	VC.692/40 p-M8x20	40	M8	26	15	20	14	28
166363	VC.692/40 p-M8x25	40	M8	26	15	25	14	29
166364	VC.692/40 p-M8x30	40	M8	26	15	30	14	32
166365	VC.692/40 p-M8x35	40	M8	26	15	35	14	33
166366	VC.692/40 p-M8x40	40	M8	26	15	40	14	36
166367	VC.692/40 p-M8x50	40	M8	26	15	50	14	38
166368	VC.692/40 p-M8x60	40	M8	26	15	60	14	40
166369	VC.692/40 p-M8x70	40	M8	26	15	70	14	42
166431	VC.692/50 p-M8x16	50	M8	31	18	16	17	33
166432	VC.692/50 p-M8x20	50	M8	31	18	20	17	35
166433	VC.692/50 p-M8x25	50	M8	31	18	25	17	36
166434	VC.692/50 p-M8x30	50	M8	31	18	30	17	38
166436	VC.692/50 p-M8x40	50	M8	31	18	40	17	40
166437	VC.692/50 p-M8x45	50	M8	31	18	45	17	42
166438	VC.692/50 p-M8x50	50	M8	31	18	50	17	44
166439	VC.692/50 p-M8x60	50	M8	31	18	60	17	46
166481	VC.692/50 p-M10x20	50	M10	31	18	20	17	47
166483	VC.692/50 p-M10x30	50	M10	31	18	30	17	57
166485	VC.692/50 p-M10x40	50	M10	31	18	40	17	66
166532	VC.692/60 p-M10x20	60	M10	36.5	21	20	21	55
166533	VC.692/60 p-M10x25	60	M10	36.5	21	25	21	57
166534	VC.692/60 p-M10x30	60	M10	36.5	21	30	21	59
166536	VC.692/60 p-M10x40	60	M10	36.5	21	40	21	62
166538	VC.692/60 p-M10x50	60	M10	36.5	21	50	21	65
166570	VC.692/60 p-M12x25	60	M12	36.5	21	25	21	67
166571	VC.692/60 p-M12x30	60	M12	36.5	21	30	21	69
166573	VC.692/60 p-M12x40	60	M12	36.5	21	40	21	80
166575	VC.692/60 p-M12x50	60	M12	36.5	21	50	21	91
166576	VC.692/60 p-M12x60	60	M12	36.5	21	60	21	93

VC.692-SST-p

STAINLESS STEEL

Code	Description	D	d6g	L	d1	l	l2	⚖
166157	VC.692/25 SST-p-M4x6	25	M4	20	12	6	10	6
166158	VC.692/25 SST-p-M4x10	25	M4	20	12	10	10	7
166161	VC.692/25-SST-p-M5x10	25	M5	20	12	10	10	8
166162	VC.692/25-SST-p-M5x16	25	M5	20	12	16	10	9
166163	VC.692/25-SST-p-M5x20	25	M5	20	12	20	10	10
166164	VC.692/25-SST-p-M5x25	25	M5	20	12	25	10	11
166171	VC.692/25 SST-p-M6x10	25	M6	20	12	10	10	10
166172	VC.692/25 SST-p-M6x16	25	M6	20	12	16	10	11
166173	VC.692/25 SST-p-M6x20	25	M6	20	12	20	10	12
166175	VC.692/25 SST-p-M6x25	25	M6	20	12	25	10	13
166174	VC.692/25 SST-p-M6x30	25	M6	20	12	30	10	14
166176	VC.692/25 SST-p-M6x35	25	M6	20	12	35	10	15
166261	VC.692/32 SST-p-M6x10	32	M6	22.5	14	10	12.5	17
166262	VC.692/32-SST-p-M6x16	32	M6	22.5	14	16	12.5	15
166263	VC.692/32-SST-p-M6x20	32	M6	22.5	14	20	12.5	16
166264	VC.692/32-SST-p-M6x30	32	M6	22.5	14	30	12.5	19
166266	VC.692/32-SST-p-M6x35	32	M6	22.5	14	35	12.5	20
166272	VC.692/32-SST-p-M8x16	32	M8	22.5	14	16	12.5	19
166273	VC.692/32-SST-p-M8x20	32	M8	22.5	14	20	12.5	20
166274	VC.692/32-SST-p-M8x25	32	M8	22.5	14	25	12.5	21
166275	VC.692/32-SST-p-M8x30	32	M8	22.5	14	30	12.5	22
166277	VC.692/32-SST-p-M8x40	32	M8	22.5	14	40	12.5	23
166370	VC.692/40-SST-p-M6x10	40	M6	26	15	10	14	20
166372	VC.692/40 SST-p-M6x20	40	M6	26	15	20	14	25
166374	VC.692/40 SST-p-M6x30	40	M6	26	15	30	14	27
166376	VC.692/40 SST-p-M6x40	40	M6	26	15	40	14	31
166379	VC.692/40 SST-p-M8x16	40	M8	26	15	16	14	26
166381	VC.692/40-SST-p-M8x20	40	M8	26	15	20	14	28
166382	VC.692/40-SST-p-M8x25	40	M8	26	15	25	14	30
166383	VC.692/40-SST-p-M8x30	40	M8	26	15	30	14	32
166384	VC.692/40-SST-p-M8x35	40	M8	26	15	35	14	34
166385	VC.692/40-SST-p-M8x40	40	M8	26	15	40	14	36
166386	VC.692/40-SST-p-M8x45	40	M8	26	15	45	14	38
166451	VC.692/50-SST-p-M8x16	50	M8	31	18	16	17	38
166452	VC.692/50-SST-p-M8x20	50	M8	31	18	20	17	40
166453	VC.692/50-SST-p-M8x25	50	M8	31	18	25	17	41
166454	VC.692/50-SST-p-M8x30	50	M8	31	18	30	17	42
166455	VC.692/50-SST-p-M8x35	50	M8	31	18	35	17	43
166456	VC.692/50-SST-p-M8x40	50	M8	31	18	40	17	45
166457	VC.692/50-SST-p-M8x50	50	M8	31	18	50	17	46
166491	VC.692/50-SST-p-M10x20	50	M10	31	18	20	17	47
166493	VC.692/50-SST-p-M10x30	50	M10	31	18	30	17	57
166495	VC.692/50-SST-p-M10x40	50	M10	31	18	40	17	67
166496	VC.692/50-SST-p-M10x50	50	M10	31	18	50	17	69
166562	VC.692/60-SST-p-M10x20	60	M10	36.5	21	20	21	70
166564	VC.692/60-SST-p-M10x30	60	M10	36.5	21	30	21	71
166566	VC.692/60-SST-p-M10x40	60	M10	36.5	21	40	21	73
166568	VC.692/60-SST-p-M10x50	60	M10	36.5	21	50	21	75
166591	VC.692/60-SST-p-M12x30	60	M12	36.5	21	30	21	70
166593	VC.692/60-SST-p-M12x40	60	M12	36.5	21	40	21	81
166595	VC.692/60-SST-p-M12x50	60	M12	36.5	21	50	21	92

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VC.692-CLEAN

Lobe knobs

Technopolymer, easy cleaning

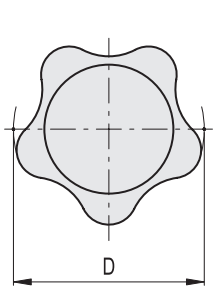
MATERIAL
Glass-fibre reinforced polyamide based (PA) technopolymer, white colour similar to RAL 9002, matte finish.

STANDARD EXECUTION
AISI 303 stainless steel boss, threaded blind hole.

FEATURES AND APPLICATIONS
The exclusive five-lobe shape (ELESA original design) offers the operator's fingers a proper grip and prevents unhealthy residues from depositing thanks to its solid shape without cavities.
This knob is particularly suitable for applications on machines and equipment whose parts must be frequently cleaned by using water jets or steam.
The metal insert in AISI 303 stainless steel can be used in sectors where corrosion resistant materials are required.



ELESA Original design



STAINLESS STEEL

Code	Description	D	d6H	L	d1	l2	h	⚖
151702	VC.692/32-SST-M6-CLEAN	32	M6	22.5	14	12.5	10	15
151712	VC.692/40-SST-M8-CLEAN	40	M8	26	15	14	13	24
151722	VC.692/50-SST-M10-CLEAN	50	M10	31	18	17	17	42
151732	VC.692/60-SST-M12-CLEAN	60	M12	36.5	21	21	20	54

VC.692-CR

Lobe knobs

Technopolymer chrome-plate

MATERIAL
Glass-fibre reinforced polyamide based (PA) technopolymer, chrome-plated, glossy finish.

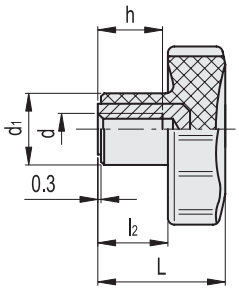
STANDARD EXECUTION
Brass boss, threaded blind hole.

FEATURES AND APPLICATIONS
The exclusive five-lobe shape (ELESA original design) offers the operator's fingers a proper grip and prevents unhealthy residues from depositing thanks to its solid shape without cavities.

CHEMICAL AGENTS RESISTANCE
This knob is particularly suitable for applications on machines and equipment whose parts, for hygienic reasons, must be frequently cleaned also using water or steam jets. The chrome-plating makes the surface finish semi-glossy and homogeneous to facilitate cleaning operations. The chrome-plated surface is resistant to wear, scrapes and shocks. In laboratory tests carried out at ambient temperature (23°C), the chrome-plated surface revealed to be resistant to: sea water, detergents, acetone, ethyl alcohol, formic acid, chlorine solutions.



ELESA Original design



Code	Description	D	d6H	L	d1	l2	h	⚖
152702	VC.692/32-CR-B-M6	32	M6	22.5	14	12.5	10	14
152712	VC.692/40-CR-B-M8	40	M8	26	15	14	13	23
152722	VC.692/50-CR-B-M10	50	M10	31	18	17	17	40
152731	VC.692/60-CR-B-M10	60	M10	36.5	21	21	20	63

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VC.692-SST-p-P

Lobe knobs with solid section

Technopolymer, pad

MATERIAL

Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

STANDARD EXECUTIONS

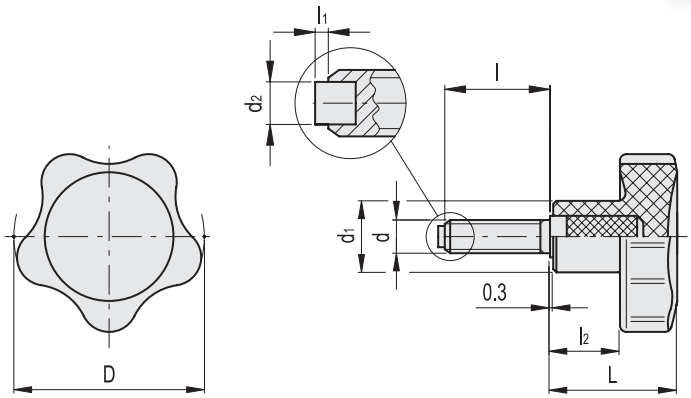
- **VC.692-SST-p-PO**: AISI 303 stainless steel threaded stud, chamfered end with acetal resin (POM) pad.
- **VC.692-SST-p-PB**: AISI 303 stainless steel threaded stud, chamfered end with brass pad.

FEATURES AND APPLICATIONS

The chamfered end with bolt avoids to damage the surface of contact even in case of strong clamping.
Standard executions either with brass or acetal resin pad.



ELESA Original design



VC.692-SST-p-PO — STAINLESS STEEL

Code	Description	D	d6g	L	d1	d2	l	l1	l2	⚖
166282	VC.692/32-SST-p-M6x16-PO	32	M6	22.5	14	4	16	1.5	12.5	15
166283	VC.692/32-SST-p-M6x20-PO	32	M6	22.5	14	4	20	1.5	12.5	16
166284	VC.692/32-SST-p-M6x30-PO	32	M6	22.5	14	4	30	1.5	12.5	19
166401	VC.692/40-SST-p-M8x20-PO	40	M8	26	15	5	20	1.8	14	28
166403	VC.692/40-SST-p-M8x30-PO	40	M8	26	15	5	30	1.8	14	32
166405	VC.692/40-SST-p-M8x40-PO	40	M8	26	15	5	40	1.8	14	36
166511	VC.692/50-SST-p-M10x20-PO	50	M10	31	18	6	20	2	17	47
166513	VC.692/50-SST-p-M10x30-PO	50	M10	31	18	6	30	2	17	57
166515	VC.692/50-SST-p-M10x40-PO	50	M10	31	18	6	40	2	17	66

VC.692-SST-p-PB — STAINLESS STEEL

Code	Description	D	d6g	L	d1	d2	l	l1	l2	⚖
166182	VC.692/25 SST-p-M5x16-PB	25	M5	20	12	3	16	1.5	10	12
166184	VC.692/25 SST-p-M5x25-PB	25	M5	20	12	3	25	1.5	10	12
166292	VC.692/32-SST-p-M6x16-PB	32	M6	22.5	14	4	16	1.5	12.5	16
166293	VC.692/32-SST-p-M6x20-PB	32	M6	22.5	14	4	20	1.5	12.5	17
166294	VC.692/32-SST-p-M6x30-PB	32	M6	22.5	14	4	30	1.5	12.5	20
166411	VC.692/40-SST-p-M8x20-PB	40	M8	26	15	5	20	1.8	14	29
166413	VC.692/40-SST-p-M8x30-PB	40	M8	26	15	5	30	1.8	14	33
166415	VC.692/40-SST-p-M8x40-PB	40	M8	26	15	5	40	1.8	14	37
166521	VC.692/50-SST-p-M10x20-PB	50	M10	31	18	6	20	2	17	48
166523	VC.692/50-SST-p-M10x30-PB	50	M10	31	18	6	30	2	17	58
166525	VC.692/50-SST-p-M10x40-PB	50	M10	31	18	6	40	2	17	67

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Lobe knobs

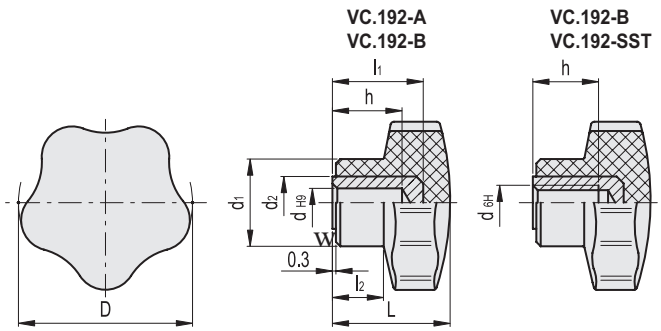
Duroplast, easy cleaning

MATERIAL
Phenolic based (PF) Duroplast, black colour, glossy finish.

STANDARD EXECUTIONS
- **VC.192-A:** black-oxide steel boss, plain blind hole.
- **VC.192-B:** brass boss, plain or threaded blind hole.
- **VC.192-SST:** AISI 303 stainless steel boss, threaded blind hole.
- **VC.192-p:** zinc-plated steel threaded stud, chamfered flat end according to UNI 947 : ISO 4753 (see Technical data on page A11).
- **VC.192-SST-p:** AISI 303 stainless steel threaded stud, chamfered flat end according to UNI 947 : ISO 4753 (see Technical data on page A11).



ELESA Original design



VC.192-A

Code	Description	D	dH9	L	d1	d2	l1	l2	h	⚖
66401	VC.192/50 A-6	50	6	33	25	15	23	14	18	65
66411	VC.192/50 A-8	50	8	33	25	15	25	14	20	57
66441	VC.192/50 A-10	50	10	33	25	16	25	14	21	60
66501	VC.192/60 A-6	60	6	37	27	18	28	17	20	104
66511	VC.192/60 A-8	60	8	37	27	15	25	17	25	89
66541	VC.192/60 A-10	60	10	37	27	18	31	17	25	100
66601	VC.192/70 A-8	70	8	44	30	20	35	20	26	165
66611	VC.192/70 A-10	70	10	44	30	18	31	20	25	135
66701	VC.192/85 A-8	85	8	55	35	22	38	30	25	240
66801	VC.192/100 A-8	100	8	60	38	22	38	31	25	310

VC.192-SST **STAINLESS STEEL**

Code	Description	D	d6H	L	d1	l2	h	⚖
66226	VC.192/30-SST-M6	32	M6	23	19	11	12	18
66346	VC.192/40-SST-M8	40	M8	27	21	12	13	30
66476	VC.192/50-SST-M10	50	M10	33	25	14	17	50
66556	VC.192/60-SST-M12	60	M12	37	27	17	20	78

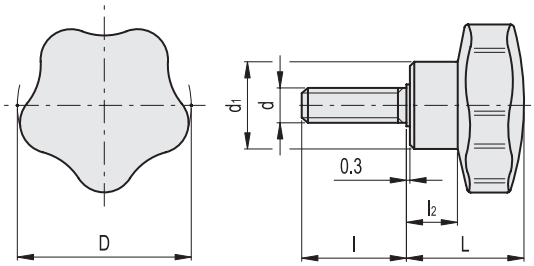
VC.192-B

Code	Description	D	d6H	dH9	L	d1	d2	l1	l2	h	⚖
66101	VC.192/25 B-4	25	-	4	21	15	11	14	9	11	15
66111	VC.192/25 B-M4	25	M4	-	21	15	-	-	9	10	11
66201	VC.192/30 B-6	32	-	6	23	19	12	17	11	14	23
66221	VC.192/30 B-M5	32	M5	-	23	19	-	-	11	10	16
66222	VC.192/30 B-M6	32	M6	-	23	19	-	-	11	12	19
66301	VC.192/40 B-6	40	-	6	27	21	12	17	12	14	35
66331	VC.192/40 B-8	40	-	8	27	21	12	18	12	14	32
66341	VC.192/40 B-M6	40	M6	-	27	21	-	-	12	12	27
66342	VC.192/40 B-M8	40	M8	-	27	21	-	-	12	13	31
66451	VC.192/50 B-6	50	-	6	33	25	15	23	14	18	67
66461	VC.192/50 B-8	50	-	8	33	25	15	25	14	20	65
66471	VC.192/50 B-M8	50	M8	-	33	25	-	-	14	20	50
66472	VC.192/50 B-M10	50	M10	-	33	25	-	-	14	17	52
66551	VC.192/60 B-M10	60	M10	-	37	27	-	-	17	17	76
66552	VC.192/60 B-M12	60	M12	-	37	27	-	-	17	20	80
66641	VC.192/70 B-M12	70	M12	-	44	30	-	-	20	20	119
66642	VC.192/70 B-M14	70	M14	-	44	30	-	-	20	20	122
66721	VC.192/85 B-M16	85	M16	-	55	35	-	-	30	22	176
66821	VC.192/100 B-M16	100	M16	-	60	38	-	-	31	22	255

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VC.192 | Lobe knobs

VC.192-p
VC.192-SST-p



VC.192-p

Code	Description	D	d6g	L	d1	l	l2	⚖
66121	VC.192/25 p-M5x10	25	M5	21	15	10	9	11
66122	VC.192/25 p-M5x16	25	M5	21	15	16	9	12
66131	VC.192/25 p-M6x10	25	M6	21	15	10	9	10
66132	VC.192/25 p-M6x16	25	M6	21	15	16	9	12
66133	VC.192/25 p-M6x20	25	M6	21	15	20	9	14
66134	VC.192/25 p-M6x30	25	M6	21	15	30	9	18
66231	VC.192/30 p-M6x10	32	M6	23	19	10	11	17
66232	VC.192/30 p-M6x16	32	M6	23	19	16	11	18
66233	VC.192/30 p-M6x20	32	M6	23	19	20	11	20
66234	VC.192/30 p-M6x35	32	M6	23	19	35	11	25
66241	VC.192/30 p-M8x20	32	M8	23	19	20	11	24
66242	VC.192/30 p-M8x30	32	M8	23	19	30	11	27
66243	VC.192/30 p-M8x40	32	M8	23	19	40	11	29
66351	VC.192/40 p-M6x10	40	M6	27	21	10	12	28
66352	VC.192/40 p-M6x20	40	M6	27	21	20	12	30
66353	VC.192/40 p-M6x30	40	M6	27	21	30	12	32
66361	VC.192/40 p-M8x16	40	M8	27	21	16	12	35
66362	VC.192/40 p-M8x25	40	M8	27	21	25	12	38
66363	VC.192/40 p-M8x35	40	M8	27	21	35	12	40
66364	VC.192/40 p-M8x45	40	M8	27	21	45	12	43
66481	VC.192/50 p-M8x16	50	M8	33	25	16	14	52
66482	VC.192/50 p-M8x20	50	M8	33	25	20	14	53
66483	VC.192/50 p-M8x25	50	M8	33	25	25	14	55
66484	VC.192/50 p-M8x30	50	M8	33	25	30	14	56
66485	VC.192/50 p-M8x40	50	M8	33	25	40	14	60
66491	VC.192/50 p-M10x20	50	M10	33	25	20	14	63
66492	VC.192/50 p-M10x30	50	M10	33	25	30	14	66
66493	VC.192/50 p-M10x40	50	M10	33	25	40	14	70
66494	VC.192/50 p-M10x50	50	M10	33	25	50	14	73
66561	VC.192/60 p-M10x20	60	M10	37	27	20	17	87
66562	VC.192/60 p-M10x30	60	M10	37	27	30	17	92
66563	VC.192/60 p-M10x40	60	M10	37	27	40	17	98
66564	VC.192/60 p-M10x50	60	M10	37	27	50	17	101
66571	VC.192/60 p-M12x25	60	M12	37	27	25	17	105
66572	VC.192/60 p-M12x30	60	M12	37	27	30	17	110
66573	VC.192/60 p-M12x40	60	M12	37	27	40	17	118
66574	VC.192/60 p-M12x50	60	M12	37	27	50	17	128
66651	VC.192/70 p-M12x30	70	M12	44	30	30	20	140
66652	VC.192/70 p-M12x50	70	M12	44	30	50	20	160
66653	VC.192/70 p-M12x60	70	M12	44	30	60	20	165
66654	VC.192/70 p-M12x70	70	M12	44	30	70	20	175
66661	VC.192/70 p-M14x50	70	M14	44	30	50	20	180
66662	VC.192/70 p-M14x70	70	M14	44	30	70	20	200
66731	VC.192/85 p-M16x50	85	M16	55	35	50	30	290

VC.192-SST-p **STAINLESS STEEL**

Code	Description	D	d6g	L	d1	l	l2	⚖
66261	VC.192/30-SST-p-M6x10	32	M6	23	19	10	11	17
66262	VC.192/30-SST-p-M6x16	32	M6	23	19	16	11	18
66263	VC.192/30-SST-p-M6x20	32	M6	23	19	20	11	20
66268	VC.192/30-SST-p-M6x35	32	M6	23	19	35	11	25
66381	VC.192/40-SST-p-M8x20	40	M8	27	21	20	12	37
66382	VC.192/40-SST-p-M8x25	40	M8	27	21	25	12	38
66383	VC.192/40-SST-p-M8x30	40	M8	27	21	30	12	39
66384	VC.192/40-SST-p-M8x35	40	M8	27	21	35	12	40
66388	VC.192/40-SST-p-M8x45	40	M8	27	21	45	12	43
66496	VC.192/50-SST-p-M10x20	50	M10	33	25	20	14	63
66497	VC.192/50-SST-p-M10x30	50	M10	33	25	30	14	66
66498	VC.192/50-SST-p-M10x40	50	M10	33	25	40	14	70
66499	VC.192/50-SST-p-M10x50	50	M10	33	25	50	14	73
66591	VC.192/60-SST-p-M12x30	60	M12	37	27	30	17	110
66593	VC.192/60-SST-p-M12x40	60	M12	37	27	40	17	118
66595	VC.192/60-SST-p-M12x50	60	M12	37	27	50	17	128
66671	VC.192/70-SST-p-M12x70	70	M12	44	30	70	20	175

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VC.253

Shortened lobe knobs

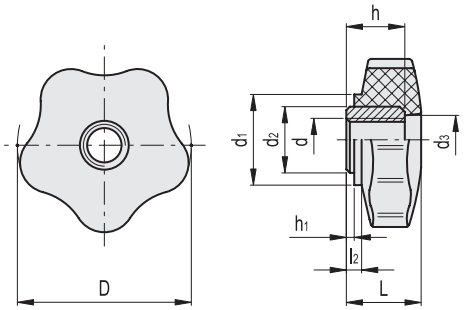
Duroplast

MATERIAL
Phenolic based (PF) Duroplast, black colour, glossy finish.

STANDARD EXECUTION
Black-oxide steel boss, threaded pass-through hole.



ELESA Original design



Code	Description	D	d6H	L	d1	d2	d3	l2	h	h1	⚖
66951	VC.253/40 A-M8	40	M8	19	23	17	14	3	15	1.5	38
67001	VC.253/40 A-M10	40	M10	19	23	17	14	3	15	1.5	34
67011	VC.253/40 A-M12	40	M12	19	23	17	14	3	15	1.5	30
67101	VC.253/50 A-M12	50	M12	21	26	19	14	3	16	1.5	50
67201	VC.253/60 A-M12	60	M12	24	30	19	16	4	16	1.5	75
67301	VC.253/85 A-M14	85	M14	30	32	18	18	6	22	1.5	135

VC.254

Lobe knobs

Duroplast

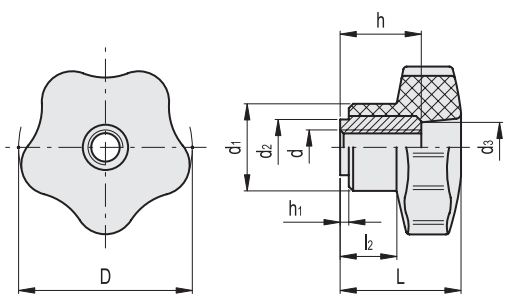
MATERIAL
Phenolic based (PF) Duroplast, black colour, glossy finish.

STANDARD EXECUTION
Brass boss, threaded pass-through hole and large metal locking face.

CONFORMITY
UNI 6960-71 type B with pass-through hole.



ELESA Original design



Code	Description	D	d6H	L	d1	d2	d3	l2	h	h1	⚖
67501	VC.254/40 B-M6	40	M6	28	21	14	13	13	18	1.5	42
67511	VC.254/40 B-M8	40	M8	28	21	14	13	13	18	1.5	38
67521	VC.254/40 B-M10	40	M10	28	21	14	13	13	18	1.5	34
67601	VC.254/50 B-M10	50	M10	34	25	16	13	15	22	1.5	62
67611	VC.254/50 B-M12	50	M12	34	25	16	13	15	22	1.5	55
67701	VC.254/60 B-M10	60	M10	38	27	17	15	18	26	1.5	97
67711	VC.254/60 B-M12	60	M12	38	27	17	15	18	26	1.5	90
67721	VC.254/60 B-M14	60	M14	38	27	17	15	18	26	1.5	85
67801	VC.254/70 B-M12	70	M12	45	30	17	17	21	26	1.5	125
67811	VC.254/70 B-M14	70	M14	45	30	17	17	21	26	1.5	115
67901	VC.254/85 B-M16	85	M16	56	35	24	18	32	35	2	210

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GN 5334

Stainless Steel-Star knobs

Stainless Steel AISI 304 (A2)

SPECIFICATION

Version with female thread:

Types

- Type **E**: with threaded blind bore
- Type **C**: with plain blind bore H7

Stainless Steel AISI 304 (A2)

Stainless Steel AISI 316L (A4)

- Knob drawn from Stainless Steel sheet
- Hub welded
- matt shot-blasted

Version with threaded bolt:

Stainless Steel AISI 304 (A2)

Stainless Steel AISI 316L (A4)

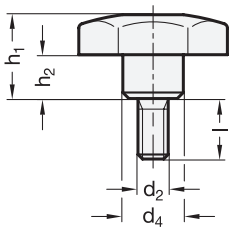
- Knob drawn from Stainless Steel sheet
- Hub with threaded bolt welded
- matt shot-blasted

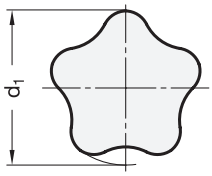
INFORMATION

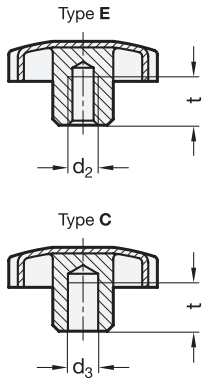
The original ELESA design with 5 recess grips is typical for GN 5334 star knobs.
This form gives these grips an appealing look and additionally allows a high torque to be achieved.

TECHNICAL INFORMATION

- Cross holes GN 110 (see pageA17)
- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)







GN 5334-with female thread — STAINLESS STEEL

Description	d1	d2	d3 H7	d4	h1 ≈	h2 ≈	t min.	⚖
GN 5334-40-B8-C	40	-	B 8	14	24	12	15	36
GN 5334-50-B10-C	50	-	B 10	18	30	16.5	18	67
GN 5334-60-B12-C	60	-	B 12	20	37.5	20	22	110
GN 5334-40-M8-E	40	M 8	-	14	24	12	15	38
GN 5334-50-M10-E	50	M 10	-	18	30	16.5	18	69
GN 5334-60-M12-E	60	M 12	-	20	37.5	20	22	112

GN 5334-with threaded bolt — STAINLESS STEEL

Description	d1	d2	l	d4	h1 ≈	h2 ≈	⚖
GN 5334-40-M8-20	40	M 8	20	14	24	12	50
GN 5334-40-M8-30	40	M 8	30	14	24	12	53
GN 5334-40-M8-40	40	M 8	40	14	24	12	57
GN 5334-50-M10-20	50	M 10	20	18	30	16.5	91
GN 5334-50-M10-30	50	M 10	30	18	30	16.5	96
GN 5334-50-M10-40	50	M 10	40	18	30	16.5	101
GN 5334-60-M12-20	60	M 12	20	20	37.5	20	155
GN 5334-60-M12-30	60	M 12	30	20	37.5	20	155
GN 5334-60-M12-40	60	M 12	40	20	37.5	20	161
GN 5334-60-M12-50	60	M 12	50	20	37.5	20	170

GN 5334.4

Stainless Steel-Star knobs

Stainless Steel AISI 316L (A4)



GN 5334.4-with female thread — STAINLESS STEEL

Description	d1	d2	d3 H7	d4	h1 ≈	h2 ≈	t min.	⚖
GN 5334.4-40-B8-C	40	-	B 8	14	24	12	15	37
GN 5334.4-50-B10-C	50	-	B 10	18	30	16.5	18	67
GN 5334.4-60-B12-C	60	-	B 12	20	37.5	20	22	109
GN 5334.4-40-M8-E	40	M 8	-	14	24	12	15	37
GN 5334.4-50-M10-E	50	M 10	-	18	30	16.5	18	68
GN 5334.4-60-M12-E	60	M 12	-	20	37.5	20	22	114

GN 5334.4-with threaded bolt — STAINLESS STEEL

Description	d1	d2	l	d4	h1 ≈	h2 ≈	⚖
GN 5334.4-40-M8-20	40	M 8	20	14	24	12	43
GN 5334.4-40-M8-30	40	M 8	30	14	24	12	53
GN 5334.4-40-M8-40	40	M 8	40	14	24	12	57
GN 5334.4-50-M10-20	50	M 10	20	18	30	16.5	91
GN 5334.4-50-M10-30	50	M 10	30	18	30	16.5	97
GN 5334.4-50-M10-40	50	M 10	40	18	30	16.5	110
GN 5334.4-60-M12-20	60	M 12	20	20	37.5	20	155
GN 5334.4-60-M12-30	60	M 12	30	20	37.5	20	155
GN 5334.4-60-M12-40	60	M 12	40	20	37.5	20	161
GN 5334.4-60-M12-50	60	M 12	50	20	37.5	20	170

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Star knobs

Aluminium

SPECIFICATION

Types

- Type **A**: without bore
- Type **C**: with plain blind bore H7
- Type **D**: with threaded through bore
- Type **E**: with threaded blind bore

Aluminium

- matt finish (ground), flash mark not visible **MT**
- polished **PL**

Type **A** (without bore) is only available with a matt finish (**MT**)

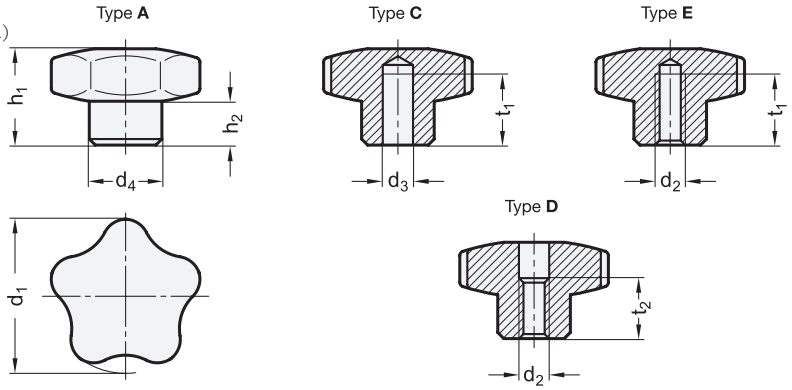


INFORMATION

Star knobs GN 5336 are forged, therefore a close grain structure is maintained providing a high tensile strength and a smooth surface. Original ELESA design, now produced in metal in agreement with ELESA s.p.a.

TECHNICAL INFORMATION

- Cross holes GN 110 (see page A17)
- ISO-Fundamental Tolerances (see page A21)



*Complete with surface index of the star knob (MT or PL)

MT	PL
Matt finish	Polished

GN 5336

Description	d1	d2	d3 H7	d4 -0.5	h1	h1 -1	h2 ≈	t1 min.	t2	⚖
GN 5336-40-A-MT	40	-	-	15	-	26	12.5	-	-	31
GN 5336-50-A-MT	50	-	-	19	-	33	16	-	-	69
GN 5336-60-A-MT	60	-	-	21	-	41	20	-	-	101
GN 5336-70-A-MT	70	-	-	26	-	47	23	-	-	163
GN 5336-40-B8-C-*	40	-	B 8	15	25	-	12.5	15	-	32
GN 5336-50-B10-C-*	50	-	B 10	19	32	-	16	18	-	62
GN 5336-60-B12-C-*	60	-	B 12	21	40	-	20	22	-	110
GN 5336-70-B16-C-*	70	-	B 16	26	46	-	23	28	-	144
GN 5336-40-M8-D-*	40	M 8	-	15	25	-	12.5	-	15	32
GN 5336-50-M10-D-*	50	M 10	-	19	32	-	16	-	20	60
GN 5336-60-M12-D-*	60	M 12	-	21	40	-	20	-	26	90
GN 5336-70-M16-D-*	70	M 16	-	26	46	-	23	-	32	174
GN 5336-40-M6-E-*	40	M 6	-	15	25	-	12.5	15	-	35
GN 5336-40-M8-E-*	40	M 8	-	15	25	-	12.5	15	-	33
GN 5336-50-M8-E-*	50	M 8	-	19	32	-	16	18	-	63
GN 5336-50-M10-E-*	50	M 10	-	19	32	-	16	18	-	61
GN 5336-60-M10-E-*	60	M 10	-	21	40	-	20	22	-	115
GN 5336-60-M12-E-*	60	M 12	-	21	40	-	20	22	-	100
GN 5336-70-M12-E-*	70	M 12	-	26	46	-	23	28	-	174
GN 5336-70-M16-E-*	70	M 16	-	26	46	-	23	28	-	165

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GN 5335.4

Stainless Steel-Star knobs

Stainless Steel AISI 316L (A4)

SPECIFICATION

Types

- Type **A**: without bore
- Type **E**: with threaded blind bore
- Type **D**: with threaded through bore
- Type **C**: with plain blind bore H7

Stainless Steel AISI 316L (A4)
matt shot-blasted

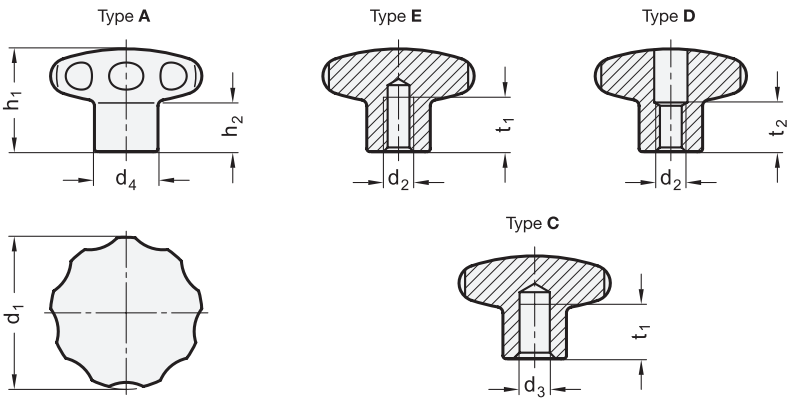


INFORMATION

Stainless Steel-Star knobs GN 5335.4 are a special development intended for the food processing machinery industry. The smooth and enclosed areas as well as the large corner radii comply with the requirements of hygiene standards.

TECHNICAL INFORMATION

- Cross holes GN 110 (see page A17)
- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)



GN 5335.4 — **STAINLESS STEEL**

Description	d1	d2	d3 H7	d4	h1	h2	t1 min.	t2	⚖
GN 5335.4-40-A	40	-	-	18	30.5	15	-	-	130
GN 5335.4-50-A	50	-	-	21	34	17	-	-	220
GN 5335.4-60-A	60	-	-	25	39	18	-	-	388
GN 5335.4-40-B8-C	40	-	B 8	18	30.5	15	15	-	125
GN 5335.4-50-B10-C	50	-	B 10	21	34	17	18	-	205
GN 5335.4-60-B12-C	60	-	B 12	25	39	18	22	-	366
GN 5335.4-40-M6-D	40	M 6	-	18	30.5	15	-	13	132
GN 5335.4-40-M8-D	40	M 8	-	18	30.5	15	-	13	150
GN 5335.4-50-M8-D	50	M 8	-	21	34	17	-	16	225
GN 5335.4-50-M10-D	50	M 10	-	21	34	17	-	16	205
GN 5335.4-60-M10-D	60	M 10	-	25	39	18	-	20	360
GN 5335.4-60-M12-D	60	M 12	-	25	39	18	-	20	366
GN 5335.4-40-M6-E	40	M 6	-	18	30.5	15	12	-	140
GN 5335.4-40-M8-E	40	M 8	-	18	30.5	15	15	-	225
GN 5335.4-50-M8-E	50	M 8	-	21	34	17	15	-	150
GN 5335.4-50-M10-E	50	M 10	-	21	34	17	18	-	218
GN 5335.4-60-M10-E	60	M 10	-	25	39	18	18	-	367
GN 5335.4-60-M12-E	60	M 12	-	25	39	18	22	-	367

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Stainless Steel-Star knobs

Stainless Steel AISI 303 (A2)



SPECIFICATION

Version with female thread:

Types

- Type **A**: without bore
- Type **E**: with threaded blind bore
- Type **D**: with threaded through bore
- Type **C**: with plain blind bore H7

Stainless Steel AISI 303

- matt shot-blasted
- highly polished PL (only type D and E)

Version with threaded bolt:

Stainless Steel AISI 303

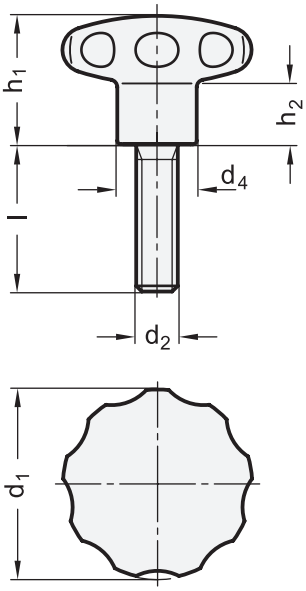
- matt shot-blasted

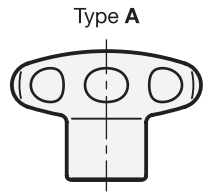
INFORMATION

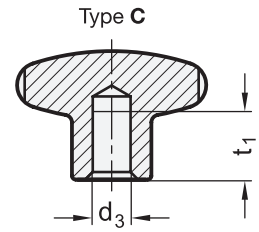
Stainless Steel-Star knobs GN 5335 are a special development intended for the food processing machinery industry. The smooth and enclosed areas as well as the large corner radii comply with the requirements of hygiene standards.

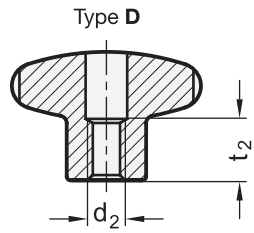
TECHNICAL INFORMATION

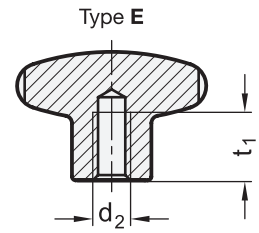
- Cross holes GN 110 (see page A17)
- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)











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GN 5335 | Stainless Steel-Star knobs

GN 5335-with female thread STAINLESS STEEL

Description	d1	d2	d3 H7	d4	h1	h2	t1 min.	t2	⚖
GN 5335-40-A	40	-	-	18	30.5	15	-	-	130
GN 5335-50-A	50	-	-	21	34	17	-	-	220
GN 5335-60-A	60	-	-	25	39	18	-	-	388
GN 5335-40-B8-C	40	-	B 8	18	30.5	15	15	-	125
GN 5335-50-B10-C	50	-	B 10	21	34	17	18	-	205
GN 5335-60-B12-C	60	-	B 12	25	39	18	22	-	366
GN 5335-40-M6-D	40	M 6	-	18	30.5	15	-	13	132
GN 5335-40-M8-D	40	M 8	-	18	30.5	15	-	13	130
GN 5335-50-M8-D	50	M 8	-	21	34	17	-	16	225
GN 5335-50-M10-D	50	M 10	-	21	34	17	-	16	205
GN 5335-60-M10-D	60	M 10	-	25	39	18	-	20	370
GN 5335-60-M12-D	60	M 12	-	25	39	18	-	20	366
GN 5335-40-M6-E	40	M 6	-	18	30.5	15	12	-	140
GN 5335-40-M8-E	40	M 8	-	18	30.5	15	15	-	135
GN 5335-50-M8-E	50	M 8	-	21	34	17	15	-	240
GN 5335-50-M10-E	50	M 10	-	21	34	17	18	-	208
GN 5335-60-M10-E	60	M 10	-	25	39	18	18	-	391
GN 5335-60-M12-E	60	M 12	-	25	39	18	22	-	389
GN 5335-40-M6-D-PL	40	M 6	-	18	30.5	15	-	13	132
GN 5335-40-M8-D-PL	40	M 8	-	18	30.5	15	-	13	130
GN 5335-50-M8-D-PL	50	M 8	-	21	34	17	-	16	225
GN 5335-50-M10-D-PL	50	M 10	-	21	34	17	-	16	205
GN 5335-60-M10-D-PL	60	M 10	-	25	39	18	-	20	370
GN 5335-60-M12-D-PL	60	M 12	-	25	39	18	-	20	366
GN 5335-40-M6-E-PL	40	M 6	-	18	30.5	15	12	-	140
GN 5335-40-M8-E-PL	40	M 8	-	18	30.5	15	15	-	140
GN 5335-50-M8-E-PL	50	M 8	-	21	34	17	15	-	240
GN 5335-50-M10-E-PL	50	M 10	-	21	34	17	18	-	240
GN 5335-60-M10-E-PL	60	M 10	-	25	39	18	18	-	391
GN 5335-60-M12-E-PL	60	M 12	-	25	39	18	22	-	400

GN 5335-with threaded bolt STAINLESS STEEL

Description	d1	d2	l	d4	h1	h2	⚖
GN 5335-40-M8-16	40	M 8	16	18	30.5	15	140
GN 5335-40-M8-20	40	M 8	20	18	30.5	15	151
GN 5335-40-M8-25	40	M 8	25	18	30.5	15	180
GN 5335-50-M10-20	50	M 10	20	21	34	17	245
GN 5335-50-M10-25	50	M 10	25	21	34	17	247
GN 5335-50-M10-30	50	M 10	30	21	34	17	260
GN 5335-60-M12-25	60	M 12	25	25	39	18	420
GN 5335-60-M12-30	60	M 12	30	25	39	18	426
GN 5335-60-M12-40	60	M 12	40	25	39	18	441

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DIN 6335

Hand knobs

Cast iron / Stainless Steel / Aluminium



SPECIFICATION

Types

- Type **A**: without bore
- Type **B**: with plain through bore H7
- Type **C**: with plain blind bore H7
- Type **D**: with threaded through bore
- Type **E**: with threaded blind bore

Cast iron **GG**
fettled and tumbled

Stainless Steel precision casting **NI**
only types A, D, E

- AISI CF-8
- matt shot-blasted

Aluminium **AL**
only types A, C, D, E

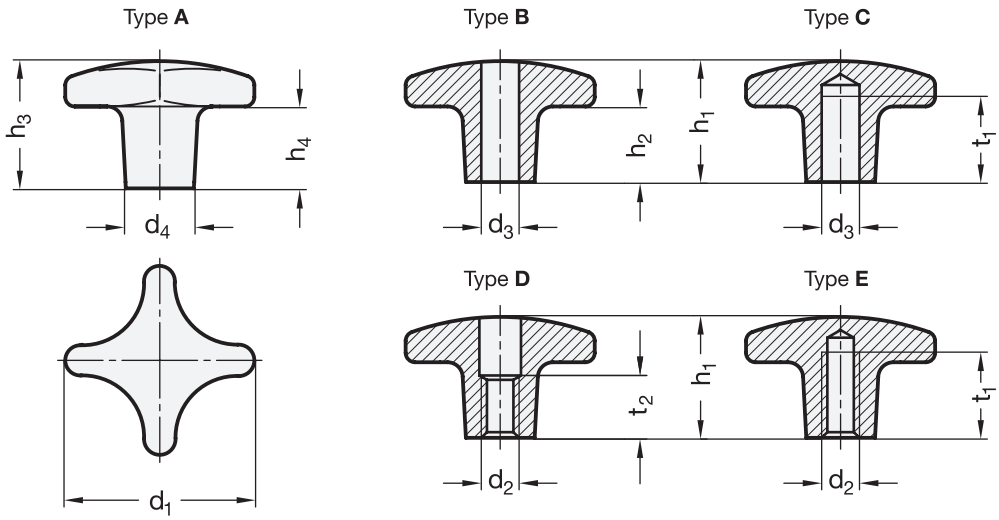
- matt finish (ground), flash mark not visible **MT**
- polished **PL**

ON REQUEST

- plastic coated

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)



DIN 6335-NI — **STAINLESS STEEL**

Description	d1	d2	d4	h1	h2	h3	h4	t1 min.	t2	⚖
DIN 6335-NI-32-A	32	-	12	-	-	21	10	-	-	41
DIN 6335-NI-40-A	40	-	14	-	-	26	14	-	-	71
DIN 6335-NI-50-A	50	-	18	-	-	34	20	-	-	128
DIN 6335-NI-63-A	63	-	20	-	-	42	25	-	-	228
DIN 6335-NI-32-M6-D	32	M 6	12	20	9	-	-	-	10	36
DIN 6335-NI-40-M8-D	40	M 8	14	25	13	-	-	-	12	60
DIN 6335-NI-50-M10-D	50	M 10	18	32	18	-	-	-	16	108
DIN 6335-NI-63-M12-D	63	M 12	20	40	23	-	-	-	20	192
DIN 6335-NI-32-M6-E	32	M 6	12	20	9	-	-	12	-	38
DIN 6335-NI-40-M8-E	40	M 8	14	25	13	-	-	15	-	62
DIN 6335-NI-50-M10-E	50	M 10	18	32	18	-	-	18	-	119
DIN 6335-NI-63-M12-E	63	M 12	20	40	23	-	-	22	-	205

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DIN 6335 | Hand knobs

*Complete with surface index of the hand knob (MT or PL)

MT Matt finish
PL Polished

DIN 6335-AL

Description	d1	d2	d3 H7	d4	h1	h2	h3	h4	t1 min.	t2	⚖
DIN 6335-AL-40-A	40	-	-	14	-	-	26	14	-	-	25
DIN 6335-AL-50-A	50	-	-	18	-	-	34	20	-	-	53
DIN 6335-AL-63-A	63	-	-	20	-	-	42	25	-	-	85
DIN 6335-AL-80-A	80	-	-	25	-	-	52	30	-	-	165
DIN 6335-AL-40-B8-C-*	40	-	B 8	14	25	13	-	-	15	-	22
DIN 6335-AL-50-B10-C-*	50	-	B 10	18	32	18	-	-	18	-	44
DIN 6335-AL-63-B12-C-*	63	-	B 12	20	40	23	-	-	22	-	72
DIN 6335-AL-80-B16-C-*	80	-	B 16	25	50	28	-	-	28	-	140
DIN 6335-AL-40-M8-D-*	40	M 8	-	14	25	13	-	-	-	12	23
DIN 6335-AL-50-M10-D-*	50	M 10	-	18	32	18	-	-	-	16	44
DIN 6335-AL-63-M12-D-*	63	M 12	-	20	40	23	-	-	-	20	70
DIN 6335-AL-80-M16-D-*	80	M 16	-	25	50	28	-	-	-	30	135
DIN 6335-AL-40-M8-E-*	40	M 8	-	14	25	13	-	-	15	-	24
DIN 6335-AL-50-M10-E-*	50	M 10	-	18	32	18	-	-	18	-	46
DIN 6335-AL-63-M12-E-*	63	M 12	-	20	40	23	-	-	22	-	74
DIN 6335-AL-80-M16-E-*	80	M 16	-	25	50	28	-	-	28	-	145

DIN 6335-GG

Description	d1	d2	d3 H7	d4	h1	h2	h3	h4	t1 min.	t2	⚖
DIN 6335-GG-32-A	32	-	-	12	-	-	21	10	-	-	30
DIN 6335-GG-40-A	40	-	-	14	-	-	26	14	-	-	61
DIN 6335-GG-50-A	50	-	-	18	-	-	34	20	-	-	119
DIN 6335-GG-63-A	63	-	-	20	-	-	42	25	-	-	220
DIN 6335-GG-80-A	80	-	-	25	-	-	52	30	-	-	308
DIN 6335-GG-100-A	100	-	-	32	-	-	65	38	-	-	800
DIN 6335-GG-32-B6-B	32	-	B 6	12	20	9	-	-	-	-	31
DIN 6335-GG-40-B8-B	40	-	B 8	14	25	13	-	-	-	-	47
DIN 6335-GG-50-B10-B	50	-	B 10	18	32	18	-	-	-	-	99
DIN 6335-GG-63-B12-B	63	-	B 12	20	40	23	-	-	-	-	158
DIN 6335-GG-80-B16-B	80	-	B 16	25	50	28	-	-	-	-	332
DIN 6335-GG-100-B20-B	100	-	B 20	32	63	36	-	-	-	-	682
DIN 6335-GG-32-B6-C	32	-	B 6	12	20	9	-	-	12	-	29
DIN 6335-GG-40-B8-C	40	-	B 8	14	25	13	-	-	15	-	50
DIN 6335-GG-50-B10-C	50	-	B 10	18	32	18	-	-	18	-	103
DIN 6335-GG-63-B12-C	63	-	B 12	20	40	23	-	-	22	-	169
DIN 6335-GG-80-B16-C	80	-	B 16	25	50	28	-	-	28	-	341
DIN 6335-GG-100-B20-C	100	-	B 20	32	63	36	-	-	36	-	682
DIN 6335-GG-32-M6-D	32	M 6	-	12	20	9	-	-	-	10	33
DIN 6335-GG-40-M8-D	40	M 8	-	14	25	13	-	-	-	12	53
DIN 6335-GG-50-M10-D	50	M 10	-	18	32	18	-	-	-	16	100
DIN 6335-GG-63-M12-D	63	M 12	-	20	40	23	-	-	-	20	170
DIN 6335-GG-80-M16-D	80	M 16	-	25	50	28	-	-	-	30	300
DIN 6335-GG-100-M20-D	100	M 20	-	32	63	36	-	-	-	38	600
DIN 6335-GG-32-M6-E	32	M 6	-	12	20	9	-	-	12	-	34
DIN 6335-GG-40-M8-E	40	M 8	-	14	25	13	-	-	15	-	51
DIN 6335-GG-50-M10-E	50	M 10	-	18	32	18	-	-	18	-	100
DIN 6335-GG-63-M12-E	63	M 12	-	20	40	23	-	-	22	-	200
DIN 6335-GG-80-M16-E	80	M 16	-	25	50	28	-	-	28	-	350
DIN 6335-GG-100-M20-E	100	M 20	-	32	63	36	-	-	36	-	800

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GN 6335.4

Hand knobs

Cast iron / Threaded bolt, Steel

SPECIFICATION

Type

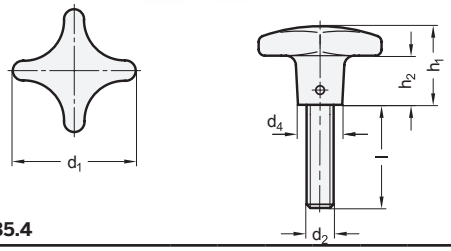
Type **SG**: Hand knobs DIN 6335 cast iron (GG) (see page 234)

The threaded bolt is screwed in and secured by a cross-dowel.

INFORMATION

Should clamping with the bush face be necessary, then it is recommendable to use this hand knobs.





GN 6335.4

Description	d1	d2	l ≈	d4	h1	h2	⚖
GN 6335.4-SG-32-M6-16	32	M 6	16	12	20	9	34
GN 6335.4-SG-32-M6-20	32	M 6	20	12	20	9	35
GN 6335.4-SG-32-M6-25	32	M 6	25	12	20	9	36
GN 6335.4-SG-32-M6-30	32	M 6	30	12	20	9	37
GN 6335.4-SG-32-M6-35	32	M 6	35	12	20	9	38
GN 6335.4-SG-32-M6-45	32	M 6	45	12	20	9	40
GN 6335.4-SG-40-M8-15	40	M 8	15	14	25	13	58
GN 6335.4-SG-40-M8-20	40	M 8	20	14	25	13	60
GN 6335.4-SG-40-M8-25	40	M 8	25	14	25	13	61
GN 6335.4-SG-40-M8-30	40	M 8	30	14	25	13	63
GN 6335.4-SG-40-M8-40	40	M 8	40	14	25	13	66
GN 6335.4-SG-40-M8-55	40	M 8	55	14	25	13	70
GN 6335.4-SG-50-M10-25	50	M 10	25	18	32	18	124
GN 6335.4-SG-50-M10-30	50	M 10	30	18	32	18	126
GN 6335.4-SG-50-M10-35	50	M 10	35	18	32	18	129
GN 6335.4-SG-50-M10-45	50	M 10	45	18	32	18	134
GN 6335.4-SG-50-M10-55	50	M 10	55	18	32	18	139
GN 6335.4-SG-63-M12-30	63	M 12	30	20	40	23	206
GN 6335.4-SG-63-M12-35	63	M 12	35	20	40	23	208
GN 6335.4-SG-63-M12-40	63	M 12	40	20	40	23	211
GN 6335.4-SG-63-M12-50	63	M 12	50	20	40	23	218
GN 6335.4-SG-63-M12-60	63	M 12	60	20	40	23	225
GN 6335.4-SG-80-M16-30	80	M 16	30	25	50	28	4106
GN 6335.4-SG-80-M16-40	80	M 16	40	25	50	28	430
GN 6335.4-SG-80-M16-50	80	M 16	50	25	50	28	452
GN 6335.4-SG-80-M16-60	80	M 16	60	25	50	28	452
GN 6335.4-SG-80-M16-70	80	M 16	70	25	50	28	478

GN 6336.4

Star knobs

Cast iron / Threaded bolt, Steel

SPECIFICATION

Type

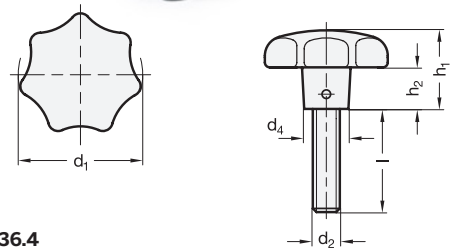
Type **SG**: Star knob DIN 6336 cast iron (GG) (see page 238)

Star knob details and dimensions see: DIN 6336-GG
The threaded bolt is screwed in and secured by a cross-dowel.

INFORMATION

Should clamping with the bush face be necessary, then it is recommendable to use this star knob.





GN 6336.4

Description	d1	d2	l ≈	d4	h1	h2	⚖
GN 6336.4-SG-32-M6-16	32	M 6	16	12	20	9	53
GN 6336.4-SG-32-M6-20	32	M 6	20	12	20	9	54
GN 6336.4-SG-32-M6-25	32	M 6	25	12	20	9	55
GN 6336.4-SG-32-M6-30	32	M 6	30	12	20	9	56
GN 6336.4-SG-32-M6-35	32	M 6	35	12	20	9	57
GN 6336.4-SG-32-M6-45	32	M 6	45	12	20	9	59
GN 6336.4-SG-40-M8-16	40	M 8	16	14	25	12	79
GN 6336.4-SG-40-M8-20	40	M 8	20	14	25	12	81
GN 6336.4-SG-40-M8-25	40	M 8	25	14	25	12	82
GN 6336.4-SG-40-M8-30	40	M 8	30	14	25	12	84
GN 6336.4-SG-40-M8-40	40	M 8	40	14	25	12	87
GN 6336.4-SG-40-M8-55	40	M 8	55	14	25	12	91
GN 6336.4-SG-50-M10-25	50	M 10	25	18	32	15	167
GN 6336.4-SG-50-M10-30	50	M 10	30	18	32	15	169
GN 6336.4-SG-50-M10-35	50	M 10	35	18	32	15	172
GN 6336.4-SG-50-M10-45	50	M 10	45	18	32	15	177
GN 6336.4-SG-50-M10-55	50	M 10	55	18	32	15	182
GN 6336.4-SG-63-M12-30	63	M 12	30	20	40	19	288
GN 6336.4-SG-63-M12-35	63	M 12	35	20	40	19	292
GN 6336.4-SG-63-M12-40	63	M 12	40	20	40	19	295
GN 6336.4-SG-63-M12-50	63	M 12	50	20	40	19	302
GN 6336.4-SG-63-M12-60	63	M 12	60	20	40	19	309
GN 6336.4-SG-80-M16-30	80	M 16	30	25	50	23	618
GN 6336.4-SG-80-M16-40	80	M 16	40	25	50	23	626
GN 6336.4-SG-80-M16-50	80	M 16	50	25	50	23	630
GN 6336.4-SG-80-M16-60	80	M 16	60	25	50	23	650
GN 6336.4-SG-80-M16-70	80	M 16	70	25	50	23	670

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GN 6335.5

Hand knobs

Aluminium / Stainless Steel



SPECIFICATION

Types

- Type **AM**: Hand knobs DIN 6335, Aluminium (AL), matt (ground)
- Type **AP**: Hand knobs DIN 6335, Aluminium (AL), polished
- Type **ES**: Hand knobs DIN 6335, Stainless Steel precision casting (NI), matt shot-blasted

Hand knobs details and dimensions see:

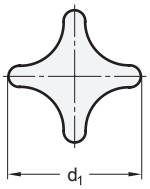
- DIN 6335-AL (see page 234)
- DIN 6335-GG (see page 234)
- DIN 6335-NI (see page 234)

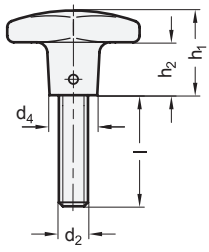
Threaded bolt
Stainless Steel AISI 303

The threaded bolt is screwed in and secured by a cross-dowel.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)





GN 6335.5-AM

Description	d1	d2	l	d4	h1	h2	⚖
GN 6335.5-AM-40-M8-20	40	M 8	20	14	25	13	34
GN 6335.5-AM-40-M8-25	40	M 8	25	14	25	13	36
GN 6335.5-AM-40-M8-30	40	M 8	30	14	25	13	38
GN 6335.5-AM-40-M8-40	40	M 8	40	14	25	13	41
GN 6335.5-AM-50-M10-20	50	M 10	20	18	32	18	63
GN 6335.5-AM-50-M10-25	50	M 10	25	18	32	18	65
GN 6335.5-AM-50-M10-30	50	M 10	30	18	32	18	68
GN 6335.5-AM-50-M10-45	50	M 10	45	18	32	18	75
GN 6335.5-AM-50-M10-55	50	M 10	55	18	32	18	79
GN 6335.5-AM-63-M12-30	63	M 12	30	20	40	23	104
GN 6335.5-AM-63-M12-40	63	M 12	40	20	40	23	111
GN 6335.5-AM-63-M12-50	63	M 12	50	20	40	23	118

GN 6335.5-AP

Description	d1	d2	l	d4	h1	h2	⚖
GN 6335.5-AP-40-M8-20	40	M 8	20	14	25	13	34
GN 6335.5-AP-40-M8-25	40	M 8	25	14	25	13	36
GN 6335.5-AP-40-M8-30	40	M 8	30	14	25	13	37
GN 6335.5-AP-40-M8-40	40	M 8	40	14	25	13	40
GN 6335.5-AP-50-M10-20	50	M 10	20	18	32	18	64
GN 6335.5-AP-50-M10-25	50	M 10	25	18	32	18	65
GN 6335.5-AP-50-M10-30	50	M 10	30	18	32	18	66
GN 6335.5-AP-50-M10-45	50	M 10	45	18	32	18	74
GN 6335.5-AP-50-M10-55	50	M 10	55	18	32	18	79
GN 6335.5-AP-63-M12-30	63	M 12	30	20	40	23	105
GN 6335.5-AP-63-M12-40	63	M 12	40	20	40	23	113
GN 6335.5-AP-63-M12-50	63	M 12	50	20	40	23	118

GN 6335.5-ES **STAINLESS STEEL**

Description	d1	d2	l	d4	h1	h2	⚖
GN 6335.5-ES-40-M8-20	40	M 8	20	14	25	13	72
GN 6335.5-ES-40-M8-25	40	M 8	25	14	25	13	74
GN 6335.5-ES-40-M8-30	40	M 8	30	14	25	13	75
GN 6335.5-ES-40-M8-40	40	M 8	40	14	25	13	79
GN 6335.5-ES-50-M10-20	50	M 10	20	18	32	18	130
GN 6335.5-ES-50-M10-25	50	M 10	25	18	32	18	132
GN 6335.5-ES-50-M10-30	50	M 10	30	18	32	18	135
GN 6335.5-ES-50-M10-45	50	M 10	45	18	32	18	142
GN 6335.5-ES-50-M10-55	50	M 10	55	18	32	18	146
GN 6335.5-ES-63-M12-30	63	M 12	30	20	40	23	236
GN 6335.5-ES-63-M12-40	63	M 12	40	20	40	23	240
GN 6335.5-ES-63-M12-50	63	M 12	50	20	40	23	249

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Star knobs

Cast iron / Stainless Steel / Aluminium



SPECIFICATION

Types

- Type **A**: without bore
- Type **B**: with plain through bore H7
- Type **C**: with plain blind bore H7
- Type **D**: with threaded through bore
- Type **E**: with threaded blind bore

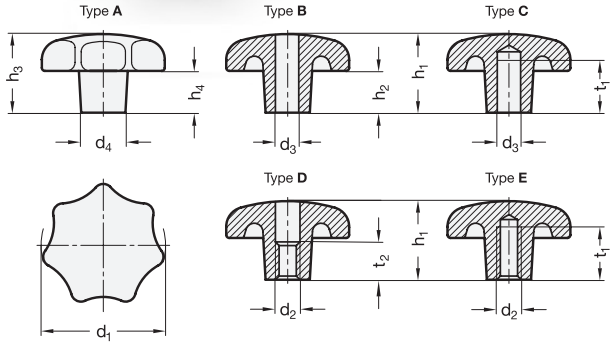
Cast iron **GG**
fettled and tumbled

Stainless Steel precision casting **NI**
only types A, D, E

- AISI CF-8
- matt shot-blasted

Aluminium **AL**
only types A, C, D, E

- matt finish (ground), flash mark not visible **MT**
- polished **PL**



DIN 6336-GG

Description	d1	d2	d3 H7	d4	h1	h2 min.	h3	h4 min.	t1	t2	⚖
DIN 6336-GG-32-A	32	-	-	12	-	-	21	10	-	-	53
DIN 6336-GG-40-A	40	-	-	14	-	-	26	13	-	-	79
DIN 6336-GG-50-A	50	-	-	18	-	-	34	17	-	-	161
DIN 6336-GG-63-A	63	-	-	20	-	-	42	21	-	-	281
DIN 6336-GG-80-A	80	-	-	25	-	-	52	25	-	-	580
DIN 6336-GG-32-B6-B	32	-	B 6	12	20	9	-	-	-	-	42
DIN 6336-GG-40-B8-B	40	-	B 8	14	25	12	-	-	-	-	69
DIN 6336-GG-50-B8-B	50	-	B 8	18	32	15	-	-	-	-	150
DIN 6336-GG-50-B10-B	50	-	B 10	18	32	15	-	-	-	-	120
DIN 6336-GG-63-B10-B	63	-	B 10	20	40	19	-	-	-	-	249
DIN 6336-GG-63-B12-B	63	-	B 12	20	40	19	-	-	-	-	233
DIN 6336-GG-80-B12-B	80	-	B 12	25	50	23	-	-	-	-	546
DIN 6336-GG-80-B16-B	80	-	B 16	25	50	23	-	-	-	-	440
DIN 6336-GG-32-B6-C	32	-	B 6	12	20	9	-	-	12	-	49
DIN 6336-GG-40-B8-C	40	-	B 8	14	25	12	-	-	15	-	67
DIN 6336-GG-50-B8-C	50	-	B 8	18	32	15	-	-	18	-	133
DIN 6336-GG-50-B10-C	50	-	B 10	18	32	15	-	-	18	-	151
DIN 6336-GG-63-B10-C	63	-	B 10	20	40	19	-	-	22	-	196
DIN 6336-GG-63-B12-C	63	-	B 12	20	40	19	-	-	22	-	246
DIN 6336-GG-80-B12-C	80	-	B 12	25	50	23	-	-	28	-	482
DIN 6336-GG-80-B16-C	80	-	B 16	25	50	23	-	-	28	-	542
DIN 6336-GG-32-M6-D	32	M 6	-	12	20	9	-	-	-	10	46
DIN 6336-GG-40-M8-D	40	M 8	-	14	25	12	-	-	-	12	69
DIN 6336-GG-50-M8-D	50	M 8	-	18	32	15	-	-	-	16	124
DIN 6336-GG-50-M10-D	50	M 10	-	18	32	15	-	-	-	16	140
DIN 6336-GG-63-M10-D	63	M 10	-	20	40	19	-	-	-	20	245
DIN 6336-GG-63-M12-D	63	M 12	-	20	40	19	-	-	-	20	260
DIN 6336-GG-80-M12-D	80	M 12	-	25	50	23	-	-	-	30	474
DIN 6336-GG-80-M16-D	80	M 16	-	25	50	23	-	-	-	30	530

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DIN 6336 | Star knobs

DIN 6336-GG

Description	d1	d2	d3 H7	d4	h1	h2 min.	h3	h4 min.	t1	t2	⚖
DIN 6336-GG-32-M6-E	32	M 6	-	12	20	9	-	-	12	-	34
DIN 6336-GG-40-M8-E	40	M 8	-	14	25	12	-	-	15	-	69
DIN 6336-GG-50-M8-E	50	M 8	-	18	32	15	-	-	18	-	152
DIN 6336-GG-50-M10-E	50	M 10	-	18	32	15	-	-	18	-	149
DIN 6336-GG-63-M10-E	63	M 10	-	20	40	19	-	-	22	-	262
DIN 6336-GG-63-M12-E	63	M 12	-	20	40	19	-	-	22	-	254
DIN 6336-GG-80-M12-E	80	M 12	-	25	50	23	-	-	28	-	550
DIN 6336-GG-80-M16-E	80	M 16	-	25	50	23	-	-	28	-	460

*Complete with surface index of the star knob (MT or PL)

MT Matt finish **PL** Polished

DIN 6336-AL

Description	d1	d2	d3 H7	d4	h1	h2 min.	h3	h4 min.	t1	t2	⚖
DIN 6336-AL-40-A	40	-	-	14	-	-	26	13	-	-	30
DIN 6336-AL-50-A	50	-	-	18	-	-	34	17	-	-	57
DIN 6336-AL-63-A	63	-	-	20	-	-	42	21	-	-	97
DIN 6336-AL-80-A	80	-	-	25	-	-	52	25	-	-	250
DIN 6336-AL-40-B8-C-*	40	-	B 8	14	25	12	-	-	15	-	25
DIN 6336-AL-50-B8-C-*	50	-	B 8	18	32	15	-	-	18	-	55
DIN 6336-AL-50-B10-C-*	50	-	B 10	18	32	15	-	-	18	-	50
DIN 6336-AL-63-B10-C-*	63	-	B 10	20	40	19	-	-	22	-	121
DIN 6336-AL-63-B12-C-*	63	-	B 12	20	40	19	-	-	22	-	118
DIN 6336-AL-80-B12-C-*	80	-	B 12	25	50	23	-	-	28	-	240
DIN 6336-AL-80-B16-C-*	80	-	B 16	25	50	23	-	-	28	-	224
DIN 6336-AL-40-M8-D-*	40	M 8	-	14	25	12	-	-	-	12	32
DIN 6336-AL-50-M8-D-*	50	M 8	-	18	32	15	-	-	-	16	65
DIN 6336-AL-50-M10-D-*	50	M 10	-	18	32	15	-	-	-	16	45
DIN 6336-AL-63-M10-D-*	63	M 10	-	20	40	19	-	-	-	20	118
DIN 6336-AL-63-M12-D-*	63	M 12	-	20	40	19	-	-	-	20	114
DIN 6336-AL-80-M12-D-*	80	M 12	-	25	50	23	-	-	-	30	231
DIN 6336-AL-80-M16-D-*	80	M 16	-	25	50	23	-	-	-	30	220
DIN 6336-AL-40-M8-E-*	40	M 8	-	14	25	12	-	-	15	-	25
DIN 6336-AL-50-M8-E-*	50	M 8	-	18	32	15	-	-	18	-	64
DIN 6336-AL-50-M10-E-*	50	M 10	-	18	32	15	-	-	18	-	50
DIN 6336-AL-63-M10-E-*	63	M 10	-	20	40	19	-	-	22	-	110
DIN 6336-AL-63-M12-E-*	63	M 12	-	20	40	19	-	-	22	-	120
DIN 6336-AL-80-M12-E-*	80	M 12	-	25	50	23	-	-	28	-	190
DIN 6336-AL-80-M16-E-*	80	M 16	-	25	50	23	-	-	28	-	196

DIN 6336-NI

STAINLESS STEEL

Description	d1	d2	d4	h1	h2 min.	h3	h4 min.	t1	t2	⚖
DIN 6336-NI-32-A	32	-	12	-	-	21	10	-	-	56
DIN 6336-NI-40-A	40	-	14	-	-	26	13	-	-	85
DIN 6336-NI-50-A	50	-	18	-	-	34	17	-	-	179
DIN 6336-NI-63-A	63	-	20	-	-	42	21	-	-	320
DIN 6336-NI-32-M6-D	32	M 6	12	20	9	-	-	-	10	52
DIN 6336-NI-40-M8-D	40	M 8	14	25	12	-	-	-	12	75
DIN 6336-NI-50-M8-D	50	M 8	18	32	15	-	-	-	16	166
DIN 6336-NI-50-M10-D	50	M 10	18	32	15	-	-	-	16	157
DIN 6336-NI-63-M10-D	63	M 10	20	40	19	-	-	-	20	289
DIN 6336-NI-63-M12-D	63	M 12	20	40	19	-	-	-	20	282
DIN 6336-NI-32-M6-E	32	M 6	12	20	9	-	-	12	-	54
DIN 6336-NI-40-M8-E	40	M 8	14	25	12	-	-	15	-	84
DIN 6336-NI-50-M8-E	50	M 8	18	32	15	-	-	18	-	173
DIN 6336-NI-50-M10-E	50	M 10	18	32	15	-	-	18	-	171
DIN 6336-NI-63-M10-E	63	M 10	20	40	19	-	-	22	-	303
DIN 6336-NI-63-M12-E	63	M 12	20	40	19	-	-	22	-	296

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Star knobs

Threaded bolt, Stainless Steel

SPECIFICATION

Types

- Type **AM**: Star knob DIN 6336, Aluminium (AL), matt (ground)
- Type **AP**: Star knob DIN 6336, Aluminium (AL), polished
- Type **ES**: Star knob DIN 6336, Stainless Steel precision casting (NI), matt shot-blasted

Star knob details and dimensions see:

- DIN 6336-AL (see page 238)
- DIN 6336-NI (see page 238)

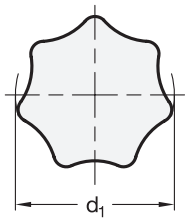
Threaded bolt
Stainless Steel AISI 303

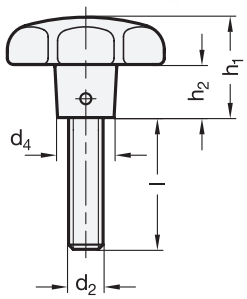
For all types the threaded bolt is screwed in and secured by a cross-dowel.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)







GN 6336.5-AM

Description	d1	d2	l ≈	d4	h1	h2	⚖
GN 6336.5-AM-40-M8-20	40	M 8	20	14	25	12	44
GN 6336.5-AM-40-M8-25	40	M 8	25	14	25	12	45
GN 6336.5-AM-40-M8-30	40	M 8	30	14	25	12	47
GN 6336.5-AM-40-M8-40	40	M 8	40	14	25	12	50
GN 6336.5-AM-50-M10-20	50	M 10	20	18	32	15	80
GN 6336.5-AM-50-M10-25	50	M 10	25	18	32	15	82
GN 6336.5-AM-50-M10-30	50	M 10	30	18	32	15	85
GN 6336.5-AM-50-M10-45	50	M 10	45	18	32	15	92
GN 6336.5-AM-50-M10-55	50	M 10	55	18	32	15	97
GN 6336.5-AM-63-M12-30	63	M 12	30	20	40	19	150
GN 6336.5-AM-63-M12-40	63	M 12	40	20	40	19	157
GN 6336.5-AM-63-M12-50	63	M 12	50	20	40	19	164

GN 6336.5-AP

Description	d1	d2	l ≈	d4	h1	h2	⚖
GN 6336.5-AP-40-M8-20	40	M 8	20	14	25	12	43
GN 6336.5-AP-40-M8-25	40	M 8	25	14	25	12	45
GN 6336.5-AP-40-M8-30	40	M 8	30	14	25	12	46
GN 6336.5-AP-40-M8-40	40	M 8	40	14	25	12	50
GN 6336.5-AP-50-M10-20	50	M 10	20	18	32	15	79
GN 6336.5-AP-50-M10-25	50	M 10	25	18	32	15	81
GN 6336.5-AP-50-M10-30	50	M 10	30	18	32	15	84
GN 6336.5-AP-50-M10-45	50	M 10	45	18	32	15	91
GN 6336.5-AP-50-M10-55	50	M 10	55	18	32	15	96
GN 6336.5-AP-63-M12-30	63	M 12	30	20	40	19	150
GN 6336.5-AP-63-M12-40	63	M 12	40	20	40	19	155
GN 6336.5-AP-63-M12-50	63	M 12	50	20	40	19	164

GN 6336.5-ES **STAINLESS STEEL**

Description	d1	d2	l ≈	d4	h1	h2	⚖
GN 6336.5-ES-40-M8-20	40	M 8	20	14	25	12	88
GN 6336.5-ES-40-M8-25	40	M 8	25	14	25	12	90
GN 6336.5-ES-40-M8-30	40	M 8	30	14	25	12	91
GN 6336.5-ES-40-M8-40	40	M 8	40	14	25	12	94
GN 6336.5-ES-50-M10-20	50	M 10	20	18	32	15	180
GN 6336.5-ES-50-M10-25	50	M 10	25	18	32	15	184
GN 6336.5-ES-50-M10-30	50	M 10	30	18	32	15	186
GN 6336.5-ES-50-M10-45	50	M 10	45	18	32	15	193
GN 6336.5-ES-50-M10-55	50	M 10	55	18	32	15	197
GN 6336.5-ES-63-M12-30	63	M 12	30	20	40	19	321
GN 6336.5-ES-63-M12-40	63	M 12	40	20	40	19	334
GN 6336.5-ES-63-M12-50	63	M 12	50	20	40	19	340

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GN 6303.1

Quick release knurled nuts

SPECIFICATION

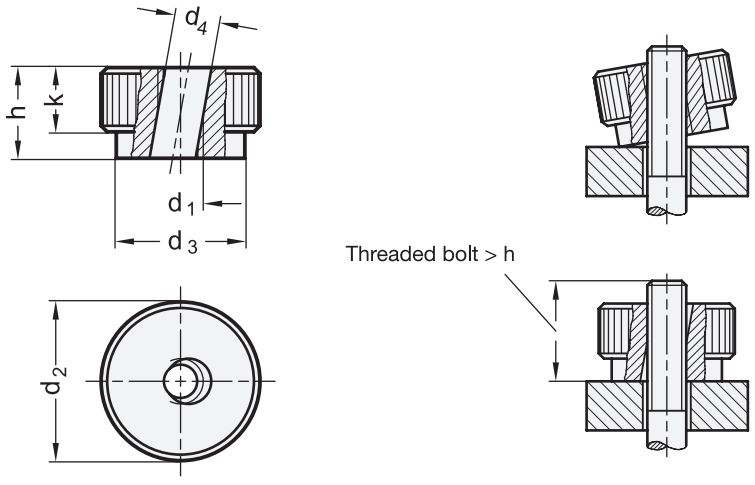
Steel

- Tensile strength class 5
- blackened

INFORMATION

Quick release knurled nuts GN 6303.1 are used in such applications where the nut has to be completely removed after the releasing operation and re-fitted rapidly for re-clamping.
The nut is tilted over the threaded spindle. When in position, the nut is brought into a straight position for meshing of the two threads on nut and spindle. The nut will then have to be turned only by a fraction of a rotation to achieve clamping.
Functional safety exists only if the clamping surface lies at a right angle to the threaded bolt.





GN 6303.1

Description	d1	d2	d3	d4	h	k	⚖
GN 6303.1-M5	M 5	20	14	5.3	12	8	21
GN 6303.1-M6	M 6	24	16	6.7	14	10	35
GN 6303.1-M8	M 8	30	20	8.7	17	12	70
GN 6303.1-M10	M 10	36	28	11	20	14	120
GN 6303.1-M12	M 12	40	32	13	24	16	179

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GN 6336.3

Quick release star knobs

SPECIFICATION

Plastic
Technopolymer (Polyamide PA)

- shock-resistant
- black, matt finish

Bushing
Steel zinc plated, blue passivated
Stainless Steel AISI 303 **NI**

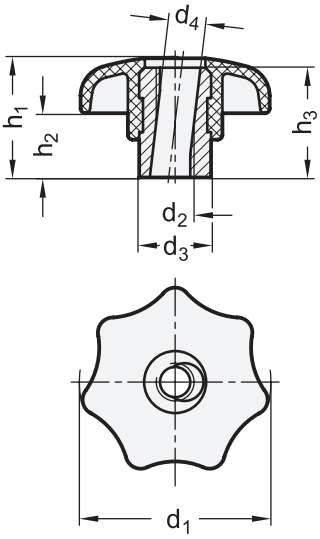


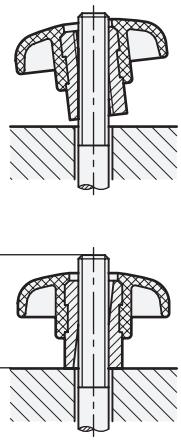
INFORMATION

Quick release star knobs GN 6336.3 are used in such applications where the knob has to be completely removed after the releasing operation and refitted rapidly for re-clamping.
The knob is tilted over the threaded spindle. When in position, the knob is brought into a straight position for meshing of the two threads on nut and spindle. The knob will then have to be turned only by fraction of a rotation to achieve clamping.
Functional safety exists only if the clamping surface lies at a right angle to the threaded bolt.

TECHNICAL INFORMATION

- Plastic characteristics (see page A2)
- Stainless Steel characteristics (see page A26)





GN 6336.3

Description	d1	d2	d3	d4	h1	h2 ≈	h3 min.	⚖
GN 6336.3-40-M8	40	M 8	16	8.4	26	13	24	32
GN 6336.3-50-M10	50	M 10	20	10.5	34	17	30	61
GN 6336.3-63-M12	63	M 12	26	13	42	21	37	121

GN 6336.3-NI

Description	d1	d2	d3	d4	h1	h2 ≈	h3 min.	⚖
GN 6336.3-40-M8-NI	40	M 8	16	8.4	26	13	24	32
GN 6336.3-50-M10-NI	50	M 10	20	10.5	34	17	30	59
GN 6336.3-63-M12-NI	63	M 12	26	13	42	21	37	131

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GN 6335.9

Hand knobs

with increased clamping force



SPECIFICATION

Plastic
Technopolymer (Polyamide PA)

- shock-resistant
- black, matt finish

Bushes
high quality steel
nitrided, blackened

INFORMATION

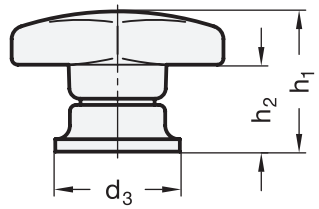
Hand knobs GN 6335.9 have a clamping contact area which is connected to the knob via an axial ball bearing. This has led to the following advantages:
Doubled clamping force through vastly reduced friction. There is no movement on the contact area between star knob and component which greatly reduces any marking on the clamping area. In addition a reduced creep factor has been achieved by the indreased preload.

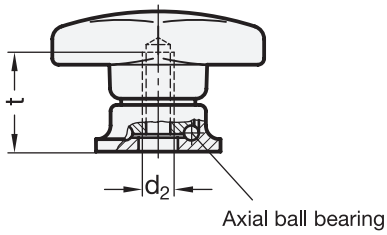
ON REQUEST

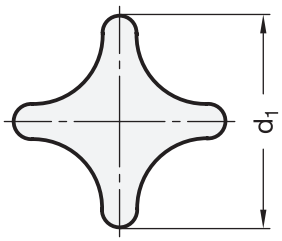
- with threaded bolt

TECHNICAL INFORMATION

- Plastic characteristics (see page A2)







GN 6335.9

Description	d1	d2	d3	h1	h2	t min.	⚖
GN 6335.9-40-M6	40	M 6	24	27	15.5	14.5	40
GN 6335.9-50-M8	50	M 8	25	34	22.5	15	68
GN 6335.9-63-M10	63	M 10	30	41	26.5	19	105
GN 6335.9-80-M12	80	M 12	35	54	34	28.5	185

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Safety lobe knobs

Technopolymer, push action

KNOB
Glass-fibre reinforced polyamide based (PA) technopolymer. Built-in zinc alloy toothed insert for coupling to the metal clamping element, black colour, matte finish.

CENTRE CLOSING CAP
Black technopolymer centre cap. On request and for sufficient quantities, it can be supplied in yellow RAL 1021 (safety) or in other colours, with customised graphic symbols, marks or writings.

STANDARD EXECUTIONS
The clamping element has a toothed element for coupling to the zinc alloy insert moulded-in the knob.
- **VCTS-Z:** black-oxide clamping element with threaded hole, black-oxide steel retaining screw. AISI 302 stainless steel return spring.
- **VCTS-Z-SST:** AISI 303 stainless steel clamping element with threaded hole, AISI 303 stainless steel retaining screw. AISI 302 stainless steel return spring.
- **VCTS-Z-p:** black-oxide steel clamping element with threaded stud, black-oxide steel retaining screw. AISI 302 stainless steel return spring.
- **VCTS-Z-SST-p:** AISI 303 stainless steel clamping element with threaded stud, AISI 303 stainless steel retaining screw. AISI 302 stainless steel return spring.

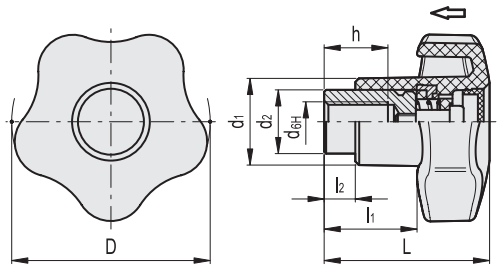
FEATURES AND APPLICATIONS
Particularly suitable where the knob needs to turn freely to avoid that clamping may be accidentally affected.

INSTRUCTIONS
Press the knob to engage the toothing and turn it.
By releasing the knob the spring releases the toothing, thus the knob returns to the rest position.



ELESA Original design

VCTS-Z
VCTS-Z-SST



VCTS-Z

Code	Description	D	d	L	d1	d2	l1	l2	h	Teeth no.	⚖
169631	VCTS-Z-40 A-M6	40	M6	37	18	13.5	22	7	10	24	36
169632	VCTS-Z-40 A-M8	40	M8	37	18	13.5	22	7	10	24	34
169642	VCTS-Z-50 A-M8	50	M8	42	22	16	23	8	14	26	54
169643	VCTS-Z-50 A-M10	50	M10	42	22	16	23	8	14	26	52

VCTS-Z-SST **STAINLESS STEEL**

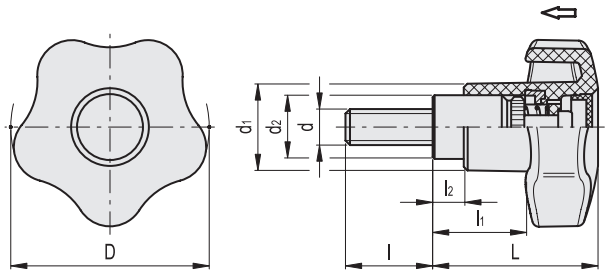
Code	Description	D	d	L	d1	d2	l1	l2	h	Teeth no.	⚖
169651	VCTS-Z-40-SST-M6	40	M6	37	18	13.5	22	7	10	24	36
169652	VCTS-Z-40-SST-M8	40	M8	37	18	13.5	22	7	10	24	34
169662	VCTS-Z-50-SST-M8	50	M8	42	22	16	23	8	14	26	54
169663	VCTS-Z-50-SST-M10	50	M10	42	22	16	23	8	14	26	52

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VCTS-Z

Safety lobe knobs

VCTS-Z.p
VCTS-Z-SST-p



VCTS-Z-p

Code	Description	D	d	L	d1	d2	l	l1	l2	Teeth no.	⚖
169731	VCTS-Z-40 p-M6x20	40	M6	37	18	13.5	20	22	7	24	40
169732	VCTS-Z-40 p-M6x25	40	M6	37	18	13.5	25	22	7	24	42
169733	VCTS-Z-40 p-M6x32	40	M6	37	18	13.5	32	22	7	24	45
169734	VCTS-Z-40 p-M6x40	40	M6	37	18	13.5	40	22	7	24	50
169741	VCTS-Z-40 p-M8x20	40	M8	37	18	13.5	20	22	7	24	42
169742	VCTS-Z-40 p-M8x25	40	M8	37	18	13.5	25	22	7	24	44
169743	VCTS-Z-40 p-M8x32	40	M8	37	18	13.5	32	22	7	24	47
169744	VCTS-Z-40 p-M8x40	40	M8	37	18	13.5	40	22	7	24	52
169752	VCTS-Z-50 p-M8x25	50	M8	42	22	16	25	23	8	26	58
169753	VCTS-Z-50 p-M8x32	50	M8	42	22	16	32	23	8	26	62
169754	VCTS-Z-50 p-M8x40	50	M8	42	22	16	40	23	8	26	68
169755	VCTS-Z-50 p-M8x50	50	M8	42	22	16	50	23	8	26	74
169762	VCTS-Z-50 p-M10x25	50	M10	42	22	16	25	23	8	26	60
169763	VCTS-Z-50 p-M10x32	50	M10	42	22	16	32	23	8	26	64
169764	VCTS-Z-50 p-M10x40	50	M10	42	22	16	40	23	8	26	70
169765	VCTS-Z-50 p-M10x50	50	M10	42	22	16	50	23	8	26	76

VCTS-Z-SST-p **STAINLESS STEEL**

Code	Description	D	d	L	d1	d2	l	l1	l2	Teeth no.	⚖
169771	VCTS-Z-40-SST-p-M6x20	40	M6	37	18	13.5	20	22	7	24	40
169772	VCTS-Z-40-SST-p-M6x25	40	M6	37	18	13.5	25	22	7	24	42
169773	VCTS-Z-40-SST-p-M6x32	40	M6	37	18	13.5	32	22	7	24	45
169774	VCTS-Z-40-SST-p-M6x40	40	M6	37	18	13.5	40	22	7	24	50
169781	VCTS-Z-40-SST-p-M8x20	40	M8	37	18	13.5	20	22	7	24	42
169782	VCTS-Z-40-SST-p-M8x25	40	M8	37	18	13.5	25	22	7	24	44
169783	VCTS-Z-40-SST-p-M8x32	40	M8	37	18	13.5	32	22	7	24	47
169784	VCTS-Z-40-SST-p-M8x40	40	M8	37	18	13.5	40	22	7	24	52
169792	VCTS-Z-50-SST-p-M8x25	50	M8	42	22	16	25	23	8	26	58
169793	VCTS-Z-50-SST-p-M8x32	50	M8	42	22	16	32	23	8	26	62
169794	VCTS-Z-50-SST-p-M8x40	50	M8	42	22	16	40	23	8	26	68
169795	VCTS-Z-50-SST-p-M8x50	50	M8	42	22	16	50	23	8	26	74
169802	VCTS-Z-50-SST-p-M10x25	50	M10	42	22	16	25	23	8	26	60
169803	VCTS-Z-50-SST-p-M10x32	50	M10	42	22	16	32	23	8	26	64
169804	VCTS-Z-50-SST-p-M10x40	50	M10	42	22	16	40	23	8	26	70
169805	VCTS-Z-50-SST-p-M10x50	50	M10	42	22	16	50	23	8	26	76

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Safety lobe knobs

Technopolymer

LOBE SOLID CAP
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish, with security anti-intrusion-profiled key slot.

FLANGE
Technopolymer, ultrasonically welded.

CLAMPING ELEMENT
Acetal resin based (POM) technopolymer, black colour, matte finish.

STANDARD EXECUTIONS
- **VLS-B:** brass boss, threaded blind hole.
- **VLS-SST-p:** AISI 304 stainless steel threaded stud, chamfered flat end according to UNI 947 : ISO 4753 (see Technical data on page A11).

SECURITY KEY (TO BE ORDERED SEPARATELY)
- **CSN** (code 6951): acetal resin based (POM) technopolymer fold-away key, red colour, anti-intrusion-profiled stainless steel insert.
- **CSF** (code 6952): polyamide based (PA) technopolymer ball key, red colour, anti-intrusion-profiled stainless steel insert.

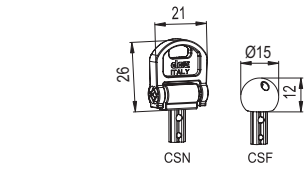
On request and for sufficient quantities the security keys can be supplied in black colour too.

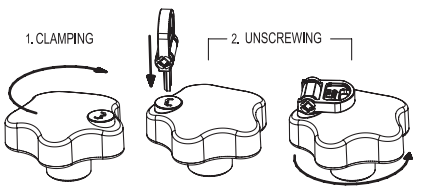
SECURITY DEVICE OPERATION
VLS. security lobe knobs have been designed to be unscrewed only by authorised people, provided with the security key. Without the security key, the knob turns without unscrewing.
1. Clamping: clamp the knob by screwing it as for a normal knob. Mind that the security key is not inserted.
2. Unscrewing: simply insert the security key (without turning it) and unscrew the knob.

FEATURES AND APPLICATIONS
The particular design of the internal device and of the flange helps the drainage of any dirt (dust, earth, liquid).

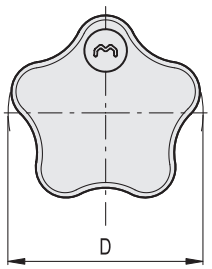


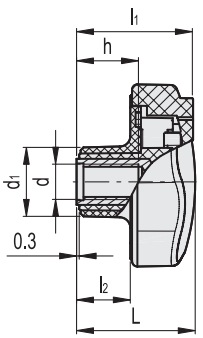
ELESA Original design



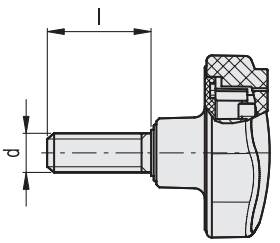


VLS-B





VLS-SST-p



VLS-B

Code	Description	D	d6H	L	d1	l1	l2	h	⚖
76501	VLS.42 B-M6*	41.5	M6	30	16.5	29.5	14.5	12	25
76502	VLS.42 B-M8*	41.5	M8	30	16.5	29.5	14.5	13	26
76551	VLS.55 B-M8*	55	M8	33	19	32	15	13	33
76552	VLS.55 B-M10*	55	M10	33	19	32	15	17	35

VLS-SST-p **STAINLESS STEEL**

Code	Description	D	d6g	L	d1	l	l1	l2	⚖
76621	VLS.55-SST-p-M10x20*	55	M10	33	19	20	32	15	44
76625	VLS.55-SST-p-M10x40*	55	M10	33	19	40	32	15	52

* Keys are not supplied with the knobs, to be ordered separately.

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Safety lobe knobs

Technopolymer, with lock



ELESA Original design

LOBE SOLID CAP AND COLOURED CENTRE CAP
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish, with slot for codified key lock.

FLANGE
Technopolymer, ultrasonically welded.

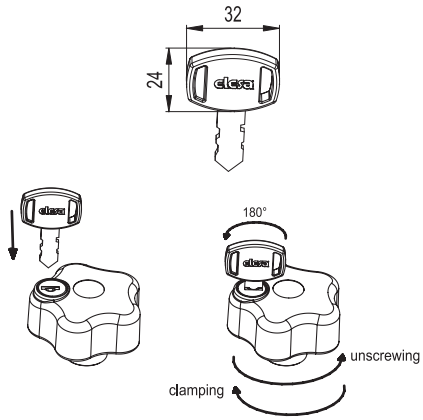
CLAMPING ELEMENT
Special glass-fibre reinforced polyamide based (PA) SUPER-tecnopolymer, black colour, matte finish.

STANDARD EXECUTIONS
- **VLSK-B:** brass boss, threaded pass-through hole, with cap.
- **VLSK-FP:** brass boss, threaded pass-through hole, without cap.
- **VLSK-p:** zinc-plated steel threaded stud, chamfered flat end UNI 947 : ISO 4753 (see Technical data on page A11), with closing cap.

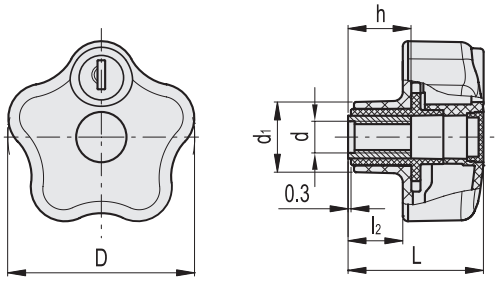
LOCK AND KEYS
Die cast zinc alloy rotor and stator.
The lock has got a red protection tab for closing the lock when the key is not inserted.
Two keys made out of nickel-plated brass and technopolymer.
210 different combinations; each lock has got one pair of keys, removable in two positions at 180°.

SECURITY DEVICE OPERATION
VLSK. security lobe knob has been designed to prevent its unscrewing by unauthorised people. Therefore, it has got a vandal-proof function as well.
For clamping and unscrewing the knob, insert the special key into the lock and turn it by 180°. By so doing the clamping element and the knob form a single body. When the lock is brought back to the starting position and the key is removed, the knob turns freely preventing the unscrewing.

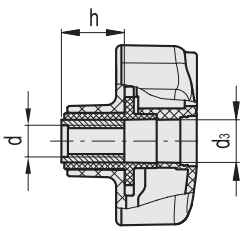
FEATURES AND APPLICATIONS
The particular design of the internal device and of the flange helps the drainage of any dirt (dust, earth or liquid).



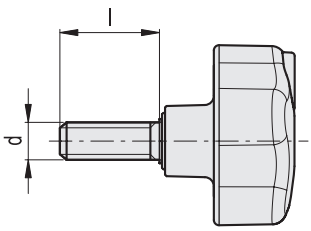
VLSK-B



VLSK-FP



VLSK-p



VLSK-B

Code	Description	D	d6H	L	d1	l2	h	⚖
76701	VLSK.63 B-M6	63	M6	44	23	17	18	95
76702	VLSK.63 B-M8	63	M8	44	23	17	18	94
76703	VLSK.63 B-M10	63	M10	44	23	17	20	93

VLSK-FP

Code	Description	D	d6H	L	d1	d3	l2	h	⚖
76711	VLSK.63 FP-M6	63	M6	44	23	14	17	18	95
76712	VLSK.63 FP-M8	63	M8	44	23	14	17	18	94
76713	VLSK.63 FP-M10	63	M10	44	23	14	17	20	93

VLSK-p

Code	Description	D	d6g	L	d1	l	l2	⚖
76731	VLSK.63 p-M8x20	63	M8	44	23	20	17	106
76741	VLSK.63 p-M10x20	63	M10	44	23	20	17	107

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RoHS PA +130° -30°

Shortened lobe knobs

Technopolymer, square or threaded hole



ELESA Original design

MATERIAL
Glass reinforced polyamide based (PA) technopolymer, black colour, matte finish.

STANDARD EXECUTIONS
- **VCRT-N:** square pass-through hole with brass reinforcement.
- **VCRT-FP:** brass boss, threaded pass-through hole.

ACCESSORIES ON REQUEST
Coloured centre caps (see table below). Coloured centre caps allow an easier identification of the different functions of the knobs. Coloured centre caps are available as accessories sold separately.

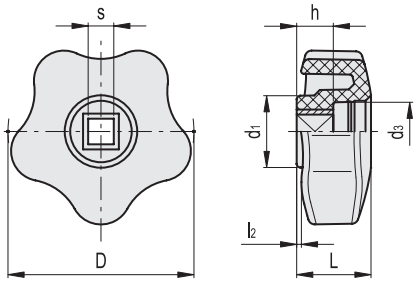
SPECIAL EXECUTION ON REQUEST
Square pass-through hole without brass reinforcement.

Cap for	C9	C2	C3	C4	C5	C6	Description
	Code						
VCRT.40	6910	6913	6914	6915	6916	6911	CA.VCT.40-*
VCRT.50	6920	6923	6924	6925	6926	6921	CA.VCT.50-*
VCRT.63-74-95	6930	6933	6934	6935	6936	6931	CA.VCT.63-74-95-*

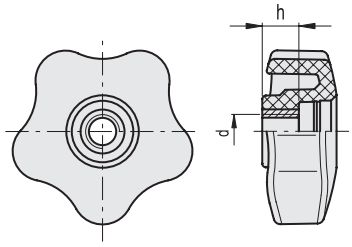
* Complete with colour index (C9, ..., C6)

C9 RAL9005 C2 RAL2004 C3 RAL7035 C4 RAL1021 C5 RAL5024 C6 RAL3000

VCRT-N



VCRT-FP



VCRT-N

Code	Description	D	sH9	L	d1	d3	l2	h	⚖
169001	VCRT.40 N-6x6	40	6	17	17	12.5	1	10	10
169101	VCRT.50 N-6x6	50	6	20	19	15.5	1.2	10	23
169111	VCRT.50 N-7x7	50	7	20	19	15.5	1.2	10	22
169201	VCRT.63 N-6x6	63	6	21.5	22.5	19.5	1.3	10	36
169211	VCRT.63 N-7x7	63	7	21.5	22.5	19.5	1.3	10	35
169221	VCRT.63 N-8x8	63	8	21.5	22.5	19.5	1.3	10	34
169311	VCRT.74 N-7x7	74	7	24.5	26.5	19.5	2	14	51
169321	VCRT.74 N-8x8	74	8	24.5	26.5	19.5	2	14	50
169331	VCRT.74 N-9x9	74	9	24.5	26.5	19.5	2	14	49
169341	VCRT.74 N-10x10	74	10	24.5	26.5	19.5	2	14	48
169421	VCRT.95 N-8x8	95	8	29.5	32	18	4.5	14	64
169441	VCRT.95 N-10x10	95	10	29.5	32	18	4.5	14	63

VCRT-FP

Code	Description	D	d6H	L	d1	d3	l2	h	⚖
168998	VCRT.40 FP-M8	40	M8	17	17	12.5	1	10	10
168999	VCRT.40 FP-M10	40	M10	17	17	12.5	1	10	9
169098	VCRT.50 FP-M8	50	M8	20	19	15.5	1.2	10	23
169197	VCRT.63 FP-M10	63	M10	21.5	22.5	19.5	1.3	15	35
169198	VCRT.63 FP-M12	63	M12	21.5	22.5	19.5	1.3	15	34
169307	VCRT.74 FP-M10	74	M10	24.5	26.5	19.5	2	15	48
169308	VCRT.74 FP-M12	74	M12	24.5	26.5	19.5	2	15	47
169418	VCRT.95 FP-M16	95	M16	29.5	32	18	4.5	15	60

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VCR.192

RoHS PF +110° -20°

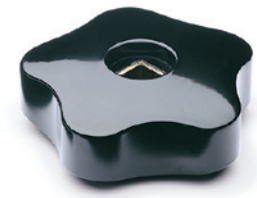
Shortened lobe knobs

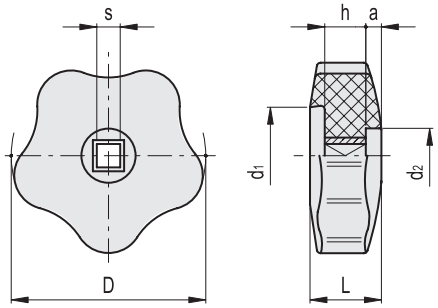
Duroplast, square hole

MATERIAL
Phenolic based (PF) Duroplast, black colour, glossy finish.

STANDARD EXECUTION
Square through hole with brass reinforcement.

FEATURES
Special front housing (d_2) for hexagon blind nut with spherical cap UNI 5721-69 - DIN 1587.





Code	Description	D	sH9	L	d1	d2	h	a	⚖
69001	VCR.192/40-6x6	40	6	15	21	14	10	4	21
69101	VCR.192/50-6x6	50	6	18	24	14	10	5	33
69111	VCR.192/50-7x7	50	7	18	24	14	10	5	31
69201	VCR.192/60-6x6	60	6	20	29	16	10	4	52
69211	VCR.192/60-7x7	60	7	20	29	16	10	4	50
69221	VCR.192/60-8x8	60	8	20	29	16	10	4	48
69301	VCR.192/70-7x7	70	7	22	35	18	14	5	83
69311	VCR.192/70-8x8	70	8	22	35	18	14	5	78
69401	VCR.192/85-7x7	85	7	25	45	18	14	8	136
69411	VCR.192/85-8x8	85	8	25	45	18	14	8	127
69421	VCR.192/85-9x9	85	9	25	45	18	14	8	126
69501	VCR.192/100-8x8	100	8	28	57	18	14	6	168
69511	VCR.192/100-10x10	100	10	28	57	18	14	6	166

GFL

RoHS PA +100° -30°

Lobe threaded nut

Technopolymer

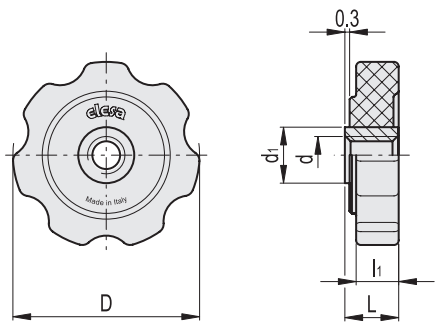
MATERIAL
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

STANDARD EXECUTIONS
Brass boss, threaded pass-through hole.

FEATURES AND APPLICATIONS
The ergonomic seven-lobe shape allows an effective grip to the operator when tightening.
Suitable for axial locking; it can be used as a nut.



ELESA Original design



Code	Description	D	d6H	L	d1	l1	⚖
168541	GFL.40-B M8	40	M8	10	12	8.5	7
168542	GFL.40-B M10	40	M10	10	13	8.5	6

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Knobs

Technopolymer

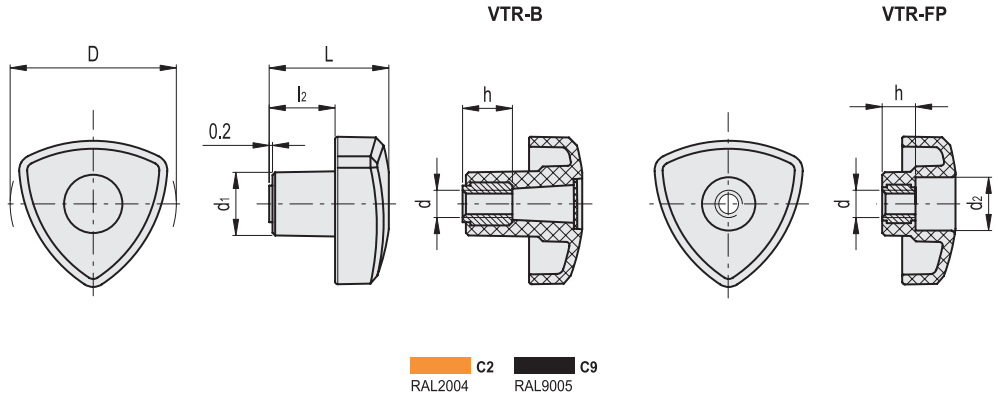
MATERIAL
Polyamide based (PA) technopolymer, black, orange colour, glossy finish.

CONTRAST SCREEN
Matte anodised aluminium.

STANDARD EXECUTIONS
- **VTR-B:** brass boss, threaded blind hole.
- **VTR-FP:** brass boss, threaded pass-through hole.
- **VTR-N:** square hole.
- **VTR-p:** zinc-plated steel threaded stud, chamfered flat end according to UNI 947 : ISO 4753 (see Technical data on page A11).



ELESA Original design



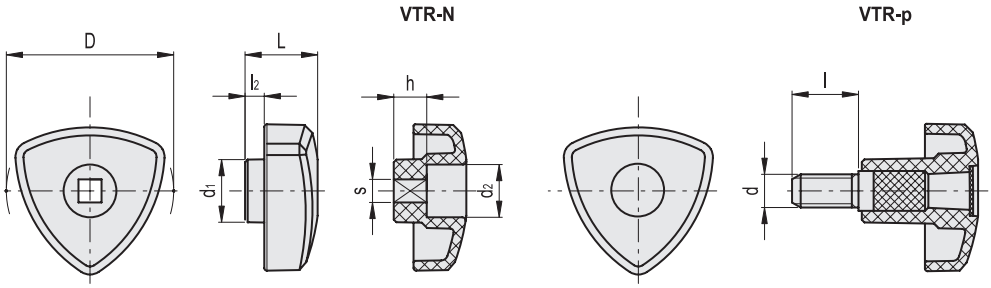
VTR-B

Code	Description	Code	Description	D	d6H	L	d1	l2	h	⚖
83002	VTR.32 B-M5-C2	83001	VTR.32 B-M5-C9	32	M5	26	14	16	10	7
83012	VTR.32 B-M6-C2	83011	VTR.32 B-M6-C9	32	M6	26	14	16	12	9
83402	VTR.40 B-M6-C2	83401	VTR.40 B-M6-C9	40	M6	30	16	17	12	11
83412	VTR.40 B-M8-C2	83411	VTR.40 B-M8-C9	40	M8	30	16	17	14	13
83802	VTR.50 B-M8-C2	83801	VTR.50 B-M8-C9	50	M8	35	19	19	14	18
83812	VTR.50 B-M10-C2	83811	VTR.50 B-M10-C9	50	M10	35	19	19	16	22
84202	VTR.60 B-M10-C2	84201	VTR.60 B-M10-C9	60	M10	41	22	22	16	30
84212	VTR.60 B-M12-C2	84211	VTR.60 B-M12-C9	60	M12	41	22	22	18	32

VTR-FP

Code	Description	D	d6H	L	d1	d2	l2	h	⚖
83021	VTR.32 FP-M5	32	M5	14	14	10	4	6	5
83421	VTR.40 FP-M6	40	M6	18	16	12	5	8	8
83821	VTR.50 FP-M8	50	M8	22	19	16	6	10	14
84221	VTR.60 FP-M10	60	M10	26	22	19	7	12	22

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VTR-N

Code	Description	D	sH9	L	d1	d2	l2	h	⚖
83031	VTR.32 N-5x5	32	5	14	14	10	4	6	4
83431	VTR.40 N-6x6	40	6	18	16	12	5	8	7
83831	VTR.50 N-6x6	50	6	22	19	16	6	10	12
83836	VTR.50 N-7x7	50	7	22	19	16	6	10	11
84231	VTR.60 N-7x7	60	7	26	22	19	7	12	18

VTR-p

Code	Description	D	d6g	L	d1	l	l2	⚖
83041	VTR.32 p-M5x10	32	M5	26	14	10	16	9
83042	VTR.32 p-M5x20	32	M5	26	14	20	16	10
83043	VTR.32 p-M5x40	32	M5	26	14	40	16	13
83051	VTR.32 p-M6x10	32	M6	26	14	10	16	10
83052	VTR.32 p-M6x20	32	M6	26	14	20	16	13
83053	VTR.32 p-M6x40	32	M6	26	14	40	16	15
83441	VTR.40 p-M6x10	40	M6	30	16	10	17	14
83442	VTR.40 p-M6x20	40	M6	30	16	20	17	15
83443	VTR.40 p-M6x40	40	M6	30	16	40	17	19
83451	VTR.40 p-M8x16	40	M8	30	16	16	17	19
83452	VTR.40 p-M8x30	40	M8	30	16	30	17	25
83453	VTR.40 p-M8x50	40	M8	30	16	50	17	30
83841	VTR.50 p-M8x16	50	M8	35	19	16	19	28
83842	VTR.50 p-M8x30	50	M8	35	19	30	19	32
83843	VTR.50 p-M8x50	50	M8	35	19	50	19	37
83851	VTR.50 p-M10x20	50	M10	35	19	20	19	35
83852	VTR.50 p-M10x30	50	M10	35	19	30	19	40
83853	VTR.50 p-M10x50	50	M10	35	19	50	19	50
84241	VTR.60 p-M10x20	60	M10	41	22	20	22	46
84242	VTR.60 p-M10x30	60	M10	41	22	30	22	48
84243	VTR.60 p-M10x50	60	M10	41	22	50	22	60
84251	VTR.60 p-M12x20	60	M12	41	22	20	22	57
84252	VTR.60 p-M12x30	60	M12	41	22	30	22	65
84253	VTR.60 p-M12x50	60	M12	41	22	50	22	80

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GN 5339.5

Stainless Steel-Triangular knobs

SPECIFICATION

Types

- Type **E**: with threaded blind bore
- Type **D**: with threaded through bore
- Type **C**: with plain blind bore H7

Stainless Steel precision casting

- AISI CF-8
- matt shot-blasted **MT**
- highly polished **PL** (only type D and E)

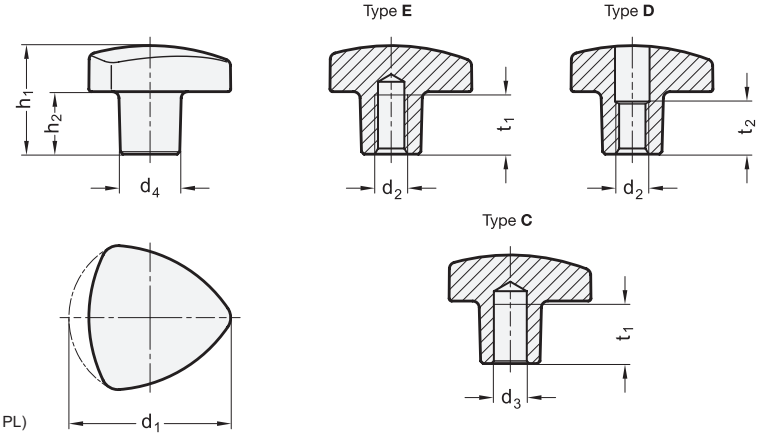


INFORMATION

Stainless Steel-Triangular knobs GN 5339.5 have been specially designed for use on machinery in the food industry.
The smooth and enclosed areas as well as the corner radii comply with the requirements of hygiene standards.
Original ELESA-Design, manufactured in metal version under permission of ELESA s.p.a.

TECHNICAL INFORMATION

- Cross holes GN 110 (see page A17)
- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)



*Complete with surface index of the triangular knob (MT or PL)

MT	PL
Matt shot-blasted	Highly polished

GN 5339.5 — **STAINLESS STEEL**

Description	d1	d2	d3 H7	d4	h1 ≈	h2 ≈	t1 min.	t2	⚖
GN 5339.5-32-B6-C-MT	32	-	B 6	12	21	12	12	-	43
GN 5339.5-40-B8-C-MT	40	-	B 8	14	26	14	15	-	88
GN 5339.5-50-B10-C-MT	50	-	B 10	18	33	19	18	-	148
GN 5339.5-60-B12-C-MT	60	-	B 12	20	41	23	22	-	286
GN 5339.5-32-M6-D-*	32	M 6	-	12	21	12	-	10	40
GN 5339.5-40-M8-D-*	40	M 8	-	14	26	14	-	13	82
GN 5339.5-50-M10-D-*	50	M 10	-	18	33	19	-	16	100
GN 5339.5-60-M12-D-*	60	M 12	-	20	41	23	-	20	275
GN 5339.5-32-M5-E-*	32	M 5	-	12	21	12	10	-	44
GN 5339.5-32-M6-E-*	32	M 6	-	12	21	12	12	-	40
GN 5339.5-40-M6-E-*	40	M 6	-	14	26	13	12	-	85
GN 5339.5-40-M8-E-*	40	M 8	-	14	26	14	15	-	100
GN 5339.5-50-M8-E-*	50	M 8	-	18	32	18	15	-	160
GN 5339.5-50-M10-E-*	50	M 10	-	18	33	19	18	-	151
GN 5339.5-60-M10-E-*	60	M 10	-	20	41	23	18	-	295
GN 5339.5-60-M12-E-*	60	M 12	-	20	41	23	22	-	295

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Lobe knobs

Technopolymer

MATERIAL
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

CLOSING CAP
Polypropylene based (PP) technopolymer, orange or black colour, glossy finish with matte central surface, snap-in mounting.

STANDARD EXECUTIONS
- **VTL-B:** brass boss, threaded blind hole.
- **VTL-p:** zinc-plated steel threaded stud, chamfered flat end according to UNI 947: ISO 4753 (see Technical Data on page A11).

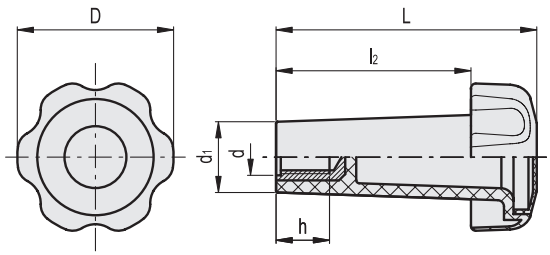
FEATURES AND APPLICATIONS
The long cone-shaped body of this knob is especially designed to clamp elements placed at a distance from the operator or in difficult to access places

SPECIAL EXECUTIONS ON REQUEST
On the surface of the closing cap words, marks, graphic symbols, etc... can be tampoprinted in colours.

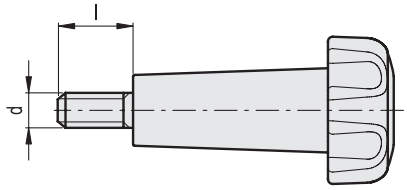


FAMdesign

VTL-B



VTL-p



C2 RAL2004 C9 RAL9005

VTL-B

Code	Description	D	d6H	L	d1	l2	h	⚖
182222	VTL.50/80 B-M10-C2	50	M10	82	22.5	62	17	48
182223	VTL.50/80 B-M10-C9	50	M10	82	22.5	62	17	48

VTL-p

Code	Description	D	d6g	L	d1	l	l2	⚖
182232	VTL.50/80 p-M10x20-C2	50	M10	82	22.5	20	62	60
182233	VTL.50/80 p-M10x20-C9	50	M10	82	22.5	20	62	60
182238	VTL.50/80 p-M10x50-C2	50	M10	82	22.5	50	62	75
182239	VTL.50/80 p-M10x50-C9	50	M10	82	22.5	50	62	75

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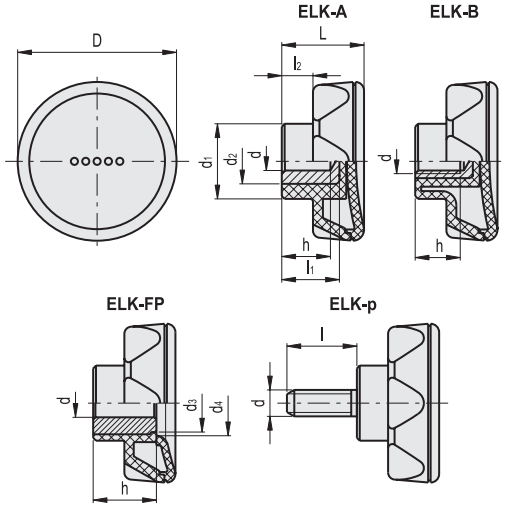
Knobs with rear lobes

Technopolymer

MATERIAL
Glass-fibre reinforced polyamide based (PA) technopolymer, grey-black colour, matte finish.

CAP
Technopolymer in Ergostyle colours, matte finish. Ultrasonically welded to the body of the knob.

STANDARD EXECUTIONS
- **ELK-A:** black-oxide steel boss, H9 reamed blind hole.
- **ELK-B:** brass boss, threaded blind hole.
- **ELK-FP:** black-oxide steel boss, H7 reamed pass-through hole.
- **ELK-p:** zinc-plated steel threaded stud with chamfered flat end as inUNI 947 : ISO 4753 (see Technical Data on page A11).





ERGOSTYLE® design 96/97 stuttgart INDUSTRIE FORUM DESIGN HANNOVER 1995



*Complete with colour index, example: 221206-C2 ELK.45 A-8-C2

C1	C2	C3	C4	C5	C6
RAL7021	RAL2004	RAL7035	RAL1021	RAL5024	RAL3000

ELK-A

Code	Description	D	dH9	L	d1	d2	l1	l2	h	⚖
221206-*	ELK.45 A-8 -*	45	8	26	21	14	19	10	14	37
221406-*	ELK.56 A-8 -*	56	8	29	26.5	14	18	11	14	53
221606-*	ELK.70 A-10 -*	70	10	35	32.5	22	25	13	21	112

ELK-B

Code	Description	D	d6H	L	d1	l2	h	⚖
221221-*	ELK.45 B-M6-*	45	M6	26	21	10	12	29
221226-*	ELK.45 B-M8-*	45	M8	26	21	10	13	30
221426-*	ELK.56 B-M8-*	56	M8	29	26.5	11	13	41
221431-*	ELK.56 B-M10-*	56	M10	29	26.5	11	13	39
221436-*	ELK.56 B-M12-*	56	M12	29	26.5	11	13	37
221631-*	ELK.70 B-M10-*	70	M10	35	32.5	13	18	68
221636-*	ELK.70 B-M12-*	70	M12	35	32.5	13	17	66
221641-*	ELK.70 B-M16-*	70	M16	35	32.5	13	17	64

ELK-FP

Code	Description	D	dH7	L	d1	d2	d3	d4	l2	h	⚖
220416-*	ELK.56 FP-A-10-*	56	10	29	26.5	22	20.5	23	11	22	80
220616-*	ELK.70 FP-A-12-*	70	12	35	32.5	26	24	28	13	27	132

ELK-p

Code	Description	D	d6g	L	d1	l	l2	⚖
222221-*	ELK.45 p-M8x20-*	45	M8	26	21	20	10	33
222241-*	ELK.45 p-M8x30-*	45	M8	26	21	30	10	36
222251-*	ELK.45 p-M10x20-*	45	M10	26	21	20	10	36
222261-*	ELK.45 p-M10x30-*	45	M10	26	21	30	10	39
222271-*	ELK.45 p-M10x40-*	45	M10	26	21	40	10	42
222406-*	ELK.56 p-M8x20-*	56	M8	29	26.5	20	11	46
222416-*	ELK.56 p-M8x30-*	56	M8	29	26.5	30	11	49
222426-*	ELK.56 p-M8x40-*	56	M8	29	26.5	40	11	52
222451-*	ELK.56 p-M10x20-*	56	M10	29	26.5	20	11	55
222461-*	ELK.56 p-M10x30-*	56	M10	29	26.5	30	11	61
222471-*	ELK.56 p-M10x40-*	56	M10	29	26.5	40	11	67
222481-*	ELK.56 p-M12x30-*	56	M12	29	26.5	30	11	68
222491-*	ELK.56 p-M12x40-*	56	M12	29	26.5	40	11	73
222501-*	ELK.56 p-M12x50-*	56	M12	29	26.5	50	11	78
222616-*	ELK.70 p-M10x30-*	70	M10	35	32.5	30	13	83
222621-*	ELK.70 p-M10x40-*	70	M10	35	32.5	40	13	88
222631-*	ELK.70 p-M10x50-*	70	M10	35	32.5	50	13	93
222641-*	ELK.70 p-M12x30-*	70	M12	35	32.5	30	13	90
222651-*	ELK.70 p-M12x40-*	70	M12	35	32.5	40	13	96
222661-*	ELK.70 p-M12x50-*	70	M12	35	32.5	50	13	102

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VL.640 FP - VL.140 FP

Lobe knobs

Technopolymer or Duroplast

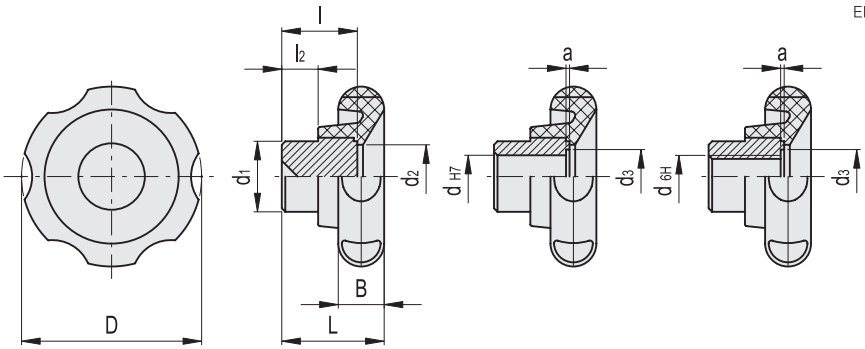
MATERIAL
- **VL.640 FP:** glass-fibre reinforced polyamide based (PA) technopolymer, black colour, glossy finish.
- **VL.140 FP:** phenolic based (PF) Duroplast, black colour, glossy finish.

STANDARD EXECUTIONS
- **VL.640 FP-A:** black-oxide steel hub available in different executions: not drilled, H7 reamed pass-through hole or 6H threaded pass-through hole.
- **VL.640 FP-B:** brass hub, not drilled.
- **VL.140 FP-A:** black-oxide steel hub available in different executions: not drilled, H7 reamed pass-through hole or 6H threaded pass-through hole.

SPECIAL EXECUTIONS ON REQUEST
Different RAL colours with zinc-plated steel hub.



ELESA Original design



VL.640 FP-A - VL.640 FP-B

Code	Description	D	d6H	dH7	L	B	d1	d2	d3	l	l2	a	⚖
174111	VL.640/50 FP-A	50	-	-	29	13	20	18	-	21	10	-	72
174121	VL.640/50 FP-A-8	50	-	8	29	13	20	18	-	21	10	-	65
174131	VL.640/50 FP-A-10	50	-	10	29	13	20	18	-	21	10	-	60
174141	VL.640/50 FP-A-M8	50	M8	-	29	13	20	18	-	21	10	-	68
174151	VL.640/50 FP-A-M10	50	M10	-	29	13	20	18	-	21	10	-	61
174161	VL.640/50 FP-B	50	-	-	29	13	20	18	-	21	10	-	72
174211	VL.640/60 FP-A	61	-	-	30	16	25	24	-	23	11	-	126
174221	VL.640/60 FP-A-10	61	-	10	30	16	25	24	15.2	23	11	0.8	114
174231	VL.640/60 FP-A-12	61	-	12	30	16	25	24	18.1	23	11	0.8	110
174241	VL.640/60 FP-A-M10	61	M10	-	30	16	25	24	18.1	23	11	0.8	117
174251	VL.640/60 FP-A-M12	61	M12	-	30	16	25	24	18.1	23	11	0.8	111
174261	VL.640/60 FP-B	61	-	-	30	16	25	24	-	23	11	-	126
174311	VL.640/70 FP-A	70	-	-	33	18	30	30	-	25	12	-	190
174321	VL.640/70 FP-A-12	70	-	12	33	18	30	30	18.1	25	12	0.8	170
174331	VL.640/70 FP-A-14	70	-	14	33	18	30	30	21.4	25	12	1.5	160
174341	VL.640/70 FP-A-M12	70	M12	-	33	18	30	30	18.1	25	12	0.8	175
174361	VL.640/70 FP-B	70	-	-	33	18	30	30	-	25	12	-	190
174411	VL.640/80 FP-A	80	-	-	40	19	35	34	-	30	15	-	300
174421	VL.640/80 FP-A-14	80	-	14	40	19	35	34	18.1	30	15	0.8	270
174431	VL.640/80 FP-A-16	80	-	16	40	19	35	34	21.4	30	15	1.5	255
174441	VL.640/80 FP-A-M14	80	M14	-	40	19	35	34	18.1	30	15	0.8	274
174451	VL.640/80 FP-A-M16	80	M16	-	40	19	35	34	18.1	30	15	0.8	260
174461	VL.640/80 FP-B	80	-	-	40	19	35	34	-	30	15	-	300

VL.140 FP-A

Code	Description	D	d6H	dH7	L	B	d1	d2	d3	l	l2	a	⚖
74511	VL.140/100 FP-A	99	-	-	44	20	36	34	-	34	14	-	405
74514	VL.140/100 FP-A-16	99	-	16	44	20	36	34	21.4	34	14	1.5	350
74517	VL.140/100 FP-A-M16	99	M16	-	44	20	36	34	21.4	34	14	1.5	360
74611	VL.140/130 FP-A	129	-	-	47	22	40	36	-	34	13	-	560

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Lobe knobs

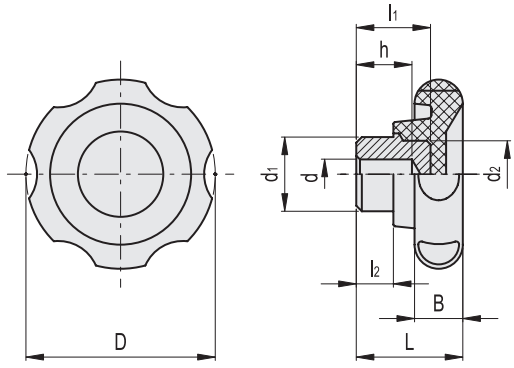
Duroplast

MATERIAL
Phenolic based (PF) Duroplast, black colour, glossy finish.

STANDARD EXECUTION
Black-oxide steel hub, pre-drilled blind hole.



ELESA Original design



Code	Description	D	d-0.1	dH9	L	B	d1	d2	l1	l2	h	⚖
74101	VL.140/50	51	6	-	29	13	20	18	20	10	15	67
74201	VL.140/60	61	6	-	32	16	20	18	20	10	15	87
74301	VL.140/70	69	6	-	36	18	24	20	23	12	15	126
74401	VL.140/80	82	6	-	40	19	24	20	23	12	15	160
74501	VL.140/100	99	-	8	44	20	36	30	31	14	22	325
74601	VL.140/130	129	-	8	47	22	40	40	30	13	20	500

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VL.155

Lobe knobs

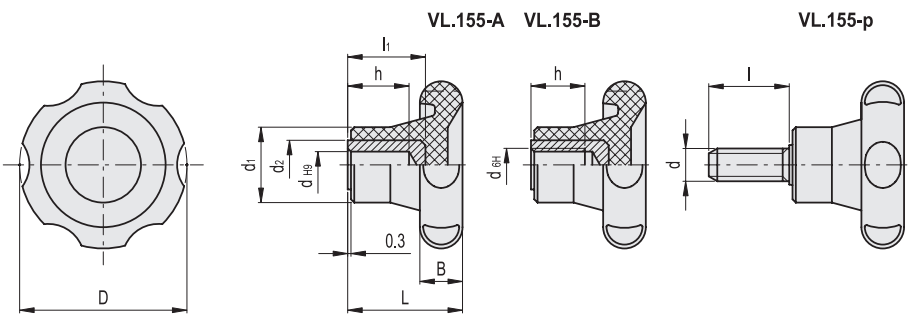
Duroplast

MATERIAL
Phenolic based (PF) Duroplast, black colour, glossy finish.

STANDARD EXECUTIONS
- **VL.155-A:** black-oxide steel boss, plain blind hole.
- **VL.155-B:** brass boss, plain or threaded blind hole.
- **VL.155-p:** zinc-plated steel threaded stud, chamfered flat end according to UNI 947 : ISO 4753 (see Technical Data on page A11).



ELESA Original design



VL.155-A

Code	Description	D	dH9	L	B	d1	d2	l1	h	
75001	VL.155/50 A-6	51	6	34	13	23	15	23	18	57
75101	VL.155/60 A-6	61	6	38	16	25	15	23	18	81
75211	VL.155/70 A-8	69	8	42	18	27	18	28	21	115
75221	VL.155/70 A-10	69	10	42	18	27	18	31	25	110
75301	VL.155/80 A-8	82	8	48	19	33	20	35	26	177
75311	VL.155/80 A-10	82	10	48	19	33	18	31	25	170
75321	VL.155/80 A-12	82	12	48	19	33	18	29	23	165
75401	VL.155/100 A-8	99	8	52	20	36	26	36	25	275

VL.155-B

Code	Description	D	d6H	dH9	L	B	d1	d2	l1	h	
75011	VL.155/50 B-6	51	-	6	34	13	23	15	23	18	58
75021	VL.155/50 B-M8	51	M8	-	34	13	23	-	-	13	41
75111	VL.155/60 B-6	61	-	6	38	16	25	15	23	18	82
75121	VL.155/60 B-M8	61	M8	-	38	16	25	-	-	20	66
75131	VL.155/60 B-M10	61	M10	-	38	16	25	-	-	17	68
75231	VL.155/70 B-6	69	-	6	42	18	27	18	28	20	120
75241	VL.155/70 B-M10	69	M10	-	42	18	27	-	-	17	85
75251	VL.155/70 B-M12	69	M12	-	42	18	27	-	-	20	90
75331	VL.155/80 B-8	82	-	8	48	19	33	20	35	26	183

VL.155-p

Code	Description	D	d6g	L	B	d1	l	
75031	VL.155/50 p-M8x25	51	M8	34	12	23	25	48
75032	VL.155/50 p-M8x40	51	M8	34	12	23	40	52
75041	VL.155/50 p-M10x30	51	M10	34	12	23	30	62
75042	VL.155/50 p-M10x50	51	M10	34	12	23	50	73
75141	VL.155/60 p-M8x30	61	M8	38	16	25	30	77
75151	VL.155/60 p-M10x30	61	M10	38	16	25	30	82
75261	VL.155/70 p-M10x30	69	M10	42	18	27	30	100
75262	VL.155/70 p-M10x50	69	M10	42	18	27	50	110
75271	VL.155/70 p-M12x25	69	M12	42	18	27	25	110
75272	VL.155/70 p-M12x50	69	M12	42	18	27	50	135
75341	VL.155/80 p-M12x30	82	M12	48	19	33	30	155
75342	VL.155/80 p-M12x50	82	M12	48	19	33	50	180

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Lobe knobs

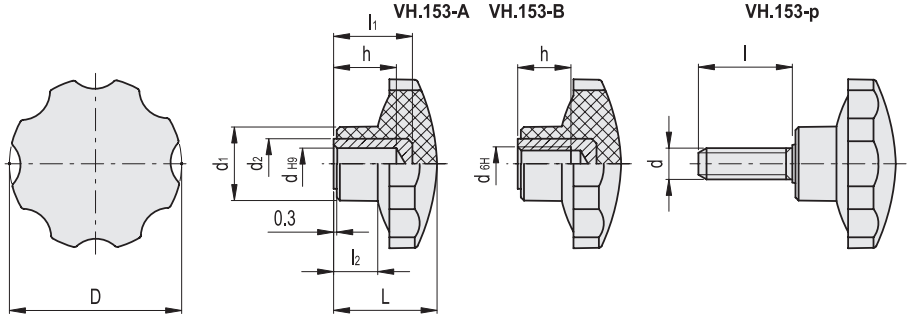
Duroplast

MATERIAL
Phenolic based (PF) Duroplast, black colour, glossy finish.

STANDARD EXECUTIONS
- **VH.153-A:** black-oxide steel boss, plain blind hole.
- **VH.153-B:** brass boss, plain or threaded blind hole.
- **VH.153-p:** zinc-plated steel threaded stud, chamfered flat end according to UNI 947 : ISO 4753 (see Technical Data on page A11).



ELESA Original design



VH.153-A

Code	Description	D	dH9	L	d1	d2	l1	l2	h	⚖
73302	VH.153/54 A-8	54	8	32	24	15	25	13	20	68
73303	VH.153/54 A-10	54	10	32	24	16	25	13	21	65
73402	VH.153/62 A-10	62	10	35	24	16	25	13	21	85
73501	VH.153/74 A-8	72	8	46	32	20	35	21	26	177
73601	VH.153/85 A-8	85	8	49	32	20	35	21	26	223

VH.153-B

Code	Description	D	d6H	dH9	L	d1	d2	l1	l2	h	⚖
73001	VH.153/25 B-4	25	-	4	18	15	11	14	9	11	15
73021	VH.153/25 B-M4	25	M4	-	18	15	-	-	9	10	10
73031	VH.153/25 B-M5	25	M5	-	18	15	-	-	9	10	10
73101	VH.153/35 B-6	35	-	6	22	19	12	17	10	14	25
73121	VH.153/35 B-8	35	-	8	22	19	12	18	10	14	33
73131	VH.153/35 B-M6	35	M6	-	22	19	-	-	10	12	19
73141	VH.153/35 B-M8	35	M8	-	22	19	-	-	10	13	22
73201	VH.153/44 B-6	44	-	6	26	19	12	17	10	14	35
73221	VH.153/44 B-8	44	-	8	26	19	12	18	10	14	33
73231	VH.153/44 B-M6	44	M6	-	26	19	-	-	10	12	29
73241	VH.153/44 B-M8	44	M8	-	26	19	-	-	10	13	31
73311	VH.153/54 B-6	54	-	6	32	24	15	23	13	18	69
73331	VH.153/54 B-M8	54	M8	-	32	24	-	-	13	13	53
73341	VH.153/54 B-M10	54	M10	-	32	24	-	-	13	17	55
73411	VH.153/62 B-8	62	-	8	35	24	15	25	13	20	85
73431	VH.153/62 B-M10	62	M10	-	35	24	-	-	13	17	80
73521	VH.153/74 B-M12	72	M12	-	46	32	-	-	21	20	132
73621	VH.153/85 B-M14	85	M14	-	49	32	-	-	21	20	184

VH.153-p

Code	Description	D	d6g	L	d1	l	l2	⚖
73041	VH.153/25 p-M6x20	25	M6	18	15	20	9	14
73151	VH.153/35 p-M6x16	35	M6	22	19	16	10	22
73161	VH.153/35 p-M8x16	35	M8	22	19	16	10	26
73162	VH.153/35 p-M8x25	35	M8	22	19	25	10	29
73163	VH.153/35 p-M8x35	35	M8	22	19	35	10	32
73251	VH.153/44 p-M8x20	44	M8	26	19	20	10	40
73252	VH.153/44 p-M8x25	44	M8	26	19	25	10	42
73253	VH.153/44 p-M8x30	44	M8	26	19	30	10	44
73254	VH.153/44 p-M8x40	44	M8	26	19	40	10	47
73255	VH.153/44 p-M8x50	44	M8	26	19	50	10	50
73261	VH.153/44 p-M10x25	44	M10	26	19	25	10	52
73262	VH.153/44 p-M10x30	44	M10	26	19	30	10	53
73263	VH.153/44 p-M10x50	44	M10	26	19	50	10	60
73351	VH.153/54 p-M10x30	54	M10	32	24	30	13	76
73441	VH.153/62 p-M10x40	62	M10	35	24	40	13	95
73451	VH.153/62 p-M12x30	62	M12	35	24	30	13	105
73531	VH.153/74 p-M12x50	72	M12	46	32	50	21	180

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Fluted grip knobs

ESD conductive technopolymer

MATERIAL

Glass-fibre reinforced polyamide based (PA) special conductive technopolymer, black colour, matte finish. 10^3 Ω surface resistivity (ASTM D257 trial method), 10^3 Ωcm volume resistivity (ASTM D257 trial method).

STANDARD EXECUTIONS

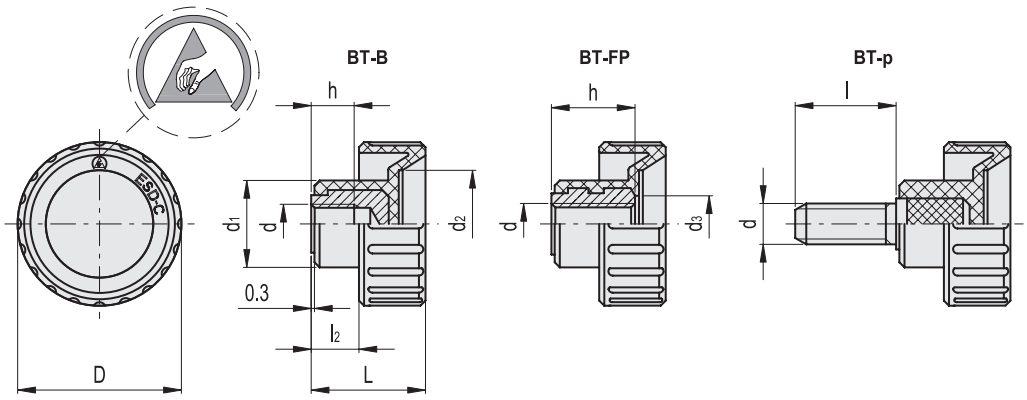
- **BT-B:** brass boss, threaded blind hole.
- **BT-FP:** brass boss, threaded through hole.
- **BT-p:** zinc-plated steel threaded stud, chamfered flat end according to UNI 947 : ISO 4753 (see Technical Data on page A11).

FEATURES AND APPLICATIONS

The special conductive technopolymer (ESD-C Electrostatic Discharge Conductive) prevents the accumulation of electrostatic charge. BT-ESD knobs are suitable for ESD PROTECTED AREA (EPA) where components which are susceptible to electrostatic discharges are to be handled with the minimum risk of damage. The indelibly printed mark (ESD-C) on the surface of the knob identifies the particular conductive feature according to EN 100015/1 and IEC 61340-5-1.



ELESA Original design



BT-B

Code	Description	D	d6H	L	d1	d2	l2	h	⚖
154121	BT.16 B-M4-ESD-C	16	M4	13	11	9	5	6	5
154221	BT.20 B-M5-ESD-C	20	M5	16	11.5	11	6	6	6
154321	BT.25 B-M6-ESD-C	26	M6	19	16	15	8	8	9
154421	BT.32 B-M8-ESD-C	32	M8	22	17	21	9	10	11

BT-FP

Code	Description	D	d6H	L	d1	d2	d3	l2	h	⚖
154132	BT.16 FP-M5-ESD-C	16	M5	13	11	9	6	5	10	5
154232	BT.20 FP-M6-ESD-C	20	M6	16	11.5	11	7	6	12	7
154332	BT.25 FP-M8-ESD-C	26	M8	19	16	15	9	8	14	11
154432	BT.32 FP-M10-ESD-C	32	M10	22	17	21	11	9	16	13

BT-p

Code	Description	D	d6g	L	d1	d2	l	l2	⚖
154151	BT.16 p-M5x10-ESD-C	16	M5	13	11	9	10	5	6
154152	BT.16 p-M5x16-ESD-C	16	M5	13	11	9	16	5	6
154251	BT.20 p-M6x10-ESD-C	20	M6	16	11.5	11	10	6	9
154252	BT.20 p-M6x16-ESD-C	20	M6	16	11.5	11	16	6	11
154253	BT.20 p-M6x25-ESD-C	20	M6	16	11.5	11	25	6	16
154351	BT.25 p-M8x16-ESD-C	26	M8	19	16	15	16	8	15
154352	BT.25 p-M8x25-ESD-C	26	M8	19	16	15	25	8	18
154451	BT.32 p-M10x20-ESD-C	32	M10	22	17	21	20	9	25
154452	BT.32 p-M10x30-ESD-C	32	M10	22	17	21	30	9	28

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Fluted grip knobs

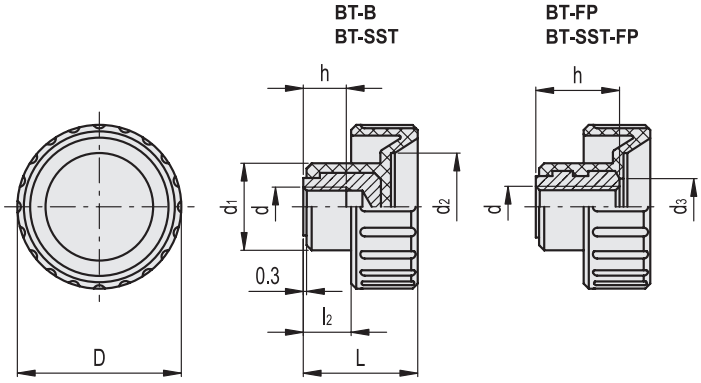
Technopolymer

MATERIAL
Polyamide based (PA) technopolymer, black colour, matte finish.

STANDARD EXECUTION
- **BT-B**: brass boss, threaded blind hole.
- **BT-SST**: AISI 303 stainless steel boss, threaded blind hole.
- **BT-FP**: brass boss, threaded pass-through hole.
- **BT-SST-FP**: AISI 303 stainless steel, threaded pass-through hole.
- **BT-p:** zinc-plated steel threaded stud, chamfered flat end according to UNI 947 : ISO 4753 (see Technical Data on page A11).
- **BT-SST-p:** AISI 303 stainless steel threaded stud, chamfered flat end according to UNI 947 : ISO 4753 (see Technical Data on page A11).



ELESA Original design



BT-B

Code	Description	D	d6H	L	d1	d2	l2	h	⚖
6310	BT.12 B-M3	12	M3	11.5	9.5	6	4	6	5
6311	BT.12 B-M4	12	M4	11.5	9.5	6	4	6	4
6312	BT.12 B-M5	12	M5	11.5	9.5	6	4	6	3
6320	BT.16 B-M3	16	M3	13	11	9	5	6	6
6321	BT.16 B-M4	16	M4	13	11	9	5	6	5
6322	BT.16 B-M5	16	M5	13	11	9	5	6	4
6521	BT.20 B-M5	20	M5	16	11.5	11	6	6	6
6522	BT.20 B-M6	20	M6	16	11.5	11	6	6	7
6611	BT.25 B-M5	26	M5	19	16	15	8	6	10
6621	BT.25 B-M6	26	M6	19	16	15	8	8	9
6721	BT.32 B-M8	32	M8	22	17	21	9	10	11
6811	BT.40 B-M8	40	M8	27	19	25	13	13	21
6813	BT.40 B-M10	40	M10	27	19	25	13	13	19
6863	BT.50 B-M10	50	M10	28.5	22	31	13.5	13	25

BT-FP

Code	Description	D	d6H	L	d1	d2	d3	l2	h	⚖
6331	BT.16 FP-M4	16	M4	13	11	9	5	5	10	4
6336	BT.16 FP-M5	16	M5	13	11	9	6	5	10	5
6530	BT.20 FP-M5	20	M5	16	11.5	11	6	6	12	8
6531	BT.20 FP-M6	20	M6	16	11.5	11	7	6	12	7
6631	BT.25 FP-M6	26	M6	19	16	15	7	8	14	9
6636	BT.25 FP-M8	26	M8	19	16	15	9	8	14	11
6730	BT.32 FP-M6	32	M6	22	17	21	7	9	16	18
6731	BT.32 FP-M8	32	M8	22	17	21	10	9	16	15
6732	BT.32 FP-M10	32	M10	22	17	21	11	9	16	13
6803	BT.40 FP-M10	40	M10	27	19	25	14	13	20	25
6850	BT.50 FP-M10	50	M10	28.5	22	31	14	13.5	20	32

BT-SST STAINLESS STEEL

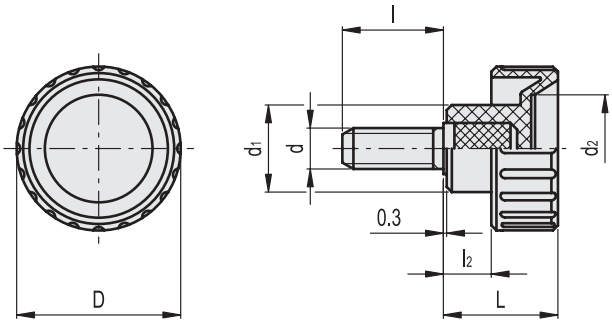
Code	Description	D	d6H	L	d1	d2	l2	h	⚖
106521	BT.20-SST-M5	20	M5	16	11.5	11	6	5	6
106621	BT.25-SST-M6	26	M6	19	16	15	8	8	9
106721	BT.32-SST-M8	32	M8	22	17	21	9	10	12

BT-SST-FP STAINLESS STEEL

Code	Description	D	d6H	L	d1	d2	d3	l2	h	⚖
106530	BT.20-SST-FP-M5	20	M5	16	11.5	11	6	6	12	7
106631	BT.25-SST-FP-M6	26	M6	19	16	15	7	8	14	9
106731	BT.32-SST-FP-M8	32	M8	22	17	21	10	9	16	15

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BT-p
BT-SST-p



BT-p

Code	Description	D	d6g	L	d1	d2	l	l2	⚖
6341	BT.12 p-M4x10	12	M4	11.5	9.5	6	10	4	3
6342	BT.12 p-M4x16	12	M4	11.5	9.5	6	16	4	3
6343	BT.12 p-M5x10	12	M5	11.5	9.5	6	10	4	4
6344	BT.12 p-M5x16	12	M5	11.5	9.5	6	16	4	4
6351	BT.16 p-M4x10	16	M4	13	11	9	10	5	3
6356	BT.16 p-M4x16	16	M4	13	11	9	16	5	3
6361	BT.16 p-M4x20	16	M4	13	11	9	20	5	4
6366	BT.16 p-M4x30	16	M4	13	11	9	30	5	5
6371	BT.16 p-M5x10	16	M5	13	11	9	10	5	6
6376	BT.16 p-M5x16	16	M5	13	11	9	16	5	7
6541	BT.20 p-M5x10	20	M5	16	11.5	11	10	6	7
6546	BT.20 p-M5x16	20	M5	16	11.5	11	16	6	8
6548	BT.20 p-M5x20	20	M5	16	11.5	11	20	6	8
6551	BT.20 p-M5x25	20	M5	16	11.5	11	25	6	9
6571	BT.20 p-M6x10	20	M6	16	11.5	11	10	6	9
6576	BT.20 p-M6x16	20	M6	16	11.5	11	16	6	11
6581	BT.20 p-M6x25	20	M6	16	11.5	11	25	6	13
6591	BT.20 p-M6x40	20	M6	16	11.5	11	40	6	16
6638	BT.25 p-M6x10	26	M6	16	11.5	15	10	8	18
6641	BT.25 p-M6x16	26	M6	19	16	15	16	8	20
6643	BT.25 p-M6x20	26	M6	19	16	15	20	8	23
6646	BT.25 p-M6x25	26	M6	19	16	15	25	8	27
6647	BT.25 p-M6x30	26	M6	19	16	15	30	8	30
6649	BT.25 p-M6x50	26	M6	19	16	15	50	8	32
6661	BT.25 p-M8x16	26	M8	19	16	15	16	8	22
6666	BT.25 p-M8x25	26	M8	19	16	15	25	8	27
6753	BT.32 p-M8x16	32	M8	22	17	21	16	9	25
6754	BT.32 p-M8x20	32	M8	22	17	21	20	9	28
6755	BT.32 p-M8x25	32	M8	22	17	21	25	9	31
6756	BT.32 p-M8x30	32	M8	22	17	21	30	9	35
6758	BT.32 p-M8x40	32	M8	22	17	21	40	9	42
6763	BT.32 p-M10x20	32	M10	22	17	21	20	9	32
6764	BT.32 p-M10x25	32	M10	22	17	21	25	9	34
6765	BT.32 p-M10x30	32	M10	22	17	21	30	9	37
6768	BT.32 p-M10x40	32	M10	22	17	21	40	9	42
6833	BT.40 p-M10x30	40	M10	27	19	25	30	13	40
6883	BT.50 p-M10x30	50	M10	28.5	22	31	30	13.5	44

BT-SST-p **STAINLESS STEEL**

Code	Description	D	d6g	L	d1	d2	l	l2	⚖
106541	BT.20-SST-p-M5x10	20	M5	16	11.5	11	10	6	8
106542	BT.20-SST-p-M5x16	20	M5	16	11.5	11	16	6	9
106642	BT.25-SST-p-M6x16	26	M6	19	16	15	16	8	20
106644	BT.25-SST-p-M6x20	26	M6	19	16	15	20	8	24
106647	BT.25-SST-p-M6x30	26	M6	19	16	15	30	8	28
106752	BT.32-SST-p-M8x16	32	M8	22	17	21	16	9	26
106754	BT.32-SST-p-M8x20	32	M8	22	17	21	20	9	29
106757	BT.32-SST-p-M8x30	32	M8	22	17	21	30	9	36

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Knurled grip knobs

Duroplast

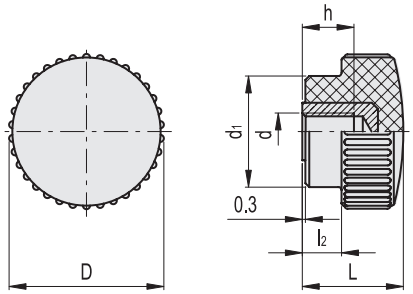
MATERIAL
Phenolic based (PF) Duroplast, black colour, glossy finish.

STANDARD EXECUTIONS
- **B.193-B:** brass boss, threaded blind hole.
- **B.193-SST:** AISI 303 stainless steel boss, threaded blind hole.
- **B.193-FP:** brass boss, threaded through hole.
- **B.193-p:** zinc-plated steel threaded stud, chamfered flat end according to UNI 947 : ISO 4753 (see Technical Data on page A11).
- **B.193-SST-p:** AISI 303 stainless steel threaded stud, chamfered flat end according to UNI 947 : ISO 4753 (see Technical Data on page A11).

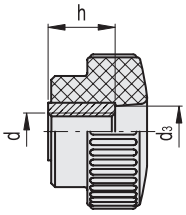


ELESA Original design

B.193-B
B.193-SST



B.193-FP



B.193-B

Code	Description	D	d6H	L	d1	l2	h	⚖
2101	B.193/15 B-M3	15	M3	11	11	2	6	4
2102	B.193/15 B-M4	15	M4	11	11	2	6	4
2103	B.193/15 B-M5	15	M5	11	11	2	5	4
2201	B.193/18 B-M5	18	M5	12	13	3	5	5
2301	B.193/20 B-M6	22	M6	14	15	4	6	8
2401	B.193/25 B-M6	26	M6	18	19	6	10	13
2501	B.193/30 B-M8	31	M8	18	24	6	10	20
2601	B.193/35 B-M8	36	M8	23	27	8	10	30
2701	B.193/40 B-M10	40	M10	26	29	10	13	38
2801	B.193/50 B-M10	50	M10	32	36	12	17	73
2802	B.193/50 B-M12	50	M12	32	36	12	20	80

B.193-SST STAINLESS STEEL

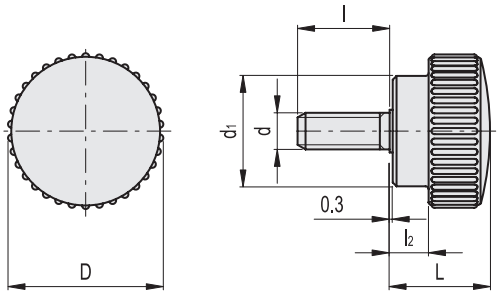
Code	Description	D	d6H	L	d1	l2	h	⚖
102103	B.193/15-SST-M5	15	M5	11	11	2	6	4
102301	B.193/20-SST-M6	22	M6	14	15	4	6	8
102401	B.193/25-SST-M6	26	M6	18	19	6	10	13
102501	B.193/30-SST-M8	31	M8	18	24	6	10	20

B.193-FP

Code	Description	D	d6H	L	d1	d3	l2	h	⚖
2111	B.193/15 FP-M4	15	M4	11	11	6	2	10	4
2211	B.193/18 FP-M5	18	M5	12	13	7	3	10	5
2311	B.193/20 FP-M6	22	M6	14	15	8	4	11	8
2411	B.193/25 FP-M6	26	M6	18	19	10	6	15	16
2412	B.193/25 FP-M8	26	M8	18	19	10	6	15	17
2511	B.193/30 FP-M6	31	M6	18	24	13	6	15	22
2512	B.193/30 FP-M8	31	M8	18	24	13	6	15	21
2513	B.193/30 FP-M10	31	M10	18	24	13	6	15	24
2514	B.193/30 FP-M12	31	M12	18	24	13	6	15	20
2611	B.193/35 FP-M10	36	M10	22.5	27	14	8	15	31
2612	B.193/35 FP-M12	36	M12	22.5	27	14	8	15	30
2711	B.193/40 FP-M10	40	M10	26	29	14	10	15	40
2712	B.193/40 FP-M12	40	M12	26	29	14	10	15	38
2811	B.193/50 FP-M12	50	M12	32	36	21	12	21	72

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B.193-p
B.193-SST-p



B.193-p

Code	Description	D	d6g	L	d1	l	l2	⚖
2115	B.193/15 p-M3x6	15	M3	11	11	6	2	2
2116	B.193/15 p-M3x10	15	M3	11	11	10	2	3
2117	B.193/15 p-M3x16	15	M3	11	11	16	2	4
2121	B.193/15 p-M4x6	15	M4	11	11	6	2	3
2122	B.193/15 p-M4x10	15	M4	11	11	10	2	4
2123	B.193/15 p-M4x16	15	M4	11	11	16	2	5
2131	B.193/15 p-M5x10	15	M5	11	11	10	2	5
2132	B.193/15 p-M5x16	15	M5	11	11	16	2	6
2133	B.193/15 p-M5x25	15	M5	11	11	25	2	7
2221	B.193/18 p-M5x10	18	M5	12	13	10	3	6
2222	B.193/18 p-M5x16	18	M5	12	13	16	3	7
2224	B.193/18 p-M5x25	18	M5	12	13	25	3	9
2223	B.193/18 p-M5x40	18	M5	12	13	40	3	11
2321	B.193/20 p-M6x10	22	M6	14	15	10	4	9
2322	B.193/20 p-M6x16	22	M6	14	15	16	4	10
2325	B.193/20 p-M6x20	22	M6	14	15	20	4	11
2323	B.193/20 p-M6x25	22	M6	14	15	25	4	12
2326	B.193/20 p-M6x30	22	M6	14	15	30	4	14
2324	B.193/20 p-M6x40	22	M6	14	15	40	4	15
2421	B.193/25 p-M6x16	26	M6	18	19	16	6	14
2422	B.193/25 p-M6x25	26	M6	18	19	25	6	16
2431	B.193/25 p-M8x16	26	M8	18	19	16	6	20
2432	B.193/25 p-M8x25	26	M8	18	19	25	6	23
2521	B.193/30 p-M8x16	31	M8	18	24	16	6	25
2522	B.193/30 p-M8x25	31	M8	18	24	25	6	28
2523	B.193/30 p-M8x40	31	M8	18	24	40	6	32
2621	B.193/35 p-M8x25	36	M8	23	27	25	8	38
2622	B.193/35 p-M8x40	36	M8	23	27	40	8	42
2721	B.193/40 p-M10x30	40	M10	26	29	30	10	59
2821	B.193/50 p-M10x40	50	M10	32	36	40	12	94

B.193-SST-p STAINLESS STEEL

Code	Description	D	d6g	L	d1	l	l2	⚖
102115	B.193/15-SST-p-M3x6	15	M3	11	11	6	2	2
102116	B.193/15-SST-p-M3x10	15	M3	11	11	10	2	3
102117	B.193/15-SST-p-M3x16	15	M3	11	11	16	2	4
102121	B.193/15-SST-p-M4x6	15	M4	11	11	6	2	3
102122	B.193/15-SST-p-M4x10	15	M4	11	11	10	2	4
102123	B.193/15-SST-p-M4x16	15	M4	11	11	16	2	5
102131	B.193/15-SST-p-M5x10	15	M5	11	11	10	2	4
102132	B.193/15-SST-p-M5x16	15	M5	11	11	16	2	5
102133	B.193/15-SST-p-M5x25	15	M5	11	11	25	2	8
102221	B.193/18-SST-p-M5x10	18	M5	12	13	10	3	6
102222	B.193/18-SST-p-M5x16	18	M5	12	13	16	3	7
102224	B.193/18-SST-p-M5x25	18	M5	12	13	25	3	9
102321	B.193/20-SST-p-M6x10	22	M6	14	15	10	4	9
102322	B.193/20-SST-p-M6x16	22	M6	14	15	16	4	10
102325	B.193/20-SST-p-M6x20	22	M6	14	15	20	4	12
102323	B.193/20-SST-p-M6x25	22	M6	14	15	25	4	14
102326	B.193/20-SST-p-M6x30	22	M6	14	15	30	4	16
102421	B.193/25-SST-p-M6x16	26	M6	18	19	16	6	14
102422	B.193/25-SST-p-M6x25	26	M6	18	19	25	6	16
102521	B.193/30-SST-p-M8x16	31	M8	18	24	16	6	20
102522	B.193/30-SST-p-M8x25	31	M8	18	24	25	6	24
102523	B.193/30-SST-p-M8x40	31	M8	18	24	40	6	30

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Knurled grip knobs

Duroplast

MATERIAL
Phenolic based (PF) Duroplast.

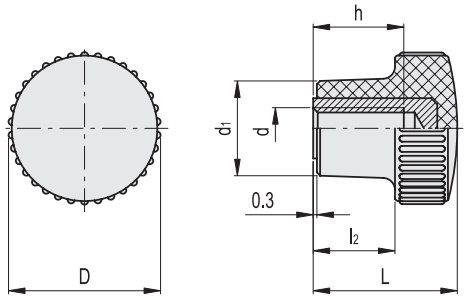
COLOUR
- B.259: black, glossy finish.
- B.259-CLEAN: white similar to RAL 9002, glossy finish.

STANDARD EXECUTIONS
- **B.259-B:** brass boss, threaded blind hole.
- **B.259-p:** zinc-plated steel threaded stud, chamfered flat end according to UNI 947 : ISO 4753 (see Technical Data on page A11).
- **B.259-CLEAN**: AISI 303 stainless steel boss, threaded blind hole.

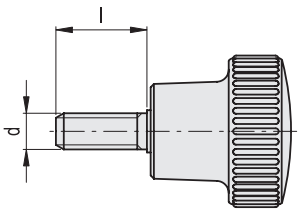
FEATURES AND APPLICATIONS (B.259-CLEAN)
B.259-CLEAN knob, thanks to its white colour and glossy finish, is particularly suitable for applications on medical and hospital equipment and on food processing machines whose parts, for hygienic reasons, must be frequently cleaned. Its solid shape without cavities prevents unhealthy residues from depositing.



B.259-B
B.259-CLEAN



B.259-p



B.259-B

Code	Description	D	d6H	L	d1	l2	h	⚖
3001	B.259/20 B-M5	21	M5	25	13	12	16	12
3002	B.259/20 B-M6	21	M6	25	13	12	16	11
3111	B.259/25 B-M6	26	M6	28	16	15	16	18
3112	B.259/25 B-M8	26	M8	28	16	15	20	19
3201	B.259/30 B-M6	31	M6	32	19	17	16	25
3202	B.259/30 B-M8	31	M8	32	19	17	20	28
3203	B.259/30 B-M10	31	M10	32	19	17	17	29

B.259-p

Code	Description	D	d6g	L	d1	l	l2	⚖
3011	B.259/20 p-M6x16	21	M6	25	13	16	12	13
3121	B.259/25 p-M8x20	26	M8	28	16	20	15	25
3211	B.259/30 p-M8x25	31	M8	32	19	25	17	38

B.259-CLEAN STAINLESS STEEL

Code	Description	D	d6H	L	d1	l2	h	⚖
151102	B.259/20-SST-M6 CLEAN	21	M6	25	13	12	12	11
151112	B.259/25-SST-M8 CLEAN	26	M8	28	16	15	13	19
151123	B.259/30-SST-M10 CLEAN	31	M10	32	19	17	17	29

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B.220

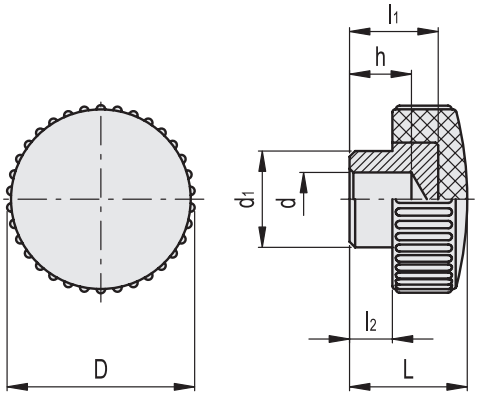
Knurled grip knobs

Duroplast

MATERIAL
Phenolic based (PF) Duroplast, black colour, glossy finish.

STANDARD EXECUTION
Black-oxide steel hub, plain blind hole.





Code	Description	D	dH9	L	d1	l1	l2	h	⚖
2901	B.220/35	35	10	21	18	15	8	10	37

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GN 535

Stainless Steel-Knurled screws

SPECIFICATION

Stainless Steel AISI 304

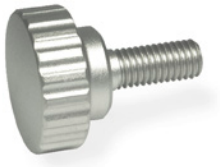
- matt shot-blasted **MT**
- highly polished **PL**

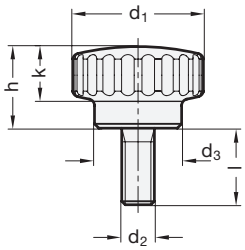
INFORMATION

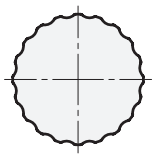
The knurling of Stainless Steel-Knurled screws GN 535 allows a use in an environment with hygienic requirements.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)







GN 535 **STAINLESS STEEL**

Description	d1	d2	l	d3	h	k	⚖
GN 535-20-M5-10-MT	20	M 5	10	14	13	8.5	26
GN 535-20-M5-10-PL	20	M 5	10	14	13	8.5	26
GN 535-20-M5-16-MT	20	M 5	16	14	13	8.5	27
GN 535-20-M5-16-PL	20	M 5	16	14	13	8.5	27
GN 535-24-M6-16-MT	24	M 6	16	16	15	10.5	43
GN 535-24-M6-16-PL	24	M 6	16	16	15	10.5	43
GN 535-24-M6-20-MT	24	M 6	20	16	15	10.5	44
GN 535-24-M6-20-PL	24	M 6	20	16	15	10.5	44
GN 535-24-M6-25-MT	24	M 6	25	16	15	10.5	45
GN 535-24-M6-25-PL	24	M 6	25	16	15	10.5	45
GN 535-28-M8-16-MT	28	M 8	16	18	17	12.5	68
GN 535-28-M8-16-PL	28	M 8	16	18	17	12.5	68
GN 535-28-M8-20-MT	28	M 8	20	18	17	12.5	69
GN 535-28-M8-20-PL	28	M 8	20	18	17	12.5	69
GN 535-28-M8-30-MT	28	M 8	30	18	17	12.5	72
GN 535-28-M8-30-PL	28	M 8	30	18	17	12.5	72

GN 536

Stainless Steel-Knurled nuts

SPECIFICATION

Stainless Steel AISI 304

- matt shot-blasted **MT**
- highly polished **PL**

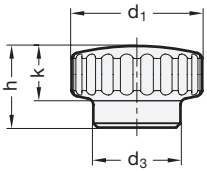
INFORMATION

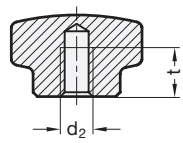
The knurling of Stainless Steel-Knurled nuts GN 536 allows a use in an environment with hygienic requirements.

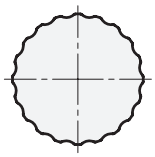
TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)









GN 536 **STAINLESS STEEL**

Description	d1	d2	d3	h	k	t min.	⚖
GN 536-20-M5-MT	20	M 5	14	13	8.5	8	24
GN 536-20-M5-PL	20	M 5	14	13	8.5	8	24
GN 536-24-M6-MT	24	M 6	16	15	10.5	9	38
GN 536-24-M6-PL	24	M 6	16	15	10.5	9	38
GN 536-28-M8-MT	28	M 8	18	17	12.5	10	58
GN 536-28-M8-PL	28	M 8	18	17	12.5	10	58

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DIN 6303

Knurled nuts

Steel / Stainless Steel

SPECIFICATION

Types

- Type **A**: without dowel hole
- Type **B**: with dowel hole (in Stainless Steel requires a minimum order quanitity)

Version in Steel

- Tensile strength class 5
- blackened

Version in Stainless Steel AISI 303 NI

matt shot-blasted



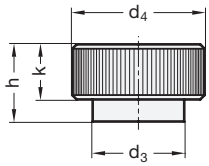


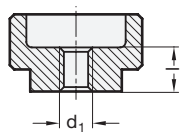
INFORMATION

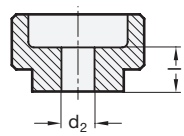
The dowel bore d_5 in the knurled nut DIN 6303 is designed for the use of clamping or notch pins.
Knurled nuts DIN 6303 with H7 bore and the size M12 are not provided on the official standard sheet.

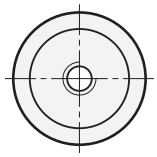
TECHNICAL INFORMATION

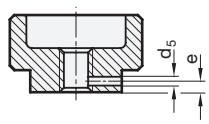
- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)

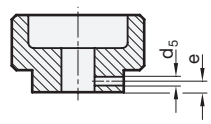












* Complete with type index of the knurled nut (A or B)

A	B
without dowel hole	with dowel hole

DIN 6303

Description	d_1	d_2 H7	d_3	d_4	d_5 H11	e	h	k	l	⚖
DIN 6303-M5-*	M5	-	14	20	1.5	2.5	12	8	7	15
DIN 6303-B5-*	-	B 5	14	20	1.5	2.5	12	8	7	18
DIN 6303-M6-*	M6	-	16	24	1.5	2.5	14	10	8	27
DIN 6303-B6-*	-	B 6	16	24	1.5	2.5	14	10	8	29
DIN 6303-M8-*	M8	-	20	30	2	3	17	12	10	47
DIN 6303-B8-*	-	B 8	20	30	2	3	17	12	10	45
DIN 6303-M10-*	M10	-	28	36	3	4	20	14	12	85
DIN 6303-B10-*	-	B 10	28	36	3	4	20	14	12	89
DIN 6303-M12-*	M12	-	32	40	4	4	24	16	16	132
DIN 6303-B12-*	-	B 12	32	40	4	4	24	16	16	124

DIN 6303-NI

STAINLESS STEEL

Description	d_1	d_3	d_4	d_5 H11	e	h	k	l	⚖
DIN 6303-M5-A-NI	M5	14	20	-	-	12	8	7	15
DIN 6303-M6-A-NI	M6	16	24	-	-	14	10	8	27
DIN 6303-M8-A-NI	M8	20	30	-	-	17	12	10	44
DIN 6303-M10-A-NI	M10	28	36	-	-	20	14	12	85
DIN 6303-M12-A-NI	M12	32	40	-	-	24	16	16	132
DIN 6303-M5-B-NI	M5**	14	20	1.5	2.5	12	8	7	15
DIN 6303-M6-B-NI	M6**	16	24	1.5	2.5	14	10	8	27
DIN 6303-M8-B-NI	M8**	20	30	2	3	17	12	10	47
DIN 6303-M10-B-NI	M10**	28	36	3	4	20	14	12	85
DIN 6303-M12-B-NI	M12**	32	40	4	4	24	16	16	132

** usually not available from stock, requires a minimum order quantity

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Knurled screws

Steel / Stainless Steel

SPECIFICATION

Version in Steel

- Tensile strength class 5
- visible face fine turned
- blackened

Version in Stainless Steel AISI 303 NI

- visible face fine turned
- matt shot-blasted

INFORMATION

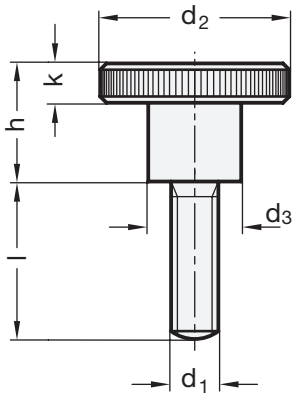
All knurled screws DIN 464 are produced from one piece.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)







DIN 464

Description	d1	l	d2	d3	h	k	⚖
DIN 464-M3-6	M 3	6	12	6	7.5	2.5	4
DIN 464-M3-10	M 3	10	12	6	7.5	2.5	4
DIN 464-M3-12	M 3	12	12	6	7.5	2.5	4
DIN 464-M3-16	M 3	16	12	6	7.5	2.5	5
DIN 464-M3-20	M 3	20	12	6	7.5	2.5	5
DIN 464-M4-5	M 4	5	16	8	9.5	3.5	7
DIN 464-M4-8	M 4	8	16	8	9.5	3.5	8
DIN 464-M4-10	M 4	10	16	8	9.5	3.5	8
DIN 464-M4-12	M 4	12	16	8	9.5	3.5	8
DIN 464-M4-16	M 4	16	16	8	9.5	3.5	9
DIN 464-M4-20	M 4	20	16	8	9.5	3.5	9
DIN 464-M4-25	M 4	25	16	8	9.5	3.5	10
DIN 464-M5-6	M 5	6	20	10	11.5	4	15
DIN 464-M5-8	M 5	8	20	10	11.5	4	16
DIN 464-M5-10	M 5	10	20	10	11.5	4	15
DIN 464-M5-12	M 5	12	20	10	11.5	4	16
DIN 464-M5-16	M 5	16	20	10	11.5	4	17
DIN 464-M5-20	M 5	20	20	10	11.5	4	18
DIN 464-M5-25	M 5	25	20	10	11.5	4	19
DIN 464-M5-30	M 5	30	20	10	11.5	4	20

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DIN 464 | Knurled screws

DIN 464

Description	d1	l	d2	d3	h	k	⚖
DIN 464-M6-8	M 6	8	24	12	15	5	27
DIN 464-M6-10	M 6	10	24	12	15	5	28
DIN 464-M6-12	M 6	12	24	12	15	5	29
DIN 464-M6-16	M 6	16	24	12	15	5	30
DIN 464-M6-20	M 6	20	24	12	15	5	28
DIN 464-M6-25	M 6	25	24	12	15	5	30
DIN 464-M6-30	M 6	30	24	12	15	5	30
DIN 464-M6-35	M 6	35	24	12	15	5	31
DIN 464-M8-12	M 8	12	30	16	18	6	55
DIN 464-M8-16	M 8	16	30	16	18	6	55
DIN 464-M8-20	M 8	20	30	16	18	6	56
DIN 464-M8-25	M 8	25	30	16	18	6	57
DIN 464-M8-30	M 8	30	30	16	18	6	61
DIN 464-M8-35	M 8	35	30	16	18	6	63
DIN 464-M8-40	M 8	40	30	16	18	6	65
DIN 464-M10-15	M 10	15	36	20	23	8	107
DIN 464-M10-20	M 10	20	36	20	23	8	106
DIN 464-M10-25	M 10	25	36	20	23	8	112
DIN 464-M10-30	M 10	30	36	20	23	8	111
DIN 464-M10-35	M 10	35	36	20	23	8	117
DIN 464-M10-40	M 10	40	36	20	23	8	117

DIN 464-NI **STAINLESS STEEL**

Description	d1	l	d2	d3	h	k	⚖
DIN 464-M3-6-NI	M 3	6	12	6	7.5	3	4
DIN 464-M3-10-NI	M 3	10	12	6	7.5	3	4
DIN 464-M3-12-NI	M 3	12	12	6	7.5	3	4
DIN 464-M3-16-NI	M 3	16	12	6	7.5	3	5
DIN 464-M4-8-NI	M 4	8	16	8	9.5	3.5	8
DIN 464-M4-10-NI	M 4	10	16	8	9.5	3.5	8
DIN 464-M4-12-NI	M 4	12	16	8	9.5	3.5	9
DIN 464-M4-16-NI	M 4	16	16	8	9.5	3.5	9
DIN 464-M4-20-NI	M 4	20	16	8	9.5	3.5	9
DIN 464-M4-25-NI	M 4	25	16	8	9.5	3.5	10
DIN 464-M5-10-NI	M 5	10	20	10	11.5	4	15
DIN 464-M5-12-NI	M 5	12	20	10	11.5	4	16
DIN 464-M5-16-NI	M 5	16	20	10	11.5	4	15
DIN 464-M5-20-NI	M 5	20	20	10	11.5	4	16
DIN 464-M5-25-NI	M 5	25	20	10	11.5	4	17
DIN 464-M5-30-NI	M 5	30	20	10	11.5	4	18
DIN 464-M6-12-NI	M 6	12	24	12	15	5	26
DIN 464-M6-16-NI	M 6	16	24	12	15	5	28
DIN 464-M6-20-NI	M 6	20	24	12	15	5	30
DIN 464-M6-25-NI	M 6	25	24	12	15	5	30
DIN 464-M6-30-NI	M 6	30	24	12	15	5	30
DIN 464-M6-35-NI	M 6	35	24	12	15	5	31
DIN 464-M8-16-NI	M 8	16	30	16	18	6	56
DIN 464-M8-20-NI	M 8	20	30	16	18	6	56
DIN 464-M8-25-NI	M 8	25	30	16	18	6	57
DIN 464-M8-30-NI	M 8	30	30	16	18	6	60
DIN 464-M8-35-NI	M 8	35	30	16	18	6	60

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DIN 466

Knurled nuts

Steel / Stainless Steel

SPECIFICATION

Version in Steel

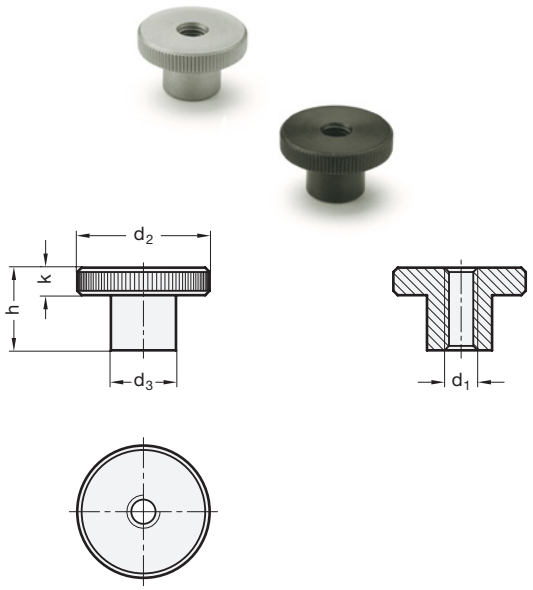
- Tensile strength class 5
- visible face fine turned
- blackened

Version in Stainless Steel AISI 303 NI

- matt shot-blasted

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)



DIN 466

Description	d1	d2	d3	h	k	⚖
DIN 466-M3	M 3	12	6	7.5	2.5	3
DIN 466-M4	M 4	16	8	9.5	3.5	6
DIN 466-M5	M 5	20	10	11.5	4	11
DIN 466-M6	M 6	24	12	15	5	22
DIN 466-M8	M 8	30	16	18	6	44
DIN 466-M10	M 10	36	20	23	8	84
DIN 466-M12	M 12	40	22	25	10	100

DIN 466-NI — **STAINLESS STEEL**

Description	d1	d2	d3	h	k	⚖
DIN 466-M4-NI	M 4	16	8	9.5	3.5	6
DIN 466-M5-NI	M 5	20	10	11.5	4	12
DIN 466-M6-NI	M 6	24	12	15	5	22
DIN 466-M8-NI	M 8	30	16	18	6	44
DIN 466-M10-NI	M 10	36	20	23	8	84

DIN 467

Flat knurled nuts

Steel / Stainless Steel

SPECIFICATION

Version in Steel

- Tensile strength class 5
- visible face fine turned
- blackened

Version in Stainless Steel AISI 303 NI

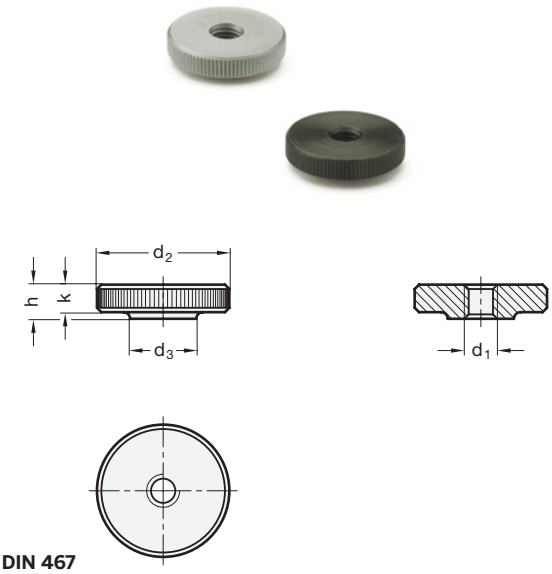
- matt shot-blasted

INFORMATION

The official standard sheet also provides for the sizes M1 / M1.2 / M1.4 / M1.6 / M2 and M2.5, on the other hand lack the size M12.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



DIN 467

Description	d1	d2	d3	h	k	⚖
DIN 467-M3	M 3	12	6	3	2.5	2
DIN 467-M4	M 4	16	8	4	3.5	5
DIN 467-M5	M 5	20	10	5	4	9
DIN 467-M6	M 6	24	12	6	5	17
DIN 467-M8	M 8	30	16	8	6	32
DIN 467-M10	M 10	36	20	10	8	62
DIN 467-M12	M 12	40	22	12	10	92

DIN 467-NI — **STAINLESS STEEL**

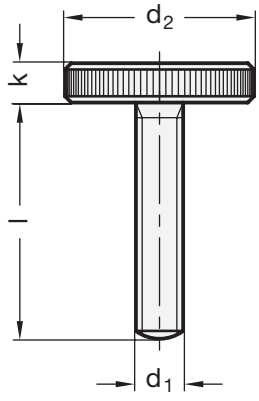
Description	d1	d2	d3	h	k	⚖
DIN 467-M3-NI	M 3	12	6	3	2.5	2
DIN 467-M4-NI	M 4	16	8	4	3.5	5
DIN 467-M5-NI	M 5	20	10	5	4	9
DIN 467-M6-NI	M 6	24	12	6	5	17
DIN 467-M8-NI	M 8	30	16	8	6	30
DIN 467-M10-NI	M 10	36	20	10	8	61

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Flat knurled screws

Steel / Stainless Steel





SPECIFICATION

Version in Steel

- Tensile strength class 5
- visible face fine turned
- blackened

Version in Stainless Steel AISI 303 NI

- visible face fine turned
- matt shot-blasted

INFORMATION

All flat knurled screws DIN 653 are produced form one piece and threaded over its full length.

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)

DIN 653

Description	d1	l	d2	k	⚖
DIN 653-M3-6	M 3	6	12	2.5	3
DIN 653-M3-8	M 3	8	12	2.5	3
DIN 653-M3-10	M 3	10	12	2.5	3
DIN 653-M3-16	M 3	16	12	2.5	3
DIN 653-M3-20	M 3	20	12	2.5	3
DIN 653-M4-8	M 4	8	16	3.5	6
DIN 653-M4-10	M 4	10	16	3.5	6
DIN 653-M4-12	M 4	12	16	3.5	7
DIN 653-M4-16	M 4	16	16	3.5	7
DIN 653-M4-20	M 4	20	16	3.5	7
DIN 653-M4-25	M 4	25	16	3.5	7
DIN 653-M5-10	M 5	10	20	4	10
DIN 653-M5-12	M 5	12	20	4	10
DIN 653-M5-16	M 5	16	20	4	10
DIN 653-M5-20	M 5	20	20	4	13
DIN 653-M5-25	M 5	25	20	4	14
DIN 653-M5-30	M 5	30	20	4	14
DIN 653-M6-12	M 6	12	24	5	19
DIN 653-M6-16	M 6	16	24	5	20
DIN 653-M6-20	M 6	20	24	5	20
DIN 653-M6-25	M 6	25	24	5	20
DIN 653-M6-30	M 6	30	24	5	20
DIN 653-M6-40	M 6	40	24	5	23
DIN 653-M8-16	M 8	16	30	6	37
DIN 653-M8-20	M 8	20	30	6	39
DIN 653-M8-25	M 8	25	30	6	40
DIN 653-M8-30	M 8	30	30	6	42
DIN 653-M8-35	M 8	35	30	6	43
DIN 653-M8-40	M 8	40	30	6	48
DIN 653-M10-20	M 10	20	36	8	72
DIN 653-M10-25	M 10	25	36	8	74
DIN 653-M10-30	M 10	30	36	8	76
DIN 653-M10-35	M 10	35	36	8	75
DIN 653-M10-40	M 10	40	36	8	80

DIN 653-NI STAINLESS STEEL

Description	d1	l	d2	k	⚖
DIN 653-M3-6-NI	M 3	6	12	2.5	2
DIN 653-M3-8-NI	M 3	8	12	2.5	2
DIN 653-M3-10-NI	M 3	10	12	2.5	3
DIN 653-M3-16-NI	M 3	16	12	2.5	3
DIN 653-M4-8-NI	M 4	8	16	3.5	6
DIN 653-M4-10-NI	M 4	10	16	3.5	6
DIN 653-M4-12-NI	M 4	12	16	3.5	7
DIN 653-M4-16-NI	M 4	16	16	3.5	7
DIN 653-M5-10-NI	M 5	10	20	4	11
DIN 653-M5-12-NI	M 5	12	20	4	11
DIN 653-M5-16-NI	M 5	16	20	4	12
DIN 653-M5-20-NI	M 5	20	20	4	12
DIN 653-M5-25-NI	M 5	25	20	4	13
DIN 653-M6-12-NI	M 6	12	24	5	18
DIN 653-M6-16-NI	M 6	16	24	5	21
DIN 653-M6-20-NI	M 6	20	24	5	20
DIN 653-M6-25-NI	M 6	25	24	5	23
DIN 653-M6-30-NI	M 6	30	24	5	22
DIN 653-M8-16-NI	M 8	16	30	6	35
DIN 653-M8-20-NI	M 8	20	30	6	37
DIN 653-M8-25-NI	M 8	25	30	6	40
DIN 653-M8-30-NI	M 8	30	30	6	42
DIN 653-M10-20-NI	M 10	20	36	8	72
DIN 653-M10-25-NI	M 10	25	36	8	74
DIN 653-M10-30-NI	M 10	30	36	8	76
DIN 653-M10-40-NI	M 10	40	36	8	80

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GN 653.2

Knurled screws

Steel / Stainless Steel,
with recess cut for loss-prevention





SPECIFICATION

Version in Steel ST

- Tensile strength class 5
- visible face fine turned
- black oxide finish

Version in Stainless Steel AISI 303 NI

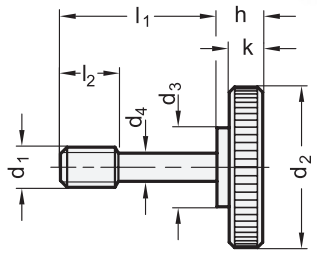
- AISI 303
- visible face fine turned
- matt shot-blasted

INFORMATION

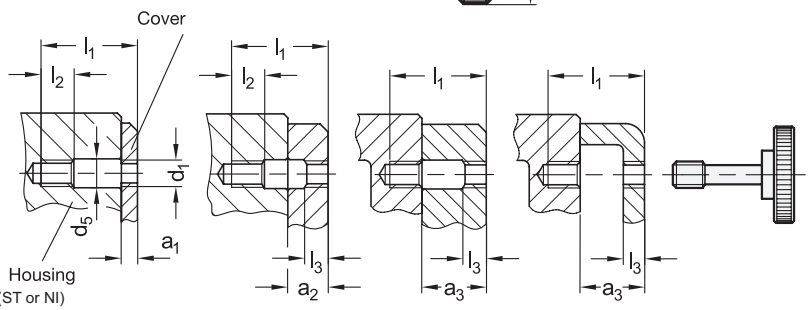
Knurled screws GN 653.2 can be used for to prevent loss of the thumb screw, due to the d_4 recessed portion of the stud.
When using, instead of a typical tapped and bore hole, it is necessary to provide tapped bores with a thread d_1 on each of the two elements to be assembled. Additionally, a clearance bore of d_5 on one or both sides must be cut.
Depending on the design and required clamping length a_1 ... a_3 of the component being attached, there are a number of assembly options as shown.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



Assembly options



*Complete with material index of the knurled screw (ST or NI)

ST	NI
Steel	Stainless Steel

GN 653.2 — **STAINLESS STEEL**

Description	d_1	l_1	a_1	a_2	a_3	d_2	d_3	d_4 -0.2	d_5	h	k	l_2	l_3	⚖
GN 653.2-M4-15-*	M4	15	2-4	4-8	8-10	16	8	3.2	4.5	5.5	3.5	5	2	7
GN 653.2-M4-17-*	M4	17	4-6	6-10	10-12	16	8	3.2	4.5	5.5	3.5	5	2	7
GN 653.2-M4-19-*	M4	19	6-8	8-12	12-14	16	8	3.2	4.5	5.5	3.5	5	2	7
GN 653.2-M4-21-*	M4	21	8-10	10-14	14-16	16	8	3.2	4.5	5.5	3.5	5	2	9
GN 653.2-M5-18-*	M5	18	2.5-4	4-10.5	10.5-12	20	10	4	5.5	6.5	4	6	2.5	13
GN 653.2-M5-20-*	M5	20	4-6	6-12	12-14	20	10	4	5.5	6.5	4	6	2.5	13
GN 653.2-M5-22-*	M5	22	6-8	8-14	14-16	20	10	4	5.5	6.5	4	6	2.5	13
GN 653.2-M5-26-*	M5	26	8-12	12-16	16-18	20	10	4	5.5	6.5	4	6	2.5	14
GN 653.2-M6-24-*	M6	24	3-6	6-13	13-16	24	12	4.8	6.5	8	5	8	3	23
GN 653.2-M6-26-*	M6	26	6-8	8-16	16-18	24	12	4.8	6.5	8	5	8	3	24
GN 653.2-M6-30-*	M6	30	8-12	12-18	18-22	24	12	4.8	6.5	8	5	8	3	30
GN 653.2-M6-34-*	M6	34	12-16	16-22	22-26	24	12	4.8	6.5	8	5	8	3	32
GN 653.2-M8-30-*	M8	30	4-8	8-16	16-20	30	16	6.5	8.5	9	6	10	4	44
GN 653.2-M8-34-*	M8	34	8-12	12-20	20-24	30	16	6.5	8.5	9	6	10	4	45
GN 653.2-M8-38-*	M8	38	12-16	16-24	24-28	30	16	6.5	8.5	9	6	10	4	48
GN 653.2-M8-42-*	M8	42	16-20	20-28	28-32	30	16	6.5	8.5	9	6	10	4	50

Weigth type NI

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GN 653.10

Flat knurled screws

Steel / Stainless Steel, with MS- / KU- pivot

SPECIFICATION

Version in Steel ST

- Tensile strength class 5
- visible face fine turned
- blackened

Version in Stainless Steel AISI 303 NI

- visible face fine turned
- matt shot-blasted

Pivot

Brass **MS**
Plastic (Polyacetal POM) **KU**

INFORMATION

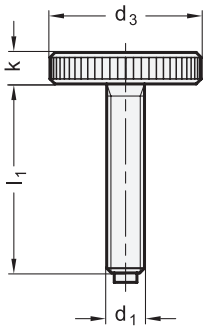
Flat knurled screws GN 653.10 with pivots in brass or plastic are used in applications, where marks and damages on the workpiece are unacceptable.
The head dimensions comply with flat knurled screws DIN 653 (see page 271).

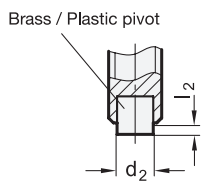
TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)









GN 653.10

Description	d1	l1 -1	l2	d2	d3	k	⚖
GN 653.10-M5-12-ST-KU	M 5	12	1	3	20	4	11
GN 653.10-M5-12-ST-MS	M 5	12	0.5	3	20	4	11
GN 653.10-M5-16-ST-KU	M 5	16	1	3	20	4	11
GN 653.10-M5-16-ST-MS	M 5	16	0.5	3	20	4	12
GN 653.10-M5-20-ST-KU	M 5	20	1	3	20	4	12
GN 653.10-M5-20-ST-MS	M 5	20	0.5	3	20	4	12
GN 653.10-M5-25-ST-KU	M 5	25	1	3	20	4	12
GN 653.10-M5-25-ST-MS	M 5	25	0.5	3	20	4	12
GN 653.10-M6-12-ST-KU	M 6	12	1.3	3.5	24	5	19
GN 653.10-M6-12-ST-MS	M 6	12	1	4	24	5	19
GN 653.10-M6-16-ST-KU	M 6	16	1.3	3.5	24	5	19
GN 653.10-M6-16-ST-MS	M 6	16	1	4	24	5	19
GN 653.10-M6-20-ST-KU	M 6	20	1.3	3.5	24	5	20
GN 653.10-M6-20-ST-MS	M 6	20	1	4	24	5	20
GN 653.10-M6-25-ST-KU	M 6	25	1.3	3.5	24	5	21
GN 653.10-M6-25-ST-MS	M 6	25	1	4	24	5	21
GN 653.10-M6-30-ST-KU	M 6	30	1.3	3.5	24	5	22
GN 653.10-M6-30-ST-MS	M 6	30	1	4	24	5	22
GN 653.10-M8-16-ST-KU	M 8	16	1.6	5	30	6	36
GN 653.10-M8-16-ST-MS	M 8	16	1.5	6	30	6	36
GN 653.10-M8-20-ST-KU	M 8	20	1.6	5	30	6	38
GN 653.10-M8-20-ST-MS	M 8	20	1.5	6	30	6	38
GN 653.10-M8-25-ST-KU	M 8	25	1.6	5	30	6	39
GN 653.10-M8-25-ST-MS	M 8	25	1.5	6	30	6	39
GN 653.10-M8-30-ST-KU	M 8	30	1.6	5	30	6	40
GN 653.10-M8-30-ST-MS	M 8	30	1.5	6	30	6	40
GN 653.10-M8-40-ST-KU	M 8	40	1.6	5	30	6	43
GN 653.10-M8-40-ST-MS	M 8	40	1.5	6	30	6	43

GN 653.10-NI **STAINLESS STEEL**

Description	d1	l1 -1	l2	d2	d3	k	⚖
GN 653.10-M5-12-NI-KU	M 5	12	1	3	20	4	11
GN 653.10-M5-12-NI-MS	M 5	12	0.5	3	20	4	11
GN 653.10-M5-16-NI-KU	M 5	16	1	3	20	4	11
GN 653.10-M5-16-NI-MS	M 5	16	0.5	3	20	4	12
GN 653.10-M5-20-NI-KU	M 5	20	1	3	20	4	12
GN 653.10-M5-20-NI-MS	M 5	20	0.5	3	20	4	12
GN 653.10-M5-25-NI-KU	M 5	25	1	3	20	4	12
GN 653.10-M5-25-NI-MS	M 5	25	0.5	3	20	4	12
GN 653.10-M6-12-NI-KU	M 6	12	1.3	3.5	24	5	19
GN 653.10-M6-12-NI-MS	M 6	12	1	4	24	5	19
GN 653.10-M6-16-NI-KU	M 6	16	1.3	3.5	24	5	20
GN 653.10-M6-16-NI-MS	M 6	16	1	4	24	5	20
GN 653.10-M6-20-NI-KU	M 6	20	1.3	3.5	24	5	20
GN 653.10-M6-20-NI-MS	M 6	20	1	4	24	5	20
GN 653.10-M6-25-NI-KU	M 6	25	1.3	3.5	24	5	21
GN 653.10-M6-25-NI-MS	M 6	25	1	4	24	5	21
GN 653.10-M6-30-NI-KU	M 6	30	1.3	3.5	24	5	22
GN 653.10-M6-30-NI-MS	M 6	30	1	4	24	5	22
GN 653.10-M8-16-NI-KU	M 8	16	1.6	5	30	6	36
GN 653.10-M8-16-NI-MS	M 8	16	1.5	6	30	6	37
GN 653.10-M8-20-NI-KU	M 8	20	1.6	5	30	6	37
GN 653.10-M8-20-NI-MS	M 8	20	1.5	6	30	6	38
GN 653.10-M8-25-NI-KU	M 8	25	1.6	5	30	6	39
GN 653.10-M8-25-NI-MS	M 8	25	1.5	6	30	6	40
GN 653.10-M8-30-NI-KU	M 8	30	1.6	5	30	6	40
GN 653.10-M8-30-NI-MS	M 8	30	1.5	6	30	6	41
GN 653.10-M8-40-NI-KU	M 8	40	1.6	5	30	6	43
GN 653.10-M8-40-NI-MS	M 8	40	1.5	6	30	6	43

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Fluted grip knobs

Technopolymer, assembly with screws



FM design

MATERIAL
Polyamide based (PA) technopolymer, black colour, matte finish.

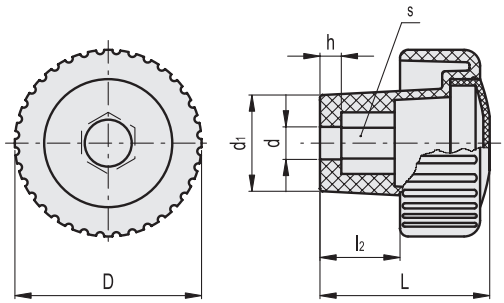
CLOSING CAP
Polypropylene based (PP) technopolymer, orange or black colour, glossy finish with matte central surface, snap-in mounting.

STANDARD EXECUTION
Assembly by means of hexagon head screws or standard lock nuts (not supplied) to put in place inside the knob by pressing.

SPECIAL EXECUTIONS ON REQUEST
On the surface of the closing cap words, marks, graphic symbols, etc... can be tampoprinted in colours.

ASSEMBLY INSTRUCTIONS
1. The base of the knob should rest on a flat surface.
2. Insert the screw or the lock nut into the knob hole by means of a thrust tool.
3. Push until the insert is completely fitted in.
4. Assemble the snap-in closing cap.

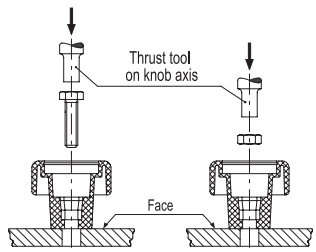




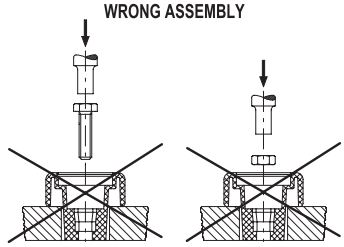


C2 RAL2004 C9 RAL9005

RIGHT ASSEMBLY



WRONG ASSEMBLY



Code	Description	D	d	L	d1	l2	h	s	⚖
138711	MCT.35 EH-5-C2	35	5	32	18	15	4	8	12
138712	MCT.35 EH-5-C9	35	5	32	18	15	4	8	12
138721	MCT.35 EH-6-C2	35	6	32	18	15	4	10	11
138722	MCT.35 EH-6-C9	35	6	32	18	15	4	10	11
138731	MCT.35 EH-8-C2	35	8	32	18	15	4	13	10
138732	MCT.35 EH-8-C9	35	8	32	18	15	4	13	10
138751	MCT.50 EH-6-C2	50	6	40	23	21	5	10	23
138752	MCT.50 EH-6-C9	50	6	40	23	21	5	10	23
138761	MCT.50 EH-8-C2	50	8	40	23	21	5	13	22
138762	MCT.50 EH-8-C9	50	8	40	23	21	5	13	22
138771	MCT.50 EH-10-C2	50	10	40	23	21	5	17	21
138772	MCT.50 EH-10-C9	50	10	40	23	21	5	17	21
138791	MCT.70 EH-8-C2	70	8	71	30.5	40	9	13	64
138792	MCT.70 EH-8-C9	70	8	71	30.5	40	9	13	64
138801	MCT.70 EH-10-C2	70	10	71	30.5	40	9	17	63
138802	MCT.70 EH-10-C9	70	10	71	30.5	40	9	17	63
138811	MCT.70 EH-12-C2	70	12	71	30.5	40	9	19	62
138812	MCT.70 EH-12-C9	70	12	71	30.5	40	9	19	62
138821	MCT.70 EH-14-C2	70	14	71	30.5	40	9	22	61
138822	MCT.70 EH-14-C9	70	14	71	30.5	40	9	22	61

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Diamond cut knurled knobs

Technopolymer

MATERIAL
High-resilience polypropylene based (PP) technopolymer, black colour, matte finish.

COLOURED CENTRE CAP
Technopolymer, matte finish.
To order, add the index of the desired colour (C9, ..., C6) to the code and the description.
On request and for sufficient quantities, it can be supplied in other colours or with customised graphic symbols, marks or writings.

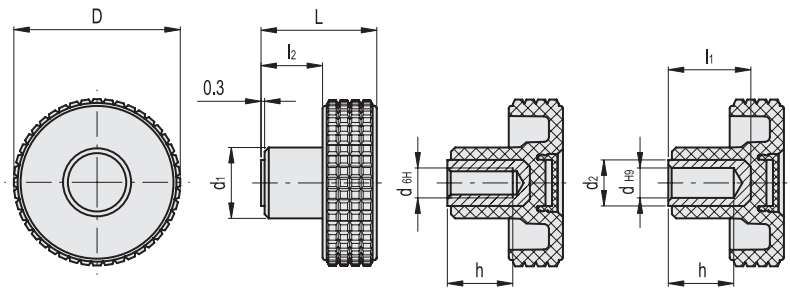
STANDARD EXECUTIONS
- **MBT-B**: brass boss, plain or threaded blind hole.
- **MBT-p**: zinc-plated steel threaded stud with chamfered flat end as in UNI 947 : ISO 4753 (see Technical Data on page A11).

ERGONOMY AND DESIGN
The particular knurling on the outside rim of the knob, provided with a structure of very fine pitch, allows a safe and comfortable grip, offering the operator the possibility of operating under the most different working conditions in a sensitive and ergonomic way and simplifying the adjustment of the knob during rapid rotation (or screwing) without any unpleasant angular work for the hand and wrist.



ELESA Original design

MBT-B





*Complete with colour index, example: 34201-C2 MBT.30 B-M5-C2

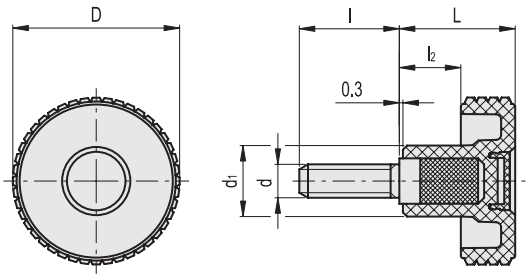
C9	C2	C3	C4	C5	C6
RAL9005	RAL2004	RAL7035	RAL1021	RAL5024	RAL3000

MBT-B

Code	Description	D	d6H	dH9	L	d1	d2	l1	l2	h	⚖
34201-*	MBT.30 B-M5-*	31	M5	-	24	15	-	-	11.5	10	12
34206-*	MBT.30 B-M6-*	31	M6	-	24	15	-	-	11.5	12	17
34316-*	MBT.40 B-6-*	39.5	-	6	26.5	17	12	17	12.5	14	27
34321-*	MBT.40 B-M6-*	39.5	M6	-	26.5	17	-	-	12.5	12	22
34326-*	MBT.40 B-M8-*	39.5	M8	-	26.5	17	-	-	12.5	13	23
34411-*	MBT.50 B-6-*	50	-	6	33	20	15	23	16	18	48
34416-*	MBT.50 B-8-*	50	-	8	33	20	15	25	16	20	47
34421-*	MBT.50 B-M8-*	50	M8	-	33	20	-	-	16	20	32
34426-*	MBT.50 B-M10-*	50	M10	-	33	20	-	-	16	18	34
34506-*	MBT.60 B-10-*	61	-	10	39	23	16	30	18.5	25	67
34511-*	MBT.60 B-M10-*	61	M10	-	39	23	-	-	18.5	20	50
34516-*	MBT.60 B-M12-*	61	M12	-	39	23	-	-	18.5	20	58
34611-*	MBT.70 B-M12-*	70	M12	-	42	24	-	-	20.5	20	70
34616-*	MBT.70 B-M14-*	70	M14	-	42	24	-	-	20.5	20	78

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MBT-p





*Complete with colour index, example: 34221-C2 MBT.30 p-M5x10-C2

C9	C2	C3	C4	C5	C6
RAL9005	RAL2004	RAL7035	RAL1021	RAL5024	RAL3000

MBT-p

Code	Description	D	d6g	L	d1	l	l2	⚖
34221-*	MBT.30 p-M5x10-*	31	M5	24	15	10	11.5	13
34226-*	MBT.30 p-M5x20-*	31	M5	24	15	20	11.5	14
34241-*	MBT.30 p-M5x40-*	31	M5	24	15	40	11.5	16
34261-*	MBT.30 p-M6x10-*	31	M6	24	15	10	11.5	14
34263-*	MBT.30 p-M6x16-*	31	M6	24	15	16	11.5	14
34266-*	MBT.30 p-M6x20-*	31	M6	24	15	20	11.5	15
34269-*	MBT.30 p-M6x25-*	31	M6	24	15	25	11.5	16
34271-*	MBT.30 p-M6x30-*	31	M6	24	15	30	11.5	17
34281-*	MBT.30 p-M6x40-*	31	M6	24	15	40	11.5	19
34341-*	MBT.40 p-M6x10-*	39.5	M6	26.5	17	10	12.5	18
34343-*	MBT.40 p-M6x16-*	39.5	M6	26.5	17	16	12.5	19
34346-*	MBT.40 p-M6x20-*	39.5	M6	26.5	17	20	12.5	20
34351-*	MBT.40 p-M6x30-*	39.5	M6	26.5	17	30	12.5	22
34361-*	MBT.40 p-M6x40-*	39.5	M6	26.5	17	40	12.5	24
34381-*	MBT.40 p-M8x16-*	39.5	M8	26.5	17	16	12.5	26
34383-*	MBT.40 p-M8x20-*	39.5	M8	26.5	17	20	12.5	27
34386-*	MBT.40 p-M8x25-*	39.5	M8	26.5	17	25	12.5	28
34391-*	MBT.40 p-M8x30-*	39.5	M8	26.5	17	30	12.5	30
34393-*	MBT.40 p-M8x40-*	39.5	M8	26.5	17	40	12.5	33
34396-*	MBT.40 p-M8x50-*	39.5	M8	26.5	17	50	12.5	36
34431-*	MBT.50 p-M8x16-*	50	M8	33	20	16	16	36
34436-*	MBT.50 p-M8x30-*	50	M8	33	20	30	16	38
34441-*	MBT.50 p-M8x50-*	50	M8	33	20	50	16	44
34451-*	MBT.50 p-M10x20-*	50	M10	33	20	20	16	42
34456-*	MBT.50 p-M10x30-*	50	M10	33	20	30	16	47
34471-*	MBT.50 p-M10x50-*	50	M10	33	20	50	16	57
34521-*	MBT.60 p-M10x20-*	61	M10	39	23	20	18.5	58
34526-*	MBT.60 p-M10x30-*	61	M10	39	23	30	18.5	63
34536-*	MBT.60 p-M10x50-*	61	M10	39	23	50	18.5	73
34551-*	MBT.60 p-M12x20-*	61	M12	39	23	20	18.5	70
34556-*	MBT.60 p-M12x30-*	61	M12	39	23	30	18.5	78
34571-*	MBT.60 p-M12x50-*	61	M12	39	23	50	18.5	94
34631-*	MBT.70 p-M12x30-*	70	M12	42	24	30	20.5	90
34641-*	MBT.70 p-M12x50-*	70	M12	42	24	50	20.5	105

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SOFT RoHS PP TPE +90° 0°

Fluted grip knobs

"Soft-touch" technopolymer

MATERIAL
High-resilience polypropylene based (PP) technopolymer, black colour, matte finish.

FLUTED RIM
"Soft-touch" thermoplastic elastomer (TPE) chemically bonded, hardness 70 Shore A. The coating material is certified according to FDA (U.S. Food and Drug administration).

STANDARD EXECUTIONS
- **MBT-B-SOFT:** brass boss, threaded and plain blind hole.
- **MBT-p-SOFT:** zinc-plated steel threaded stud, chamfered flat end according to UNI 947 : ISO 4753 (see Technical Data on page A11).

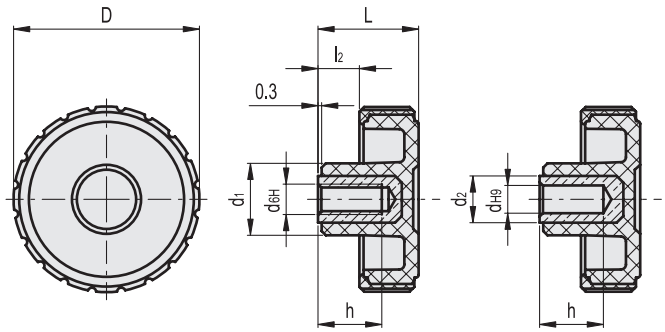
FEATURES AND APPLICATIONS
The rim, coated with "soft-touch" elastomer, improves the grip even in the presence of oils, greases and sweat from the hand. For this reason these fluted knobs are suitable for fitness machines, tools and machines for gardening and goods transport, high-precision instruments and disability aids.

ERGONOMY AND DESIGN
This kind of knob allows operation in an ergonomic way in all working conditions, reaching the maximum torque level with little fatigue for the operator's hand.
The very fine pitch structure of the rim, together with the soft-touch cover, simplifies the adjustement of the knob during rapid rotation (or screwing) without any unpleasant angular work for the hand and wrist.



ELESA Original design

MBT-B-SOFT



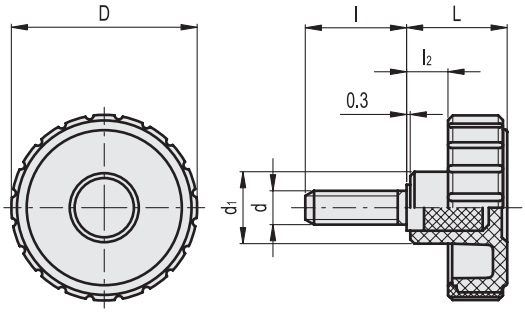
MBT-B-SOFT

Code	Description	D	d6H	dH9	L	d1	l2	h	C# [Nm]	⚖
134316	MBT.45 B-6-SOFT	44	-	6	24	17	10	14	18	32
134321	MBT.45 B-M6-SOFT	44	M6	-	24	17	10	12	15	31
134326	MBT.45 B-M8-SOFT	44	M8	-	24	17	10	13	18	30
134416	MBT.55 B-8-SOFT	54	-	8	30	20	12.5	20	30	40
134421	MBT.55 B-M8-SOFT	54	M8	-	30	20	12.5	20	30	46
134426	MBT.55 B-M10-SOFT	54	M10	-	30	20	12.5	18	32	44

"Max limit tightening torque" means the value under which the metal insert, in normal conditions of use, is perfectly and strongly anchored to the plastic part.

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MBT-p-SOFT



MBT-p-SOFT

Code	Description	D	d6g	L	d1	l	l2	C# [Nm]	⚖
134341	MBT.45 p-M6x10-SOFT	44	M6	24	17	10	10	13	25
134346	MBT.45 p-M6x20-SOFT	44	M6	24	17	20	10	13	30
134381	MBT.45 p-M8x16-SOFT	44	M8	24	17	16	10	16	33
134391	MBT.45 p-M8x30-SOFT	44	M8	24	17	30	10	16	37
134396	MBT.45 p-M8x50-SOFT	44	M8	24	17	50	10	16	47
134431	MBT.55 p-M8x16-SOFT	54	M8	30	20	16	12.5	25	40
134436	MBT.55 p-M8x30-SOFT	54	M8	30	20	30	12.5	25	50
134441	MBT.55 p-M8x50-SOFT	54	M8	30	20	50	12.5	25	64
134451	MBT.55 p-M10x20-SOFT	54	M10	30	20	20	12.5	27	52
134456	MBT.55 p-M10x30-SOFT	54	M10	30	20	30	12.5	27	57
134471	MBT.55 p-M10x50-SOFT	54	M10	30	20	50	12.5	27	73

"Max limit tightening torque" means the value under which the metal insert, in normal conditions of use, is perfectly and strongly anchored to the plastic part.

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Knurled knobs / Knurled screws





SPECIFICATION

Plastic
Technopolymer (Polyamide PA)

- glass fibre reinforced
- temperature resistant up to 130 °C
- black, matt finish

Threaded inserts

Steel **ST**
zinc plated, blue passivated

Stainless Steel AISI 304 **NI**

Cover cap
Plastic
light grey, matt

INFORMATION

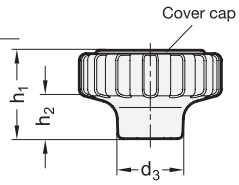
Knurled knobs / Knurled screws GN 7336 distinguish an attractive design in combination with closed shape (no recess on the underside of the handles).
They are also available without threaded insert.
How to order:
GN 7336-34
GN 7336-42
GN 7336-53

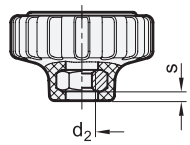
ON REQUEST

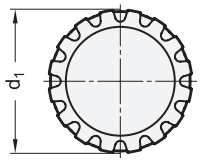
The cover cap is also available in different colours (standard colour: light grey).

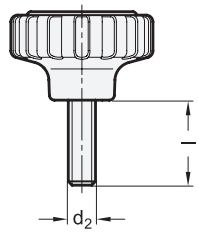
TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)









GN 7336-with female thread (ST)

Description	d1	d2	d3	h1	h2	s	Max. thread length	⚖
GN 7336-34-M6-ST	34	M 6	16	21	10.5	5	19	14
GN 7336-42-M8-ST	42	M 8	19	26	13	5	24	21
GN 7336-42-M8x1-ST	42	M 8x1	19	26	13	5	24	21
GN 7336-53-M10-ST	53	M 10	24	32	16	5	30	49
GN 7336-53-M10x1-ST	53	M 10x1	24	32	16	5	30	49

GN 7336-with female thread (NI) **STAINLESS STEEL**

Description	d1	d2	d3	h1	h2	s	Max. thread length	⚖
GN 7336-34-M6-NI	34	M 6	16	21	10.5	5	19	15
GN 7336-42-M8-NI	42	M 8	19	26	13	5	24	22
GN 7336-42-M8x1-NI	42	M 8x1	19	26	13	5	24	22
GN 7336-53-M10-NI	53	M 10	24	32	16	5	30	50
GN 7336-53-M10x1-NI	53	M 10x1	24	32	16	5	30	50

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GN 7336-with threaded bolt (ST)

Description	d1	d2	l	d3	h1	h2	⚖
GN 7336-34-M6-11-ST	34	M 6	11	16	21	10.5	16
GN 7336-34-M6-15-ST	34	M 6	15	16	21	10.5	16
GN 7336-34-M6-20-ST	34	M 6	20	16	21	10.5	17
GN 7336-34-M6-25-ST	34	M 6	25	16	21	10.5	18
GN 7336-34-M6-30-ST	34	M 6	30	16	21	10.5	18
GN 7336-42-M8-15-ST	42	M 8	15	19	26	13	30
GN 7336-42-M8-20-ST	42	M 8	20	19	26	13	32
GN 7336-42-M8-25-ST	42	M 8	25	19	26	13	32
GN 7336-42-M8-30-ST	42	M 8	30	19	26	13	35
GN 7336-42-M8-40-ST	42	M 8	40	19	26	13	40
GN 7336-42-M8x1-15-ST	42	M 8x1	15	19	26	13	29
GN 7336-42-M8x1-20-ST	42	M 8x1	20	19	26	13	31
GN 7336-42-M8x1-25-ST	42	M 8x1	25	19	26	13	33
GN 7336-42-M8x1-30-ST	42	M 8x1	30	19	26	13	34
GN 7336-53-M10-20-ST	53	M 10	20	24	32	16	55
GN 7336-53-M10-25-ST	53	M 10	25	24	32	16	60
GN 7336-53-M10-30-ST	53	M 10	30	24	32	16	63
GN 7336-53-M10-40-ST	53	M 10	40	24	32	16	67
GN 7336-53-M10-50-ST	53	M 10	50	24	32	16	76
GN 7336-53-M10x1-20-ST	53	M 10x1	20	24	32	16	56
GN 7336-53-M10x1-25-ST	53	M 10x1	25	24	32	16	59
GN 7336-53-M10x1-30-ST	53	M 10x1	30	24	32	16	62
GN 7336-53-M10x1-40-ST	53	M 10x1	40	24	32	16	67

GN 7336-with threaded bolt (NI) **STAINLESS STEEL**

Description	d1	d2	l	d3	h1	h2	⚖
GN 7336-34-M6-11-NI	34	M 6	11	16	21	10.5	15
GN 7336-34-M6-15-NI	34	M 6	15	16	21	10.5	16
GN 7336-34-M6-20-NI	34	M 6	20	16	21	10.5	17
GN 7336-34-M6-25-NI	34	M 6	25	16	21	10.5	20
GN 7336-34-M6-30-NI	34	M 6	30	16	21	10.5	23
GN 7336-42-M8-15-NI	42	M 8	15	19	26	13	30
GN 7336-42-M8-20-NI	42	M 8	20	19	26	13	32
GN 7336-42-M8-25-NI	42	M 8	25	19	26	13	32
GN 7336-42-M8-30-NI	42	M 8	30	19	26	13	35
GN 7336-42-M8-40-NI	42	M 8	40	19	26	13	40
GN 7336-42-M8x1-15-NI	42	M 8x1	15	19	26	13	29
GN 7336-42-M8x1-20-NI	42	M 8x1	20	19	26	13	30
GN 7336-42-M8x1-25-NI	42	M 8x1	25	19	26	13	33
GN 7336-42-M8x1-30-NI	42	M 8x1	30	19	26	13	34
GN 7336-53-M10-20-NI	53	M 10	20	24	32	16	55
GN 7336-53-M10-25-NI	53	M 10	25	24	32	16	58
GN 7336-53-M10-30-NI	53	M 10	30	24	32	16	60
GN 7336-53-M10-40-NI	53	M 10	40	24	32	16	65
GN 7336-53-M10-50-NI	53	M 10	50	24	32	16	70
GN 7336-53-M10x1-20-NI	53	M 10x1	20	24	32	16	56
GN 7336-53-M10x1-25-NI	53	M 10x1	25	24	32	16	58
GN 7336-53-M10x1-30-NI	53	M 10x1	30	24	32	16	62
GN 7336-53-M10x1-40-NI	53	M 10x1	40	24	32	16	67

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Knurled screws

Brass / Plastic / Spherical pivot

SPECIFICATION

Types

- Type **MS**: Brass pivot
- Type **KU**: Plastic pivot (Polyacetal POM)
- Type **ZK**: spherical pivot

Plastic
Technopolymer (Polyamide PA)

- glasfibre reinforced
- temperature resistant up to 130 °C
- black, matt

Threaded stud
Stainless Steel AISI 304

Cover cap plastic
light grey, matt



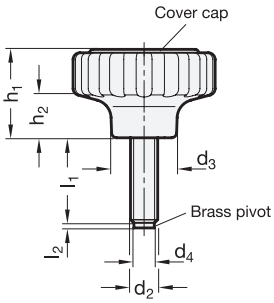
INFORMATION

Knurled screws GN 7336.5, type MS/KU with brass or plastic pivots are used when pressure dents or damage must be avoided.
Knurled screws GN 7336.5, type ZK feature a spherical pivot whose Ø d_6 is smaller than the core Ø of the thread. The version with spherical pivot is suitable for holding GN 631 (see page 940) / GN 631.5 (see page 941) thrust pads, which must be ordered separately.
The knurled screws GN 7336.5 distinguish an attractive design in combination with closed shape (no recess on the underside of the handles).

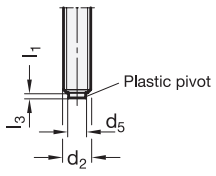
TECHNICAL INFORMATION

- Plastic characteristics (see page A2)
- Stainless Steel characteristics (see page A26)

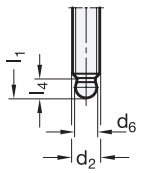
Type **MS**

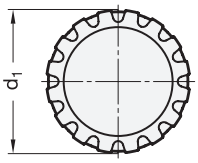


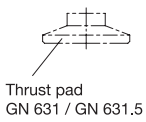
Type **KU**



Type **ZK**







*Complete with type index of the knurled screw (MS, KU or ZK)

MS	KU	ZK
Brass pivot	Plastic pivot (Polyacetal POM)	Spherical pivot

GN 7336.5

Description	d1	d2	l1	d3	d4	d5	d6	h1	h2	l2	l3	l4 ≈	⚖
GN 7336.5-34-M6-15-*	34	M 6	15	16	4	3.5	4.5 ±0.03	21	10.5	1	1.3	5.1	16
GN 7336.5-34-M6-20-*	34	M 6	20	16	4	3.5	4.5 ±0.03	21	10.5	1	1.3	5.1	17
GN 7336.5-34-M6-25-*	34	M 6	25	16	4	3.5	4.5 ±0.03	21	10.5	1	1.3	5.1	18
GN 7336.5-34-M6-30-*	34	M 6	30	16	4	3.5	4.5 ±0.03	21	10.5	1	1.3	5.1	19
GN 7336.5-42-M8-20-*	42	M 8	20	19	6	5	6.1 ±0.05	26	13	1.5	1.6	6.2	30
GN 7336.5-42-M8-25-*	42	M 8	25	19	6	5	6.1 ±0.05	26	13	1.5	1.6	6.2	32
GN 7336.5-42-M8-30-*	42	M 8	30	19	6	5	6.1 ±0.05	26	13	1.5	1.6	6.2	34
GN 7336.5-42-M8-40-*	42	M 8	40	19	6	5	6.1 ±0.05	26	13	1.5	1.6	6.2	37
GN 7336.5-53-M10-25-*	53	M 10	25	24	8	6.5	7.8 ±0.05	32	16	2	1.9	7.3	58
GN 7336.5-53-M10-30-*	53	M 10	30	24	8	6.5	7.8 ±0.05	32	16	2	1.9	7.3	61
GN 7336.5-53-M10-40-*	53	M 10	40	24	8	6.5	7.8 ±0.05	32	16	2	1.9	7.3	64
GN 7336.5-53-M10-50-*	53	M 10	50	24	8	6.5	7.8 ±0.05	32	16	2	1.9	7.3	70

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GN 3663

Torque knurled knobs / Torque knurled knob screws



SPECIFICATION

Knob
Aluminium
black, anodized

Torque mechanism
Steel, hardened

Other parts
Steel, blackened

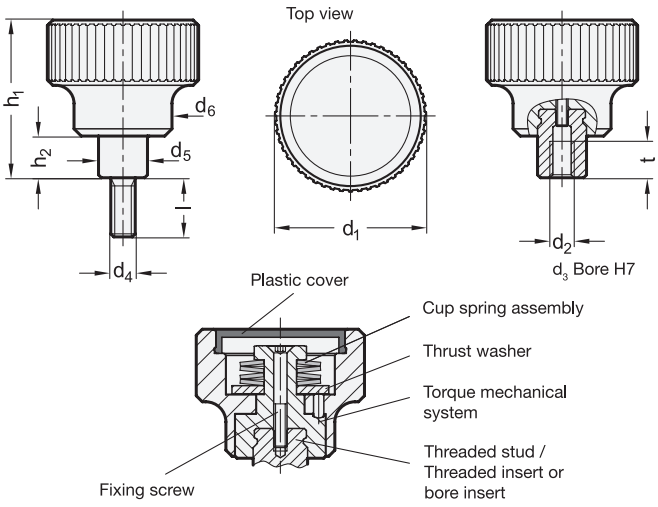
Cover cap
Plastic light grey

INFORMATION

Torque knurled knobs / Torque knurled knob screws GN 3663 are used when the manually applied torque is to be limited.
When turned clockwise, the torque mechanical system of the knurled knob triggers an „over-engagement" as soon as the specified torque is reached. When turning anti-clockwise, the mechanical system locks such that the torque is not limited. When tightening, this will ensure that the maximum permissible torque is not exceeded. On the other hand, the torque necessary for releasing will always be transferred reliably.
After removing the cover and loosening the countersunk screw, the thread or bore insert can be dismantled.

ON REQUEST

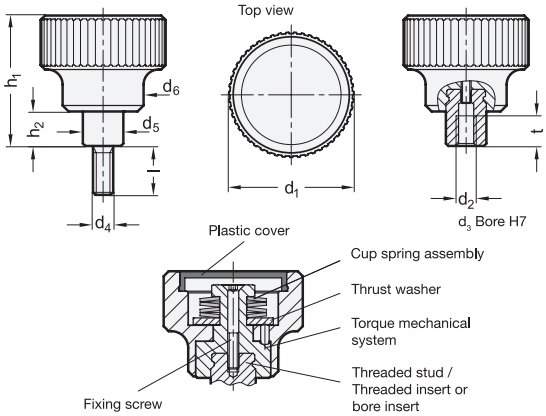
- Other dimensions for inserts with bore, thread and threaded stud inserts analog GN 300 (see page 320)
- Other dimenstions with special threaded studs analog GN 306 (see page 340)
- Other torques
- Torques limiting turning anti-clockwise or turning anti-clockwise and clockwise



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GN 3663-with female thread

Description	d1	d2	d3 H7	d5	d6	h1	h2	t min.	Torque ±10% in Nm	⚖
GN 3663-27-B5-0,7	27	-	B 5	10	19	35	9.5	7	0.7	41
GN 3663-27-B5-1	27	-	B 5	10	19	35	9.5	7	1	40
GN 3663-27-B5-1,5	27	-	B 5	10	19	35	9.5	7	1.5	40
GN 3663-27-B6-0,7	27	-	B 6	10	19	35	9.5	9	0.7	50
GN 3663-27-B6-1	27	-	B 6	10	19	35	9.5	9	1	50
GN 3663-27-B6-1,5	27	-	B 6	10	19	35	9.5	9	1.5	50
GN 3663-34-B5-1	34	-	B 5	10	21	37.5	9.5	7	1	57
GN 3663-34-B5-1,5	34	-	B 5	10	21	37.5	9.5	7	1.5	58
GN 3663-34-B5-2,2	34	-	B 5	10	21	37.5	9.5	7	2.2	59
GN 3663-34-B6-1	34	-	B 6	10	21	37.5	9.5	9	1	56
GN 3663-34-B6-1,5	34	-	B 6	10	21	37.5	9.5	9	1.5	57
GN 3663-34-B6-2,2	34	-	B 6	10	21	37.5	9.5	9	2.2	58
GN 3663-42-B6-2	42	-	B 6	13.5	27	43.5	11.5	11	2	108
GN 3663-42-B6-2,5	42	-	B 6	13.5	27	43.5	11.5	11	2.5	109
GN 3663-42-B6-3,2	42	-	B 6	13.5	27	43.5	11.5	11	3.2	110
GN 3663-42-B8-2	42	-	B 8	13.5	27	43.5	11.5	11	2	106
GN 3663-42-B8-2,5	42	-	B 8	13.5	27	43.5	11.5	11	2.5	107
GN 3663-42-B8-3,2	42	-	B 8	13.5	27	43.5	11.5	11	3.2	108
GN 3663-52-B10-2,5	52	-	B 10	19	32	54	15.5	17	2.5	208
GN 3663-52-B10-3	52	-	B 10	19	32	54	15.5	17	3	209
GN 3663-52-B10-4	52	-	B 10	19	32	54	15.5	17	4	210
GN 3663-52-B12-2,5	52	-	B 12	19	32	54	15.5	17	2.5	209
GN 3663-52-B12-3	52	-	B 12	19	32	54	15.5	17	3	210
GN 3663-52-B12-4	52	-	B 12	19	32	54	15.5	17	4	211
GN 3663-62-B10-3	62	-	B 10	19	33	54	15.5	17	3	241
GN 3663-62-B10-4	62	-	B 10	19	33	54	15.5	17	4	242
GN 3663-62-B10-5,5	62	-	B 10	19	33	54	15.5	17	5.5	243
GN 3663-62-B12-3	62	-	B 12	19	33	54	15.5	17	3	235
GN 3663-62-B12-4	62	-	B 12	19	33	54	15.5	17	4	236
GN 3663-62-B12-5,5	62	-	B 12	19	33	54	15.5	17	5.5	237
GN 3663-27-M3-0,7	27	M 3	-	10	19	35	9.5	7	0.7	150
GN 3663-27-M3-1	27	M 3	-	10	19	35	9.5	7	1	160
GN 3663-27-M3-1,5	27	M 3	-	10	19	35	9.5	7	1.5	200
GN 3663-27-M4-0,7	27	M 4	-	10	19	35	9.5	9	0.7	40
GN 3663-27-M4-1	27	M 4	-	10	19	35	9.5	9	1	41
GN 3663-27-M4-1,5	27	M 4	-	10	19	35	9.5	9	1.5	42
GN 3663-27-M5-0,7	27	M 5	-	10	19	35	9.5	9	0.7	39
GN 3663-27-M5-1	27	M 5	-	10	19	35	9.5	9	1	40
GN 3663-27-M5-1,5	27	M 5	-	10	19	35	9.5	9	1.5	41
GN 3663-27-M6-0,7	27	M 6	-	10	19	35	9.5	9	0.7	40
GN 3663-27-M6-1	27	M 6	-	10	19	35	9.5	9	1	41
GN 3663-27-M6-1,5	27	M 6	-	10	19	35	9.5	9	1.5	42
GN 3663-34-M3-1	34	M 3	-	10	21	37.5	9.5	7	1	58
GN 3663-34-M3-1,5	34	M 3	-	10	21	37.5	9.5	7	1.5	59
GN 3663-34-M3-2,2	34	M 3	-	10	21	37.5	9.5	7	2.2	59
GN 3663-34-M4-1	34	M 4	-	10	21	37.5	9.5	9	1	58
GN 3663-34-M4-1,5	34	M 4	-	10	21	37.5	9.5	9	1.5	59
GN 3663-34-M4-2,2	34	M 4	-	10	21	37.5	9.5	9	2.2	60
GN 3663-34-M5-1	34	M 5	-	10	21	37.5	9.5	9	1	57
GN 3663-34-M5-1,5	34	M 5	-	10	21	37.5	9.5	9	1.5	58
GN 3663-34-M5-2,2	34	M 5	-	10	21	37.5	9.5	9	2.2	59



GN 3663-with female thread

Description	d1	d2	d3 H7	d5	d6	h1	h2	t min.	Torque ±10% in Nm	⚖
GN 3663-34-M6-1	34	M 6	-	10	21	37.5	9.5	9	1	58
GN 3663-34-M6-1,5	34	M 6	-	10	21	37.5	9.5	9	1.5	59
GN 3663-34-M6-2,2	34	M 6	-	10	21	37.5	9.5	9	2.2	60
GN 3663-42-M6-2	42	M 6	-	13.5	27	43.5	11.5	11	2	109
GN 3663-42-M6-2,5	42	M 6	-	13.5	27	43.5	11.5	11	2.5	110
GN 3663-42-M6-3,2	42	M 6	-	13.5	27	43.5	11.5	11	3.2	111
GN 3663-42-M8-2	42	M 8	-	13.5	27	43.5	11.5	11	2	107
GN 3663-42-M8-2,5	42	M 8	-	13.5	27	43.5	11.5	11	2.5	108
GN 3663-42-M8-3,2	42	M 8	-	13.5	27	43.5	11.5	11	3.2	109
GN 3663-52-M10-2,5	52	M 10	-	19	32	54	15.5	17	2.5	208
GN 3663-52-M10-3	52	M 10	-	19	32	54	15.5	17	3	209
GN 3663-52-M10-4	52	M 10	-	19	32	54	15.5	17	4	210
GN 3663-52-M12-2,5	52	M 12	-	19	32	54	15.5	17	2.5	209
GN 3663-52-M12-3	52	M 12	-	19	32	54	15.5	17	3	210
GN 3663-52-M12-4	52	M 12	-	19	32	54	15.5	17	4	211
GN 3663-62-M10-3	62	M 10	-	19	33	54	15.5	17	3	240
GN 3663-62-M10-4	62	M 10	-	19	33	54	15.5	17	4	241
GN 3663-62-M10-5,5	62	M 10	-	19	33	54	15.5	17	5.5	242
GN 3663-62-M12-3	62	M 12	-	19	33	54	15.5	17	3	235
GN 3663-62-M12-4	62	M 12	-	19	33	54	15.5	17	4	236
GN 3663-62-M12-5,5	62	M 12	-	19	33	54	15.5	17	5.5	237

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GN 3663-with threaded bolt

Description	d1	d4	l	d5	d6	h1	h2	Torque ±10% in Nm	⚖
GN 3663-27-M4-12-0,7	27	M 4	12	10	19	35	9.5	0.7	43
GN 3663-27-M4-12-1	27	M 4	12	10	19	35	9.5	1	44
GN 3663-27-M4-12-1,5	27	M 4	12	10	19	35	9.5	1.5	45
GN 3663-27-M4-16-0,7	27	M 4	16	10	19	35	9.5	0.7	44
GN 3663-27-M4-16-1	27	M 4	16	10	19	35	9.5	1	45
GN 3663-27-M4-16-1,5	27	M 4	16	10	19	35	9.5	1.5	46
GN 3663-27-M4-20-0,7	27	M 4	20	10	19	35	9.5	0.7	45
GN 3663-27-M4-20-1	27	M 4	20	10	19	35	9.5	1	46
GN 3663-27-M4-20-1,5	27	M 4	20	10	19	35	9.5	1.5	47
GN 3663-27-M4-25-0,7	27	M 4	25	10	19	35	9.5	0.7	46
GN 3663-27-M4-25-1	27	M 4	25	10	19	35	9.5	1	47
GN 3663-27-M4-25-1,5	27	M 4	25	10	19	35	9.5	1.5	48
GN 3663-27-M4-32-0,7	27	M 4	32	10	19	35	9.5	0.7	47
GN 3663-27-M4-32-1	27	M 4	32	10	19	35	9.5	1	48
GN 3663-27-M4-32-1,5	27	M 4	32	10	19	35	9.5	1.5	49
GN 3663-27-M5-12-0,7	27	M 5	12	10	19	35	9.5	0.7	44
GN 3663-27-M5-12-1	27	M 5	12	10	19	35	9.5	1	45
GN 3663-27-M5-12-1,5	27	M 5	12	10	19	35	9.5	1.5	46
GN 3663-27-M5-16-0,7	27	M 5	16	10	19	35	9.5	0.7	45
GN 3663-27-M5-16-1	27	M 5	16	10	19	35	9.5	1	46
GN 3663-27-M5-16-1,5	27	M 5	16	10	19	35	9.5	1.5	47
GN 3663-27-M5-20-0,7	27	M 5	20	10	19	35	9.5	0.7	46
GN 3663-27-M5-20-1	27	M 5	20	10	19	35	9.5	1	47
GN 3663-27-M5-20-1,5	27	M 5	20	10	19	35	9.5	1.5	48
GN 3663-27-M5-25-0,7	27	M 5	25	10	19	35	9.5	0.7	47
GN 3663-27-M5-25-1	27	M 5	25	10	19	35	9.5	1	48
GN 3663-27-M5-25-1,5	27	M 5	25	10	19	35	9.5	1.5	49
GN 3663-27-M5-32-0,7	27	M 5	32	10	19	35	9.5	0.7	48
GN 3663-27-M5-32-1	27	M 5	32	10	19	35	9.5	1	49
GN 3663-27-M5-32-1,5	27	M 5	32	10	19	35	9.5	1.5	50
GN 3663-34-M5-12-1	34	M 5	12	10	21	37.5	9.5	1	62
GN 3663-34-M5-12-1,5	34	M 5	12	10	21	37.5	9.5	1.5	63
GN 3663-34-M5-12-2,2	34	M 5	12	10	21	37.5	9.5	2.2	64
GN 3663-34-M5-16-1	34	M 5	16	10	21	37.5	9.5	1	63
GN 3663-34-M5-16-1,5	34	M 5	16	10	21	37.5	9.5	1.5	64
GN 3663-34-M5-16-2,2	34	M 5	16	10	21	37.5	9.5	2.2	65
GN 3663-34-M5-20-1	34	M 5	20	10	21	37.5	9.5	1	64
GN 3663-34-M5-20-1,5	34	M 5	20	10	21	37.5	9.5	1.5	65
GN 3663-34-M5-20-2,2	34	M 5	20	10	21	37.5	9.5	2.2	66
GN 3663-34-M5-25-1	34	M 5	25	10	21	37.5	9.5	1	65
GN 3663-34-M5-25-1,5	34	M 5	25	10	21	37.5	9.5	1.5	66
GN 3663-34-M5-25-2,2	34	M 5	25	10	21	37.5	9.5	2.2	67
GN 3663-34-M5-32-1	34	M 5	32	10	21	37.5	9.5	1	66
GN 3663-34-M5-32-1,5	34	M 5	32	10	21	37.5	9.5	1.5	67
GN 3663-34-M5-32-2,2	34	M 5	32	10	21	37.5	9.5	2.2	68
GN 3663-34-M6-12-1	34	M 6	12	10	21	37.5	9.5	1	63
GN 3663-34-M6-12-1,5	34	M 6	12	10	21	37.5	9.5	1.5	64
GN 3663-34-M6-12-2,2	34	M 6	12	10	21	37.5	9.5	2.2	65
GN 3663-34-M6-16-1	34	M 6	16	10	21	37.5	9.5	1	64
GN 3663-34-M6-16-1,5	34	M 6	16	10	21	37.5	9.5	1.5	65
GN 3663-34-M6-16-2,2	34	M 6	16	10	21	37.5	9.5	2.2	66

GN 3663-with threaded bolt

Description	d1	d4	l	d5	d6	h1	h2	Torque ±10% in Nm	⚖
GN 3663-34-M6-20-1	34	M 6	20	10	21	37.5	9.5	1	65
GN 3663-34-M6-20-1,5	34	M 6	20	10	21	37.5	9.5	1.5	66
GN 3663-34-M6-20-2,2	34	M 6	20	10	21	37.5	9.5	2.2	67
GN 3663-34-M6-25-1	34	M 6	25	10	21	37.5	9.5	1	66
GN 3663-34-M6-25-1,5	34	M 6	25	10	21	37.5	9.5	1.5	67
GN 3663-34-M6-25-2,2	34	M 6	25	10	21	37.5	9.5	2.2	68
GN 3663-34-M6-32-1	34	M 6	32	10	21	37.5	9.5	1	67
GN 3663-34-M6-32-1,5	34	M 6	32	10	21	37.5	9.5	1.5	68
GN 3663-34-M6-32-2,2	34	M 6	32	10	21	37.5	9.5	2.2	69
GN 3663-42-M8-16-2	42	M 8	16	13.5	27	43.5	11.5	2	93
GN 3663-42-M8-16-2,5	42	M 8	16	13.5	27	43.5	11.5	2.5	94
GN 3663-42-M8-16-3,2	42	M 8	16	13.5	27	43.5	11.5	3.2	95
GN 3663-42-M8-20-2	42	M 8	20	13.5	27	43.5	11.5	2	94
GN 3663-42-M8-20-2,5	42	M 8	20	13.5	27	43.5	11.5	2.5	95
GN 3663-42-M8-20-3,2	42	M 8	20	13.5	27	43.5	11.5	3.2	96
GN 3663-42-M8-25-2	42	M 8	25	13.5	27	43.5	11.5	2	95
GN 3663-42-M8-25-2,5	42	M 8	25	13.5	27	43.5	11.5	2.5	96
GN 3663-42-M8-25-3,2	42	M 8	25	13.5	27	43.5	11.5	3.2	97
GN 3663-42-M8-32-2	42	M 8	32	13.5	27	43.5	11.5	2	96
GN 3663-42-M8-32-2,5	42	M 8	32	13.5	27	43.5	11.5	2.5	97
GN 3663-42-M8-32-3,2	42	M 8	32	13.5	27	43.5	11.5	3.2	98
GN 3663-42-M8-40-2	42	M 8	40	13.5	27	43.5	11.5	2	100
GN 3663-42-M8-40-2,5	42	M 8	40	13.5	27	43.5	11.5	2.5	101
GN 3663-42-M8-40-3,2	42	M 8	40	13.5	27	43.5	11.5	3.2	102
GN 3663-42-M10-20-2	42	M 10	20	13.5	27	43.5	11.5	2	101
GN 3663-42-M10-20-2,5	42	M 10	20	13.5	27	43.5	11.5	2.5	102
GN 3663-42-M10-20-3,2	42	M 10	20	13.5	27	43.5	11.5	3.2	103
GN 3663-42-M10-25-2	42	M 10	25	13.5	27	43.5	11.5	2	102
GN 3663-42-M10-25-2,5	42	M 10	25	13.5	27	43.5	11.5	2.5	103
GN 3663-42-M10-25-3,2	42	M 10	25	13.5	27	43.5	11.5	3.2	104
GN 3663-42-M10-32-2	42	M 10	32	13.5	27	43.5	11.5	2	126
GN 3663-42-M10-32-2,5	42	M 10	32	13.5	27	43.5	11.5	2.5	127
GN 3663-42-M10-32-3,2	42	M 10	32	13.5	27	43.5	11.5	3.2	128
GN 3663-42-M10-40-2	42	M 10	40	13.5	27	43.5	11.5	2	128
GN 3663-42-M10-40-2,5	42	M 10	40	13.5	27	43.5	11.5	2.5	129
GN 3663-42-M10-40-3,2	42	M 10	40	13.5	27	43.5	11.5	3.2	130
GN 3663-42-M10-50-2	42	M 10	50	13.5	27	43.5	11.5	2	133
GN 3663-42-M10-50-2,5	42	M 10	50	13.5	27	43.5	11.5	2.5	134
GN 3663-42-M10-50-3,2	42	M 10	50	13.5	27	43.5	11.5	3.2	135
GN 3663-52-M10-25-2,5	52	M 10	25	19	32	54	15.5	2.5	150
GN 3663-52-M10-25-3	52	M 10	25	19	32	54	15.5	3	160
GN 3663-52-M10-25-4	52	M 10	25	19	32	54	15.5	4	165
GN 3663-52-M10-32-2,5	52	M 10	32	19	32	54	15.5	2.5	170
GN 3663-52-M10-32-3	52	M 10	32	19	32	54	15.5	3	175
GN 3663-52-M10-32-4	52	M 10	32	19	32	54	15.5	4	180
GN 3663-52-M10-40-2,5	52	M 10	40	19	32	54	15.5	2.5	170
GN 3663-52-M10-40-3	52	M 10	40	19	32	54	15.5	3	175
GN 3663-52-M10-40-4	52	M 10	40	19	32	54	15.5	4	180
GN 3663-52-M10-50-2,5	52	M 10	50	19	32	54	15.5	2.5	180
GN 3663-52-M10-50-3	52	M 10	50	19	32	54	15.5	3	185
GN 3663-52-M10-50-4	52	M 10	50	19	32	54	15.5	4	190

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GN 3663-with threaded bolt

Description	d1	d4	l	d5	d6	h1	h2	Torque ±10% in Nm	⚖
GN 3663-52-M10-63-2,5	52	M 10	63	19	32	54	15.5	2.5	255
GN 3663-52-M10-63-3	52	M 10	63	19	32	54	15.5	3	256
GN 3663-52-M10-63-4	52	M 10	63	19	32	54	15.5	4	257
GN 3663-52-M12-25-2,5	52	M 12	25	19	32	54	15.5	2.5	243
GN 3663-52-M12-25-3	52	M 12	25	19	32	54	15.5	3	244
GN 3663-52-M12-25-4	52	M 12	25	19	32	54	15.5	4	245
GN 3663-52-M12-32-2,5	52	M 12	32	19	32	54	15.5	2.5	247
GN 3663-52-M12-32-3	52	M 12	32	19	32	54	15.5	3	248
GN 3663-52-M12-32-4	52	M 12	32	19	32	54	15.5	4	249
GN 3663-52-M12-40-2,5	52	M 12	40	19	32	54	15.5	2.5	252
GN 3663-52-M12-40-3	52	M 12	40	19	32	54	15.5	3	254
GN 3663-52-M12-40-4	52	M 12	40	19	32	54	15.5	4	256
GN 3663-52-M12-50-2,5	52	M 12	50	19	32	54	15.5	2.5	254
GN 3663-52-M12-50-3	52	M 12	50	19	32	54	15.5	3	255
GN 3663-52-M12-50-4	52	M 12	50	19	32	54	15.5	4	257
GN 3663-52-M12-63-2,5	52	M 12	63	19	32	54	15.5	2.5	260
GN 3663-52-M12-63-3	52	M 12	63	19	32	54	15.5	3	262
GN 3663-52-M12-63-4	52	M 12	63	19	32	54	15.5	4	264
GN 3663-62-M10-25-3	62	M 10	25	19	33	54	15.5	3	262
GN 3663-62-M10-25-4	62	M 10	25	19	33	54	15.5	4	263
GN 3663-62-M10-25-5,5	62	M 10	25	19	33	54	15.5	5.5	264
GN 3663-62-M10-32-3	62	M 10	32	19	33	54	15.5	3	266
GN 3663-62-M10-32-4	62	M 10	32	19	33	54	15.5	4	267
GN 3663-62-M10-32-5,5	62	M 10	32	19	33	54	15.5	5.5	268
GN 3663-62-M10-40-3	62	M 10	40	19	33	54	15.5	3	270
GN 3663-62-M10-40-4	62	M 10	40	19	33	54	15.5	4	271
GN 3663-62-M10-40-5,5	62	M 10	40	19	33	54	15.5	5.5	272
GN 3663-62-M10-50-3	62	M 10	50	19	33	54	15.5	3	276
GN 3663-62-M10-50-4	62	M 10	50	19	33	54	15.5	4	277
GN 3663-62-M10-50-5,5	62	M 10	50	19	33	54	15.5	5.5	278
GN 3663-62-M10-63-3	62	M 10	63	19	33	54	15.5	3	281
GN 3663-62-M10-63-4	62	M 10	63	19	33	54	15.5	4	282
GN 3663-62-M10-63-5,5	62	M 10	63	19	33	54	15.5	5.5	283
GN 3663-62-M12-25-3	62	M 12	25	19	33	54	15.5	3	269
GN 3663-62-M12-25-4	62	M 12	25	19	33	54	15.5	4	270
GN 3663-62-M12-25-5,5	62	M 12	25	19	33	54	15.5	5.5	272
GN 3663-62-M12-32-3	62	M 12	32	19	33	54	15.5	3	273
GN 3663-62-M12-32-4	62	M 12	32	19	33	54	15.5	4	274
GN 3663-62-M12-32-5,5	62	M 12	32	19	33	54	15.5	5.5	275
GN 3663-62-M12-40-3	62	M 12	40	19	33	54	15.5	3	278
GN 3663-62-M12-40-4	62	M 12	40	19	33	54	15.5	4	279
GN 3663-62-M12-40-5,5	62	M 12	40	19	33	54	15.5	5.5	280
GN 3663-62-M12-50-3	62	M 12	50	19	33	54	15.5	3	286
GN 3663-62-M12-50-4	62	M 12	50	19	33	54	15.5	4	287
GN 3663-62-M12-50-5,5	62	M 12	50	19	33	54	15.5	5.5	288
GN 3663-62-M12-63-3	62	M 12	63	19	33	54	15.5	3	295
GN 3663-62-M12-63-4	62	M 12	63	19	33	54	15.5	4	296
GN 3663-62-M12-63-5,5	62	M 12	63	19	33	54	15.5	5.5	297

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Torque limiting wing knobs

Technopolymer

MATERIAL
Glass-fibre reinforced polyamide based (PA) technopolymer, black (C9) or orange (C2) colour, matte finish.

TORQUE LIMITING MECHANISM
Nickel-plated steel.

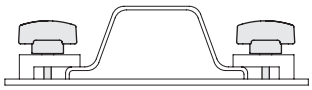
STANDARD EXECUTIONS
- **CTD-B-2**: nickel-plated steel boss with threaded blind hole, maximum torque 2Nm.
- **CTD-B-3**: nickel-plated steel boss with threaded blind hole, maximum torque 3Nm.
- **CTD-p-2**: nickel-plated steel threaded screw, maximum torque 2Nm.
- **CTD-p-3**: nickel-plated steel threaded screw, maximum torque 3Nm.

FEATURES AND APPLICATIONS
CTD wing knobs are used when the applied tightening torque must not exceed a preset value.
The torque transmission from the wing knob to the clamping element takes place by means of a spring system which prevents the overcoming of the established torque. Upon exceeding the established torque, a "click" sound will be heard to indicate that the maximum tightening has been reached. By turning the knob anticlockwise the mechanism unlocks.

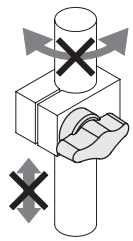




Application Examples

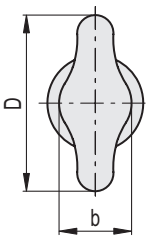


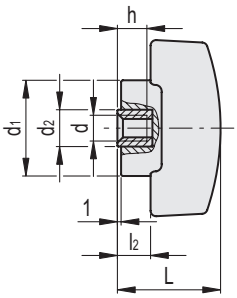
To prevent sheet deformation



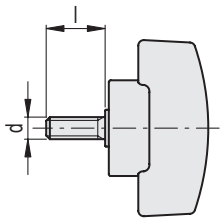
Fastening of the tube to avoid damage to tube surfaces

CTD-B





CTD-p



CTD-B

Code	Description	Code	Description	D	d	L	d1	d2	l2	b	h	C# [Nm]	⚖
221901-C9	CTD.48 B-M5-2-C9	221901-C2	CTD.48 B-M5-2-C2	48	M5	28	26	10	9	20	8	2	35
221902-C9	CTD.48 B-M5-3-C9	221902-C2	CTD.48 B-M5-3-C2	48	M5	28	26	10	9	20	8	3	36
221905-C9	CTD.48 B-M6-2-C9	221905-C2	CTD.48 B-M6-2-C2	48	M6	28	26	10	9	20	8	2	34
221906-C9	CTD.48 B-M6-3-C9	221906-C2	CTD.48 B-M6-3-C2	48	M6	28	26	10	9	20	8	3	35

CTD-p

Code	Description	Code	Description	D	d	L	d1	d2	l	l2	b	C# [Nm]	⚖
221951-C9	CTD.48 p-M5x10-2-C9	221951-C2	CTD.48 p-M5x10-2-C2	48	M5	28	26	10	10	9	20	2	37
221952-C9	CTD.48 p-M5x10-3-C9	221952-C2	CTD.48 p-M5x10-3-C2	48	M5	28	26	10	10	9	20	3	38
221955-C9	CTD.48 p-M5x16-2-C9	221955-C2	CTD.48 p-M5x16-2-C2	48	M5	28	26	10	16	9	20	2	38
221956-C9	CTD.48 p-M5x16-3-C9	221956-C2	CTD.48 p-M5x16-3-C2	48	M5	28	26	10	16	9	20	3	39
221961-C9	CTD.48 p-M6x16-2-C9	221961-C2	CTD.48 p-M6x16-2-C2	48	M6	28	26	10	16	9	20	2	39
221962-C9	CTD.48 p-M6x16-3-C9	221962-C2	CTD.48 p-M6x16-3-C2	48	M6	28	26	10	16	9	20	3	40
221965-C9	CTD.48 p-M6x25-2-C9	221965-C2	CTD.48 p-M6x25-2-C2	48	M6	28	26	10	25	9	20	2	41
221966-C9	CTD.48 p-M6x25-3-C9	221966-C2	CTD.48 p-M6x25-3-C2	48	M6	28	26	10	25	9	20	3	42

C# Maximum torque (±15%)

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Wing knobs

Technopolymer

MATERIAL
Glass-fibre reinforced polyamide based (PA) technopolymer, grey-black colour, matte finish.

CAP
Glass-fibre reinforced polyamide based (PA) technopolymer, in Ergostyle colours, matte finish, press-fit assembly.
Available also as accessory sold separately (see table ECA.).

Code	Description	Boss cap for
29752-*	ECA.W2-*	EWN.48
29753-*	ECA.W3-*	EWN.55
29755-*	ECA.W5-*	EWN.63
29754-*	ECA.W4-*	EWN.70

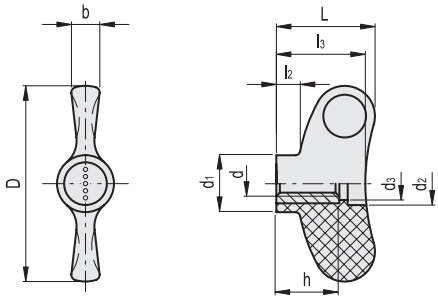
* Complete with colour index (C1, ..., C6).

STANDARD EXECUTIONS
- **EWN-FP:** brass boss, threaded pass-through hole, without cap.
- **EWN-SST-FP:** AISI 303 stainless steel boss, threaded pass-through hole without cap.
- **EWN-B**: brass boss, threaded pass-through hole, with cap.
- **EWN-SST**: AISI 303 stainless steel boss, threaded-pass hole, with cap.
- **EWN-p:** zinc-plated steel threaded stud with chamfered flat end as in UNI 947 : ISO 4753 (see Technical Data on page A11), with closing cap.
- **EWN-SST-p**: AISI 303 stainless steel threaded stud, chamfered flat end according to UNI 947 : ISO 4753 (see Technical Data on page A11), with closing cap.



ERGOSTYLE® design96/97 stuttgart 1995

EWN-FP
EWN-SST-FP



EWN-FP

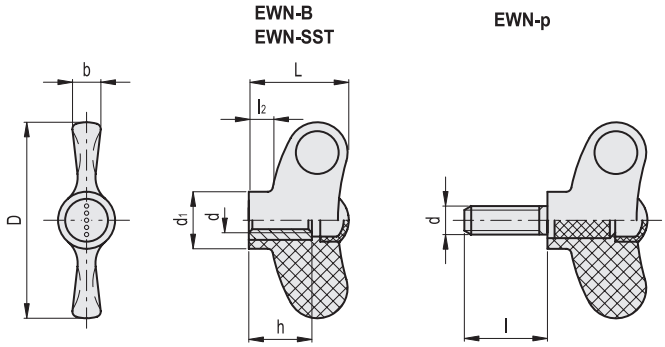
Code	Description	D	d6H	L	d1	d2	d3	l2	l3	b	h	C# [Nm]	⚖
223122-C0	EWN.48 FP-M5-C0	47	M5	24	13.5	10	8.5	5.5	21.5	7	12	9	10
223123-C0	EWN.48 FP-M6-C0	47	M6	24	13.5	10	8.5	5.5	21.5	7	12	10	9
223124-C0	EWN.48 FP-M8-C0	47	M8	24	13.5	10	8.5	5.5	21.5	7	12	11	8
223132-C0	EWN.55 FP-M6-C0	55	M6	28	16	12	10.5	6.5	25	8	18	20	19
223133-C0	EWN.55 FP-M8-C0	55	M8	28	16	12	10.5	6.5	25	8	18	25	18
223144-C0	EWN.63 FP-M8-C0	63	M8	32	19	14	10.5	7.5	29	9	20	45	27
223145-C0	EWN.63 FP-M10-C0	63	M10	32	19	14	10.5	7.5	29	9	20	55	26
223152-C0	EWN.70 FP-M8-C0	70	M8	36	20	15	13	8	32	10	20	45	32
223153-C0	EWN.70 FP-M10-C0	70	M10	36	20	15	13	8	32	10	20	55	31

EWN-SST-FP STAINLESS STEEL

Code	Description	D	d6H	L	d1	d2	d3	l2	l3	b	h	C# [Nm]	⚖
224122-C0	EWN.48 SST-FP-M6-C0	47	M6	24	13.5	10	8.5	5.5	21.5	7	12	10	9
224123-C0	EWN.48 SST-FP-M8-C0	47	M8	24	13.5	10	8.5	5.5	21.5	7	12	10	8
224133-C0	EWN.55 SST-FP-M8-C0	55	M8	28	16	12	10.5	6.5	25	8	18	20	18
224143-C0	EWN.63 SST-FP-M10-C0	63	M10	32	19	14	10.5	7.5	29	9	20	45	26
224153-C0	EWN.70 SST-FP-M10-C0	70	M10	26	20	15	13	8	32	10	20	45	31

"Max limit Tightening torque" means the max torque value at which the metal insert, in normal conditions of use, is perfectly and strongly anchored to the plastic material.

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*Complete with colour index, example: 223216-C2 EWN.48 B-M5-C2

C1	C2	C3	C4	C5	C6
RAL7021	RAL2004	RAL7035	RAL1021	RAL5024	RAL3000

EWN-B

Code	Description	D	d6H	L	d1	l2	b	h	C# [Nm]	⚖
223216-*	EWN.48 B-M5-*	47	M5	24	13.5	5.5	7	12	10	11
223221-*	EWN.48 B-M6-*	47	M6	24	13.5	5.5	7	12	11	10
223226-*	EWN.48 B-M8-*	47	M8	24	13.5	5.5	7	12	13	9
223236-*	EWN.55 B-M6-*	55	M6	28	16	6.5	8	18	20	20
223241-*	EWN.55 B-M8-*	55	M8	28	16	6.5	8	18	26	19
223251-*	EWN.63-B M8-*	63	M8	32	19	7.5	9	20	45	29
223256-*	EWN.63-B M10-*	63	M10	32	19	7.5	9	20	58	28
223406-*	EWN.70 B-M8-*	70	M8	36	20	8	10	20	45	34
223411-*	EWN.70 B-M10-*	70	M10	36	20	8	10	20	58	33

EWN-SST **STAINLESS STEEL**

Code	Description	D	d6H	L	d1	l2	b	h	C# [Nm]	⚖
224216-*	EWN.48 SST-M6-*	47	M6	24	13.5	5.5	7	12	10	10
224221-*	EWN.48 SST-M8-*	47	M8	24	13.5	5.5	7	12	10	9
224241-*	EWN.55 SST-M8-*	55	M8	28	16	6.5	8	18	15	19
224256-*	EWN.63-SST M10-*	63	M10	32	19	7.5	9	20	35	28
224411-*	EWN.70 SST-M10-*	70	M10	36	20	8	10	20	35	33

EWN-p

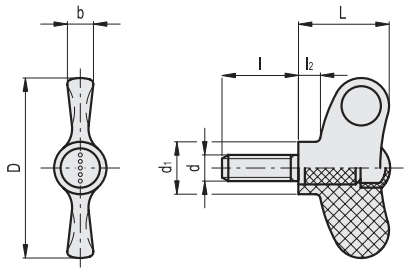
Code	Description	D	d6g	L	d1	l	l2	b	C# [Nm]	⚖
223511-*	EWN.48 p-M5x16-*	47	M5	24	13.5	16	5.5	7	9	11
223516-*	EWN.48 p-M5x20-*	47	M5	24	13.5	20	5.5	7	9	12
223531-*	EWN.48 p-M6x16-*	47	M6	24	13.5	16	5.5	7	12	13
223536-*	EWN.48 p-M6x20-*	47	M6	24	13.5	20	5.5	7	12	13
223541-*	EWN.48 p-M6x25-*	47	M6	24	13.5	25	5.5	7	12	13
223546-*	EWN.48 p-M6x30-*	47	M6	24	13.5	30	5.5	7	12	15
223556-*	EWN.48 p-M6x40-*	47	M6	24	13.5	40	5.5	7	12	17
223565-*	EWN.48 p-M8x16-*	47	M8	24	13.5	16	5.5	7	12	13
223571-*	EWN.48-p M8x20-*	47	M8	24	13.5	20	5.5	7	12	19
223572-*	EWN.48 p-M8x25-*	47	M8	24	13.5	25	5.5	7	12	13
223573-*	EWN.48-p M8x30-*	47	M8	24	13.5	30	5.5	7	12	21
223576-*	EWN.48-p M8x40-*	47	M8	24	13.5	40	5.5	7	12	24

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EWN. | Wing knobs

EWN-p
EWN-SST-p





*Complete with colour index, example: 223531-C2 EWN.48 p-M6x16-C2

C1	C2	C3	C4	C5	C6
RAL7021	RAL2004	RAL7035	RAL1021	RAL5024	RAL3000

EWN-p

Code	Description	D	d6g	L	d1	l	l2	b	C# [Nm]	⚖
223626-*	EWN.55 p-M8x20-*	55	M8	28	16	20	6.5	8	22	23
223636-*	EWN.55 p-M8x30-*	55	M8	28	16	30	6.5	8	22	26
223646-*	EWN.55 p-M8x40-*	55	M8	28	16	40	6.5	8	22	29
223666-*	EWN.55 p-M10x20-*	55	M10	28	16	20	6.5	8	25	28
223676-*	EWN.55 p-M10x30-*	55	M10	28	16	30	6.5	8	25	34
223686-*	EWN.55 p-M10x40-*	55	M10	28	16	40	6.5	8	25	40
223726-*	EWN.63 p-M8x20-*	63	M8	32	19	20	7.5	9	32	30
223736-*	EWN.63 p-M8x30-*	63	M8	32	19	30	7.5	9	32	33
223746-*	EWN.63 p-M8x40-*	63	M8	32	19	40	7.5	9	32	35
223756-*	EWN.63 p-M10x20-*	63	M10	32	19	20	7.5	9	48	36
223766-*	EWN.63 p-M10x30-*	63	M10	32	19	30	7.5	9	48	42
223776-*	EWN.63 p-M10x40-*	63	M10	32	19	40	7.5	9	48	48
223806-*	EWN.70 p-M8x20-*	70	M8	36	20	20	8	10	32	35
223816-*	EWN.70 p-M8x30-*	70	M8	36	20	30	8	10	32	38
223826-*	EWN.70 p-M8x40-*	70	M8	36	20	40	8	10	32	40
223856-*	EWN.70 p-M10x20-*	70	M10	36	20	20	8	10	48	41
223866-*	EWN.70 p-M10x30-*	70	M10	36	20	30	8	10	48	47
223876-*	EWN.70 p-M10x40-*	70	M10	36	20	40	8	10	48	53

EWN-SST-p **STAINLESS STEEL**

Code	Description	D	d6g	L	d1	l	l2	b	C# [Nm]	⚖
224536-*	EWN.48 SST-p-M6x20 -*	47	M6	24	13.5	20	5.5	7	11	13
224546-*	EWN.48 SST-p-M6x30-*	47	M6	24	13.5	30	5.5	7	11	15
224549-*	EWN.48 SST-p-M8x20-*	47	M8	24	13.5	20	5.5	7	11	20
224551-*	EWN.48 SST-p-M8x30-*	47	M8	24	13.5	30	5.5	7	11	22
224553-*	EWN.48 SST-p-M8x40-*	47	M8	24	13.5	40	5.5	7	11	25
224626-*	EWN.55 SST-p-M8x20-*	55	M8	28	16	20	6.5	8	16	23
224636-*	EWN.55 SST-p-M8x30-*	55	M8	28	16	30	6.5	8	16	26
224638-*	EWN.55 SST-p-M8x40-*	55	M8	28	16	40	6.5	8	16	30
224756-*	EWN.63-SST-p M10x20-*	63	M10	32	19	20	7.5	9	45	36
224766-*	EWN.63-SST-p M10x30-*	63	M10	32	19	30	7.5	9	45	42
224856-*	EWN.70 SST-p-M10x20-*	70	M10	36	20	20	8	10	45	41
224866-*	EWN.70 SST-p-M10x30-*	70	M10	36	20	30	8	10	45	47
224876-*	EWN.70 SST-p-M10x40-*	70	M10	36	20	40	8	10	45	54

"Max limit Tightening torque" means the max torque value at which the metal insert, in normal conditions of use, is perfectly and strongly anchored to the plastic material.

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EWN-SST-p-P

Wing knobs

Technopolymer, pad



MATERIAL

Glass-fibre reinforced polyamide based (PA) technopolymer, grey-black colour, matte finish.

CAP

Glass-fibre reinforced polyamide based (PA) technopolymer, in Ergostyle colours, matte finish, press-fit assembly.
Available also as accessory sold separately (see table ECA.).

Code	Description	Cap for
29752-*	ECA.W2-*	EWN.48
29753-*	ECA.W3-*	EWN.55
29754-*	ECA.W4-*	EWN.70

* Complete with the colour index (C1, ..., C6)

STANDARD EXECUTIONS

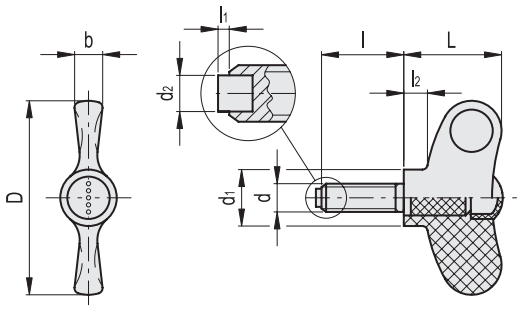
- **EWN-SST-p-PO:** AISI 303 stainless steel threaded stud, acetal resin (POM) pad.
- **EWN-SST-p-PB:** AISI 303 stainless steel threaded stud, brass pad.

FEATURES AND APPLICATIONS

The chamfered end with bolt avoids to damage the surface of contact even in case of strong clamping.
Standard executions either with brass or acetal resin pad.

ERGONOMY AND DESIGN

The slightly concave marks on the wings help to position the fingers in order to apply the maximum force when tightening.





* Complete with colour index, example: 224556-C2 EWN.48-SST-p-M6x20-PO-C2

C1 RAL7021 | C2 RAL2004 | C3 RAL7035 | C4 RAL1021 | C5 RAL5024 | C6 RAL3000

EWN-SST-p-PO — **STAINLESS STEEL**

Code	Description	D	d6g	L	d1	d2	l	l1	l2	b	⚖
224556-*	EWN.48-SST-p-M6x20-PO-*	47	M6	24	13.5	4	20	1.5	5.5	7	13
224566-*	EWN.48-SST-p-M6x30-PO-*	47	M6	24	13.5	4	30	1.5	5.5	7	15
224646-*	EWN.55-SST-p-M8x20-PO-*	55	M8	28	16	5	20	1.8	6.5	8	23
224656-*	EWN.55-SST-p-M8x30-PO-*	55	M8	28	16	5	30	1.8	6.5	8	26
224676-*	EWN.70-SST-p-M10x20-PO-*	70	M10	36	20	6	20	2	8	10	41
224686-*	EWN.70-SST-p-M10x30-PO-*	70	M10	36	20	6	30	2	8	10	47

EWN-SST-p-PB — **STAINLESS STEEL**

Code	Description	D	d6g	L	d1	d2	l	l1	l2	b	⚖
224576-*	EWN.48-SST-p-M6x20-PB-*	47	M6	24	13.5	4	20	1.5	5.5	7	14
224586-*	EWN.48-SST-p-M6x30-PB-*	47	M6	24	13.5	4	30	1.5	5.5	7	16
224661-*	EWN.55-SST-p-M8x20-PB-*	55	M8	28	16	5	20	1.8	6.5	8	24
224666-*	EWN.55-SST-p-M8x30-PB-*	55	M8	28	16	5	30	1.8	6.5	8	27
224691-*	EWN.70-SST-p-M10x20-PB-*	70	M10	36	20	6	20	2	8	10	42
224696-*	EWN.70-SST-p-M10x30-PB-*	70	M10	36	20	6	30	2	8	10	48

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Wing knobs

Stainless steel



MATERIAL
AISI 304 stainless steel, sandblasted matte finish.

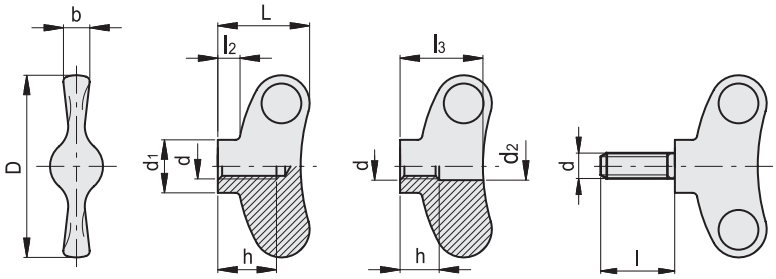
STANDARD EXECUTIONS
- **EWNM-SST:** threaded blind hole.
- **EWNM-SST-FP:** threaded pass-through hole.
- **EWNM-SST-p:** threaded pin.

FEATURES AND APPLICATIONS
These wing nuts allow high tightening torque values.

ERGONOMY AND DESIGN
The slightly concave marks on the wings help to position the fingers in order to apply the maximum force when tightening.
Different threadings.

ERGOSTYLE®

EWNM-SST **EWNM-SST-FP** **EWNM-SST-p**



EWNM-SST — STAINLESS STEEL

Code	Description	D	d	L	d1	l2	b	h	⚖
222002	EWNM-SST-40-M5	40	M5	21	13.5	5.5	6.5	12	31
222004	EWNM-SST-40-M6	40	M6	21	13.5	5.5	6.5	12	31
222012	EWNM-SST-48-M6	48	M6	24	13.5	6	7	15	41
222014	EWNM-SST-48-M8	48	M8	24	13.5	6	7	15	40
222022	EWNM-SST-55-M8	55	M8	28	16	7	8	18	62
222024	EWNM-SST-55-M10	55	M10	28	16	7	8	18	61

EWNM-SST-FP — STAINLESS STEEL

Code	Description	D	d	d2 H13	L	d1	l2	l3	b	h	⚖
222001	EWNM-SST-40-FP-M5	40	M5	5.3	21	13.5	5.5	19	6.5	8	30
222003	EWNM-SST-40-FP-M6	40	M6	6.4	21	13.5	5.5	19	6.5	10	29
222011	EWNM-SST-48-FP-M6	48	M6	6.4	24	13.5	6	22	7	10	40
222013	EWNM-SST-48-FP-M8	48	M8	8.4	24	13.5	6	22	7	13	39
222021	EWNM-SST-55-FP-M8	55	M8	8.4	28	16	7	25	8	13	59
222023	EWNM-SST-55-FP-M10	55	M10	10.5	28	16	7	25	8	16	57

EWNM-SST-p — STAINLESS STEEL

Code	Description	D	d	L	d1	l	l2	b	⚖
222101	EWNM.40-SST-pM5x16	40	M5	21	13.5	16	5.5	6.5	32
222103	EWNM.40-SST-pM5x20	40	M5	21	13.5	20	5.5	6.5	36
222105	EWNM.40-SST-pM5x25	40	M5	21	13.5	25	5.5	6.5	40
222111	EWNM.40-SST-pM6x16	40	M6	21	13.5	16	5.5	6.5	35
222113	EWNM.40-SST-pM6x20	40	M6	21	13.5	20	5.5	6.5	42
222115	EWNM.40-SST-pM6x25	40	M6	21	13.5	25	5.5	6.5	46
222131	EWNM.48-SST-pM6x16	48	M6	24	13.5	16	6	7	44
222133	EWNM.48-SST-pM6x20	48	M6	24	13.5	20	6	7	50
222135	EWNM.48-SST-pM6x25	48	M6	24	13.5	25	6	7	54
222141	EWNM.48-SST-pM8x16	48	M8	24	13.5	16	6	7	46
222143	EWNM.48-SST-pM8x20	48	M8	24	13.5	20	6	7	50
222145	EWNM.48-SST-pM8x25	48	M8	24	13.5	25	6	7	52
222161	EWNM.55-SST-pM8x20	55	M8	28	16	20	7	8	55
222163	EWNM.55-SST-pM8x25	55	M8	28	16	25	7	8	58
222165	EWNM.55-SST-pM8x30	55	M8	28	16	30	7	8	61
222171	EWNM.55-SST-pM10x20	55	M10	28	16	20	7	8	53
222173	EWNM.55-SST-pM10x25	55	M10	28	16	25	7	8	56
222175	EWNM.55-SST-pM10x30	55	M10	28	16	30	7	8	60

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Single wing nuts

Technopolymer

MATERIAL
Glass-fibre reinforced polyamide based (PA) technopolymer, grey-black colour, matte finish.

CAP
Glass-fibre reinforced polyamide based (PA) technopolymer, in Ergostyle colours, matte finish, press-fit assembly.
Available also as accessory sold separately (see table ECA.).

Code	Description	Boss cap for
29753-*	ECA.W3-*	ESN.55
29754-*	ECA.W4-*	ESN.70

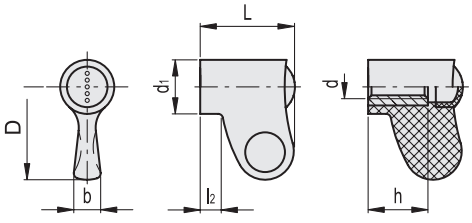
* Complete with colour index (C1, ..., C6).

STANDARD EXECUTION
Brass boss, threaded pass-through hole.

ERGONOMY AND DESIGN
The slightly concave marks on the wing help to position the fingers in order to apply the maximum force when turning.



design award winner 2003
ERGOSTYLE® 2003





*Complete with colour index, example: 225236-C2 ESN.55 B-M6-C2

C1 RAL7021 | C2 RAL2004 | C3 RAL7035 | C4 RAL1021 | C5 RAL5024 | C6 RAL3000

Code	Description	D	d6H	L	d1	l2	b	h	⚖
225236-*	ESN.55 B-M6-*	27.5	M6	28	16	6.5	8	18	15
225241-*	ESN.55 B-M8-*	27.5	M8	28	16	6.5	8	18	14
225406-*	ESN.70 B-M8-*	35	M8	36	20	8	10	20	29
225411-*	ESN.70 B-M10-*	35	M10	36	20	8	10	20	28

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Wing knobs

Technopolymer

MATERIAL

Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

STANDARD EXECUTIONS

- **CWN-B:** brass boss, threaded blind hole.
- **CWN-FP:** brass boss, threaded pass-through hole.
- **CWN-p:** zinc-plated steel threaded stud, chamfered flat end according to UNI 947 : ISO 4753 (see Technical data on page A11).

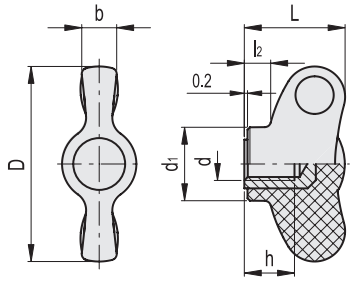
ERGONOMY AND DESIGN

The slightly convex marks on the wings offer a point where the fingers can be positioned.

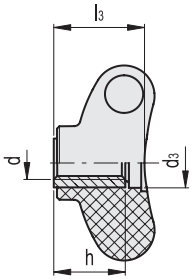


ELESA Original design

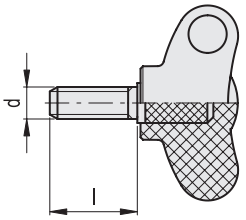
CWN-B



CWN-FP



CWN-p



CWN-B

Code	Description	D	d6H	L	d1	l2	b	h	⚖
8600	CWN.32 B-M4	32	M4	16.5	12	3.5	6	6	8
8601	CWN.32 B-M5	32	M5	16.5	12	3.5	6	6	7
8602	CWN.32 B-M6	32	M6	16.5	12	3.5	6	8	6
8651	CWN.40 B-M6	40	M6	21	13.5	4.5	6.5	12	12
8652	CWN.40 B-M8	40	M8	21	13.5	4.5	6.5	13	11

CWN-FP

Code	Description	D	d6H	L	d1	d3	l2	l3	b	h	⚖
8605	CWN.32 FP-M5	32	M5	16.5	12	8	3.5	14.5	6	12	6
8606	CWN.32 FP-M6	32	M6	16.5	12	8	3.5	14.5	6	12	8
8656	CWN.40 FP-M8	40	M8	21	13.5	9.5	5	19	6.5	16	10

CWN-p

Code	Description	D	d6g	L	d1	l	l2	b	⚖
8607	CWN.32 p-M4x10	32	M4	16.5	12	10	3.5	6	7
8608	CWN.32 p-M4x16	32	M4	16.5	12	16	3.5	6	8
8609	CWN.32 p-M5x10	32	M5	16.5	12	10	3.5	6	8
8610	CWN.32 p-M5x16	32	M5	16.5	12	16	3.5	6	9
8615	CWN.32 p-M5x20	32	M5	16.5	12	20	3.5	6	10
8611	CWN.32 p-M6x10	32	M6	16.5	12	10	3.5	6	8
8612	CWN.32 p-M6x16	32	M6	16.5	12	16	3.5	6	9
8613	CWN.32 p-M6x20	32	M6	16.5	12	20	3.5	6	11
8614	CWN.32 p-M6x25	32	M6	16.5	12	25	3.5	6	13
8616	CWN.32 p-M6x30	32	M6	16.5	12	30	3.5	6	10
8658	CWN.40 p-M6x16	40	M6	21	13.5	16	4.5	6.5	11
8662	CWN.40 p-M8x16	40	M8	21	13.5	16	4.5	6.5	12
8663	CWN.40 p-M8x20	40	M8	21	13.5	20	4.5	6.5	14
8664	CWN.40 p-M8x25	40	M8	21	13.5	25	4.5	6.5	17
8665	CWN.40 p-M8x30	40	M8	21	13.5	30	4.5	6.5	20

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GN 834

Stainless Steel-Wing nuts

SPECIFICATION

Types

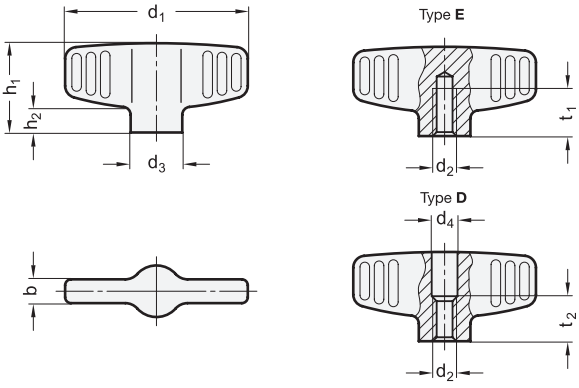
- Type **E**: with threaded blind bore
- Type **D**: with threaded through bore

Stainless Steel AISI CF-8 (Precision casting)
matt shot-blasted **MT**

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)





GN 834 STAINLESS STEEL

Description	d1	d2	d3	d4	b	h1	h2	t1 min.	t2	⚖
GN 834-46-M6-D-MT	46	M 6	13	6.5	6	22.5	6	-	10	38
GN 834-46-M8-D-MT	46	M 8	13	8.5	6	22.5	6	-	13	39
GN 834-58-M8-D-MT	58	M 8	16	8.5	7	26.5	7	-	13	65
GN 834-58-M10-D-MT	58	M 10	16	10.5	7	26.5	7	-	16	55
GN 834-46-M6-E-MT	46	M 6	13	-	6	22.5	6	12	-	41
GN 834-46-M8-E-MT	46	M 8	13	-	6	22.5	6	15	-	39
GN 834-58-M8-E-MT	58	M 8	16	-	7	26.5	7	15	-	73
GN 834-58-M10-E-MT	58	M 10	16	-	7	26.5	7	18	-	60

GN 835

Stainless Steel-Wing screws

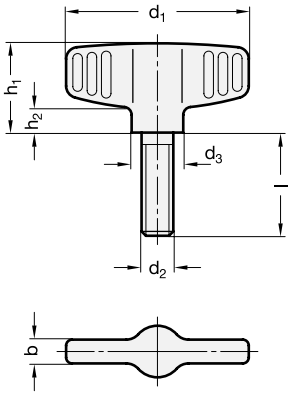
SPECIFICATION

Stainless Steel AISI CF-8 (Precision casting)
matt shot-blasted **MT**

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)





GN 835 STAINLESS STEEL

Description	d1	d2	l	d3	b	h1	h2	⚖
GN 835-46-M6-16-MT	46	M 6	16	13	6	22.5	6	40
GN 835-46-M6-20-MT	46	M 6	20	13	6	22.5	6	41
GN 835-46-M6-25-MT	46	M 6	25	13	6	22.5	6	42
GN 835-46-M8-16-MT	46	M 8	16	13	6	22.5	6	49
GN 835-46-M8-20-MT	46	M 8	20	13	6	22.5	6	50
GN 835-46-M8-25-MT	46	M 8	25	13	6	22.5	6	52
GN 835-58-M8-20-MT	58	M 8	20	16	7	26.5	7	75
GN 835-58-M8-25-MT	58	M 8	25	16	7	26.5	7	76
GN 835-58-M8-30-MT	58	M 8	30	16	7	26.5	7	77
GN 835-58-M10-20-MT	58	M 10	20	16	7	26.5	7	80
GN 835-58-M10-25-MT	58	M 10	25	16	7	26.5	7	81
GN 835-58-M10-30-MT	58	M 10	30	16	7	26.5	7	82

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CT.476

Wing knobs

Technopolymer

MATERIAL

Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

STANDARD EXECUTIONS

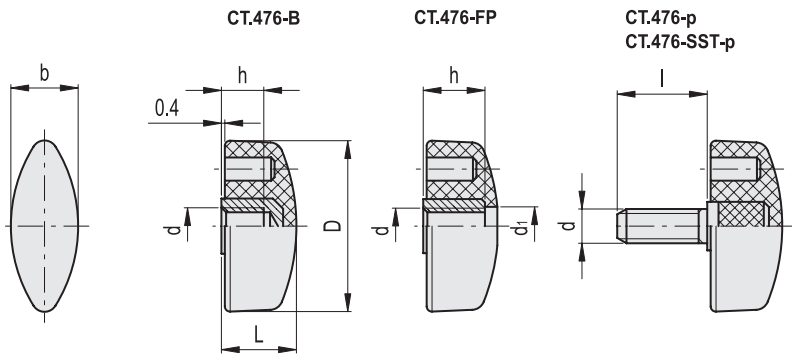
- **CT.476-B:** brass boss, threaded blind hole.
- **CT.476-FP:** brass boss, threaded pass-through hole.
- **CT.476-p:** zinc-plated steel threaded stud, chamfered flat end according to UNI 947 : ISO 4753 (see Technical data on page A11).
- **CT.476-SST-p:** AISI 303 stainless steel threaded stud, chamfered flat end according to UNI 947 : ISO 4753 (see Technical data on page A11).

FEATURES AND APPLICATIONS

These wing knobs allow high tightening torque values.



ELESA Original design



CT.476-B

Code	Description	D	d6H	L	b	h	C# [Nm]	⚖
8252	CT.476/20 B-M4	20	M4	11	9.5	6	6	3
8302	CT.476/25 B-M5	26	M5	13	11	6	8	4
8307	CT.476/25 B-M6	26	M6	13	11	6	10	4
8321	CT.476/30 B-M5	32	M5	15	13	6	8	8
8351	CT.476/30 B-M6	32	M6	15	13	8	15	7
8356	CT.476/30 B-M8	32	M8	15	13	8	20	6
8432	CT.476/40 B-M5	40	M5	17	15.5	6	8	14
8433	CT.476/40 B-M6	40	M6	17	15.5	8	15	12
8452	CT.476/40 B-M8	40	M8	17	15.5	8	24	10
8502	CT.476/48 B-M8	48	M8	19	19	10	30	14
8552	CT.476/56 B-M10	56	M10	23	21	13	32	17

CT.476-FP

Code	Description	D	d6H	L	d1	b	h	C# [Nm]	⚖
8326	CT.476/30 FP-M5	32	M5	15	6.5	13	12	9	8
8358	CT.476/30 FP-M6	32	M6	15	6.5	13	12	15	7
8436	CT.476/40 FP-M5	40	M5	17	9	15.5	12	9	13
8438	CT.476/40 FP-M6	40	M6	17	9	15.5	12	15	12
8458	CT.476/40 FP-M8	40	M8	17	9	15.5	14	22	10
8508	CT.476/48 FP-M8	48	M8	19	9	19	16	24	14
8558	CT.476/56 FP-M10	56	M10	23	11	21	20	30	18

"Max limit Tightening torque" means the max torque value at which the metal insert, in normal conditions of use, is perfectly and strongly anchored to the plastic material.

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CT.476 | Wing knobs

CT.476-p

Code	Description	D	d6g	L	l	b	C# [Nm]	⚖
8261	CT.476/20 p-M4x6	20	M4	11	6	9.5	6	4
8262	CT.476/20 p-M4x10	20	M4	11	10	9.5	6	4
8311	CT.476/25 p-M5x10	26	M5	13	10	11	8	6
8312	CT.476/25 p-M5x16	26	M5	13	16	11	8	7
8331	CT.476/30 p-M5x10	32	M5	15	10	13	8	7
8332	CT.476/30 p-M5x16	32	M5	15	16	13	8	9
8333	CT.476/30 p-M5x20	32	M5	15	20	13	8	13
8361	CT.476/30 p-M6x10	32	M6	15	10	13	14	8
8362	CT.476/30 p-M6x16	32	M6	15	16	13	14	10
8363	CT.476/30 p-M6x20	32	M6	15	20	13	14	11
8364	CT.476/30 p-M6x25	32	M6	15	25	13	14	12
8366	CT.476/30 p-M6x30	32	M6	15	30	13	14	13
8365	CT.476/30 p-M6x40	32	M6	15	40	13	14	14
8371	CT.476/30 p-M8x16	32	M8	15	16	13	16	13
8372	CT.476/30 p-M8x25	32	M8	15	25	13	16	16
8373	CT.476/30 p-M8x40	32	M8	15	40	13	16	20
8374	CT.476/30 p-M8x45	32	M8	15	45	13	16	24
8482	CT.476/40 p-M5x10	40	M5	17	10	15.5	8	11
8483	CT.476/40 p-M5x16	40	M5	17	16	15.5	8	12
8485	CT.476/40 p-M5x20	40	M5	17	20	15.5	8	13
8492	CT.476/40 p-M6x16	40	M6	17	16	15.5	14	13
8493	CT.476/40 p-M6x20	40	M6	17	20	15.5	14	14
8494	CT.476/40 p-M6x25	40	M6	17	25	15.5	14	16
8496	CT.476/40 p-M6x30	40	M6	17	30	15.5	14	17
8498	CT.476/40 p-M6x40	40	M6	17	40	15.5	14	19
8462	CT.476/40 p-M8x16	40	M8	17	16	15.5	18	15
8464	CT.476/40 p-M8x25	40	M8	17	25	15.5	18	16
8466	CT.476/40 p-M8x40	40	M8	17	40	15.5	18	22
8472	CT.476/40 p-M10x20	40	M10	17	20	15.5	28	25
8474	CT.476/40 p-M10x30	40	M10	17	30	15.5	28	27
8476	CT.476/40 p-M10x40	40	M10	17	40	15.5	28	31
8521	CT.476/48 p-M8x16	48	M8	19	16	19	20	18
8524	CT.476/48 p-M8x25	48	M8	19	25	19	20	21
8572	CT.476/56 p-M10x20	56	M10	23	20	21	40	35
8574	CT.476/56 p-M10x30	56	M10	23	30	21	40	39

CT.476-SST-p **STAINLESS STEEL**

Code	Description	D	d6g	L	l	b	C# [Nm]	⚖
108261	CT.476/20-SST-p-M4x6	20	M4	11	6	9.5	6	4
108262	CT.476/20-SST-p-M4x10	20	M4	11	10	9.5	6	4
108311	CT.476/25-SST-p-M5x10	26	M5	13	10	11	8	6
108312	CT.476/25-SST-p-M5x16	26	M5	13	16	11	8	7
108313	CT.476/25-SST-p-M5x25	26	M5	13	25	11	8	8
108361	CT.476/30-SST-p-M6x10	32	M6	15	10	13	14	8
108362	CT.476/30-SST-p-M6x16	32	M6	15	16	13	14	10
108364	CT.476/30-SST-p-M6x20	32	M6	15	20	13	14	11
108366	CT.476/30-SST-p-M6x25	32	M6	15	25	13	14	12
108367	CT.476/30-SST-p-M6x30	32	M6	15	30	13	14	13
108372	CT.476/30-SST-p-M8x16	32	M8	15	16	13	16	13
108374	CT.476/30-SST-p-M8x20	32	M8	15	20	13	16	14
108375	CT.476/30-SST-p-M8x25	32	M8	15	25	13	16	16
108377	CT.476/30-SST-p-M8x30	32	M8	15	30	13	16	17
108378	CT.476/30-SST-p-M8x40	32	M8	15	40	13	16	20
108462	CT.476/40-SST-p-M8x16	40	M8	17	16	15.5	18	15
108464	CT.476/40-SST-p-M8x25	40	M8	17	25	15.5	18	16
108466	CT.476/40-SST-p-M8x40	40	M8	17	40	15.5	18	22
108521	CT.476/48-SST-p-M8x16	48	M8	19	16	19	20	18
108524	CT.476/48-SST-p-M8x25	48	M8	19	16	19	20	18
108572	CT.476/56-SST-p-M10x20	56	M10	23	20	21	40	35
108574	CT.476/56-SST-p-M10x30	56	M10	23	30	21	40	39

"Max limit Tightening torque" means the max torque value at which the metal insert, in normal conditions of use, is perfectly and strongly anchored to the plastic material.

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Wing knobs

Technopolymer

MATERIAL

Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

STANDARD EXECUTIONS

- **CTL.476-B:** brass boss, threaded blind hole.
- **CTL.476-FP**: brass boss, threaded through hole.
- **CTL.476-p:** zinc-plated steel threaded stud, chamfered flat end according to UNI 947 : ISO 4753 (see Technical data on page A11).

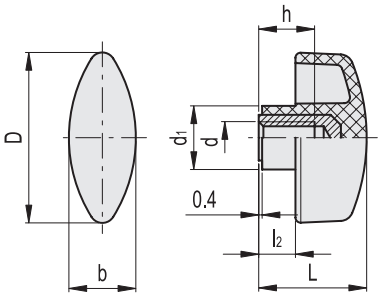
FEATURES AND APPLICATIONS

These wing knobs allow high tightening torque values and a confortable grip, thanks to the elongated hub.

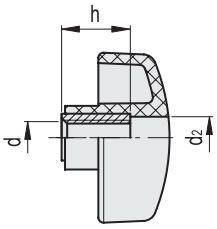


ELESA Original design

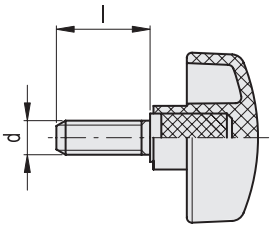
CTL.476-B



CTL.476-FP



CTL.476-p



CTL.476-B

Code	Description	D	d6H	L	d1	l2	b	h	⚖
8711	CTL.476/30 B-M6	32	M6	20	11	5.5	13	10	8
8741	CTL.476/40 B-M8	40	M8	24.5	14	7.5	15.5	15	11
8771	CTL.476/48 B-M8	48	M8	28	17	9	19	20	17
8801	CTL.476/56 B-M10	56	M10	34	18.5	11	21	13	21

CTL.476-FP

Code	Description	D	d6H	L	d1	d2	l2	b	h	⚖
8715	CTL.476/30 FP-M6	32	M6	20	11	6.5	5.5	13	12	7
8745	CTL.476/40 FP-M8	40	M8	24.5	14	9	7.5	15.5	14	10
8775	CTL.476/48 FP-M10	48	M10	28	17	11	9	19	16	17

CTL.476-p

Code	Description	D	d6g	L	d1	l	l2	b	⚖
8721	CTL.476/30 p-M6x10	32	M6	20	11	10	5.5	13	9
8722	CTL.476/30 p-M6x16	32	M6	20	11	16	5.5	13	11
8723	CTL.476/30 p-M6x20	32	M6	20	11	20	5.5	13	13
8751	CTL.476/40 p-M8x16	40	M8	24.5	14	16	7.5	15.5	16
8753	CTL.476/40 p-M8x25	40	M8	24.5	14	25	7.5	15.5	19
8781	CTL.476/48 p-M8x16	48	M8	28	17	16	9	19	21
8783	CTL.476/48 p-M8x25	48	M8	28	17	25	9	19	27
8811	CTL.476/56 p-M10x20	56	M10	34	18.5	20	11	21	29
8813	CTL.476/56 p-M10x30	56	M10	34	18.5	30	11	21	35

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GN 431

Stainless Steel-Wing screws

SPECIFICATION

Head

- Stainless Steel AISI 316L (Sintered Steel)
- matt shot-blasted

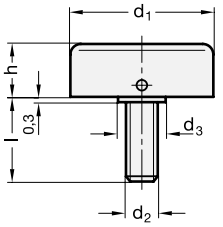
Threaded bolt

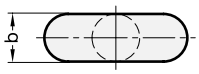
- Stainless Steel AISI 304
- matt shot-blasted
- screwed in and secured by cross-dowel

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)







GN 431 STAINLESS STEEL

Description	d1	d2	l	d3	b	h	⚖
GN 431-25-M6-16	25	M 6	16	8	8	10	14
GN 431-25-M6-20	25	M 6	20	8	8	10	16
GN 431-25-M6-25	25	M 6	25	8	8	10	18
GN 431-30-M6-16	30	M 6	16	10	10	12	21
GN 431-30-M6-20	30	M 6	20	10	10	12	23
GN 431-30-M6-25	30	M 6	25	10	10	12	25
GN 431-30-M8-16	30	M 8	16	10	10	12	27
GN 431-30-M8-20	30	M 8	20	10	10	12	28
GN 431-30-M8-25	30	M 8	25	10	10	12	30
GN 431-30-M8-32	30	M 8	32	10	10	12	32
GN 431-36-M8-16	36	M 8	16	12	12	14.5	44
GN 431-36-M8-20	36	M 8	20	12	12	14.5	45
GN 431-36-M8-25	36	M 8	25	12	12	14.5	47
GN 431-36-M8-32	36	M 8	32	12	12	14.5	49
GN 431-36-M10-20	36	M 10	20	12	12	14.5	51
GN 431-36-M10-30	36	M 10	30	12	12	14.5	53
GN 431-36-M10-40	36	M 10	40	12	12	14.5	55

GN 432

Stainless Steel-Wing nuts

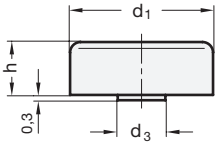
SPECIFICATION

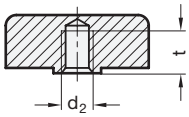
Stainless Steel AISI 316L (Sintered Steel)
matt shot-blasted

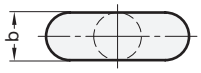
TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)









GN 432 STAINLESS STEEL

Description	d1	d2	d3	b	h	t min.	⚖
GN 432-25-M6	25	M 6	8	8	10	7	10
GN 432-30-M6	30	M 6	10	10	12	7	21
GN 432-30-M8	30	M 8	10	10	12	9	18
GN 432-36-M8	36	M 8	12	12	14.5	9	36
GN 432-36-M10	36	M 10	12	12	14.5	7	33

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GN 433

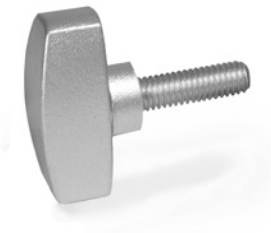
Stainless Steel-Wing screws

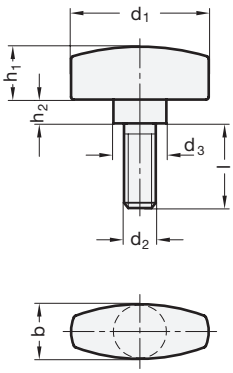
SPECIFICATION

Stainless Steel AISI CF-8 (Precision casting)
matt shot-blasted **MT**

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)





GN 433 — **STAINLESS STEEL**

Description	d1	d2	l	d3	b	h1	h2	⚖
GN 433-26-M5-10-MT	26	M 5	10	10	11	10	4.5	20
GN 433-26-M5-16-MT	26	M 5	16	10	11	10	4.5	22
GN 433-26-M6-16-MT	26	M 6	16	10	11	10	4.5	23
GN 433-26-M6-20-MT	26	M 6	20	10	11	10	4.5	24
GN 433-26-M6-25-MT	26	M 6	25	10	11	10	4.5	25
GN 433-34-M6-20-MT	34	M 6	20	12	13	12	5	41
GN 433-34-M6-25-MT	34	M 6	25	12	13	12	5	42
GN 433-34-M6-30-MT	34	M 6	30	12	13	12	5	44
GN 433-34-M8-16-MT	34	M 8	16	12	13	12	5	42
GN 433-34-M8-20-MT	34	M 8	20	12	13	12	5	43
GN 433-34-M8-30-MT	34	M 8	30	12	13	12	5	48

GN 434

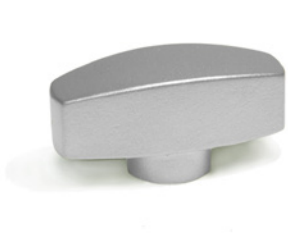
Stainless Steel-Wing nuts

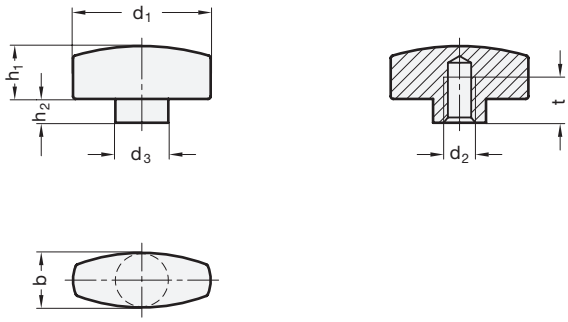
SPECIFICATION

Stainless Steel AISI CF-8 (Precision casting)
matt shot-blasted **MT**

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)





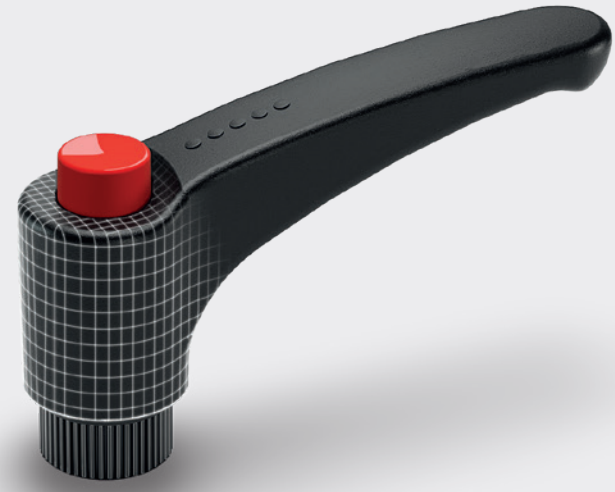
GN 434 — **STAINLESS STEEL**

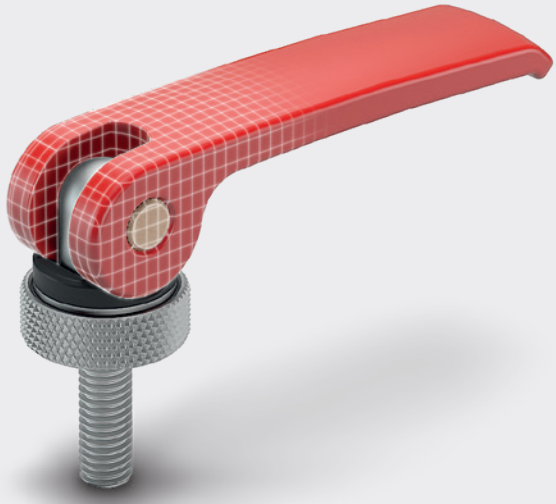
Description	d1	d2	d3	b	h1	h2	t min.	⚖
GN 434-26-M4-MT	26	M 4	10	11	10	4.5	7	19
GN 434-26-M5-MT	26	M 5	10	11	10	4.5	8	20
GN 434-26-M6-MT	26	M 6	10	11	10	4.5	8	18
GN 434-34-M6-MT	34	M 6	12	13	12	5	10	34
GN 434-34-M8-MT	34	M 8	12	13	12	5	9	32

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DESIGNED
FOR ENGINEERING

3 Clamping levers



Adjustable handles

Lever handles

Adjustable handles

Technopolymer

LEVER BODY
Glass-fibre reinforced polyamide based (PA) technopolymer, grey-black colour, matte finish.

PUSH BUTTON
Technopolymer in Ergostyle colours, glossy finish.

STANDARD EXECUTIONS
Glass-fibre reinforced technopolymer clamping element with retaining pin, black colour, with knurling on the protruding part to make initial tightening easier. AISI 302 stainless steel return spring.
- **ERX -B:** brass boss, threaded blind hole.
- **ERX-SST:** AISI 303 stainless steel boss, threaded blind hole.
- **ERX-p:** zinc-plated steel threaded stud, chamfered flat end UNI 947 : ISO 4753 (see Technical Data on page A11).
- **ERX-SST-p:** AISI 303 stainless steel threaded stud, chamfered flat end UNI 947 : ISO 4753 (see Technical Data on page A11).

FEATURES AND APPLICATIONS
Particularly suitable when the lever turning angle is limited owing to lack of space.
Compared to other types of adjustable handles with metal retaining screw this solution offers:
- absolute electric insulation for the operator
- no visible steel parts subject to rust
- more comfortable lever release.

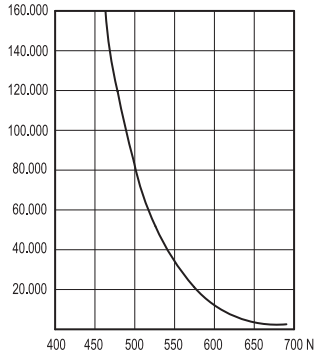
STRESS RESISTANCE
Adjustable handles are generally used for repetitive clamping operations sometimes with very high-frequency.
Therefore, the stress resistance (i.e. the resistance to repeated tightening cycles) of the handle unit is particularly important and, especially, the strength of the toothed element which transmits the tightening force from the handle to the threaded element (boss or stud).
In fact, the results of several laboratory tests, perfomed with a special instrument that simulates the most severe use conditions, have shown that e.g. ERX.78 adjustable handle can withstand without yielding more than 100,000 tightening cycles, under the action of a force of 490 N (see graphic).
The special glass-fibre reinforced technopolymer enables the ELESA adjustable handles to guarantee stress resistance values which are much higher than the ones generated under normal working conditions.

OTHER EXECUTIONS AVAILABLE
Lever body in orange (C2) with black push button (C1).
Example: code 233061-C2-C1 description ERX.30-C2-B-M3-C1.

INSTRUCTIONS OF USE
For clamping, lift the lever to disengage the clamping device teeth and bring it back to start position. By releasing the lever, the return spring automatically engages the teeth.

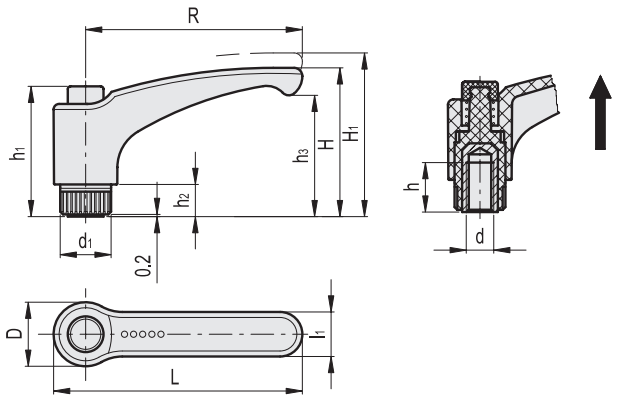


NUMBER OF TIGHTENINGS



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ERX-B
ERX-SST





*Complete with colour index, example: 233061-C2 ERX.30 B-M3-C2

C1	C2	C3	C4	C5	C6
RAL7021	RAL2004	RAL7035	RAL1021	RAL5024	RAL3000

ERX-B

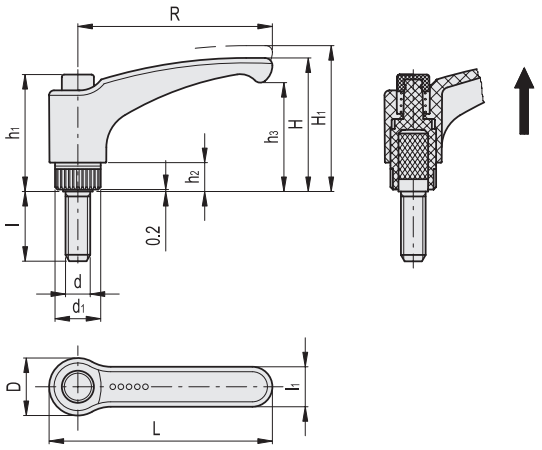
Code	Description	R	d6H	L	D	H	H1	h	h1	h2	h3	d1	l1	Teeth no.	⚖
233061-*	ERX.30 B-M3-*	30	M3	37.5	15.5	30	33.5	10	29.5	6	23	12	9	18	8
233066-*	ERX.30 B-M4-*	30	M4	37.5	15.5	30	33.5	10	29.5	6	23	12	9	18	8
233071-*	ERX.30 B-M5-*	30	M5	37.5	15.5	30	33.5	10	29.5	6	23	12	9	18	7
233076-*	ERX.30 B-M6-*	30	M6	37.5	15.5	30	33.5	10	29.5	6	23	12	9	18	6
233101-*	ERX.44 B-M5-*	44	M5	52	15.5	32.5	36	10	29.5	6	25	12	11	18	10
233106-*	ERX.44 B-M6-*	44	M6	52	15.5	32.5	36	10	29.5	6	25	12	11	18	10
233131-*	ERX.63 B-M6-*	63	M6	73.5	19	43	47	16	37.5	8	34.5	15	13.5	20	21
233136-*	ERX.63 B-M8-*	63	M8	73.5	19	43	47	13	37.5	8	34.5	15	13.5	20	20
233141-*	ERX.63 B-M10-*	63	M10	73.5	19	43	47	13	37.5	8	34.5	15	13.5	20	19
233151-*	ERX.78 B-M8-*	78	M8	90.5	24.5	54	58	20	47	12	44	19	16	24	46
233156-*	ERX.78 B-M10-*	78	M10	90.5	24.5	54	58	18	47	12	44	19	16	24	44
233161-*	ERX.78 B-M12-*	78	M12	90.5	24.5	54	58	17	47	12	44	19	16	24	43
233171-*	ERX.95 B-M10-*	95	M10	109	26.5	64.5	69	20	54.5	13	53	21.5	18	26	52
233176-*	ERX.95 B-M12-*	95	M12	109	26.5	64.5	69	20	54.5	13	53	21.5	18	26	51
233181-*	ERX.95 B-M14-*	95	M14	109	26.5	64.5	69	20	54.5	13	53	21.5	18	26	50
233211-*	ERX.108 B-M12-*	108	M12	123	30	65.5	70	20	54.5	11	52.5	25	20	28	60
233216-*	ERX.108 B-M14-*	108	M14	123	30	65.5	70	20	54.5	11	52.5	25	20	28	59
233221-*	ERX.108 B-M16-*	108	M16	123	30	65.5	70	22	54.5	11	52.5	25	20	28	58

ERX-SST **STAINLESS STEEL**

Code	Description	R	d6H	L	D	H	H1	h	h1	h2	h3	d1	l1	Teeth no.	⚖
235071-*	ERX.30 SST-M5-*	30	M5	37.5	15.5	30	33.5	6	29.5	6	23	12	9	18	8
235076-*	ERX.30 SST-M6-*	30	M6	37.5	15.5	30	33.5	10	29.5	6	23	12	9	18	6
235101-*	ERX.44 SST-M5-*	44	M5	52	15.5	32.5	36	6	29.5	6	25	12	11	18	11
235106-*	ERX.44 SST-M6-*	44	M6	52	15.5	32.5	36	10	29.5	6	25	12	11	18	10
235131-*	ERX.63 SST-M6-*	63	M6	73.5	19	43	47	12	37.5	8	34.5	15	13.5	20	22
235136-*	ERX.63 SST-M8-*	63	M8	73.5	19	43	47	13	37.5	8	34.5	15	13.5	20	20
235151-*	ERX.78 SST-M8-*	78	M8	90.5	24.5	54	58	13	47	12	44	19	16	24	46
235156-*	ERX.78 SST-M10-*	78	M10	90.5	24.5	54	58	17	47	12	44	19	16	24	44
235176-*	ERX.95 SST-M12-*	95	M12	109	26.5	64.5	69	20	54.5	13	53	21.5	18	26	52
235191-*	ERX.108 SST-M12-*	108	M12	123	30	65.5	70	20	54.5	11	52.5	25	20	28	60

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ERX-p
ERX-SST-p





* Complete with colour index, example: 234001-C2 ERX.30 p-M5x10-C2

C1	C2	C3	C4	C5	C6
RAL7021	RAL2004	RAL7035	RAL1021	RAL5024	RAL3000

ERX-p

Code	Description	R	d6g	L	D	H	H1	h1	h2	h3	d1	l	l1	Teeth no.	⚖
234001-*	ERX.30 p-M5x10-*	30	M5	37.5	15.5	30	33.5	29.5	6	23	12	10	9	18	6
234006-*	ERX.30 p-M5x16-*	30	M5	37.5	15.5	30	33.5	29.5	6	23	12	16	9	18	6
234011-*	ERX.30 p-M5x20-*	30	M5	37.5	15.5	30	33.5	29.5	6	23	12	20	9	18	7
234016-*	ERX.30 p-M6x10-*	30	M6	37.5	15.5	30	33.5	29.5	6	23	12	10	9	18	8
234021-*	ERX.30 p-M6x16-*	30	M6	37.5	15.5	30	33.5	29.5	6	23	12	16	9	18	9
234026-*	ERX.30 p-M6x20-*	30	M6	37.5	15.5	30	33.5	29.5	6	23	12	20	9	18	10
234031-*	ERX.30 p-M6x25-*	30	M6	37.5	15.5	30	33.5	29.5	6	23	12	25	9	18	11
234036-*	ERX.30 p-M6x30-*	30	M6	37.5	15.5	30	33.5	29.5	6	23	12	30	9	18	12
234046-*	ERX.30 p-M6x40-*	30	M6	37.5	15.5	30	33.5	29.5	6	23	12	40	9	18	14
234101-*	ERX.44 p-M5x10-*	44	M5	52	15.5	32.5	36	29.5	6	25	12	10	11	18	11
234106-*	ERX.44 p-M5x16-*	44	M5	52	15.5	32.5	36	29.5	6	25	12	16	11	18	12
234111-*	ERX.44 p-M5x20-*	44	M5	52	15.5	32.5	36	29.5	6	25	12	20	11	18	13
234116-*	ERX.44 p-M6x10-*	44	M6	52	15.5	32.5	36	29.5	6	25	12	10	11	18	13
234121-*	ERX.44 p-M6x16-*	44	M6	52	15.5	32.5	36	29.5	6	25	12	16	11	18	14
234126-*	ERX.44 p-M6x20-*	44	M6	52	15.5	32.5	36	29.5	6	25	12	20	11	18	15
234131-*	ERX.44 p-M6x25-*	44	M6	52	15.5	32.5	36	29.5	6	25	12	25	11	18	16
234136-*	ERX.44 p-M6x30-*	44	M6	52	15.5	32.5	36	29.5	6	25	12	30	11	18	17
234146-*	ERX.44 p-M6x40-*	44	M6	52	15.5	32.5	36	29.5	6	25	12	40	11	18	19
234151-*	ERX.44 p-M6x45-*	44	M6	52	15.5	32.5	36	29.5	6	25	12	45	11	18	20
234159-*	ERX.44 p-M8x16-*	44	M8	52	15.5	32.5	36	29.5	6	25	12	16	11	18	17
234161-*	ERX.44 p-M8x20-*	44	M8	52	15.5	32.5	36	29.5	6	25	12	20	11	18	18
234163-*	ERX.44 p-M8x25-*	44	M8	52	15.5	32.5	36	29.5	6	25	12	25	11	18	19
234301-*	ERX.63 p-M6x10-*	63	M6	73.5	19	43	47	37.5	8	34.5	15	10	13.5	20	28
234306-*	ERX.63 p-M6x16-*	63	M6	73.5	19	43	47	37.5	8	34.5	15	16	13.5	20	29
234311-*	ERX.63 p-M6x20-*	63	M6	73.5	19	43	47	37.5	8	34.5	15	20	13.5	20	30
234316-*	ERX.63 p-M6x25-*	63	M6	73.5	19	43	47	37.5	8	34.5	15	25	13.5	20	31
234321-*	ERX.63 p-M6x30-*	63	M6	73.5	19	43	47	37.5	8	34.5	15	30	13.5	20	32
234323-*	ERX.63 p-M6x35-*	63	M6	73.5	19	43	47	37.5	8	34.5	15	35	13.5	20	32
234326-*	ERX.63 p-M6x40-*	63	M6	73.5	19	43	47	37.5	8	34.5	15	40	13.5	20	32
234329-*	ERX.63 p-M6x50-*	63	M6	73.5	19	43	47	37.5	8	34.5	15	50	13.5	20	32
234333-*	ERX.63 p-M8x16-*	63	M8	73.5	19	43	47	37.5	8	34.5	15	16	13.5	20	32
234336-*	ERX.63 p-M8x20-*	63	M8	73.5	19	43	47	37.5	8	34.5	15	20	13.5	20	32
234341-*	ERX.63 p-M8x25-*	63	M8	73.5	19	43	47	37.5	8	34.5	15	25	13.5	20	34
234346-*	ERX.63 p-M8x30-*	63	M8	73.5	19	43	47	37.5	8	34.5	15	30	13.5	20	36
234351-*	ERX.63 p-M8x35-*	63	M8	73.5	19	43	47	37.5	8	34.5	15	35	13.5	20	38
234356-*	ERX.63 p-M8x40-*	63	M8	73.5	19	43	47	37.5	8	34.5	15	40	13.5	20	40
234361-*	ERX.63 p-M8x45-*	63	M8	73.5	19	43	47	37.5	8	34.5	15	45	13.5	20	41
234366-*	ERX.63 p-M8x50-*	63	M8	73.5	19	43	47	37.5	8	34.5	15	50	13.5	20	43
234371-*	ERX.63 p-M8x60-*	63	M8	73.5	19	43	47	37.5	8	34.5	15	60	13.5	20	46
234376-*	ERX.63 p-M8x70-*	63	M8	73.5	19	43	47	37.5	8	34.5	15	70	13.5	20	50
234381-*	ERX.63 p-M10x20-*	63	M10	73.5	19	43	47	37.5	8	34.5	15	20	13.5	20	40
234382-*	ERX.63 p-M10x30-*	63	M10	73.5	19	43	47	37.5	8	34.5	15	30	13.5	20	43

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* Complete with colour index, example: 234001-C2 ERX.30 p-M5x10-C2

C1 RAL7021 | C2 RAL2004 | C3 RAL7035 | C4 RAL1021 | C5 RAL5024 | C6 RAL3000

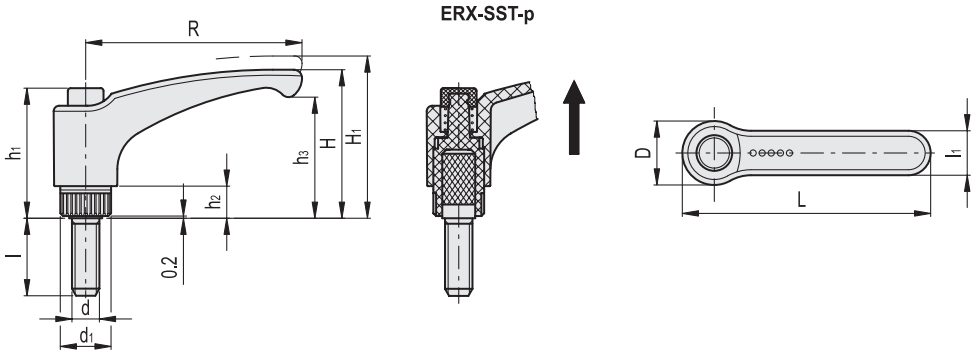
ERX-p

Code	Description	R	d6g	L	D	H	H1	h1	h2	h3	d1	l	l1	Teeth no.	⚖
234498-*	ERX.78 p-M8x20-*	78	M8	90.5	24.5	54	58	47	12	44	19	20	16	24	42
234501-*	ERX.78 p-M8x25-*	78	M8	90.5	24.5	54	58	47	12	44	19	25	16	24	43
234503-*	ERX.78 p-M8x30-*	78	M8	90.5	24.5	54	58	47	12	44	19	30	16	24	44
234506-*	ERX.78 p-M8x40-*	78	M8	90.5	24.5	54	58	47	12	44	19	40	16	24	48
234507-*	ERX.78 p-M8x45-*	78	M8	90.5	24.5	54	58	47	12	44	19	45	16	24	50
234509-*	ERX.78 p-M8x50-*	78	M8	90.5	24.5	54	58	47	12	44	19	50	16	24	52
234511-*	ERX.78 p-M8x55-*	78	M8	90.5	24.5	54	58	47	12	44	19	55	16	24	55
234513-*	ERX.78 p-M8x60-*	78	M8	90.5	24.5	54	58	47	12	44	19	60	16	24	57
234515-*	ERX.78 p-M8x70-*	78	M8	90.5	24.5	54	58	47	12	44	19	70	16	24	60
234516-*	ERX.78 p-M10x20-*	78	M10	90.5	24.5	54	58	47	12	44	19	20	16	24	58
234521-*	ERX.78 p-M10x25-*	78	M10	90.5	24.5	54	58	47	12	44	19	25	16	24	61
234526-*	ERX.78 p-M10x30-*	78	M10	90.5	24.5	54	58	47	12	44	19	30	16	24	64
234531-*	ERX.78 p-M10x35-*	78	M10	90.5	24.5	54	58	47	12	44	19	35	16	24	67
234536-*	ERX.78 p-M10x40-*	78	M10	90.5	24.5	54	58	47	12	44	19	40	16	24	70
234541-*	ERX.78 p-M10x50-*	78	M10	90.5	24.5	54	58	47	12	44	19	50	16	24	76
234546-*	ERX.78 p-M10x60-*	78	M10	90.5	24.5	54	58	47	12	44	19	60	16	24	82
234551-*	ERX.78 p-M10x70-*	78	M10	90.5	24.5	54	58	47	12	44	19	70	16	24	88
234561-*	ERX.78 p-M12x20-*	78	M12	90.5	24.5	54	58	47	12	44	19	20	16	24	70
234566-*	ERX.78 p-M12x25-*	78	M12	90.5	24.5	54	58	47	12	44	19	25	16	24	71
234571-*	ERX.78 p-M12x30-*	78	M12	90.5	24.5	54	58	47	12	44	19	30	16	24	74
234573-*	ERX.78 p-M12x35-*	78	M12	90.5	24.5	54	58	47	12	44	19	35	16	24	75
234576-*	ERX.78 p-M12x40-*	78	M12	90.5	24.5	54	58	47	12	44	19	40	16	24	76
234581-*	ERX.78 p-M12x45-*	78	M12	90.5	24.5	54	58	47	12	44	19	45	16	24	77
234586-*	ERX.78 p-M12x50-*	78	M12	90.5	24.5	54	58	47	12	44	19	50	16	24	78
234591-*	ERX.78 p-M12x60-*	78	M12	90.5	24.5	54	58	47	12	44	19	60	16	24	81
234593-*	ERX.78 p-M12x70-*	78	M12	90.5	24.5	54	58	47	12	44	19	70	16	24	84
234596-*	ERX.78 p-M12x80-*	78	M12	90.5	24.5	54	58	47	12	44	19	80	16	24	86
234726-*	ERX.95 p-M12x30-*	95	M12	109	26.5	64.5	69	54.5	13	53	21.5	30	18	26	86
234741-*	ERX.95 p-M12x50-*	95	M12	109	26.5	64.5	69	54.5	13	53	21.5	50	18	26	90
234751-*	ERX.95 p-M12x70-*	95	M12	109	26.5	64.5	69	54.5	13	53	21.5	70	18	26	94
234901-*	ERX.95 p-M16x30-*	95	M16	109	26.5	64.5	69	54.5	13	53	21.5	30	18	26	104
234911-*	ERX.95 p-M16x50-*	95	M16	109	26.5	64.5	69	54.5	13	53	21.5	50	18	26	110
234921-*	ERX.95 p-M16x70-*	95	M16	109	26.5	64.5	69	54.5	13	53	21.5	70	18	26	116
235001-*	ERX.108 p-M12x30-*	108	M12	123	30	65.5	70	54.5	11	52.5	25	30	20	28	70
235006-*	ERX.108 p-M12x50-*	108	M12	123	30	65.5	70	54.5	11	52.5	25	50	20	28	75
235011-*	ERX.108 p-M12x70-*	108	M12	123	30	65.5	70	54.5	11	52.5	25	70	20	28	80
235016-*	ERX.108 p-M14x30-*	108	M14	123	30	65.5	70	54.5	11	52.5	25	30	20	28	86
235021-*	ERX.108 p-M14x50-*	108	M14	123	30	65.5	70	54.5	11	52.5	25	50	20	28	90
235026-*	ERX.108 p-M14x70-*	108	M14	123	30	65.5	70	54.5	11	52.5	25	70	20	28	95
235036-*	ERX.108 p-M16x30-*	108	M16	123	30	65.5	70	54.5	11	52.5	25	30	20	28	100
235041-*	ERX.108 p-M16x50-*	108	M16	123	30	65.5	70	54.5	11	52.5	25	50	20	28	105
235046-*	ERX.108 p-M16x70-*	108	M16	123	30	65.5	70	54.5	11	52.5	25	70	20	28	110

ERX-SST-p **STAINLESS STEEL**

Code	Description	R	d6g	L	D	H	H1	h1	h2	h3	d1	l	l1	Teeth no.	⚖
235061-*	ERX.30-SST-p M5x10-*	30	M5	37.5	15.5	30	33.5	29.5	6	23	12	10	9	18	6
235066-*	ERX.30-SST-p M5x16-*	30	M5	37.5	15.5	30	33.5	29.5	6	23	12	16	9	18	7
235196-*	ERX.30-SST-p M6x10-*	30	M6	37.5	15.5	30	33.5	29.5	6	23	12	10	9	18	8
235201-*	ERX.30 SST-p-M6x16-*	30	M6	37.5	15.5	30	33.5	29.5	6	23	12	16	9	18	9
235203-*	ERX.30 SST-p-M6x20-*	30	M6	37.5	15.5	30	33.5	29.5	6	23	12	20	9	18	10
235205-*	ERX.30 SST-p-M6x25-*	30	M6	37.5	15.5	30	33.5	29.5	6	23	12	25	9	18	11
235207-*	ERX.30 SST-p-M6x30-*	30	M6	37.5	15.5	30	33.5	29.5	6	23	12	30	9	18	12
235209-*	ERX.44 SST-p-M5x10-*	44	M5	52	15.5	32.5	36	29.5	6	25	12	10	11	18	10
235211-*	ERX.44 SST-p-M5x16-*	44	M5	52	15.5	32.5	36	29.5	6	25	12	16	11	18	12
235216-*	ERX.44 SST-p-M6x10-*	44	M6	52	15.5	32.5	36	29.5	6	25	12	10	11	18	13
235221-*	ERX.44 SST-p-M6x16-*	44	M6	52	15.5	32.5	36	29.5	6	25	12	16	11	18	14
235226-*	ERX.44 SST-p-M6x20-*	44	M6	52	15.5	32.5	36	29.5	6	25	12	20	11	18	16
235231-*	ERX.44 SST-p-M6x25-*	44	M6	52	15.5	32.5	36	29.5	6	25	12	25	11	18	17
235236-*	ERX.44 SST-p-M6x30-*	44	M6	52	15.5	32.5	36	29.5	6	25	12	30	11	18	18

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*Complete with colour index, example: 235341-C2 ERX.63 SST-p-M6x10-C2

C1 RAL7021 | C2 RAL2004 | C3 RAL7035 | C4 RAL1021 | C5 RAL5024 | C6 RAL3000

ERX-SST-p — **STAINLESS STEEL**

Code	Description	R	d6g	L	D	H	H1	h1	h2	h3	d1	l	l1	Teeth no.	⚖
235341-*	ERX.63 SST-p-M6x10-*	63	M6	73.5	19	43	47	37.5	8	34.5	15	10	13.5	20	30
235351-*	ERX.63 SST-p-M6x20-*	63	M6	73.5	19	43	47	37.5	8	34.5	15	20	13.5	20	31
235421-*	ERX.63 SST-p-M6x30-*	63	M6	73.5	19	43	47	37.5	8	34.5	15	30	13.5	20	32
235426-*	ERX.63 SST-p-M6x40-*	63	M6	73.5	19	43	47	37.5	8	34.5	15	40	13.5	20	33
235431-*	ERX.63 SST-p-M8x16-*	63	M8	73.5	19	43	47	37.5	8	34.5	15	16	13.5	20	31
235436-*	ERX.63 SST-p-M8x20-*	63	M8	73.5	19	43	47	37.5	8	34.5	15	20	13.5	20	32
235441-*	ERX.63 SST-p-M8x25-*	63	M8	73.5	19	43	47	37.5	8	34.5	15	25	13.5	20	33
235446-*	ERX.63 SST-p-M8x30-*	63	M8	73.5	19	43	47	37.5	8	34.5	15	30	13.5	20	37
235451-*	ERX.63 SST-p-M8x35-*	63	M8	73.5	19	43	47	37.5	8	34.5	15	35	13.5	20	38
235456-*	ERX.63 SST-p-M8x40-*	63	M8	73.5	19	43	47	37.5	8	34.5	15	40	13.5	20	41
235461-*	ERX.63 SST-p-M8x45-*	63	M8	73.5	19	43	47	37.5	8	34.5	15	45	13.5	20	42
235466-*	ERX.63 SST-p-M8x50-*	63	M8	73.5	19	43	47	37.5	8	34.5	15	50	13.5	20	44
235471-*	ERX.63 SST-p-M8x60-*	63	M8	73.5	19	43	47	37.5	8	34.5	15	60	13.5	20	47
235476-*	ERX.63 SST-p-M8x70-*	63	M8	73.5	19	43	47	37.5	8	34.5	15	70	13.5	20	52
235601-*	ERX.78 SST-p-M8x20-*	78	M8	90.5	24.5	54	58	47	12	44	19	20	16	24	43
235603-*	ERX.78 SST-p-M8x25-*	78	M8	90.5	24.5	54	58	47	12	44	19	25	16	24	44
235605-*	ERX.78 SST-p-M8x30-*	78	M8	90.5	24.5	54	58	47	12	44	19	30	16	24	45
235607-*	ERX.78 SST-p-M8x40-*	78	M8	90.5	24.5	54	58	47	12	44	19	40	16	24	50
235609-*	ERX.78 SST-p-M8x45-*	78	M8	90.5	24.5	54	58	47	12	44	19	45	16	24	52
235611-*	ERX.78 SST-p-M8x50-*	78	M8	90.5	24.5	54	58	47	12	44	19	50	16	24	54
235617-*	ERX.78 SST-p-M8x70-*	78	M8	90.5	24.5	54	58	47	12	44	19	70	16	24	62
235716-*	ERX.78 SST-p-M10x20-*	78	M10	90.5	24.5	54	58	47	12	44	19	20	16	24	58
235726-*	ERX.78 SST-p-M10x30-*	78	M10	90.5	24.5	54	58	47	12	44	19	30	16	24	64
235731-*	ERX.78 SST-p-M10x35-*	78	M10	90.5	24.5	54	58	47	12	44	19	35	16	24	66
235736-*	ERX.78 SST-p-M10x40-*	78	M10	90.5	24.5	54	58	47	12	44	19	40	16	24	67
235741-*	ERX.78 SST-p-M10x50-*	78	M10	90.5	24.5	54	58	47	12	44	19	50	16	24	68
235746-*	ERX.78 SST-p-M10x60-*	78	M10	90.5	24.5	54	58	47	12	44	19	60	16	24	70
235771-*	ERX.78 SST-p-M12x30-*	78	M12	90.5	24.5	54	58	47	12	44	19	30	16	24	74
235773-*	ERX.78 SST-p-M12x35-*	78	M12	90.5	24.5	54	58	47	12	44	19	35	16	24	76
235781-*	ERX.78 SST-p-M12x40-*	78	M12	90.5	24.5	54	58	47	12	44	19	40	16	24	77
235786-*	ERX.78 SST-p-M12x50-*	78	M12	90.5	24.5	54	58	47	12	44	19	50	16	24	79
235893-*	ERX.78 SST-p-M12x70-*	78	M12	90.5	24.5	54	58	47	12	44	19	70	16	24	82
235901-*	ERX.95 SST-p-M12x30-*	95	M12	109	26.5	64.5	69	54.5	13	53	21.5	30	18	26	87
235911-*	ERX.95 SST-p-M12x40-*	95	M12	109	26.5	64.5	69	54.5	13	53	21.5	40	18	26	90
235921-*	ERX.95 SST-p-M12x50-*	95	M12	109	26.5	64.5	69	54.5	13	53	21.5	50	18	26	93
235941-*	ERX.95 SST-p-M12x70-*	95	M12	109	26.5	64.5	69	54.5	13	53	21.5	70	18	26	98
236001-*	ERX.108 SST-p-M12x30-*	108	M12	123	30	65.5	70	54.5	11	52.5	25	30	20	28	70
236003-*	ERX.108 SST-p-M12x40-*	108	M12	123	30	65.5	70	54.5	11	52.5	25	40	20	28	73
236006-*	ERX.108 SST-p-M12x50-*	108	M12	123	30	65.5	70	54.5	11	52.5	25	50	20	28	75
236011-*	ERX.108 SST-p-M12x70-*	108	M12	123	30	65.5	70	54.5	11	52.5	25	70	20	28	80

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ERX-CR

Adjustable handles

Technopolymer chrome-plated

LEVER BODY
Glass-fibre reinforced polyamide based (PA) technopolymer, chrome-plated, semi-glossy finish.

PUSH BUTTON
Black technopolymer, glossy finish.

STANDARD EXECUTION
Glass-fibre reinforced technopolymer clamping element with retaining pin, black colour, with knurling on the protruding part to make initial tightening easier. AISI 302 stainless steel return spring. Brass boss, tapped blind hole.

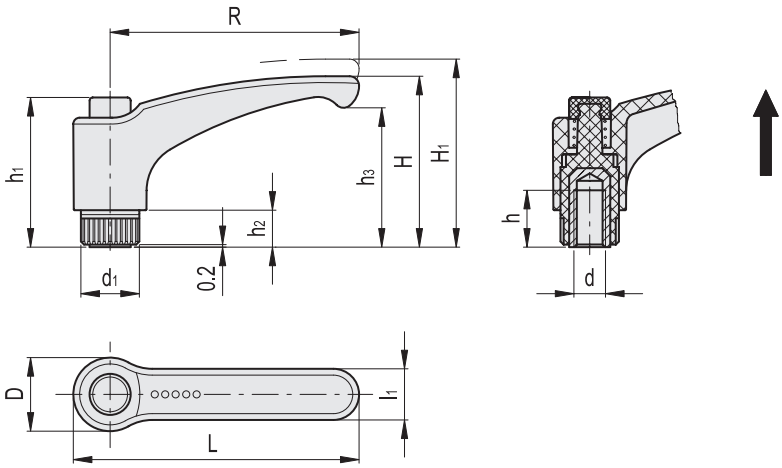
FEATURES AND APPLICATIONS
Particularly suitable when the lever turning angle is limited owing to lack of space.
Compared to other types of adjustable handles with metal retaining screw this solution offers:
- no visible steel parts subject to rust
- more comfortable lever release.

CHEMICAL AGENTS RESISTANCE
The chrome-plated surface is resistant to wear, scrapes and shocks. In laboratory tests carried out at ambient temperature (23°C), the chrome-plated surface revealed to be resistant to: sea water, detergents, acetone, ethyl alcohol, formic acid, chlorine solutions.

SPECIAL EXECUTIONS ON REQUEST
Bosses with different threadings.

INSTRUCTIONS OF USE
For clamping, lift the lever to disengage the clamping device teeth and bring it back to start position. By releasing the lever, the return spring automatically engages the teeth.





Code	Description	R	d6H	L	D	H	H1	h	h1	h2	h3	d1	l1	Teeth no.	⚖
152301	ERX.44-CR-B-M6	44	M6	52	15.5	32.5	36	10	29.5	6	25	12	11	18	10
152311	ERX.63-CR-B-M8	63	M8	73.5	19	43	47	13	37.5	8	34.5	15	13.5	20	20
152321	ERX.78-CR-B-M10	78	M10	90.5	24.5	54	58	18	47	12	44	19	16	24	44
152341	ERX.95-CR-B-M12	95	M12	109	26.5	64.5	69	20	54.5	13	53	21.5	18	26	51

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Adjustable handles

Quick assembly, technopolymer



ERGOSTYLE®

LEVER BODY
Glass-fibre reinforced polyamide based (PA) technopolymer, grey-black colour, matte finish.

PUSH BUTTON
Technopolymer, RAL 2004 orange colour, glossy finish. On request and for sufficient quantities it can be supplied in one of the other Ergostyle colours.

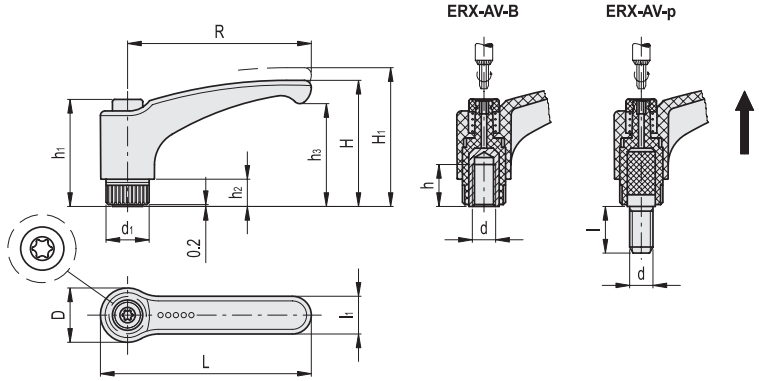
STANDARD EXECUTIONS
Glass-fibre reinforced technopolymer clamping element with retaining pin, black colour, with knurling on the protruding part to make initial tightening easier. AISI 302 stainless steel return spring.
For quick assembly (ELESA patent) six-lobe socket ISO 10664 to fit TORX® T15 tool (registered trademark of TEXTRON INC.).
- **ERX-AV-B:** brass boss, threaded blind hole.
- **ERX-AV-p:** zinc-plated steel threaded stud, chamfered flat end UNI 947 : ISO 4753 (see Technical Data on page A11).

FEATURES AND APPLICATIONS
Even if it has a plastic push button, ERX-AV adjustable handle offers the possibility of a quick initial screwing during assembly by means of electric or pneumatic screwdrivers with controlled tightening torque system.

STRESS RESISTANCE
See ERX. (on page 304).

SPECIAL EXECUTIONS ON REQUEST
Lever body in orange colour.
Bosses and studs with different threadings.

INSTRUCTIONS OF USE
For clamping, lift the lever to disengage the clamping device teeth and bring it back to start position. By releasing the lever, the return spring automatically engages the teeth.



ERX-AV-B

Code	Description	R	d6H	L	D	H	H1	h	h1	h2	h3	d1	l1	Teeth no.	⚖
233158-C2	ERX.78 AV B-M10-C2	78	M10	90.5	24.5	54	58	18	45	12	44	19	16	24	44
233163-C2	ERX.78 AV B-M12-C2	78	M12	90.5	24.5	54	58	17	45	12	44	19	16	24	43

ERX-AV-p

Code	Description	R	d6g	L	D	H	H1	h1	h2	h3	d1	l	l1	Teeth no.	⚖
234518-C2	ERX.78 AV p-M10x20-C2	78	M10	90.5	24.5	54	58	45	12	44	19	20	16	24	58
234528-C2	ERX.78 AV p-M10x30-C2	78	M10	90.5	24.5	54	58	45	12	44	19	30	16	24	64
234538-C2	ERX.78 AV p-M10x40-C2	78	M10	90.5	24.5	54	58	45	12	44	19	40	16	24	70
234543-C2	ERX.78 AV p-M10x50-C2	78	M10	90.5	24.5	54	58	45	12	44	19	50	16	24	76

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Safety adjustable handles

Push action, technopolymer

LEVER BODY

Glass-fibre reinforced polyamide based (PA) technopolymer, grey-black colour, matte finish. Red writing with "PUSH" tampoprinted on the lever body (avoid contact with solvents, alcohol or detergents containing alcohol).

STANDARD EXECUTIONS

Glass-fibre reinforced technopolymer clamping element, black colour, with knurling on the protruding part to make initial tightening easier. AISI 302 stainless steel return spring.

- **ERS-A:** black-oxide steel boss, threaded blind hole.
- **ERS-B:** brass boss, threaded blind hole.
- **ERS-p:** black-oxide steel threaded stud, chamfered flat end UNI 947 : ISO 4753 (see Technical Data on page A11).

STRESS RESISTANCE

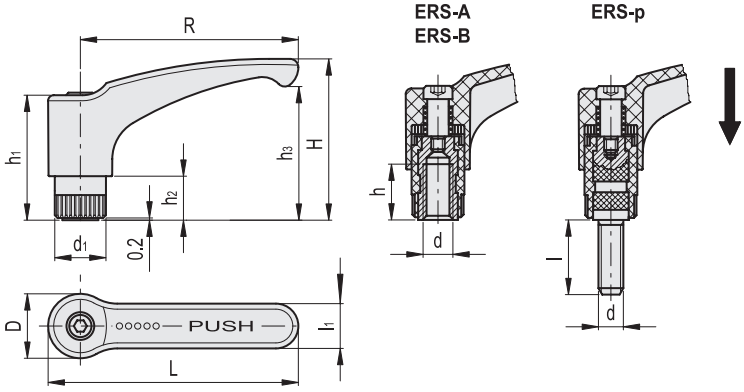
See ERX. (on page 304).

INSTRUCTIONS OF USE

For clamping, push the lever to engage the clamping device toothing and turn it. By releasing the lever, the return spring automatically disengages the toothing and the lever returns to its rest position.
In case of accidental shocks, the lever turns freely without affecting the clamping action enabling the operator to manoeuvre in safety.



ERGOSTYLE®



ERS-A
ERS-B

Code	Description	R	d6H	L	D	H	h	h1	h2	h3	d1	l1	Teeth no.	⚖
236902	ERS.44 A-M4	44	M4	52	15.5	36	10	29	9	28	12	11	18	14
236903	ERS.44 A-M5	44	M5	52	15.5	36	10	29	9	28	12	11	18	13
236904	ERS.44 A-M6	44	M6	52	15.5	36	10	29	9	28	12	11	18	12
236913	ERS.63 A-M6	63	M6	73.5	19	48	13	37	12	37	15	13.5	20	25
236914	ERS.63 A-M8	63	M8	73.5	19	48	13	37	12	37	15	13.5	20	24
236935	ERS.63 B-M8	63	M8	73.5	19	48	13	37	12	37	15	13.5	20	24

ERS-p

Code	Description	R	d6g	L	D	H	h1	h2	h3	d1	l	l1	Teeth no.	⚖
236972	ERS.44 p-M6x16	44	M6	52	15.5	36	29	9	28	12	16	11	18	18
236974	ERS.44 p-M6x25	44	M6	52	15.5	36	29	9	28	12	25	11	18	21
237003	ERS.63 p-M8x20	63	M8	73.5	19	48	37	12	37	15	20	13.5	20	38
237005	ERS.63 p-M8x30	63	M8	73.5	19	48	37	12	37	15	30	13.5	20	43

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Adjustable handles

Technopolymer, steel or stainless steel clamping element

LEVER BODY

Glass-fibre reinforced polyamide based (PA) technopolymer, grey-black colour, matte finish. Built-in zinc alloy toothed insert for coupling to the metal clamping element.

STANDARD EXECUTIONS

- **ERZ-A:** black-oxide steel clamping element with threaded hole and retaining screw. AISI 302 stainless steel return spring.
- **ERZ-SST:** AISI 303 stainless steel clamping element with threaded hole and retaining screw. AISI 302 stainless steel return spring.
- **ERZ-p:** black-oxide steel clamping element with threaded stud and retaining screw. AISI 302 stainless s teel return spring.
- **ERZ-SST-p:** AISI 303 stainless steel clamping element with threaded stud and retaining screw. AISI 302 stainless steel return spring.

Retaining screw with six-lobed socket to fit TORX®.

FEATURES AND APPLICATIONS

Particularly suitable when the lever turning angle is limited owing to lack of space.
The metal teeth of the built-in zinc alloy insert allow the assembly of clamping elements completely made out of metal, which can be easily modified by machining in case of special assembly requirements.

SPECIAL EXECUTIONS ON REQUEST

Lever body in orange colour.

INSTRUCTIONS OF USE

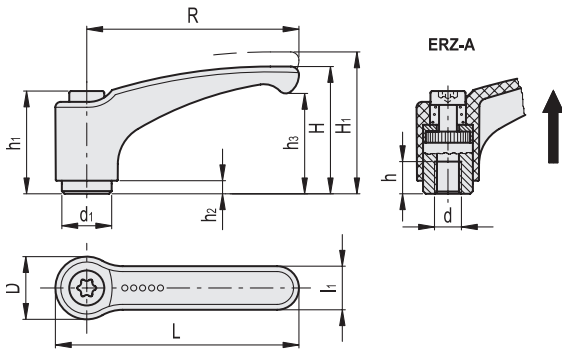
For clamping, lift the lever to disengage the clamping device teeth and bring it back to start position. By releasing the lever, the return spring automatically engages the teeth.
If the lever cannot make a 360° rotation, the clamping element can be easily screwed by means of the six-lobed socket front head screw (after having disengaged the lever).

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ERGOSTYLE®

ERZ-A
ERZ-SST



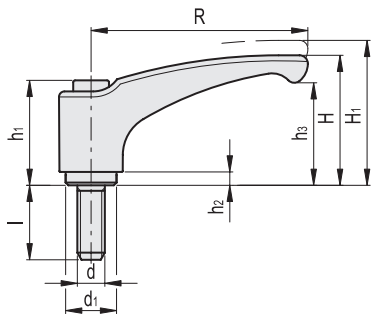
ERZ-A

Code	Description	R	d	L	D	H	H1	h	h1	h2	h3	d1	l1	Teeth no.	⚖
237102	ERZ.44 A-M4	44	M4	52	15.5	30.5	34	8	24.5	3.5	22.5	10	11	18	16
237103	ERZ.44 A-M5	44	M5	52	15.5	30.5	34	8	24.5	3.5	22.5	10	11	18	16
237104	ERZ.44 A-M6	44	M6	52	15.5	30.5	34	8	24.5	3.5	22.5	10	11	18	15
237134	ERZ.63 A-M6	63	M6	73.5	19	38.5	42	10	31	3.5	30	13.5	13.5	24	36
237135	ERZ.63 A-M8	63	M8	73.5	19	38.5	42	10	31	3.5	30	13.5	13.5	24	34
237155	ERZ.78 A-M8	78	M8	90.5	23	45	50.5	14	36	3.5	35	16	16	26	61
237156	ERZ.78 A-M10	78	M10	90.5	23	45	50.5	14	36	3.5	35	16	16	26	55
237175	ERZ.95 A-M10	95	M10	109	26.5	56.5	61.5	17	43	5	45	19	18	28	93
237176	ERZ.95 A-M12	95	M12	109	26.5	56.5	61.5	17	43	5	45	19	18	28	86

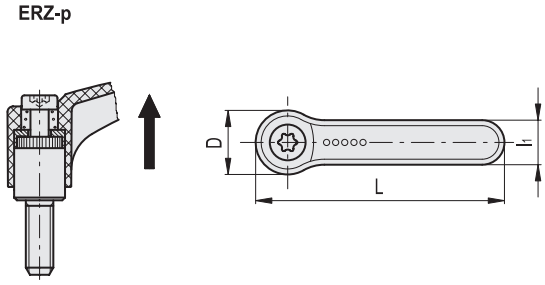
ERZ-SST **STAINLESS STEEL**

Code	Description	R	d	L	D	H	H1	h	h1	h2	h3	d1	l1	Teeth no.	⚖
239105	ERZ.44 SST-M5	44	M5	52	15.5	30.5	34	8	24.5	3.5	22.5	10	11	18	16
239106	ERZ.44 SST-M6	44	M6	52	15.5	30.5	34	8	24.5	3.5	22.5	10	11	18	15
239135	ERZ.63 SST-M6	63	M6	73.5	19	38.5	42	10	31	3.5	30	13.5	13.5	24	36
239136	ERZ.63 SST-M8	63	M8	73.5	19	38.5	42	10	31	3.5	30	13.5	13.5	24	34
239155	ERZ.78 SST-M8	78	M8	90.5	23	45	50.5	14	36	3.5	35	16	16	26	61
239156	ERZ.78 SST-M10	78	M10	90.5	23	45	50.5	14	36	3.5	35	16	16	26	55
239175	ERZ.95 SST-M10	95	M10	109	26.5	56.5	61.5	17	43	5	45	19	18	28	93
239176	ERZ.95 SST-M12	95	M12	109	26.5	56.5	61.5	17	43	5	45	19	18	28	86

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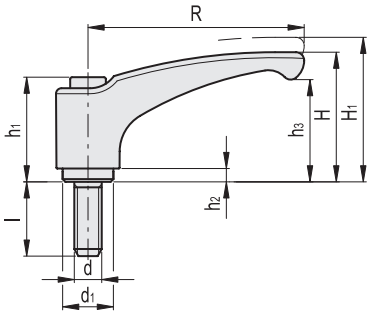
ERZ-p



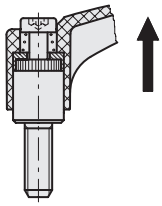
ERZ-p

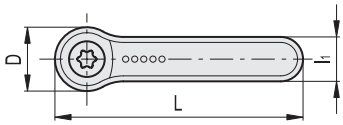
Code	Description	R	d	L	D	H	H1	h1	h2	h3	d1	l	l1	Teeth no.	⚖
238103	ERZ.44 p-M4x12	44	M4	52	15.5	30.5	34	24.5	3.5	22.5	10	12	11	18	15
238105	ERZ.44 p-M4x16	44	M4	52	15.5	30.5	34	24.5	3.5	22.5	10	16	11	18	16
238107	ERZ.44 p-M4x20	44	M4	52	15.5	30.5	34	24.5	3.5	22.5	10	20	11	18	17
238109	ERZ.44 p-M4x25	44	M4	52	15.5	30.5	34	24.5	3.5	22.5	10	25	11	18	18
238111	ERZ.44 p-M4x32	44	M4	52	15.5	30.5	34	24.5	3.5	22.5	10	32	11	18	19
238133	ERZ.44 p-M5x12	44	M5	52	15.5	30.5	34	24.5	3.5	22.5	10	12	11	18	17
238135	ERZ.44 p-M5x16	44	M5	52	15.5	30.5	34	24.5	3.5	22.5	10	16	11	18	18
238137	ERZ.44 p-M5x20	44	M5	52	15.5	30.5	34	24.5	3.5	22.5	10	20	11	18	19
238139	ERZ.44 p-M5x25	44	M5	52	15.5	30.5	34	24.5	3.5	22.5	10	25	11	18	20
238141	ERZ.44 p-M5x32	44	M5	52	15.5	30.5	34	24.5	3.5	22.5	10	32	11	18	21
238143	ERZ.44 p-M5x40	44	M5	52	15.5	30.5	34	24.5	3.5	22.5	10	40	11	18	22
238145	ERZ.44 p-M5x50	44	M5	52	15.5	30.5	34	24.5	3.5	22.5	10	50	11	18	23
238153	ERZ.44 p-M6x12	44	M6	52	15.5	30.5	34	24.5	3.5	22.5	10	12	11	18	19
238155	ERZ.44 p-M6x16	44	M6	52	15.5	30.5	34	24.5	3.5	22.5	10	16	11	18	20
238157	ERZ.44 p-M6x20	44	M6	52	15.5	30.5	34	24.5	3.5	22.5	10	20	11	18	21
238159	ERZ.44 p-M6x25	44	M6	52	15.5	30.5	34	24.5	3.5	22.5	10	25	11	18	22
238161	ERZ.44 p-M6x32	44	M6	52	15.5	30.5	34	24.5	3.5	22.5	10	32	11	18	23
238163	ERZ.44 p-M6x40	44	M6	52	15.5	30.5	34	24.5	3.5	22.5	10	40	11	18	24
238165	ERZ.44 p-M6x50	44	M6	52	15.5	30.5	34	24.5	3.5	22.5	10	50	11	18	25
238333	ERZ.63 p-M6x12	63	M6	73.5	19	38.5	42	31	3.5	30	13.5	12	13.5	24	47
238335	ERZ.63 p-M6x16	63	M6	73.5	19	38.5	42	31	3.5	30	13.5	16	13.5	24	49
238337	ERZ.63 p-M6x20	63	M6	73.5	19	38.5	42	31	3.5	30	13.5	20	13.5	24	55
238339	ERZ.63 p-M6x25	63	M6	73.5	19	38.5	42	31	3.5	30	13.5	25	13.5	24	57
238341	ERZ.63 p-M6x32	63	M6	73.5	19	38.5	42	31	3.5	30	13.5	32	13.5	24	61
238343	ERZ.63 p-M6x40	63	M6	73.5	19	38.5	42	31	3.5	30	13.5	40	13.5	24	68
238345	ERZ.63 p-M6x50	63	M6	73.5	19	38.5	42	31	3.5	30	13.5	50	13.5	24	77
238347	ERZ.63 p-M6x63	63	M6	73.5	19	38.5	42	31	3.5	30	13.5	63	13.5	24	79
238351	ERZ.63 p-M8x12	63	M8	73.5	19	38.5	42	31	3.5	30	13.5	12	13.5	24	40
238353	ERZ.63 p-M8x16	63	M8	73.5	19	38.5	42	31	3.5	30	13.5	16	13.5	24	41
238355	ERZ.63 p-M8x20	63	M8	73.5	19	38.5	42	31	3.5	30	13.5	20	13.5	24	42
238357	ERZ.63 p-M8x25	63	M8	73.5	19	38.5	42	31	3.5	30	13.5	25	13.5	24	43
238359	ERZ.63 p-M8x32	63	M8	73.5	19	38.5	42	31	3.5	30	13.5	32	13.5	24	44
238361	ERZ.63 p-M8x40	63	M8	73.5	19	38.5	42	31	3.5	30	13.5	40	13.5	24	46
238363	ERZ.63 p-M8x50	63	M8	73.5	19	38.5	42	31	3.5	30	13.5	50	13.5	24	48
238365	ERZ.63 p-M8x63	63	M8	73.5	19	38.5	42	31	3.5	30	13.5	63	13.5	24	51
238373	ERZ.63 p-M10x20	63	M10	73.5	19	38.5	42	31	3.5	30	13.5	20	13.5	24	42
238375	ERZ.63 p-M10x25	63	M10	73.5	19	38.5	42	31	3.5	30	13.5	25	13.5	24	43
238377	ERZ.63 p-M10x32	63	M10	73.5	19	38.5	42	31	3.5	30	13.5	32	13.5	24	45
238379	ERZ.63 p-M10x40	63	M10	73.5	19	38.5	42	31	3.5	30	13.5	40	13.5	24	47
238381	ERZ.63 p-M10x50	63	M10	73.5	19	38.5	42	31	3.5	30	13.5	50	13.5	24	52
238383	ERZ.63 p-M10x63	63	M10	73.5	19	38.5	42	31	3.5	30	13.5	63	13.5	24	53
238385	ERZ.63 p-M10x80	63	M10	73.5	19	38.5	42	31	3.5	30	13.5	80	13.5	24	57

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ERZ-p
ERZ-SST-p





ERZ-p

Code	Description	R	d	L	D	H	H1	h1	h2	h3	d1	l	l1	Teeth no.	⚖
238533	ERZ.78 p-M8x16	78	M8	90.5	23	45	50.5	36	3.5	35	16	16	16	26	70
238535	ERZ.78 p-M8x20	78	M8	90.5	23	45	50.5	36	3.5	35	16	20	16	26	73
238537	ERZ.78 p-M8x25	78	M8	90.5	23	45	50.5	36	3.5	35	16	25	16	26	76
238539	ERZ.78 p-M8x32	78	M8	90.5	23	45	50.5	36	3.5	35	16	32	16	26	81
238541	ERZ.78 p-M8x40	78	M8	90.5	23	45	50.5	36	3.5	35	16	40	16	26	86
238543	ERZ.78 p-M8x50	78	M8	90.5	23	45	50.5	36	3.5	35	16	50	16	26	88
238545	ERZ.78 p-M8x63	78	M8	90.5	23	45	50.5	36	3.5	35	16	63	16	26	94
238547	ERZ.78 p-M8x80	78	M8	90.5	23	45	50.5	36	3.5	35	16	80	16	26	102
238551	ERZ.78 p-M10x16	78	M10	90.5	23	45	50.5	36	3.5	35	16	16	16	26	82
238553	ERZ.78 p-M10x20	78	M10	90.5	23	45	50.5	36	3.5	35	16	20	16	26	85
238555	ERZ.78 p-M10x25	78	M10	90.5	23	45	50.5	36	3.5	35	16	25	16	26	91
238557	ERZ.78 p-M10x32	78	M10	90.5	23	45	50.5	36	3.5	35	16	32	16	26	98
238559	ERZ.78 p-M10x40	78	M10	90.5	23	45	50.5	36	3.5	35	16	40	16	26	108
238561	ERZ.78 p-M10x50	78	M10	90.5	23	45	50.5	36	3.5	35	16	50	16	26	120
238563	ERZ.78 p-M10x63	78	M10	90.5	23	45	50.5	36	3.5	35	16	63	16	26	124
238565	ERZ.78 p-M10x80	78	M10	90.5	23	45	50.5	36	3.5	35	16	80	16	26	127
238573	ERZ.78 p-M12x25	78	M12	90.5	23	45	50.5	36	3.5	35	16	25	16	26	70
238575	ERZ.78 p-M12x32	78	M12	90.5	23	45	50.5	36	3.5	35	16	32	16	26	73
238577	ERZ.78 p-M12x40	78	M12	90.5	23	45	50.5	36	3.5	35	16	40	16	26	75
238579	ERZ.78 p-M12x50	78	M12	90.5	23	45	50.5	36	3.5	35	16	50	16	26	79
238581	ERZ.78 p-M12x63	78	M12	90.5	23	45	50.5	36	3.5	35	16	63	16	26	85
238583	ERZ.78 p-M12x80	78	M12	90.5	23	45	50.5	36	3.5	35	16	80	16	26	88
238723	ERZ.95 p-M10x16	95	M10	109	26.5	56.5	61.5	43	5	45	19	16	18	28	111
238725	ERZ.95 p-M10x20	95	M10	109	26.5	56.5	61.5	43	5	45	19	20	18	28	113
238727	ERZ.95 p-M10x25	95	M10	109	26.5	56.5	61.5	43	5	45	19	25	18	28	115
238729	ERZ.95 p-M10x32	95	M10	109	26.5	56.5	61.5	43	5	45	19	32	18	28	118
238731	ERZ.95 p-M10x40	95	M10	109	26.5	56.5	61.5	43	5	45	19	40	18	28	121
238733	ERZ.95 p-M10x50	95	M10	109	26.5	56.5	61.5	43	5	45	19	50	18	28	128
238735	ERZ.95 p-M10x63	95	M10	109	26.5	56.5	61.5	43	5	45	19	63	18	28	133
238737	ERZ.95 p-M10x80	95	M10	109	26.5	56.5	61.5	43	5	45	19	80	18	28	141
238747	ERZ.95 p-M12x16	95	M12	109	26.5	56.5	61.5	43	5	45	19	16	18	28	113
238749	ERZ.95 p-M12x20	95	M12	109	26.5	56.5	61.5	43	5	45	19	20	18	28	117
238751	ERZ.95 p-M12x25	95	M12	109	26.5	56.5	61.5	43	5	45	19	25	18	28	122
238753	ERZ.95 p-M12x32	95	M12	109	26.5	56.5	61.5	43	5	45	19	32	18	28	125
238755	ERZ.95 p-M12x40	95	M12	109	26.5	56.5	61.5	43	5	45	19	40	18	28	132
238757	ERZ.95 p-M12x50	95	M12	109	26.5	56.5	61.5	43	5	45	19	50	18	28	141
238759	ERZ.95 p-M12x63	95	M12	109	26.5	56.5	61.5	43	5	45	19	63	18	28	151
238761	ERZ.95 p-M12x80	95	M12	109	26.5	56.5	61.5	43	5	45	19	80	18	28	160
238773	ERZ.95 p-M16x25	95	M16	109	26.5	56.5	61.5	43	5	45	19	25	18	28	139
238775	ERZ.95 p-M16x32	95	M16	109	26.5	56.5	61.5	43	5	45	19	32	18	28	146
238777	ERZ.95 p-M16x40	95	M16	109	26.5	56.5	61.5	43	5	45	19	40	18	28	154
238779	ERZ.95 p-M16x50	95	M16	109	26.5	56.5	61.5	43	5	45	19	50	18	28	171
238781	ERZ.95 p-M16x63	95	M16	109	26.5	56.5	61.5	43	5	45	19	63	18	28	184
238783	ERZ.95 p-M16x80	95	M16	109	26.5	56.5	61.5	43	5	45	19	80	18	28	199

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ERZ-SST-p STAINLESS STEEL

Code	Description	R	d	L	D	H	H1	h1	h2	h3	d1	l	l1	Teeth no.	⚖
239233	ERZ.44 SST-p-M5x12	44	M5	52	15.5	30.5	34	24.5	3.5	22.5	10	12	11	18	17
239235	ERZ.44 SST-p-M5x16	44	M5	52	15.5	30.5	34	24.5	3.5	22.5	10	16	11	18	18
239237	ERZ.44 SST-p-M5x20	44	M5	52	15.5	30.5	34	24.5	3.5	22.5	10	20	11	18	19
239239	ERZ.44 SST-p-M5x25	44	M5	52	15.5	30.5	34	24.5	3.5	22.5	10	25	11	18	20
239241	ERZ.44 SST-p-M5x32	44	M5	52	15.5	30.5	34	24.5	3.5	22.5	10	32	11	18	21
239243	ERZ.44 SST-p-M5x40	44	M5	52	15.5	30.5	34	24.5	3.5	22.5	10	40	11	18	22
239245	ERZ.44 SST-p-M5x50	44	M5	52	15.5	30.5	34	24.5	3.5	22.5	10	50	11	18	23
239253	ERZ.44 SST-p-M6x12	44	M6	52	15.5	30.5	34	24.5	3.5	22.5	10	12	11	18	19
239255	ERZ.44 SST-p-M6x16	44	M6	52	15.5	30.5	34	24.5	3.5	22.5	10	16	11	18	20
239257	ERZ.44 SST-p-M6x20	44	M6	52	15.5	30.5	34	24.5	3.5	22.5	10	20	11	18	21
239259	ERZ.44 SST-p-M6x25	44	M6	52	15.5	30.5	34	24.5	3.5	22.5	10	25	11	18	22
239423	ERZ.44 SST-p-M6x32	44	M6	52	15.5	30.5	34	24.5	3.5	22.5	10	32	11	18	23
239425	ERZ.44 SST-p-M6x40	44	M6	52	15.5	30.5	34	24.5	3.5	22.5	10	40	11	18	24
239427	ERZ.44 SST-p-M6x50	44	M6	52	15.5	30.5	34	24.5	3.5	22.5	10	50	11	18	27
239429	ERZ.63 SST-p-M6x16	63	M6	73.5	19	38.5	42	31	3.5	30	13.5	16	13.5	24	40
239431	ERZ.63 SST-p-M6x20	63	M6	73.5	19	38.5	42	31	3.5	30	13.5	20	13.5	24	41
239433	ERZ.63 SST-p-M6x25	63	M6	73.5	19	38.5	42	31	3.5	30	13.5	25	13.5	24	42
239435	ERZ.63 SST-p-M6x32	63	M6	73.5	19	38.5	42	31	3.5	30	13.5	32	13.5	24	43
239437	ERZ.63 SST-p-M6x40	63	M6	73.5	19	38.5	42	31	3.5	30	13.5	40	13.5	24	44
239439	ERZ.63 SST-p-M6x50	63	M6	73.5	19	38.5	42	31	3.5	30	13.5	50	13.5	24	46
239441	ERZ.63 SST-p-M6x63	63	M6	73.5	19	38.5	42	31	3.5	30	13.5	63	13.5	24	48
239453	ERZ.63 SST-p-M8x16	63	M8	73.5	19	38.5	42	31	3.5	30	13.5	16	13.5	24	42
239455	ERZ.63 SST-p-M8x20	63	M8	73.5	19	38.5	42	31	3.5	30	13.5	20	13.5	24	46
239457	ERZ.63 SST-p-M8x25	63	M8	73.5	19	38.5	42	31	3.5	30	13.5	25	13.5	24	48
239459	ERZ.63 SST-p-M8x32	63	M8	73.5	19	38.5	42	31	3.5	30	13.5	32	13.5	24	50
239643	ERZ.63 SST-p-M8x40	63	M8	73.5	19	38.5	42	31	3.5	30	13.5	40	13.5	24	52
239645	ERZ.63 SST-p-M8x50	63	M8	73.5	19	38.5	42	31	3.5	30	13.5	50	13.5	24	54
239647	ERZ.63 SST-p-M8x63	63	M8	73.5	19	38.5	42	31	3.5	30	13.5	63	13.5	24	58
239673	ERZ.78 SST-p-M8x20	78	M8	90.5	23	45	50.5	36	3.5	35	16	20	16	26	69
239675	ERZ.78 SST-p-M8x25	78	M8	90.5	23	45	50.5	36	3.5	35	16	25	16	26	72
239677	ERZ.78 SST-p-M8x32	78	M8	90.5	23	45	50.5	36	3.5	35	16	32	16	26	76
239679	ERZ.78 SST-p-M8x40	78	M8	90.5	23	45	50.5	36	3.5	35	16	40	16	26	80
239681	ERZ.78 SST-p-M8x50	78	M8	90.5	23	45	50.5	36	3.5	35	16	50	16	26	84
239683	ERZ.78 SST-p-M8x63	78	M8	90.5	23	45	50.5	36	3.5	35	16	63	16	26	89
239685	ERZ.78 SST-p-M8x80	78	M8	90.5	23	45	50.5	36	3.5	35	16	80	16	26	97
239653	ERZ.78 SST-p-M10x20	78	M10	90.5	23	45	50.5	36	3.5	35	16	20	16	26	73
239655	ERZ.78 SST-p-M10x25	78	M10	90.5	23	45	50.5	36	3.5	35	16	25	16	26	76
239657	ERZ.78 SST-p-M10x32	78	M10	90.5	23	45	50.5	36	3.5	35	16	32	16	26	80
239659	ERZ.78 SST-p-M10x40	78	M10	90.5	23	45	50.5	36	3.5	35	16	40	16	26	84
239661	ERZ.78 SST-p-M10x50	78	M10	90.5	23	45	50.5	36	3.5	35	16	50	16	26	88
239663	ERZ.78 SST-p-M10x63	78	M10	90.5	23	45	50.5	36	3.5	35	16	63	16	26	94
239665	ERZ.78 SST-p-M10x80	78	M10	90.5	23	45	50.5	36	3.5	35	16	80	16	26	102
239823	ERZ.95 SST-p-M10x20	95	M10	109	26.5	56.5	61.5	43	5	45	19	20	18	28	113
239825	ERZ.95 SST-p-M10x25	95	M10	109	26.5	56.5	61.5	43	5	45	19	25	18	28	115
239827	ERZ.95 SST-p-M10x32	95	M10	109	26.5	56.5	61.5	43	5	45	19	32	18	28	118
239829	ERZ.95 SST-p-M10x40	95	M10	109	26.5	56.5	61.5	43	5	45	19	40	18	28	121
239831	ERZ.95 SST-p-M10x50	95	M10	109	26.5	56.5	61.5	43	5	45	19	50	18	28	128
239833	ERZ.95 SST-p-M10x63	95	M10	109	26.5	56.5	61.5	43	5	45	19	63	18	28	133
239835	ERZ.95 SST-p-M10x80	95	M10	109	26.5	56.5	61.5	43	5	45	19	80	18	28	141
239849	ERZ.95 SST-p-M12x20	95	M12	109	26.5	56.5	61.5	43	5	45	19	20	18	28	117
239851	ERZ.95 SST-p-M12x25	95	M12	109	26.5	56.5	61.5	43	5	45	19	25	18	28	122
239853	ERZ.95 SST-p-M12x32	95	M12	109	26.5	56.5	61.5	43	5	45	19	32	18	28	125
239855	ERZ.95 SST-p-M12x40	95	M12	109	26.5	56.5	61.5	43	5	45	19	40	18	28	132
239857	ERZ.95 SST-p-M12x50	95	M12	109	26.5	56.5	61.5	43	5	45	19	50	18	28	138
239859	ERZ.95 SST-p-M12x63	95	M12	109	26.5	56.5	61.5	43	5	45	19	63	18	28	148
239861	ERZ.95 SST-p-M12x80	95	M12	109	26.5	56.5	61.5	43	5	45	19	80	18	28	160

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Adjustable handles

Zinc alloy, steel or stainless steel clamping element

LEVER BODY
Die cast zinc alloy, epoxy resin coating, orange, red, grey, black colours, matte finish.

STANDARD EXECUTIONS
- **ERM-A:** black-oxide steel clamping element with threaded hole and retaining screw. Steel return spring.
- **ERM-SST:** AISI 303 stainless steel clamping element with threaded hole and retaining screw. AISI 301 stainless steel return spring.
- **ERM-p:** black-oxide steel clamping element with threaded stud and retaining screw. Steel return spring.
- **ERM-SST-p:** AISI 303 stainless steel clamping element with threaded stud and retaining screw. AISI 301 stainless steel return spring.

Retaining screw with six-lobed socket to fit TORX®.

FEATURES AND APPLICATIONS
Particularly suitable when the lever turning angle is limited owing to lack of space.

SPECIAL EXECUTIONS ON REQUEST
- Lever body in different colours.
- Chrome-plated lever.
- Clamping element with plain hole.

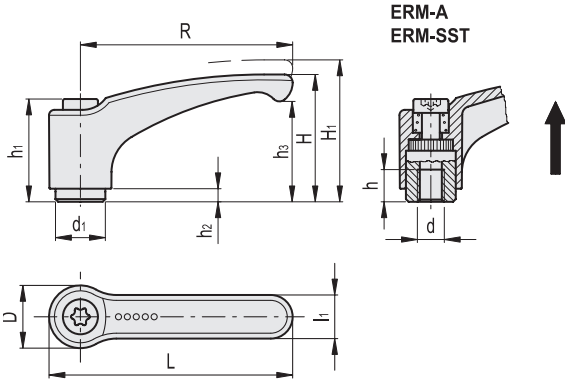
INSTRUCTIONS OF USE
For clamping, lift the lever to disengage the clamping device teeth and bring it back to start position. By releasing the lever, the return spring automatically engages the teeth.
If the lever cannot make a 360° rotation, the clamping element can be easily screwed by means of the six-lobed socket front head screw (after having disengaged the lever).

*** Registered trademark by TEXTRON INC.**



ERGOSTYLE®

ERM-A
ERM-SST



* Complete with colour index of the lever body, example: 240002-C2 ERM.44 A-M4-C2

C2	C6	C8	C9
RAL2004	RAL3000	RAL9006	RAL9005

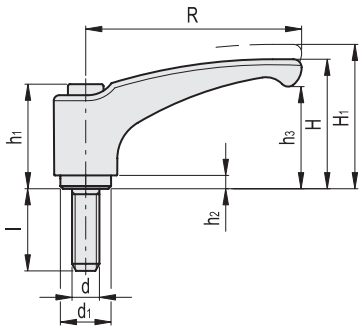
ERM-A

Code	Description	R	d	L	D	H	H1	h	h1	h2	h3	d1	l1	Teeth no.	⚖
240002-*	ERM.44 A-M4-*	44	M4	52	14.5	30	33	8	24.5	3.5	20.5	10	11	18	16
240003-*	ERM.44 A-M5-*	44	M5	52	14.5	30	33	8	24.5	3.5	20.5	10	11	18	16
240004-*	ERM.44 A-M6-*	44	M6	52	14.5	30	33	8	24.5	3.5	20.5	10	11	18	15
240014-*	ERM.63 A-M6-*	63	M6	73.5	18	38	41	10	31	3.5	27	13.5	13.5	24	36
240015-*	ERM.63 A-M8-*	63	M8	73.5	18	38	41	10	31	3.5	27	13.5	13.5	24	34
240025-*	ERM.78 A-M8-*	78	M8	90.5	21.5	46	50	14	36	3.5	34.5	16	16	26	61
240026-*	ERM.78 A-M10-*	78	M10	90.5	21.5	46	50	14	36	3.5	34.5	16	16	26	55
240036-*	ERM.95 A-M10-*	95	M10	109	25	56	61	17	43	5	42	19.5	18	28	93
240037-*	ERM.95 A-M12-*	95	M12	109	25	56	61	17	43	5	42	19.5	18	28	86

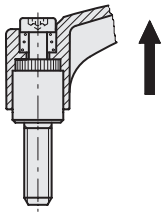
ERM-SST **STAINLESS STEEL**

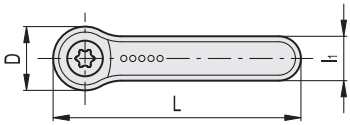
Code	Description	R	d	L	D	H	H1	h	h1	h2	h3	d1	l1	Teeth no.	⚖
241002-*	ERM.44 SST-A-M4-*	44	M4	52	14.5	30	33	8	24.5	3.5	20.5	10	11	18	16
241003-*	ERM.44 SST-A-M5-*	44	M5	52	14.5	30	33	8	24.5	3.5	20.5	10	11	18	15
241014-*	ERM.63 SST-A-M6-*	63	M6	73.5	18	38	41	10	31	3.5	27	13.5	13.5	24	36
241015-*	ERM.63 SST-A-M8-*	63	M8	73.5	18	38	41	10	31	3.5	27	13.5	13.5	24	34
241025-*	ERM.78 SST-A-M8-*	78	M8	90.5	21.5	46	50	14	36	3.5	34.5	16	16	26	61
241026-*	ERM.78 SST-A-M10-*	78	M10	90.5	21.5	46	50	14	36	3.5	34.5	16	16	26	55
241036-*	ERM.95 SST-A-M10-*	95	M10	109	25	56	61	17	43	5	42	19.5	18	28	93
241037-*	ERM.95 SST-A-M12-*	95	M12	109	25	56	61	17	43	5	42	19.5	18	28	86

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ERM-p





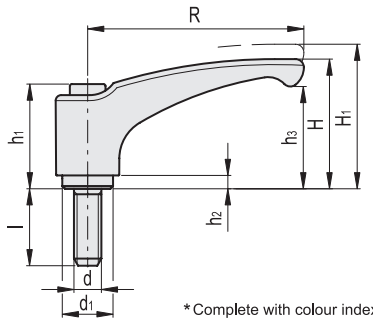
*Complete with colour index of the lever body, example: 240103-C2 ERM.44 p-M4x12-C2

C2	C6	C8	C9
RAL2004	RAL3000	RAL9006	RAL9005

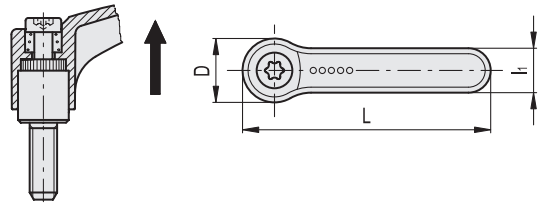
ERM-p

Code	Description	R	d	L	D	H	H1	h1	h2	h3	d1	l	l1	Teeth no.	⚖
240103-*	ERM.44 p-M4x12-*	44	M4	52	14.5	30	33	24.5	3.5	20.5	10	12	11	18	15
240105-*	ERM.44 p-M4x16-*	44	M4	52	14.5	30	33	24.5	3.5	20.5	10	16	11	18	16
240107-*	ERM.44 p-M4x20-*	44	M4	52	14.5	30	33	24.5	3.5	20.5	10	20	11	18	17
240109-*	ERM.44 p-M4x25-*	44	M4	52	14.5	30	33	24.5	3.5	20.5	10	25	11	18	18
240111-*	ERM.44 p-M4x32-*	44	M4	52	14.5	30	33	24.5	3.5	20.5	10	32	11	18	19
240133-*	ERM.44 p-M5x12-*	44	M5	52	14.5	30	33	24.5	3.5	20.5	10	12	11	18	17
240135-*	ERM.44 p-M5x16-*	44	M5	52	14.5	30	33	24.5	3.5	20.5	10	16	11	18	18
240137-*	ERM.44 p-M5x20-*	44	M5	52	14.5	30	33	24.5	3.5	20.5	10	20	11	18	19
240139-*	ERM.44 p-M5x25-*	44	M5	52	14.5	30	33	24.5	3.5	20.5	10	25	11	18	20
240141-*	ERM.44 p-M5x32-*	44	M5	52	14.5	30	33	24.5	3.5	20.5	10	32	11	18	21
240143-*	ERM.44 p-M5x40-*	44	M5	52	14.5	30	33	24.5	3.5	20.5	10	40	11	18	22
240145-*	ERM.44 p-M5x50-*	44	M5	52	14.5	30	33	24.5	3.5	20.5	10	50	11	18	23
240153-*	ERM.44 p-M6x12-*	44	M6	52	14.5	30	33	24.5	3.5	20.5	10	12	11	18	19
240155-*	ERM.44 p-M6x16-*	44	M6	52	14.5	30	33	24.5	3.5	20.5	10	16	11	18	20
240157-*	ERM.44 p-M6x20-*	44	M6	52	14.5	30	33	24.5	3.5	20.5	10	20	11	18	21
240159-*	ERM.44 p-M6x25-*	44	M6	52	14.5	30	33	24.5	3.5	20.5	10	25	11	18	22
240161-*	ERM.44 p-M6x32-*	44	M6	52	14.5	30	33	24.5	3.5	20.5	10	32	11	18	23
240163-*	ERM.44 p-M6x40-*	44	M6	52	14.5	30	33	24.5	3.5	20.5	10	40	11	18	24
240165-*	ERM.44 p-M6x50-*	44	M6	52	14.5	30	33	24.5	3.5	20.5	10	50	11	18	25
240233-*	ERM.63 p-M6x12-*	63	M6	73.5	18	38	41	31	3.5	27	13.5	12	13.5	24	47
240235-*	ERM.63 p-M6x16-*	63	M6	73.5	18	38	41	31	3.5	27	13.5	16	13.5	24	49
240237-*	ERM.63 p-M6x20-*	63	M6	73.5	18	38	41	31	3.5	27	13.5	20	13.5	24	55
240239-*	ERM.63 p-M6x25-*	63	M6	73.5	18	38	41	31	3.5	27	13.5	25	13.5	24	57
240241-*	ERM.63 p-M6x32-*	63	M6	73.5	18	38	41	31	3.5	27	13.5	32	13.5	24	61
240243-*	ERM.63 p-M6x40-*	63	M6	73.5	18	38	41	31	3.5	27	13.5	40	13.5	24	68
240245-*	ERM.63 p-M6x50-*	63	M6	73.5	18	38	41	31	3.5	27	13.5	50	13.5	24	77
240247-*	ERM.63 p-M6x63-*	63	M6	73.5	18	38	41	31	3.5	27	13.5	63	13.5	24	79
240251-*	ERM.63 p-M8x12-*	63	M8	73.5	18	38	41	31	3.5	27	13.5	12	13.5	24	40
240253-*	ERM.63 p-M8x16-*	63	M8	73.5	18	38	41	31	3.5	27	13.5	16	13.5	24	41
240255-*	ERM.63 p-M8x20-*	63	M8	73.5	18	38	41	31	3.5	27	13.5	20	13.5	24	42
240257-*	ERM.63 p-M8x25-*	63	M8	73.5	18	38	41	31	3.5	27	13.5	25	13.5	24	43
240259-*	ERM.63 p-M8x32-*	63	M8	73.5	18	38	41	31	3.5	27	13.5	32	13.5	24	44
240261-*	ERM.63 p-M8x40-*	63	M8	73.5	18	38	41	31	3.5	27	13.5	40	13.5	24	46
240263-*	ERM.63 p-M8x50-*	63	M8	73.5	18	38	41	31	3.5	27	13.5	50	13.5	24	48
240265-*	ERM.63 p-M8x63-*	63	M8	73.5	18	38	41	31	3.5	27	13.5	63	13.5	24	51
240273-*	ERM.63 p-M10x20-*	63	M10	73.5	18	38	41	31	3.5	27	13.5	20	13.5	24	42
240275-*	ERM.63 p-M10x25-*	63	M10	73.5	18	38	41	31	3.5	27	13.5	25	13.5	24	43
240277-*	ERM.63 p-M10x32-*	63	M10	73.5	18	38	41	31	3.5	27	13.5	32	13.5	24	45
240279-*	ERM.63 p-M10x40-*	63	M10	73.5	18	38	41	31	3.5	27	13.5	40	13.5	24	47
240281-*	ERM.63 p-M10x50-*	63	M10	73.5	18	38	41	31	3.5	27	13.5	50	13.5	24	52
240283-*	ERM.63 p-M10x63-*	63	M10	73.5	18	38	41	31	3.5	27	13.5	63	13.5	24	53
240285-*	ERM.63 p-M10x80-*	63	M10	73.5	18	38	41	31	3.5	27	13.5	80	13.5	24	57

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ERM-p
ERM-SST-p



*Complete with colour index of the lever body, example: 240103-C2 ERM.44 p-M4x12-C2

C2 RAL2004 | C6 RAL3000 | C8 RAL9006 | C9 RAL9005

ERM-p

Code	Description	R	d	L	D	H	H1	h1	h2	h3	d1	l	l1	Teeth no.	⚖
240333-*	ERM.78 p-M8x16-*	78	M8	90.5	21.5	46	50	36	3.5	34.5	16	16	16	26	70
240335-*	ERM.78 p-M8x20-*	78	M8	90.5	21.5	46	50	36	3.5	34.5	16	20	16	26	73
240337-*	ERM.78 p-M8x25-*	78	M8	90.5	21.5	46	50	36	3.5	34.5	16	25	16	26	76
240339-*	ERM.78 p-M8x32-*	78	M8	90.5	21.5	46	50	36	3.5	34.5	16	32	16	26	81
240341-*	ERM.78 p-M8x40-*	78	M8	90.5	21.5	46	50	36	3.5	34.5	16	40	16	26	86
240343-*	ERM.78 p-M8x50-*	78	M8	90.5	21.5	46	50	36	3.5	34.5	16	50	16	26	88
240345-*	ERM.78 p-M8x63-*	78	M8	90.5	21.5	46	50	36	3.5	34.5	16	63	16	26	94
240347-*	ERM.78 p-M8x80-*	78	M8	90.5	21.5	46	50	36	3.5	34.5	16	80	16	26	97
240351-*	ERM.78 p-M10x16-*	78	M10	90.5	21.5	46	50	36	3.5	34.5	16	16	16	26	82
240353-*	ERM.78 p-M10x20-*	78	M10	90.5	21.5	46	50	36	3.5	34.5	16	20	16	26	85
240355-*	ERM.78 p-M10x25-*	78	M10	90.5	21.5	46	50	36	3.5	34.5	16	25	16	26	91
240357-*	ERM.78 p-M10x32-*	78	M10	90.5	21.5	46	50	36	3.5	34.5	16	32	16	26	98
240359-*	ERM.78 p-M10x40-*	78	M10	90.5	21.5	46	50	36	3.5	34.5	16	40	16	26	108
240361-*	ERM.78 p-M10x50-*	78	M10	90.5	21.5	46	50	36	3.5	34.5	16	50	16	26	120
240363-*	ERM.78 p-M10x63-*	78	M10	90.5	21.5	46	50	36	3.5	34.5	16	63	16	26	124
240365-*	ERM.78 p-M10x80-*	78	M10	90.5	21.5	46	50	36	3.5	34.5	16	80	16	26	127
240373-*	ERM.78 p-M12x25-*	78	M12	90.5	21.5	46	50	36	3.5	34.5	16	25	16	26	109
240375-*	ERM.78 p-M12x32-*	78	M12	90.5	21.5	46	50	36	3.5	34.5	16	32	16	26	118
240377-*	ERM.78 p-M12x40-*	78	M12	90.5	21.5	46	50	36	3.5	34.5	16	40	16	26	130
240379-*	ERM.78 p-M12x50-*	78	M12	90.5	21.5	46	50	36	3.5	34.5	16	50	16	26	144
240381-*	ERM.78 p-M12x63-*	78	M12	90.5	21.5	46	50	36	3.5	34.5	16	63	16	26	149
240383-*	ERM.78 p-M12x80-*	78	M12	90.5	21.5	46	50	36	3.5	34.5	16	80	16	26	152
240423-*	ERM.95 p-M10x16-*	95	M10	109	25	56	61	43	5	42	19	16	18	28	111
240425-*	ERM.95 p-M10x20-*	95	M10	109	25	56	61	43	5	42	19	20	18	28	113
240427-*	ERM.95 p-M10x25-*	95	M10	109	25	56	61	43	5	42	19	25	18	28	115
240429-*	ERM.95 p-M10x32-*	95	M10	109	25	56	61	43	5	42	19	32	18	28	118
240431-*	ERM.95 p-M10x40-*	95	M10	109	25	56	61	43	5	42	19	40	18	28	121
240433-*	ERM.95 p-M10x50-*	95	M10	109	25	56	61	43	5	42	19	50	18	28	128
240435-*	ERM.95 p-M10x63-*	95	M10	109	25	56	61	43	5	42	19	63	18	28	133
240437-*	ERM.95 p-M10x80-*	95	M10	109	25	56	61	43	5	42	19	80	18	28	141
240447-*	ERM.95 p-M12x16-*	95	M12	109	25	56	61	43	5	42	19	16	18	28	113
240449-*	ERM.95 p-M12x20-*	95	M12	109	25	56	61	43	5	42	19	20	18	28	117
240451-*	ERM.95 p-M12x25-*	95	M12	109	25	56	61	43	5	42	19	25	18	28	122
240453-*	ERM.95 p-M12x32-*	95	M12	109	25	56	61	43	5	42	19	32	18	28	125
240455-*	ERM.95 p-M12x40-*	95	M12	109	25	56	61	43	5	42	19	40	18	28	132
240457-*	ERM.95 p-M12x50-*	95	M12	109	25	56	61	43	5	42	19	50	18	28	141
240459-*	ERM.95 p-M12x63-*	95	M12	109	25	56	61	43	5	42	19	63	18	28	151
240461-*	ERM.95 p-M12x80-*	95	M12	109	25	56	61	43	5	42	19	80	18	28	160
240473-*	ERM.95 p-M16x25-*	95	M16	109	25	56	61	43	5	42	19	25	18	28	139
240475-*	ERM.95 p-M16x32-*	95	M16	109	25	56	61	43	5	42	19	32	18	28	146
240477-*	ERM.95 p-M16x40-*	95	M16	109	25	56	61	43	5	42	19	40	18	28	154
240479-*	ERM.95 p-M16x50-*	95	M16	109	25	56	61	43	5	42	19	50	18	28	171
240481-*	ERM.95 p-M16x63-*	95	M16	109	25	56	61	43	5	42	19	63	18	28	184
240483-*	ERM.95 p-M16x80-*	95	M16	109	25	56	61	43	5	42	19	80	18	28	199

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*Complete with colour index of the lever body, example: 241133-C2 ERM.44 SST-p-M5x12-C2

C2	C6	C8	C9
RAL2004	RAL3000	RAL9006	RAL9005

ERM-SST-p **STAINLESS STEEL**

Code	Description	R	d	L	D	H	H1	h1	h2	h3	d1	l	l1	Teeth no.	⚖
241133-*	ERM.44 SST-p-M5x12-*	44	M5	52	14.5	30	33	24.5	3.5	20.5	10	12	11	18	17
241135-*	ERM.44 SST-p-M5x16-*	44	M5	52	14.5	30	33	24.5	3.5	20.5	10	16	11	18	18
241137-*	ERM.44 SST-p-M5x20-*	44	M5	52	14.5	30	33	24.5	3.5	20.5	10	20	11	18	19
241139-*	ERM.44 SST-p-M5x25-*	44	M5	52	14.5	30	33	24.5	3.5	20.5	10	25	11	18	20
241141-*	ERM.44 SST-p-M5x32-*	44	M5	52	14.5	30	33	24.5	3.5	20.5	10	32	11	18	21
241143-*	ERM.44 SST-p-M5x40-*	44	M5	52	14.5	30	33	24.5	3.5	20.5	10	40	11	18	22
241145-*	ERM.44 SST-p-M5x50-*	44	M5	52	14.5	30	33	24.5	3.5	20.5	10	50	11	18	23
241153-*	ERM.44 SST-p-M6x12-*	44	M6	52	14.5	30	33	24.5	3.5	20.5	10	12	11	18	19
241155-*	ERM.44 SST-p-M6x16-*	44	M6	52	14.5	30	33	24.5	3.5	20.5	10	16	11	18	20
241157-*	ERM.44 SST-p-M6x20-*	44	M6	52	14.5	30	33	24.5	3.5	20.5	10	20	11	18	21
241159-*	ERM.44 SST-p-M6x25-*	44	M6	52	14.5	30	33	24.5	3.5	20.5	10	25	11	18	22
241161-*	ERM.44 SST-p-M6x32-*	44	M6	52	14.5	30	33	24.5	3.5	20.5	10	32	11	18	23
241163-*	ERM.44 SST-p-M6x40-*	44	M6	52	14.5	30	33	24.5	3.5	20.5	10	40	11	18	24
241165-*	ERM.44 SST-p-M6x50-*	44	M6	52	14.5	30	33	24.5	3.5	20.5	10	50	11	18	25
241235-*	ERM.63 SST-p-M6x16-*	63	M6	73.5	18	38	41	31	3.5	27	13.5	16	13.5	24	49
241237-*	ERM.63 SST-p-M6x20-*	63	M6	73.5	18	38	41	31	3.5	27	13.5	20	13.5	24	55
241239-*	ERM.63 SST-p-M6x25-*	63	M6	73.5	18	38	41	31	3.5	27	13.5	25	13.5	24	57
241241-*	ERM.63 SST-p-M6x32-*	63	M6	73.5	18	38	41	31	3.5	27	13.5	32	13.5	24	61
241243-*	ERM.63 SST-p-M6x40-*	63	M6	73.5	18	38	41	31	3.5	27	13.5	40	13.5	24	68
241245-*	ERM.63 SST-p-M6x50-*	63	M6	73.5	18	38	41	31	3.5	27	13.5	50	13.5	24	77
241247-*	ERM.63 SST-p-M6x63-*	63	M6	73.5	18	38	41	31	3.5	27	13.5	63	13.5	24	79
241253-*	ERM.63 SST-p-M8x16-*	63	M8	73.5	18	38	41	31	3.5	27	13.5	16	13.5	24	59
241255-*	ERM.63 SST-p-M8x20-*	63	M8	73.5	18	38	41	31	3.5	27	13.5	20	13.5	24	66
241257-*	ERM.63 SST-p-M8x25-*	63	M8	73.5	18	38	41	31	3.5	27	13.5	25	13.5	24	69
241259-*	ERM.63 SST-p-M8x32-*	63	M8	73.5	18	38	41	31	3.5	27	13.5	32	13.5	24	73
241261-*	ERM.63 SST-p-M8x40-*	63	M8	73.5	18	38	41	31	3.5	27	13.5	40	13.5	24	82
241263-*	ERM.63 SST-p-M8x50-*	63	M8	73.5	18	38	41	31	3.5	27	13.5	50	13.5	24	92
241265-*	ERM.63 SST-p-M8x63-*	63	M8	73.5	18	38	41	31	3.5	27	13.5	63	13.5	24	95
241335-*	ERM.78 SST-p-M8x20-*	78	M8	90.5	21.5	46	50	36	3.5	34.5	16	20	16	26	69
241337-*	ERM.78 SST-p-M8x25-*	78	M8	90.5	21.5	46	50	36	3.5	34.5	16	25	16	26	75
241339-*	ERM.78 SST-p-M8x32-*	78	M8	90.5	21.5	46	50	36	3.5	34.5	16	32	16	26	80
241341-*	ERM.78 SST-p-M8x40-*	78	M8	90.5	21.5	46	50	36	3.5	34.5	16	40	16	26	88
241343-*	ERM.78 SST-p-M8x50-*	78	M8	90.5	21.5	46	50	36	3.5	34.5	16	50	16	26	98
241345-*	ERM.78 SST-p-M8x63-*	78	M8	90.5	21.5	46	50	36	3.5	34.5	16	63	16	26	101
241347-*	ERM.78 SST-p-M8x80-*	78	M8	90.5	21.5	46	50	36	3.5	34.5	16	80	16	26	104
241353-*	ERM.78 SST-p-M10x20-*	78	M10	90.5	21.5	46	50	36	3.5	34.5	16	20	16	26	85
241355-*	ERM.78 SST-p-M10x25-*	78	M10	90.5	21.5	46	50	36	3.5	34.5	16	25	16	26	91
241357-*	ERM.78 SST-p-M10x32-*	78	M10	90.5	21.5	46	50	36	3.5	34.5	16	32	16	26	98
241359-*	ERM.78 SST-p-M10x40-*	78	M10	90.5	21.5	46	50	36	3.5	34.5	16	40	16	26	108
241361-*	ERM.78 SST-p-M10x50-*	78	M10	90.5	21.5	46	50	36	3.5	34.5	16	50	16	26	120
241363-*	ERM.78 SST-p-M10x63-*	78	M10	90.5	21.5	46	50	36	3.5	34.5	16	63	16	26	124
241365-*	ERM.78 SST-p-M10x80-*	78	M10	90.5	21.5	46	50	36	3.5	34.5	16	80	16	26	127
241425-*	ERM.95 SST-p-M10x20-*	95	M10	109	25	56	61	43	5	42	19	20	18	28	113
241427-*	ERM.95 SST-p-M10x25-*	95	M10	109	25	56	61	43	5	42	19	25	18	28	115
241429-*	ERM.95 SST-p-M10x32-*	95	M10	109	25	56	61	43	5	42	19	32	18	28	118
241431-*	ERM.95 SST-p-M10x40-*	95	M10	109	25	56	61	43	5	42	19	40	18	28	121
241433-*	ERM.95 SST-p-M10x50-*	95	M10	109	25	56	61	43	5	42	19	50	18	28	128
241435-*	ERM.95 SST-p-M10x63-*	95	M10	109	25	56	61	43	5	42	19	63	18	28	133
241437-*	ERM.95 SST-p-M10x80-*	95	M10	109	25	56	61	43	5	42	19	80	18	28	141
241449-*	ERM.95 SST-p-M12x20-*	95	M12	109	25	56	61	43	5	42	19	20	18	28	117
241451-*	ERM.95 SST-p-M12x25-*	95	M12	109	25	56	61	43	5	42	19	25	18	28	122
241453-*	ERM.95 SST-p-M12x32-*	95	M12	109	25	56	61	43	5	42	19	32	18	28	125
241455-*	ERM.95 SST-p-M12x40-*	95	M12	109	25	56	61	43	5	42	19	40	18	28	132
241457-*	ERM.95 SST-p-M12x50-*	95	M12	109	25	56	61	43	5	42	19	50	18	28	141
241459-*	ERM.95 SST-p-M12x63-*	95	M12	109	25	56	61	43	5	42	19	63	18	28	151
241461-*	ERM.95 SST-p-M12x80-*	95	M12	109	25	56	61	43	5	42	19	80	18	28	160

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Adjustable hand levers

Zinc die casting, Bushing / Threaded bolt Steel



SPECIFICATION

Handle
Zinc die casting

plastic coated
black, RAL 9005, textured finish **SW**
black, RAL 9011, silk finish **SZ**
orange, RAL 2004, textured finish **OS**
red, RAL 3000, textured finish **RS**
silver, RAL 9006, textured finish **SR**

chrome-plated **CR**

uncoated, slide grinded **RH**

Version with threaded insert

Threaded insert and retaining screw
Steel, blackened

Version with threaded stud

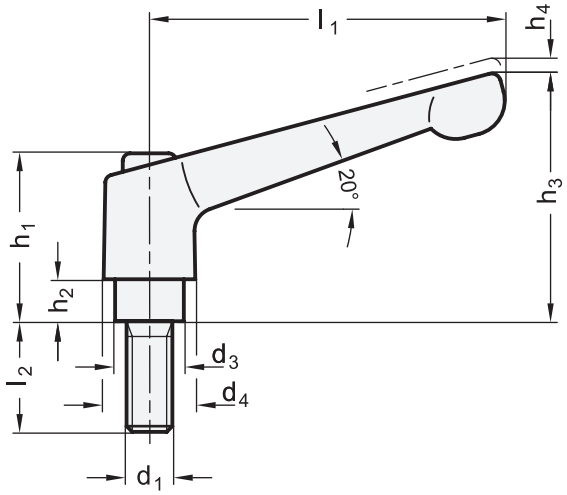
Threaded stud and retaining screw
Steel, blackened

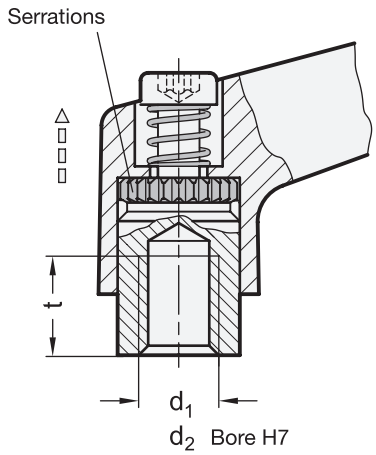
INFORMATION

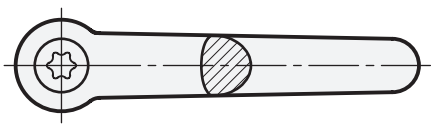
Adjustable hand levers GN 300 are ideal whenever parts have to be clamped in a confined space or in a particular lever position. The centre insert is connected to the lever via serrations which can easily be disengaged.
Pulling the lever, disengages the serrations and allowing it to be swivelled to the ideal clamping position. On releasing the lever the serrations automatically re-engage.

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)







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GN 300

Adjustable hand levers

* Complete with colour index of the clamping lever body (SW, SZ, OS, RS, SR, CR or RH)

SW	SZ	OS	RS	SR	CR	RH
RAL9005	RAL9011	RAL2004	RAL3000	RAL9006	chrome-plated	uncoated

GN 300-with threaded insert

Description	l1	d1	d2 H7	d3	d4	h1	h2	h3	h4	t min.	⚖
GN 300-30-B5-*	30	-	B 5	10	13	24.5	4	31	3.5	9	25
GN 300-30-B6-*	30	-	B 6	10	13	24.5	4	31	3.5	9	24
GN 300-30-M3-*	30	M 3	-	10	13	24.5	4	31	3.5	7	27
GN 300-30-M4-*	30	M 4	-	10	13	24.5	4	31	3.5	9	27
GN 300-30-M5-*	30	M 5	-	10	13	24.5	4	31	3.5	9	25
GN 300-30-M6-*	30	M 6	-	10	13	24.5	4	31	3.5	9	24
GN 300-45-B5-*	45	-	B 5	10	13	24.5	4	34	3.5	9	33
GN 300-45-B6-*	45	-	B 6	10	13	24.5	4	34	3.5	9	32
GN 300-45-M4-*	45	M 4	-	10	13	24.5	4	34	3.5	9	34
GN 300-45-M5-*	45	M 5	-	10	13	24.5	4	34	3.5	9	33
GN 300-45-M6-*	45	M 6	-	10	13	24.5	4	34	3.5	9	32
GN 300-63-B8-*	63	-	B 8	13.5	17.5	31	6.5	45	4	11	74
GN 300-63-M6-*	63	M 6	-	13.5	17.5	31	6.5	45	4	11	77
GN 300-63-M8-*	63	M 8	-	13.5	17.5	31	6.5	45	4	11	75
GN 300-78-B8-*	78	-	B 8	16	21	36	8	54	4	14	122
GN 300-78-B10-*	78	-	B 10	16	21	36	8	54	4	14	118
GN 300-78-M8-*	78	M 8	-	16	21	36	8	54	4	14	123
GN 300-78-M10-*	78	M 10	-	16	21	36	8	54	4	14	121
GN 300-92-B12-*	92	-	B 12	19	24	43	11	64	4	17	178
GN 300-92-M10-*	92	M 10	-	19	24	43	11	64	4	17	187
GN 300-92-M12-*	92	M 12	-	19	24	43	11	64	4	17	181
GN 300-108-B12-*	108	-	B 12	23	30	50.5	12	75	5	22	305
GN 300-108-B16-*	108	-	B 16	23	30	50.5	12	75	5	22	291
GN 300-108-M12-*	108	M 12	-	23	30	50.5	12	75	5	22	304
GN 300-108-M14-*	108	M 14	-	23	30	50.5	12	75	5	22	298
GN 300-108-M16-*	108	M 16	-	23	30	50.5	12	75	5	22	290

GN 300-with threaded stud

Description	l1	d1	l2	d3	d4	h1	h2	h3	h4	⚖
GN 300-30-M3-6-*	30	M 3	6	10	13	24.5	4	31	3.5	21
GN 300-30-M3-8-*	30	M 3	8	10	13	24.5	4	31	3.5	22
GN 300-30-M3-10-*	30	M 3	10	10	13	24.5	4	31	3.5	23
GN 300-30-M3-12-*	30	M 3	12	10	13	24.5	4	31	3.5	24
GN 300-30-M3-16-*	30	M 3	16	10	13	24.5	4	31	3.5	25
GN 300-30-M4-12-*	30	M 4	12	10	13	24.5	4	31	3.5	28
GN 300-30-M4-16-*	30	M 4	16	10	13	24.5	4	31	3.5	28
GN 300-30-M4-20-*	30	M 4	20	10	13	24.5	4	31	3.5	29
GN 300-30-M4-25-*	30	M 4	25	10	13	24.5	4	31	3.5	30
GN 300-30-M4-32-*	30	M 4	32	10	13	24.5	4	31	3.5	31
GN 300-30-M5-12-*	30	M 5	12	10	13	24.5	4	31	3.5	29
GN 300-30-M5-16-*	30	M 5	16	10	13	24.5	4	31	3.5	29
GN 300-30-M5-20-*	30	M 5	20	10	13	24.5	4	31	3.5	29
GN 300-30-M5-25-*	30	M 5	25	10	13	24.5	4	31	3.5	30
GN 300-30-M5-32-*	30	M 5	32	10	13	24.5	4	31	3.5	31
GN 300-30-M5-40-*	30	M 5	40	10	13	24.5	4	31	3.5	32
GN 300-30-M5-50-*	30	M 5	50	10	13	24.5	4	31	3.5	33
GN 300-30-M6-12-*	30	M 6	12	10	13	24.5	4	31	3.5	29
GN 300-30-M6-16-*	30	M 6	16	10	13	24.5	4	31	3.5	30
GN 300-30-M6-20-*	30	M 6	20	10	13	24.5	4	31	3.5	31

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* Complete with colour index of the clamping lever body (SW, SZ, OS, RS, SR, CR or RH)

SW	SZ	OS	RS	SR	CR	RH
RAL9005	RAL9011	RAL2004	RAL3000	RAL9006	chrome-plated	uncoated

GN 300-with threaded stud

Description	l1	d1	l2	d3	d4	h1	h2	h3	h4	⚖
GN 300-30-M6-25-*	30	M 6	25	10	13	24.5	4	31	3.5	32
GN 300-30-M6-32-*	30	M 6	32	10	13	24.5	4	31	3.5	33
GN 300-30-M6-40-*	30	M 6	40	10	13	24.5	4	31	3.5	35
GN 300-30-M6-50-*	30	M 6	50	10	13	24.5	4	31	3.5	36
GN 300-45-M4-12-*	45	M 4	12	10	13	24.5	4	34	3.5	35
GN 300-45-M4-16-*	45	M 4	16	10	13	24.5	4	34	3.5	39
GN 300-45-M4-20-*	45	M 4	20	10	13	24.5	4	34	3.5	39
GN 300-45-M4-25-*	45	M 4	25	10	13	24.5	4	34	3.5	39
GN 300-45-M4-32-*	45	M 4	32	10	13	24.5	4	34	3.5	40
GN 300-45-M5-12-*	45	M 5	12	10	13	24.5	4	34	3.5	35
GN 300-45-M5-16-*	45	M 5	16	10	13	24.5	4	34	3.5	36
GN 300-45-M5-20-*	45	M 5	20	10	13	24.5	4	34	3.5	37
GN 300-45-M5-25-*	45	M 5	25	10	13	24.5	4	34	3.5	38
GN 300-45-M5-32-*	45	M 5	32	10	13	24.5	4	34	3.5	39
GN 300-45-M5-40-*	45	M 5	40	10	13	24.5	4	34	3.5	40
GN 300-45-M5-50-*	45	M 5	50	10	13	24.5	4	34	3.5	42
GN 300-45-M6-12-*	45	M 6	12	10	13	24.5	4	34	3.5	36
GN 300-45-M6-16-*	45	M 6	16	10	13	24.5	4	34	3.5	37
GN 300-45-M6-20-*	45	M 6	20	10	13	24.5	4	34	3.5	38
GN 300-45-M6-25-*	45	M 6	25	10	13	24.5	4	34	3.5	39
GN 300-45-M6-32-*	45	M 6	32	10	13	24.5	4	34	3.5	41
GN 300-45-M6-40-*	45	M 6	40	10	13	24.5	4	34	3.5	41
GN 300-45-M6-50-*	45	M 6	50	10	13	24.5	4	34	3.5	43
GN 300-63-M6-12-*	63	M 6	12	13.5	17.5	31	6.5	45	4	80
GN 300-63-M6-16-*	63	M 6	16	13.5	17.5	31	6.5	45	4	80
GN 300-63-M6-20-*	63	M 6	20	13.5	17.5	31	6.5	45	4	82
GN 300-63-M6-25-*	63	M 6	25	13.5	17.5	31	6.5	45	4	83
GN 300-63-M6-32-*	63	M 6	32	13.5	17.5	31	6.5	45	4	84
GN 300-63-M6-40-*	63	M 6	40	13.5	17.5	31	6.5	45	4	85
GN 300-63-M6-50-*	63	M 6	50	13.5	17.5	31	6.5	45	4	86
GN 300-63-M6-63-*	63	M 6	63	13.5	17.5	31	6.5	45	4	88
GN 300-63-M8-12-*	63	M 8	12	13.5	17.5	31	6.5	45	4	82
GN 300-63-M8-16-*	63	M 8	16	13.5	17.5	31	6.5	45	4	84
GN 300-63-M8-20-*	63	M 8	20	13.5	17.5	31	6.5	45	4	85
GN 300-63-M8-25-*	63	M 8	25	13.5	17.5	31	6.5	45	4	86
GN 300-63-M8-32-*	63	M 8	32	13.5	17.5	31	6.5	45	4	88
GN 300-63-M8-40-*	63	M 8	40	13.5	17.5	31	6.5	45	4	93
GN 300-63-M8-50-*	63	M 8	50	13.5	17.5	31	6.5	45	4	95
GN 300-63-M8-63-*	63	M 8	63	13.5	17.5	31	6.5	45	4	98
GN 300-63-M10-20-*	63	M 10	20	13.5	17.5	31	6.5	45	4	88
GN 300-63-M10-25-*	63	M 10	25	13.5	17.5	31	6.5	45	4	91
GN 300-63-M10-32-*	63	M 10	32	13.5	17.5	31	6.5	45	4	94
GN 300-63-M10-40-*	63	M 10	40	13.5	17.5	31	6.5	45	4	96
GN 300-63-M10-50-*	63	M 10	50	13.5	17.5	31	6.5	45	4	103
GN 300-63-M10-63-*	63	M 10	63	13.5	17.5	31	6.5	45	4	108
GN 300-63-M10-80-*	63	M 10	80	13.5	17.5	31	6.5	45	4	118
GN 300-78-M8-16-*	78	M 8	16	16	21	36	8	54	4	131
GN 300-78-M8-20-*	78	M 8	20	16	21	36	8	54	4	132
GN 300-78-M8-25-*	78	M 8	25	16	21	36	8	54	4	133
GN 300-78-M8-32-*	78	M 8	32	16	21	36	8	54	4	136
GN 300-78-M8-40-*	78	M 8	40	16	21	36	8	54	4	140

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GN 300

Adjustable hand levers

* Complete with colour index of the clamping lever body (SW, SZ, OS, RS, SR, CR or RH)

SW	SZ	OS	RS	SR	CR	RH
RAL9005	RAL9011	RAL2004	RAL3000	RAL9006	chrome-plated	uncoated

GN 300-with threaded stud

Description	l1	d1	l2	d3	d4	h1	h2	h3	h4	⚖
GN 300-78-M8-50-*	78	M 8	50	16	21	36	8	54	4	145
GN 300-78-M8-63-*	78	M 8	63	16	21	36	8	54	4	147
GN 300-78-M8-80-*	78	M 8	80	16	21	36	8	54	4	152
GN 300-78-M10-16-*	78	M 10	16	16	21	36	8	54	4	137
GN 300-78-M10-20-*	78	M 10	20	16	21	36	8	54	4	139
GN 300-78-M10-25-*	78	M 10	25	16	21	36	8	54	4	141
GN 300-78-M10-32-*	78	M 10	32	16	21	36	8	54	4	145
GN 300-78-M10-40-*	78	M 10	40	16	21	36	8	54	4	149
GN 300-78-M10-50-*	78	M 10	50	16	21	36	8	54	4	154
GN 300-78-M10-63-*	78	M 10	63	16	21	36	8	54	4	160
GN 300-78-M10-80-*	78	M 10	80	16	21	36	8	54	4	170
GN 300-78-M12-25-*	78	M 12	25	16	21	36	8	54	4	145
GN 300-78-M12-32-*	78	M 12	32	16	21	36	8	54	4	150
GN 300-78-M12-40-*	78	M 12	40	16	21	36	8	54	4	156
GN 300-78-M12-50-*	78	M 12	50	16	21	36	8	54	4	163
GN 300-78-M12-63-*	78	M 12	63	16	21	36	8	54	4	171
GN 300-78-M12-80-*	78	M 12	80	16	21	36	8	54	4	183
GN 300-92-M10-16-*	92	M 10	16	19	24	43	11	64	4	199
GN 300-92-M10-20-*	92	M 10	20	19	24	43	11	64	4	202
GN 300-92-M10-25-*	92	M 10	25	19	24	43	11	64	4	205
GN 300-92-M10-32-*	92	M 10	32	19	24	43	11	64	4	209
GN 300-92-M10-40-*	92	M 10	40	19	24	43	11	64	4	213
GN 300-92-M10-50-*	92	M 10	50	19	24	43	11	64	4	219
GN 300-92-M10-63-*	92	M 10	63	19	24	43	11	64	4	224
GN 300-92-M10-80-*	92	M 10	80	19	24	43	11	64	4	235
GN 300-92-M12-16-*	92	M 12	16	19	24	43	11	64	4	206
GN 300-92-M12-20-*	92	M 12	20	19	24	43	11	64	4	209
GN 300-92-M12-25-*	92	M 12	25	19	24	43	11	64	4	215
GN 300-92-M12-32-*	92	M 12	32	19	24	43	11	64	4	220
GN 300-92-M12-40-*	92	M 12	40	19	24	43	11	64	4	224
GN 300-92-M12-50-*	92	M 12	50	19	24	43	11	64	4	230
GN 300-92-M12-63-*	92	M 12	63	19	24	43	11	64	4	242
GN 300-92-M12-80-*	92	M 12	80	19	24	43	11	64	4	250
GN 300-92-M16-25-*	92	M 16	25	19	24	43	11	64	4	226
GN 300-92-M16-32-*	92	M 16	32	19	24	43	11	64	4	234
GN 300-92-M16-40-*	92	M 16	40	19	24	43	11	64	4	245
GN 300-92-M16-50-*	92	M 16	50	19	24	43	11	64	4	259
GN 300-92-M16-63-*	92	M 16	63	19	24	43	11	64	4	276
GN 300-92-M16-80-*	92	M 16	80	19	24	43	11	64	4	311
GN 300-108-M12-25-*	108	M 12	25	23	30	50.5	12	75	5	350
GN 300-108-M12-32-*	108	M 12	32	23	30	50.5	12	75	5	320
GN 300-108-M12-40-*	108	M 12	40	23	30	50.5	12	75	5	307
GN 300-108-M12-50-*	108	M 12	50	23	30	50.5	12	75	5	340
GN 300-108-M12-63-*	108	M 12	63	23	30	50.5	12	75	5	365
GN 300-108-M12-80-*	108	M 12	80	23	30	50.5	12	75	5	383
GN 300-108-M12-120-*	108	M 12	120	23	30	50.5	12	75	5	410
GN 300-108-M16-25-*	108	M 16	25	23	30	50.5	12	75	5	355
GN 300-108-M16-32-*	108	M 16	32	23	30	50.5	12	75	5	365
GN 300-108-M16-40-*	108	M 16	40	23	30	50.5	12	75	5	376
GN 300-108-M16-50-*	108	M 16	50	23	30	50.5	12	75	5	388
GN 300-108-M16-63-*	108	M 16	63	23	30	50.5	12	75	5	407
GN 300-108-M16-80-*	108	M 16	80	23	30	50.5	12	75	5	429
GN 300-108-M16-120-*	108	M 16	120	23	30	50.5	12	75	5	476

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RoHS

Adjustable hand levers

Zinc die casting, Bushing / Threaded bolt
Stainless Steel



SPECIFICATION

Handle
Zinc die casting

plastic coated
black, RAL 9005, textured finish **SW**
black, RAL 9011, silk finish **SZ**
orange, RAL 2004, textured finish **OS**
red, RAL 3000, textured finish **RS**
silver, RAL 9006, textured finish **SR**

chrome-plated **CR**

uncoated, slide grinded **RH**

Version with threaded insert

Threaded insert and retaining screw
Stainless Steel AISI 303

Version with threaded stud

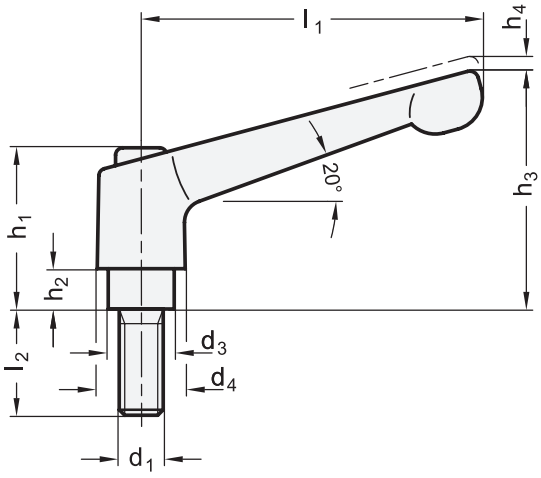
Threaded stud and retaining screw
Stainless Steel AISI 303

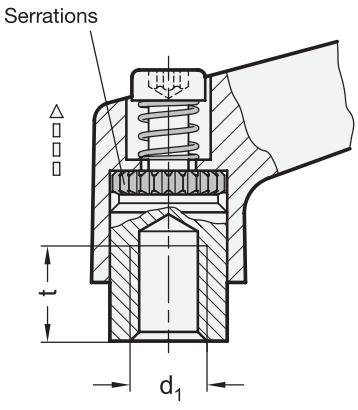
INFORMATION

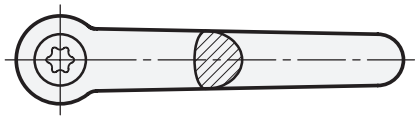
Adjustable hand levers GN 300.1 are ideal whenever parts have to be clamped in a confined space or in a particular lever position. The centre insert is connected to the lever via serrations which can easily be disengaged.
Pulling the lever, disengages the serrations and allowing it to be swivelled to the ideal clamping position. On releasing the lever the serrations automatically re-engage.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)







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GN 300.1 | Adjustable hand levers

* Complete with colour index of the clamping lever body (SW, SZ, OS, RS, SR, CR or RH)

SW RAL9005 | SZ RAL9011 | OS RAL2004 | RS RAL3000 | SR RAL9006 | CR chrome-plated | RH uncoated

GN 300.1-with threaded insert

Description	l1	d1	d3	d4	h1	h2	h3	h4	t min.	⚖
GN 300.1-30-M3-*	30	M 3	10	13	24.5	4	31	3.5	7	27
GN 300.1-30-M4-*	30	M 4	10	13	24.5	4	31	3.5	8	27
GN 300.1-30-M5-*	30	M 5	10	13	24.5	4	31	3.5	8	26
GN 300.1-30-M6-*	30	M 6	10	13	24.5	4	31	3.5	8	25
GN 300.1-45-M4-*	45	M 4	10	13	24.5	4	34	3.5	8	34
GN 300.1-45-M5-*	45	M 5	10	13	24.5	4	34	3.5	8	33
GN 300.1-45-M6-*	45	M 6	10	13	24.5	4	34	3.5	8	32
GN 300.1-63-M6-*	63	M 6	13.5	17.5	31	6.5	45	4	11	76
GN 300.1-63-M8-*	63	M 8	13.5	17.5	31	6.5	45	4	11	75
GN 300.1-78-M8-*	78	M 8	16	21	36	8	54	4	14	123
GN 300.1-78-M10-*	78	M 10	16	21	36	8	54	4	14	119
GN 300.1-92-M10-*	92	M 10	19	24	43	11	64	4	17	184
GN 300.1-92-M12-*	92	M 12	19	24	43	11	64	4	17	178
GN 300.1-108-M12-*	108	M 12	23	30	50.5	12	75	5	22	306
GN 300.1-108-M16-*	108	M 16	23	30	50.5	12	75	5	22	289

GN 300.1-with threaded stud

Description	l1	d1	l2	d3	d4	h1	h2	h3	h4	⚖
GN 300.1-30-M3-6-*	30	M 3	6	10	13	24.5	4	31	3.5	27
GN 300.1-30-M3-8-*	30	M 3	8	10	13	24.5	4	31	3.5	28
GN 300.1-30-M3-10-*	30	M 3	10	10	13	24.5	4	31	3.5	28
GN 300.1-30-M3-12-*	30	M 3	12	10	13	24.5	4	31	3.5	30
GN 300.1-30-M3-16-*	30	M 3	16	10	13	24.5	4	31	3.5	30
GN 300.1-30-M4-12-*	30	M 4	12	10	13	24.5	4	31	3.5	28
GN 300.1-30-M4-16-*	30	M 4	16	10	13	24.5	4	31	3.5	28
GN 300.1-30-M4-20-*	30	M 4	20	10	13	24.5	4	31	3.5	29
GN 300.1-30-M4-25-*	30	M 4	25	10	13	24.5	4	31	3.5	30
GN 300.1-30-M4-32-*	30	M 4	32	10	13	24.5	4	31	3.5	31
GN 300.1-30-M5-12-*	30	M 5	12	10	13	24.5	4	31	3.5	29
GN 300.1-30-M5-16-*	30	M 5	16	10	13	24.5	4	31	3.5	29
GN 300.1-30-M5-20-*	30	M 5	20	10	13	24.5	4	31	3.5	29
GN 300.1-30-M5-25-*	30	M 5	25	10	13	24.5	4	31	3.5	30
GN 300.1-30-M5-32-*	30	M 5	32	10	13	24.5	4	31	3.5	31
GN 300.1-30-M5-40-*	30	M 5	40	10	13	24.5	4	31	3.5	32
GN 300.1-30-M5-50-*	30	M 5	50	10	13	24.5	4	31	3.5	33
GN 300.1-30-M6-12-*	30	M 6	12	10	13	24.5	4	31	3.5	29
GN 300.1-30-M6-16-*	30	M 6	16	10	13	24.5	4	31	3.5	30
GN 300.1-30-M6-20-*	30	M 6	20	10	13	24.5	4	31	3.5	31
GN 300.1-30-M6-25-*	30	M 6	25	10	13	24.5	4	31	3.5	32
GN 300.1-30-M6-32-*	30	M 6	32	10	13	24.5	4	31	3.5	33
GN 300.1-30-M6-40-*	30	M 6	40	10	13	24.5	4	31	3.5	34
GN 300.1-30-M6-50-*	30	M 6	50	10	13	24.5	4	31	3.5	35
GN 300.1-45-M4-12-*	45	M 4	12	10	13	24.5	4	34	3.5	35
GN 300.1-45-M4-16-*	45	M 4	16	10	13	24.5	4	34	3.5	36
GN 300.1-45-M4-20-*	45	M 4	20	10	13	24.5	4	34	3.5	35
GN 300.1-45-M4-25-*	45	M 4	25	10	13	24.5	4	34	3.5	37
GN 300.1-45-M4-32-*	45	M 4	32	10	13	24.5	4	34	3.5	38
GN 300.1-45-M5-12-*	45	M 5	12	10	13	24.5	4	34	3.5	35
GN 300.1-45-M5-16-*	45	M 5	16	10	13	24.5	4	34	3.5	36
GN 300.1-45-M5-20-*	45	M 5	20	10	13	24.5	4	34	3.5	37
GN 300.1-45-M5-25-*	45	M 5	25	10	13	24.5	4	34	3.5	38
GN 300.1-45-M5-32-*	45	M 5	32	10	13	24.5	4	34	3.5	38
GN 300.1-45-M5-40-*	45	M 5	40	10	13	24.5	4	34	3.5	39
GN 300.1-45-M5-50-*	45	M 5	50	10	13	24.5	4	34	3.5	43

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* Complete with colour index of the clamping lever body (SW, SZ, OS, RS, SR, CR or RH)

SW	SZ	OS	RS	SR	CR	RH
RAL9005	RAL9011	RAL2004	RAL3000	RAL9006	chrome-plated	uncoated

GN 300.1-with threaded stud

Description	l1	d1	l2	d3	d4	h1	h2	h3	h4	⚖
GN 300.1-45-M6-12-*	45	M 6	12	10	13	24.5	4	34	3.5	36
GN 300.1-45-M6-16-*	45	M 6	16	10	13	24.5	4	34	3.5	37
GN 300.1-45-M6-20-*	45	M 6	20	10	13	24.5	4	34	3.5	38
GN 300.1-45-M6-25-*	45	M 6	25	10	13	24.5	4	34	3.5	39
GN 300.1-45-M6-32-*	45	M 6	32	10	13	24.5	4	34	3.5	39
GN 300.1-45-M6-40-*	45	M 6	40	10	13	24.5	4	34	3.5	40
GN 300.1-45-M6-50-*	45	M 6	50	10	13	24.5	4	34	3.5	43
GN 300.1-63-M6-16-*	63	M 6	16	13.5	17.5	31	6.5	45	4	80
GN 300.1-63-M6-20-*	63	M 6	20	13.5	17.5	31	6.5	45	4	91
GN 300.1-63-M6-25-*	63	M 6	25	13.5	17.5	31	6.5	45	4	82
GN 300.1-63-M6-32-*	63	M 6	32	13.5	17.5	31	6.5	45	4	83
GN 300.1-63-M6-40-*	63	M 6	40	13.5	17.5	31	6.5	45	4	85
GN 300.1-63-M6-50-*	63	M 6	50	13.5	17.5	31	6.5	45	4	86
GN 300.1-63-M6-63-*	63	M 6	63	13.5	17.5	31	6.5	45	4	88
GN 300.1-63-M8-16-*	63	M 8	16	13.5	17.5	31	6.5	45	4	84
GN 300.1-63-M8-20-*	63	M 8	20	13.5	17.5	31	6.5	45	4	85
GN 300.1-63-M8-25-*	63	M 8	25	13.5	17.5	31	6.5	45	4	87
GN 300.1-63-M8-32-*	63	M 8	32	13.5	17.5	31	6.5	45	4	89
GN 300.1-63-M8-40-*	63	M 8	40	13.5	17.5	31	6.5	45	4	91
GN 300.1-63-M8-50-*	63	M 8	50	13.5	17.5	31	6.5	45	4	93
GN 300.1-63-M8-63-*	63	M 8	63	13.5	17.5	31	6.5	45	4	98
GN 300.1-78-M8-20-*	78	M 8	20	16	21	36	8	54	4	137
GN 300.1-78-M8-25-*	78	M 8	25	16	21	36	8	54	4	138
GN 300.1-78-M8-32-*	78	M 8	32	16	21	36	8	54	4	139
GN 300.1-78-M8-40-*	78	M 8	40	16	21	36	8	54	4	140
GN 300.1-78-M8-50-*	78	M 8	50	16	21	36	8	54	4	144
GN 300.1-78-M8-63-*	78	M 8	63	16	21	36	8	54	4	148
GN 300.1-78-M8-80-*	78	M 8	80	16	21	36	8	54	4	156
GN 300.1-78-M10-20-*	78	M 10	20	16	21	36	8	54	4	139
GN 300.1-78-M10-25-*	78	M 10	25	16	21	36	8	54	4	140
GN 300.1-78-M10-32-*	78	M 10	32	16	21	36	8	54	4	142
GN 300.1-78-M10-40-*	78	M 10	40	16	21	36	8	54	4	149
GN 300.1-78-M10-50-*	78	M 10	50	16	21	36	8	54	4	154
GN 300.1-78-M10-63-*	78	M 10	63	16	21	36	8	54	4	161
GN 300.1-78-M10-80-*	78	M 10	80	16	21	36	8	54	4	166
GN 300.1-92-M10-20-*	92	M 10	20	19	24	43	11	64	4	202
GN 300.1-92-M10-25-*	92	M 10	25	19	24	43	11	64	4	205
GN 300.1-92-M10-32-*	92	M 10	32	19	24	43	11	64	4	209
GN 300.1-92-M10-40-*	92	M 10	40	19	24	43	11	64	4	213
GN 300.1-92-M10-50-*	92	M 10	50	19	24	43	11	64	4	219
GN 300.1-92-M10-63-*	92	M 10	63	19	24	43	11	64	4	225
GN 300.1-92-M10-80-*	92	M 10	80	19	24	43	11	64	4	235
GN 300.1-92-M12-20-*	92	M 12	20	19	24	43	11	64	4	209
GN 300.1-92-M12-25-*	92	M 12	25	19	24	43	11	64	4	215
GN 300.1-92-M12-32-*	92	M 12	32	19	24	43	11	64	4	220
GN 300.1-92-M12-40-*	92	M 12	40	19	24	43	11	64	4	222
GN 300.1-92-M12-50-*	92	M 12	50	19	24	43	11	64	4	233
GN 300.1-92-M12-63-*	92	M 12	63	19	24	43	11	64	4	242
GN 300.1-92-M12-80-*	92	M 12	80	19	24	43	11	64	4	250
GN 300.1-108-M16-32-*	108	M 16	32	23	30	50.5	12	75	5	365
GN 300.1-108-M16-40-*	108	M 16	40	23	30	50.5	12	75	5	376
GN 300.1-108-M16-50-*	108	M 16	50	23	30	50.5	12	75	5	388
GN 300.1-108-M16-63-*	108	M 16	63	23	30	50.5	12	75	5	407
GN 300.1-108-M16-80-*	108	M 16	80	23	30	50.5	12	75	5	429

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Adjustable Stainless Steel-Hand levers

matt shot-blasted



SPECIFICATION

Types

- Type **AS**: with external hexagon
- Type **IS**: with internal hexalobular

Handle
Precision casting

- Stainless Steel AISI CF-8
- matt shot-blasted

Version with threaded insert

Threaded bush
Stainless Steel AISI 303

Retaining screw
Stainless Steel AISI 303

Spring
Stainless Steel AISI 301

Version with threaded stud

Threaded stud
Stainless Steel AISI 303

Retaining screw
Stainless Steel AISI 303

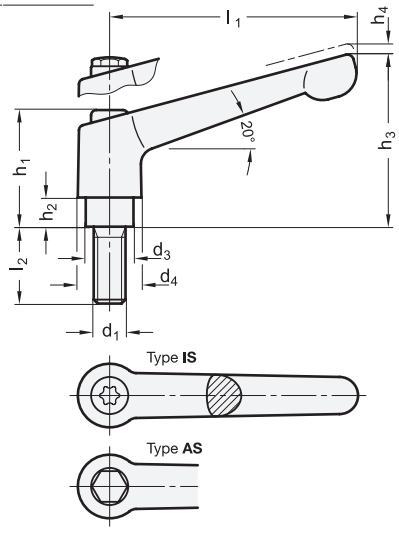
Spring
Stainless Steel AISI 301

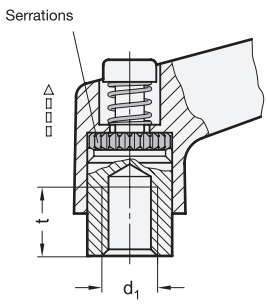
INFORMATION

Adjustable hand levers GN 300.5 with full Stainless Steel-Handle, correspond to applications where „agressive" surrounding conditions are given, or where stainless steel materials are prescribed such as in food processing or chemical industry.
Retaining screws with hexagon head (Type AS) comply with the requirement "prevents water from accumulating".
Adjustable hand levers have proved to be ideal whenever parts have to be clamped in a confined space or in a particular lever position. The centre insert is connected to the lever via serrations which can easily be disengaged.
Pulling the lever, disengages the serrations and allowing it to be swivelled to the ideal clamping position. On releasing the lever the serrations automatically re-engage.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)





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*Complete with types of the Hand levers (AS or IS)

AS External hexagon

IS Internal hexagon

GN 300.5-with threaded insert — **STAINLESS STEEL**

Description	l1	d1	d3	d4	h1	h2	h3	h4	t min.	⚖
GN 300.5-30-M3-*	30	M 3	10	13	24.5	4	31	3.5	7	28
GN 300.5-30-M4-*	30	M 4	10	13	24.5	4	31	3.5	8	28
GN 300.5-30-M5-*	30	M 5	10	13	24.5	4	31	3.5	8	27
GN 300.5-30-M6-*	30	M 6	10	13	24.5	4	31	3.5	8	26
GN 300.5-45-M4-*	45	M 4	10	13	24.5	4	34	3.5	8	35
GN 300.5-45-M5-*	45	M 5	10	13	24.5	4	34	3.5	8	34
GN 300.5-45-M6-*	45	M 6	10	13	24.5	4	34	3.5	8	33
GN 300.5-63-M6-*	63	M 6	13.5	17.5	31	6.5	45	4	11	77
GN 300.5-63-M8-*	63	M 8	13.5	17.5	31	6.5	45	4	11	76
GN 300.5-78-M8-*	78	M 8	16	21	36	8	54	4	14	124
GN 300.5-78-M10-*	78	M 10	16	21	36	8	54	4	14	120
GN 300.5-92-M10-*	92	M 10	19	24	43	11	64	4	17	185
GN 300.5-92-M12-*	92	M 12	19	24	43	11	64	4	17	179

GN 300.5-with threaded stud — **STAINLESS STEEL**

Description	l1	d1	l2	d3	d4	h1	h2	h3	h4	⚖
GN 300.5-30-M3-6-*	30	M 3	6	10	13	24.5	4	31	3.5	28
GN 300.5-30-M3-8-*	30	M 3	8	10	13	24.5	4	31	3.5	28
GN 300.5-30-M3-10-*	30	M 3	10	10	13	24.5	4	31	3.5	29
GN 300.5-30-M3-12-*	30	M 3	12	10	13	24.5	4	31	3.5	30
GN 300.5-30-M3-16-*	30	M 3	16	10	13	24.5	4	31	3.5	31
GN 300.5-30-M4-12-*	30	M 4	12	10	13	24.5	4	31	3.5	29
GN 300.5-30-M4-16-*	30	M 4	16	10	13	24.5	4	31	3.5	30
GN 300.5-30-M4-20-*	30	M 4	20	10	13	24.5	4	31	3.5	30
GN 300.5-30-M4-25-*	30	M 4	25	10	13	24.5	4	31	3.5	32
GN 300.5-30-M4-32-*	30	M 4	32	10	13	24.5	4	31	3.5	30
GN 300.5-30-M5-12-*	30	M 5	12	10	13	24.5	4	31	3.5	30
GN 300.5-30-M5-16-*	30	M 5	16	10	13	24.5	4	31	3.5	30
GN 300.5-30-M5-20-*	30	M 5	20	10	13	24.5	4	31	3.5	31
GN 300.5-30-M5-25-*	30	M 5	25	10	13	24.5	4	31	3.5	31
GN 300.5-30-M5-32-*	30	M 5	32	10	13	24.5	4	31	3.5	32
GN 300.5-30-M5-40-*	30	M 5	40	10	13	24.5	4	31	3.5	33
GN 300.5-30-M5-50-*	30	M 5	50	10	13	24.5	4	31	3.5	34
GN 300.5-30-M6-12-*	30	M 6	12	10	13	24.5	4	31	3.5	30
GN 300.5-30-M6-16-*	30	M 6	16	10	13	24.5	4	31	3.5	31
GN 300.5-30-M6-20-*	30	M 6	20	10	13	24.5	4	31	3.5	32
GN 300.5-30-M6-25-*	30	M 6	25	10	13	24.5	4	31	3.5	33
GN 300.5-30-M6-32-*	30	M 6	32	10	13	24.5	4	31	3.5	34
GN 300.5-30-M6-40-*	30	M 6	40	10	13	24.5	4	31	3.5	35
GN 300.5-30-M6-50-*	30	M 6	50	10	13	24.5	4	31	3.5	36
GN 300.5-45-M4-12-*	45	M 4	12	10	13	24.5	4	34	3.5	35
GN 300.5-45-M4-16-*	45	M 4	16	10	13	24.5	4	34	3.5	36
GN 300.5-45-M4-20-*	45	M 4	20	10	13	24.5	4	34	3.5	37
GN 300.5-45-M4-25-*	45	M 4	25	10	13	24.5	4	34	3.5	38
GN 300.5-45-M4-32-*	45	M 4	32	10	13	24.5	4	34	3.5	39
GN 300.5-45-M5-12-*	45	M 5	12	10	13	24.5	4	34	3.5	39
GN 300.5-45-M5-16-*	45	M 5	16	10	13	24.5	4	34	3.5	40
GN 300.5-45-M5-20-*	45	M 5	20	10	13	24.5	4	34	3.5	40
GN 300.5-45-M5-25-*	45	M 5	25	10	13	24.5	4	34	3.5	40

Weight type AS

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GN 300.5 | Adjustable Stainless Steel-Hand levers

*Complete with types of the Hand levers (AS or IS)

AS External hexagon

IS Internal hexagon

GN 300.5-with threaded stud — **STAINLESS STEEL**

Description	l1	d1	l2	d3	d4	h1	h2	h3	h4	⚖
GN 300.5-45-M5-32-*	45	M 5	32	10	13	24.5	4	34	3.5	39
GN 300.5-45-M5-40-*	45	M 5	40	10	13	24.5	4	34	3.5	40
GN 300.5-45-M5-50-*	45	M 5	50	10	13	24.5	4	34	3.5	44
GN 300.5-45-M6-12-*	45	M 6	12	10	13	24.5	4	34	3.5	37
GN 300.5-45-M6-16-*	45	M 6	16	10	13	24.5	4	34	3.5	38
GN 300.5-45-M6-20-*	45	M 6	20	10	13	24.5	4	34	3.5	39
GN 300.5-45-M6-25-*	45	M 6	25	10	13	24.5	4	34	3.5	40
GN 300.5-45-M6-32-*	45	M 6	32	10	13	24.5	4	34	3.5	41
GN 300.5-45-M6-40-*	45	M 6	40	10	13	24.5	4	34	3.5	42
GN 300.5-45-M6-50-*	45	M 6	50	10	13	24.5	4	34	3.5	44
GN 300.5-63-M6-16-*	63	M 6	16	13.5	17.5	31	6.5	45	4	81
GN 300.5-63-M6-20-*	63	M 6	20	13.5	17.5	31	6.5	45	4	82
GN 300.5-63-M6-25-*	63	M 6	25	13.5	17.5	31	6.5	45	4	83
GN 300.5-63-M6-32-*	63	M 6	32	13.5	17.5	31	6.5	45	4	84
GN 300.5-63-M6-40-*	63	M 6	40	13.5	17.5	31	6.5	45	4	86
GN 300.5-63-M6-50-*	63	M 6	50	13.5	17.5	31	6.5	45	4	88
GN 300.5-63-M6-63-*	63	M 6	63	13.5	17.5	31	6.5	45	4	90
GN 300.5-63-M8-16-*	63	M 8	16	13.5	17.5	31	6.5	45	4	85
GN 300.5-63-M8-20-*	63	M 8	20	13.5	17.5	31	6.5	45	4	86
GN 300.5-63-M8-25-*	63	M 8	25	13.5	17.5	31	6.5	45	4	88
GN 300.5-63-M8-32-*	63	M 8	32	13.5	17.5	31	6.5	45	4	90
GN 300.5-63-M8-40-*	63	M 8	40	13.5	17.5	31	6.5	45	4	92
GN 300.5-63-M8-50-*	63	M 8	50	13.5	17.5	31	6.5	45	4	95
GN 300.5-63-M8-63-*	63	M 8	63	13.5	17.5	31	6.5	45	4	100
GN 300.5-78-M8-20-*	78	M 8	20	16	21	36	8	54	4	138
GN 300.5-78-M8-25-*	78	M 8	25	16	21	36	8	54	4	139
GN 300.5-78-M8-32-*	78	M 8	32	16	21	36	8	54	4	140
GN 300.5-78-M8-40-*	78	M 8	40	16	21	36	8	54	4	141
GN 300.5-78-M8-50-*	78	M 8	50	16	21	36	8	54	4	144
GN 300.5-78-M8-63-*	78	M 8	63	16	21	36	8	54	4	149
GN 300.5-78-M8-80-*	78	M 8	80	16	21	36	8	54	4	158
GN 300.5-78-M10-20-*	78	M 10	20	16	21	36	8	54	4	140
GN 300.5-78-M10-25-*	78	M 10	25	16	21	36	8	54	4	141
GN 300.5-78-M10-32-*	78	M 10	32	16	21	36	8	54	4	143
GN 300.5-78-M10-40-*	78	M 10	40	16	21	36	8	54	4	150
GN 300.5-78-M10-50-*	78	M 10	50	16	21	36	8	54	4	155
GN 300.5-78-M10-63-*	78	M 10	63	16	21	36	8	54	4	162
GN 300.5-78-M10-80-*	78	M 10	80	16	21	36	8	54	4	167
GN 300.5-92-M10-20-*	92	M 10	20	19	24	43	11	64	4	203
GN 300.5-92-M10-25-*	92	M 10	25	19	24	43	11	64	4	206
GN 300.5-92-M10-32-*	92	M 10	32	19	24	43	11	64	4	210
GN 300.5-92-M10-40-*	92	M 10	40	19	24	43	11	64	4	214
GN 300.5-92-M10-50-*	92	M 10	50	19	24	43	11	64	4	220
GN 300.5-92-M10-63-*	92	M 10	63	19	24	43	11	64	4	226
GN 300.5-92-M10-80-*	92	M 10	80	19	24	43	11	64	4	230
GN 300.5-92-M12-20-*	92	M 12	20	19	24	43	11	64	4	210
GN 300.5-92-M12-25-*	92	M 12	25	19	24	43	11	64	4	216
GN 300.5-92-M12-32-*	92	M 12	32	19	24	43	11	64	4	221
GN 300.5-92-M12-40-*	92	M 12	40	19	24	43	11	64	4	223
GN 300.5-92-M12-50-*	92	M 12	50	19	24	43	11	64	4	234
GN 300.5-92-M12-63-*	92	M 12	63	19	24	43	11	64	4	243
GN 300.5-92-M12-80-*	92	M 12	80	19	24	43	11	64	4	251

Weight type AS

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Adjustable Stainless Steel-Hand levers

electropolished



SPECIFICATION

Types

- Type **AS**: with external hexagon
- Type **IS**: with internal hexalobular

Handle
Stainless Steel
Precision casting

- Stainless Steel AISI CF-8
- electropolished

Version with threaded insert

Threaded bush
Stainless Steel AISI 303

Retaining screw
Stainless Steel AISI 303

Spring
Stainless Steel AISI 301

Version with threaded stud

Threaded stud
Stainless Steel AISI 303

Retaining screw
Stainless Steel AISI 303

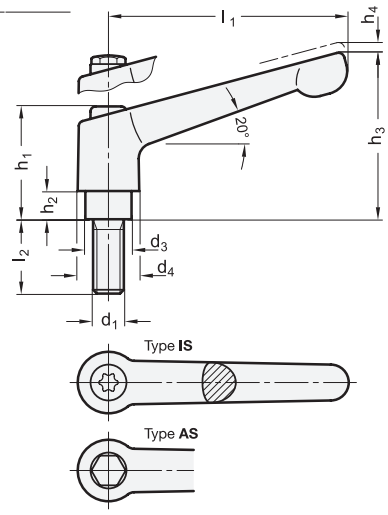
Spring
Stainless Steel AISI 301

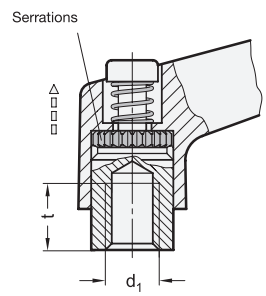
INFORMATION

Adjustable hand levers GN 300.6 with full Stainless Steel-Handle, correspond to applications where „agressive" surrounding conditions are given, or where stainless steel materials are prescribed such as in food processing or chemical industry.
Retaining screws with hexagon head (Type AS) comply with the requirement "prevents water from accumulating".
Adjustable hand levers have proved to be ideal whenever parts have to be clamped in a confined space or in a particular lever position. The centre insert is connected to the lever via serrations which can easily be disengaged.
Pulling the lever, disengages the serrations and allowing it to be swivelled to the ideal clamping position. On releasing the lever the serrations automatically re-engage.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)





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GN 300.6 | Adjustable Stainless Steel-Hand levers

*Complete with types of the Hand levers (AS or IS)

AS External hexagon

IS Internal hexagon

GN 300.6-with threaded insert

STAINLESS STEEL

Description	l1	d1	d3	d4	h1	h2	h3	h4	t min.	⚖
GN 300.6-30-M3-*	30	M 3	10	13	24.5	4	31	3.5	7	28
GN 300.6-30-M4-*	30	M 4	10	13	24.5	4	31	3.5	8	28
GN 300.6-30-M5-*	30	M 5	10	13	24.5	4	31	3.5	8	27
GN 300.6-30-M6-*	30	M 6	10	13	24.5	4	31	3.5	8	26
GN 300.6-45-M4-*	45	M 4	10	13	24.5	4	34	3.5	8	35
GN 300.6-45-M5-*	45	M 5	10	13	24.5	4	34	3.5	8	34
GN 300.6-45-M6-*	45	M 6	10	13	24.5	4	34	3.5	8	33
GN 300.6-63-M6-*	63	M 6	13.5	17.5	31	6.5	45	4	11	77
GN 300.6-63-M8-*	63	M 8	13.5	17.5	31	6.5	45	4	11	76
GN 300.6-78-M8-*	78	M 8	16	21	36	8	54	4	14	124
GN 300.6-78-M10-*	78	M 10	16	21	36	8	54	4	14	120
GN 300.6-92-M10-*	92	M 10	19	24	43	11	64	4	17	185
GN 300.6-92-M12-*	92	M 12	19	24	43	11	64	4	17	179

GN 300.6-with threaded stud

STAINLESS STEEL

Description	l1	d1	l2	d3	d4	h1	h2	h3	h4	⚖
GN 300.6-30-M3-6-*	30	M 3	6	10	13	24.5	4	31	3.5	28
GN 300.6-30-M3-8-*	30	M 3	8	10	13	24.5	4	31	3.5	28
GN 300.6-30-M3-10-*	30	M 3	10	10	13	24.5	4	31	3.5	30
GN 300.6-30-M3-12-*	30	M 3	12	10	13	24.5	4	31	3.5	31
GN 300.6-30-M3-16-*	30	M 3	16	10	13	24.5	4	31	3.5	103
GN 300.6-30-M4-12-*	30	M 4	12	10	13	24.5	4	31	3.5	29
GN 300.6-30-M4-16-*	30	M 4	16	10	13	24.5	4	31	3.5	30
GN 300.6-30-M4-20-*	30	M 4	20	10	13	24.5	4	31	3.5	30
GN 300.6-30-M4-25-*	30	M 4	25	10	13	24.5	4	31	3.5	31
GN 300.6-30-M4-32-*	30	M 4	32	10	13	24.5	4	31	3.5	32
GN 300.6-30-M5-12-*	30	M 5	12	10	13	24.5	4	31	3.5	30
GN 300.6-30-M5-16-*	30	M 5	16	10	13	24.5	4	31	3.5	30
GN 300.6-30-M5-20-*	30	M 5	20	10	13	24.5	4	31	3.5	31
GN 300.6-30-M5-25-*	30	M 5	25	10	13	24.5	4	31	3.5	31
GN 300.6-30-M5-32-*	30	M 5	32	10	13	24.5	4	31	3.5	32
GN 300.6-30-M5-40-*	30	M 5	40	10	13	24.5	4	31	3.5	33
GN 300.6-30-M5-50-*	30	M 5	50	10	13	24.5	4	31	3.5	34
GN 300.6-30-M6-12-*	30	M 6	12	10	13	24.5	4	31	3.5	30
GN 300.6-30-M6-16-*	30	M 6	16	10	13	24.5	4	31	3.5	31
GN 300.6-30-M6-20-*	30	M 6	20	10	13	24.5	4	31	3.5	32
GN 300.6-30-M6-25-*	30	M 6	25	10	13	24.5	4	31	3.5	33
GN 300.6-30-M6-32-*	30	M 6	32	10	13	24.5	4	31	3.5	34
GN 300.6-30-M6-40-*	30	M 6	40	10	13	24.5	4	31	3.5	35
GN 300.6-30-M6-50-*	30	M 6	50	10	13	24.5	4	31	3.5	36
GN 300.6-45-M4-12-*	45	M 4	12	10	13	24.5	4	34	3.5	39
GN 300.6-45-M4-16-*	45	M 4	16	10	13	24.5	4	34	3.5	36
GN 300.6-45-M4-20-*	45	M 4	20	10	13	24.5	4	34	3.5	37
GN 300.6-45-M4-25-*	45	M 4	25	10	13	24.5	4	34	3.5	38
GN 300.6-45-M4-32-*	45	M 4	32	10	13	24.5	4	34	3.5	40
GN 300.6-45-M5-12-*	45	M 5	12	10	13	24.5	4	34	3.5	36
GN 300.6-45-M5-16-*	45	M 5	16	10	13	24.5	4	34	3.5	40
GN 300.6-45-M5-20-*	45	M 5	20	10	13	24.5	4	34	3.5	40
GN 300.6-45-M5-25-*	45	M 5	25	10	13	24.5	4	34	3.5	40

Weight type AS

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GN 300.6 | Adjustable Stainless Steel-Hand levers

*Complete with types of the Hand levers (AS or IS)

AS External hexagon

IS Internal hexagon

GN 300.6-with threaded stud

STAINLESS STEEL

Description	l1	d1	l2	d3	d4	h1	h2	h3	h4	⚖
GN 300.6-45-M5-32-*	45	M 5	32	10	13	24.5	4	34	3.5	39
GN 300.6-45-M5-40-*	45	M 5	40	10	13	24.5	4	34	3.5	40
GN 300.6-45-M5-50-*	45	M 5	50	10	13	24.5	4	34	3.5	44
GN 300.6-45-M6-12-*	45	M 6	12	10	13	24.5	4	34	3.5	37
GN 300.6-45-M6-16-*	45	M 6	16	10	13	24.5	4	34	3.5	38
GN 300.6-45-M6-20-*	45	M 6	20	10	13	24.5	4	34	3.5	39
GN 300.6-45-M6-25-*	45	M 6	25	10	13	24.5	4	34	3.5	40
GN 300.6-45-M6-32-*	45	M 6	32	10	13	24.5	4	34	3.5	41
GN 300.6-45-M6-40-*	45	M 6	40	10	13	24.5	4	34	3.5	42
GN 300.6-45-M6-50-*	45	M 6	50	10	13	24.5	4	34	3.5	44
GN 300.6-63-M6-16-*	63	M 6	16	13.5	17.5	31	6.5	45	4	81
GN 300.6-63-M6-20-*	63	M 6	20	13.5	17.5	31	6.5	45	4	82
GN 300.6-63-M6-25-*	63	M 6	25	13.5	17.5	31	6.5	45	4	83
GN 300.6-63-M6-32-*	63	M 6	32	13.5	17.5	31	6.5	45	4	84
GN 300.6-63-M6-40-*	63	M 6	40	13.5	17.5	31	6.5	45	4	80
GN 300.6-63-M6-50-*	63	M 6	50	13.5	17.5	31	6.5	45	4	88
GN 300.6-63-M6-63-*	63	M 6	63	13.5	17.5	31	6.5	45	4	90
GN 300.6-63-M8-16-*	63	M 8	16	13.5	17.5	31	6.5	45	4	85
GN 300.6-63-M8-20-*	63	M 8	20	13.5	17.5	31	6.5	45	4	86
GN 300.6-63-M8-25-*	63	M 8	25	13.5	17.5	31	6.5	45	4	88
GN 300.6-63-M8-32-*	63	M 8	32	13.5	17.5	31	6.5	45	4	90
GN 300.6-63-M8-40-*	63	M 8	40	13.5	17.5	31	6.5	45	4	92
GN 300.6-63-M8-50-*	63	M 8	50	13.5	17.5	31	6.5	45	4	95
GN 300.6-63-M8-63-*	63	M 8	63	13.5	17.5	31	6.5	45	4	100
GN 300.6-78-M8-20-*	78	M 8	20	16	21	36	8	54	4	138
GN 300.6-78-M8-25-*	78	M 8	25	16	21	36	8	54	4	139
GN 300.6-78-M8-32-*	78	M 8	32	16	21	36	8	54	4	140
GN 300.6-78-M8-40-*	78	M 8	40	16	21	36	8	54	4	141
GN 300.6-78-M8-50-*	78	M 8	50	16	21	36	8	54	4	144
GN 300.6-78-M8-63-*	78	M 8	63	16	21	36	8	54	4	149
GN 300.6-78-M8-80-*	78	M 8	80	16	21	36	8	54	4	158
GN 300.6-78-M10-20-*	78	M 10	20	16	21	36	8	54	4	140
GN 300.6-78-M10-25-*	78	M 10	25	16	21	36	8	54	4	141
GN 300.6-78-M10-32-*	78	M 10	32	16	21	36	8	54	4	143
GN 300.6-78-M10-40-*	78	M 10	40	16	21	36	8	54	4	150
GN 300.6-78-M10-50-*	78	M 10	50	16	21	36	8	54	4	155
GN 300.6-78-M10-63-*	78	M 10	63	16	21	36	8	54	4	162
GN 300.6-78-M10-80-*	78	M 10	80	16	21	36	8	54	4	167
GN 300.6-92-M10-20-*	92	M 10	20	19	24	43	11	64	4	203
GN 300.6-92-M10-25-*	92	M 10	25	19	24	43	11	64	4	206
GN 300.6-92-M10-32-*	92	M 10	32	19	24	43	11	64	4	210
GN 300.6-92-M10-40-*	92	M 10	40	19	24	43	11	64	4	214
GN 300.6-92-M10-50-*	92	M 10	50	19	24	43	11	64	4	220
GN 300.6-92-M10-63-*	92	M 10	63	19	24	43	11	64	4	226
GN 300.6-92-M10-80-*	92	M 10	80	19	24	43	11	64	4	230
GN 300.6-92-M12-20-*	92	M 12	20	19	24	43	11	64	4	210
GN 300.6-92-M12-25-*	92	M 12	25	19	24	43	11	64	4	216
GN 300.6-92-M12-32-*	92	M 12	32	19	24	43	11	64	4	221
GN 300.6-92-M12-40-*	92	M 12	40	19	24	43	11	64	4	223
GN 300.6-92-M12-50-*	92	M 12	50	19	24	43	11	64	4	234
GN 300.6-92-M12-63-*	92	M 12	63	19	24	43	11	64	4	243
GN 300.6-92-M12-80-*	92	M 12	80	19	24	43	11	64	4	251

Weight type AS

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GN 300.4

Adjustable hand levers

Zinc die casting / with increased clamping force

SPECIFICATION

Handle
Zinc die casting

plastic coated
black, RAL 9005, textured finish **SW**
black, RAL 9011, silk finish **SZ**
orange, RAL 2004, textured finish **OS**
red, RAL 3000, textured finish **RS**
silver, RAL 9006, textured finish **SR**

chrome-plated **CR**

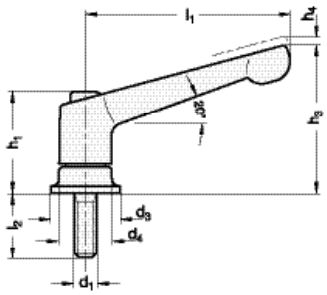
Version with threaded insert
Steel, tensile strength class 5.8
nitrided, blackened

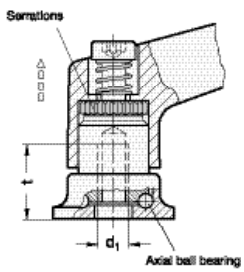
Retaining screw
Steel, blackend

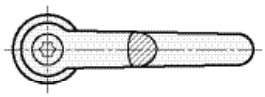
Version with threaded stud
Steel, tensile strength class 5.8
nitrided, blackened

Retaining screw
Steel, blackened









INFORMATION

Adjustable hand levers GN 300.4 are produced with a clamping area which is linked via a thrust ball bearing to the bush and screw respectively of the clamping lever. This has led to the following advantages:
- **Doubled** clamping force through vastly reduced friction.
- There is no movement on the contact area between adjustable hand lever and component which greatly reduces any marking on the clamping area
- In addition a reduced creep factor has been achieved by the increased preload.

* Complete with colour index of the clamping lever body (SW, SZ, OS, RS, SR or CR)

SW	SZ	OS	RS	SR	CR
RAL9005	RAL9011	RAL2004	RAL3000	RAL9006	chrome-plated

GN 300.4-with threaded insert

Description	l1	d1	d3	d4	h1	h3	h4	t min.	⚖
GN 300.4-63-M6-*	63	M 6	24	17.5	34.5	48.5	4	12.5	95
GN 300.4-78-M8-*	78	M 8	25	21	39.5	58.5	4	14	140
GN 300.4-92-M10-*	92	M 10	30	24	46.5	68.5	4	18	216
GN 300.4-108-M12-*	108	M 12	35	30	56.5	82	5	26.5	356

GN 300.4-with threaded stud

Description	l1	d1	l2	d3	d4	h1	h3	h4	⚖
GN 300.4-63-M6-20-*	63	M 6	20	24	17.5	34.5	48.5	4	100
GN 300.4-63-M6-27-*	63	M 6	27	24	17.5	34.5	48.5	4	103
GN 300.4-78-M8-21-*	78	M 8	21	25	21	39.5	58.5	4	160
GN 300.4-78-M8-36-*	78	M 8	36	25	21	39.5	58.5	4	170
GN 300.4-92-M10-29-*	92	M 10	29	30	24	46.5	68.5	4	220
GN 300.4-92-M10-47-*	92	M 10	47	30	24	46.5	68.5	4	223
GN 300.4-108-M12-34-*	108	M 12	34	35	30	56.5	82	5	218
GN 300.4-108-M12-50-*	108	M 12	50	35	30	56.5	82	5	382
GN 300.4-108-M12-57-*	108	M 12	57	35	30	56.5	82	5	389
GN 300.4-108-M12-65-*	108	M 12	65	35	30	56.5	82	5	397
GN 300.4-108-M12-85-*	108	M 12	85	35	30	56.5	82	5	417

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Adjustable hand levers

with push button / Zinc die casting, Bushing / Threaded bolt Steel



SPECIFICATION

Handle
Zinc die casting

plastic coated
black, RAL 9005
textured finish **SW**

Releasing button
Plastic
black, RAL 9005 **S**
orange, RAL 2004 **O**
grey, RAL 7035 **G**

Pin for releasing button
Stainless Steel

Version with threaded insert

Steel, blackened

Version with threaded stud

Steel, blackened

ON REQUEST

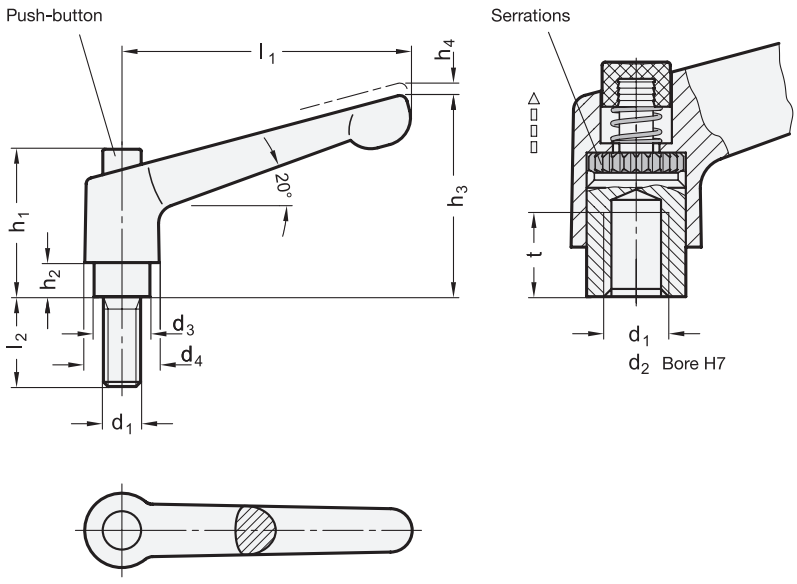
Adjustable hand levers GN 303 are ideal whenever parts have to be clamped in a confined space or in a particular lever position. The centre insert is connected to the lever via serrations which can easily be dis-engaged.
The releasing button is a design element that offers an easy disengagement. Its use is limited to applications where dismantling of the lever for installation is not required.

ON REQUEST

- Handle in colours of GN 300 (see page 320)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)



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GN 303 | Adjustable hand levers

* Complete with colour index of the Push button (S, O or G)

S RAL9005 | O RAL2004 | G RAL 7035

GN 303-with threaded insert

Description	l1	d1	d2 H7	d3	d4	h1	h2	h3	h4	t min.	⚖
GN 303-30-B5-SW-*	30	-	B 5	10	13	26.5	4	31	3.5	9	26
GN 303-30-B6-SW-*	30	-	B 6	10	13	26.5	4	31	3.5	9	26
GN 303-30-M3-SW-*	30	M 3	-	10	13	26.5	4	31	3.5	7	26
GN 303-30-M4-SW-*	30	M 4	-	10	13	26.5	4	31	3.5	9	26
GN 303-30-M5-SW-*	30	M 5	-	10	13	26.5	4	31	3.5	9	26
GN 303-30-M6-SW-*	30	M 6	-	10	13	26.5	4	31	3.5	9	25
GN 303-45-B5-SW-*	45	-	B 5	10	13	26.5	4	35	3.5	9	32
GN 303-45-B6-SW-*	45	-	B 6	10	13	26.5	4	35	3.5	9	32
GN 303-45-M4-SW-*	45	M 4	-	10	13	26.5	4	35	3.5	9	32
GN 303-45-M5-SW-*	45	M 5	-	10	13	26.5	4	35	3.5	9	32
GN 303-45-M6-SW-*	45	M 6	-	10	13	26.5	4	35	3.5	9	32
GN 303-63-B8-SW-*	63	-	B 8	13.5	17.5	32.5	6.5	45	4	11	72
GN 303-63-M6-SW-*	63	M 6	-	13.5	17.5	32.5	6.5	45	4	11	75
GN 303-63-M8-SW-*	63	M 8	-	13.5	17.5	32.5	6.5	45	4	11	72
GN 303-78-B8-SW-*	78	-	B 8	16	21	37.5	8	55	4	14	119
GN 303-78-B10-SW-*	78	-	B 10	16	21	37.5	8	55	4	14	115
GN 303-78-M8-SW-*	78	M 8	-	16	21	37.5	8	55	4	14	120
GN 303-78-M10-SW-*	78	M 10	-	16	21	37.5	8	55	4	14	118

GN 303-with threaded stud

Description	l1	d1	l2	d3	d4	h1	h2	h3	h4	⚖
GN 303-30-M3-6-SW-*	30	M 3	6	10	13	26.5	4	31	3.5	27
GN 303-30-M3-8-SW-*	30	M 3	8	10	13	26.5	4	31	3.5	27
GN 303-30-M3-10-SW-*	30	M 3	10	10	13	26.5	4	31	3.5	27
GN 303-30-M3-12-SW-*	30	M 3	12	10	13	26.5	4	31	3.5	28
GN 303-30-M3-16-SW-*	30	M 3	16	10	13	26.5	4	31	3.5	28
GN 303-30-M4-12-SW-*	30	M 4	12	10	13	26.5	4	31	3.5	28
GN 303-30-M4-16-SW-*	30	M 4	16	10	13	26.5	4	31	3.5	28
GN 303-30-M4-20-SW-*	30	M 4	20	10	13	26.5	4	31	3.5	28
GN 303-30-M4-25-SW-*	30	M 4	25	10	13	26.5	4	31	3.5	29
GN 303-30-M4-32-SW-*	30	M 4	32	10	13	26.5	4	31	3.5	29
GN 303-30-M5-12-SW-*	30	M 5	12	10	13	26.5	4	31	3.5	29
GN 303-30-M5-16-SW-*	30	M 5	16	10	13	26.5	4	31	3.5	29
GN 303-30-M5-20-SW-*	30	M 5	20	10	13	26.5	4	31	3.5	29
GN 303-30-M5-25-SW-*	30	M 5	25	10	13	26.5	4	31	3.5	30
GN 303-30-M5-32-SW-*	30	M 5	32	10	13	26.5	4	31	3.5	31
GN 303-30-M5-40-SW-*	30	M 5	40	10	13	26.5	4	31	3.5	33
GN 303-30-M5-50-SW-*	30	M 5	50	10	13	26.5	4	31	3.5	33
GN 303-30-M6-12-SW-*	30	M 6	12	10	13	26.5	4	31	3.5	37
GN 303-30-M6-16-SW-*	30	M 6	16	10	13	26.5	4	31	3.5	38
GN 303-30-M6-20-SW-*	30	M 6	20	10	13	26.5	4	31	3.5	39
GN 303-30-M6-25-SW-*	30	M 6	25	10	13	26.5	4	31	3.5	40
GN 303-30-M6-32-SW-*	30	M 6	32	10	13	26.5	4	31	3.5	41
GN 303-30-M6-40-SW-*	30	M 6	40	10	13	26.5	4	31	3.5	42
GN 303-30-M6-50-SW-*	30	M 6	50	10	13	26.5	4	31	3.5	42
GN 303-45-M4-12-SW-*	45	M 4	12	10	13	26.5	4	35	3.5	35
GN 303-45-M4-16-SW-*	45	M 4	16	10	13	26.5	4	35	3.5	35
GN 303-45-M4-20-SW-*	45	M 4	20	10	13	26.5	4	35	3.5	35
GN 303-45-M4-25-SW-*	45	M 4	25	10	13	26.5	4	35	3.5	36
GN 303-45-M4-32-SW-*	45	M 4	32	10	13	26.5	4	35	3.5	36
GN 303-45-M5-12-SW-*	45	M 5	12	10	13	26.5	4	35	3.5	35
GN 303-45-M5-16-SW-*	45	M 5	16	10	13	26.5	4	35	3.5	36
GN 303-45-M5-20-SW-*	45	M 5	20	10	13	26.5	4	35	3.5	36
GN 303-45-M5-25-SW-*	45	M 5	25	10	13	26.5	4	35	3.5	37

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GN 303

Adjustable hand levers

* Complete with colour index of the Push button (S, O or G)

S RAL9005 | O RAL2004 | G RAL 7035

GN 303-with threaded stud

Description	l1	d1	l2	d3	d4	h1	h2	h3	h4	⚖
GN 303-45-M5-32-SW-*	45	M 5	32	10	13	26.5	4	35	3.5	38
GN 303-45-M5-40-SW-*	45	M 5	40	10	13	26.5	4	35	3.5	39
GN 303-45-M5-50-SW-*	45	M 5	50	10	13	26.5	4	35	3.5	40
GN 303-45-M6-12-SW-*	45	M 6	12	10	13	26.5	4	35	3.5	36
GN 303-45-M6-16-SW-*	45	M 6	16	10	13	26.5	4	35	3.5	37
GN 303-45-M6-20-SW-*	45	M 6	20	10	13	26.5	4	35	3.5	37
GN 303-45-M6-25-SW-*	45	M 6	25	10	13	26.5	4	35	3.5	38
GN 303-45-M6-32-SW-*	45	M 6	32	10	13	26.5	4	35	3.5	40
GN 303-45-M6-40-SW-*	45	M 6	40	10	13	26.5	4	35	3.5	41
GN 303-45-M6-50-SW-*	45	M 6	50	10	13	26.5	4	35	3.5	42
GN 303-63-M6-12-SW-*	63	M 6	12	13.5	17.5	32.5	6.5	45	4	80
GN 303-63-M6-16-SW-*	63	M 6	16	13.5	17.5	32.5	6.5	45	4	80
GN 303-63-M6-20-SW-*	63	M 6	20	13.5	17.5	32.5	6.5	45	4	80
GN 303-63-M6-25-SW-*	63	M 6	25	13.5	17.5	32.5	6.5	45	4	82
GN 303-63-M6-32-SW-*	63	M 6	32	13.5	17.5	32.5	6.5	45	4	82
GN 303-63-M6-40-SW-*	63	M 6	40	13.5	17.5	32.5	6.5	45	4	84
GN 303-63-M6-50-SW-*	63	M 6	50	13.5	17.5	32.5	6.5	45	4	85
GN 303-63-M6-63-SW-*	63	M 6	63	13.5	17.5	32.5	6.5	45	4	87
GN 303-63-M8-12-SW-*	63	M 8	12	13.5	17.5	32.5	6.5	45	4	81
GN 303-63-M8-16-SW-*	63	M 8	16	13.5	17.5	32.5	6.5	45	4	82
GN 303-63-M8-20-SW-*	63	M 8	20	13.5	17.5	32.5	6.5	45	4	75
GN 303-63-M8-25-SW-*	63	M 8	25	13.5	17.5	32.5	6.5	45	4	85
GN 303-63-M8-32-SW-*	63	M 8	32	13.5	17.5	32.5	6.5	45	4	87
GN 303-63-M8-40-SW-*	63	M 8	40	13.5	17.5	32.5	6.5	45	4	89
GN 303-63-M8-50-SW-*	63	M 8	50	13.5	17.5	32.5	6.5	45	4	93
GN 303-63-M8-63-SW-*	63	M 8	63	13.5	17.5	32.5	6.5	45	4	96
GN 303-63-M10-20-SW-*	63	M 10	20	13.5	17.5	32.5	6.5	45	4	87
GN 303-63-M10-25-SW-*	63	M 10	25	13.5	17.5	32.5	6.5	45	4	89
GN 303-63-M10-32-SW-*	63	M 10	32	13.5	17.5	32.5	6.5	45	4	92
GN 303-63-M10-40-SW-*	63	M 10	40	13.5	17.5	32.5	6.5	45	4	97
GN 303-63-M10-50-SW-*	63	M 10	50	13.5	17.5	32.5	6.5	45	4	102
GN 303-63-M10-63-SW-*	63	M 10	63	13.5	17.5	32.5	6.5	45	4	108
GN 303-63-M10-80-SW-*	63	M 10	80	13.5	17.5	32.5	6.5	45	4	117
GN 303-78-M8-16-SW-*	78	M 8	16	16	21	37.5	8	55	4	122
GN 303-78-M8-20-SW-*	78	M 8	20	16	21	37.5	8	55	4	122
GN 303-78-M8-25-SW-*	78	M 8	25	16	21	37.5	8	55	4	124
GN 303-78-M8-32-SW-*	78	M 8	32	16	21	37.5	8	55	4	127
GN 303-78-M8-40-SW-*	78	M 8	40	16	21	37.5	8	55	4	131
GN 303-78-M8-50-SW-*	78	M 8	50	16	21	37.5	8	55	4	134
GN 303-78-M8-63-SW-*	78	M 8	63	16	21	37.5	8	55	4	140
GN 303-78-M8-80-SW-*	78	M 8	80	16	21	37.5	8	55	4	143
GN 303-78-M10-16-SW-*	78	M 10	16	16	21	37.5	8	55	4	133
GN 303-78-M10-20-SW-*	78	M 10	20	16	21	37.5	8	55	4	135
GN 303-78-M10-25-SW-*	78	M 10	25	16	21	37.5	8	55	4	138
GN 303-78-M10-32-SW-*	78	M 10	32	16	21	37.5	8	55	4	141
GN 303-78-M10-40-SW-*	78	M 10	40	16	21	37.5	8	55	4	152
GN 303-78-M10-50-SW-*	78	M 10	50	16	21	37.5	8	55	4	152
GN 303-78-M10-63-SW-*	78	M 10	63	16	21	37.5	8	55	4	158
GN 303-78-M10-80-SW-*	78	M 10	80	16	21	37.5	8	55	4	166
GN 303-78-M12-25-SW-*	78	M 12	25	16	21	37.5	8	55	4	143
GN 303-78-M12-32-SW-*	78	M 12	32	16	21	37.5	8	55	4	148
GN 303-78-M12-40-SW-*	78	M 12	40	16	21	37.5	8	55	4	155
GN 303-78-M12-50-SW-*	78	M 12	50	16	21	37.5	8	55	4	169
GN 303-78-M12-63-SW-*	78	M 12	63	16	21	37.5	8	55	4	171
GN 303-78-M12-80-SW-*	78	M 12	80	16	21	37.5	8	55	4	174

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GN 303.1

Adjustable hand levers

with push button/ Zinc die casting, Bushing / Threaded bolt Stainless Steel



SPECIFICATION

Handle
Zinc die casting

plastic coated
black, RAL 9005, textured finish **SW**

Releasing button
Plastic
black, RAL 9005 **S**
orange, RAL 2004 **O**
grey, RAL 7035 **G**

Pin for releasing button
Stainless Steel

Version with threaded insert

Stainless Steel AISI 303

Version with threaded stud

Stainless Steel AISI 303

INFORMATION

Adjustable hand levers GN 303.1 are ideal whenever parts have to be clamped in a confined space or in a particular lever position. The centre insert is connected to the lever via serrations which can easily be dis-engaged.
The releasing button is a design element that offers an easy disengagement. Its use is limited to applications where dismantling of the lever for installation is not required.

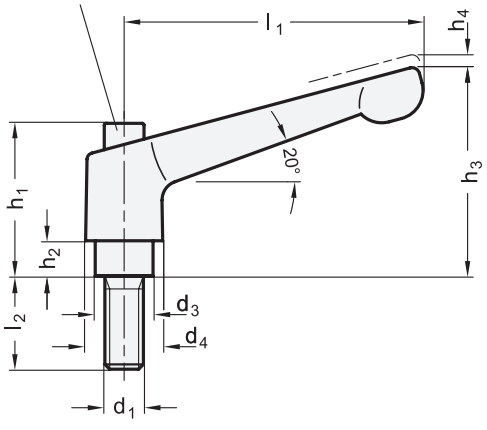
ON REQUEST

- Handle in colours of GN 300 (see page 320)

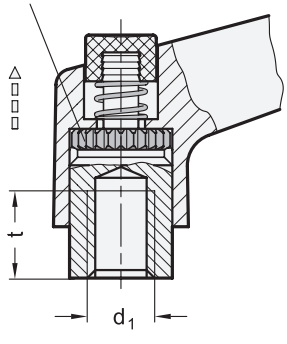
TECHNICAL INFORMATION

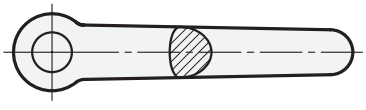
- ISO-Fundamental Tolerances (see page A21)

Push-button



Serrations





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* Complete with colour index of the Push button (S, O or G)

S RAL9005 | O RAL2004 | G RAL 7035

GN 303.1-with threaded insert

Description	l1	d1	d3	d4	h1	h2	h3	h4	t min.	⚖
GN 303.1-30-M3-SW-*	30	M 3	10	13	26.5	4	31	3.5	7	30
GN 303.1-30-M4-SW-*	30	M 4	10	13	26.5	4	31	3.5	8	26
GN 303.1-30-M5-SW-*	30	M 5	10	13	26.5	4	31	3.5	8	20
GN 303.1-30-M6-SW-*	30	M 6	10	13	26.5	4	31	3.5	8	20
GN 303.1-45-M4-SW-*	45	M 4	10	13	26.5	4	35	3.5	8	38
GN 303.1-45-M5-SW-*	45	M 5	10	13	26.5	4	35	3.5	8	36
GN 303.1-45-M6-SW-*	45	M 6	10	13	26.5	4	35	3.5	8	34
GN 303.1-63-M6-SW-*	63	M 6	13.5	17.5	32.5	6.5	45	4	11	80
GN 303.1-63-M8-SW-*	63	M 8	13.5	17.5	32.5	6.5	45	4	11	73
GN 303.1-78-M8-SW-*	78	M 8	16	21	37.5	8	55	4	14	120
GN 303.1-78-M10-SW-*	78	M 10	16	21	37.5	8	55	4	14	110

GN 303.1-with threaded stud

Description	l1	d1	l2	d3	d4	h1	h2	h3	h4	⚖
GN 303.1-30-M3-6-SW-*	30	M 3	6	10	13	26.5	4	31	3.5	106
GN 303.1-30-M3-8-SW-*	30	M 3	8	10	13	26.5	4	31	3.5	104
GN 303.1-30-M3-10-SW-*	30	M 3	10	10	13	26.5	4	31	3.5	102
GN 303.1-30-M3-12-SW-*	30	M 3	12	10	13	26.5	4	31	3.5	102
GN 303.1-30-M3-16-SW-*	30	M 3	16	10	13	26.5	4	31	3.5	102
GN 303.1-30-M4-12-SW-*	30	M 4	12	10	13	26.5	4	31	3.5	30
GN 303.1-30-M4-16-SW-*	30	M 4	16	10	13	26.5	4	31	3.5	28
GN 303.1-30-M4-20-SW-*	30	M 4	20	10	13	26.5	4	31	3.5	28
GN 303.1-30-M4-25-SW-*	30	M 4	25	10	13	26.5	4	31	3.5	28
GN 303.1-30-M4-32-SW-*	30	M 4	32	10	13	26.5	4	31	3.5	28
GN 303.1-30-M5-12-SW-*	30	M 5	12	10	13	26.5	4	31	3.5	30
GN 303.1-30-M5-16-SW-*	30	M 5	16	10	13	26.5	4	31	3.5	32
GN 303.1-30-M5-20-SW-*	30	M 5	20	10	13	26.5	4	31	3.5	32
GN 303.1-30-M5-25-SW-*	30	M 5	25	10	13	26.5	4	31	3.5	33
GN 303.1-30-M5-32-SW-*	30	M 5	32	10	13	26.5	4	31	3.5	33
GN 303.1-30-M5-40-SW-*	30	M 5	40	10	13	26.5	4	31	3.5	35
GN 303.1-30-M5-50-SW-*	30	M 5	50	10	13	26.5	4	31	3.5	35
GN 303.1-30-M6-12-SW-*	30	M 6	12	10	13	26.5	4	31	3.5	20
GN 303.1-30-M6-16-SW-*	30	M 6	16	10	13	26.5	4	31	3.5	30
GN 303.1-30-M6-20-SW-*	30	M 6	20	10	13	26.5	4	31	3.5	30
GN 303.1-30-M6-25-SW-*	30	M 6	25	10	13	26.5	4	31	3.5	34
GN 303.1-30-M6-32-SW-*	30	M 6	32	10	13	26.5	4	31	3.5	34
GN 303.1-30-M6-40-SW-*	30	M 6	40	10	13	26.5	4	31	3.5	37
GN 303.1-30-M6-50-SW-*	30	M 6	50	10	13	26.5	4	31	3.5	40
GN 303.1-45-M4-12-SW-*	45	M 4	12	10	13	26.5	4	35	3.5	39
GN 303.1-45-M4-16-SW-*	45	M 4	16	10	13	26.5	4	35	3.5	39
GN 303.1-45-M4-20-SW-*	45	M 4	20	10	13	26.5	4	35	3.5	39
GN 303.1-45-M4-25-SW-*	45	M 4	25	10	13	26.5	4	35	3.5	40
GN 303.1-45-M4-32-SW-*	45	M 4	32	10	13	26.5	4	35	3.5	40
GN 303.1-45-M5-12-SW-*	45	M 5	12	10	13	26.5	4	35	3.5	36
GN 303.1-45-M5-16-SW-*	45	M 5	16	10	13	26.5	4	35	3.5	40

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GN 303.1 | Adjustable hand levers

* Complete with colour index of the Push button (S, O or G)

S RAL9005 O RAL2004 G RAL 7035

GN 303.1-with threaded stud

Description	l1	d1	l2	d3	d4	h1	h2	h3	h4	⚖
GN 303.1-45-M5-20-SW-*	45	M 5	20	10	13	26.5	4	35	3.5	40
GN 303.1-45-M5-25-SW-*	45	M 5	25	10	13	26.5	4	35	3.5	40
GN 303.1-45-M5-32-SW-*	45	M 5	32	10	13	26.5	4	35	3.5	40
GN 303.1-45-M5-40-SW-*	45	M 5	40	10	13	26.5	4	35	3.5	40
GN 303.1-45-M5-50-SW-*	45	M 5	50	10	13	26.5	4	35	3.5	40
GN 303.1-45-M6-12-SW-*	45	M 6	12	10	13	26.5	4	35	3.5	40
GN 303.1-45-M6-16-SW-*	45	M 6	16	10	13	26.5	4	35	3.5	40
GN 303.1-45-M6-20-SW-*	45	M 6	20	10	13	26.5	4	35	3.5	40
GN 303.1-45-M6-25-SW-*	45	M 6	25	10	13	26.5	4	35	3.5	40
GN 303.1-45-M6-32-SW-*	45	M 6	32	10	13	26.5	4	35	3.5	40
GN 303.1-45-M6-40-SW-*	45	M 6	40	10	13	26.5	4	35	3.5	40
GN 303.1-45-M6-50-SW-*	45	M 6	50	10	13	26.5	4	35	3.5	43
GN 303.1-63-M6-12-SW-*	63	M 6	12	13.5	17.5	32.5	6.5	45	4	83
GN 303.1-63-M6-16-SW-*	63	M 6	16	13.5	17.5	32.5	6.5	45	4	84
GN 303.1-63-M6-20-SW-*	63	M 6	20	13.5	17.5	32.5	6.5	45	4	84
GN 303.1-63-M6-25-SW-*	63	M 6	25	13.5	17.5	32.5	6.5	45	4	86
GN 303.1-63-M6-32-SW-*	63	M 6	32	13.5	17.5	32.5	6.5	45	4	87
GN 303.1-63-M6-40-SW-*	63	M 6	40	13.5	17.5	32.5	6.5	45	4	89
GN 303.1-63-M6-50-SW-*	63	M 6	50	13.5	17.5	32.5	6.5	45	4	90
GN 303.1-63-M6-63-SW-*	63	M 6	63	13.5	17.5	32.5	6.5	45	4	92
GN 303.1-63-M8-12-SW-*	63	M 8	12	13.5	17.5	32.5	6.5	45	4	80
GN 303.1-63-M8-16-SW-*	63	M 8	16	13.5	17.5	32.5	6.5	45	4	80
GN 303.1-63-M8-20-SW-*	63	M 8	20	13.5	17.5	32.5	6.5	45	4	80
GN 303.1-63-M8-25-SW-*	63	M 8	25	13.5	17.5	32.5	6.5	45	4	80
GN 303.1-63-M8-32-SW-*	63	M 8	32	13.5	17.5	32.5	6.5	45	4	80
GN 303.1-63-M8-40-SW-*	63	M 8	40	13.5	17.5	32.5	6.5	45	4	90
GN 303.1-63-M8-50-SW-*	63	M 8	50	13.5	17.5	32.5	6.5	45	4	100
GN 303.1-63-M8-63-SW-*	63	M 8	63	13.5	17.5	32.5	6.5	45	4	100
GN 303.1-63-M10-20-SW-*	63	M 10	20	13.5	17.5	32.5	6.5	45	4	90
GN 303.1-63-M10-25-SW-*	63	M 10	25	13.5	17.5	32.5	6.5	45	4	100
GN 303.1-63-M10-32-SW-*	63	M 10	32	13.5	17.5	32.5	6.5	45	4	100
GN 303.1-63-M10-40-SW-*	63	M 10	40	13.5	17.5	32.5	6.5	45	4	100
GN 303.1-63-M10-50-SW-*	63	M 10	50	13.5	17.5	32.5	6.5	45	4	110
GN 303.1-63-M10-63-SW-*	63	M 10	63	13.5	17.5	32.5	6.5	45	4	117
GN 303.1-78-M8-16-SW-*	78	M 8	16	16	21	37.5	8	55	4	140
GN 303.1-78-M8-20-SW-*	78	M 8	20	16	21	37.5	8	55	4	140
GN 303.1-78-M8-25-SW-*	78	M 8	25	16	21	37.5	8	55	4	140
GN 303.1-78-M8-32-SW-*	78	M 8	32	16	21	37.5	8	55	4	140
GN 303.1-78-M8-40-SW-*	78	M 8	40	16	21	37.5	8	55	4	140
GN 303.1-78-M8-50-SW-*	78	M 8	50	16	21	37.5	8	55	4	150
GN 303.1-78-M8-63-SW-*	78	M 8	63	16	21	37.5	8	55	4	150
GN 303.1-78-M8-80-SW-*	78	M 8	80	16	21	37.5	8	55	4	160
GN 303.1-78-M10-16-SW-*	78	M 10	16	16	21	37.5	8	55	4	128
GN 303.1-78-M10-20-SW-*	78	M 10	20	16	21	37.5	8	55	4	130
GN 303.1-78-M10-25-SW-*	78	M 10	25	16	21	37.5	8	55	4	132
GN 303.1-78-M10-32-SW-*	78	M 10	32	16	21	37.5	8	55	4	142
GN 303.1-78-M10-40-SW-*	78	M 10	40	16	21	37.5	8	55	4	140
GN 303.1-78-M10-50-SW-*	78	M 10	50	16	21	37.5	8	55	4	145
GN 303.1-78-M10-63-SW-*	78	M 10	63	16	21	37.5	8	55	4	152
GN 303.1-78-M10-80-SW-*	78	M 10	80	16	21	37.5	8	55	4	159

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Adjustable hand levers

with special tipped threaded studs



SPECIFICATION

Types

- Type **MS**: Brass tipp
- Type **KU**: Plastic tipp
- Type **DZ**: Hardened oval tipp
- Type **ZK**: Spherical end
- Type **KD**: Spherical end with swivel thrust pad

Handle

Zinc die casting

Plastic coated
black, RAL 9005, textured finish **SW**
orange, RAL 2004, textured finish **OS**
red, RAL 3000, textured finsih **RS**
silver, RAL 9006, textured finish **SR**

Threaded stud and retaining screw
Steel, blackened

Thrust point

- Type MS: Brass
- Type KU: Plastic (POM)
- Type DZ: Steel, hardened (Oval point)

Thrust pad
Plastic (Polyacetal POM)

- temperature resistant up to 80 °C
- black, matt

INFORMATION

Adjustable hand levers GN 306 are ideal whenever parts have to be clamped in a confined space or in a particular lever position. The centre insert is connected to the lever via serrations which can easily be disengaged.
Pulling the lever disengages the serrations, allowing it to be swivelled to the ideal clamping position. When the lever is released, the serrations
The brass and plastic tipped studs (Types MS / KU) help to avoid damage to the work piece being clamped.
The hardened tipped stud (Type DZ) provides an oval point-shaped pressure point.
The swivel thrust pad (Type KD) can easily be snapped on and taken off.
Pad is supplied unmounted.

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)

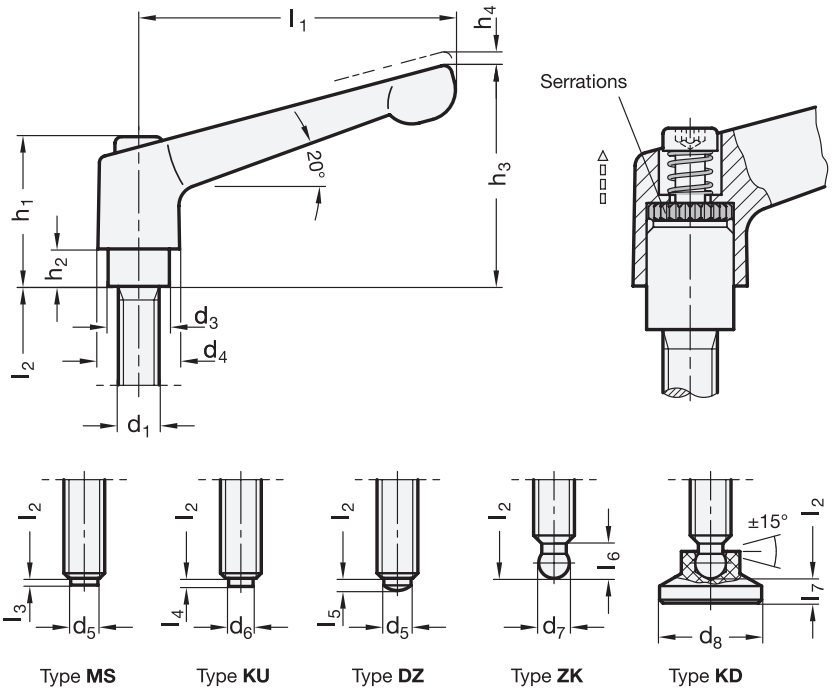
ON REQUEST

- with threaded stud in Stainless Steel
- Flat handle GN 302 (see page 360)

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GN 306

Adjustable hand levers



Type **MS** Type **KU** Type **DZ** Type **ZK** Type **KD**

* Complete with colour index of the clamping lever body (SW, OS, RS or SR)

SW	OS	RS	SR
RAL9005	RAL2004	RAL3000	RAL9006

GN 306

Description	l1	d1	l2	d3	d4	d5	d6	d7	d8	h1	h2	h3	h4	l3	l4	l5	l6	l7	⚖
GN 306-30-M6-16-DZ-*	30	M 6	16	10	13	4	-	-	-	24.5	4	31	3.5	-	-	1.8	-	-	28
GN 306-30-M6-20-DZ-*	30	M 6	20	10	13	4	-	-	-	24.5	4	31	3.5	-	-	1.8	-	-	29
GN 306-30-M6-25-DZ-*	30	M 6	25	10	13	4	-	-	-	24.5	4	31	3.5	-	-	1.8	-	-	30
GN 306-30-M6-32-DZ-*	30	M 6	32	10	13	4	-	-	-	24.5	4	31	3.5	-	-	1.8	-	-	31
GN 306-30-M6-40-DZ-*	30	M 6	40	10	13	4	-	-	-	24.5	4	31	3.5	-	-	1.8	-	-	33
GN 306-30-M6-50-DZ-*	30	M 6	50	10	13	4	-	-	-	24.5	4	31	3.5	-	-	1.8	-	-	34
GN 306-45-M6-16-DZ-*	45	M 6	16	10	13	4	-	-	-	24.5	4	35	3.5	-	-	1.8	-	-	56
GN 306-45-M6-20-DZ-*	45	M 6	20	10	13	4	-	-	-	24.5	4	35	3.5	-	-	1.8	-	-	57
GN 306-45-M6-25-DZ-*	45	M 6	25	10	13	4	-	-	-	24.5	4	35	3.5	-	-	1.8	-	-	58
GN 306-45-M6-32-DZ-*	45	M 6	32	10	13	4	-	-	-	24.5	4	35	3.5	-	-	1.8	-	-	59
GN 306-45-M6-40-DZ-*	45	M 6	40	10	13	4	-	-	-	24.5	4	35	3.5	-	-	1.8	-	-	61
GN 306-45-M6-50-DZ-*	45	M 6	50	10	13	4	-	-	-	24.5	4	35	3.5	-	-	1.8	-	-	62
GN 306-63-M8-20-DZ-*	63	M 8	20	13.5	17.5	6	-	-	-	31	6.5	45	4	-	-	2.5	-	-	50
GN 306-63-M8-25-DZ-*	63	M 8	25	13.5	17.5	6	-	-	-	31	6.5	45	4	-	-	2.5	-	-	64
GN 306-63-M8-32-DZ-*	63	M 8	32	13.5	17.5	6	-	-	-	31	6.5	45	4	-	-	2.5	-	-	83
GN 306-63-M8-40-DZ-*	63	M 8	40	13.5	17.5	6	-	-	-	31	6.5	45	4	-	-	2.5	-	-	85
GN 306-63-M8-50-DZ-*	63	M 8	50	13.5	17.5	6	-	-	-	31	6.5	45	4	-	-	2.5	-	-	89
GN 306-63-M8-63-DZ-*	63	M 8	63	13.5	17.5	6	-	-	-	31	6.5	45	4	-	-	2.5	-	-	92
GN 306-63-M10-20-DZ-*	63	M 10	20	13.5	17.5	8	-	-	-	31	6.5	45	4	-	-	3.5	-	-	86
GN 306-63-M10-25-DZ-*	63	M 10	25	13.5	17.5	8	-	-	-	31	6.5	45	4	-	-	3.5	-	-	93
GN 306-63-M10-32-DZ-*	63	M 10	32	13.5	17.5	8	-	-	-	31	6.5	45	4	-	-	3.5	-	-	95
GN 306-63-M10-40-DZ-*	63	M 10	40	13.5	17.5	8	-	-	-	31	6.5	45	4	-	-	3.5	-	-	98
GN 306-63-M10-50-DZ-*	63	M 10	50	13.5	17.5	8	-	-	-	31	6.5	45	4	-	-	3.5	-	-	100
GN 306-63-M10-63-DZ-*	63	M 10	63	13.5	17.5	8	-	-	-	31	6.5	45	4	-	-	3.5	-	-	104

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GN 306

Adjustable hand levers

* Complete with colour index of the clamping lever body (SW, OS, RS or SR)

SW	OS	RS	SR
RAL9005	RAL2004	RAL3000	RAL9006

GN 306

Description	l1	d1	l2	d3	d4	d5	d6	d7	d8	h1	h2	h3	h4	l3	l4	l5	l6	l7	⚖
GN 306-30-M6-16-KD-*	30	M 6	16	10	13	-	-	-	15	24.5	4	31	3.5	-	-	-	-	3.6	25
GN 306-30-M6-20-KD-*	30	M 6	20	10	13	-	-	-	15	24.5	4	31	3.5	-	-	-	-	3.6	30
GN 306-30-M6-25-KD-*	30	M 6	25	10	13	-	-	-	15	24.5	4	31	3.5	-	-	-	-	3.6	31
GN 306-30-M6-32-KD-*	30	M 6	32	10	13	-	-	-	15	24.5	4	31	3.5	-	-	-	-	3.6	32
GN 306-30-M6-40-KD-*	30	M 6	40	10	13	-	-	-	15	24.5	4	31	3.5	-	-	-	-	3.6	33
GN 306-30-M6-50-KD-*	30	M 6	50	10	13	-	-	-	15	24.5	4	31	3.5	-	-	-	-	3.6	35
GN 306-45-M6-16-KD-*	45	M 6	16	10	13	-	-	-	15	24.5	4	35	3.5	-	-	-	-	3.6	57
GN 306-45-M6-20-KD-*	45	M 6	20	10	13	-	-	-	15	24.5	4	35	3.5	-	-	-	-	3.6	58
GN 306-45-M6-25-KD-*	45	M 6	25	10	13	-	-	-	15	24.5	4	35	3.5	-	-	-	-	3.6	59
GN 306-45-M6-32-KD-*	45	M 6	32	10	13	-	-	-	15	24.5	4	35	3.5	-	-	-	-	3.6	60
GN 306-45-M6-40-KD-*	45	M 6	40	10	13	-	-	-	15	24.5	4	35	3.5	-	-	-	-	3.6	61
GN 306-45-M6-50-KD-*	45	M 6	50	10	13	-	-	-	15	24.5	4	35	3.5	-	-	-	-	3.6	62
GN 306-63-M8-20-KD-*	63	M 8	20	13.5	17.5	-	-	-	18	31	6.5	45	4	-	-	-	-	4.2	85
GN 306-63-M8-25-KD-*	63	M 8	25	13.5	17.5	-	-	-	18	31	6.5	45	4	-	-	-	-	4.2	86
GN 306-63-M8-32-KD-*	63	M 8	32	13.5	17.5	-	-	-	18	31	6.5	45	4	-	-	-	-	4.2	89
GN 306-63-M8-40-KD-*	63	M 8	40	13.5	17.5	-	-	-	18	31	6.5	45	4	-	-	-	-	4.2	91
GN 306-63-M8-50-KD-*	63	M 8	50	13.5	17.5	-	-	-	18	31	6.5	45	4	-	-	-	-	4.2	93
GN 306-63-M8-63-KD-*	63	M 8	63	13.5	17.5	-	-	-	18	31	6.5	45	4	-	-	-	-	4.2	110
GN 306-63-M10-20-KD-*	63	M 10	20	13.5	17.5	-	-	-	21	31	6.5	45	4	-	-	-	-	4.3	84
GN 306-63-M10-25-KD-*	63	M 10	25	13.5	17.5	-	-	-	21	31	6.5	45	4	-	-	-	-	4.3	87
GN 306-63-M10-32-KD-*	63	M 10	32	13.5	17.5	-	-	-	21	31	6.5	45	4	-	-	-	-	4.3	90
GN 306-63-M10-40-KD-*	63	M 10	40	13.5	17.5	-	-	-	21	31	6.5	45	4	-	-	-	-	4.3	94
GN 306-63-M10-50-KD-*	63	M 10	50	13.5	17.5	-	-	-	21	31	6.5	45	4	-	-	-	-	4.3	100
GN 306-63-M10-63-KD-*	63	M 10	63	13.5	17.5	-	-	-	21	31	6.5	45	4	-	-	-	-	4.3	110
GN 306-30-M6-16-KU-*	30	M 6	16	10	13	-	3.5	-	-	24.5	4	31	3.5	-	1.3	-	-	-	27
GN 306-30-M6-20-KU-*	30	M 6	20	10	13	-	3.5	-	-	24.5	4	31	3.5	-	1.3	-	-	-	29
GN 306-30-M6-25-KU-*	30	M 6	25	10	13	-	3.5	-	-	24.5	4	31	3.5	-	1.3	-	-	-	30
GN 306-30-M6-32-KU-*	30	M 6	32	10	13	-	3.5	-	-	24.5	4	31	3.5	-	1.3	-	-	-	31
GN 306-30-M6-40-KU-*	30	M 6	40	10	13	-	3.5	-	-	24.5	4	31	3.5	-	1.3	-	-	-	32
GN 306-30-M6-50-KU-*	30	M 6	50	10	13	-	3.5	-	-	24.5	4	31	3.5	-	1.3	-	-	-	34
GN 306-45-M6-16-KU-*	45	M 6	16	10	13	-	3.5	-	-	24.5	4	35	3.5	-	1.3	-	-	-	40
GN 306-45-M6-20-KU-*	45	M 6	20	10	13	-	3.5	-	-	24.5	4	35	3.5	-	1.3	-	-	-	50
GN 306-45-M6-25-KU-*	45	M 6	25	10	13	-	3.5	-	-	24.5	4	35	3.5	-	1.3	-	-	-	58
GN 306-45-M6-32-KU-*	45	M 6	32	10	13	-	3.5	-	-	24.5	4	35	3.5	-	1.3	-	-	-	59
GN 306-45-M6-40-KU-*	45	M 6	40	10	13	-	3.5	-	-	24.5	4	35	3.5	-	1.3	-	-	-	60
GN 306-45-M6-50-KU-*	45	M 6	50	10	13	-	3.5	-	-	24.5	4	35	3.5	-	1.3	-	-	-	62
GN 306-63-M8-20-KU-*	63	M 8	20	13.5	17.5	-	5	-	-	31	6.5	45	4	-	1.6	-	-	-	78
GN 306-63-M8-25-KU-*	63	M 8	25	13.5	17.5	-	5	-	-	31	6.5	45	4	-	1.6	-	-	-	80
GN 306-63-M8-32-KU-*	63	M 8	32	13.5	17.5	-	5	-	-	31	6.5	45	4	-	1.6	-	-	-	87
GN 306-63-M8-40-KU-*	63	M 8	40	13.5	17.5	-	5	-	-	31	6.5	45	4	-	1.6	-	-	-	88
GN 306-63-M8-50-KU-*	63	M 8	50	13.5	17.5	-	5	-	-	31	6.5	45	4	-	1.6	-	-	-	89
GN 306-63-M8-63-KU-*	63	M 8	63	13.5	17.5	-	5	-	-	31	6.5	45	4	-	1.6	-	-	-	91
GN 306-63-M10-20-KU-*	63	M 10	20	13.5	17.5	-	6.5	-	-	31	6.5	45	4	-	1.9	-	-	-	80
GN 306-63-M10-25-KU-*	63	M 10	25	13.5	17.5	-	6.5	-	-	31	6.5	45	4	-	1.9	-	-	-	84
GN 306-63-M10-32-KU-*	63	M 10	32	13.5	17.5	-	6.5	-	-	31	6.5	45	4	-	1.9	-	-	-	86
GN 306-63-M10-40-KU-*	63	M 10	40	13.5	17.5	-	6.5	-	-	31	6.5	45	4	-	1.9	-	-	-	90
GN 306-63-M10-50-KU-*	63	M 10	50	13.5	17.5	-	6.5	-	-	31	6.5	45	4	-	1.9	-	-	-	96

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GN 306

Adjustable hand levers

* Complete with colour index of the clamping lever body (SW, OS, RS or SR)

SW	OS	RS	SR
RAL9005	RAL2004	RAL3000	RAL9006

GN 306

Description	l1	d1	l2	d3	d4	d5	d6	d7	d8	h1	h2	h3	h4	l3	l4	l5	l6	l7	⚖
GN 306-30-M6-16-MS-*	30	M 6	16	10	13	4	-	-	-	24.5	4	31	3.5	1	-	-	-	-	27
GN 306-30-M6-20-MS-*	30	M 6	20	10	13	4	-	-	-	24.5	4	31	3.5	1	-	-	-	-	29
GN 306-30-M6-25-MS-*	30	M 6	25	10	13	4	-	-	-	24.5	4	31	3.5	1	-	-	-	-	30
GN 306-30-M6-32-MS-*	30	M 6	32	10	13	4	-	-	-	24.5	4	31	3.5	1	-	-	-	-	31
GN 306-30-M6-40-MS-*	30	M 6	40	10	13	4	-	-	-	24.5	4	31	3.5	1	-	-	-	-	33
GN 306-30-M6-50-MS-*	30	M 6	50	10	13	4	-	-	-	24.5	4	31	3.5	1	-	-	-	-	34
GN 306-45-M6-16-MS-*	45	M 6	16	10	13	4	-	-	-	24.5	4	35	3.5	1	-	-	-	-	40
GN 306-45-M6-20-MS-*	45	M 6	20	10	13	4	-	-	-	24.5	4	35	3.5	1	-	-	-	-	50
GN 306-45-M6-25-MS-*	45	M 6	25	10	13	4	-	-	-	24.5	4	35	3.5	1	-	-	-	-	58
GN 306-45-M6-32-MS-*	45	M 6	32	10	13	4	-	-	-	24.5	4	35	3.5	1	-	-	-	-	59
GN 306-45-M6-40-MS-*	45	M 6	40	10	13	4	-	-	-	24.5	4	35	3.5	1	-	-	-	-	60
GN 306-45-M6-50-MS-*	45	M 6	50	10	13	4	-	-	-	24.5	4	35	3.5	1	-	-	-	-	62
GN 306-63-M8-20-MS-*	63	M 8	20	13.5	17.5	6	-	-	-	31	6.5	45	4	1.5	-	-	-	-	80
GN 306-63-M8-25-MS-*	63	M 8	25	13.5	17.5	6	-	-	-	31	6.5	45	4	1.5	-	-	-	-	87
GN 306-63-M8-32-MS-*	63	M 8	32	13.5	17.5	6	-	-	-	31	6.5	45	4	1.5	-	-	-	-	90
GN 306-63-M8-40-MS-*	63	M 8	40	13.5	17.5	6	-	-	-	31	6.5	45	4	1.5	-	-	-	-	91
GN 306-63-M8-50-MS-*	63	M 8	50	13.5	17.5	6	-	-	-	31	6.5	45	4	1.5	-	-	-	-	95
GN 306-63-M8-63-MS-*	63	M 8	63	13.5	17.5	6	-	-	-	31	6.5	45	4	1.5	-	-	-	-	100
GN 306-63-M10-20-MS-*	63	M 10	20	13.5	17.5	8	-	-	-	31	6.5	45	4	2	-	-	-	-	80
GN 306-63-M10-25-MS-*	63	M 10	25	13.5	17.5	8	-	-	-	31	6.5	45	4	2	-	-	-	-	85
GN 306-63-M10-32-MS-*	63	M 10	32	13.5	17.5	8	-	-	-	31	6.5	45	4	2	-	-	-	-	90
GN 306-63-M10-40-MS-*	63	M 10	40	13.5	17.5	8	-	-	-	31	6.5	45	4	2	-	-	-	-	95
GN 306-63-M10-50-MS-*	63	M 10	50	13.5	17.5	8	-	-	-	31	6.5	45	4	2	-	-	-	-	98
GN 306-63-M10-63-MS-*	63	M 10	63	13.5	17.5	8	-	-	-	31	6.5	45	4	2	-	-	-	-	104
GN 306-30-M6-16-ZK-*	30	M 6	16	10	13	-	-	4.5 ±0.03	-	24.5	4	31	3.5	-	-	-	5.1	-	24
GN 306-30-M6-20-ZK-*	30	M 6	20	10	13	-	-	4.5 ±0.03	-	24.5	4	31	3.5	-	-	-	5.1	-	29
GN 306-30-M6-25-ZK-*	30	M 6	25	10	13	-	-	4.5 ±0.03	-	24.5	4	31	3.5	-	-	-	5.1	-	30
GN 306-30-M6-32-ZK-*	30	M 6	32	10	13	-	-	4.5 ±0.03	-	24.5	4	31	3.5	-	-	-	5.1	-	31
GN 306-30-M6-40-ZK-*	30	M 6	40	10	13	-	-	4.5 ±0.03	-	24.5	4	31	3.5	-	-	-	5.1	-	32
GN 306-30-M6-50-ZK-*	30	M 6	50	10	13	-	-	4.5 ±0.03	-	24.5	4	31	3.5	-	-	-	5.1	-	34
GN 306-45-M6-16-ZK-*	45	M 6	16	10	13	-	-	4.5 ±0.03	-	24.5	4	35	3.5	-	-	-	5.1	-	55
GN 306-45-M6-20-ZK-*	45	M 6	20	10	13	-	-	4.5 ±0.03	-	24.5	4	35	3.5	-	-	-	5.1	-	56
GN 306-45-M6-25-ZK-*	45	M 6	25	10	13	-	-	4.5 ±0.03	-	24.5	4	35	3.5	-	-	-	5.1	-	58
GN 306-45-M6-32-ZK-*	45	M 6	32	10	13	-	-	4.5 ±0.03	-	24.5	4	35	3.5	-	-	-	5.1	-	59
GN 306-45-M6-40-ZK-*	45	M 6	40	10	13	-	-	4.5 ±0.03	-	24.5	4	35	3.5	-	-	-	5.1	-	60
GN 306-45-M6-50-ZK-*	45	M 6	50	10	13	-	-	4.5 ±0.03	-	24.5	4	35	3.5	-	-	-	5.1	-	62
GN 306-63-M8-20-ZK-*	63	M 8	20	13.5	17.5	-	-	6.1 ±0.05	-	31	6.5	45	4	-	-	-	6.2	-	78
GN 306-63-M8-25-ZK-*	63	M 8	25	13.5	17.5	-	-	6.1 ±0.05	-	31	6.5	45	4	-	-	-	6.2	-	80
GN 306-63-M8-32-ZK-*	63	M 8	32	13.5	17.5	-	-	6.1 ±0.05	-	31	6.5	45	4	-	-	-	6.2	-	82
GN 306-63-M8-40-ZK-*	63	M 8	40	13.5	17.5	-	-	6.1 ±0.05	-	31	6.5	45	4	-	-	-	6.2	-	84
GN 306-63-M8-50-ZK-*	63	M 8	50	13.5	17.5	-	-	6.1 ±0.05	-	31	6.5	45	4	-	-	-	6.2	-	85
GN 306-63-M8-63-ZK-*	63	M 8	63	13.5	17.5	-	-	6.1 ±0.05	-	31	6.5	45	4	-	-	-	6.2	-	87
GN 306-63-M10-20-ZK-*	63	M 10	20	13.5	17.5	-	-	7.8 ±0.05	-	31	6.5	45	4	-	-	-	7.3	-	81
GN 306-63-M10-25-ZK-*	63	M 10	25	13.5	17.5	-	-	7.8 ±0.05	-	31	6.5	45	4	-	-	-	7.3	-	84
GN 306-63-M10-32-ZK-*	63	M 10	32	13.5	17.5	-	-	7.8 ±0.05	-	31	6.5	45	4	-	-	-	7.3	-	86
GN 306-63-M10-40-ZK-*	63	M 10	40	13.5	17.5	-	-	7.8 ±0.05	-	31	6.5	45	4	-	-	-	7.3	-	91
GN 306-63-M10-50-ZK-*	63	M 10	50	13.5	17.5	-	-	7.8 ±0.05	-	31	6.5	45	4	-	-	-	7.3	-	96
GN 306-63-M10-63-ZK-*	63	M 10	63	13.5	17.5	-	-	7.8 ±0.05	-	31	6.5	45	4	-	-	-	7.3	-	100

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Adjustable handles

Technopolymer



ELESA Original design

LEVER BODY
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

PUSH BUTTON
Technopolymer, black colour, matte finish.

STANDARD EXECUTIONS
Glass-fibre reinforced technopolymer clamping element with retaining pin, black colour, with knurling on the protruding part to make initial tightening easier. AISI 302 stainless steel return spring.
- **MRX-B:** brass boss, threaded blind hole.
- **MRX-SST:** AISI 303 stainless steel boss, threaded blind hole.
- **MRX-p:** zinc-plated steel threaded stud, chamfered flat end UNI 947 : ISO 4753 (see Technical Data on page A11).
- **MRX-SST-p:** AISI 303 stainless steel threaded stud, chamfered flat end UNI 947 : ISO 4753 (see Technical Data on page A11).

FEATURES AND APPLICATIONS
Particularly suitable when the lever turning angle is limited owing to lack of space. Compared to other types of adjustable handles with metal retaining screw this solution offers:
- absolute electric insulation for the operator
- more comfortable lever release.

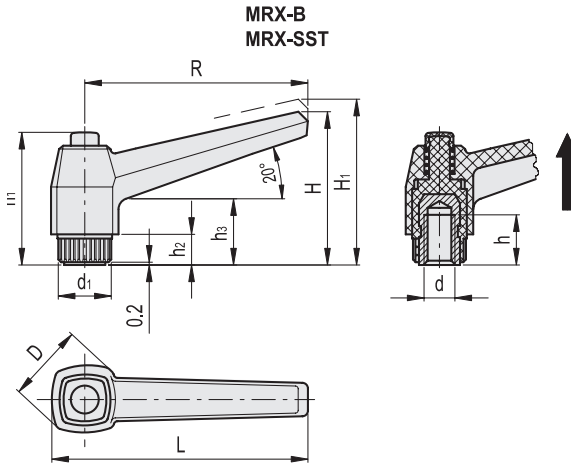
STRESS RESISTANCE
See ERX. (on page 304).

OTHER EXECUTIONS AVAILABLE
Lever body in orange (C2) with black push button (C1).
Example: code 141131-C2-C1 description MRX.40-C2-B-M5-C1.

SPECIAL EXECUTIONS ON REQUEST
Lever body in RAL 7031 grey.

INSTRUCTIONS OF USE
For clamping, lift the lever to disengage the clamping device teeth and bring it back to start position. By releasing the lever, the return spring automatically engages the teeth.

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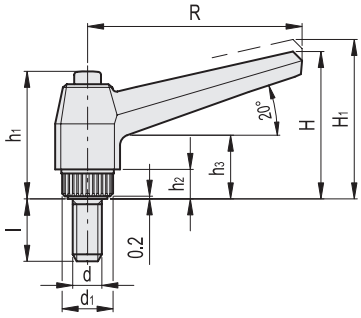
MRX-B

Code	Description	R	d6H	L	D	H	H1	h	h1	h2	h3	d1	Teeth no.	⚖
141131	MRX.40 B-M5	42	M5	50	18	32	35.5	10	29	6	14	12	18	10
141141	MRX.40 B-M6	42	M6	50	18	32	35.5	10	29	6	14	12	18	12
141411	MRX.63 B-M6	63	M6	73	23	43	46.5	16	37	8	17	15	20	21
141421	MRX.63 B-M8	63	M8	73	23	43	46.5	13	37	8	17	15	20	22
141422	MRX.63 B-M10	63	M10	73	23	43	46.5	13	37	8	17	15	20	20
142111	MRX.80 B-M8	80	M8	92	28	54	58.5	20	47	10	22	19	24	41
142121	MRX.80 B-M10	80	M10	92	28	54	58.5	18	47	10	22	19	24	42
142131	MRX.80 B-M12	80	M12	92	28	54	58.5	17	47	10	22	19	24	45
142501	MRX.100 B-M10	100	M10	114	33	65	69.5	20	54	12	25	25	28	70
142511	MRX.100 B-M12	100	M12	114	33	65	69.5	20	54	12	25	25	28	74
142521	MRX.100 B-M14	100	M14	114	33	65	69.5	20	54	12	25	25	28	84
142531	MRX.100 B-M16	100	M16	114	33	65	69.5	22	54	12	25	25	28	81

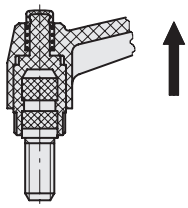
MRX-SST **STAINLESS STEEL**

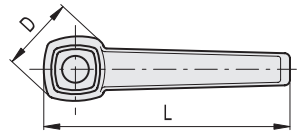
Code	Description	R	d6H	L	D	H	H1	h	h1	h2	h3	d1	Teeth no.	⚖
141185	MRX.40-SST-M5	42	M5	50	18	32	35.5	6	29	6	14	12	18	14
141191	MRX.40-SST-M6	42	M6	50	18	32	35.5	10	29	6	14	12	18	12
141423	MRX.63-SST-M6	63	M6	73	23	43	46.5	12	37	8	17	15	20	24
141425	MRX.63-SST-M8	63	M8	73	23	43	46.5	13	37	8	17	15	20	22
142155	MRX.80-SST-M8	80	M8	92	28	54	58.5	13	47	10	22	19	24	44
142161	MRX.80-SST-M10	80	M10	92	28	54	58.5	17	47	10	22	19	24	42
142561	MRX.100-SST-M12	100	M12	114	33	65	69.5	20	54	12	25	25	28	75

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MRX-p
MRX-SST-p





MRX-p

Code	Description	R	d_{6g}	L	D	H	H_1	h_1	h_2	h_3	d_1	l	Teeth no.	⚖
141201	MRX.40 p-M5x10	42	M5	50	18	32	35.5	29	6	14	12	10	18	10
141211	MRX.40 p-M5x16	42	M5	50	18	32	35.5	29	6	14	12	16	18	11
141221	MRX.40 p-M5x20	42	M5	50	18	32	35.5	29	6	14	12	20	18	12
141301	MRX.40 p-M6x10	42	M6	50	18	32	35.5	29	6	14	12	10	18	12
141311	MRX.40 p-M6x16	42	M6	50	18	32	35.5	29	6	14	12	16	18	13
141321	MRX.40 p-M6x20	42	M6	50	18	32	35.5	29	6	14	12	20	18	14
141331	MRX.40 p-M6x25	42	M6	50	18	32	35.5	29	6	14	12	25	18	15
141335	MRX.40 p-M6x30	42	M6	50	18	32	35.5	29	6	14	12	30	18	16
141341	MRX.40 p-M6x40	42	M6	50	18	32	35.5	29	6	14	12	40	18	18
141361	MRX.40 p-M8x16	42	M8	50	18	32	35.5	29	6	14	12	16	18	15
141362	MRX.40 p-M8x20	42	M8	50	18	32	35.5	29	6	14	12	20	18	16
141363	MRX.40 p-M8x25	42	M8	50	18	32	35.5	29	6	14	12	25	18	18
141431	MRX.63 p-M6x10	63	M6	73	23	43	46.5	37	8	17	15	10	20	25
141441	MRX.63 p-M6x16	63	M6	73	23	43	46.5	37	8	17	15	16	20	26
141451	MRX.63 p-M6x20	63	M6	73	23	43	46.5	37	8	17	15	20	20	27
141461	MRX.63 p-M6x25	63	M6	73	23	43	46.5	37	8	17	15	25	20	28
141466	MRX.63 p-M6x30	63	M6	73	23	43	46.5	37	8	17	15	30	20	29
141470	MRX.63 p-M6x35	63	M6	73	23	43	46.5	37	8	17	15	35	20	30
141471	MRX.63 p-M6x40	63	M6	73	23	43	46.5	37	8	17	15	40	20	31
141501	MRX.63 p-M8x16	63	M8	73	23	43	46.5	37	8	17	15	16	20	28
141511	MRX.63 p-M8x20	63	M8	73	23	43	46.5	37	8	17	15	20	20	29
141521	MRX.63 p-M8x25	63	M8	73	23	43	46.5	37	8	17	15	25	20	31
141531	MRX.63 p-M8x30	63	M8	73	23	43	46.5	37	8	17	15	30	20	32
141535	MRX.63 p-M8x35	63	M8	73	23	43	46.5	37	8	17	15	35	20	35
141541	MRX.63 p-M8x40	63	M8	73	23	43	46.5	37	8	17	15	40	20	36
141551	MRX.63 p-M8x45	63	M8	73	23	43	46.5	37	8	17	15	45	20	37
141561	MRX.63 p-M8x50	63	M8	73	23	43	46.5	37	8	17	15	50	20	38
141569	MRX.63 p-M8x60	63	M8	73	23	43	46.5	37	8	17	15	60	20	40
141581	MRX.63 p-M10x20	63	M10	73	23	43	46.5	37	8	17	15	20	20	33
141583	MRX.63 p-M10x30	63	M10	73	23	43	46.5	37	8	17	15	30	20	36
141585	MRX.63 p-M10x40	63	M10	73	23	43	46.5	37	8	17	15	40	20	40
141587	MRX.63 p-M10x50	63	M10	73	23	43	46.5	37	8	17	15	50	20	42
141589	MRX.63 p-M10x60	63	M10	73	23	43	46.5	37	8	17	15	60	20	46
142181	MRX.80 p-M8x20	80	M8	92	28	54	58.5	47	10	22	19	20	24	52
142183	MRX.80 p-M8x25	80	M8	92	28	54	58.5	47	10	22	19	25	24	54
142185	MRX.80 p-M8x30	80	M8	92	28	54	58.5	47	10	22	19	30	24	56
142187	MRX.80 p-M8x40	80	M8	92	28	54	58.5	47	10	22	19	40	24	60
142189	MRX.80 p-M8x45	80	M8	92	28	54	58.5	47	10	22	19	45	24	62
142191	MRX.80 p-M8x50	80	M8	92	28	54	58.5	47	10	22	19	50	24	64
142193	MRX.80 p-M8x55	80	M8	92	28	54	58.5	47	10	22	19	55	24	66
142195	MRX.80 p-M8x60	80	M8	92	28	54	58.5	47	10	22	19	60	24	68
142197	MRX.80 p-M8x70	80	M8	92	28	54	58.5	47	10	22	19	70	24	70
142201	MRX.80 p-M10x20	80	M10	92	28	54	58.5	47	10	22	19	20	24	54
142211	MRX.80 p-M10x25	80	M10	92	28	54	58.5	47	10	22	19	25	24	57
142221	MRX.80 p-M10x30	80	M10	92	28	54	58.5	47	10	22	19	30	24	60
142225	MRX.80 p-M10x35	80	M10	92	28	54	58.5	47	10	22	19	35	24	62
142231	MRX.80 p-M10x40	80	M10	92	28	54	58.5	47	10	22	19	40	24	62
142241	MRX.80 p-M10x50	80	M10	92	28	54	58.5	47	10	22	19	50	24	68
142245	MRX.80 p-M10x60	80	M10	92	28	54	58.5	47	10	22	19	60	24	73
142251	MRX.80 p-M10x70	80	M10	92	28	54	58.5	47	10	22	19	70	24	79

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MRX-p

Code	Description	R	d_{6g}	L	D	H	H_1	h_1	h_2	h_3	d_1	l	Teeth no.	⚖
142301	MRX.80 p-M12x20	80	M12	92	28	54	58.5	47	10	22	19	20	24	62
142311	MRX.80 p-M12x25	80	M12	92	28	54	58.5	47	10	22	19	25	24	67
142321	MRX.80 p-M12x30	80	M12	92	28	54	58.5	47	10	22	19	30	24	68
142325	MRX.80 p-M12x35	80	M12	92	28	54	58.5	47	10	22	19	35	24	82
142331	MRX.80 p-M12x40	80	M12	92	28	54	58.5	47	10	22	19	40	24	75
142335	MRX.80 p-M12x45	80	M12	92	28	54	58.5	47	10	22	19	45	24	80
142341	MRX.80 p-M12x50	80	M12	92	28	54	58.5	47	10	22	19	50	24	83
142351	MRX.80 p-M12x60	80	M12	92	28	54	58.5	47	10	22	19	60	24	92
142361	MRX.80 p-M12x70	80	M12	92	28	54	58.5	47	10	22	19	70	24	98
142365	MRX.80 p-M12x80	80	M12	92	28	54	58.5	47	10	22	19	80	24	105
142601	MRX.100 p-M12x30	100	M12	114	33	65	69.5	54	12	25	25	30	28	96
142651	MRX.100 p-M12x50	100	M12	114	33	65	69.5	54	12	25	25	50	28	112
142701	MRX.100 p-M12x70	100	M12	114	33	65	69.5	54	12	25	25	70	28	127
142801	MRX.100 p-M14x30	100	M14	114	33	65	69.5	54	12	25	25	30	28	112
142831	MRX.100 p-M14x50	100	M14	114	33	65	69.5	54	12	25	25	50	28	132
142851	MRX.100 p-M14x70	100	M14	114	33	65	69.5	54	12	25	25	70	28	152
142901	MRX.100 p-M16x30	100	M16	114	33	65	69.5	54	12	25	25	30	28	138
142951	MRX.100 p-M16x50	100	M16	114	33	65	69.5	54	12	25	25	50	28	163
142981	MRX.100 p-M16x70	100	M16	114	33	65	69.5	54	12	25	25	70	28	190

MRX-SST-p **STAINLESS STEEL**

Code	Description	R	d_{6g}	L	D	H	H_1	h_1	h_2	h_3	d_1	l	Teeth no.	⚖
141371	MRX.40-SST-p-M6x16	42	M6	50	18	32	35.5	29	6	14	12	16	18	13
141372	MRX.40-SST-p-M6x20	42	M6	50	18	32	35.5	29	6	14	12	20	18	14
141373	MRX.40-SST-p-M6x25	42	M6	50	18	32	35.5	29	6	14	12	25	18	15
141374	MRX.40-SST-p-M6x30	42	M6	50	18	32	35.5	29	6	14	12	30	18	16
141700	MRX.63-SST-p-M8x16	63	M8	73	23	43	46.5	37	8	17	15	16	20	28
141701	MRX.63-SST-p-M8x20	63	M8	73	23	43	46.5	37	8	17	15	20	20	29
141702	MRX.63-SST-p-M8x25	63	M8	73	23	43	46.5	37	8	17	15	25	20	31
141711	MRX.63-SST-p-M8x30	63	M8	73	23	43	46.5	37	8	17	15	30	20	32
141713	MRX.63-SST-p-M8x40	63	M8	73	23	43	46.5	37	8	17	15	40	20	36
141715	MRX.63-SST-p-M8x50	63	M8	73	23	43	46.5	37	8	17	15	50	20	38
142367	MRX.80-SST-p-M8x20	80	M8	92	28	54	58.5	47	10	22	19	20	24	53
142369	MRX.80-SST-p-M8x25	80	M8	92	28	54	58.5	47	10	22	19	25	24	55
142371	MRX.80-SST-p-M8x30	80	M8	92	28	54	58.5	47	10	22	19	30	24	57
142373	MRX.80-SST-p-M8x40	80	M8	92	28	54	58.5	47	10	22	19	40	24	61
142375	MRX.80-SST-p-M8x45	80	M8	92	28	54	58.5	47	10	22	19	45	24	63
142377	MRX.80-SST-p-M8x50	80	M8	92	28	54	58.5	47	10	22	19	50	24	66
142380	MRX.80-SST-p-M8x70	80	M8	92	28	54	58.5	47	10	22	19	70	24	67
142381	MRX.80-SST-p-M10x20	80	M10	92	28	54	58.5	47	10	22	19	20	24	54
142385	MRX.80-SST-p-M10x30	80	M10	92	28	54	58.5	47	10	22	19	30	24	60
142387	MRX.80-SST-p-M10x40	80	M10	92	28	54	58.5	47	10	22	19	40	24	62
142391	MRX.80-SST-p-M12x30	80	M12	92	28	54	58.5	47	10	22	19	30	24	68
142393	MRX.80-SST-p-M12x40	80	M12	92	28	54	58.5	47	10	22	19	40	24	75
142395	MRX.80-SST-p-M12x50	80	M12	92	28	54	58.5	47	10	22	19	50	24	83
143001	MRX.100-SST-p-M12x30	100	M12	114	33	65	69.5	54	12	25	25	30	28	97
143003	MRX.100-SST-p-M12x40	100	M12	114	33	65	69.5	54	12	25	25	40	28	105
143005	MRX.100-SST-p-M12x50	100	M12	114	33	65	69.5	54	12	25	25	50	28	113
143009	MRX.100-SST-p-M12x70	100	M12	114	33	65	69.5	54	12	25	25	70	28	128

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Adjustable handles

Technopolymer

LEVER BODY

Glass-fibre reinforced polyamide based (PA) technopolymer, black, orange, grey colours, matte finish.

STANDARD EXECUTIONS

Glass-fibre reinforced technopolymer clamping element, black colour, with knurling on the protruding part to make initial tightening easier.

- **MR-A**: black-oxide steel boss, plain or threaded blind hole. Black-oxide steel retaining screw, AISI 302 stainless steel return spring.
- **MR-B**: brass boss, threaded blind hole. Brass retaining screw, AISI 302 stainless steel return spring.
- **MR-p**: black-oxide steel threaded stud, chamfered flat end UNI 947 : ISO 4753 (see Technical Data on page A11). Black-oxide steel retaining screw, AISI 302 stainless steel return spring.

STRESS RESISTANCE

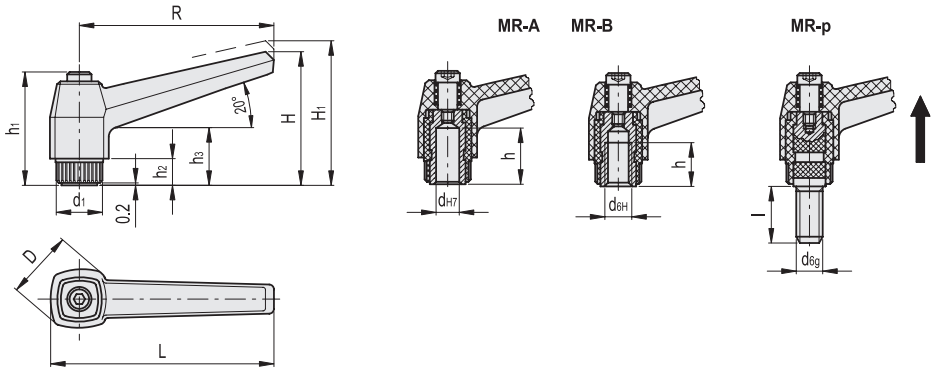
See ERX. (on page 304).







ELESA Original design



*Complete with colour index of the lever body, example: (C9, C2, C31)

C9	C2	C31
RAL9005	RAL2004	RAL7031

MR-A
MR-B

Code C9	Code C2	Code C31	Description	R	dH7	d6H	L	D	H	H1	h	h1	h2	h3	d1	Teeth no.	⚖
41101	41102	41104	MR.40 A-5-*	42	5	-	50	18	32	36.5	10	29	6	14	12	18	14
41121	41122	41124	MR.40 A-M4-*	42	-	M4	50	18	32	36.5	10	29	6	14	12	18	14
41131	41132	41134	MR.40 A-M5-*	42	-	M5	50	18	32	36.5	10	29	6	14	12	18	14
41141	41142	41144	MR.40 A-M6-*	42	-	M6	50	18	32	36.5	10	29	6	14	12	18	13
41171	41172	41174	MR.40 B-M6-*	42	-	M6	50	18	32	36.5	10	29	6	14	12	18	14
41401	41402	41404	MR.63 A-6-*	63	6	-	73	23	43	47	15	36	8	17	15	20	25
41411	41412	41414	MR.63 A-M6-*	63	-	M6	73	23	43	47	12	36	8	17	15	20	27
41421	41422	41424	MR.63 A-M8-*	63	-	M8	73	23	43	47	12	36	8	17	15	20	24
41426	41427	41429	MR.63 B-M8-*	63	-	M8	73	23	43	47	12	36	8	17	15	20	25
42001	42002	42004	MR.80 A-8-*	80	8	-	92	28	54	59.5	20	45	10	22	19	24	56
42111	42112	42114	MR.80 A-M8-*	80	-	M8	92	28	54	59.5	17	45	10	22	19	24	57
42121	42122	42124	MR.80 A-M10-*	80	-	M10	92	28	54	59.5	17	45	10	22	19	24	54
42131	42132	42134	MR.80 A-M12-*	80	-	M12	92	28	54	59.5	17	45	10	22	19	24	48
42151	42152	42154	MR.80 B-M10-*	80	-	M10	92	28	54	59.5	17	45	10	22	19	24	56
42401	42402	42404	MR.100 A-10-*	100	10	-	114	33	65	70.5	25	53	12	25	25	28	114
42501	42502	42504	MR.100 A-M10-*	100	-	M10	114	33	65	70.5	20	53	12	25	25	28	114
42511	42512	42514	MR.100 A-M12-*	100	-	M12	114	33	65	70.5	20	53	12	25	25	28	112
42521	42522	42524	MR.100 A-M14-*	100	-	M14	114	33	65	70.5	20	53	12	25	25	28	104
42531	42532	42534	MR.100 A-M16-*	100	-	M16	114	33	65	70.5	20	53	12	25	25	28	95

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*Complete with colour index of the lever body, example: (C9, C2, C31)

C9 RAL9005 C2 RAL2004 C31 RAL7031

MR-p

Code C9	Code C2	Code C31	Description	R	d6g	L	D	H	H1	h1	h2	h3	d1	l	Teeth no.	⚖
41201	41202	41204	MR.40 p-M5x10-*	42	M5	50	18	32	36.5	29	6	14	12	10	18	15
41211	41212	41214	MR.40 p-M5x16-*	42	M5	50	18	32	36.5	29	6	14	12	16	18	16
41221	41222	41224	MR.40 p-M5x20-*	42	M5	50	18	32	36.5	29	6	14	12	20	18	17
41301	41302	41304	MR.40 p-M6x10-*	42	M6	50	18	32	36.5	29	6	14	12	10	18	16
41311	41312	41314	MR.40 p-M6x16-*	42	M6	50	18	32	36.5	29	6	14	12	16	18	17
41321	41322	41324	MR.40 p-M6x20-*	42	M6	50	18	32	36.5	29	6	14	12	20	18	18
41331	41332	41334	MR.40 p-M6x25-*	42	M6	50	18	32	36.5	29	6	14	12	25	18	19
41335	41336	41338	MR.40 p-M6x30-*	42	M6	50	18	32	36.5	29	6	14	12	30	18	20
41341	41342	41344	MR.40 p-M6x40-*	42	M6	50	18	32	36.5	29	6	14	12	40	18	21
41357	41358	41360	MR.40 p-M8x20-*	42	M8	50	18	32	36.5	29	6	14	12	20	18	20
41431	41432	41434	MR.63 p-M6x10-*	63	M6	73	23	43	47	36	8	17	15	10	20	31
41441	41442	41444	MR.63 p-M6x16-*	63	M6	73	23	43	47	36	8	17	15	16	20	32
41451	41452	41454	MR.63 p-M6x20-*	63	M6	73	23	43	47	36	8	17	15	20	20	33
41461	41462	41464	MR.63 p-M6x25-*	63	M6	73	23	43	47	36	8	17	15	25	20	34
41466	41467	41469	MR.63 p-M6x30-*	63	M6	73	23	43	47	36	8	17	15	30	20	35
41470	41475	41476	MR.63 p-M6x35-*	63	M6	73	23	43	47	36	8	17	15	35	20	35
41471	41472	41474	MR.63 p-M6x40-*	63	M6	73	23	43	47	36	8	17	15	40	20	36
41501	41502	41504	MR.63 p-M8x16-*	63	M8	73	23	43	47	36	8	17	15	16	20	34
41511	41512	41514	MR.63 p-M8x20-*	63	M8	73	23	43	47	36	8	17	15	20	20	35
41521	41522	41524	MR.63 p-M8x25-*	63	M8	73	23	43	47	36	8	17	15	25	20	37
41531	41532	41534	MR.63 p-M8x30-*	63	M8	73	23	43	47	36	8	17	15	30	20	39
41526	41527	41528	MR.63 p-M8x32-*	63	M8	73	23	43	47	36	8	17	15	32	20	40
41535	41536	41538	MR.63 p-M8x35-*	63	M8	73	23	43	47	36	8	17	15	35	20	41
41541	41542	41544	MR.63 p-M8x40-*	63	M8	73	23	43	47	36	8	17	15	40	20	43
41551	41552	41554	MR.63 p-M8x45-*	63	M8	73	23	43	47	36	8	17	15	45	20	45
41561	41562	41564	MR.63 p-M8x50-*	63	M8	73	23	43	47	36	8	17	15	50	20	47
41569	41570	41572	MR.63 p-M8x60-*	63	M8	73	23	43	47	36	8	17	15	60	20	51
41597	41598	41600	MR.63 p-M10x40-*	63	M10	73	23	43	47	36	8	17	15	40	20	52
42182	42183	42185	MR.80 p-M8x70-*	80	M8	92	28	54	59.5	45	10	22	19	70	24	85
42196	42197	42198	MR.80 p-M10x16-*	80	M10	92	28	54	59.5	45	10	22	19	16	24	70
42201	42202	42204	MR.80 p-M10x20-*	80	M10	92	28	54	59.5	45	10	22	19	20	24	72
42211	42212	42214	MR.80 p-M10x25-*	80	M10	92	28	54	59.5	45	10	22	19	25	24	74
42221	42222	42224	MR.80 p-M10x30-*	80	M10	92	28	54	59.5	45	10	22	19	30	24	77
42216	42217	42218	MR.80 p-M10x32-*	80	M10	92	28	54	59.5	45	10	22	19	32	24	78
42225	42226	42228	MR.80 p-M10x35-*	80	M10	92	28	54	59.5	45	10	22	19	35	24	80
42231	42232	42234	MR.80 p-M10x40-*	80	M10	92	28	54	59.5	45	10	22	19	40	24	82
42241	42242	42244	MR.80 p-M10x50-*	80	M10	92	28	54	59.5	45	10	22	19	50	24	87
42245	42246	42248	MR.80 p-M10x60-*	80	M10	92	28	54	59.5	45	10	22	19	60	24	92
42251	42252	42254	MR.80 p-M10x70-*	80	M10	92	28	54	59.5	45	10	22	19	70	24	97
42301	42302	42304	MR.80 p-M12x20-*	80	M12	92	28	54	59.5	45	10	22	19	20	24	76
42311	42312	42314	MR.80 p-M12x25-*	80	M12	92	28	54	59.5	45	10	22	19	25	24	80
42321	42322	42324	MR.80 p-M12x30-*	80	M12	92	28	54	59.5	45	10	22	19	30	24	84
42325	42326	42328	MR.80 p-M12x35-*	80	M12	92	28	54	59.5	45	10	22	19	35	24	88
42331	42332	42334	MR.80 p-M12x40-*	80	M12	92	28	54	59.5	45	10	22	19	40	24	92
42335	42336	42338	MR.80 p-M12x45-*	80	M12	92	28	54	59.5	45	10	22	19	45	24	92
42341	42342	42344	MR.80 p-M12x50-*	80	M12	92	28	54	59.5	45	10	22	19	50	24	100
42351	42352	42354	MR.80 p-M12x60-*	80	M12	92	28	54	59.5	45	10	22	19	60	24	108
42361	42362	42364	MR.80 p-M12x70-*	80	M12	92	28	54	59.5	45	10	22	19	70	24	116
42365	42366	42368	MR.80 p-M12x80-*	80	M12	92	28	54	59.5	45	10	22	19	80	24	118
42381	42382	42384	MR.80 p-M14x40-*	80	M14	92	28	54	59.5	45	10	22	19	40	24	153
42601	42602	42604	MR.100 p-M12x30-*	100	M12	114	33	65	70.5	53	12	25	25	30	28	138
42651	42652	42654	MR.100 p-M12x50-*	100	M12	114	33	65	70.5	53	12	25	25	50	28	150
42701	42702	42704	MR.100 p-M12x70-*	100	M12	114	33	65	70.5	53	12	25	25	70	28	162
42801	42802	42804	MR.100 p-M14x30-*	100	M14	114	33	65	70.5	53	12	25	25	30	28	142
42805	42806	42808	MR.100 p-M14x35-*	100	M14	114	33	65	70.5	53	12	25	25	35	28	147
42831	42832	42834	MR.100 p-M14x50-*	100	M14	114	33	65	70.5	53	12	25	25	50	28	162
42851	42852	42854	MR.100 p-M14x70-*	100	M14	114	33	65	70.5	53	12	25	25	70	28	182
42901	42902	42904	MR.100 p-M16x30-*	100	M16	114	33	65	70.5	53	12	25	25	30	28	149
42951	42952	42954	MR.100 p-M16x50-*	100	M16	114	33	65	70.5	53	12	25	25	50	28	177
42981	42982	42984	MR.100 p-M16x70-*	100	M16	114	33	65	70.5	53	12	25	25	70	28	205

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Adjustable hand levers

Zinc die casting, Bushing / Threaded bolt Steel



SPECIFICATION

Handle
Zinc die casting

plastic coated
black, RAL 9005, textured finish **SW**
orange, RAL 2004, textured finish **OS**

Version with internal thread

Threaded bush and retaining screw
Steel (5.8), blackened

Version with threaded stud

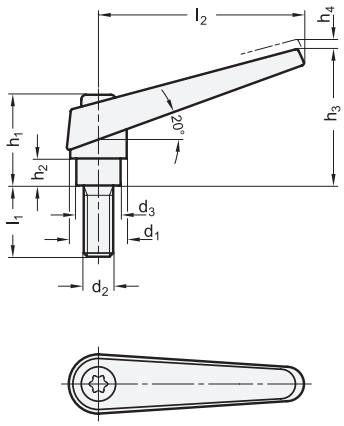
Threaded stud and retaining screw
Steel (5.8), blackened

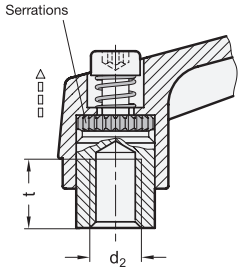
INFORMATION

Adjustable hand levers GN 101 are ideal whenever parts have to be clamped in a confined space or in a particular lever position. The centre insert is connected to the lever via serrations which can easily be disengaged.
Pulling the lever disengages serrations and allowing to be swivelled to the ideal clamping position. On releasing the lever the serrations automatically re-engage.

ON REQUEST

- with insert in Stainless Steel





* Complete with colour index of the clamping lever body (SW or OS)

SW RAL9005 OS RAL2004

GN 101-with internal thread

Description	d1	d2	d3	h1	h2	h3 ≈	h4	l2	t min.	⚖
GN 101-14-M5-*	14	M 5	10	25	4.5	35	3.5	45	9	34
GN 101-18-M6-*	18	M 6	13.5	31	6.5	45	4	62	11	72
GN 101-18-M8-*	18	M 8	13.5	31	6.5	45	4	62	11	69
GN 101-22-M8-*	22	M 8	16	36	8	52	4	74	14	118
GN 101-22-M10-*	22	M 10	16	36	8	52	4	74	14	115
GN 101-25-M10-*	25	M 10	19	43	11	63	4	89	17	176
GN 101-25-M12-*	25	M 12	19	43	11	63	4	89	17	171
GN 101-30-M12-*	30	M 12	23	50.5	12	76	5	108	22	308
GN 101-30-M16-*	30	M 16	23	50.5	12	76	5	108	22	290

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GN 101

Adjustable hand levers

* Complete with colour index of the clamping lever body (SW or OS)

SW RAL9005 OS RAL2004

GN 101-with threaded stud

Description	d1	d2	l1	d3	h1	h2	h3 ≈	h4	l2	⚖
GN 101-14-M5-12-*	14	M 5	12	10	25	4.5	35	3.5	45	37
GN 101-14-M5-16-*	14	M 5	16	10	25	4.5	35	3.5	45	37
GN 101-14-M5-20-*	14	M 5	20	10	25	4.5	35	3.5	45	38
GN 101-14-M5-25-*	14	M 5	25	10	25	4.5	35	3.5	45	39
GN 101-14-M5-32-*	14	M 5	32	10	25	4.5	35	3.5	45	39
GN 101-14-M5-40-*	14	M 5	40	10	25	4.5	35	3.5	45	39
GN 101-14-M5-50-*	14	M 5	50	10	25	4.5	35	3.5	45	40
GN 101-14-M6-12-*	14	M 6	12	10	25	4.5	35	3.5	45	37
GN 101-14-M6-16-*	14	M 6	16	10	25	4.5	35	3.5	45	39
GN 101-14-M6-20-*	14	M 6	20	10	25	4.5	35	3.5	45	38
GN 101-14-M6-25-*	14	M 6	25	10	25	4.5	35	3.5	45	39
GN 101-14-M6-32-*	14	M 6	32	10	25	4.5	35	3.5	45	40
GN 101-14-M6-40-*	14	M 6	40	10	25	4.5	35	3.5	45	41
GN 101-14-M6-50-*	14	M 6	50	10	25	4.5	35	3.5	45	43
GN 101-18-M6-16-*	18	M 6	16	13.5	31	6.5	45	4	62	78
GN 101-18-M6-20-*	18	M 6	20	13.5	31	6.5	45	4	62	78
GN 101-18-M6-25-*	18	M 6	25	13.5	31	6.5	45	4	62	79
GN 101-18-M6-32-*	18	M 6	32	13.5	31	6.5	45	4	62	80
GN 101-18-M6-40-*	18	M 6	40	13.5	31	6.5	45	4	62	82
GN 101-18-M6-50-*	18	M 6	50	13.5	31	6.5	45	4	62	83
GN 101-18-M6-63-*	18	M 6	63	13.5	31	6.5	45	4	62	84
GN 101-18-M8-16-*	18	M 8	16	13.5	31	6.5	45	4	62	79
GN 101-18-M8-20-*	18	M 8	20	13.5	31	6.5	45	4	62	81
GN 101-18-M8-25-*	18	M 8	25	13.5	31	6.5	45	4	62	83
GN 101-18-M8-32-*	18	M 8	32	13.5	31	6.5	45	4	62	84
GN 101-18-M8-40-*	18	M 8	40	13.5	31	6.5	45	4	62	88
GN 101-18-M8-50-*	18	M 8	50	13.5	31	6.5	45	4	62	90
GN 101-18-M8-63-*	18	M 8	63	13.5	31	6.5	45	4	62	93
GN 101-22-M10-20-*	22	M 10	20	16	36	8	52	4	74	134
GN 101-22-M10-25-*	22	M 10	25	16	36	8	52	4	74	136
GN 101-22-M10-32-*	22	M 10	32	16	36	8	52	4	74	140
GN 101-22-M10-40-*	22	M 10	40	16	36	8	52	4	74	143
GN 101-22-M10-50-*	22	M 10	50	16	36	8	52	4	74	149
GN 101-22-M10-63-*	22	M 10	63	16	36	8	52	4	74	152
GN 101-22-M10-80-*	22	M 10	80	16	36	8	52	4	74	160
GN 101-25-M12-25-*	25	M 12	25	19	43	11	63	4	89	204
GN 101-25-M12-32-*	25	M 12	32	19	43	11	63	4	89	209
GN 101-25-M12-40-*	25	M 12	40	19	43	11	63	4	89	215
GN 101-25-M12-50-*	25	M 12	50	19	43	11	63	4	89	223
GN 101-25-M12-63-*	25	M 12	63	19	43	11	63	4	89	230
GN 101-25-M12-80-*	25	M 12	80	19	43	11	63	4	89	240
GN 101-30-M16-32-*	30	M 16	32	23	50.5	12	76	5	108	365
GN 101-30-M16-40-*	30	M 16	40	23	50.5	12	76	5	108	380
GN 101-30-M16-50-*	30	M 16	50	23	50.5	12	76	5	108	390
GN 101-30-M16-63-*	30	M 16	63	23	50.5	12	76	5	108	403
GN 101-30-M16-80-*	30	M 16	80	23	50.5	12	76	5	108	424

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Adjustable hand levers

Zinc die casting, Bushing / Threaded bolt
Stainless Steel



SPECIFICATION

Handle
Zinc die casting

plastic coated
black, RAL 9005, textured finish **SW**
orange, RAL 2004, textured finish **OS**

Version with internal thread

Threaded bush and retaining screw
Stainless Steel AISI 303

Version with threaded stud

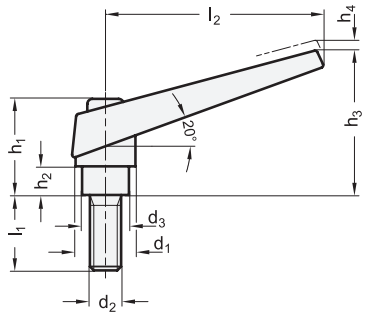
Threaded stud and retaining screw
Stainless Steel AISI 303

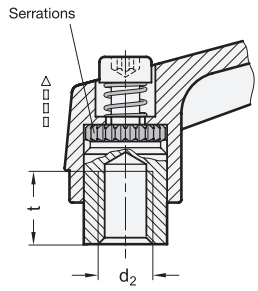
INFORMATION

Adjustable hand levers GN 101.1 are ideal whenever parts have to be clamped in a confined space or in a particular lever position. The centre insert is connected to the lever via serrations which can easily be disengaged.
Pulling the lever disengages serrations and allowing to be swivelled to the ideal clamping position. On releasing the lever the serrations automatically re-engage.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)







* Complete with colour index of the clamping lever body (SW or OS)

SW RAL9005 **OS** RAL2004

GN 101.1-with internal thread **STAINLESS STEEL**

Description	d1	d2	d3	h1	h2	h3 ≈	h4	l2	t min.	⚖
GN 101.1-14-M5-*	14**	M 5	10	25	4.5	35	3.5	45	9	36
GN 101.1-14-M6-*	14**	M 6	10	25	4.5	35	3.5	45	9	36
GN 101.1-18-M6-*	18**	M 6	13.5	31	6.5	45	4	62	11	71
GN 101.1-18-M8-*	18**	M 8	13.5	31	6.5	45	4	62	11	60
GN 101.1-22-M8-*	22**	M 8	16	36	8	52	4	74	14	116
GN 101.1-22-M10-*	22**	M 10	16	36	8	52	4	74	14	116
GN 101.1-25-M10-*	25**	M 10	19	43	11	63	4	89	17	174
GN 101.1-25-M12-*	25**	M 12	19	43	11	63	4	89	17	168
GN 101.1-30-M12-*	30**	M 12	23	50.5	12	76	5	108	22	290
GN 101.1-30-M16-*	30**	M 16	23	50.5	12	76	5	108	22	273

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GN 101.1 | Adjustable hand levers

* Complete with colour index of the clamping lever body (SW or OS)

SW RAL9005 OS RAL2004

GN 101.1-with threaded stud STAINLESS STEEL

Description	d1	d2	l1	d3	h1	h2	h3 ≈	h4	l2	⚖
GN 101.1-14-M5-12-*	14**	M 5	12	10	25	4.5	35	3.5	45	39
GN 101.1-14-M5-16-*	14**	M 5	16	10	25	4.5	35	3.5	45	39
GN 101.1-14-M5-20-*	14**	M 5	20	10	25	4.5	35	3.5	45	39
GN 101.1-14-M5-25-*	14**	M 5	25	10	25	4.5	35	3.5	45	40
GN 101.1-14-M5-32-*	14**	M 5	32	10	25	4.5	35	3.5	45	41
GN 101.1-14-M5-40-*	14**	M 5	40	10	25	4.5	35	3.5	45	42
GN 101.1-14-M5-50-*	14**	M 5	50	10	25	4.5	35	3.5	45	43
GN 101.1-14-M6-12-*	14**	M 6	12	10	25	4.5	35	3.5	45	39
GN 101.1-14-M6-16-*	14**	M 6	16	10	25	4.5	35	3.5	45	40
GN 101.1-14-M6-20-*	14**	M 6	20	10	25	4.5	35	3.5	45	40
GN 101.1-14-M6-25-*	14**	M 6	25	10	25	4.5	35	3.5	45	39
GN 101.1-14-M6-32-*	14**	M 6	32	10	25	4.5	35	3.5	45	43
GN 101.1-14-M6-40-*	14**	M 6	40	10	25	4.5	35	3.5	45	41
GN 101.1-14-M6-50-*	14**	M 6	50	10	25	4.5	35	3.5	45	46
GN 101.1-18-M6-16-*	18**	M 6	16	13.5	31	6.5	45	4	62	77
GN 101.1-18-M6-20-*	18**	M 6	20	13.5	31	6.5	45	4	62	78
GN 101.1-18-M6-25-*	18**	M 6	25	13.5	31	6.5	45	4	62	79
GN 101.1-18-M6-32-*	18**	M 6	32	13.5	31	6.5	45	4	62	79
GN 101.1-18-M6-40-*	18**	M 6	40	13.5	31	6.5	45	4	62	82
GN 101.1-18-M6-50-*	18**	M 6	50	13.5	31	6.5	45	4	62	83
GN 101.1-18-M6-63-*	18**	M 6	63	13.5	31	6.5	45	4	62	85
GN 101.1-18-M8-16-*	18**	M 8	16	13.5	31	6.5	45	4	62	80
GN 101.1-18-M8-20-*	18**	M 8	20	13.5	31	6.5	45	4	62	80
GN 101.1-18-M8-25-*	18**	M 8	25	13.5	31	6.5	45	4	62	83
GN 101.1-18-M8-32-*	18**	M 8	32	13.5	31	6.5	45	4	62	85
GN 101.1-18-M8-40-*	18**	M 8	40	13.5	31	6.5	45	4	62	86
GN 101.1-18-M8-50-*	18**	M 8	50	13.5	31	6.5	45	4	62	90
GN 101.1-18-M8-63-*	18**	M 8	63	13.5	31	6.5	45	4	62	95
GN 101.1-22-M10-20-*	22**	M 10	20	16	36	8	52	4	74	135
GN 101.1-22-M10-25-*	22**	M 10	25	16	36	8	52	4	74	137
GN 101.1-22-M10-32-*	22**	M 10	32	16	36	8	52	4	74	139
GN 101.1-22-M10-40-*	22**	M 10	40	16	36	8	52	4	74	144
GN 101.1-22-M10-50-*	22**	M 10	50	16	36	8	52	4	74	150
GN 101.1-22-M10-63-*	22**	M 10	63	16	36	8	52	4	74	157
GN 101.1-22-M10-80-*	22**	M 10	80	16	36	8	52	4	74	165
GN 101.1-25-M12-25-*	25**	M 12	25	19	43	11	63	4	89	202
GN 101.1-25-M12-32-*	25**	M 12	32	19	43	11	63	4	89	207
GN 101.1-25-M12-40-*	25**	M 12	40	19	43	11	63	4	89	212
GN 101.1-25-M12-50-*	25**	M 12	50	19	43	11	63	4	89	221
GN 101.1-25-M12-63-*	25**	M 12	63	19	43	11	63	4	89	229
GN 101.1-25-M12-80-*	25**	M 12	80	19	43	11	63	4	89	240
GN 101.1-30-M16-32-*	30**	M 16	32	23	50.5	12	76	5	108	349
GN 101.1-30-M16-40-*	30**	M 16	40	23	50.5	12	76	5	108	360
GN 101.1-30-M16-50-*	30**	M 16	50	23	50.5	12	76	5	108	372
GN 101.1-30-M16-63-*	30**	M 16	63	23	50.5	12	76	5	108	391
GN 101.1-30-M16-80-*	30**	M 16	80	23	50.5	12	76	5	108	413

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Adjustable handles

Technopolymer

LEVER BODY
Glass-fibre reinforced polyamide based (PA) technopolymer, grey-black colour, matte finish.

PUSH BUTTON
Technopolymer in grey-black or orange colours, glossy finish.

STANDARD EXECUTIONS
Glass-fibre reinforced technopolymer clamping element with retaining pin, black colour, with knurling on the protruding part to make initial tightening easier. AISI 302 stainless steel return spring.
- **MRT-B:** brass boss, threaded blind hole.
- **MRT-SST:** AISI 303 stainless steel boss, threaded blind hole.
- **MRT-p:** zinc-plated steel threaded stud, chamfered flat end UNI 947 : ISO 4753 (see Technical Data on page A11).
- **MRT-SST-p:** AISI 303 stainless steel threaded stud, chamfered flat end UNI 947 : ISO 4753 (see Technical Data on page A11).

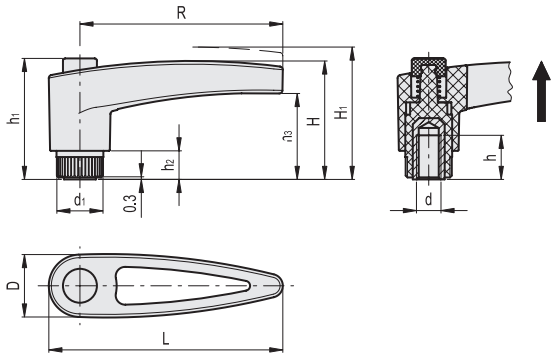
FEATURES AND APPLICATIONS
Flat adjustable handle, open configuration to avoid any deposit of unhygienic residues or scraps and dirt.
Particularly suitable when the lever turning angle is limited owing to lack of space.
Compared to other types of adjustable handles with metal retaining screw this solution offers:
- absolute electric insulation for the operator
- no visible steel parts subject to rust
- more comfortable lever release.

STRESS RESISTANCE
See ERX. (on page 304).

INSTRUCTIONS OF USE
For clamping, lift the lever to disengage the clamping device teeth and bring it back to start position. By releasing the lever, the return spring automatically engages the teeth.



MRT-B
MRT-SST





*Complete with colour index, example: 140111-C1 MRT.42-B-M5-C1

C1 RAL7021 C2 RAL2004

MRT-B

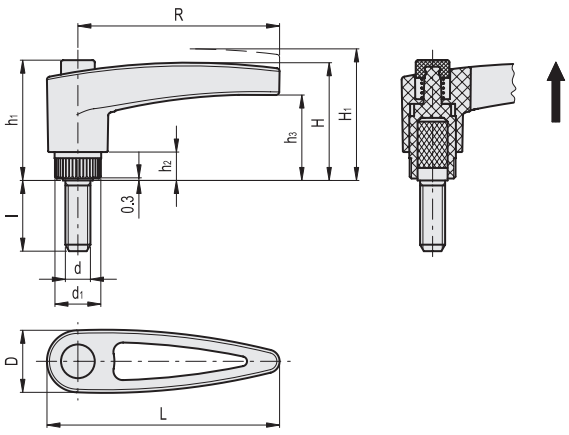
Code	Description	R	d6H	L	D	H	H1	h	h1	h2	h3	d1	Teeth no.	⚖
140111-*	MRT.42-B-M5-*	43	M5	51	16	28	31.5	10	29	6	21.5	12	18	10
140112-*	MRT.42-B-M6-*	43	M6	51	16	28	31.5	10	29	6	21.5	12	18	9
140121-*	MRT.65-B-M6-*	64.5	M6	74.5	20	37	41	12	38	9	27	15	20	21
140122-*	MRT.65-B-M8-*	64.5	M8	74.5	20	37	41	13	38	9	27	15	20	22
140131-*	MRT.80-B-M8-*	79.5	M8	92	25	45	49	20	47	11	34.5	18.5	24	41
140132-*	MRT.80-B-M10-*	79.5	M10	92	25	45	49	18	47	11	34.5	18.5	24	40
140133-*	MRT.80-B-M12-*	79.5	M12	92	25	45	49	17	47	11	34.5	18.5	24	39

MRT-SST STAINLESS STEEL

Code	Description	R	d6H	L	D	H	H1	h	h1	h2	h3	d1	Teeth no.	⚖
140616-*	MRT.42-SST-M6-*	43	M6	51	16	28	31.5	10	29	6	21.5	12	18	9
140622-*	MRT.65-SST-M8-*	64.5	M8	74.5	20	37	41	13	38	9	27	15	20	22
140626-*	MRT.80-SST-M10-*	79.5	M10	92	25	45	49	17	47	11	34.5	18.5	24	40

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MRT-p
MRT-SST-p





*Complete with colour index, example: 140291-C1 MRT.42-p-M4x10-C1

C1 RAL7021 C2 RAL2004

MRT-p

Code	Description	R	d6g	L	D	H	H1	h1	h2	h3	d1	l	Teeth no.	⚖
140291-*	MRT.42-p-M4x10-*	43	M4	51	16	28	31.5	29	6	21.5	12	10	18	9
140303-*	MRT.42-p-M5x20-*	43	M5	51	16	28	31.5	29	6	21.5	12	20	18	12
140311-*	MRT.42-p-M6x10-*	43	M6	51	16	28	31.5	29	6	21.5	12	10	18	12
140312-*	MRT.42-p-M6x16-*	43	M6	51	16	28	31.5	29	6	21.5	12	16	18	13
140313-*	MRT.42-p-M6x20-*	43	M6	51	16	28	31.5	29	6	21.5	12	20	18	14
140315-*	MRT.42-p-M6x30-*	43	M6	51	16	28	31.5	29	6	21.5	12	30	18	16
140351-*	MRT.65-p-M8x16-*	64.5	M8	74.5	20	37	41	38	9	27	15	16	20	31
140352-*	MRT.65-p-M8x20-*	64.5	M8	74.5	20	37	41	38	9	27	15	20	20	32
140353-*	MRT.65-p-M8x25-*	64.5	M8	74.5	20	37	41	38	9	27	15	25	20	33
140354-*	MRT.65-p-M8x30-*	64.5	M8	74.5	20	37	41	38	9	27	15	30	20	34
140356-*	MRT.65-p-M8x40-*	64.5	M8	74.5	20	37	41	38	9	27	15	40	20	37
140381-*	MRT.80-p-M10x20-*	79.5	M10	92	25	45	49	47	11	34.5	18.5	20	24	54
140383-*	MRT.80-p-M10x30-*	79.5	M10	92	25	45	49	47	11	34.5	18.5	30	24	57
140385-*	MRT.80-p-M10x40-*	79.5	M10	92	25	45	49	47	11	34.5	18.5	40	24	60
140386-*	MRT.80-p-M10x50-*	79.5	M10	92	25	45	49	47	11	34.5	18.5	50	24	63
140403-*	MRT.80-p-M12x30-*	79.5	M12	92	25	45	49	47	11	34.5	18.5	30	24	58
140407-*	MRT.80-p-M12x50-*	79.5	M12	92	25	45	49	47	11	34.5	18.5	50	24	65

MRT-SST-p **STAINLESS STEEL**

Code	Description	R	d6g	L	D	H	H1	h1	h2	h3	d1	l	Teeth no.	⚖
140671-*	MRT.42-SST-p-M6x16-*	43	M6	51	16	28	31.5	29	6	21.5	12	16	18	13
140672-*	MRT.42-SST-p-M6x20-*	43	M6	51	16	28	31.5	29	6	21.5	12	20	18	14
140674-*	MRT.42-SST-p-M6x30-*	43	M6	51	16	28	31.5	29	6	21.5	12	30	18	16
140691-*	MRT.65-SST-p-M8x16-*	64.5	M8	74.5	20	37	41	38	9	27	15	16	20	31
140692-*	MRT.65-SST-p-M8x20-*	64.5	M8	74.5	20	37	41	38	9	27	15	20	20	32
140694-*	MRT.65-SST-p-M8x30-*	64.5	M8	74.5	20	37	41	38	9	27	15	30	20	34
140695-*	MRT.65-SST-p-M8x40-*	64.5	M8	74.5	20	37	41	38	9	27	15	40	20	37
140701-*	MRT.80-SST-p-M10x20-*	79.5	M10	92	25	45	49	47	11	34.5	18.5	20	24	54
140702-*	MRT.80-SST-p-M10x30-*	79.5	M10	92	25	45	49	47	11	34.5	18.5	30	24	57
140703-*	MRT.80-SST-p-M10x40-*	79.5	M10	92	25	45	49	47	11	34.5	18.5	40	24	60

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Adjustable handles

Flat lever, technopolymer

LEVER BODY
Glass-fibre reinforced polyamide based (PA) technopolymer, grey-black colour, matte finish.

PUSH BUTTON
Technopolymer in Ergostyle colours, glossy finish.

STANDARD EXECUTIONS
Glass-fibre reinforced technopolymer clamping element with retaining pin, black colour, with knurling on the protruding part to make initial tightening easier. AISI 302 stainless steel return spring.
- **ERW-B**: brass boss, threaded blind hole.
- **ERW-SST**: AISI 303 stainless steel boss, threaded blind hole.
- **ERW-p**: zinc-plated steel threaded stud, chamfered flat end UNI 947 : ISO 4753 (see Technical data on page A11).
- **ERW-SST-p**: AISI 303 stainless steel threaded stud, chamfered flat end UNI 947 : ISO 4753 (see Technical data on page A11).

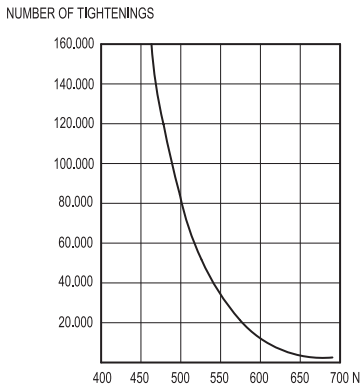
FEATURES AND APPLICATIONS
Particularly suitable when the available space and operating mode make it preferable to use a flat lever instead of an inclined lever.
Compared to other types of adjustable handles with metal retaining screw this solution offers some advantages:
- absolute electric insulation for the operator
- no visible steel parts subject to rust
- more comfortable lever release.

STRESS RESISTANCE
Adjustable handles are generally used for repetitive clamping operations sometimes with very high-frequency.
Therefore, the stress resistance (i.e. the resistance to repeated tightening cycles) of the handle unit is particularly important and, especially, the strength of the toothed element which transmits the tightening force from the handle to the threaded element (boss or stud).
The results of several laboratory tests, perfomed with a special instrument that simulates the stress resistance conditions, have shown that e.g. ERW.78 adjustable handle can withstand without yielding more than 100,000 tightening cycles, under the action of a force of 490 N (see graphic).
The special glass-fibre reinforced technopolymer enables the ELESA adjustable handles to guarantee stress resistance values which are much higher than the ones generated under normal working conditions.

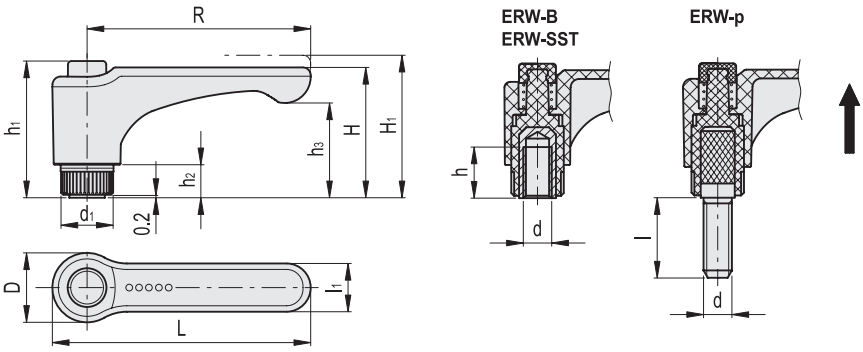
INSTRUCTIONS OF USE
For clamping, lift the lever to disengage the clamping device teeth and bring it back to start position. By releasing the lever, the return spring automatically engages the teeth.



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*Complete with colour index, example: 253061-C2 ERW.30-B-M3-C2

C1	C2	C3	C4	C5	C6
RAL7021	RAL2004	RAL7035	RAL1021	RAL5024	RAL3000

ERW-B

Code	Description	R	d6H	L	D	H	H1	h	h1	h2	h3	d1	l1	Teeth no.	⚖
253061-*	ERW.30-B-M3-*	30	M3	37.5	15.5	27	30.5	10	29.5	6	20.5	12	9	18	8
253066-*	ERW.30-B-M4-*	30	M4	37.5	15.5	27	30.5	10	29.5	6	20.5	12	9	18	9
253071-*	ERW.30-B-M5-*	30	M5	37.5	15.5	27	30.5	10	29.5	6	20.5	12	9	18	10
253076-*	ERW.30-B-M6-*	30	M6	37.5	15.5	27	30.5	10	29.5	6	20.5	12	9	18	11
253101-*	ERW.44-B-M5-*	44	M5	52	15.5	27	30.5	10	29.5	6	18.5	12	11	18	12
253106-*	ERW.44-B-M6-*	44	M6	52	15.5	27	30.5	10	29.5	6	18.5	12	11	18	16
253131-*	ERW.63-B-M6-*	63	M6	73.5	19	36.5	40	16	37.5	8	26.5	15	13.5	20	22
253136-*	ERW.63-B-M8-*	63	M8	73.5	19	36.5	40	13	37.5	8	26.5	15	13.5	20	31
253139-*	ERW.63-B-M10-*	63	M10	73.5	19	36.5	40	13	37.5	8	26.5	15	13.5	20	29
253151-*	ERW.78-B-M8-*	78	M8	90.5	24.5	42	45.5	20	47	12	30	19	16	24	40
253156-*	ERW.78-B-M10-*	78	M10	90.5	24.5	42	45.5	20	47	12	30	19	16	24	43
253161-*	ERW.78-B-M12-*	78	M12	90.5	24.5	42	45.5	20	47	12	30	19	16	24	46

ERW-SST **STAINLESS STEEL**

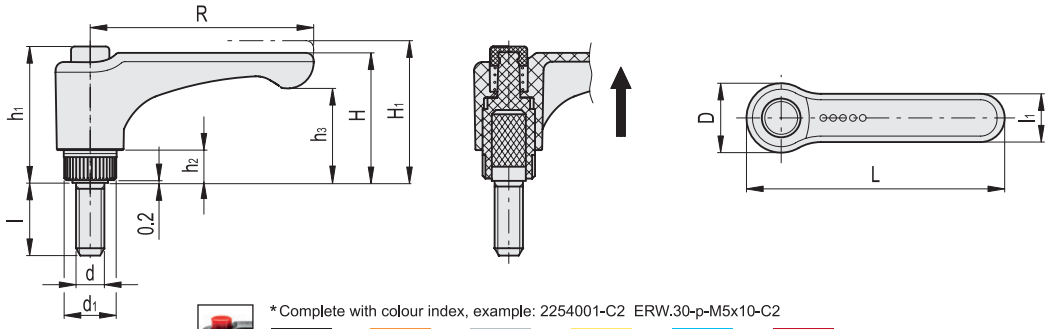
Code	Description	R	d6H	L	D	H	H1	h	h1	h2	h3	d1	l1	Teeth no.	⚖
255071-*	ERW.30-SST-M5-*	30	M5	37.5	15.5	27	30.5	6	29.5	6	20.5	12	9	18	10
255076-*	ERW.30-SST-M6-*	30	M6	37.5	15.5	27	30.5	6	29.5	6	20.5	12	9	18	11
255101-*	ERW.44-SST-M5-*	44	M5	52	15.5	27	30.5	6	29.52	6	18.5	12	11	18	12
255106-*	ERW.44-SST-M6-*	44	M6	52	15.5	27	30.5	6	29.5	6	18.5	12	11	18	16
255131-*	ERW.63-SST-M8-*	63	M6	73.5	19	36.5	40	12	37.5	8	26.5	15	13.5	20	63
255136-*	ERW.63-SST-M8-*	63	M8	73.5	19	36.5	40	12	37.5	8	26.5	15	13.5	20	31
255151-*	ERW.78-SST-M8-*	78	M8	90.5	24.5	42	45.5	13	47	12	30	19	16	24	40
255156-*	ERW.78-SST-M10-*	78	M10	90.5	24.5	42	45.5	13	47	12	30	19	16	24	43

ERW-p

Code	Description	R	d6g	L	D	H	H1	h1	h2	h3	d1	l	l1	Teeth no.	⚖
254001-*	ERW.30-p-M5x10-*	30	M5	37.5	15.5	27	30.5	29.5	6	20.5	12	10	9	18	10
254006-*	ERW.30-p-M5x16-*	30	M5	37.5	15.5	27	30.5	29.5	6	20.5	12	16	9	18	11
254011-*	ERW.30-p-M5x20-*	30	M5	37.5	15.5	27	30.5	29.5	6	20.5	12	20	9	18	11
254016-*	ERW.30-p-M6x10-*	30	M6	37.5	15.5	27	30.5	29.5	6	20.5	12	10	9	18	11
254021-*	ERW.30-p-M6x16-*	30	M6	37.5	15.5	27	30.5	29.5	6	20.5	12	16	9	18	12
254026-*	ERW.30-p-M6x20-*	30	M6	37.5	15.5	27	30.5	29.5	6	20.5	12	20	9	18	13
254031-*	ERW.30-p-M6x25-*	30	M6	37.5	15.5	27	30.5	29.5	6	20.5	12	25	9	18	14
254036-*	ERW.30-p-M6x30-*	30	M6	37.5	15.5	27	30.5	29.5	6	20.5	12	30	9	18	15
254046-*	ERW.30-p-M6x40-*	30	M6	37.5	15.5	27	30.5	29.5	6	20.5	12	40	9	18	16
254101-*	ERW.44-p-M5x10-*	44	M5	52	15.5	27	30.5	29.5	6	18.5	12	10	11	18	12
254106-*	ERW.44-p-M5x16-*	44	M5	52	15.5	27	30.5	29.5	6	18.5	12	16	11	18	13
254111-*	ERW.44-p-M5x20-*	44	M5	52	15.5	27	30.5	29.5	6	18.5	12	20	11	18	13
254116-*	ERW.44-p-M6x10-*	44	M6	52	15.5	27	30.5	29.5	6	18.5	12	10	11	18	13
254121-*	ERW.44-p-M6x16-*	44	M6	52	15.5	27	30.5	29.5	6	18.5	12	16	11	18	14
254126-*	ERW.44-p-M6x20-*	44	M6	52	15.5	27	30.5	29.5	6	18.5	12	20	11	18	15
254131-*	ERW.44-p-M6x25-*	44	M6	52	15.5	27	30.5	29.5	6	18.5	12	25	11	18	16
254136-*	ERW.44-p-M6x30-*	44	M6	52	15.5	27	30.5	29.5	6	18.5	12	30	11	18	17
254146-*	ERW.44-p-M6x40-*	44	M6	52	15.5	27	30.5	29.5	6	18.5	12	40	11	18	19
254151-*	ERW.44-p-M6x45-*	44	M6	52	15.5	27	30.5	29.5	6	18.5	12	45	11	18	20

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ERW-p





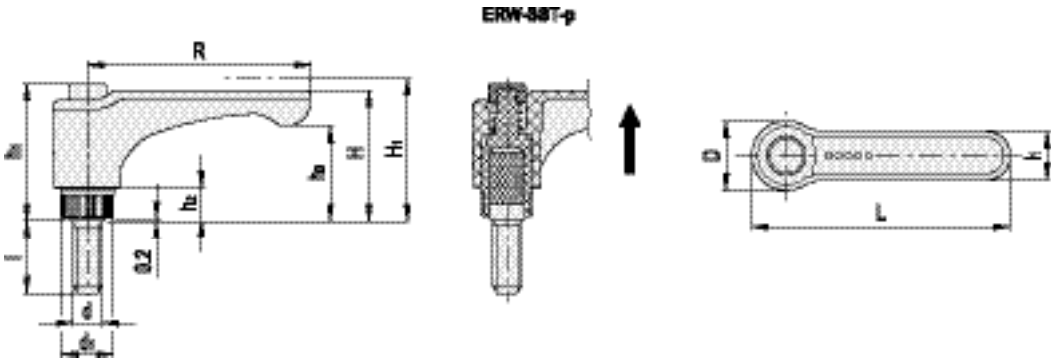
*Complete with colour index, example: 2254001-C2 ERW.30-p-M5x10-C2

C1	C2	C3	C4	C5	C6
RAL7021	RAL2004	RAL7035	RAL1021	RAL5024	RAL3000

ERW-p

Code	Description	R	d6g	L	D	H	H1	h1	h2	h3	d1	l	l1	Teeth no.	⚖
254301-*	ERW.63-p-M6x10-*	63	M6	73.5	19	36.5	40	37.5	8	26.5	15	10	13.5	20	23
254306-*	ERW.63-p-M6x16-*	63	M6	73.5	19	36.5	40	37.5	8	26.5	15	16	13.5	20	24
254311-*	ERW.63-p-M6x20-*	63	M6	73.5	19	36.5	40	37.5	8	26.5	15	20	13.5	20	25
254316-*	ERW.63-p-M6x25-*	63	M6	73.5	19	36.5	40	37.5	8	26.5	15	25	13.5	20	26
254321-*	ERW.63-p-M6x30-*	63	M6	73.5	19	36.5	40	37.5	8	26.5	15	30	13.5	20	27
254323-*	ERW.63-p-M6x35-*	63	M6	73.5	19	36.5	40	37.5	8	26.5	15	35	13.5	20	29
254326-*	ERW.63-p-M6x40-*	63	M6	73.5	19	36.5	40	37.5	8	26.5	15	40	13.5	20	31
254333-*	ERW.63-p-M8x16-*	63	M8	73.5	19	36.5	40	37.5	8	26.5	15	16	13.5	20	29
254336-*	ERW.63-p-M8x20-*	63	M8	73.5	19	36.5	40	37.5	8	26.5	15	20	13.5	20	30
254341-*	ERW.63-p-M8x25-*	63	M8	73.5	19	36.5	40	37.5	8	26.5	15	25	13.5	20	31
254346-*	ERW.63-p-M8x30-*	63	M8	73.5	19	36.5	40	37.5	8	26.5	15	30	13.5	20	33
254351-*	ERW.63-p-M8x35-*	63	M8	73.5	19	36.5	40	37.5	8	26.5	15	35	13.5	20	35
254356-*	ERW.63-p-M8x40-*	63	M8	73.5	19	36.5	40	37.5	8	26.5	15	40	13.5	20	37
254361-*	ERW.63-p-M8x45-*	63	M8	73.5	19	36.5	40	37.5	8	26.5	15	45	13.5	20	38
254366-*	ERW.63-p-M8x50-*	63	M8	73.5	19	36.5	40	37.5	8	26.5	15	50	13.5	20	39
254371-*	ERW.63-p-M8x60-*	63	M8	73.5	19	36.5	40	37.5	8	26.5	15	60	13.5	20	42
254376-*	ERW.63-p-M8x70-*	63	M8	73.5	19	36.5	40	37.5	8	26.5	15	70	13.5	20	45
254391-*	ERW.63-p-M10x20-*	63	M10	73.5	19	36.5	40	37.5	8	26.5	15	20	13.5	20	35
254393-*	ERW.63-p-M10x30-*	63	M10	73.5	19	36.5	40	37.5	8	26.5	15	30	13.5	20	38
254395-*	ERW.63-p-M10x40-*	63	M10	73.5	19	36.5	40	37.5	8	26.5	15	40	13.5	20	42
254397-*	ERW.63-p-M10x50-*	63	M10	73.5	19	36.5	40	37.5	8	26.5	15	50	13.5	20	44
254399-*	ERW.63-p-M10x60-*	63	M10	73.5	19	36.5	40	37.5	8	26.5	15	60	13.5	20	47
254498-*	ERW.78-p-M8x20-*	78	M8	90.5	24.5	42	45.5	47	12	30	19	20	16	24	48
254501-*	ERW.78-p-M8x25-*	78	M8	90.5	24.5	42	45.5	47	12	30	19	25	16	24	49
254503-*	ERW.78-p-M8x30-*	78	M8	90.5	24.5	42	45.5	47	12	30	19	30	16	24	50
254506-*	ERW.78-p-M8x40-*	78	M8	90.5	24.5	42	45.5	47	12	30	19	40	16	24	52
254507-*	ERW.78-p-M8x45-*	78	M8	90.5	24.5	42	45.5	47	12	30	19	45	16	24	53
254509-*	ERW.78-p-M8x50-*	78	M8	90.5	24.5	42	45.5	47	12	30	19	50	16	24	54
254511-*	ERW.78-p-M8x55-*	78	M8	90.5	24.5	42	45.5	47	12	30	19	55	16	24	55
254513-*	ERW.78-p-M8x60-*	78	M8	90.5	24.5	42	45.5	47	12	30	19	60	16	24	56
254515-*	ERW.78-p-M8x70-*	78	M8	90.5	24.5	42	45.5	47	12	30	19	70	16	24	58
254516-*	ERW.78-p-M10x20-*	78	M10	90.5	24.5	42	45.5	47	12	30	19	20	16	24	55
254521-*	ERW.78-p-M10x25-*	78	M10	90.5	24.5	42	45.5	47	12	30	19	25	16	24	58
254526-*	ERW.78-p-M10x30-*	78	M10	90.5	24.5	42	45.5	47	12	30	19	30	16	24	60
254531-*	ERW.78-p-M10x35-*	78	M10	90.5	24.5	42	45.5	47	12	30	19	35	16	24	62
254536-*	ERW.78-p-M10x40-*	78	M10	90.5	24.5	42	45.5	47	12	30	19	40	16	24	65
254541-*	ERW.78-p-M10x50-*	78	M10	90.5	24.5	42	45.5	47	12	30	19	50	16	24	69
254546-*	ERW.78-p-M10x60-*	78	M10	90.5	24.5	42	45.5	47	12	30	19	60	16	24	74
254551-*	ERW.78-p-M10x70-*	78	M10	90.5	24.5	42	45.5	47	12	30	19	70	16	24	79
254561-*	ERW.78-p-M12x20-*	78	M12	90.5	24.5	42	45.5	47	12	30	19	20	16	24	64
254566-*	ERW.78-p-M12x25-*	78	M12	90.5	24.5	42	45.5	47	12	30	19	25	16	24	67
254571-*	ERW.78-p-M12x30-*	78	M12	90.5	24.5	42	45.5	47	12	30	19	30	16	24	70
254573-*	ERW.78-p-M12x35-*	78	M12	90.5	24.5	42	45.5	47	12	30	19	35	16	24	74
254576-*	ERW.78-p-M12x40-*	78	M12	90.5	24.5	42	45.5	47	12	30	19	40	16	24	77
254581-*	ERW.78-p-M12x45-*	78	M12	90.5	24.5	42	45.5	47	12	30	19	45	16	24	80
254586-*	ERW.78-p-M12x50-*	78	M12	90.5	24.5	42	45.5	47	12	30	19	50	16	24	84
254591-*	ERW.78-p-M12x60-*	78	M12	90.5	24.5	42	45.5	47	12	30	19	60	16	24	91
254593-*	ERW.78-p-M12x70-*	78	M12	90.5	24.5	42	45.5	47	12	30	19	70	16	24	98
254596-*	ERW.78-p-M1280-*	78	M12	90.5	24.5	42	45.5	47	12	30	19	80	16	24	105

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*Complete with colour index, example: 255061-C2 ERW.30-SST-p-M5x10-C2

C1	C2	C3	C4	C5	C6
RAL7021	RAL2004	RAL7035	RAL1021	RAL5024	RAL3000

ERW-SST-p **STAINLESS STEEL**

Code	Description	R	d_{6g}	L	D	H	H_1	h_1	h_2	h_3	d_1	l	l_1	Teeth no.	⚖
255061-*	ERW.30-SST-p-M5x10-*	30	M5	37.5	15.5	27	30.5	29.5	6	20.5	12	10	9	18	10
255066-*	ERW.30-SST-p-M5x16-*	30	M5	37.5	15.5	27	30.5	29.5	6	20.5	12	16	9	18	11
255196-*	ERW.30-SST-p-M6x10-*	30	M6	37.5	15.5	27	30.5	29.5	6	20.5	12	10	9	18	11
255201-*	ERW.30-SST-p-M6X16-*	30	M6	37.5	15.5	27	30.5	29.5	6	20.5	12	16	9	18	12
255203-*	ERW.30-SST-p-M6x20-*	30	M6	37.5	15.5	27	30.5	29.5	6	20.5	12	20	9	18	13
255205-*	ERW.30-SST-p-M6x25-*	30	M6	37.5	15.5	27	30.5	29.5	6	20.5	12	25	9	18	14
255207-*	ERW.30-SST-p-M6x30-*	30	M6	37.5	15.5	27	30.5	29.5	6	20.5	12	30	9	18	15
255209-*	ERW.44-SST-p-M5x10-*	44	M5	52	15.5	27	30.5	29.5	6	18.5	12	10	11	18	12
255211-*	ERW.44-SST-p-M5x16-*	44	M5	52	15.5	27	30.5	29.5	6	18.5	12	16	11	18	13
255216-*	ERW.44-SST-p-M6x10-*	44	M6	52	15.5	27	30.5	29.5	6	18.5	12	10	11	18	13
255221-*	ERW.44-SST-p-M6x16-*	44	M6	52	15.5	27	30.5	29.5	6	18.5	12	16	11	18	14
255226-*	ERW.44-SST-p-M6x20-*	44	M6	52	15.5	27	30.5	29.5	6	18.5	12	20	11	18	15
255231-*	ERW.44-SST-p-M6x25-*	44	M6	52	15.5	27	30.5	29.5	6	18.5	12	25	11	18	16
255236-*	ERW.44-SST-p-M6x30-*	44	M6	52	15.5	27	30.5	29.5	6	18.5	12	30	11	18	17
255341-*	ERW.63-SST-p-M6x10-*	63	M6	73.5	19	36.5	40	37.5	8	26.5	15	10	13.5	20	23
255351-*	ERW.63-SST-p-M6x20-*	63	M6	73.5	19	36.5	40	37.5	8	26.5	15	20	13.5	20	25
255421-*	ERW.63-SST-p-M6x30-*	63	M6	73.5	19	36.5	40	37.5	8	26.5	15	30	13.5	20	27
255426-*	ERW.63-SST-p-M6x40-*	63	M6	73.5	19	36.5	40	37.5	8	26.5	15	40	13.5	20	31
255431-*	ERW.63-SST-p-M8x16-*	63	M8	73.5	19	36.5	40	37.5	8	26.5	15	16	13.5	20	29
255436-*	ERW.63-SST-p-M8x20-*	63	M8	73.5	19	36.5	40	37.5	8	26.5	15	20	13.5	20	30
255441-*	ERW.63-SST-p-M8x25-*	63	M8	73.5	19	36.5	40	37.5	8	26.5	15	25	13.5	20	31
255446-*	ERW.63-SST-p-M8x30-*	63	M8	73.5	19	36.5	40	37.5	8	26.5	15	30	13.5	20	33
255451-*	ERW.63-SST-p-M8x35-*	63	M8	73.5	19	36.5	40	37.5	8	26.5	15	35	13.5	20	35
255456-*	ERW.63-SST-p-M8x40-*	63	M8	73.5	19	36.5	40	37.5	8	26.5	15	40	13.5	20	37
255461-*	ERW.63-SST-p-M8x45-*	63	M8	73.5	19	36.5	40	37.5	8	26.5	15	45	13.5	20	38
255466-*	ERW.63-SST-p-M8x50-*	63	M8	73.5	19	36.5	40	37.5	8	26.5	15	50	13.5	20	39
255471-*	ERW.63-SST-p-M8x60-*	63	M8	73.5	19	36.5	40	37.5	8	26.5	15	60	13.5	20	42
255476-*	ERW.63-SST-p-M8x70-*	63	M8	73.5	19	36.5	40	37.5	8	26.5	15	70	13.5	20	45
255601-*	ERW.78-SST-p-M8x-20-*	78	M8	90.5	24.5	42	45.5	47	12	30	19	20	16	24	48
255603-*	ERW.78-SST-p-M8x-25-*	78	M8	90.5	24.5	42	45.5	47	12	30	19	25	16	24	49
255605-*	ERW.78-SST-p-M8x-30-*	78	M8	90.5	24.5	42	45.5	47	12	30	19	30	16	24	50
255607-*	ERW.78-SST-p-M8x-40-*	78	M8	90.5	24.5	42	45.5	47	12	30	19	40	16	24	52
255609-*	ERW.78-SST-p-M8x-45-*	78	M8	90.5	24.5	42	45.5	47	12	30	19	45	16	24	53
255611-*	ERW.78-SST-p-M8x-50-*	78	M8	90.5	24.5	42	45.5	47	12	30	19	50	16	24	54
255617-*	ERW.78-SST-p-M8x-70-*	78	M8	90.5	24.5	42	45.5	47	12	30	19	70	16	24	58
255716-*	ERW.78-SST-p-M10x-20-*	78	M10	90.5	24.5	42	45.5	47	12	30	19	20	16	24	55
255726-*	ERW.78-SST-p-M10x-30-*	78	M10	90.5	24.5	42	45.5	47	12	30	19	30	16	24	61
255731-*	ERW.78-SST-p-M10x-35-*	78	M10	90.5	24.5	42	45.5	47	12	30	19	35	16	24	63
255736-*	ERW.78-SST-p-M10x-40-*	78	M10	90.5	24.5	42	45.5	47	12	30	19	40	16	24	66
255741-*	ERW.78-SST-p-M10x-50-*	78	M10	90.5	24.5	42	45.5	47	12	30	19	50	16	24	70
255746-*	ERW.78-SST-p-M10x-60-*	78	M10	90.5	24.5	42	45.5	47	12	30	19	60	16	24	75
255771-*	ERW.78-SST-p-M12x-30-*	78	M12	90.5	24.5	42	45.5	47	12	30	19	30	16	24	71
255773-*	ERW.78-SST-p-M12x-35-*	78	M12	90.5	24.5	42	45.5	47	12	30	19	35	16	24	75
255781-*	ERW.78-SST-p-M12x-40-*	78	M12	90.5	24.5	42	45.5	47	12	30	19	40	16	24	78
255786-*	ERW.78-SST-p-M12x-50-*	78	M12	90.5	24.5	42	45.5	47	12	30	19	50	16	24	84
255893-*	ERW.78-SST-p-M12x-70-*	78	M12	90.5	24.5	42	45.5	47	12	30	19	70	16	24	99

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Adjustable hand levers

Zinc die casting, Bushing /Threaded bolt Steel



SPECIFICATION

Handle
Zinc die casting

plastic coated
black, RAL 9005, textured finish **SW**
orange, RAL 2004, textured finish **OS**
red, RAL 3000, textured finish **RS**
silver, RAL 9006, textured finish **SR**

Version with threaded insert

Threaded bush and retaining screw
Steel, blackened

Version with threaded stud

Threaded stud and retaining screw
Steel (5.8), blackened

INFORMATION

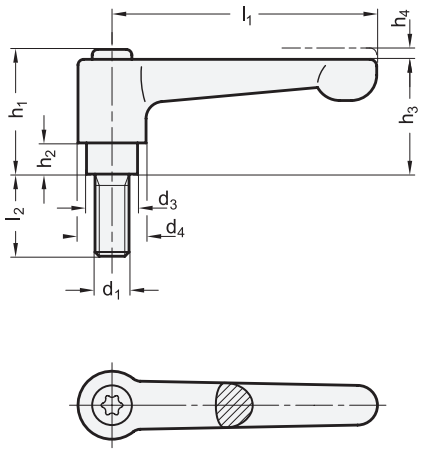
Adjustable hand levers GN 302 have a straight lever, not inclined, being parallel to the clamping space.
Adjustable hand levers are ideal whenever parts have to be clamped in a confined space or in a particular lever position. The centre insert is connected to the lever via serrations which can easily be disengaged
Pulling the lever, disengages the serrations and allowing it to be swivelled to the ideal clamping position. On releasing the lever the serrations automatically re-engage.

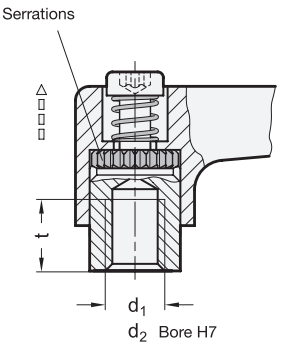
TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)

ON REQUEST

- with insert in Stainless Steel
- with push-button





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GN 302 | Adjustable hand levers

* Complete with colour index of the clamping lever body (SW, OS, RS or SR)

SW	OS	RS	SR
RAL9005	RAL2004	RAL3000	RAL9006

GN 302-with threaded insert

Description	l1	d1	d2 H7	d3	d4	h1	h2	h3	h4	t min.	⚖
GN 302-30-B5-*	30	-	B 5	10	13	24.5	4	22	3.5	9	24
GN 302-30-B6-*	30	-	B 6	10	13	24.5	4	22	3.5	9	20
GN 302-30-M3-*	30	M 3	-	10	13	24.5	4	22	3.5	7	26
GN 302-30-M4-*	30	M 4	-	10	13	24.5	4	22	3.5	9	26
GN 302-30-M5-*	30	M 5	-	10	13	24.5	4	22	3.5	9	24
GN 302-30-M6-*	30	M 6	-	10	13	24.5	4	22	3.5	9	20
GN 302-45-B5-*	45	-	B 5	10	13	24.5	4	22	3.5	9	31
GN 302-45-B6-*	45	-	B 6	10	13	24.5	4	22	3.5	9	30
GN 302-45-M4-*	45	M 4	-	10	13	24.5	4	22	3.5	9	32
GN 302-45-M5-*	45	M 5	-	10	13	24.5	4	22	3.5	9	32
GN 302-45-M6-*	45	M 6	-	10	13	24.5	4	22	3.5	9	31
GN 302-63-B8-*	63	-	B 8	13.5	17.5	31	6.5	28.5	4	11	72
GN 302-63-M6-*	63	M 6	-	13.5	17.5	31	6.5	28.5	4	11	74
GN 302-63-M8-*	63	M 8	-	13.5	17.5	31	6.5	28.5	4	11	74
GN 302-78-B8-*	78	-	B 8	16	21	36	8	34	4	14	120
GN 302-78-B10-*	78	-	B 10	16	21	36	8	34	4	14	116
GN 302-78-M8-*	78	M 8	-	16	21	36	8	34	4	14	121
GN 302-78-M10-*	78	M 10	-	16	21	36	8	34	4	14	117

GN 302-with threaded stud

Description	l1	d1	l2	d3	d4	h1	h2	h3	h4	⚖
GN 302-30-M3-6-*	30	M 3	6	10	13	24.5	4	22	3.5	27
GN 302-30-M3-8-*	30	M 3	8	10	13	24.5	4	22	3.5	27
GN 302-30-M3-10-*	30	M 3	10	10	13	24.5	4	22	3.5	27
GN 302-30-M3-12-*	30	M 3	12	10	13	24.5	4	22	3.5	27
GN 302-30-M3-16-*	30	M 3	16	10	13	24.5	4	22	3.5	27
GN 302-30-M4-12-*	30	M 4	12	10	13	24.5	4	22	3.5	28
GN 302-30-M4-16-*	30	M 4	16	10	13	24.5	4	22	3.5	28
GN 302-30-M4-20-*	30	M 4	20	10	13	24.5	4	22	3.5	28
GN 302-30-M4-25-*	30	M 4	25	10	13	24.5	4	22	3.5	29
GN 302-30-M4-32-*	30	M 4	32	10	13	24.5	4	22	3.5	29
GN 302-45-M4-12-*	45	M 4	12	10	13	24.5	4	22	3.5	36
GN 302-45-M4-16-*	45	M 4	16	10	13	24.5	4	22	3.5	37
GN 302-45-M4-20-*	45	M 4	20	10	13	24.5	4	22	3.5	37
GN 302-45-M4-25-*	45	M 4	25	10	13	24.5	4	22	3.5	38
GN 302-45-M4-32-*	45	M 4	32	10	13	24.5	4	22	3.5	39
GN 302-45-M5-12-*	45	M 5	12	10	13	24.5	4	22	3.5	31
GN 302-45-M5-16-*	45	M 5	16	10	13	24.5	4	22	3.5	35
GN 302-45-M5-20-*	45	M 5	20	10	13	24.5	4	22	3.5	40
GN 302-45-M5-25-*	45	M 5	25	10	13	24.5	4	22	3.5	40
GN 302-45-M5-32-*	45	M 5	32	10	13	24.5	4	22	3.5	40
GN 302-45-M5-40-*	45	M 5	40	10	13	24.5	4	22	3.5	50
GN 302-45-M5-50-*	45	M 5	50	10	13	24.5	4	22	3.5	50
GN 302-45-M6-12-*	45	M 6	12	10	13	24.5	4	22	3.5	34
GN 302-45-M6-16-*	45	M 6	16	10	13	24.5	4	22	3.5	35
GN 302-45-M6-20-*	45	M 6	20	10	13	24.5	4	22	3.5	37
GN 302-45-M6-25-*	45	M 6	25	10	13	24.5	4	22	3.5	37
GN 302-45-M6-32-*	45	M 6	32	10	13	24.5	4	22	3.5	40
GN 302-45-M6-40-*	45	M 6	40	10	13	24.5	4	22	3.5	40
GN 302-45-M6-50-*	45	M 6	50	10	13	24.5	4	22	3.5	46

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GN 302

Adjustable hand levers

* Complete with colour index of the clamping lever body (SW, OS, RS or SR)

SW	OS	RS	SR
RAL9005	RAL2004	RAL3000	RAL9006

GN 302-with threaded stud

Description	l1	d1	l2	d3	d4	h1	h2	h3	h4	⚖
GN 302-63-M6-12-*	63	M 6	12	13.5	17.5	31	6.5	28.5	4	78
GN 302-63-M6-16-*	63	M 6	16	13.5	17.5	31	6.5	28.5	4	78
GN 302-63-M6-20-*	63	M 6	20	13.5	17.5	31	6.5	28.5	4	79
GN 302-63-M6-25-*	63	M 6	25	13.5	17.5	31	6.5	28.5	4	80
GN 302-63-M6-32-*	63	M 6	32	13.5	17.5	31	6.5	28.5	4	81
GN 302-63-M6-40-*	63	M 6	40	13.5	17.5	31	6.5	28.5	4	83
GN 302-63-M6-50-*	63	M 6	50	13.5	17.5	31	6.5	28.5	4	84
GN 302-63-M6-63-*	63	M 6	63	13.5	17.5	31	6.5	28.5	4	86
GN 302-63-M8-12-*	63	M 8	12	13.5	17.5	31	6.5	28.5	4	80
GN 302-63-M8-16-*	63	M 8	16	13.5	17.5	31	6.5	28.5	4	82
GN 302-63-M8-20-*	63	M 8	20	13.5	17.5	31	6.5	28.5	4	82
GN 302-63-M8-25-*	63	M 8	25	13.5	17.5	31	6.5	28.5	4	84
GN 302-63-M8-32-*	63	M 8	32	13.5	17.5	31	6.5	28.5	4	86
GN 302-63-M8-40-*	63	M 8	40	13.5	17.5	31	6.5	28.5	4	89
GN 302-63-M8-50-*	63	M 8	50	13.5	17.5	31	6.5	28.5	4	91
GN 302-63-M8-63-*	63	M 8	63	13.5	17.5	31	6.5	28.5	4	96
GN 302-63-M10-20-*	63	M 10	20	13.5	17.5	31	6.5	28.5	4	80
GN 302-63-M10-25-*	63	M 10	25	13.5	17.5	31	6.5	28.5	4	88
GN 302-63-M10-32-*	63	M 10	32	13.5	17.5	31	6.5	28.5	4	93
GN 302-63-M10-40-*	63	M 10	40	13.5	17.5	31	6.5	28.5	4	97
GN 302-63-M10-50-*	63	M 10	50	13.5	17.5	31	6.5	28.5	4	100
GN 302-63-M10-63-*	63	M 10	63	13.5	17.5	31	6.5	28.5	4	110
GN 302-63-M10-80-*	63	M 10	80	13.5	17.5	31	6.5	28.5	4	120
GN 302-78-M8-16-*	78	M 8	16	16	21	36	8	34	4	130
GN 302-78-M8-20-*	78	M 8	20	16	21	36	8	34	4	130
GN 302-78-M8-25-*	78	M 8	25	16	21	36	8	34	4	140
GN 302-78-M8-32-*	78	M 8	32	16	21	36	8	34	4	140
GN 302-78-M8-40-*	78	M 8	40	16	21	36	8	34	4	140
GN 302-78-M8-50-*	78	M 8	50	16	21	36	8	34	4	141
GN 302-78-M8-63-*	78	M 8	63	16	21	36	8	34	4	141
GN 302-78-M8-80-*	78	M 8	80	16	21	36	8	34	4	160
GN 302-78-M10-16-*	78	M 10	16	16	21	36	8	34	4	137
GN 302-78-M10-20-*	78	M 10	20	16	21	36	8	34	4	139
GN 302-78-M10-25-*	78	M 10	25	16	21	36	8	34	4	140
GN 302-78-M10-32-*	78	M 10	32	16	21	36	8	34	4	141
GN 302-78-M10-40-*	78	M 10	40	16	21	36	8	34	4	145
GN 302-78-M10-50-*	78	M 10	50	16	21	36	8	34	4	150
GN 302-78-M10-63-*	78	M 10	63	16	21	36	8	34	4	150
GN 302-78-M10-80-*	78	M 10	80	16	21	36	8	34	4	150
GN 302-78-M12-25-*	78	M 12	25	16	21	36	8	34	4	140
GN 302-78-M12-32-*	78	M 12	32	16	21	36	8	34	4	145
GN 302-78-M12-40-*	78	M 12	40	16	21	36	8	34	4	150
GN 302-78-M12-50-*	78	M 12	50	16	21	36	8	34	4	162
GN 302-78-M12-63-*	78	M 12	63	16	21	36	8	34	4	180
GN 302-78-M12-80-*	78	M 12	80	16	21	36	8	34	4	180

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GN 212.3

Adjustable tension levers

Steel, blackened



SPECIFICATION

Types

- Type **E**: angled lever
- Type **D**: straight lever

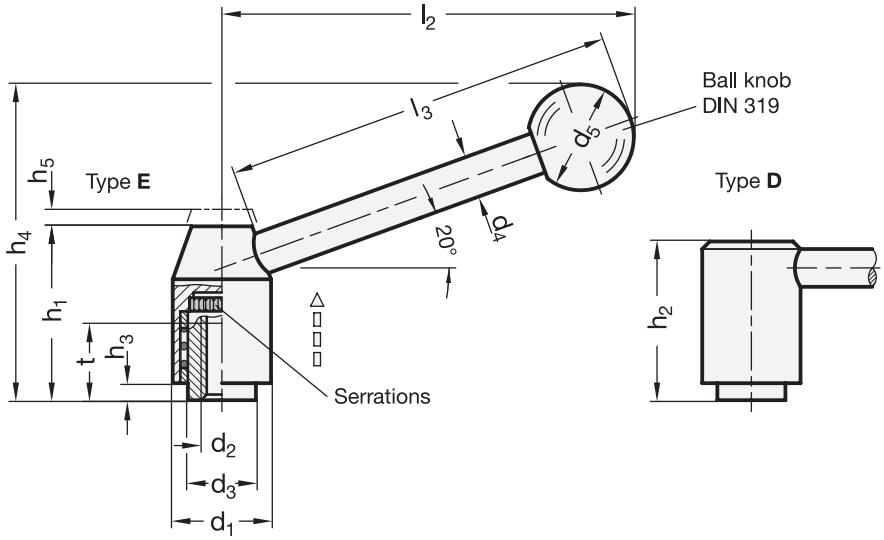
Steel
blackened

Tensile strength class 5.8

Ball knobs DIN 319 (see page 538)
Plastic, Duroplast
black, shiny finish

INFORMATION

Adjustable tension levers GN 212.3 have proved to be ideal whenever parts have to be clamped in a confined space or a particular lever position is required. The threaded insert is connected with the hub via serrations which can be disengaged.
Pulling the lever, disengages the serrations and allowing it to be swivelled to the ideal clamping position. On releasing the lever it will automatically re-engage.



*Complete with type of the Adjustable tension levers (E or D)

E Angled lever
D Straight lever

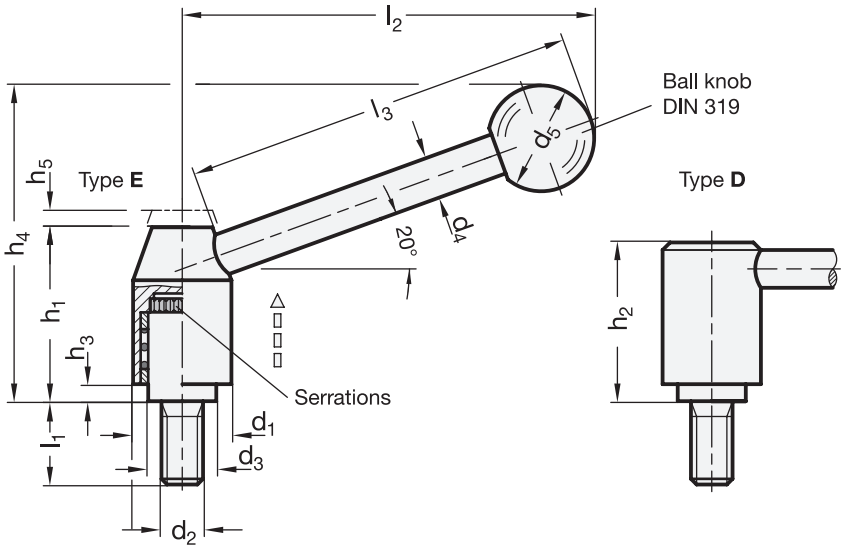
GN 212.3-with threaded insert

Description	d1	d2	d3	d4	d5	h1	h2	h3	h4 ≈ Type E	h4 ≈ Type D	h5	l2 ≈ Type E	l2 ≈ Type D	l3 ≈	t min.	⚖
GN 212.3-21-M6-*	21	M 6	13.5	8	20	33.5	31	1	59	36	4	75	80.5	70	11	97
GN 212.3-21-M8-*	21	M 8	13.5	8	20	33.5	31	1	59	36	4	75	80.5	70	11	93
GN 212.3-24-M8-*	24	M 8	16	10	25	40	37	2.5	75	43.5	4.5	101	108	96	14	161
GN 212.3-24-M10-*	24	M 10	16	10	25	40	37	2.5	75	43.5	4.5	101	108	96	14	157
GN 212.3-28-M10-*	28	M 10	19	12	30	48.5	44.5	4.5	89	52.5	4.5	116	124	110	17	264
GN 212.3-28-M12-*	28	M 12	19	12	30	48.5	44.5	4.5	89	52.5	4.5	116	124	110	17	258
GN 212.3-33-M12-*	33	M 12	23	12	32	55	51.5	6	100.5	60	5.5	131.5	140.5	124	22	381
GN 212.3-33-M14-*	33	M 14	23	12	32	55	51.5	6	100.5	60	5.5	131.5	140.5	124	22	373
GN 212.3-33-M16-*	33	M 16	23	12	32	55	51.5	6	100.5	60	5.5	131.5	140.5	124	22	364
GN 212.3-40-M16-*	40	M 16	28	14	35	68	64	6	118	71.5	5.5	148	158	138	36	638
GN 212.3-40-M20-*	40	M 20	28	14	35	68	64	6	118	71.5	5.5	148	158	138	36	608

Weight type E

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GN 212.3 | Adjustable tension levers



*Complete with type of the Adjustable tension levers (E or D)

E	D
Angled lever	Straight lever

GN 212.3-with threaded stud

Description	d1	d2	l1	d3	d4	d5	h1	h2	h3	h4 ≈ Type E	h4 ≈ Type D	h5	l2 ≈ Type E	l2 ≈ Type D	l3 ≈	⚖
GN 212.3-21-M8-12-*	21	M 8	12	13.5	8	20	33.5	31	1	59	36	4	75	80.5	70	103
GN 212.3-21-M8-16-*	21	M 8	16	13.5	8	20	33.5	31	1	59	36	4	75	80.5	70	104
GN 212.3-21-M8-20-*	21	M 8	20	13.5	8	20	33.5	31	1	59	36	4	75	80.5	70	105
GN 212.3-21-M8-25-*	21	M 8	25	13.5	8	20	33.5	31	1	59	36	4	75	80.5	70	107
GN 212.3-21-M8-32-*	21	M 8	32	13.5	8	20	33.5	31	1	59	36	4	75	80.5	70	109
GN 212.3-21-M8-40-*	21	M 8	40	13.5	8	20	33.5	31	1	59	36	4	75	80.5	70	112
GN 212.3-21-M8-50-*	21	M 8	50	13.5	8	20	33.5	31	1	59	36	4	75	80.5	70	114
GN 212.3-21-M8-63-*	21	M 8	63	13.5	8	20	33.5	31	1	59	36	4	75	80.5	70	119
GN 212.3-21-M10-20-*	21	M 10	20	13.5	8	20	33.5	31	1	59	36	4	75	80.5	70	108
GN 212.3-21-M10-25-*	21	M 10	25	13.5	8	20	33.5	31	1	59	36	4	75	80.5	70	111
GN 212.3-21-M10-32-*	21	M 10	32	13.5	8	20	33.5	31	1	59	36	4	75	80.5	70	115
GN 212.3-21-M10-40-*	21	M 10	40	13.5	8	20	33.5	31	1	59	36	4	75	80.5	70	117
GN 212.3-21-M10-50-*	21	M 10	50	13.5	8	20	33.5	31	1	59	36	4	75	80.5	70	122
GN 212.3-21-M10-63-*	21	M 10	63	13.5	8	20	33.5	31	1	59	36	4	75	80.5	70	126
GN 212.3-21-M10-80-*	21	M 10	80	13.5	8	20	33.5	31	1	59	36	4	75	80.5	70	136
GN 212.3-24-M10-16-*	24	M 10	16	16	10	25	40	37	2.5	75	43.5	4.5	101	108	96	174
GN 212.3-24-M10-20-*	24	M 10	20	16	10	25	40	37	2.5	75	43.5	4.5	101	108	96	175
GN 212.3-24-M10-25-*	24	M 10	25	16	10	25	40	37	2.5	75	43.5	4.5	101	108	96	177
GN 212.3-24-M10-32-*	24	M 10	32	16	10	25	40	37	2.5	75	43.5	4.5	101	108	96	180
GN 212.3-24-M10-40-*	24	M 10	40	16	10	25	40	37	2.5	75	43.5	4.5	101	108	96	184
GN 212.3-24-M10-50-*	24	M 10	50	16	10	25	40	37	2.5	75	43.5	4.5	101	108	96	190
GN 212.3-24-M10-63-*	24	M 10	63	16	10	25	40	37	2.5	75	43.5	4.5	101	108	96	197
GN 212.3-24-M10-80-*	24	M 10	80	16	10	25	40	37	2.5	75	43.5	4.5	101	108	96	204

Weight type E

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GN 212.3 | Adjustable tension levers

*Complete with type of the Adjustable tension levers (E or D)

E Angled lever **D** Straight lever

GN 212.3-with threaded stud

Description	d1	d2	l1	d3	d4	d5	h1	h2	h3	h4 ≈ Type E	h4 ≈ Type D	h5	l2 ≈ Type E	l2 ≈ Type D	l3 ≈	⚖
GN 212.3-24-M12-25-*	24	M 12	25	16	10	25	40	37	2.5	75	43.5	4.5	101	108	96	183
GN 212.3-24-M12-32-*	24	M 12	32	16	10	25	40	37	2.5	75	43.5	4.5	101	108	96	188
GN 212.3-24-M12-40-*	24	M 12	40	16	10	25	40	37	2.5	75	43.5	4.5	101	108	96	194
GN 212.3-24-M12-50-*	24	M 12	50	16	10	25	40	37	2.5	75	43.5	4.5	101	108	96	201
GN 212.3-24-M12-63-*	24	M 12	63	16	10	25	40	37	2.5	75	43.5	4.5	101	108	96	209
GN 212.3-24-M12-80-*	24	M 12	80	16	10	25	40	37	2.5	75	43.5	4.5	101	108	96	217
GN 212.3-28-M10-16-*	28	M 10	16	19	12	30	48.5	44.5	4.5	89	52.5	4.5	116	124	110	277
GN 212.3-28-M10-20-*	28	M 10	20	19	12	30	48.5	44.5	4.5	89	52.5	4.5	116	124	110	280
GN 212.3-28-M10-25-*	28	M 10	25	19	12	30	48.5	44.5	4.5	89	52.5	4.5	116	124	110	285
GN 212.3-28-M10-32-*	28	M 10	32	19	12	30	48.5	44.5	4.5	89	52.5	4.5	116	124	110	289
GN 212.3-28-M10-40-*	28	M 10	40	19	12	30	48.5	44.5	4.5	89	52.5	4.5	116	124	110	311
GN 212.3-28-M10-50-*	28	M 10	50	19	12	30	48.5	44.5	4.5	89	52.5	4.5	116	124	110	312
GN 212.3-28-M10-63-*	28	M 10	63	19	12	30	48.5	44.5	4.5	89	52.5	4.5	116	124	110	312
GN 212.3-28-M12-16-*	28	M 12	16	19	12	30	48.5	44.5	4.5	89	52.5	4.5	116	124	110	286
GN 212.3-28-M12-20-*	28	M 12	20	19	12	30	48.5	44.5	4.5	89	52.5	4.5	116	124	110	287
GN 212.3-28-M12-25-*	28	M 12	25	19	12	30	48.5	44.5	4.5	89	52.5	4.5	116	124	110	292
GN 212.3-28-M12-32-*	28	M 12	32	19	12	30	48.5	44.5	4.5	89	52.5	4.5	116	124	110	297
GN 212.3-28-M12-40-*	28	M 12	40	19	12	30	48.5	44.5	4.5	89	52.5	4.5	116	124	110	302
GN 212.3-28-M12-50-*	28	M 12	50	19	12	30	48.5	44.5	4.5	89	52.5	4.5	116	124	110	309
GN 212.3-28-M12-63-*	28	M 12	63	19	12	30	48.5	44.5	4.5	89	52.5	4.5	116	124	110	319
GN 212.3-28-M12-80-*	28	M 12	80	19	12	30	48.5	44.5	4.5	89	52.5	4.5	116	124	110	330
GN 212.3-33-M12-25-*	33	M 12	25	23	12	32	55	51.5	6	100.5	60	5.5	131.5	140.5	124	428
GN 212.3-33-M12-32-*	33	M 12	32	23	12	32	55	51.5	6	100.5	60	5.5	131.5	140.5	124	431
GN 212.3-33-M12-40-*	33	M 12	40	23	12	32	55	51.5	6	100.5	60	5.5	131.5	140.5	124	431
GN 212.3-33-M12-50-*	33	M 12	50	23	12	32	55	51.5	6	100.5	60	5.5	131.5	140.5	124	438
GN 212.3-33-M12-63-*	33	M 12	63	23	12	32	55	51.5	6	100.5	60	5.5	131.5	140.5	124	446
GN 212.3-33-M16-32-*	33	M 16	32	23	12	32	55	51.5	6	100.5	60	5.5	131.5	140.5	124	440
GN 212.3-33-M16-40-*	33	M 16	40	23	12	32	55	51.5	6	100.5	60	5.5	131.5	140.5	124	451
GN 212.3-33-M16-50-*	33	M 16	50	23	12	32	55	51.5	6	100.5	60	5.5	131.5	140.5	124	463
GN 212.3-33-M16-63-*	33	M 16	63	23	12	32	55	51.5	6	100.5	60	5.5	131.5	140.5	124	482
GN 212.3-33-M16-80-*	33	M 16	80	23	12	32	55	51.5	6	100.5	60	5.5	131.5	140.5	124	504
GN 212.3-40-M16-40-*	40	M 16	40	28	14	35	68	64	6	118	71.5	5.5	148	158	138	743
GN 212.3-40-M16-50-*	40	M 16	50	28	14	35	68	64	6	118	71.5	5.5	148	158	138	757
GN 212.3-40-M16-63-*	40	M 16	63	28	14	35	68	64	6	118	71.5	5.5	148	158	138	772
GN 212.3-40-M16-80-*	40	M 16	80	28	14	35	68	64	6	118	71.5	5.5	148	158	138	797
GN 212.3-40-M20-40-*	40	M 20	40	28	14	35	68	64	6	118	71.5	5.5	148	158	138	777
GN 212.3-40-M20-50-*	40	M 20	50	28	14	35	68	64	6	118	71.5	5.5	148	158	138	780
GN 212.3-40-M20-63-*	40	M 20	63	28	14	35	68	64	6	118	71.5	5.5	148	158	138	824
GN 212.3-40-M20-80-*	40	M 20	80	28	14	35	68	64	6	118	71.5	5.5	148	158	138	856

Weight type E

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Adjustable Stainless Steel-Tension levers



SPECIFICATION

Type
- Type **E**: angled lever

Stainless Steel AISI 303
Hub and shaft matt shot-blasted

Ball knobs DIN 319 (see page 538)
Plastic, Duroplast
black, shiny finish

INFORMATION

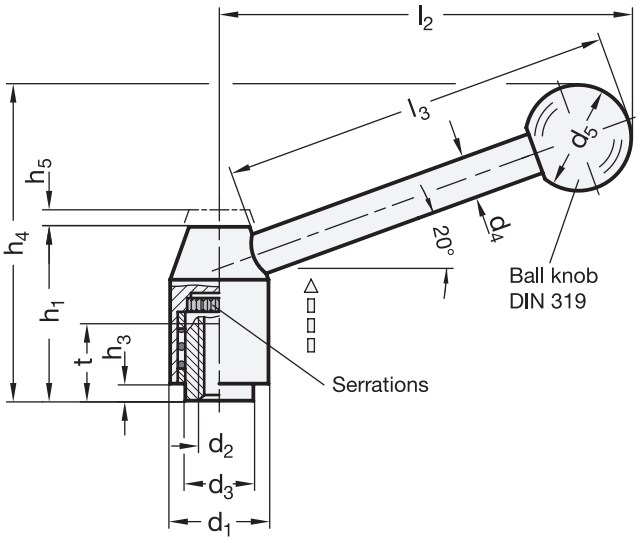
Adjustable tension levers GN 212.5 have proved to be ideal whenever parts have to be clamped in a confined space or a particular lever position is required. The threaded insert is connected with the hub via serrations which can be disengaged.
Pulling the lever, disengages the serrations and allowing it to be swivelled to the ideal clamping position. On releasing the lever it will automatically re-engage.

ON REQUEST

- straight lever (90°)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)

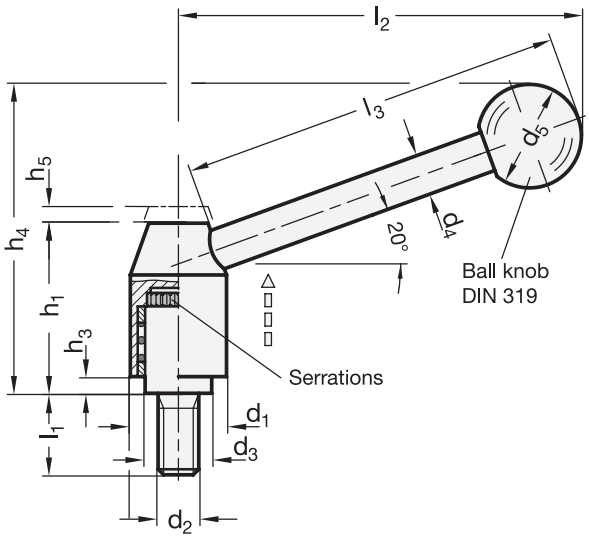


GN 212.5-with threaded insert — **STAINLESS STEEL**

Description	d1	d2	d3	d4	d5	h1	h3	h4	h5	l2	l3 ≈	t min.	⚖
GN 212.5-21-M6-E	21	M 6	13.5	8	20	33.5	1	59	4	75	70	11	97
GN 212.5-21-M8-E	21	M 8	13.5	8	20	33.5	1	59	4	75	70	11	93
GN 212.5-24-M8-E	24	M 8	16	10	25	40	2.5	75	4.5	101	96	14	170
GN 212.5-24-M10-E	24	M 10	16	10	25	40	2.5	75	4.5	101	96	14	161
GN 212.5-28-M10-E	28	M 10	19	12	30	48.5	4.5	89	4.5	116	110	17	261
GN 212.5-28-M12-E	28	M 12	19	12	30	48.5	4.5	89	4.5	116	110	17	258

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GN 212.5 | Adjustable Stainless Steel-Tension levers



GN 212.5-with threaded stud — **STAINLESS STEEL**

Description	d1	d2	l1	d3	d4	d5	h1	h3	h4	h5	l2	l3 ≈	⚖
GN 212.5-21-M8-16-E	21	M 8	16	13.5	8	20	33.5	1	59	4	75	70	104
GN 212.5-21-M8-20-E	21	M 8	20	13.5	8	20	33.5	1	59	4	75	70	105
GN 212.5-21-M8-25-E	21	M 8	25	13.5	8	20	33.5	1	59	4	75	70	107
GN 212.5-21-M8-32-E	21	M 8	32	13.5	8	20	33.5	1	59	4	75	70	107
GN 212.5-21-M8-40-E	21	M 8	40	13.5	8	20	33.5	1	59	4	75	70	112
GN 212.5-21-M8-50-E	21	M 8	50	13.5	8	20	33.5	1	59	4	75	70	114
GN 212.5-21-M8-63-E	21	M 8	63	13.5	8	20	33.5	1	59	4	75	70	119
GN 212.5-24-M10-20-E	24	M 10	20	16	10	25	40	2.5	75	4.5	101	96	173
GN 212.5-24-M10-25-E	24	M 10	25	16	10	25	40	2.5	75	4.5	101	96	175
GN 212.5-24-M10-32-E	24	M 10	32	16	10	25	40	2.5	75	4.5	101	96	178
GN 212.5-24-M10-40-E	24	M 10	40	16	10	25	40	2.5	75	4.5	101	96	182
GN 212.5-24-M10-50-E	24	M 10	50	16	10	25	40	2.5	75	4.5	101	96	188
GN 212.5-24-M10-63-E	24	M 10	63	16	10	25	40	2.5	75	4.5	101	96	195
GN 212.5-24-M10-80-E	24	M 10	80	16	10	25	40	2.5	75	4.5	101	96	202
GN 212.5-28-M12-25-E	28	M 12	25	19	12	30	48.5	4.5	89	4.5	116	110	295
GN 212.5-28-M12-32-E	28	M 12	32	19	12	30	48.5	4.5	89	4.5	116	110	300
GN 212.5-28-M12-40-E	28	M 12	40	19	12	30	48.5	4.5	89	4.5	116	110	305
GN 212.5-28-M12-50-E	28	M 12	50	19	12	30	48.5	4.5	89	4.5	116	110	310
GN 212.5-28-M12-63-E	28	M 12	63	19	12	30	48.5	4.5	89	4.5	116	110	322
GN 212.5-28-M12-80-E	28	M 12	80	19	12	30	48.5	4.5	89	4.5	116	110	333

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Adjustable clamping levers

PUSH to disengage



SPECIFICATION

Types

- Type **M**: Straigth lever
- Type **N**: Angled lever

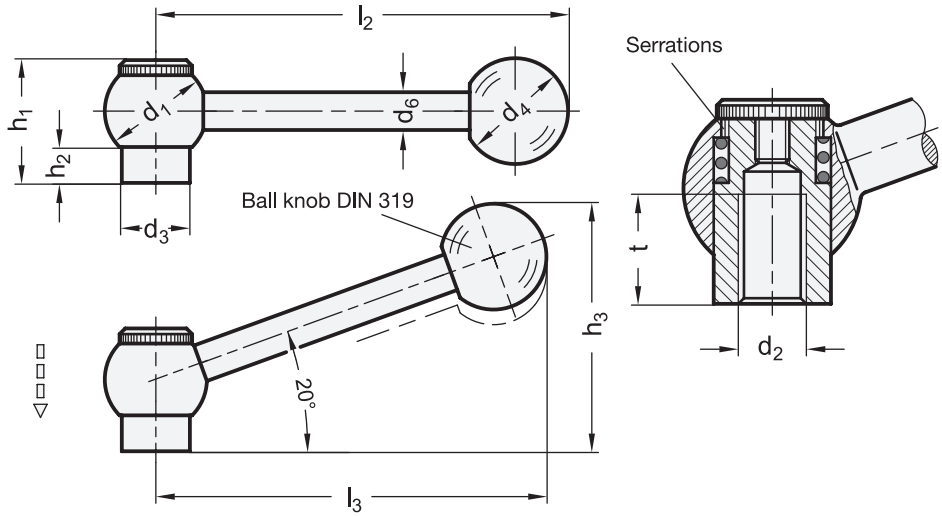
Steel
blackened

Tensile strength class 5.8

Ball knobs DIN 319 (see page 538)
Plastic, Duroplast
black, shiny finish

INFORMATION

Adjustable clamping levers GN 6337.3 have proved to be ideal whenever parts have to be clamped in a confined space or a particular lever position is required. The insert is connected by the lever via serrations in the ball bore which can be disengaged.
Pushing the lever down, disengages the serrations and the lever can be swivelled to the ideal clamping position. Engagement is achieved by releasing the lever.
Should a rotation of 360° not be possible, the insert can be lightly screwed in (after the lever is disengaged) via a slot in the knurled screw.

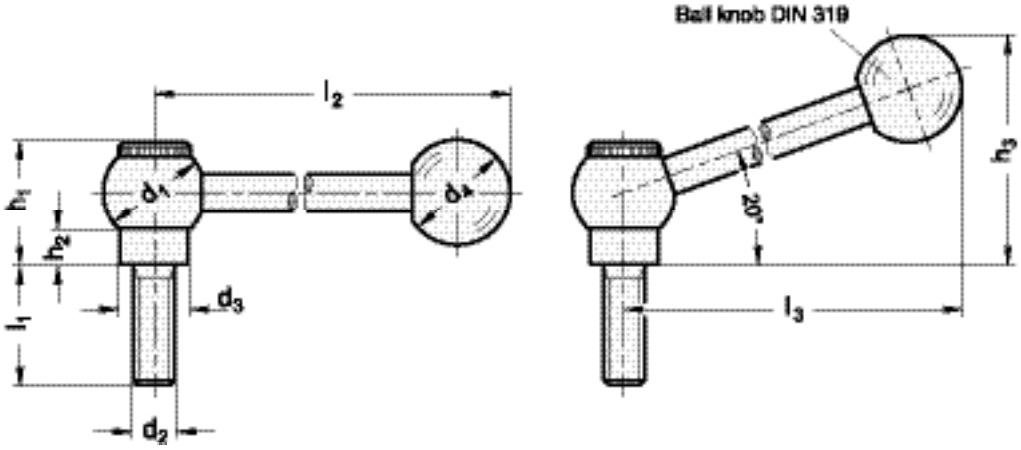


GN 6337.3-with threaded insert

Description	d1	d2	d3	d4	d6	h1	h2	h3 ≈	l2	l3 ≈	t min.	⚖
GN 6337.3-20-M6-M	20	M 6	13.5	20	8.5	25	8	-	74	-	12	61
GN 6337.3-20-M8-M	20	M 8	13.5	20	8.5	25	8	-	74	-	12	58
GN 6337.3-25-M8-M	25	M 8	16	25	11	29	8	-	93	-	15	114
GN 6337.3-25-M10-M	25	M 10	16	25	11	29	8	-	93	-	15	111
GN 6337.3-28-M10-M	28	M 10	19	30	13	33.5	10.5	-	116	-	18	189
GN 6337.3-28-M12-M	28	M 12	19	30	13	33.5	10.5	-	116	-	18	183
GN 6337.3-20-M6-N	20	M 6	13.5	20	8.5	25	8	46	-	70	12	61
GN 6337.3-20-M8-N	20	M 8	13.5	20	8.5	25	8	46	-	70	12	58
GN 6337.3-25-M8-N	25	M 8	16	25	11	29	8	58	-	87	15	114
GN 6337.3-25-M10-N	25	M 10	16	25	11	29	8	58	-	87	15	111
GN 6337.3-28-M10-N	28	M 10	19	30	13	33.5	10.5	70.5	-	109	18	189
GN 6337.3-28-M12-N	28	M 12	19	30	13	33.5	10.5	70.5	-	109	18	170

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GN 6337.3 | Adjustable clamping levers



GN 6337.3-with threaded stud

Description	d1	d2	l1	d3	d4	h1	h2	h3 ≈	l2	l3 ≈	⚖
GN 6337.3-20-M8-20-M	20	M 8	20	13.5	20	25	8	-	74	-	69
GN 6337.3-20-M8-25-M	20	M 8	25	13.5	20	25	8	-	74	-	70
GN 6337.3-20-M8-32-M	20	M 8	32	13.5	20	25	8	-	74	-	73
GN 6337.3-20-M8-40-M	20	M 8	40	13.5	20	25	8	-	74	-	75
GN 6337.3-20-M8-50-M	20	M 8	50	13.5	20	25	8	-	74	-	78
GN 6337.3-20-M8-63-M	20	M 8	63	13.5	20	25	8	-	74	-	82
GN 6337.3-25-M10-20-M	25	M 10	20	16	25	29	8	-	93	-	129
GN 6337.3-25-M10-25-M	25	M 10	25	16	25	29	8	-	93	-	132
GN 6337.3-25-M10-32-M	25	M 10	32	16	25	29	8	-	93	-	136
GN 6337.3-25-M10-40-M	25	M 10	40	16	25	29	8	-	93	-	138
GN 6337.3-25-M10-50-M	25	M 10	50	16	25	29	8	-	93	-	144
GN 6337.3-25-M10-63-M	25	M 10	63	16	25	29	8	-	93	-	151
GN 6337.3-28-M12-25-M	28	M 12	25	19	30	33.5	10.5	-	116	-	217
GN 6337.3-28-M12-32-M	28	M 12	32	19	30	33.5	10.5	-	116	-	222
GN 6337.3-28-M12-40-M	28	M 12	40	19	30	33.5	10.5	-	116	-	228
GN 6337.3-28-M12-50-M	28	M 12	50	19	30	33.5	10.5	-	116	-	235
GN 6337.3-28-M12-63-M	28	M 12	63	19	30	33.5	10.5	-	116	-	243
GN 6337.3-28-M12-80-M	28	M 12	80	19	30	33.5	10.5	-	116	-	255
GN 6337.3-20-M8-20-N	20	M 8	20	13.5	20	25	8	46	-	70	69
GN 6337.3-20-M8-25-N	20	M 8	25	13.5	20	25	8	46	-	70	70
GN 6337.3-20-M8-32-N	20	M 8	32	13.5	20	25	8	46	-	70	73
GN 6337.3-20-M8-40-N	20	M 8	40	13.5	20	25	8	46	-	70	75
GN 6337.3-20-M8-50-N	20	M 8	50	13.5	20	25	8	46	-	70	78
GN 6337.3-20-M8-63-N	20	M 8	63	13.5	20	25	8	46	-	70	82
GN 6337.3-25-M10-20-N	25	M 10	20	16	25	29	8	58	-	87	129
GN 6337.3-25-M10-25-N	25	M 10	25	16	25	29	8	58	-	87	132
GN 6337.3-25-M10-32-N	25	M 10	32	16	25	29	8	58	-	87	136
GN 6337.3-25-M10-40-N	25	M 10	40	16	25	29	8	58	-	87	138
GN 6337.3-25-M10-50-N	25	M 10	50	16	25	29	8	58	-	87	144
GN 6337.3-25-M10-63-N	25	M 10	63	16	25	29	8	58	-	87	151
GN 6337.3-28-M12-25-N	28	M 12	25	19	30	33.5	10.5	70.5	-	109	217
GN 6337.3-28-M12-32-N	28	M 12	32	19	30	33.5	10.5	70.5	-	109	222
GN 6337.3-28-M12-40-N	28	M 12	40	19	30	33.5	10.5	70.5	-	109	228
GN 6337.3-28-M12-50-N	28	M 12	50	19	30	33.5	10.5	70.5	-	109	235
GN 6337.3-28-M12-63-N	28	M 12	63	19	30	33.5	10.5	70.5	-	109	243
GN 6337.3-28-M12-80-N	28	M 12	80	19	30	33.5	10.5	70.5	-	109	255

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Adjustable Flat tension levers

Steel, blackened



SPECIFICATION

Types

- Type **D**: straight lever
- Type **E**: angled lever

Steel
blackened

Tensile strength class 5.8

Plane surface with natural coloured, anodized Aluminium-disc

Ball knobs DIN 319 (see page 538)
Plastic, Duroplast
black, shiny finish

INFORMATION

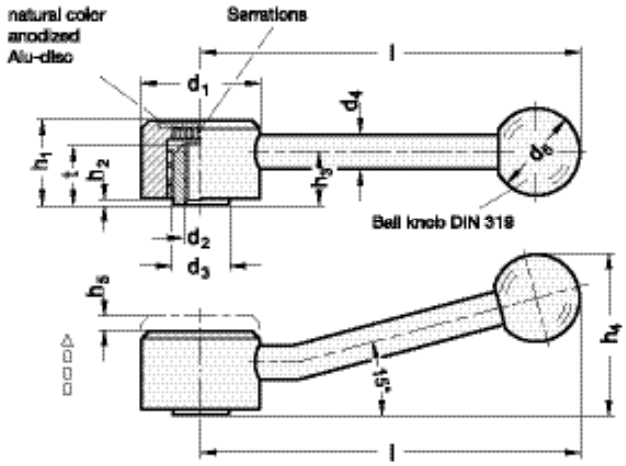
The overall height of tension levers GN 125 is reduced to a minimum. As all other adjustable levers, they are ideal whenever parts have to be clamped in a confined space, or a particular lever position is required. The threaded insert is connected with the hub via serrations which can be disengaged.
Pulling the lever, disengages the serrations and the lever can be swivelled to the ideal clamping position. On releasing the lever it will automatically re-engage.

ON REQUEST

- with threaded through hole

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



*Complete with type of the Adjustable Flat tension levers (E or D)

D	E
Straight lever	Angled lever

GN 125-with threaded insert

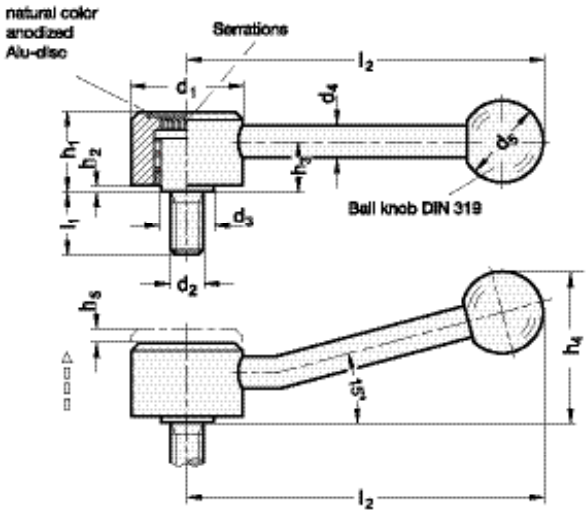
Description	d1	d2	d3	d4	d5	h1	h2	h3	h4 ≈	h5	l	t min.	⚖
GN 125-32-M6-*	32	M 6	13.5	8	20	20.5	1.5	12.5	36	4	100	11	141
GN 125-32-M8-*	32	M 8	13.5	8	20	20.5	1.5	12.5	36	4	100	11	139
GN 125-36-M8-*	36	M 8	16	10	25	24.5	2	15	45	4.5	120	14	223
GN 125-36-M10-*	36	M 10	16	10	25	24.5	2	15	45	4.5	120	14	222
GN 125-36-M12-*	36	M 12	16	10	25	24.5	2	15	45	4.5	120	14	220
GN 125-40-M10-*	40	M 10	19	12	30	26.5	2	16	50	4.5	130	17	307
GN 125-40-M12-*	40	M 12	19	12	30	26.5	2	16	50	4.5	130	17	301
GN 125-45-M12-*	45	M 12	23	12	32	31.5	2	20	60	5	145	23	425
GN 125-45-M14-*	45	M 14	23	12	32	31.5	2	20	60	5	145	23	415
GN 125-45-M16-*	45	M 16	23	12	32	31.5	2	20	60	5	145	23	406

Weight type E

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GN 125

Adjustable Flat tension levers



*Complete with type of the Adjustable Flat tension levers (E or D)

D	E
Straight lever	Angled lever

GN 125-with threaded stud

Description	d1	d2	l1	d3	d4	d5	h1	h2	h3	h4 ≈	h5	l2	⚖
GN 125-32-M8-12-*	32	M 8	12	13.5	8	20	20.5	1.5	12.5	36	4	100	147
GN 125-32-M8-16-*	32	M 8	16	13.5	8	20	20.5	1.5	12.5	36	4	100	148
GN 125-32-M8-20-*	32	M 8	20	13.5	8	20	20.5	1.5	12.5	36	4	100	149
GN 125-32-M8-25-*	32	M 8	25	13.5	8	20	20.5	1.5	12.5	36	4	100	151
GN 125-32-M8-32-*	32	M 8	32	13.5	8	20	20.5	1.5	12.5	36	4	100	153
GN 125-32-M8-40-*	32	M 8	40	13.5	8	20	20.5	1.5	12.5	36	4	100	156
GN 125-32-M8-50-*	32	M 8	50	13.5	8	20	20.5	1.5	12.5	36	4	100	158
GN 125-32-M8-63-*	32	M 8	63	13.5	8	20	20.5	1.5	12.5	36	4	100	163
GN 125-32-M10-20-*	32	M 10	20	13.5	8	20	20.5	1.5	12.5	36	4	100	155
GN 125-32-M10-25-*	32	M 10	25	13.5	8	20	20.5	1.5	12.5	36	4	100	155
GN 125-32-M10-32-*	32	M 10	32	13.5	8	20	20.5	1.5	12.5	36	4	100	159
GN 125-32-M10-40-*	32	M 10	40	13.5	8	20	20.5	1.5	12.5	36	4	100	172
GN 125-32-M10-50-*	32	M 10	50	13.5	8	20	20.5	1.5	12.5	36	4	100	173
GN 125-32-M10-63-*	32	M 10	63	13.5	8	20	20.5	1.5	12.5	36	4	100	173
GN 125-32-M10-80-*	32	M 10	80	13.5	8	20	20.5	1.5	12.5	36	4	100	193
GN 125-36-M10-16-*	36	M 10	16	16	10	25	24.5	2	15	45	4.5	120	235
GN 125-36-M10-20-*	36	M 10	20	16	10	25	24.5	2	15	45	4.5	120	237
GN 125-36-M10-25-*	36	M 10	25	16	10	25	24.5	2	15	45	4.5	120	239
GN 125-36-M10-32-*	36	M 10	32	16	10	25	24.5	2	15	45	4.5	120	242
GN 125-36-M10-40-*	36	M 10	40	16	10	25	24.5	2	15	45	4.5	120	246
GN 125-36-M10-50-*	36	M 10	50	16	10	25	24.5	2	15	45	4.5	120	250
GN 125-36-M10-63-*	36	M 10	63	16	10	25	24.5	2	15	45	4.5	120	259
GN 125-36-M10-80-*	36	M 10	80	16	10	25	24.5	2	15	45	4.5	120	266
GN 125-36-M12-25-*	36	M 12	25	16	10	25	24.5	2	15	45	4.5	120	245
GN 125-36-M12-32-*	36	M 12	32	16	10	25	24.5	2	15	45	4.5	120	250
GN 125-36-M12-40-*	36	M 12	40	16	10	25	24.5	2	15	45	4.5	120	256
GN 125-36-M12-50-*	36	M 12	50	16	10	25	24.5	2	15	45	4.5	120	263
GN 125-36-M12-63-*	36	M 12	63	16	10	25	24.5	2	15	45	4.5	120	271
GN 125-36-M12-80-*	36	M 12	80	16	10	25	24.5	2	15	45	4.5	120	283
GN 125-40-M12-25-*	40	M 12	25	19	12	30	26.5	2	16	50	4.5	130	336
GN 125-40-M12-32-*	40	M 12	32	19	12	30	26.5	2	16	50	4.5	130	342
GN 125-40-M12-40-*	40	M 12	40	19	12	30	26.5	2	16	50	4.5	130	348
GN 125-40-M12-50-*	40	M 12	50	19	12	30	26.5	2	16	50	4.5	130	355
GN 125-40-M12-63-*	40	M 12	63	19	12	30	26.5	2	16	50	4.5	130	364
GN 125-40-M12-80-*	40	M 12	80	19	12	30	26.5	2	16	50	4.5	130	376
GN 125-45-M16-32-*	45	M 16	32	23	12	32	31.5	2	20	60	5	145	488
GN 125-45-M16-40-*	45	M 16	40	23	12	32	31.5	2	20	60	5	145	498
GN 125-45-M16-50-*	45	M 16	50	23	12	32	31.5	2	20	60	5	145	512
GN 125-45-M16-63-*	45	M 16	63	23	12	32	31.5	2	20	60	5	145	529
GN 125-45-M16-80-*	45	M 16	80	23	12	32	31.5	2	20	60	5	145	549

Weight type E

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Adjustable Stainless Steel-Flat tension levers



SPECIFICATION

Types

- Type **D**: straight lever
- Type **E**: angled lever

Stainless Steel AISI 303
matt shot-blasted

Plane surface with natural coloured, anodized Aluminium-disc

Ball knobs DIN 319 (see page 538)
Plastic, Duroplast
black, shiny finish

INFORMATION

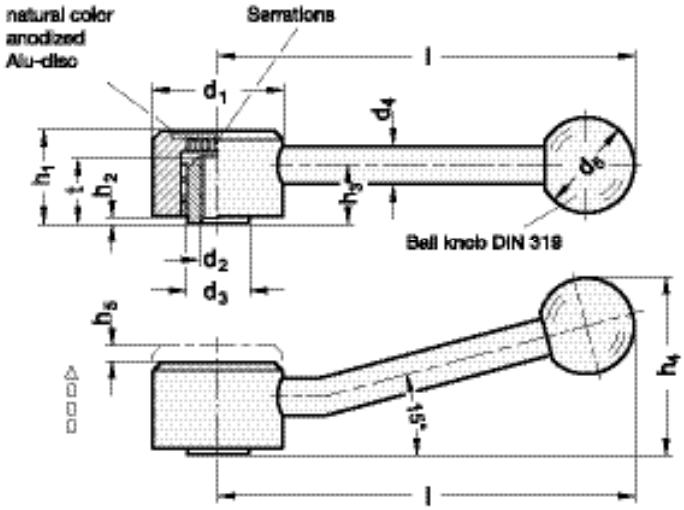
The overall height of Stainless Steel-tension levers GN 125.5 is reduced to a minimum.
As all other adjustable levers, they are ideal whenever parts have to be clamped in a confined space, or a particular lever position is required. The threaded insert is connected with the hub via serrations which can be disengaged
Pulling the lever, disengages the serrations and the lever can be swivelled to the ideal clamping position. On releasing the lever it will automatically re-engage.

ON REQUEST

- with threaded through hole

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



*Complete with type of the Adjustable Flat tension levers (E or D)

D	E
Straight lever	Angled lever

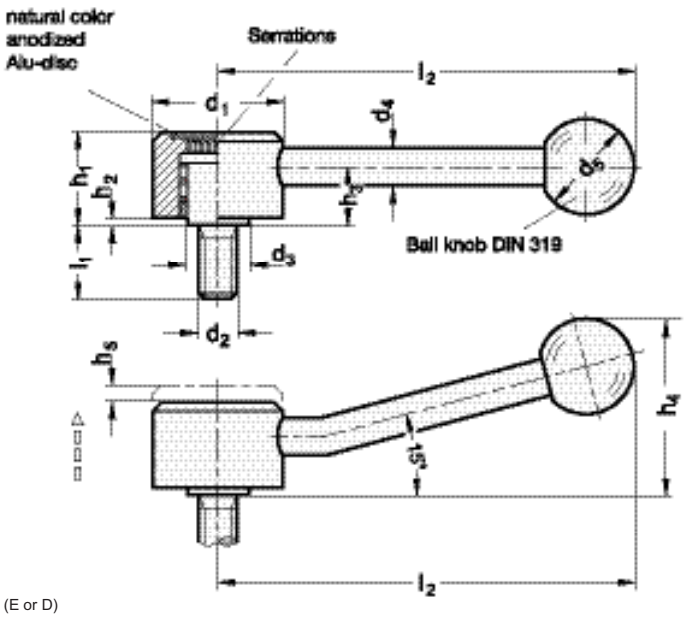
GN 125.5-with threaded insert — **STAINLESS STEEL**

Description	d1	d2	d3	d4	d5	h1	h2	h3	h4 ≈	h5	l	t min.	⚖
GN 125.5-32-M6-*	32	M 6	13.5	8	20	20.5	1.5	12.5	36	4	100	11	160
GN 125.5-32-M8-*	32	M 8	13.5	8	20	20.5	1.5	12.5	36	4	100	11	160
GN 125.5-36-M8-*	36	M 8	16	10	25	24.5	2	15	45	4.5	120	14	233
GN 125.5-36-M10-*	36	M 10	16	10	25	24.5	2	15	45	4.5	120	14	228
GN 125.5-40-M10-*	40	M 10	19	12	30	30	4	19	53	4.5	130	17	370
GN 125.5-40-M12-*	40	M 12	19	12	30	30	4	19	53	4.5	130	17	340
GN 125.5-45-M12-*	45	M 12	23	12	32	35.5	4	24	64	5	145	23	495
GN 125.5-45-M16-*	45	M 16	23	12	32	35.5	4	24	64	5	145	23	440

Weight type E

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GN 125.5 | Adjustable Stainless Steel-Flat tension levers



*Complete with type of the Adjustable Flat tension levers (E or D)

D Straight lever **E** Angled lever

GN 125.5-with threaded stud STAINLESS STEEL

Description	d1	d2	l1	d3	d4	d5	h1	h2	h3	h4 ≈	h5	l2	⚖
GN 125.5-32-M8-12-*	32	M 8	12	13.5	8	20	20.5	1.5	12.5	36	4	100	155
GN 125.5-32-M8-16-*	32	M 8	16	13.5	8	20	20.5	1.5	12.5	36	4	100	160
GN 125.5-32-M8-20-*	32	M 8	20	13.5	8	20	20.5	1.5	12.5	36	4	100	160
GN 125.5-32-M8-25-*	32	M 8	25	13.5	8	20	20.5	1.5	12.5	36	4	100	159
GN 125.5-32-M8-32-*	32	M 8	32	13.5	8	20	20.5	1.5	12.5	36	4	100	160
GN 125.5-32-M8-40-*	32	M 8	40	13.5	8	20	20.5	1.5	12.5	36	4	100	160
GN 125.5-32-M8-50-*	32	M 8	50	13.5	8	20	20.5	1.5	12.5	36	4	100	180
GN 125.5-36-M10-16-*	36	M 10	16	16	10	25	24.5	2	15	45	4.5	120	240
GN 125.5-36-M10-20-*	36	M 10	20	16	10	25	24.5	2	15	45	4.5	120	250
GN 125.5-36-M10-25-*	36	M 10	25	16	10	25	24.5	2	15	45	4.5	120	253
GN 125.5-36-M10-32-*	36	M 10	32	16	10	25	24.5	2	15	45	4.5	120	250
GN 125.5-36-M10-40-*	36	M 10	40	16	10	25	24.5	2	15	45	4.5	120	260
GN 125.5-36-M10-50-*	36	M 10	50	16	10	25	24.5	2	15	45	4.5	120	260
GN 125.5-36-M10-63-*	36	M 10	63	16	10	25	24.5	2	15	45	4.5	120	282
GN 125.5-36-M10-80-*	36	M 10	80	16	10	25	24.5	2	15	45	4.5	120	260
GN 125.5-40-M12-25-*	40	M 12	25	19	12	30	30	4	19	53	4.5	130	280
GN 125.5-40-M12-32-*	40	M 12	32	19	12	30	30	4	19	53	4.5	130	380
GN 125.5-40-M12-40-*	40	M 12	40	19	12	30	30	4	19	53	4.5	130	380
GN 125.5-40-M12-50-*	40	M 12	50	19	12	30	30	4	19	53	4.5	130	380
GN 125.5-40-M12-63-*	40	M 12	63	19	12	30	30	4	19	53	4.5	130	400
GN 125.5-40-M12-80-*	40	M 12	80	19	12	30	30	4	19	53	4.5	130	407
GN 125.5-45-M16-32-*	45	M 16	32	23	12	32	35.5	4	24	64	5	145	540
GN 125.5-45-M16-40-*	45	M 16	40	23	12	32	35.5	4	24	64	5	145	540
GN 125.5-45-M16-50-*	45	M 16	50	23	12	32	35.5	4	24	64	5	145	683
GN 125.5-45-M16-63-*	45	M 16	63	23	12	32	35.5	4	24	64	5	145	580
GN 125.5-45-M16-80-*	45	M 16	80	23	12	32	35.5	4	24	64	5	145	724

Weight type E

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RoHS

Safety tension levers

PUSH to engange



SPECIFICATION

Types

- Type **E**: angled lever
- Type **D**: straight lever

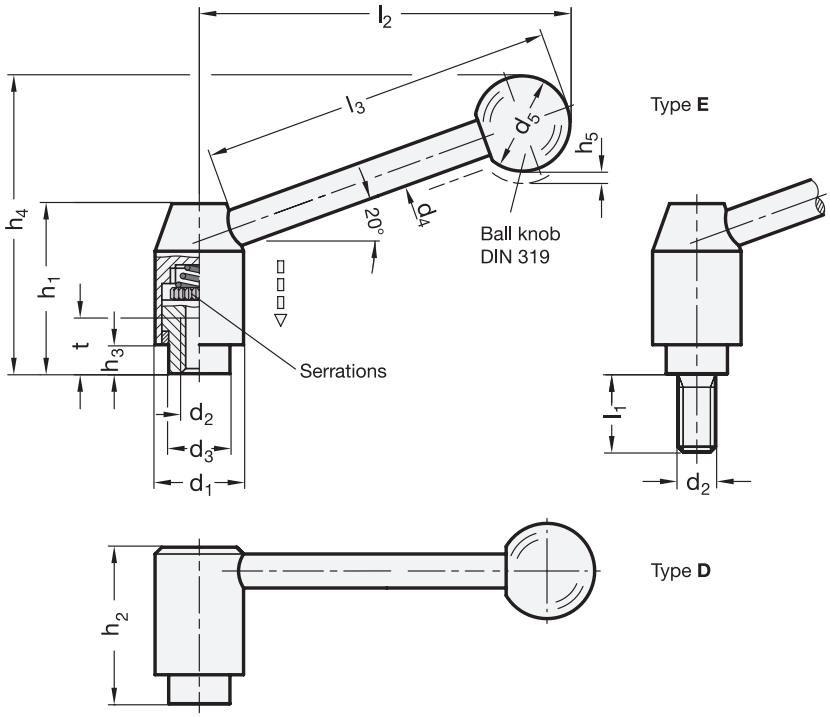
Steel
blackened

Tensile strength class 5.8

Ball knobs DIN 319 (see page 538)
Plastic, Duroplast
black, shiny finish

INFORMATION

Safety tension levers GN 312 are used on such applications where a thoughtless or mistaken releasing or re-positioning of the tension lever could lead to an accident.
The lever in its rest position is not connected with the internal spindle and can be rotated unhindered.
The tension lever engages in the serration only after pushing it down, thus allowing clamping or unclamping.
The "freewheel" position is re-established as soon as the handle is released.



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GN 312 | Safety tension levers

*Complete with type of the Safety tension levers (E or D)

E Angled lever **D** Straight lever

GN 312-with threaded insert

Description	d1	d2	d3	d4	d5	h1	h2	h3	h4 Type E	h4 Type D	h5	l2 Type E	l2 Type D	l3	t min.	⚖
GN 312-21-M6-*	21	M 6	13.5	8	20	37	34.5	4.5	62	39	3	75	39	70	11	101
GN 312-21-M8-*	21	M 8	13.5	8	20	37	34.5	4.5	62	39	3	75	39	70	11	99
GN 312-24-M8-*	24	M 8	16	10	25	44	41	6.5	78	47	3.5	101	47	96	14	165
GN 312-24-M10-*	24	M 10	16	10	25	44	41	6.5	78	47	3.5	101	47	96	14	161
GN 312-28-M10-*	28	M 10	19	12	30	53	49	8.5	93	56	4	116	56	110	17	286
GN 312-28-M12-*	28	M 12	19	12	30	53	49	8.5	93	56	4	116	56	110	17	270
GN 312-33-M12-*	33	M 12	23	12	32	60	56	10.5	105	65	4.5	131	65	124	22	407
GN 312-33-M16-*	33	M 16	23	12	32	60	56	10.5	105	65	4.5	131	65	124	22	390

GN 312-with threaded stud

Description	d1	d2	l1	d3	d4	d5	h1	h2	h3	h4 Type E	h4 Type D	h5	l2 Type E	l2 Type D	l3	⚖
GN 312-21-M8-16-*	21	M 8	16	13.5	8	20	37	34.5	4.5	62	39	3	75	81	70	108
GN 312-21-M8-20-*	21	M 8	20	13.5	8	20	37	34.5	4.5	62	39	3	75	81	70	109
GN 312-21-M8-25-*	21	M 8	25	13.5	8	20	37	34.5	4.5	62	39	3	75	81	70	111
GN 312-21-M8-32-*	21	M 8	32	13.5	8	20	37	34.5	4.5	62	39	3	75	81	70	113
GN 312-21-M8-40-*	21	M 8	40	13.5	8	20	37	34.5	4.5	62	39	3	75	81	70	116
GN 312-21-M8-50-*	21	M 8	50	13.5	8	20	37	34.5	4.5	62	39	3	75	81	70	118
GN 312-21-M8-63-*	21	M 8	63	13.5	8	20	37	34.5	4.5	62	39	3	75	81	70	123
GN 312-24-M10-20-*	24	M 10	20	16	10	25	44	41	6.5	78	47	3.5	101	108	96	179
GN 312-24-M10-25-*	24	M 10	25	16	10	25	44	41	6.5	78	47	3.5	101	108	96	181
GN 312-24-M10-32-*	24	M 10	32	16	10	25	44	41	6.5	78	47	3.5	101	108	96	184
GN 312-24-M10-40-*	24	M 10	40	16	10	25	44	41	6.5	78	47	3.5	101	108	96	188
GN 312-24-M10-50-*	24	M 10	50	16	10	25	44	41	6.5	78	47	3.5	101	108	96	194
GN 312-24-M10-63-*	24	M 10	63	16	10	25	44	41	6.5	78	47	3.5	101	108	96	201
GN 312-24-M10-80-*	24	M 10	80	16	10	25	44	41	6.5	78	47	3.5	101	108	96	210
GN 312-28-M12-20-*	28	M 12	20	19	12	30	53	49	8.5	93	56	4	116	124	110	299
GN 312-28-M12-25-*	28	M 12	25	19	12	30	53	49	8.5	93	56	4	116	124	110	304
GN 312-28-M12-32-*	28	M 12	32	19	12	30	53	49	8.5	93	56	4	116	124	110	309
GN 312-28-M12-40-*	28	M 12	40	19	12	30	53	49	8.5	93	56	4	116	124	110	314
GN 312-28-M12-50-*	28	M 12	50	19	12	30	53	49	8.5	93	56	4	116	124	110	321
GN 312-28-M12-63-*	28	M 12	63	19	12	30	53	49	8.5	93	56	4	116	124	110	331
GN 312-28-M12-80-*	28	M 12	80	19	12	30	53	49	8.5	93	56	4	116	124	110	342
GN 312-33-M16-32-*	33	M 16	32	23	12	32	60	56	10.5	105	65	4.5	131	140.5	124	455
GN 312-33-M16-40-*	33	M 16	40	23	12	32	60	56	10.5	105	65	4.5	131	140.5	124	477
GN 312-33-M16-50-*	33	M 16	50	23	12	32	60	56	10.5	105	65	4.5	131	140.5	124	492
GN 312-33-M16-63-*	33	M 16	63	23	12	32	60	56	10.5	105	65	4.5	131	140.5	124	508
GN 312-33-M16-80-*	33	M 16	80	23	12	32	60	56	10.5	105	65	4.5	131	140.5	124	530

Weight type D

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Clamping levers with eccentrical cam

Contact plate Plastic / Lever Zinc die casting



reddot design award

SPECIFICATION

Types

- Type **A**: Plastic contact plate with setting nut
- Type **B**: Plastic contact plate without setting nut

Lever
Zinc die casting

plastic coated (abrasion proof epoxy resin)
black, RAL 9005 **B**
orange, RAL 2004 **O**
red, RAL 3000 **R**
silver, RAL 9006 **S**

Contact plates
Plastic, glass fibre reinforced

- Type **A**: Polyacetal (POM)
- Type **B**: Polyamide (PA)

Version with threaded insert

Axis, lag nut, setting nut
Steel zinc plated, blue passivated

Version with threaded stud

Axis, lag screw, setting screw
Steel zinc plated, blue passivated

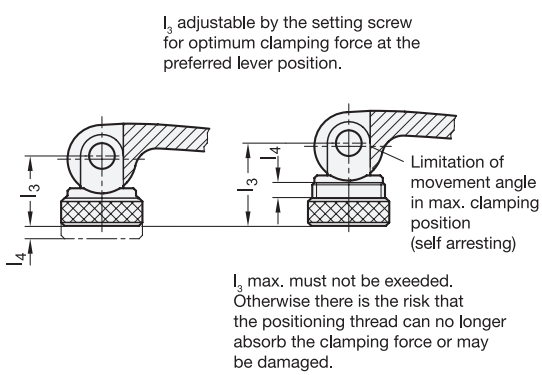
INFORMATION

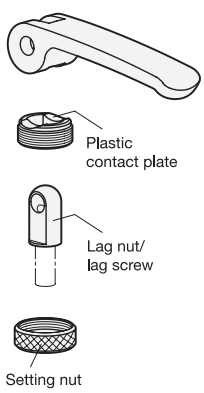
Clamping levers with eccentrical cam GN 927 are used for rapid clamping and releasing. Hereby, contrary to a clamping operation via a thread, these levers permit a **torque-free** clamping.
The lever has been designed to ensure that its movement cannot exceed the max. clamping force.
There are no loose components since they are all assembled and mounted in their correct order.
Type A has the following benefits:
The distance between the lever cam and the clamping surface is adjustable via a fine pitch thread, allowing the clamping position to be set easily with maximum clamping force. Also, the position of the lever relative to the clamping axis can be determined.
With these clamping levers with eccentrical cam, clamping forces of up to 8 kN can be reached.

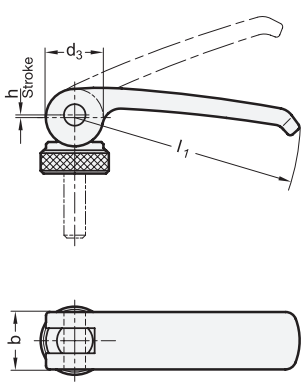
TECHNICAL INFORMATION

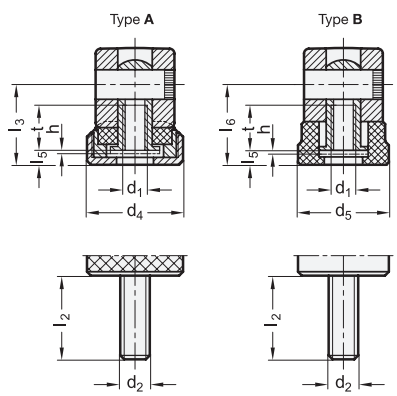
- Plastic characteristics (see page A2)

CONSCTRUCTIONAL FEATURES (TYPE A) / APPLICATION EXAMPLE









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GN 927

Clamping levers with eccentrical cam

* Complete with colour index of the Clamping lever (B, O, R or S)

B	O	R	S
RAL9005	RAL2004	RAL3000	RAL9006

GN 927-with threaded insert

Description	l1	d1	b	d3	d4	d5	h	l3 min.	l3 max.	l4	l5	l6	t	⚖
GN 927-63-M5-A-*	63	M 5	16	16	19	-	0.75	16.3	18.8	2.5	3	-	10	56
GN 927-63-M6-A-*	63	M 6	16	16	19	-	0.75	16.3	18.8	2.5	3	-	10	56
GN 927-82-M6-A-*	82	M 6	20	20	25	-	1	19.5	22.5	3	3.7	-	12	110
GN 927-82-M8-A-*	82	M 8	20	20	25	-	1	19.5	22.5	3	3.7	-	12	110
GN 927-101-M8-A-*	101	M 8	25	26	30	-	1.5	25.3	29.3	4	4.8	-	15	218
GN 927-101-M10-A-*	101	M 10	25	26	30	-	1.5	25.3	29.3	4	4.8	-	15	210
GN 927-63-M5-B-*	63	M 5	16	16	-	18.5	0.75	-	-	-	3	16.3	10	52
GN 927-63-M6-B-*	63	M 6	16	16	-	18.5	0.75	-	-	-	3	16.3	10	51
GN 927-82-M6-B-*	82	M 6	20	20	-	22.5	1	-	-	-	3.7	19.5	12	110
GN 927-82-M8-B-*	82	M 8	20	20	-	22.5	1	-	-	-	3.7	19.5	12	96
GN 927-101-M8-B-*	101	M 8	25	26	-	27	1.5	-	-	-	4.8	25.3	15	175
GN 927-101-M10-B-*	101	M 10	25	26	-	27	1.5	-	-	-	4.8	25.3	15	156

GN 927-with threaded stud

Description	l1	d2	l2	b	d3	d4	d5	h	l3 min.	l3 max.	l4	l5	l6	⚖
GN 927-63-M5-16-A-*	63	M 5	16	16	16	19	-	0.75	16.3	18.8	2.5	3	-	60
GN 927-63-M5-20-A-*	63	M 5	20	16	16	19	-	0.75	16.3	18.8	2.5	3	-	61
GN 927-63-M5-25-A-*	63	M 5	25	16	16	19	-	0.75	16.3	18.8	2.5	3	-	62
GN 927-63-M5-30-A-*	63	M 5	30	16	16	19	-	0.75	16.3	18.8	2.5	3	-	63
GN 927-63-M5-35-A-*	63	M 5	35	16	16	19	-	0.75	16.3	18.8	2.5	3	-	63
GN 927-63-M5-40-A-*	63	M 5	40	16	16	19	-	0.75	16.3	18.8	2.5	3	-	63
GN 927-63-M5-50-A-*	63	M 5	50	16	16	19	-	0.75	16.3	18.8	2.5	3	-	65
GN 927-63-M6-16-A-*	63	M 6	16	16	16	19	-	0.75	16.3	18.8	2.5	3	-	60
GN 927-63-M6-20-A-*	63	M 6	20	16	16	19	-	0.75	16.3	18.8	2.5	3	-	61
GN 927-63-M6-25-A-*	63	M 6	25	16	16	19	-	0.75	16.3	18.8	2.5	3	-	63
GN 927-63-M6-30-A-*	63	M 6	30	16	16	19	-	0.75	16.3	18.8	2.5	3	-	64
GN 927-63-M6-35-A-*	63	M 6	35	16	16	19	-	0.75	16.3	18.8	2.5	3	-	65
GN 927-63-M6-40-A-*	63	M 6	40	16	16	19	-	0.75	16.3	18.8	2.5	3	-	66
GN 927-63-M6-50-A-*	63	M 6	50	16	16	19	-	0.75	16.3	18.8	2.5	3	-	68
GN 927-82-M6-20-A-*	82	M 6	20	20	20	25	-	1	19.5	22.5	3	3.7	-	120
GN 927-82-M6-25-A-*	82	M 6	25	20	20	25	-	1	19.5	22.5	3	3.7	-	120
GN 927-82-M6-30-A-*	82	M 6	30	20	20	25	-	1	19.5	22.5	3	3.7	-	120
GN 927-82-M6-35-A-*	82	M 6	35	20	20	25	-	1	19.5	22.5	3	3.7	-	120
GN 927-82-M6-40-A-*	82	M 6	40	20	20	25	-	1	19.5	22.5	3	3.7	-	120
GN 927-82-M6-50-A-*	82	M 6	50	20	20	25	-	1	19.5	22.5	3	3.7	-	120
GN 927-82-M6-60-A-*	82	M 6	60	20	20	25	-	1	19.5	22.5	3	3.7	-	120
GN 927-82-M8-20-A-*	82	M 8	20	20	20	25	-	1	19.5	22.5	3	3.7	-	123
GN 927-82-M8-25-A-*	82	M 8	25	20	20	25	-	1	19.5	22.5	3	3.7	-	122
GN 927-82-M8-30-A-*	82	M 8	30	20	20	25	-	1	19.5	22.5	3	3.7	-	124
GN 927-82-M8-35-A-*	82	M 8	35	20	20	25	-	1	19.5	22.5	3	3.7	-	125
GN 927-82-M8-40-A-*	82	M 8	40	20	20	25	-	1	19.5	22.5	3	3.7	-	125
GN 927-82-M8-50-A-*	82	M 8	50	20	20	25	-	1	19.5	22.5	3	3.7	-	129
GN 927-82-M8-60-A-*	82	M 8	60	20	20	25	-	1	19.5	22.5	3	3.7	-	134
GN 927-101-M8-25-A-*	101	M 8	25	25	26	30	-	1.5	25.3	29.3	4	4.8	-	227
GN 927-101-M8-30-A-*	101	M 8	30	25	26	30	-	1.5	25.3	29.3	4	4.8	-	227
GN 927-101-M8-35-A-*	101	M 8	35	25	26	30	-	1.5	25.3	29.3	4	4.8	-	228
GN 927-101-M8-40-A-*	101	M 8	40	25	26	30	-	1.5	25.3	29.3	4	4.8	-	232
GN 927-101-M8-50-A-*	101	M 8	50	25	26	30	-	1.5	25.3	29.3	4	4.8	-	233
GN 927-101-M8-60-A-*	101	M 8	60	25	26	30	-	1.5	25.3	29.3	4	4.8	-	237

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GN 927

Clamping levers with eccentrical cam

* Complete with colour index of the Clamping lever (B, O, R or S)

B	O	R	S
RAL9005	RAL2004	RAL3000	RAL9006

GN 927-with threaded stud

Description	l1	d2	l2	b	d3	d4	d5	h	l3 min.	l3 max.	l4	l5	l6	⚖
GN 927-101-M10-20-A-*	101	M 10	20	25	26	30	-	1.5	25.3	29.3	4	4.8	-	230
GN 927-101-M10-25-A-*	101	M 10	25	25	26	30	-	1.5	25.3	29.3	4	4.8	-	231
GN 927-101-M10-30-A-*	101	M 10	30	25	26	30	-	1.5	25.3	29.3	4	4.8	-	233
GN 927-101-M10-35-A-*	101	M 10	35	25	26	30	-	1.5	25.3	29.3	4	4.8	-	237
GN 927-101-M10-40-A-*	101	M 10	40	25	26	30	-	1.5	25.3	29.3	4	4.8	-	238
GN 927-101-M10-50-A-*	101	M 10	50	25	26	30	-	1.5	25.3	29.3	4	4.8	-	245
GN 927-101-M10-60-A-*	101	M 10	60	25	26	30	-	1.5	25.3	29.3	4	4.8	-	250
GN 927-63-M5-16-B-*	63	M 5	16	16	16	-	18.5	0.75	-	-	-	3	16.3	56
GN 927-63-M5-20-B-*	63	M 5	20	16	16	-	18.5	0.75	-	-	-	3	16.3	55
GN 927-63-M5-25-B-*	63	M 5	25	16	16	-	18.5	0.75	-	-	-	3	16.3	56
GN 927-63-M5-30-B-*	63	M 5	30	16	16	-	18.5	0.75	-	-	-	3	16.3	56
GN 927-63-M5-35-B-*	63	M 5	35	16	16	-	18.5	0.75	-	-	-	3	16.3	56
GN 927-63-M5-40-B-*	63	M 5	40	16	16	-	18.5	0.75	-	-	-	3	16.3	56
GN 927-63-M5-50-B-*	63	M 5	50	16	16	-	18.5	0.75	-	-	-	3	16.3	56
GN 927-63-M6-16-B-*	63	M 6	16	16	16	-	18.5	0.75	-	-	-	3	16.3	56
GN 927-63-M6-20-B-*	63	M 6	20	16	16	-	18.5	0.75	-	-	-	3	16.3	56
GN 927-63-M6-25-B-*	63	M 6	25	16	16	-	18.5	0.75	-	-	-	3	16.3	56
GN 927-63-M6-30-B-*	63	M 6	30	16	16	-	18.5	0.75	-	-	-	3	16.3	60
GN 927-63-M6-35-B-*	63	M 6	35	16	16	-	18.5	0.75	-	-	-	3	16.3	60
GN 927-63-M6-40-B-*	63	M 6	40	16	16	-	18.5	0.75	-	-	-	3	16.3	60
GN 927-63-M6-50-B-*	63	M 6	50	16	16	-	18.5	0.75	-	-	-	3	16.3	60
GN 927-82-M6-20-B-*	82	M 6	20	20	20	-	22.5	1	-	-	-	3.7	19.5	122
GN 927-82-M6-25-B-*	82	M 6	25	20	20	-	22.5	1	-	-	-	3.7	19.5	122
GN 927-82-M6-30-B-*	82	M 6	30	20	20	-	22.5	1	-	-	-	3.7	19.5	122
GN 927-82-M6-35-B-*	82	M 6	35	20	20	-	22.5	1	-	-	-	3.7	19.5	122
GN 927-82-M6-40-B-*	82	M 6	40	20	20	-	22.5	1	-	-	-	3.7	19.5	122
GN 927-82-M6-50-B-*	82	M 6	50	20	20	-	22.5	1	-	-	-	3.7	19.5	122
GN 927-82-M6-60-B-*	82	M 6	60	20	20	-	22.5	1	-	-	-	3.7	19.5	122
GN 927-82-M8-20-B-*	82	M 8	20	20	20	-	22.5	1	-	-	-	3.7	19.5	122
GN 927-82-M8-25-B-*	82	M 8	25	20	20	-	22.5	1	-	-	-	3.7	19.5	100
GN 927-82-M8-30-B-*	82	M 8	30	20	20	-	22.5	1	-	-	-	3.7	19.5	107
GN 927-82-M8-35-B-*	82	M 8	35	20	20	-	22.5	1	-	-	-	3.7	19.5	108
GN 927-82-M8-40-B-*	82	M 8	40	20	20	-	22.5	1	-	-	-	3.7	19.5	110
GN 927-82-M8-50-B-*	82	M 8	50	20	20	-	22.5	1	-	-	-	3.7	19.5	120
GN 927-82-M8-60-B-*	82	M 8	60	20	20	-	22.5	1	-	-	-	3.7	19.5	120
GN 927-101-M8-20-B-*	101	M 8	20	25	26	-	27	1.5	-	-	-	4.8	25.3	200
GN 927-101-M8-25-B-*	101	M 8	25	25	26	-	27	1.5	-	-	-	4.8	25.3	202
GN 927-101-M8-30-B-*	101	M 8	30	25	26	-	27	1.5	-	-	-	4.8	25.3	204
GN 927-101-M8-35-B-*	101	M 8	35	25	26	-	27	1.5	-	-	-	4.8	25.3	204
GN 927-101-M8-40-B-*	101	M 8	40	25	26	-	27	1.5	-	-	-	4.8	25.3	208
GN 927-101-M8-50-B-*	101	M 8	50	25	26	-	27	1.5	-	-	-	4.8	25.3	210
GN 927-101-M8-60-B-*	101	M 8	60	25	26	-	27	1.5	-	-	-	4.8	25.3	213
GN 927-101-M10-20-B-*	101	M 10	20	25	26	-	27	1.5	-	-	-	4.8	25.3	205
GN 927-101-M10-25-B-*	101	M 10	25	25	26	-	27	1.5	-	-	-	4.8	25.3	207
GN 927-101-M10-30-B-*	101	M 10	30	25	26	-	27	1.5	-	-	-	4.8	25.3	209
GN 927-101-M10-35-B-*	101	M 10	35	25	26	-	27	1.5	-	-	-	4.8	25.3	212
GN 927-101-M10-40-B-*	101	M 10	40	25	26	-	27	1.5	-	-	-	4.8	25.3	215
GN 927-101-M10-50-B-*	101	M 10	50	25	26	-	27	1.5	-	-	-	4.8	25.3	219
GN 927-101-M10-60-B-*	101	M 10	60	25	26	-	27	1.5	-	-	-	4.8	25.3	224

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GN 927.4

Clamping levers with eccentrical cam

Single parts Stainless Steel / Contact plate Plastic / Lever Zinc die casting



SPECIFICATION

Types

- Type **A**: Plastic contact plate with setting nut
- Type **B**: Plastic contact plate without setting nut

Lever
Zinc die casting

plastic coated (abrasion proof epoxy resin)
black, RAL 9005 **B**
orange, RAL 2004 **O**
red, RAL 3000 **R**
silver, RAL 9006 **S**

Contact plates
Plastic, glass fibre reinforced

- Type A: Polyacetal (POM)
- Type B: Polyamide (PA)

Version with threaded insert

Axis, lag nut, setting nut
Stainless Steel AISI 303

Version with threaded stud

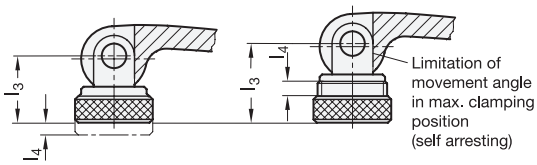
Axis, lag screw, setting screw
Stainless Steel AISI 303

INFORMATION

Clamping levers with eccentrical cam GN 927.4 with stainless steel internal thread are used for rapid clamping and releasing. Hereby, contrary to a clamping operation via a thread, these levers permit a **torque-free** clamping.
The lever has been designed to ensure that its movement cannot exceed the max. clamping force.
There are no loose components since they are all assembled and mounted in their correct order.
Type A has the following benefits:
The distance between the lever cam and the clamping surface is adjustable via a fine pitch thread, allowing the clamping position to be set easily with maximum clamping force. Also, the position of the lever relative to the clamping axis can be determined.
With these clamping levers with eccentrical cam, clamping forces of up to 8 kN can be reached.

CONSTRUCTIONAL FEATURES (TYPE A) / APPLICATION EXAMPLE

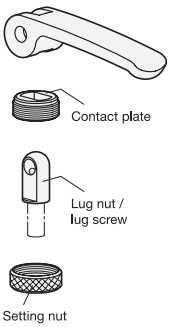
l_3 adjustable by the setting screw for optimum clamping force at the preferred lever position.

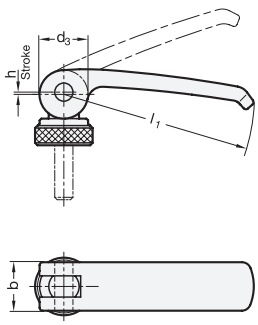


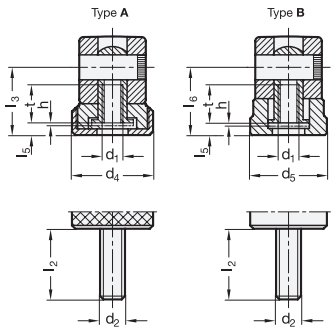
l_3 max. must not be exeeded. Otherwise there is the risk that the positioning thread can no longer absorb the clamping force or may be damaged.

TECHNICAL INFORMATION

- Plastic characteristics (see page A2)
- Stainless Steel characteristics (see page A26)







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GN 927.4 | Clamping levers with eccentrical cam

* Complete with colour index of the Clamping lever (B, O, R or S)

B	O	R	S
RAL9005	RAL2004	RAL3000	RAL9006

GN 927.4-with threaded insert

Description	l1	d1	b	d3	d4	d5	h	l3 min.	l3 max.	l4	l5	l6	t	⚖
GN 927.4-63-M5-A-*	63	M 5	16	16	19	-	0.75	16.3	18.8	2.5	3	-	10	57
GN 927.4-63-M6-A-*	63	M 6	16	16	19	-	0.75	16.3	18.8	2.5	3	-	10	56
GN 927.4-82-M6-A-*	82	M 6	20	20	25	-	1	19.5	22.5	3	3.7	-	12	112
GN 927.4-82-M8-A-*	82	M 8	20	20	25	-	1	19.5	22.5	3	3.7	-	12	110
GN 927.4-101-M8-A-*	101	M 8	25	26	30	-	1.5	25.3	29.3	4	4.8	-	15	213
GN 927.4-101-M10-A-*	101	M 10	25	26	30	-	1.5	25.3	29.3	4	4.8	-	15	211
GN 927.4-63-M5-B-*	63	M 5	16	16	-	18.5	0.75	-	-	-	3	16.3	10	51
GN 927.4-63-M6-B-*	63	M 6	16	16	-	18.5	0.75	-	-	-	3	16.3	10	50
GN 927.4-82-M6-B-*	82	M 6	20	20	-	22.5	1	-	-	-	3.7	19.5	12	97
GN 927.4-82-M8-B-*	82	M 8	20	20	-	22.5	1	-	-	-	3.7	19.5	12	98
GN 927.4-101-M8-B-*	101	M 8	25	26	-	27	1.5	-	-	-	4.8	25.3	15	185
GN 927.4-101-M10-B-*	101	M 10	25	26	-	27	1.5	-	-	-	4.8	25.3	15	185

GN 927.4-with threaded stud

Description	l1	d2	l2	b	d3	d4	d5	h	l3 min.	l3 max.	l4	l5	l6	⚖
GN 927.4-63-M5-16-A-*	63	M 5	16	16	16	19	-	0.75	16.3	18.8	2.5	3	-	60
GN 927.4-63-M5-20-A-*	63	M 5	20	16	16	19	-	0.75	16.3	18.8	2.5	3	-	61
GN 927.4-63-M5-25-A-*	63	M 5	25	16	16	19	-	0.75	16.3	18.8	2.5	3	-	61
GN 927.4-63-M5-30-A-*	63	M 5	30	16	16	19	-	0.75	16.3	18.8	2.5	3	-	63
GN 927.4-63-M5-35-A-*	63	M 5	35	16	16	19	-	0.75	16.3	18.8	2.5	3	-	63
GN 927.4-63-M5-40-A-*	63	M 5	40	16	16	19	-	0.75	16.3	18.8	2.5	3	-	65
GN 927.4-63-M5-50-A-*	63	M 5	50	16	16	19	-	0.75	16.3	18.8	2.5	3	-	65
GN 927.4-63-M6-16-A-*	63	M 6	16	16	16	19	-	0.75	16.3	18.8	2.5	3	-	60
GN 927.4-63-M6-20-A-*	63	M 6	20	16	16	19	-	0.75	16.3	18.8	2.5	3	-	61
GN 927.4-63-M6-25-A-*	63	M 6	25	16	16	19	-	0.75	16.3	18.8	2.5	3	-	62
GN 927.4-63-M6-30-A-*	63	M 6	30	16	16	19	-	0.75	16.3	18.8	2.5	3	-	64
GN 927.4-63-M6-35-A-*	63	M 6	35	16	16	19	-	0.75	16.3	18.8	2.5	3	-	64
GN 927.4-63-M6-40-A-*	63	M 6	40	16	16	19	-	0.75	16.3	18.8	2.5	3	-	65
GN 927.4-63-M6-50-A-*	63	M 6	50	16	16	19	-	0.75	16.3	18.8	2.5	3	-	77
GN 927.4-82-M6-20-A-*	82	M 6	20	20	20	25	-	1	19.5	22.5	3	3.7	-	118
GN 927.4-82-M6-25-A-*	82	M 6	25	20	20	25	-	1	19.5	22.5	3	3.7	-	119
GN 927.4-82-M6-30-A-*	82	M 6	30	20	20	25	-	1	19.5	22.5	3	3.7	-	120
GN 927.4-82-M6-35-A-*	82	M 6	35	20	20	25	-	1	19.5	22.5	3	3.7	-	120
GN 927.4-82-M6-40-A-*	82	M 6	40	20	20	25	-	1	19.5	22.5	3	3.7	-	122
GN 927.4-82-M6-50-A-*	82	M 6	50	20	20	25	-	1	19.5	22.5	3	3.7	-	123
GN 927.4-82-M6-60-A-*	82	M 6	60	20	20	25	-	1	19.5	22.5	3	3.7	-	126
GN 927.4-82-M8-20-A-*	82	M 8	20	20	20	25	-	1	19.5	22.5	3	3.7	-	121
GN 927.4-82-M8-25-A-*	82	M 8	25	20	20	25	-	1	19.5	22.5	3	3.7	-	122
GN 927.4-82-M8-30-A-*	82	M 8	30	20	20	25	-	1	19.5	22.5	3	3.7	-	123
GN 927.4-82-M8-35-A-*	82	M 8	35	20	20	25	-	1	19.5	22.5	3	3.7	-	125
GN 927.4-82-M8-40-A-*	82	M 8	40	20	20	25	-	1	19.5	22.5	3	3.7	-	128
GN 927.4-82-M8-50-A-*	82	M 8	50	20	20	25	-	1	19.5	22.5	3	3.7	-	130
GN 927.4-82-M8-60-A-*	82	M 8	60	20	20	25	-	1	19.5	22.5	3	3.7	-	132
GN 927.4-101-M8-25-A-*	101	M 8	25	25	26	30	-	1.5	25.3	29.3	4	4.8	-	228
GN 927.4-101-M8-30-A-*	101	M 8	30	25	26	30	-	1.5	25.3	29.3	4	4.8	-	230
GN 927.4-101-M8-35-A-*	101	M 8	35	25	26	30	-	1.5	25.3	29.3	4	4.8	-	231
GN 927.4-101-M8-40-A-*	101	M 8	40	25	26	30	-	1.5	25.3	29.3	4	4.8	-	232
GN 927.4-101-M8-50-A-*	101	M 8	50	25	26	30	-	1.5	25.3	29.3	4	4.8	-	235

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GN 927.4 | Clamping levers with eccentrical cam

* Complete with colour index of the Clamping lever (B, O, R or S)

B RAL9005 | O RAL2004 | R RAL3000 | S RAL9006

GN 927.4-with threaded stud

Description	l1	d2	l2	b	d3	d4	d5	h	l3 min.	l3 max.	l4	l5	l6	⚖
GN 927.4-101-M8-60-A-*	101	M 8	60	25	26	30	-	1.5	25.3	29.3	4	4.8	-	238
GN 927.4-101-M10-20-A-*	101	M 10	20	25	26	30	-	1.5	25.3	29.3	4	4.8	-	229
GN 927.4-101-M10-25-A-*	101	M 10	25	25	26	30	-	1.5	25.3	29.3	4	4.8	-	232
GN 927.4-101-M10-30-A-*	101	M 10	30	25	26	30	-	1.5	25.3	29.3	4	4.8	-	234
GN 927.4-101-M10-35-A-*	101	M 10	35	25	26	30	-	1.5	25.3	29.3	4	4.8	-	237
GN 927.4-101-M10-40-A-*	101	M 10	40	25	26	30	-	1.5	25.3	29.3	4	4.8	-	240
GN 927.4-101-M10-50-A-*	101	M 10	50	25	26	30	-	1.5	25.3	29.3	4	4.8	-	234
GN 927.4-101-M10-60-A-*	101	M 10	60	25	26	30	-	1.5	25.3	29.3	4	4.8	-	250
GN 927.4-63-M5-16-B-*	63	M 5	16	16	16	-	18.5	0.75	-	-	-	3	16.3	55
GN 927.4-63-M5-20-B-*	63	M 5	20	16	16	-	18.5	0.75	-	-	-	3	16.3	55
GN 927.4-63-M5-25-B-*	63	M 5	25	16	16	-	18.5	0.75	-	-	-	3	16.3	56
GN 927.4-63-M5-30-B-*	63	M 5	30	16	16	-	18.5	0.75	-	-	-	3	16.3	56
GN 927.4-63-M5-35-B-*	63	M 5	35	16	16	-	18.5	0.75	-	-	-	3	16.3	58
GN 927.4-63-M5-40-B-*	63	M 5	40	16	16	-	18.5	0.75	-	-	-	3	16.3	58
GN 927.4-63-M5-50-B-*	63	M 5	50	16	16	-	18.5	0.75	-	-	-	3	16.3	59
GN 927.4-63-M6-16-B-*	63	M 6	16	16	16	-	18.5	0.75	-	-	-	3	16.3	54
GN 927.4-63-M6-20-B-*	63	M 6	20	16	16	-	18.5	0.75	-	-	-	3	16.3	55
GN 927.4-63-M6-25-B-*	63	M 6	25	16	16	-	18.5	0.75	-	-	-	3	16.3	56
GN 927.4-63-M6-30-B-*	63	M 6	30	16	16	-	18.5	0.75	-	-	-	3	16.3	57
GN 927.4-63-M6-35-B-*	63	M 6	35	16	16	-	18.5	0.75	-	-	-	3	16.3	58
GN 927.4-63-M6-40-B-*	63	M 6	40	16	16	-	18.5	0.75	-	-	-	3	16.3	59
GN 927.4-63-M6-50-B-*	63	M 6	50	16	16	-	18.5	0.75	-	-	-	3	16.3	60
GN 927.4-82-M6-20-B-*	82	M 6	20	20	20	-	22.5	1	-	-	-	3.7	19.5	103
GN 927.4-82-M6-25-B-*	82	M 6	25	20	20	-	22.5	1	-	-	-	3.7	19.5	104
GN 927.4-82-M6-30-B-*	82	M 6	30	20	20	-	22.5	1	-	-	-	3.7	19.5	106
GN 927.4-82-M6-35-B-*	82	M 6	35	20	20	-	22.5	1	-	-	-	3.7	19.5	106
GN 927.4-82-M6-40-B-*	82	M 6	40	20	20	-	22.5	1	-	-	-	3.7	19.5	108
GN 927.4-82-M6-50-B-*	82	M 6	50	20	20	-	22.5	1	-	-	-	3.7	19.5	111
GN 927.4-82-M6-60-B-*	82	M 6	60	20	20	-	22.5	1	-	-	-	3.7	19.5	111
GN 927.4-82-M8-20-B-*	82	M 8	20	20	20	-	22.5	1	-	-	-	3.7	19.5	106
GN 927.4-82-M8-25-B-*	82	M 8	25	20	20	-	22.5	1	-	-	-	3.7	19.5	110
GN 927.4-82-M8-30-B-*	82	M 8	30	20	20	-	22.5	1	-	-	-	3.7	19.5	111
GN 927.4-82-M8-35-B-*	82	M 8	35	20	20	-	22.5	1	-	-	-	3.7	19.5	112
GN 927.4-82-M8-40-B-*	82	M 8	40	20	20	-	22.5	1	-	-	-	3.7	19.5	114
GN 927.4-82-M8-50-B-*	82	M 8	50	20	20	-	22.5	1	-	-	-	3.7	19.5	116
GN 927.4-82-M8-60-B-*	82	M 8	60	20	20	-	22.5	1	-	-	-	3.7	19.5	120
GN 927.4-101-M8-20-B-*	101	M 8	20	25	26	-	27	1.5	-	-	-	4.8	25.3	200
GN 927.4-101-M8-25-B-*	101	M 8	25	25	26	-	27	1.5	-	-	-	4.8	25.3	203
GN 927.4-101-M8-30-B-*	101	M 8	30	25	26	-	27	1.5	-	-	-	4.8	25.3	204
GN 927.4-101-M8-35-B-*	101	M 8	35	25	26	-	27	1.5	-	-	-	4.8	25.3	208
GN 927.4-101-M8-40-B-*	101	M 8	40	25	26	-	27	1.5	-	-	-	4.8	25.3	209
GN 927.4-101-M8-50-B-*	101	M 8	50	25	26	-	27	1.5	-	-	-	4.8	25.3	210
GN 927.4-101-M8-60-B-*	101	M 8	60	25	26	-	27	1.5	-	-	-	4.8	25.3	214
GN 927.4-101-M10-20-B-*	101	M 10	20	25	26	-	27	1.5	-	-	-	4.8	25.3	200
GN 927.4-101-M10-25-B-*	101	M 10	25	25	26	-	27	1.5	-	-	-	4.8	25.3	203
GN 927.4-101-M10-30-B-*	101	M 10	30	25	26	-	27	1.5	-	-	-	4.8	25.3	210
GN 927.4-101-M10-35-B-*	101	M 10	35	25	26	-	27	1.5	-	-	-	4.8	25.3	220
GN 927.4-101-M10-40-B-*	101	M 10	40	25	26	-	27	1.5	-	-	-	4.8	25.3	215
GN 927.4-101-M10-50-B-*	101	M 10	50	25	26	-	27	1.5	-	-	-	4.8	25.3	221
GN 927.4-101-M10-60-B-*	101	M 10	60	25	26	-	27	1.5	-	-	-	4.8	25.3	221

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Clamping levers with eccentrical cam

Contact plate Plastic, Lever Steel



SPECIFICATION

Types

- Type **A**: Plastic contact plate with setting nut
- Type **B**: Plastic contact plate without setting nut

Lever
Steel (precision casting)
zinc plated, blue passivated

Contact plates
Plastic, glass fibre reinforced

- Type A: Polyacetal (POM)
- Type B: Polyamide (PA)

Version with threaded insert

Axis, lag nut, setting nut
Steel zinc plated, blue passivated

Version with threaded stud

Axis, lag screw, setting screw
Steel zinc plated, blue passivated

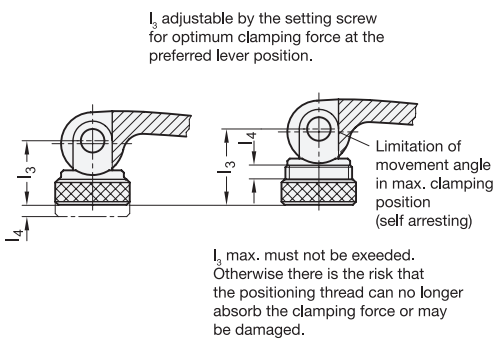
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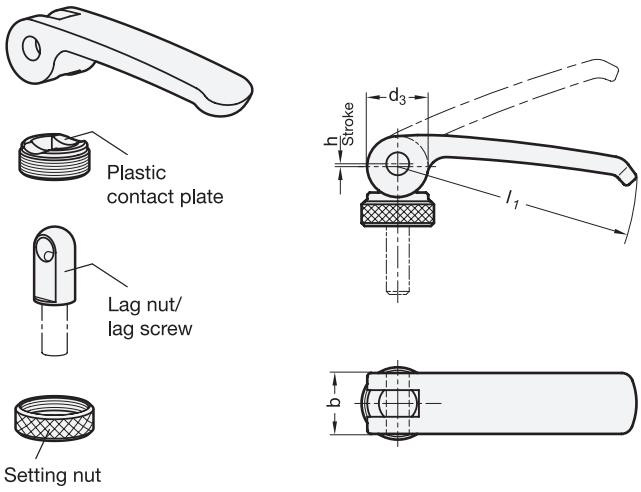
Clamping levers with eccentrical cam GN 927.3 are used for rapid clamping and releasing. Hereby, contrary to a clamping operation via a thread, these levers permit a **torque-free** clamping.
The lever has been designed to ensure that its movement cannot exceed the max. clamping force.
There are no loose components since they are all assembled and mounted in their correct order.
Type A has the following benefits:
The distance between the lever cam and the clamping surface is adjustable via a fine pitch thread, allowing the clamping position to be set easily with maximum clamping force. Also, the position of the lever relative to the clamping axis can be determined.
With these clamping levers with eccentrical cam, clamping forces of up to 8 kN can be reached.

TECHNICAL INFORMATION

- Plastic characteristics (see page A2)

CONSCTRUCTIONAL FEATURES (TYPE A) / APPLICATION EXAMPLE





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GN 927.3 | Clamping levers with eccentrical cam

*Complete with type of the Clamping lever (A or B)

A with setting nut

B without setting nut

GN 927.3-with threaded insert

Description	l1	d1	b	d3	d4	d5	h	l3 min.	l3 max.	l4	l5	l6	t	⚖
GN 927.3-63-M5-*	63	M 5	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	10	63
GN 927.3-63-M6-*	63	M 6	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	10	63
GN 927.3-82-M6-*	82	M 6	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	12	125
GN 927.3-82-M8-*	82	M 8	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	12	123
GN 927.3-101-M8-*	101	M 8	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	15	243
GN 927.3-101-M10-*	101	M 10	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	15	240

GN 927.3-with threaded stud

Description	l1	d2	l2	b	d3	d4	d5	h	l3 min.	l3 max.	l4	l5	l6	⚖
GN 927.3-63-M5-16-*	63	M 5	16	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	45
GN 927.3-63-M5-20-*	63	M 5	20	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	66
GN 927.3-63-M5-25-*	63	M 5	25	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	68
GN 927.3-63-M5-30-*	63	M 5	30	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	69
GN 927.3-63-M5-35-*	63	M 5	35	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	69
GN 927.3-63-M5-40-*	63	M 5	40	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	70
GN 927.3-63-M5-50-*	63	M 5	50	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	71
GN 927.3-63-M6-16-*	63	M 6	16	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	67
GN 927.3-63-M6-20-*	63	M 6	20	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	67
GN 927.3-63-M6-25-*	63	M 6	25	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	69
GN 927.3-63-M6-30-*	63	M 6	30	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	70
GN 927.3-63-M6-35-*	63	M 6	35	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	70
GN 927.3-63-M6-40-*	63	M 6	40	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	72
GN 927.3-63-M6-50-*	63	M 6	50	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	76
GN 927.3-82-M6-20-*	82	M 6	20	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	131
GN 927.3-82-M6-25-*	82	M 6	25	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	131
GN 927.3-82-M6-30-*	82	M 6	30	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	132
GN 927.3-82-M6-35-*	82	M 6	35	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	134
GN 927.3-82-M6-40-*	82	M 6	40	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	137
GN 927.3-82-M6-50-*	82	M 6	50	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	137
GN 927.3-82-M6-60-*	82	M 6	60	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	138
GN 927.3-82-M8-20-*	82	M 8	20	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	121
GN 927.3-82-M8-25-*	82	M 8	25	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	124
GN 927.3-82-M8-30-*	82	M 8	30	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	124
GN 927.3-82-M8-35-*	82	M 8	35	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	126
GN 927.3-82-M8-40-*	82	M 8	40	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	126
GN 927.3-82-M8-50-*	82	M 8	50	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	130
GN 927.3-82-M8-60-*	82	M 8	60	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	134
GN 927.3-101-M8-20-*	101	M 8	20	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	255
GN 927.3-101-M8-25-*	101	M 8	25	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	256
GN 927.3-101-M8-30-*	101	M 8	30	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	258
GN 927.3-101-M8-35-*	101	M 8	35	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	260
GN 927.3-101-M8-40-*	101	M 8	40	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	261
GN 927.3-101-M8-50-*	101	M 8	50	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	262
GN 927.3-101-M8-60-*	101	M 8	60	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	266
GN 927.3-101-M10-20-*	101	M 10	20	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	233
GN 927.3-101-M10-25-*	101	M 10	25	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	236
GN 927.3-101-M10-30-*	101	M 10	30	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	238
GN 927.3-101-M10-35-*	101	M 10	35	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	238
GN 927.3-101-M10-40-*	101	M 10	40	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	241
GN 927.3-101-M10-50-*	101	M 10	50	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	257
GN 927.3-101-M10-60-*	101	M 10	60	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	260

Weight type A

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Stainless Steel-Clamping levers with eccentrical cam

Single parts Stainless Steel / Contact plate Plastic / Lever Stainless Steel



SPECIFICATION

Types

- Type **A**: Plastic contact plate with setting nut
- Type **B**: Plastic contact plate without setting nut

Lever
Stainless Steel AISI CF-8
(precision casting)

Contact plates
Plastic, glass fibre reinforced

- Type A: Polyacetal (POM)
- Type B: Polyamide (PA)

Version with threded insert

Axis, lag nut, setting nut
Stainless Steel AISI 303

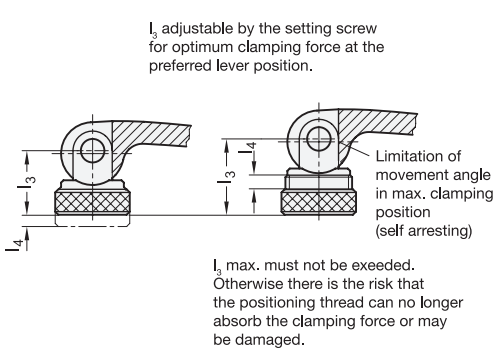
Version with threaded stud

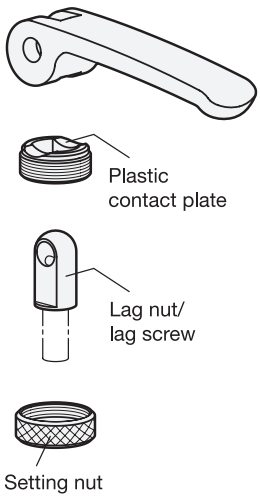
Axis, lag screw, setting screw
Stainless Steel AISI 303

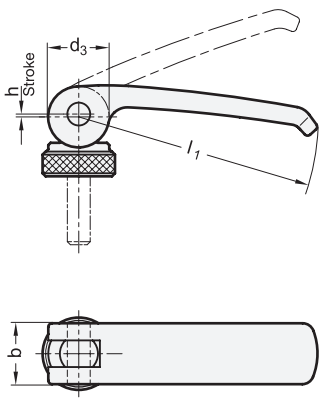
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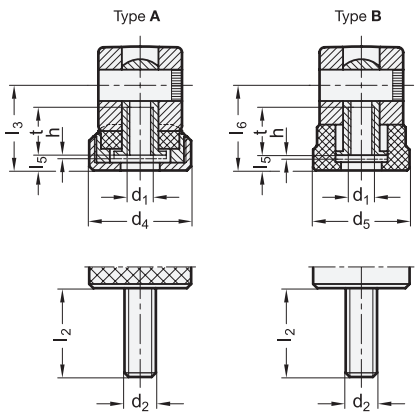
Clamping levers with eccentrical cam GN 927.5 with stainless steel internal thread are used for rapid clamping and releasing. Hereby, contrary to a clamping operation via a thread, these levers permit a **torque-free** clamping.
The lever has been designed to ensure that its movement cannot exceed the max. clamping force.
There are no loose components since they are all assembled and mounted in their correct order.
Type A has the following benefits:
The distance between the lever cam and the clamping surface is adjustable via a fine pitch thread, allowing the clamping position to be set easily with maximum clamping force. Also, the position of the lever relative to the clamping axis can be determined.
With these clamping levers with eccentrical cam, clamping forces of up to 8 kN can be reached.

CONSTRUCTIONAL FEATURES (TYPE A) / APPLICATION EXAMPLE









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GN 927.5 | Stainless Steel-Clamping levers with eccentrical cam

*Complete with type of the Clamping lever (A or B)

A with setting nut

B without setting nut

GN 927.5-with threaded insert

STAINLESS STEEL

Description	l1	d1	b	d3	d4	d5	h	l3 min.	l3 max.	l4	l5	l6	t	⚖
GN 927.5-63-M5-*	63	M 5	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	10	57
GN 927.5-63-M6-*	63	M 6	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	10	56
GN 927.5-82-M6-*	82	M 6	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	12	126
GN 927.5-82-M8-*	82	M 8	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	12	124
GN 927.5-101-M8-*	101	M 8	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	15	239
GN 927.5-101-M10-*	101	M 10	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	15	238

GN 927.5-with threaded stud

STAINLESS STEEL

Description	l1	d2	l2	b	d3	d4	d5	h	l3 min.	l3 max.	l4	l5	l6	⚖
GN 927.5-63-M5-16-*	63	M 5	16	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	66
GN 927.5-63-M5-20-*	63	M 5	20	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	66
GN 927.5-63-M5-25-*	63	M 5	25	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	67
GN 927.5-63-M5-30-*	63	M 5	30	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	67
GN 927.5-63-M5-35-*	63	M 5	35	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	68
GN 927.5-63-M5-40-*	63	M 5	40	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	68
GN 927.5-63-M5-50-*	63	M 5	50	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	70
GN 927.5-63-M6-16-*	63	M 6	16	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	60
GN 927.5-63-M6-20-*	63	M 6	20	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	61
GN 927.5-63-M6-25-*	63	M 6	25	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	62
GN 927.5-63-M6-30-*	63	M 6	30	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	63
GN 927.5-63-M6-35-*	63	M 6	35	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	64
GN 927.5-63-M6-40-*	63	M 6	40	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	64
GN 927.5-63-M6-50-*	63	M 6	50	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	66
GN 927.5-82-M6-20-*	82	M 6	20	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	132
GN 927.5-82-M6-25-*	82	M 6	25	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	132
GN 927.5-82-M6-30-*	82	M 6	30	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	133
GN 927.5-82-M6-35-*	82	M 6	35	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	135
GN 927.5-82-M6-40-*	82	M 6	40	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	135
GN 927.5-82-M6-50-*	82	M 6	50	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	137
GN 927.5-82-M6-60-*	82	M 6	60	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	139
GN 927.5-82-M8-20-*	82	M 8	20	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	121
GN 927.5-82-M8-25-*	82	M 8	25	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	123
GN 927.5-82-M8-30-*	82	M 8	30	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	130
GN 927.5-82-M8-35-*	82	M 8	35	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	134
GN 927.5-82-M8-40-*	82	M 8	40	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	134
GN 927.5-82-M8-50-*	82	M 8	50	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	136
GN 927.5-82-M8-60-*	82	M 8	60	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	138
GN 927.5-101-M8-20-*	101	M 8	20	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	228
GN 927.5-101-M8-25-*	101	M 8	25	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	229
GN 927.5-101-M8-30-*	101	M 8	30	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	233
GN 927.5-101-M8-35-*	101	M 8	35	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	234
GN 927.5-101-M8-40-*	101	M 8	40	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	236
GN 927.5-101-M8-50-*	101	M 8	50	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	239
GN 927.5-101-M8-60-*	101	M 8	60	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	241
GN 927.5-101-M10-20-*	101	M 10	20	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	233
GN 927.5-101-M10-25-*	101	M 10	25	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	235
GN 927.5-101-M10-30-*	101	M 10	30	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	238
GN 927.5-101-M10-35-*	101	M 10	35	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	240
GN 927.5-101-M10-40-*	101	M 10	40	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	243
GN 927.5-101-M10-50-*	101	M 10	50	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	248
GN 927.5-101-M10-60-*	101	M 10	60	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	251

Weight type A

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Stainless Steel-Clamping levers with eccentrical cam

Contact plate, Stainless Steel



SPECIFICATION

Types

- Type **A**: Stainless Steel contact plate with setting nut
- Type **B**: Stainless Steel contact plate without setting nut

Lever
Stainless Steel AISI CF-8

Contact plates
Stainless Steel AISI 431
hardened

Version with threaded insert

Axis, lag nut, setting nut
Stainless Steel AISI 303

Version with threaded stud

Axis, lag screw, setting screw
Stainless Steel AISI 303

INFORMATION

Stainless Steel-Clamping levers with eccentrical cam GN 927.7 are used for rapid clamping and releasing. Hereby, contrary to a clamping operation via a thread, these levers permit a **torque-free** clamping.
The lever has been designed to ensure that its movement cannot exceed the max. clamping force.
There are no loose components since they are all assembled and mounted in their correct order.
Type A has the following benefits:
The distance between the lever cam and the clamping surface is adjustable via a fine pitch thread, allowing the clamping position to be set easily with maximum clamping force. Also, the position of the lever relative to the clamping axis can be determined.
With these clamping levers with eccentrical cam, clamping forces of up to 8 kN can be reached.

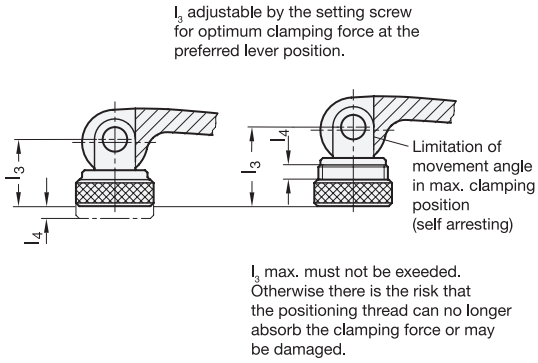
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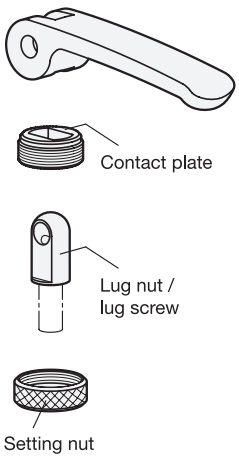
- Clamping surface free of grease

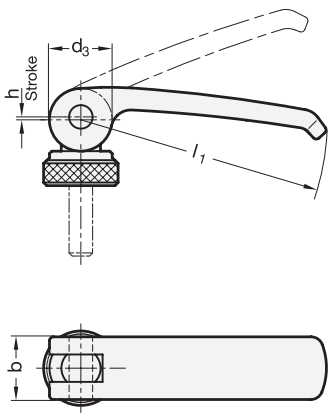
TECHNICAL INFORMATION

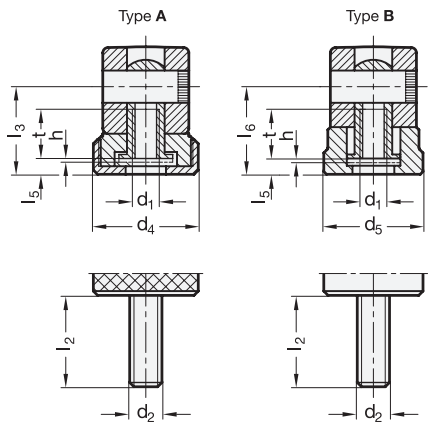
- Stainless Steel characteristics (see page A26)

CONSTRUCTIONAL FEATURES (TYPE A) / APPLICATION EXAMPLE









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GN 927.7 | Stainless Steel-Clamping levers with eccentrical cam

*Complete with type of the Clamping lever (A or B)

A with setting nut

B without setting nut

GN 927.7-with threaded insert

STAINLESS STEEL

Description	l1	d1	b	d3	d4	d5	h	l3 min.	l3 max.	l4	l5	l6	t	⚖
GN 927.7-63-M5-*	63	M 5	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	10	66
GN 927.7-63-M6-*	63	M 6	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	10	65
GN 927.7-82-M6-*	82	M 6	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	12	129
GN 927.7-82-M8-*	82	M 8	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	12	128
GN 927.7-101-M8-*	101	M 8	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	15	250
GN 927.7-101-M10-*	101	M 10	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	15	247

GN 927.7-with threaded stud

STAINLESS STEEL

Description	l1	d2	l2	b	d3	d4	d5	h	l3 min.	l3 max.	l4	l5	l6	⚖
GN 927.7-63-M5-16-*	63	M 5	16	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	69
GN 927.7-63-M5-20-*	63	M 5	20	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	70
GN 927.7-63-M5-25-*	63	M 5	25	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	70
GN 927.7-63-M5-30-*	63	M 5	30	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	71
GN 927.7-63-M5-35-*	63	M 5	35	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	71
GN 927.7-63-M5-40-*	63	M 5	40	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	72
GN 927.7-63-M5-50-*	63	M 5	50	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	73
GN 927.7-63-M6-16-*	63	M 6	16	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	69
GN 927.7-63-M6-20-*	63	M 6	20	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	70
GN 927.7-63-M6-25-*	63	M 6	25	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	71
GN 927.7-63-M6-30-*	63	M 6	30	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	71
GN 927.7-63-M6-35-*	63	M 6	35	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	72
GN 927.7-63-M6-40-*	63	M 6	40	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	73
GN 927.7-63-M6-50-*	63	M 6	50	16	16	19	18.5	0.75	16.3	18.8	2.5	3	16.3	75
GN 927.7-82-M6-20-*	82	M 6	20	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	135
GN 927.7-82-M6-25-*	82	M 6	25	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	136
GN 927.7-82-M6-30-*	82	M 6	30	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	137
GN 927.7-82-M6-35-*	82	M 6	35	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	138
GN 927.7-82-M6-40-*	82	M 6	40	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	139
GN 927.7-82-M6-50-*	82	M 6	50	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	140
GN 927.7-82-M6-60-*	82	M 6	60	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	142
GN 927.7-82-M8-20-*	82	M 8	20	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	139
GN 927.7-82-M8-25-*	82	M 8	25	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	140
GN 927.7-82-M8-30-*	82	M 8	30	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	141
GN 927.7-82-M8-35-*	82	M 8	35	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	143
GN 927.7-82-M8-40-*	82	M 8	40	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	145
GN 927.7-82-M8-50-*	82	M 8	50	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	146
GN 927.7-82-M8-60-*	82	M 8	60	20	20	25	22.5	1	19.5	22.5	3	3.7	19.5	150
GN 927.7-101-M8-20-*	101	M 8	20	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	263
GN 927.7-101-M8-25-*	101	M 8	25	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	265
GN 927.7-101-M8-30-*	101	M 8	30	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	266
GN 927.7-101-M8-35-*	101	M 8	35	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	267
GN 927.7-101-M8-40-*	101	M 8	40	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	266
GN 927.7-101-M8-50-*	101	M 8	50	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	272
GN 927.7-101-M8-60-*	101	M 8	60	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	273
GN 927.7-101-M10-20-*	101	M 10	20	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	267
GN 927.7-101-M10-25-*	101	M 10	25	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	267
GN 927.7-101-M10-30-*	101	M 10	30	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	271
GN 927.7-101-M10-35-*	101	M 10	35	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	272
GN 927.7-101-M10-40-*	101	M 10	40	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	277
GN 927.7-101-M10-50-*	101	M 10	50	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	281
GN 927.7-101-M10-60-*	101	M 10	60	25	26	30	27	1.5	25.3	29.3	4	4.8	25.3	286

Weight type A

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Cam levers

Technopolymer

CAM LEVER BODY
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

ROTATING PIN
Glossy zinc-plated steel or AISI 303 stainless steel, with threaded hole or threaded stud.

CONNECTION AND RETENTION ELEMENT BETWEEN THE LEVER AND THE CAM SLIDING BASE
Polyamide based technopolymer (PA), black colour.

CAM SLIDING BASE
Polyamide-based SUPER-technopolymer (PA), black colour.

ADJUSTABLE KNURLED RING-NUT
Polyamide-based SUPER-technopolymer (PA), black colour.

STANDARD EXECUTIONS
- **LAC-B**: positioning without adjustable ring-nut, rotating pin with zinc-plated steel threaded hole.
- **LAC-SST**: positioning without adjustable ring-nut, rotating pin with AISI 303 stainless steel threaded hole.
- **LAC-p**: positioning without adjustable ring-nut, rotating pin with zinc-plated steel threaded stud, chamfered flat end UNI 947: ISO 4753 (see Technical Data on page A11).
- **LAC-SST-p**: positioning without adjustable ring-nut, rotating pin with AISI 303 stainless steel threaded stud, chamfered flat end UNI 947: ISO 4753 (see Technical Data on page A11).
- **LAC-R-B**: positioning with adjustable ring-nut, rotating pin with zinc-plated steel threaded hole.
- **LAC-R-p**: positioning with adjustable ring-nut, rotating pin with zinc-plated steel threaded stud, chamfered flat end UNI 947: ISO 4753 (see Technical Data on page A11).
- **LAC-R-SST**: positioning with adjustable ring-nut, rotating pin with AISI 303 stainless steel threaded hole.
- **LAC-R-SST-p**: positioning with adjustable ring-nut, rotating pin with threaded stud in AISI 303 stainless steel, chamfered flat end UNI 947: ISO 4753 (see Technical Data on page A11).

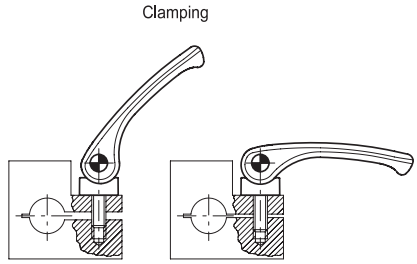
FEATURES AND APPLICATIONS
Cam lever is a device which allows a quick and secure clamping.
The LAC-R model with adjustable ring-nut (ELESA patent) offers quick and secure clamping. The knurled ring-nut on the base allows to adjust the clamping force applied while locking the lever in the desired position.

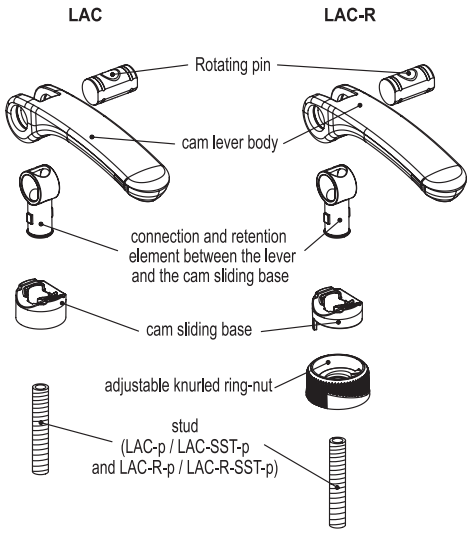
RECOMMENDATIONS FOR ASSEMBLY
LAC-B, LAC-SST, LAC-R-B and LAC-R-SST with threaded hole. The screw where the cam lever is mounted must protrude from the assembly surface by a maximum length of h1 max from the end-stop as shown in table and fig.1. The user will notice the h1 max value is reached as the screw rests on the end-stop in the connecting element.

INSTRUCTIONS FOR CLAMPING AND ADJUSTMENT
LAC: lift and rotate the lever clockwise until it stops, then, to complete clamping, lower the lever whose fulcrum is an eccentric cam which controls the base by rotating.
LAC-R: rotate the lever clockwise until it stops.
Fine adjustment: rotate clockwise or anti-clockwise the knurled adjustable ring-nut to calibrate the clamping force and put the lever in the desired position. The ring-nut is marked with minimum and maximum adjustment values: half a turn is enough for adjustment.
Clamping: lower the lever whose fulcrum is an eccentric cam which controls the adjusting base by rotating.



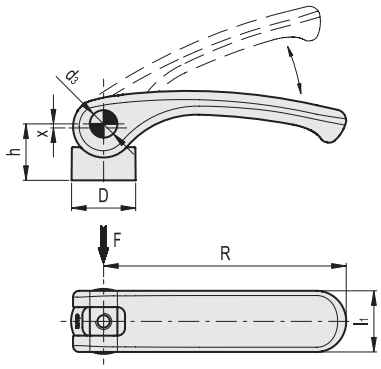
ELESA Original design





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LAC-B
LAC-SST



LAC-p
LAC-SST-p

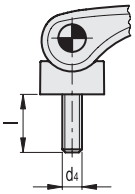
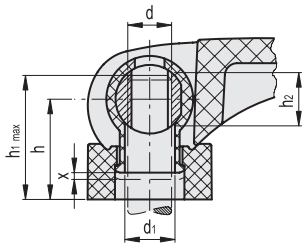


Fig.1



LAC-B

Code	Description	R	d	D	h	h1 max	h2	d1	d3	l1	x	Fmax [N]	⚖
33482	LAC.63 B-M6	63	M6	18	18	20	4	6.1	9	18	0.75	4000	23
33562	LAC.80 B-M8	79	M8	20	21	25.5	7	8.1	11	20	1	7000	32

LAC-SST STAINLESS STEEL

Code	Description
33487	LAC.63 SST-M6
33567	LA C.80 SST-M8

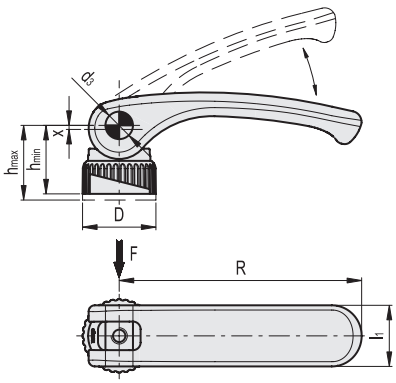
LAC-p

Code	Description	R	d4	D	h	d1	d3	l	l1	x	Fmax [N]	⚖
33492	LAC.63 p-M6x25	63	M6	18	18	6.1	9	25	18	0.75	4000	33
33496	LAC.63 p-M6x50	63	M6	18	18	6.1	9	50	18	0.75	4000	42
33582	LAC.80 p-M8x25	79	M8	20	21	8.1	11	25	20	1	7000	46
33586	LAC.80 p-M8x50	79	M8	20	21	8.1	11	50	20	1	7000	55

LAC-SST-p STAINLESS STEEL

Code	Description
33497	LAC-63 SST-p-M6x25
33501	LAC-63 SST-p-M6x50
33587	LAC-80 SST-p-M8x25
33591	LAC-80 SST-p-M8x50

LAC-R-B
LAC-R-SST



LAC-R-p
LAC-R-SST-p

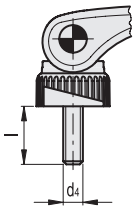
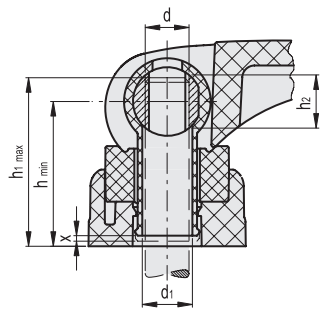


Fig.1



LAC-R-B

Code	Description	R	d	D	hmin	hmax	h1 max	h2	d1	d3	l1	x	Fmax [N]	⚖
33462	LAC-R-63 B-M6	63	M6	21	22.5	24	26	4	6.1	9	18	0.75	4000	25
33512	LAC-R-80 B-M8	79	M8	25	26.5	28	32.5	7	8.1	11	20	1	7000	39

LAC-R-SST STAINLESS STEEL

Code	Description
33467	LAC-R-63 SST-M6
33517	LAC-R-80 SST-M8

LAC-R-p

Code	Description	R	d4	D	hmin	hmax	d1	d3	l	l1	x	Fmax [N]	⚖
33472	LAC-R-63 p-M6x25	63	M6	21	22.5	24	6.1	9	25	18	0.75	4000	35
33476	LAC-R-63 p-M6x50	63	M6	21	22.5	24	6.1	9	50	18	0.75	4000	44
33532	LAC-R-80 p-M8x25	79	M8	25	26.5	28	8.1	11	25	20	1	7000	53
33536	LAC-R-80 p-M8x50	79	M8	25	26.5	28	8.1	11	50	20	1	7000	62

LAC-R-SST-p STAINLESS STEEL

Code	Description
33477	LAC-R-63 SST-p-M6x25
33481	LAC-R-63 SST-p-M6x50
33537	LAC-R-80 SST-p-M8x25
33541	LAC-R-80 SST-p-M8x50

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Lever handles

Technopolymer

MATERIAL

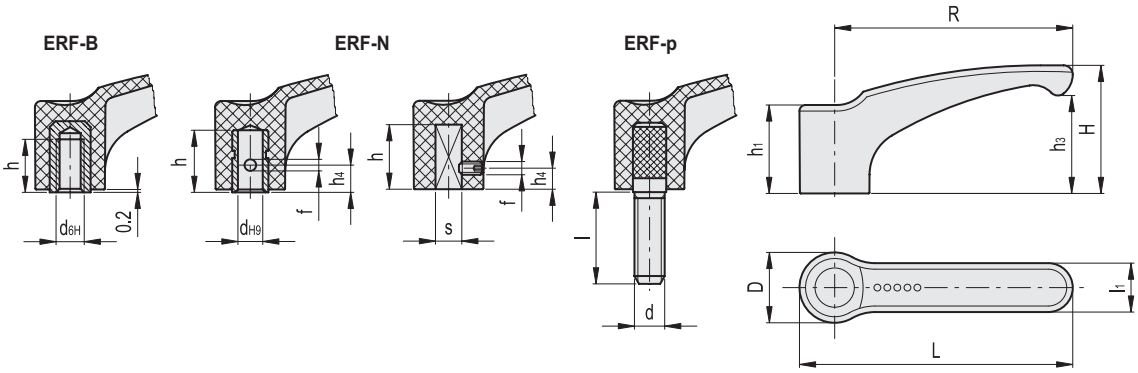
Glass-fibre reinforced polyamide based (PA) technopolymer, grey-black colour, matte finish.

STANDARD EXECUTIONS

- **ERF-B:** brass boss, threaded blind hole.
- **ERF-N:**
  - cylindrical blind hole, brass reinforcement and transversal semi-machined hole for pinning to shaft.
  - square blind hole, brass reinforcement with transversal set screw UNI 5929-85 (grub screws with hexagon socket and cup end).
- **ERF-p**: zinc-plated steel threaded stud, chamfered flat end UNI 947 : ISO 4753 (see Technical Data on page A11).



ERGOSTYLE®



ERF-B

Code	Description	R	d6H	L	D	H	h	h1	h3	l1	⚖
232103-C1	ERF.44 B-M5-C1	44	M5	52	15.5	26.5	10	19	19	11	10
232101-C1	ERF.44 B-M6-C1	44	M6	52	15.5	26.5	12	19	19	11	9
232121-C1	ERF.63 B-M8-C1	63	M8	73.5	19	35	13	24.5	26.5	13.5	19
232141-C1	ERF.78 B-M10-C1	78	M10	90.5	23	42	17	29.5	32	16	42
232161-C1	ERF.95 B-M12-C1	95	M12	109	26.5	51.5	20	34	40	18	48

ERF-N

Code	Description	R	dH9	sH10	L	D	H	h	h1	h3	h4	l1	f	⚖
232106-C1	ERF.44 N-5x5-C1	44	-	5	52	15.5	26.5	15	19	19	7	11	M4	5
232111-C1	ERF.44 N-6-C1	44	6	-	52	15.5	26.5	15	19	19	7	11	3	5
232126-C1	ERF.63 N-6x6-C1	63	-	6	73.5	19	35	20	24.5	26.5	8	13.5	M4	11
232131-C1	ERF.63 N-8-C1	63	8	-	73.5	19	35	20	24.5	26.5	8	13.5	4	11
232146-C1	ERF.78 N-8x8-C1	78	-	8	90.5	23	42	25	29.5	32	9	16	M5	31
232151-C1	ERF.78 N-10-C1	78	10	-	90.5	23	42	25	29.5	32	9	16	4	31
232166-C1	ERF.95 N-10x10-C1	95	-	10	109	26.5	51.5	30	34	40	10	18	M5	37
232171-C1	ERF.95 N-12-C1	95	12	-	109	26.5	51.5	30	34	40	10	18	5	37

ERF-p

Code	Description	R	d6g	L	D	H	h1	h3	l	l1	⚖
232116-C1	ERF.44 p-M6x16-C1	44	M6	52	15.5	26.5	19	19	16	11	13
232136-C1	ERF.63 p-M8x25-C1	63	M8	73.5	19	35	24.5	26.5	25	13.5	32
232140-C1	ERF.63 p-M8x45-C1	63	M8	73.5	19	35	24.5	26.5	45	13.5	42
232156-C1	ERF.78 p-M10x30-C1	78	M10	90.5	23	42	29.5	32	30	16	61
232176-C1	ERF.95 p-M12x50-C1	95	M12	109	26.5	51.5	34	40	50	18	85

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Flat lever handles

Technopolymer

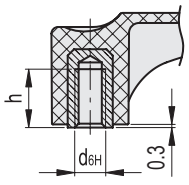
MATERIAL
Glass-fibre reinforced polyamide based (PA) technopolymer, grey-black colour, matte finish.

STANDARD EXECUTIONS
- **ERFW-B:** brass boss, threaded blind hole.
- **ERFW-N:** cylindrical blind hole, brass reinforcement and transversal semi-machined hole for pinning to shaft.

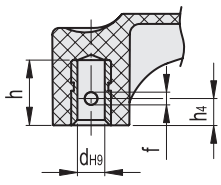


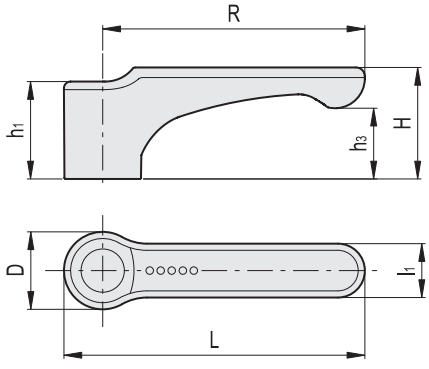
ERGOSTYLE®

ERFW-B



ERFW-N





ERFW-B

Code	Description	R	d6H	L	D	H	h	h1	h3	l1	⚖
232301-C1	ERFW.44 B-M6-C1	44	M6	52	15.5	21	12	19	13	11	9
232321-C1	ERFW.63 B-M8-C1	63	M8	73	19	28	13	25	18	13.5	19
232341-C1	ERFW.78 B-M10-C1	78	M10	90.5	23	33	17	30	21	16	42

ERFW-N

Code	Description	R	dH9	L	D	H	h	h1	h3	h4	l1	f	⚖
232311-C1	ERFW.44 N-6-C1	44	6	52	15.5	21	15	19	13	7	11	3	5
232331-C1	ERFW.63 N-8-C1	63	8	73	19	28	20	25	18	8	13.5	4	11
232351-C1	ERFW.78 N-10-C1	78	10	90.5	23	33	25	30	21	9	16	4	31

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Lever handles

Technopolymer

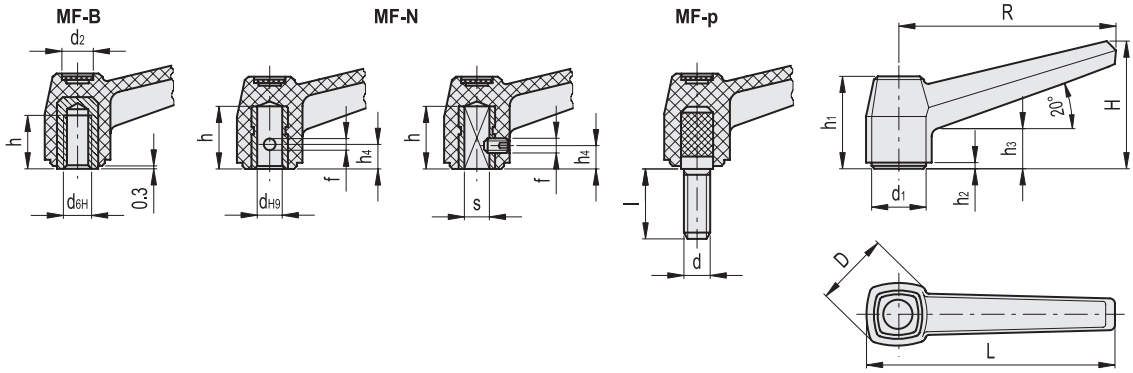
MATERIAL
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

FRONT PLATE
Matte anodised aluminium.

STANDARD EXECUTIONS
- **MF-B:** brass boss, threaded blind hole.
- **MF-N:**
  - cylindrical blind hole, brass reinforcement and transversal semi-machined hole for pinning to shaft.
  - square blind hole, brass reinforcement with transversal set screw UNI 5929-85 (grub screws with hexagon socket and cup end).
- **MF-p:** zinc-plated steel threaded stud, chamfered flat end UNI 947 : ISO 4753 (see Technical Data on page A11).



ELESA Original design



MF-B

Code	Description	R	d6H	L	D	H	h	h1	h2	h3	d1	d2	⚖
39041	MF.40 B-M5	42	M5	50	18	27	10	22	1.8	9	11.5	9	14
39001	MF.40 B-M6	42	M6	50	18	27	12	22	1.8	9	11.5	9	13
39111	MF.63 B-M8	63	M8	73	23	37	13	27	2	11	14.5	9	23
39211	MF.80 B-M10	80	M10	92	28	47	17	34	2.2	14	18.5	11	39
39311	MF.100 B-M12	100	M12	115	35	57	20	40	2.4	16	23.5	13	70

MF-N

Code	Description	R	dH9	sH9	L	D	H	h	h1	h2	h3	h4	d1	d2	f	⚖
39011	MF.40 N-5x5	42	-	5	50	18	27	15	22	1.8	9	7	11.5	9	M4	7
39021	MF.40 N-6	42	6	-	50	18	27	15	22	1.8	9	7	11.5	9	3	7
39121	MF.63 N-6x6	63	-	6	73	23	37	20	27	2	11	8	14.5	9	M4	14
39131	MF.63 N-8	63	8	-	73	23	37	20	27	2	11	8	14.5	9	4	14
39221	MF.80 N-8x8	80	-	8	92	28	47	25	34	2.2	14	9	18.5	11	M5	27
39231	MF.80 N-10	80	10	-	92	28	47	25	34	2.2	14	9	18.5	11	4	27
39321	MF.100 N-10x10	100	-	10	115	35	57	30	40	2.4	16	10	23.5	13	M5	50
39331	MF.100 N-12	100	12	-	115	35	57	30	40	2.4	16	10	23.5	13	5	50

MF-p

Code	Description	R	d6g	L	D	H	h1	h2	h3	d1	d2	l	⚖
39031	MF.40 p-M6x16	42	M6	50	18	27	22	1.8	9	11.5	9	16	12
39141	MF.63 p-M8x25	63	M8	73	23	37	27	2	11	14.5	9	25	28
39241	MF.80 p-M10x30	80	M10	92	28	47	34	2.2	14	18.5	11	30	51
39341	MF.100 p-M12x50	100	M12	115	35	57	40	2.4	16	23.5	13	50	104

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GN 316

Ratchet spanner

SPECIFICATION

Housing
Steel
plastic coated
black matt, textured finish

Shaft
Stainless Steel AISI 303
matt shot-blasted

Wearing parts hardened

Domes gear knobs I.222 N (see page 537)
Plastic, Duroplast
black, shiny finish

INFORMATION

Ratchet spanners GN 316 are well designed of robust construction and simple to use.
To exchange the inserts remove screw and cover. They are, however, also practical for fixed applications on any machinery and equipment. For example for assembly and repair work. The inserts are easily interchanged and can be supplied individually.

ON REQUEST

- other inserts

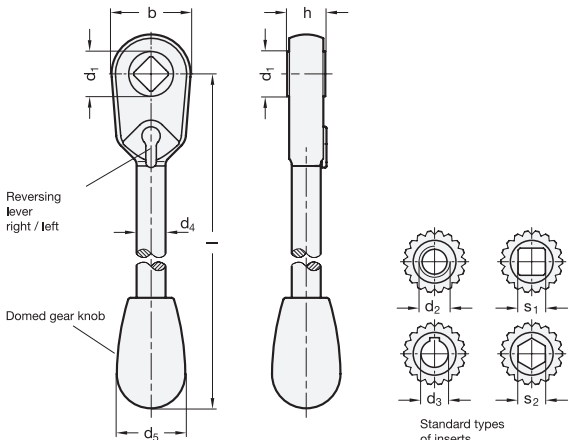
TECHNICAL INFORMATION

- Square DIN 79 (see page A16)
- ISO-Fundamental Tolerances (see page A21)

Function

In order to reverse the operation of this spanner move the cam lever from its middle position either to the left or the right to obtain the function required. In the middle position the ratchet funtion is eliminated and the spann can be used in both directions as an ordinary spanner.





GN 316

Description	d1	d2	d3 H7	s1	s2	b	d4	d5	h	l	Max. torque in Nm	⚖
GN 316-12-M8	12	M 8	-	-	-	22	9	20	11	118	40	88
GN 316-12-V8	12	-	-	V 8	-	22	9	20	11	118	40	87
GN 316-17-K10	17	-	K 10	-	-	30	11	26	14	156	70	194
GN 316-17-K12	17	-	K 12	-	-	30	11	26	14	156	70	200
GN 316-17-M10	17	M 10	-	-	-	30	11	26	14	156	70	190
GN 316-17-M12	17	M 12	-	-	-	30	11	26	14	156	70	180
GN 316-17-SK12	17	-	-	-	SK 12*	30	11	26	14	156	70	189
GN 316-17-V10	17	-	-	V 10	-	30	11	26	14	156	70	191
GN 316-22-K14	22	-	K 14	-	-	39.5	14	33	17	187	130	420
GN 316-22-K16	22	-	K 16	-	-	39.5	14	33	17	187	130	375
GN 316-22-M14	22	M 14*	-	-	-	39.5	14	33	17	187	130	97
GN 316-22-M16	22	M 16	-	-	-	39.5	14	33	17	187	130	380
GN 316-22-SK14	22	-	-	-	SK 14*	39.5	14	33	17	187	130	380
GN 316-22-V12	22	-	-	V 12	-	39.5	14	33	17	187	130	380
GN 316-22-V14	22	-	-	V 14	-	39.5	14	33	17	187	130	360
GN 316-26-K18	26	-	K 18	-	-	46	17	33	22	219	180	610
GN 316-26-M20	26	M 20	-	-	-	46	17	33	22	219	180	600
GN 316-26-SK17	26	-	-	-	SK 17*	46	17	33	22	219	180	600
GN 316-26-V17	26	-	-	V 17	-	46	17	33	22	219	180	605

* not available from stock, requires a minimum order quantity.

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Control levers

Steel, blackened

SPECIFICATION

Steel
blackened

Ball knobs DIN 319 (see page 538)
Plastic, Duroplast
black, shiny finish

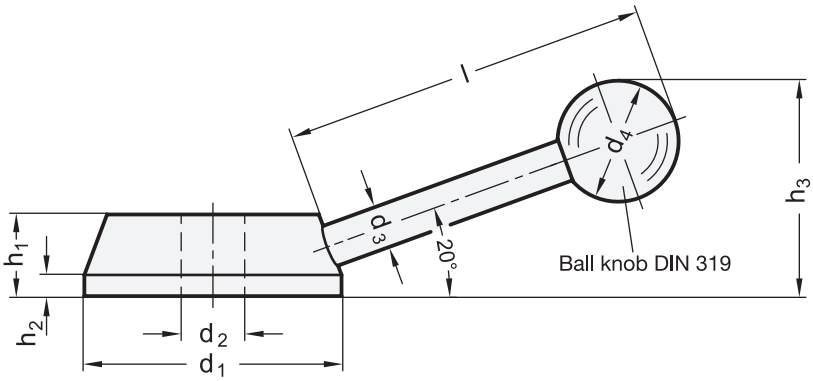
INFORMATION

Control levers GN 211 can be used in connection with indexing elements, grooves for angle limitations and such like due to their comparably big hub diameter.
Spring plungers as well as indexing plungers can be used as indexing elements.
Control levers GN 211 can also be supplied as standard with:
Square DIN 79 **V** + Bore-Ø
Keyway DIN 6885 **K** + Bore-Ø

TECHNICAL INFORMATION

- Keyway P9 DIN 6885 (see page A16)
- ISO-Fundamental Tolerances (see page A21)





GN 211

Description	d1	d2 H7	d3	d4	h1	h2	h3 ≈	l ≈	⚖
GN 211-50-B12	50	B 12	8	20	17	5	45	82	244
GN 211-55-B14	55	B 14	10	25	18	5	52	96	321
GN 211-65-B16	65	B 16	12	30	20	5	60	110	519
GN 211-80-B20	80	B 20	14	35	24	6	74	138	951

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DIN 6337

Ball levers

Steel, blackened

SPECIFICATION

Types

- Type **K***: Straight lever with plain bore H7
- Type **L**: Angled lever with plain bore H7
- Type **M***: Straight lever with threaded bore
- Type **N**: Angled lever with threaded bore

* not available from stock, requires a minimum order quantity

Steel

- turned
- blackened

Ball knobs DIN 319 (see page 538)
Plastic, black

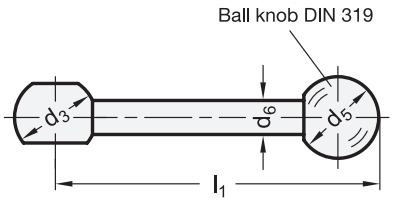


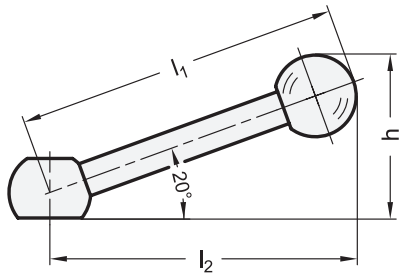
INFORMATION

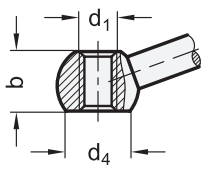
The official DIN standard sheet specifies additional sizes 200 - M24 / B24.

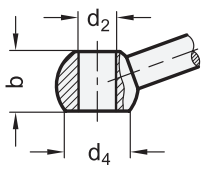
TECHNICAL INFORMATION

- ISO Fundamental Tolerances (see page A21)









DIN 6337

Description	l1	d1	d2 H7	b	d3	d4	d5	d6	h ≈	l2 ≈	⚖
DIN 6337-63-B8-K	63*	-	B 8	12	16	12.5	20	8	-	-	32
DIN 6337-80-B10-K	80*	-	B 10	14.5	20	16	20	9	-	-	53
DIN 6337-100-B12-K	100*	-	B 12	18.5	25	20	25	11	-	-	100
DIN 6337-125-B16-K	125*	-	B 16	24	32	25	32	15	-	-	216
DIN 6337-160-B20-K	160*	-	B 20	30	40	31	40	18	-	-	415
DIN 6337-63-B8-L	63	-	B 8	12	16	12.5	20	8	33	60	32
DIN 6337-80-B10-L	80	-	B 10	14.5	20	16	20	9	40	76	53
DIN 6337-100-B12-L	100	-	B 12	18.5	25	20	25	11	50	95	100
DIN 6337-125-B16-L	125	-	B 16	24	32	25	32	15	63	119	216
DIN 6337-160-B20-L	160	-	B 20	30	40	31	40	18	80	152	415
DIN 6337-63-M8-M	63*	M 8	-	12	16	12.5	20	8	-	-	32
DIN 6337-80-M10-M	80*	M 10	-	14.5	20	16	20	9	-	-	54
DIN 6337-100-M12-M	100*	M 12	-	18.5	25	20	25	11	-	-	102
DIN 6337-125-M16-M	125*	M 16	-	24	32	25	32	15	-	-	223
DIN 6337-160-M20-M	160*	M 20	-	30	40	31	40	18	-	-	425
DIN 6337-63-M8-N	63	M 8	-	12	16	12.5	20	8	33	60	32
DIN 6337-80-M10-N	80	M 10	-	14.5	20	16	20	9	40	76	54
DIN 6337-100-M12-N	100	M 12	-	18.5	25	20	25	11	50	95	102
DIN 6337-125-M16-N	125	M 16	-	24	32	25	32	15	63	119	223
DIN 6337-160-M20-N	160	M 20	-	30	40	31	40	18	80	152	425

* not available from stock, requires a minimum order quantity.

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Tension levers

Steel / Stainless Steel



SPECIFICATION

Types

- Type **C**: Angled lever with plain bore H7
- Type **E**: Angled lever with threaded bore
- Type **B***: Straight lever with plain bore H7
- Type **D***: Straight lever with threaded bore

* not available from stock, requires a minimum order quantity

Version in Steel, blackened

Ball knobs DIN 319 (see page 538)
Plastic, Duroplast
black, shiny finish

Version in Stainless Steel AISI 303 NI

- matt shot-blasted
- only type E

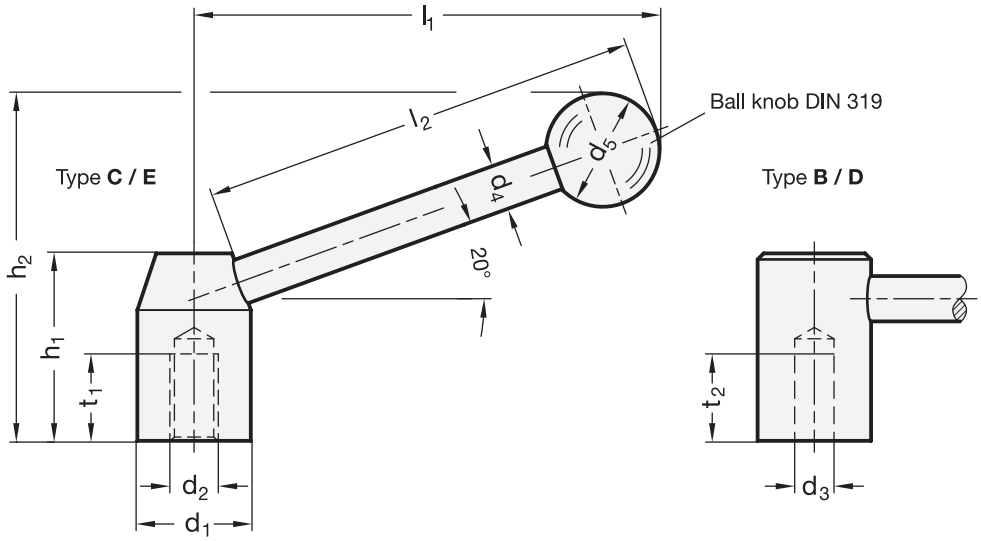
Ball knobs DIN 319 (see page 538)
Plastic, Duroplast
black, shiny finish

INFORMATION

Tension levers GN 212 are used as clamping element as well as operating levers.

TECHNCIAL INFORMATION

- Cross holes GN 110 (see page A17)
- ISO Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)



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GN 212 | Tension levers

GN 212-ST

Description	d1	d2	d3 H7	d4	d5	h1	h2 ≈	l1 ≈	l2	t1 min.	t2 min.	⚖
GN 212-22-B10-B	22	-	B 10	8	20	37	40.5	96	85	-	19	127
GN 212-25-B12-B	25	-	B 12	10	25	42	47	107.5	95	-	21	195
GN 212-28-B12-B	28	-	B 12	12	30	47	53	122	108	-	23	294
GN 212-32-B16-B	32	-	B 16	12	32	52	59	142	126	-	28	382
GN 212-36-B16-B	36	-	B 16	14	35	58	64.5	156	138	-	28	580
GN 212-40-B20-B	40	-	B 20	16	40	64	72	174	154	-	30	778
GN 212-22-B10-C	22	-	B 10	8	20	37	67	89.5	85	-	19	114
GN 212-25-B12-C	25	-	B 12	10	25	42	76	100.5	95	-	21	174
GN 212-28-B12-C	28	-	B 12	12	30	47	87	114	108	-	23	275
GN 212-32-B16-C	32	-	B 16	12	32	52	98	133	126	-	28	349
GN 212-36-B16-C	36	-	B 16	14	35	58	108	146	138	-	28	500
GN 212-40-B20-C	40	-	B 20	16	40	64	120	162.5	154	-	30	724
GN 212-22-M10-D	22	M 10	-	8	20	37	40.5	96	85	15	-	131
GN 212-25-M12-D	25	M 12	-	10	25	42	47	107.5	95	18	-	203
GN 212-28-M12-D	28	M 12	-	12	30	47	53	122	108	18	-	296
GN 212-32-M16-D	32	M 16	-	12	32	52	59	142	126	23	-	385
GN 212-36-M16-D	36	M 16	-	14	35	58	64.5	156	138	24	-	503
GN 212-40-M20-D	40	M 20	-	16	40	64	72	174	154	27	-	261
GN 212-22-M10-E	22	M 10	-	8	20	37	67	89.5	85	15	-	118
GN 212-25-M12-E	25	M 12	-	10	25	42	76	100.5	95	18	-	182
GN 212-28-M12-E	28	M 12	-	12	30	47	87	114	108	18	-	274
GN 212-32-M16-E	32	M 16	-	12	32	52	98	133	126	23	-	352
GN 212-36-M16-E	36	M 16	-	14	35	58	108	146	138	24	-	525
GN 212-40-M20-E	40	M 20	-	16	40	64	120	162.5	154	27	-	709

GN 212-NI **STAINLESS STEEL**

Description	d1	d2	d4	d5	h1	h2 ≈	l1 ≈	l2	t1 min.	⚖
GN 212-22-M8-E-NI	22	M 8	8	20	37	67	89.5	85	18	121
GN 212-25-M10-E-NI	25	M 10	10	25	42	76	100.5	95	18	186
GN 212-28-M12-E-NI	28	M 12	12	30	47	87	114	108	20	272
GN 212-32-M16-E-NI	32	M 16	12	32	52	98	133	126	25	340

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Clamping levers

Steel / Stainless Steel



SPECIFICATION

Types

- Type **K***: Straight lever with plain bore H7 (only l_1 = 50 to 160)
- Type **M***: Straight lever with threaded bore H7 (only l_1 = 50 to 160)
- Type **L**: Angled lever with plain bore H7
- Type **N**: Angled lever with threaded bore

* only Steel version.

Version in Steel

- turned
- blackened

Version in Stainless Steel

Stainless Steel AISI 303 **NI**
matt shot-blasted

INFORMATION

The official DIN standard sheet specifies additional sizes 40 - M5 / B5.

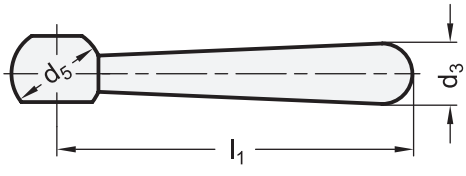
ON REQUEST

Stainless Steel-Lever handles with straight lever

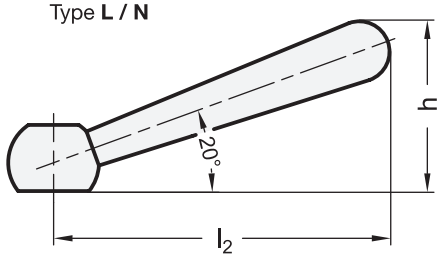
TECHNICAL INFORMATION

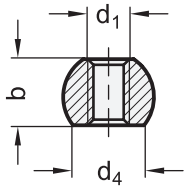
- ISO Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)

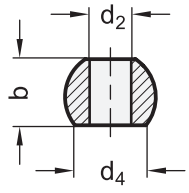
Type **K / M**



Type **L / N**







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DIN 99

Description	l1	d1	d2 H7	b	d3	d4 ≈	d5 -0.2	h ≈	l2 ≈	⚖
DIN 99-50-B6-K	50	-	B 6	9.5	8	7.5	12	-	-	17
DIN 99-63-B8-K	63	-	B 8	12	10	11	16	-	-	36
DIN 99-80-B10-K	80	-	B 10	14.5	13	15	20	-	-	74
DIN 99-100-B12-K	100	-	B 12	18.5	16	19	25	-	-	139
DIN 99-125-B16-K	125	-	B 16	24	20	23.5	32	-	-	283
DIN 99-160-B20-K	160	-	B 20	30	25	29.5	40	-	-	545
DIN 99-50-B6-L	-	-	B 6	9.5	8	7.5	12	24	48	17
DIN 99-63-B8-L	-	-	B 8	12	10	11	16	30	60	36
DIN 99-80-B10-L	-	-	B 10	14.5	13	15	20	38	76	74
DIN 99-100-B12-L	-	-	B 12	18.5	16	19	25	47	95	139
DIN 99-125-B16-L	-	-	B 16	24	20	23.5	32	59.5	119	283
DIN 99-160-B20-L	-	-	B 20	30	25	29.5	40	76	152	545
DIN 99-200-B24-L	-	-	B 24	40	32	33	50	97	190	1128
DIN 99-50-M6-M	50	M 6	-	9.5	8	7.5	12	-	-	17
DIN 99-63-M8-M	63	M 8	-	12	10	11	16	-	-	37
DIN 99-80-M10-M	80	M 10	-	14.5	13	15	20	-	-	73
DIN 99-100-M12-M	100	M 12	-	18.5	16	19	25	-	-	141
DIN 99-125-M16-M	125	M 16	-	24	20	23.5	32	-	-	287
DIN 99-160-M20-M	160	M 20	-	30	25	29.5	40	-	-	569
DIN 99-50-M6-N	-	M 6	-	9.5	8	7.5	12	24	48	17
DIN 99-63-M8-N	-	M 8	-	12	10	11	16	30	60	37
DIN 99-80-M10-N	-	M 10	-	14.5	13	15	20	38	76	73
DIN 99-100-M12-N	-	M 12	-	18.5	16	19	25	47	95	141
DIN 99-125-M16-N	-	M 16	-	24	20	23.5	32	59.5	119	280
DIN 99-160-M20-N	-	M 20	-	30	25	29.5	40	76	152	569
DIN 99-200-M24-N	-	M 24	-	40	32	33	50	97	190	1116

DIN 99-NI **STAINLESS STEEL**

Description	l1	d1	d2 H7	b	d3	d4 ≈	d5 -0.2	h ≈	l2 ≈	⚖
DIN 99-63-B8-L-NI	63	-	B 8	12	10	11	16	30.5	60	36
DIN 99-80-B10-L-NI	80	-	B 10	14.5	13	15	20	38	76	77
DIN 99-100-B12-L-NI	100	-	B 12	18.5	16	19	25	47	95	139
DIN 99-50-M6-N-NI	50	M 6	-	9.5	8	7.5	12	24	48	17
DIN 99-63-M8-N-NI	63	M 8	-	12	10	11	16	30.5	60	37
DIN 99-80-M10-N-NI	80	M 10	-	14.5	13	15	20	38	76	73
DIN 99-100-M12-N-NI	100	M 12	-	18.5	16	19	25	47	95	130
DIN 99-125-M16-N-NI	125	M 16	-	24	20	23.5	32	59.5	119	287

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Clamping levers

PUSH to disengage

SPECIFICATION

Types

- Type **M**: Straight lever
- Type **N**: Angled lever

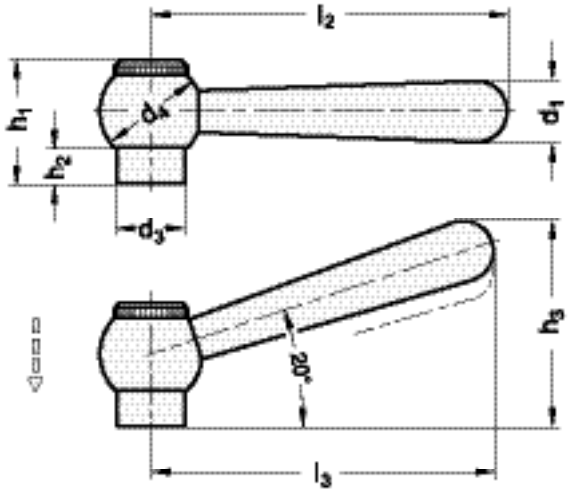
Steel
blackened

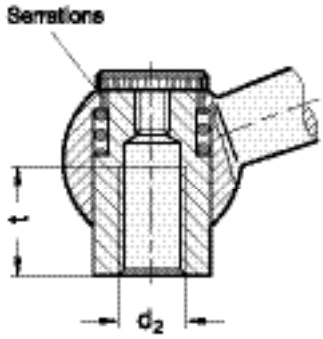
Version with threaded stud
Tensile strength class 5.8

INFORMATION

Clamping levers GN 99.2 are known for their small dimensions.
They are for use in applications where either the clamping range is limited or where a specific lever position is required. The serrated bore in the spherical hub is fitted with a threaded bolt insert which engages in the hub with its own serrations.
By depressing the clamping lever the serrations are disengaged freeing it for re-positioning in the most convenient position. When releasing the lever the serrations will re-engage automatically.
Should a rotation of 360° not be possible the insert can be slightly screwed in (after the lever has been disengaged) by means of the slotted knurled screw.



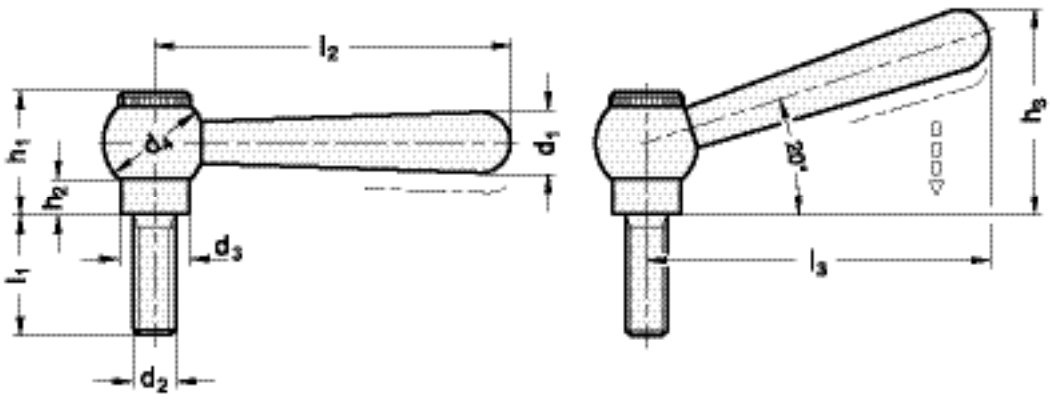




GN 99.2-with threaded insert

Description	d1	d2	d3	d4	h1	h2	h3 ≈	l2	l3 ≈	t min.	⚖
GN 99.2-10-M6-M	10	M 6	13.5	20	25	8	-	63	-	12	61
GN 99.2-10-M8-M	10	M 8	13.5	20	25	8	-	63	-	12	59
GN 99.2-13-M8-M	13	M 8	16	25	29	8	-	80	-	15	122
GN 99.2-13-M10-M	13	M 10	16	25	29	8	-	80	-	15	118
GN 99.2-16-M10-M	16	M 10	19	28	33.5	10.5	-	100	-	18	192
GN 99.2-16-M12-M	16	M 12	19	28	33.5	10.5	-	100	-	18	195
GN 99.2-10-M6-N	10	M 6	13.5	20	25	8	39.5	-	60	12	61
GN 99.2-10-M8-N	10	M 8	13.5	20	25	8	39.5	-	60	12	59
GN 99.2-13-M8-N	13	M 8	16	25	29	8	49.5	-	76	15	122
GN 99.2-13-M10-N	13	M 10	16	25	29	8	49.5	-	76	15	118
GN 99.2-16-M10-N	16	M 10	19	28	33.5	10.5	60.5	-	95	18	200
GN 99.2-16-M12-N	16	M 12	19	28	33.5	10.5	60.5	-	95	18	192

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GN 99.2-with threaded stud

Description	d1	d2	l1	d3	d4	h1	h2	h3 ≈	l2	l3 ≈	⚖
GN 99.2-10-M8-20-M	10	M 8	20	13.5	20	25	8	-	63	-	69
GN 99.2-10-M8-25-M	10	M 8	25	13.5	20	25	8	-	63	-	71
GN 99.2-10-M8-32-M	10	M 8	32	13.5	20	25	8	-	63	-	73
GN 99.2-10-M8-40-M	10	M 8	40	13.5	20	25	8	-	63	-	75
GN 99.2-10-M8-50-M	10	M 8	50	13.5	20	25	8	-	63	-	81
GN 99.2-10-M8-63-M	10	M 8	63	13.5	20	25	8	-	63	-	85
GN 99.2-13-M10-20-M	13	M 10	20	16	25	29	8	-	80	-	130
GN 99.2-13-M10-25-M	13	M 10	25	16	25	29	8	-	80	-	130
GN 99.2-13-M10-32-M	13	M 10	32	16	25	29	8	-	80	-	143
GN 99.2-13-M10-40-M	13	M 10	40	16	25	29	8	-	80	-	147
GN 99.2-13-M10-50-M	13	M 10	50	16	25	29	8	-	80	-	153
GN 99.2-13-M10-63-M	13	M 10	63	16	25	29	8	-	80	-	159
GN 99.2-16-M12-25-M	16	M 12	25	19	28	33.5	10.5	-	100	-	220
GN 99.2-16-M12-32-M	16	M 12	32	19	28	33.5	10.5	-	100	-	226
GN 99.2-16-M12-40-M	16	M 12	40	19	28	33.5	10.5	-	100	-	232
GN 99.2-16-M12-50-M	16	M 12	50	19	28	33.5	10.5	-	100	-	238
GN 99.2-16-M12-63-M	16	M 12	63	19	28	33.5	10.5	-	100	-	247
GN 99.2-16-M12-80-M	16	M 12	80	19	28	33.5	10.5	-	100	-	250
GN 99.2-10-M8-20-N	10	M 8	20	13.5	20	25	8	39.5	-	60	65
GN 99.2-10-M8-25-N	10	M 8	25	13.5	20	25	8	39.5	-	60	71
GN 99.2-10-M8-32-N	10	M 8	32	13.5	20	25	8	39.5	-	60	73
GN 99.2-10-M8-40-N	10	M 8	40	13.5	20	25	8	39.5	-	60	75
GN 99.2-10-M8-50-N	10	M 8	50	13.5	20	25	8	39.5	-	60	81
GN 99.2-10-M8-63-N	10	M 8	63	13.5	20	25	8	39.5	-	60	85
GN 99.2-13-M10-20-N	13	M 10	20	16	25	29	8	49.5	-	76	137
GN 99.2-13-M10-25-N	13	M 10	25	16	25	29	8	49.5	-	76	139
GN 99.2-13-M10-32-N	13	M 10	32	16	25	29	8	49.5	-	76	140
GN 99.2-13-M10-40-N	13	M 10	40	16	25	29	8	49.5	-	76	147
GN 99.2-13-M10-50-N	13	M 10	50	16	25	29	8	49.5	-	76	153
GN 99.2-13-M10-63-N	13	M 10	63	16	25	29	8	49.5	-	76	159
GN 99.2-16-M12-25-N	16	M 12	25	19	28	33.5	10.5	60.5	-	95	220
GN 99.2-16-M12-32-N	16	M 12	32	19	28	33.5	10.5	60.5	-	95	226
GN 99.2-16-M12-40-N	16	M 12	40	19	28	33.5	10.5	60.5	-	95	232
GN 99.2-16-M12-50-N	16	M 12	50	19	28	33.5	10.5	60.5	-	95	238
GN 99.2-16-M12-63-N	16	M 12	63	19	28	33.5	10.5	60.5	-	95	247
GN 99.2-16-M12-80-N	16	M 12	80	19	28	33.5	10.5	60.5	-	95	250

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GN 99.5

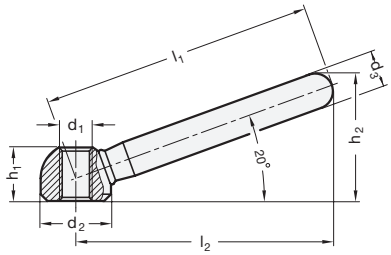
Clamp nuts

SPECIFICATION

Steel
zinc plated, blue passivated

Shaft butt-welded to nut





GN 99.5

Description	l1	d1	d2	d3	h1	h2 ≈	l2 ≈	⚖
GN 99.5-63-M8	63	M 8	16	10	12.5	30.5	60	39
GN 99.5-80-M10	80	M 10	20	12	15	37	76	82
GN 99.5-100-M12	100	M 12	25	14	19	46	95	149
GN 99.5-125-M16	125	M 16	32	18	25	58.5	119	309
GN 99.5-160-M20	160	M 20	40	20	31	73	152	522

GN 99.6

Stainless Steel-Clamp nuts

SPECIFICATION

Stainless Steel

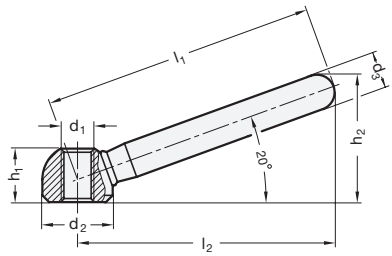
- AISI 304
- AISI 316L **A4**
- matt shot-blasted

Shaft butt-welded to nut

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)





GN 99.6 **STAINLESS STEEL**

Description	l1	d1	d2	d3	h1	h2 ≈	l2 ≈	⚖
GN 99.6-63-M8-A4	63	M 8	16	10	12.5	30.5	60	45
GN 99.6-80-M10-A4	80	M 10	20	12	15	37	76	75
GN 99.6-100-M12-A4	100	M 12	25	14	19	46	95	149
GN 99.6-63-M8	63	M 8	16	10	12.5	30.5	60	45
GN 99.6-80-M10	80	M 10	20	12	15	37	76	75
GN 99.6-100-M12	100	M 12	25	14	19	46	95	149
GN 99.6-125-M16	125	M 16	32	18	25	58.5	119	309
GN 99.6-160-M20	160	M 20	40	20	31	73	152	526

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GN 204

Short clamping levers

SPECIFICATION

Types

- Type **N**: Angled lever with threaded bore
- Type **L**: Angled lever with plain bore H7

Steel

- turned
- blackened

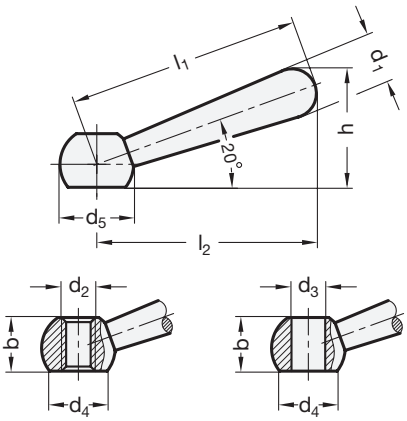
ON REQUEST

- Short clamping levers with straight lever

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)





GN 204

Description	d1	d2	d3 H7	b	d4 ≈	d5	h ≈	l1	l2 ≈	⚖
GN 204-13-B10-L	13	-	B 10	14	16	20	32	63	60	61
GN 204-16-B12-L	16	-	B 12	17.5	20	25	40	80	76	180
GN 204-20-B16-L	20	-	B 16	23	25	32	51	100	95	220
GN 204-10-M8-N	10	M 8	-	11	12.5	16	26	50	48	30
GN 204-13-M10-N	13	M 10	-	14	16	20	32	63	60	60
GN 204-16-M12-N	16	M 12	-	17.5	20	25	40	80	76	120
GN 204-20-M16-N	20	M 16	-	23	25	32	51	100	95	232
GN 204-25-M20-N	25	M 20	-	30	31	40	63.5	125	119	445

GN 223

Control levers

Steel, blackened

SPECIFICATION

Steel
blackened

Ball knobs DIN 319 (see page 538)
Plastic, Duroplast
black, shiny finish

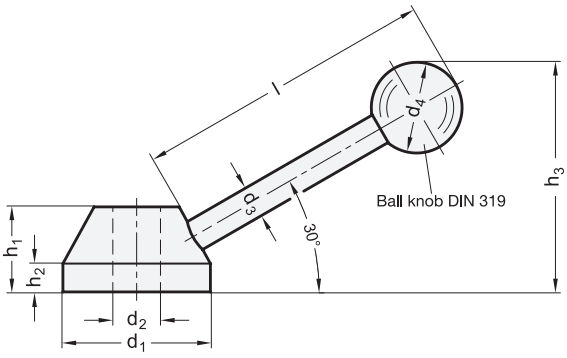
INFORMATION

Control levers GN 223 can also be supplied as standard with:
Square DIN 79 **V** + Bore-Ø
Keyway DIN 6885 **K** + Bore-Ø

TECHNICAL INFORMATION

- Keyway P9 DIN 6885 (see page A16)
- ISO-Fundamental Tolerances (see page A21)





GN 223

Description	d1	d2 H7	d3	d4	h1	h2	h3 ≈	l ≈	⚖
GN 223-25-B8	25	B 8	6	16	14	5	35	45	50
GN 223-32-B10	32	B 10	8	20	18	6.5	48	62	103
GN 223-40-B12	40	B 12	10	30	22	8.5	77	95	214
GN 223-52-B16	52	B 16	14	40	28	11	96	136	503

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GN 99.7

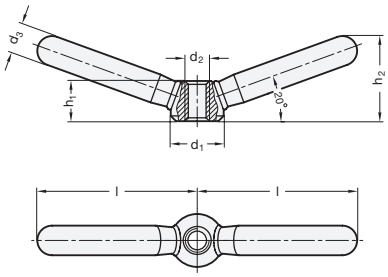
Clamp nuts with double lever

SPECIFICATION

Steel
zinc plated, blue passivated

Shaft butt-welded to nut





GN 99.7

Description	d1	d2	d3	h1	h2 ≈	l ≈	⚖
GN 99.7-16-M8	16	M 8	10	12.5	26	47.5	55
GN 99.7-20-M10	20	M 10	12	15	32	59.5	110
GN 99.7-25-M12	25	M 12	14	19	40	75.5	210
GN 99.7-32-M16	32	M 16	18	25	52	94.5	432
GN 99.7-40-M20	40	M 20	20	31	62	118	716

GN 99.8

Stainless Steel-Clamp nuts with double lever

SPECIFICATION

Stainless Steel

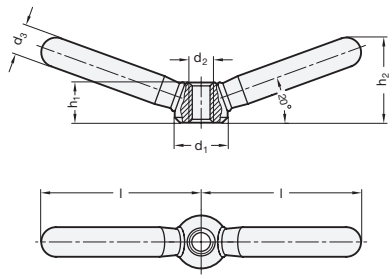
- AISI 304
- AISI 316L **A4**
- matt shot-blasted

Shaft butt-welded to nut

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)





GN 99.8 **STAINLESS STEEL**

Description	d1	d2	d3	h1	h2 ≈	l ≈	⚖
GN 99.8-16-M8-A4	16	M 8	10	12.5	26	47.5	50
GN 99.8-20-M10-A4	20	M 10	12	15	32	59.5	102
GN 99.8-25-M12-A4	25	M 12	14	19	40	75.5	213
GN 99.8-16-M8	16	M 8	10	12.5	26	47.5	50
GN 99.8-20-M10	20	M 10	12	15	32	59.5	102
GN 99.8-25-M12	25	M 12	14	19	40	75.5	211
GN 99.8-32-M16	32	M 16	18	25	52	94.5	435
GN 99.8-40-M20	40	M 20	20	31	62	118	710

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GN 206

Clamp nuts

Cast iron / Stainless Steel

SPECIFICATION

Version in malleable cast iron

- fettled
- Contact face machined

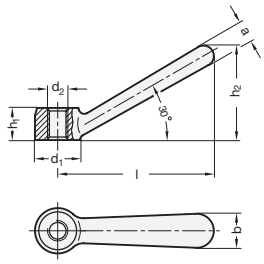
Version in Stainless Steel precision casting AISI CF-8 NI

- fettled
- Contact face machined

TECHNCIAL INFORMATION

- Stainless Steel characteristics (see page A26)





GN 206

Description	d1	d2	a	b	h1	h2 ≈	l ≈	⚖
GN 206-16-M8	16	M 8	7	12	12	34	56	34
GN 206-20-M10	20	M 10	9	14	14	42.5	70	63
GN 206-25-M12	25	M 12	11	18	18	53	87	125
GN 206-32-M16	32	M 16	15	22	22	66.5	109	248
GN 206-40-M20	40	M 20	18	28	28	84.5	140	518

GN 206-NI — **STAINLESS STEEL**

Description	d1	d2	a	b	h1	h2 ≈	l ≈	⚖
GN 206-16-M8-NI	16	M 8	7	12	12	34	56	30
GN 206-20-M10-NI	20	M 10	9	14	14	42.5	70	62
GN 206-25-M12-NI	25	M 12	11	18	18	53	87	125
GN 206-32-M16-NI	32	M 16	15	22	22	66.5	109	248
GN 206-40-M20-NI	40	M 20	18	28	28	84.5	140	491

GN 206.1

Clamp nuts with double lever

Cast iron / Stainless Steel

SPECIFICATION

Version in malleable cast iron

- fettled
- Contact faces machined

Version in Stainless Steel NI

Stainless Steel-Precision casting

- AISI CF-8
- fettled
- Contact faces machined

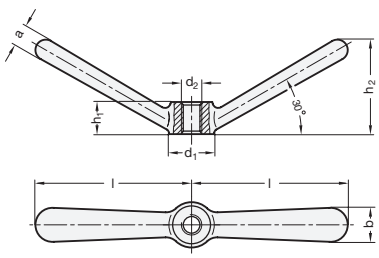
TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)

ON REQUEST

- Clamp nuts with double lever GN 206.1, plastic coated





GN 206.1

Description	d1	d2	a	b	h1	h2 ≈	l ≈	⚖
GN 206.1-16-M8	16	M 8	7	12	12	34	56	61
GN 206.1-20-M10	20	M 10	9	14	14	42.5	70	104
GN 206.1-25-M12	25	M 12	11	18	18	53	87	220
GN 206.1-32-M16	32	M 16	15	22	22	66.5	109	400
GN 206.1-40-M20	40	M 20	18	28	28	84.5	140	760

GN 206.1-NI — **STAINLESS STEEL**

Description	d1	d2	a	b	h1	h2 ≈	l ≈	⚖
GN 206.1-16-M8-NI	16	M 8	7	12	12	34	56	53
GN 206.1-20-M10-NI	20	M 10	9	14	14	42	70	98
GN 206.1-25-M12-NI	25	M 12	11	18	18	53	87	196
GN 206.1-32-M16-NI	32	M 16	15	22	22	66	109	396
GN 206.1-40-M20-NI	40	M 20	18	28	28	84	140	720

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GN 150

Split hubs

SPECIFICATION

Sintered Steel
black oxidised with vapor

Cylinder head screw
Steel, black

INFORMATION

Split hubs GN 150 are distinguished by the method of simple clamping to any shaft.
This can be achieved without prior machining of the shaft, eliminating clamping parts and assembly work.
A further advantage is the positioning of the lever arm to any required position.
The shaft tolerance should be within h11; to transmit higher torques the hub can be supplied with a keyway.

GN 150.5

Stainless Steel-Split hubs

SPECIFICATION

Stainless Steel (Sintered Steel) AISI 316L

Cylinder head screw
Stainless Steel AISI 304

INFORMATION

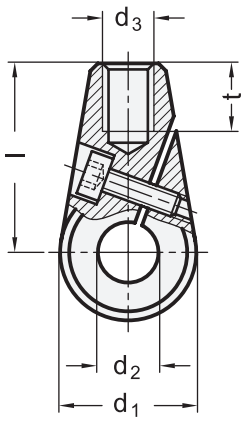
Split hubs GN 150.5 are distinguished by the method of simple clamping to any shaft.
This can be achieved without prior machining of the shaft, eliminating clamping parts and assembly work.
A further advantage is the positioning of the lever arm to any required position.
The shaft tolerance should be within h11; to transmit higher torques the hub can be supplied with a keyway.

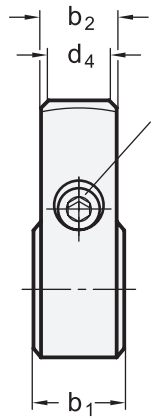
TECHNICAL INFORMATION

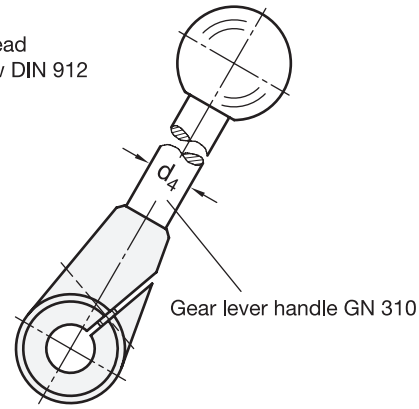
- Stainless Steel characteristics (see page A26)











GN 150

Description	d1	d2	b1 ±0.2	b2	d3	d4	l	t min.	⚖
GN 150-24-B10	24	B 10	15.5	13	M 8	10	36	11	64
GN 150-24-B12	24	B 12	15.5	13	M 8	10	36	11	64
GN 150-28-B12	28	B 12	17.5	15	M 10	12	41	14	100
GN 150-28-B14	28	B 14	17.5	15	M 10	12	41	14	94
GN 150-32-B14	32	B 14	19.5	17	M 12	14	45	16	140
GN 150-32-B16	32	B 16	19.5	17	M 12	14	45	16	137

GN 150.5 STAINLESS STEEL

Description	d1	d2	b1 ±0.2	b2	d3	d4	l	t min.	⚖
GN 150.5-24-B10	24	B 10	15.5	13	M 8	10	36	11	64
GN 150.5-24-B12	24	B 12	15.5	13	M 8	10	36	11	61
GN 150.5-28-B12	28	B 12	17.5	15	M 10	12	41	14	94
GN 150.5-28-B14	28	B 14	17.5	15	M 10	12	41	14	90
GN 150.5-32-B14	32	B 14	19.5	17	M 12	14	45	16	140
GN 150.5-32-B16	32	B 16	19.5	17	M 12	14	45	16	132

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DIN 6304

Tommy screws

with fixed bar



SPECIFICATION

Types

- Type **E**: without thrust pad
- Type **F**: with thrust pad DIN 6311 (see page 938)

Steel
Tensile strength class 5.8

- blackened
- Thrust point hardened

INFORMATION

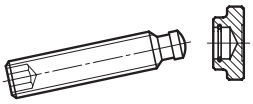
The thrust point of these screws DIN 6304 is designed to be used with or without a thrust pad for clamping.
The snap ring is a simple and quick method to connect the thrust pad to the tommy screw.
Instead of DIN 6311 (see page 938) a thrust pad GN 6311.1 (see page 939) can be used. In that case the tommy screw and the thrust pad have to be ordered separately .

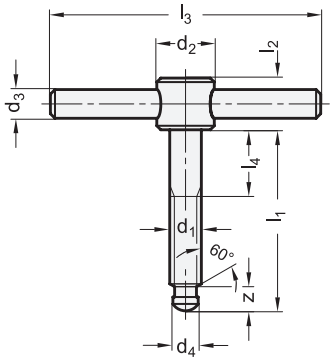
TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)

HINT FOR INSTALLATION (TYPE F)

The thrust pad has to be held at an angle allowing the circlip to drop to the bottom of its groove with the split end downwards. The thrust point is then offered up tp the spit end of the circlip at the lowest possible angle and pressed home.





*Complete with type of the Tommy screws (E or F)

E without thrust pad
F with thrust pad

DIN 6304

Description	d1	l1	d2	d3	d4 h11	l2	l3	l4	l5 ≈	z ≈	⚖
DIN 6304-M6-40-*	M 6	40	12	5	4.5	10	50	10	2.2	5.4	26
DIN 6304-M6-50-*	M 6	50	12	5	4.5	10	50	10	2.2	5.4	27
DIN 6304-M8-50-*	M 8	50	14	6	6	12	60	15	3	6.8	49
DIN 6304-M8-60-*	M 8	60	14	6	6	12	60	15	3	6.8	52
DIN 6304-M10-60-*	M 10	60	18	8	8	14	80	20	3.6	8.2	100
DIN 6304-M10-70-*	M 10	70	18	8	8	14	80	20	3,6	8.2	105
DIN 6304-M12-70-*	M 12	70	20	10	8	18	100	20	4.5	8.6	171
DIN 6304-M12-80-*	M 12	80	20	10	8	18	100	20	4.5	8.6	179
DIN 6304-M16-75-*	M 16	75	24	12	12	20	120	20	5.3	10.6	260
DIN 6304-M16-90-*	M 16	90	24	12	12	20	120	20	5.3	10.6	324
DIN 6304-M16-110-*	M 16	110	24	12	12	20	120	20	5.3	10.6	354
DIN 6304-M20-75-*	M 20	75	30	16	15.5	28	140	20	5.6	12.4	475
DIN 6304-M20-90-*	M 20	90	30	16	15.5	28	140	20	5.6	12.4	602
DIN 6304-M20-110-*	M 20	110	30	16	15.5	28	140	20	5.6	12.4	644

Weight type F

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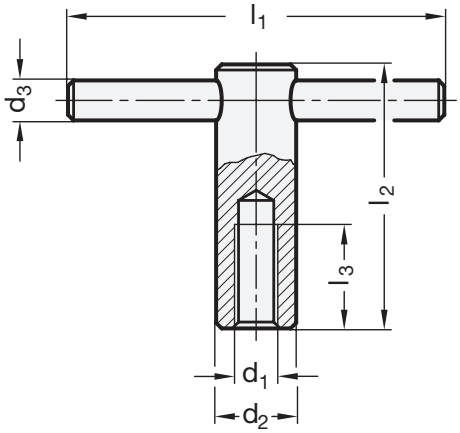
Tommy nuts

with fixed bar

SPECIFICATION

Steel
Tensile strength class 5
blackened





DIN 6305

Description	d1	d2	d3	l1	l2	l3 min.	⚖
DIN 6305-M10	M 10	18	8	80	60	20	129
DIN 6305-M12	M 12	20	10	100	70	25	194
DIN 6305-M16	M 16	24	12	120	85	35	322
DIN 6305-M20	M 20	30	16	140	95	40	589

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Tommy screws

with movable bar



SPECIFICATION

Types

- Type **D**: without thrust pad
- Type **E**: with thrust pad DIN 6311 (see page 938)

Steel
Tensile strength class 5.8

- blackened
- Thrust point hardened

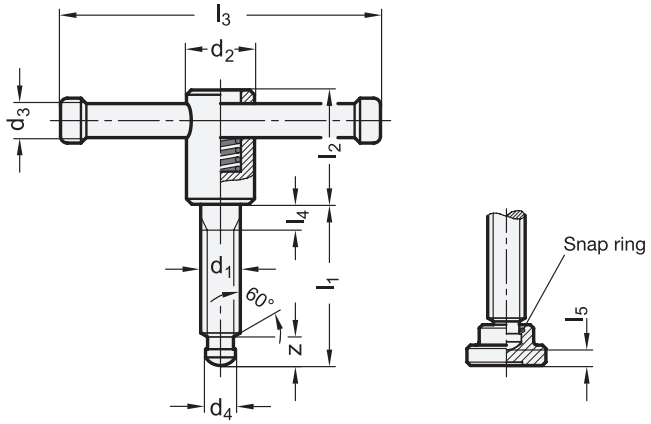
Bar end caps
Plastic, grey

INFORMATION

The thrust point of these screws DIN 6306 is designed to be used with or without the thrust pad for clamping.
The snap ring is a simple and quick method to connect the thrust pad to the tommy screw.
Instead of DIN 6311 (see page 938) a thrust pad GN 6311.1 (see page 939) can be used. In that case the tommy screw and the thrust pad have to be ordered separately.
The movable bar of the tommy screw DIN 6306 is held in any position by the pressure spring.
The end caps are pressed on to the bar and thus limit the bar travel, they can also be supplied separately should the bar be plated first.
The official DIN standard sheets provides for steel rings at this point.

TECHNCIAL INFORMATION

- Thrust pads DIN 6311 (see page 938)
- ISO-Fundamental Tolerances (see page A21)



*Complete with type of the Tommy screws (D or E)

D without thrust pad **E** with thrust pad

DIN 6306

Description	d1	l1	d2	d3	d4 H11	l2	l3	l4	l5 ≈	z ≈	⚖
DIN 6306-M10-40-*	M 10	40	18	8	8	32	80	10	3.6	8.2	103
DIN 6306-M10-50-*	M 10	50	18	8	8	32	80	10	3.6	8.2	109
DIN 6306-M12-50-*	M 12	50	20	10	8	35	100	10	4.5	8.6	177
DIN 6306-M12-60-*	M 12	60	20	10	8	35	100	10	4.5	8.6	184
DIN 6306-M16-55-*	M 16	55	24	13	12	40	120	10	5.3	10.6	346
DIN 6306-M16-70-*	M 16	70	24	13	12	40	120	10	5.3	10.6	367
DIN 6306-M16-90-*	M 16	90	24	13	12	40	120	10	5.3	10.6	359
DIN 6306-M20-55-*	M 20	55	30	16	15.5	45	140	10	5.6	12.4	607
DIN 6306-M20-70-*	M 20	70	30	16	15.5	45	140	10	5.6	12.4	637
DIN 6306-M20-90-*	M 20	90	30	16	15.5	45	140	10	5.6	12.4	657

Weight type E

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Tommy nuts

with moveable bar

SPECIFICATION

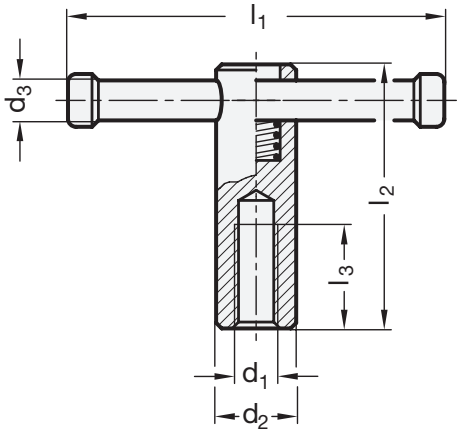
Steel
Tensile strength class 5
blackened

Bar end caps
Plastic, grey

INFORMATION

The movable bar of the tommy nut DIN 6307 is held in any position by the pressure spring.
The plastic end caps limit the travel distance. They are pressed on with form-lock and may be supplied separately if the parts are to be electro-plated. The official DIN standard sheets provides for steel rings at this point.





DIN 6307

Description	d1	d2	d3	l1	l2	l3 min.	⚖
DIN 6307-M10	M 10	18	8	80	60	20	110
DIN 6307-M12	M 12	20	10	100	70	25	173
DIN 6307-M16	M 16	24	13	120	85	35	320
DIN 6307-M20	M 20	30	16	140	95	40	568

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GN 6305.1

Quick release toogle nuts

SPECIFICATION

Steel
zinc plated, blue passivated

Butt-welded-toogle

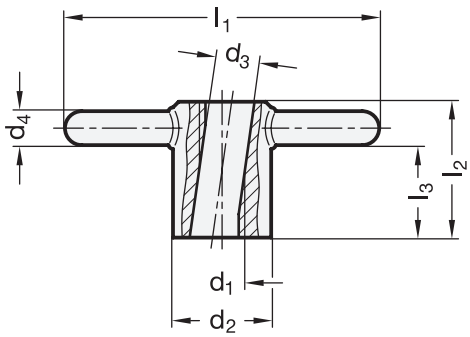
INFORMATION

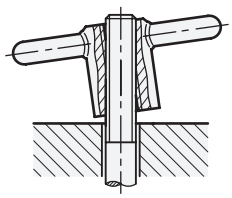
Quick release toggle nuts GN 6305.1 are used in such applications where the knob has to be completely removed after the releasing operation and refitted rapidly for re-clamping.
Plug the toggle nut onto the threaded bolt at an oblique angle. During the clamping action, it engages into the threads of the bolt.

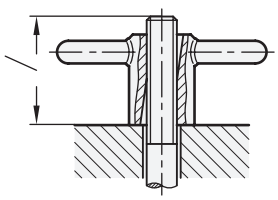
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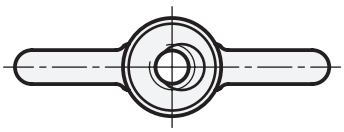
- in Stainless Steel







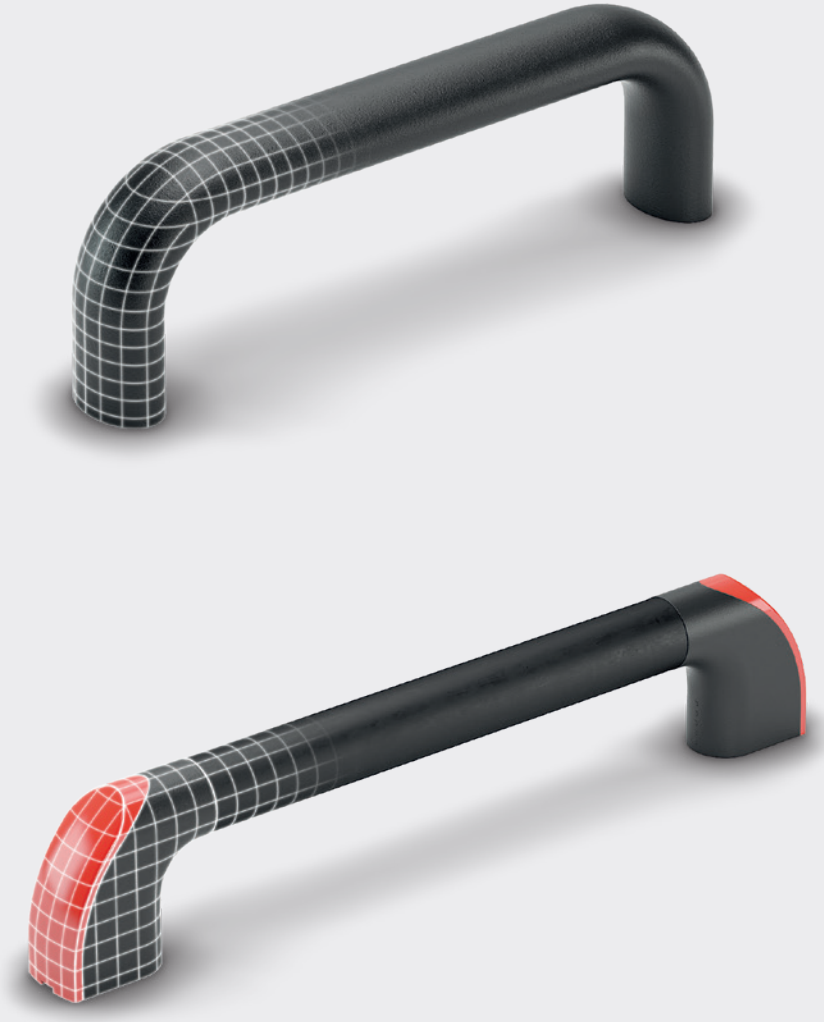




GN 6305.1

Description	d1	d2	d3	d4	l1 ≈	l2	l3 ≈	⚖
GN 6305.1-M10-ST	M 10	24	10.5	8	68	30	20	100
GN 6305.1-M12-ST	M 12	26	13	9	82	36	24.5	138
GN 6305.1-M16-ST	M 16	32	17	10	98	45	32	240

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DESIGNED
FOR ENGINEERING

4 U-Handles



Bridge handles

Flush pull handles

Tubular handles

Cabinet "U" handles

Aluminium

SPECIFICATION

Aluminium

plastic coated
black, RAL 9005, textured finish **SW**
black, RAL 9005, UV-resistant, textured finish **SWU**
red, RAL 3000, textured finish **RS**
silver, RAL 9006, textured finish **SR**
white, RAL 9016, antimicrobial **WSA**

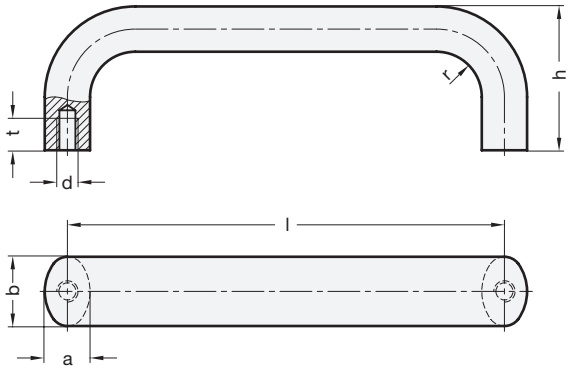
anodized, natural colour **EL**

blank, tumbled **BL**



INFORMATION

GN 565 cabinet „U" handles are made from a bent aluminum profile and have excellent stability and ergonomic design. Due to the production process, special designs can be supplied even in relatively small quantities.
In addition to the standard surfaces, these cabinet „U" handles are also available with a functional coating.
The **SWU** version is coated with a highly weather-resistant and UV-protective powder coating system, making this version excellent for outdoor use.
The **WSA** version has a powder coating based on zinc molybdate, which gives it antimicrobial properties. The principle of action, which is activated by the presence of moisture, demonstrably reduces the growth of viruses, bacteria, and fungi within 24 hours, so that contaminated surfaces ultimately have less than 0.2% of the original number of microbes.
Standard elements with antimicrobial plastic coating are primarily used in the health care sector and in public buildings, such as airports, train stations, stadiums, etc.



TECHNICAL INFORMATION

- Load rating information (see page A35)

* Complete with colour index of the Cabinet "U" handles (SW, SWU, RS, SR, WSA, EL or BL)

SW	SWU	RS	SR	WSA	EL	BL
RAL9005	RAL9005	RAL3000	RAL 9006	RAL9016	anodized	blank

GN 565

Description	b	l ±0.25	a	d	h	r	t min.	⚖
GN 565-20-100-*	20	100	13	M 6	49	13	10	87
GN 565-20-112-*	20	112	13	M 6	49	13	10	93
GN 565-20-117-*	20	117	13	M 6	49	13	10	100
GN 565-20-120-*	20	120**	13	M 6	49	13	10	102
GN 565-20-128-*	20	128	13	M 6	51	13	10	103
GN 565-20-160-*	20	160	13	M 6	51	13	10	121
GN 565-20-180-*	20	180**	13	M 6	51	13	10	139
GN 565-20-200-*	20	200	13	M 6	51	13	10	150
GN 565-20-235-*	20	235**	13	M 6	51	13	10	155
GN 565-26-112-*	26	112	17	M 8	55	17	12	161
GN 565-26-117-*	26	117	17	M 8	55	17	12	166
GN 565-26-120-*	26	120**	17	M 8	55	17	12	171
GN 565-26-125-*	26	125	17	M 8	55	17	12	180
GN 565-26-128-*	26	128	17	M 8	55	17	12	180
GN 565-26-160-*	26	160	17	M 8	57	17	12	210
GN 565-26-179-*	26	179	17	M 8	57	17	12	234
GN 565-26-192-*	26	192	17	M 8	57	17	12	240
GN 565-26-300-*	26	300	17	M 8	57	17	12	345
GN 565-26-400-*	26	400	17	M 8	57	17	12	440
GN 565-26-500-*	26	500	17	M 8	57	17	12	538

** suitable for 19" rack and enclosure layout

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GN 565.5

Stainless Steel-Cabinet "U" handles

SPECIFICATION

Types

- Type **A**: Mounting from the back (threaded blind bore)
- Type **B**: Mounting from the operator's side

Stainless Steel

- Type A: AISI 304
- Type B: Fine die casting, AISI CF-8
- matt shot-blasted **GS**
- slip polished, shiny metallic **GP** (only Type A)

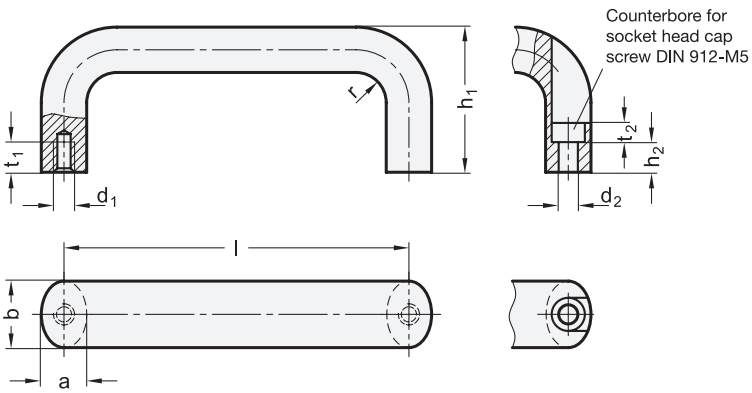
INFORMATION

The special features of Stainless Steel-Cabinet „U" handles GN 565.5 are their rigidity and ergonomical shaping.
Stainless Steel-Cabinet „U" handles (Type A) are produced from profiled extrusions. The manufacturing process (bending) allows the production of **special lengths** in relatively small quantities.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)
- Load rating information (see page A35)





GN 565.5 **STAINLESS STEEL**

Description	b	l ±0.25	a	d1	d2	h1	h2	r	t1 min.	t2	⚖
GN 565.5-20-112-A-GS	20	112	13	M 6	-	49	-	13	10	-	280
GN 565.5-20-128-A-GS	20	128	13	M 6	-	51	-	13	10	-	300
GN 565.5-20-160-A-GS	20	160	13	M 6	-	51	-	13	10	-	360
GN 565.5-20-200-A-GS	20	200	13	M 6	-	51	-	13	10	-	440
GN 565.5-20-250-A-GS	20	250	13	M 6	-	51	-	13	10	-	517
GN 565.5-20-300-A-GS	20	300	13	M 6	-	51	-	13	10	-	580
GN 565.5-20-350-A-GS	20	350	13	M 6	-	51	-	13	10	-	660
GN 565.5-20-400-A-GS	20	400	13	M 6	-	51	-	13	10	-	737
GN 565.5-20-112-A-GP	20	112	13	M 6	-	49	-	13	10	-	293
GN 565.5-20-128-A-GP	20	128	13	M 6	-	51	-	13	10	-	300
GN 565.5-20-160-A-GP	20	160	13	M 6	-	51	-	13	10	-	360
GN 565.5-20-200-A-GP	20	200	13	M 6	-	51	-	13	10	-	440
GN 565.5-20-112-B-GS	20	112	13	-	5.4	-	13.5	13	-	5.5	240
GN 565.5-20-128-B-GS	20	128	13	-	5.4	-	13.5	13	-	5.5	280
GN 565.5-20-160-B-GS	20	160	13	-	5.4	-	13.5	13	-	5.5	340

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Cabinet "U" handles

Aluminium

SPECIFICATION

Aluminium

plastic coated
black, RAL 9005, textured finish **SW**
black, RAL 9005, textured finish, UV-resistant **SWU**
red, RAL 3000, textured finish **RS**
silver, RAL 9006, textured finish **SR**

anodized, nautral colour **EL**

blank, tumbled **BL**

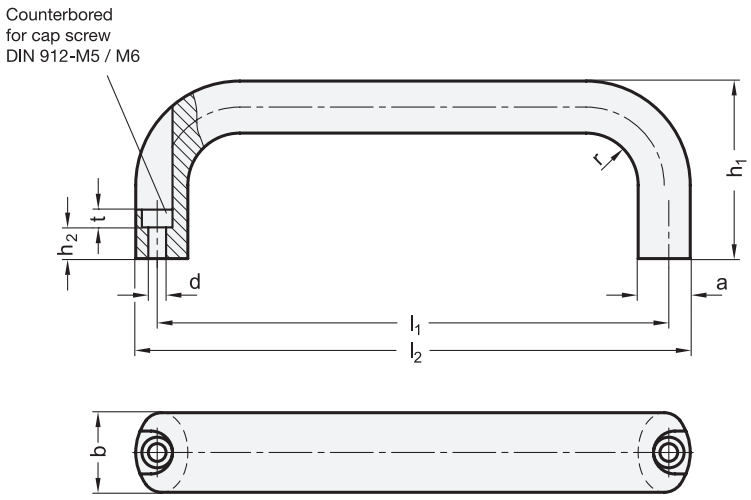


INFORMATION

GN 565.1 cabinet „U" handles are made from a bent aluminum profile and have excellent stability and ergonomic design. Due to the production process, special designs can be supplied even in relatively small quantities.
In addition to the standard surfaces, these cabinet „U" handles are also available with a functional coating.
The **SWU** version is coated with a highly weather-resistant and UV-protective powder coating system, making this version excellent for outdoor use.

TECHNICAL INFORMATION

- Load rating information (see page A35)



* Complete with colour index of the Cabinet "U" handles (SW, SWU, RS, SR, WSA, EL or BL)

SW	SWU	RS	SR	EL	BL
RAL9005	RAL9005	RAL3000	RAL 9006	anodized	blank

GN 565.1

Description	b	l1 ±0.25	a	d	h1	h2	l2	r	t	⚖
GN 565.1-20-100-*	20	100	13	5.4	49	13.5	112	13	5.5	80
GN 565.1-20-112-*	20	112	13	5.4	49	13.5	124	13	5.5	87
GN 565.1-20-120-*	20	120	13	5.4	49	13.5	124	13	5.5	90
GN 565.1-20-128-*	20	128	13	5.4	51	13.5	140	13	5.5	100
GN 565.1-20-160-*	20	160	13	5.4	51	13.5	172	13	5.5	120
GN 565.1-26-116-*	26	116	17	6.4	55	11	130	17	6	145
GN 565.1-26-120-*	26	120	17	6.4	55	11	134	17	6	149
GN 565.1-26-132-*	26	132	17	6.4	55	11	146	17	6	160
GN 565.1-26-164-*	26	164	17	6.4	57	11	178	17	6	200
GN 565.1-26-179-*	26	179	17	6.4	57	11	193	17	6	220
GN 565.1-26-196-*	26	196	17	6.4	57	11	210	17	6	226

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GN 565.2

Inclined cabinet "U" handles

Aluminium



SPECIFICATION

Types

- Type **A**: Mounting from the back (threaded blind bore)
- Type **B**: Mounting from the operator's side

Aluminium

plastic coated
black, RAL 9005, textured finish **SW**
silver, RAL 9006, textured finish **SR**
anodized, natural colour **EL**

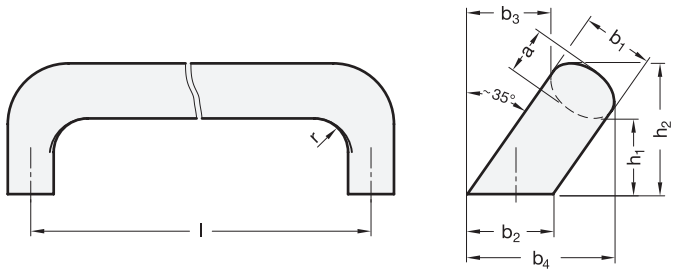
blank, tumbled **BL**

INFORMATION

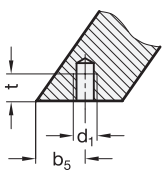
Inclined cabinet "U" handles GN 565.2 are produced from profiled aluminum extrusions. Produced from profiled aluminium extrusions their special features are their rigidity and ergonomical shaping.
The angled contact surface allows improved access even in tight spaces such as corners.
The manufacturing process (bending) allows the production of **special lengths** in relatively small quantities.
In type B lens screws, hexagon nuts and washers are included parts of the order.

TECHNICAL INFORMATION

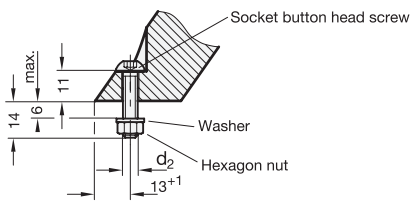
- Load rating information (see page A35)



Type **A**



Type **B**



* Complete with colour index of the Cabinet "U" handles (SW, SR, EL or BL)

SW	SR	EL	BL
RAL9005	RAL9006	anodized	blank

GN 565.2

Description	b1	l ±0.25	a	b2	b3	b4	b5 +1	d1	d2	h1	h2	r	t min.	⚖
GN 565.2-20-112-A-*	20	112	13	24	32	50	13.5	M 6	-	32	48	13	10	105
GN 565.2-20-128-A-*	20	128	13	24	32	50	13.5	M 6	-	32	48	13	10	1129
GN 565.2-26-128-A-*	26	128	17	32	34	57	18	M 8	-	34	54	17	12	190
GN 565.2-26-160-A-*	26	160	17	32	34	57	18	M 8	-	34	54	17	12	222
GN 565.2-26-128-B-*	26	128	17	32	34	57	18	-	M 6	34	54	17	-	207
GN 565.2-26-160-B-*	26	160	17	32	34	57	18	-	M 6	34	54	17	-	240

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Inclined Stainless Steel-Cabinet "U" handles

SPECIFICATION

Type

- Type **A**: Mounting from the back (threaded blind bore)

Stainless Steel

- AISI 304
- matt shot-blasted **MT**

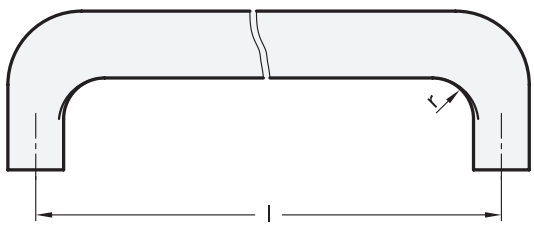
INFORMATION

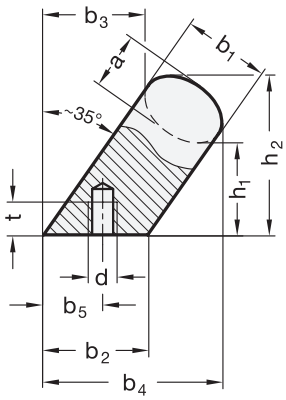
Inclined Stainless Steel-Cabinet "U" handles GN 565.7 are produced from profiled Stainless Steel extrusions. Their special features are their rigidity and ergonomical shaping.
The angled contact surface allows improved access even in tight spaces such as corners.
The manufacturing process (bending) allows the production of **special lengths** in relatively small quantities.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)
- Load rating information (see page A35)







GN 565.7 — **STAINLESS STEEL**

Description	b1	l ±0.25	a	b2	b3	b4	b5 +1	d	h1	h2	r	t min.	⚖
GN 565.7-20-112-A-MT	20	112	13	24	32	50	13.5	M6	32	48	13	10	308
GN 565.7-20-128-A-MT	20	128	13	24	32	50	13.5	M6	32	48	13	10	320

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GN 564

Cabinet "U" handles

Polyurethane foam rubber

SPECIFICATION

Sheating
Thermoplastic polyurethane (TPU)

- black, matt textured finish
- elastic, 65 ±5 shore A
- temperature resistant up to 70 °C
- abrasion-resistant
- insulating
- weather-proof

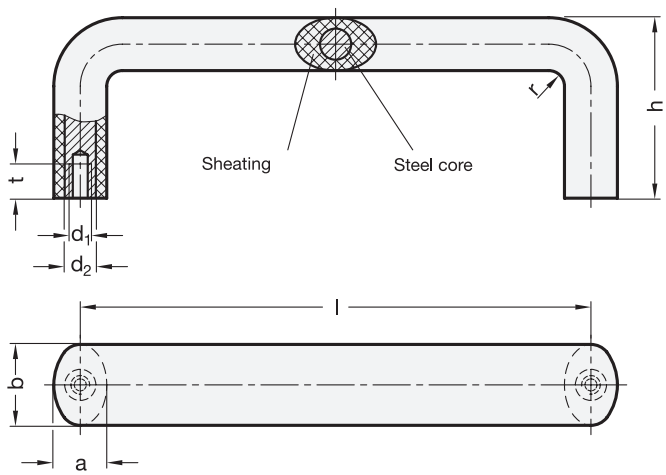


INFORMATION

The shock absorbing casing of the GN 564 "U" handles made of Thermoplastic polyurethane (TPU) offers protection from injuries, while its elliptical shape give it a nice hold.
The steel core guarantees high durability.

TECHNICAL INFORMATION

- Elastomer characteristics (see page A32)
- Load rating information (see page A35)



GN 564

Description	b	l ±0.25	a	d1	d2	h	r	t min.	⚖
GN 564-25-112	25	112	16	M 6	10	50	5	10	136
GN 564-25-128	25	128	16	M 6	10	54	7	10	150
GN 564-25-160	25	160	16	M 6	10	54	9	10	173

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CLEAN · INOX STAINLESS STEEL · RoHS · PA · +120° -30°

Bridge handles

Technopolymer

MATERIAL
High-resilience polyamide based (PA) technopolymer.

STANDARD EXECUTIONS
- **M.843:** in six standard colours: black, orange, grey, yellow, light-blue, red, glossy finish, brass bosses, threaded holes.
- **M.843-CLEAN:** white colour similar to RAL 9002, glossy finish, AISI 303 stainless steel bosses, threaded holes.

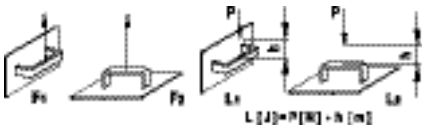
FEATURES
This handle is particularly suitable to be produced in light colours: the glossy finish guarantees perfect cleaning. In particular,
M. 843 CLEAN handle, thanks to its white colour and glossy finish, is suitable for applications on medical and hospital equipment and on food processing machines whose parts, for hygienic reasons, must be frequently cleaned. Its solid shape without cavities prevents unhealthy residues from depositing.

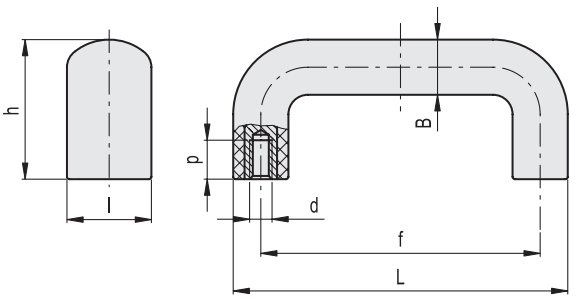
TECHNICAL DATA
Tensile stress and impact strength: the values F1, F2, L1 and L2 indicated in the table were obtained during breaking tests carried out with the appropriate dynamometric equipment under the test conditions shown in the figure with ambient temperature.
The tests have revealed that the special technopolymer used can absorb very strong shocks, with no damages, thanks to its high-resilience.



ELESA Original design







*Complete with colour index, example: M.843/100 B-M6-C2

C9 RAL9005 · C2 RAL2004 · C3 RAL7035 · C4 RAL1021 · C5 RAL5024 · C6 RAL3000

M.843

Code C9	Code C2	Code C3	Code C4	Code C5	Code C6	Description	L	f	d6H	h	B	l	p	F1 [N]	F2 [N]	L1 [J]	L2 [J]	⚖
138101	138102	138103	138104	138105	138106	M.843/100 B-M6-*	103	86±0.5	M6	46.5	17	26	12	4000	7000	50	120	52
138121	138122	138123	138124	138125	138126	M.843/140 B-M8-*	138	117±0.5	M8	54	20	30	13	4000	5000	50	120	80
138141	138142	138143	138144	138145	138146	M.843/200 B-M8-*	200	179±1	M8	62	20	30	13	3000	3500	27	80	105
138161	138162	138163	138164	138165	138166	M.843/320 B-M8-*	322	300±1	M8	64	22	32	13	2000	3000	25	75	157

M.843-CLEAN — STAINLESS STEEL

Code	Description	L	f	d6H	h	B	l	p	F1 [N]	F2 [N]	L1 [J]	L2 [J]	⚖
151406	M.843/100-SST-M6 CLEAN	103	86±0.5	M6	46.5	17	26	12	4000	7000	50	120	52
151412	M.843/140-SST-M8 CLEAN	138	117±0.5	M8	54	20	30	13	4500	5000	50	120	80
151416	M.843/200-SST-M8 CLEAN	200	179±1	M8	62	20	30	13	2000	2400	27	80	105
151419	M.843/320-SST-M8 CLEAN	322	300±1	M8	64	22	32	13	2000	3000	25	75	157

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M.243

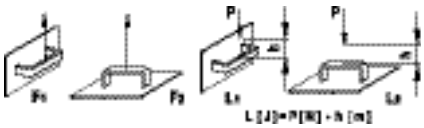
Bridge handles

Duroplast

MATERIAL
Phenolic based (PF) Duroplast, black colour, glossy finish.

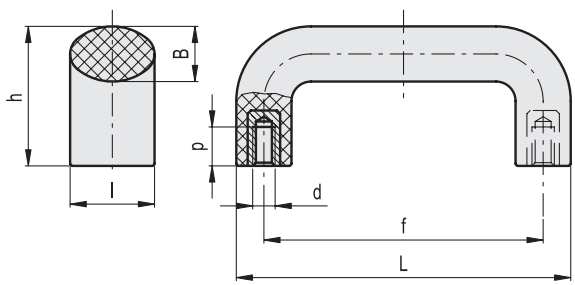
STANDARD EXECUTION
Brass bosses, threaded blind holes.

TECHNICAL DATA
Tensile stress and impact strength: the values F1, F2, L1 and L2 indicated in the table were obtained during breaking tests carried out with the appropriate dynamometric equipment under the test conditions shown in the figure with ambient temperature.





ELESA Original design



M.243

Code	Description	L	f	d6H	h	B	l	p	F1 [N]	F2 [N]	L1 [J]	L2 [J]	⚖
36501	M.243/100	103	86±0.5	M6	43	17	26	12	2500	2500	5	6	85
36601	M.243/140	138	117±0.5	M8	54	20	30	13	4000	5000	6	10	138
36701	M.243/200	198	179±1	M8	62	20	30	13	3000	2000	7	8	185

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RoHS PA +130° -30° PP +100° 0°

Bridge handles

Technopolymer

STANDARD EXECUTIONS

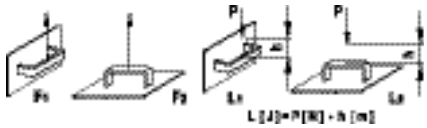
Brass bosses, threaded blind holes.

- **M.643**: high-resilience polypropylene based (PP) technopolymer, black colour, matte finish.
- **M.643R** (reduced version h=45): glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.
- **M.643-FM**: high-resilience polypropylene based (PP) technopolymer, black colour, matte finish.

Brass bosses, pass-through holes for cylindrical-head screws with hexagon socket.

TECHNICAL DATA

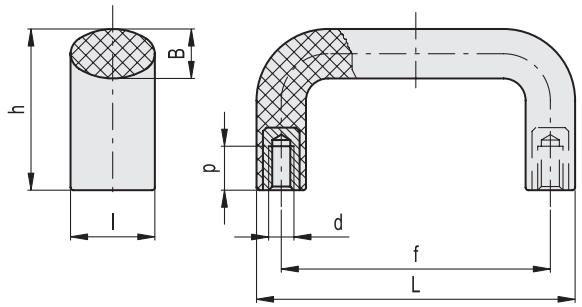
Tensile stress and impact strength: F1, F2, L1 and L2 values reported in the table are the result of breaking tests carried out with the appropriate dynamometric equipment under the test conditions shown in the figure with ambient temperature.





ELESA Original design

M.643

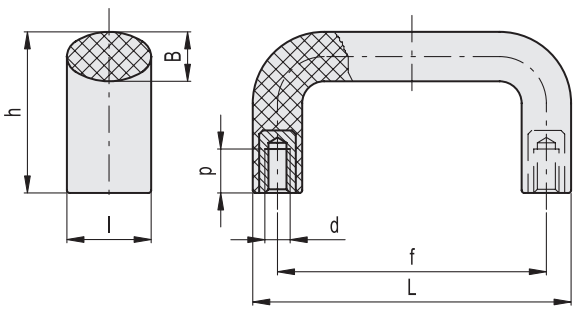


M.643

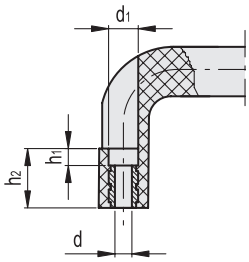
Code	Description	L	f	d6H	h	B	l	p	F1 [N]	F2 [N]	L1 [J]	L2 [J]	⚖
37300	M.643/100 B-M5	100	86±0.5	M5	44	14	23	10	2400	2400	12	6	46
37301	M.643/100 B-M6	100	86±0.5	M6	44	14	23	12	2400	2400	12	6	45
37305	M.643/110 B-M5	108	94±0.5	M5	48	14	24	10	2300	2300	10	8	60
37306	M.643/110 B-M6	108	94±0.5	M6	48	14	24	12	2300	2300	10	8	59
37308	M.643/140-117 B-M4	134	117±0.5	M4	49	15	25	10	2250	2650	8	12	63
37309	M.643/140-117 B-M5	134	117±0.5	M5	49	15	25	10	2250	2650	8	12	64
37310	M.643/140-117 B-M6	134	117±0.5	M6	49	15	25	12	2250	2650	8	12	65
37311	M.643/140-117 B-M8	134	117±0.5	M8	49	15	25	13	2250	2650	8	12	67
37314	M.643/140-120 B-M5	134	120±0.5	M5	49	15	25	10	2250	2650	8	12	68
37315	M.643/140-120 B-M6	134	120±0.5	M6	49	15	25	12	2250	2650	8	12	69
37316	M.643/140-120 B-M8	134	120±0.5	M8	49	15	25	13	2250	2650	8	12	70
37320	M.643/150 B-M5	148	132±0.5	M5	53	16	26	10	2200	2450	8	12	71
37321	M.643/150 B-M6	148	132±0.5	M6	53	16	26	12	2200	2450	8	12	72
37322	M.643/150 B-M8	148	132±0.5	M8	53	16	26	13	2200	2450	8	12	73
37331	M.643/180 B-M6	166	150±1	M6	56	16	27	12	2000	2550	8	13	81
37332	M.643/180 B-M8	166	150±1	M8	56	16	27	13	2000	2550	8	13	82
37333	M.643/180 B-M10	166	150±1	M10	56	16	27	17	2000	2550	8	13	83
37351	M.643/200 B-M8	196	179±1	M8	57	16	27	13	1900	2000	11	13	130
37352	M.643/200 B-M10	196	179±1	M10	57	16	27	17	1900	2000	11	13	132
37361	M.643/260 B-M8	253	235±1	M8	61	18.5	29	13	1900	2000	13	12	173
37362	M.643/260 B-M10	253	235±1	M10	61	18.5	29	17	1900	2000	13	12	171
37371	M.643/320 B-M10	322	300±1	M10	64	22	32	17	2000	2000	18	11	205

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M.643R



M.643-FM



M.643R

Code	Description	L	f	d6H	h	B	l	p	F1 [N]	F2 [N]	L1 [J]	L2 [J]	⚖
37353	M.643R/200 B-M8	196	179±1	M8	45	15	27	13	4000	3500	25	25	118

M.643-FM

Code	Description	L	f	d	d1	h	h1	h2	B	l	F1 [N]	F2 [N]	L1 [J]	L2 [J]	⚖
137301	M.643 FM/100 B-5	100	86±0.5	5.4	8.5	44	5.5	20.5	14	23	3000	2200	11	9	45
137311	M.643 FM/140 B-6	134	117±0.5	6.4	10.5	49	6	21	15	25	2000	2800	11	9	64
137331	M.643 FM/150 B-6	148	132±0.5	6.4	10.5	53	8.5	23.5	16	26	1900	1900	11	9	70
137351	M.643 FM/200 B-6	196	179±1	6.4	10.5	57	6	21	16	27	1900	1900	11	13	89

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M.643 HT

Bridge handles

Technopolymer with high thermic resistance

MATERIAL
Glass-fibre reinforced polyamide based (PA) technopolymer, resistant to high temperatures, grey-black colour, matte finish.

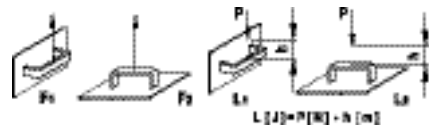
STANDARD EXECUTION
Brass bosses, threaded blind holes.

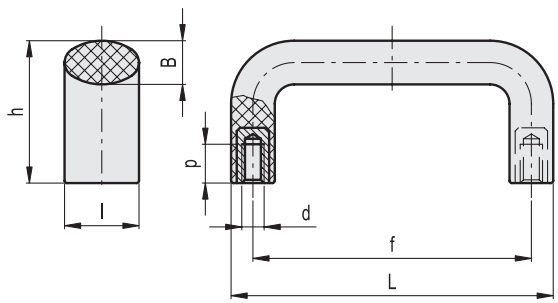
MAXIMUM WORKING TEMPERATURE
200°C.

TECHNICAL DATA
Tensile stress and impact strength: F1, F2, L1 and L2 values reported in the table are the result of breaking tests carried out with the appropriate dynamometric equipment under the test conditions shown in the figure with ambient temperature.



ELESA Original design





Code	Description	L	f	d6H	h	B	l	p	F1 [N]	F2 [N]	L1 [J]	L2 [J]	⚖
37502	M.643/100 B-M6 HT	100	86±0.5	M6	44	14	23	12	2400	2400	12	6	59
37510	M.643/140 B-M6 HT	134	117±0.5	M6	49	15	25	12	2500	3400	8	12	85
37511	M.643/140 B-M8 HT	134	117±0.5	M8	49	15	25	13	2500	3400	8	12	87
37551	M.643/200 B-M8 HT	196	179±1	M8	57	16	27	13	1900	2600	11	17	132

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Adapters for assembly on tubes of M.643-FM handles

Technopolymer

MATERIAL
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

FEATURES AND APPLICATIONS
The adapters allow assembling M.643-FM handles on round tubes with a diameter between 28.6 mm and 32 mm.

MOUNTING
- Plain hole passing completely through the tube with a nut on the outside (Fig.1).
- Threaded hole in the tube wall for tubes with thickness > 2mm (Fig.2).

TECHNICAL DATA
Tensile stress and impact strength: F1, F2, L1 and L2 values reported in the table are the result of breaking tests carried out with the appropriate dynamometric equipment under the test conditions shown in the figure with ambient temperature.

Code	Description	Handle adapter	
		Code	Description
260051	ADT-M.643-FM/100	137301	M.643 FM/100 B-5
260053	ADT-M.643-FM/140	137311	M.643 FM/140 B-6



ELESA Original design



Fig.1

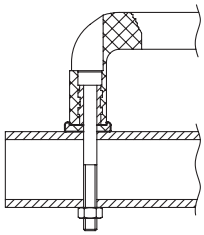
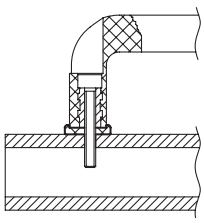
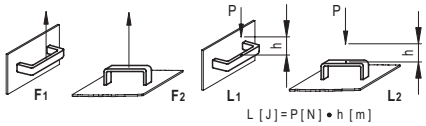
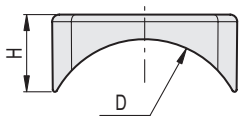
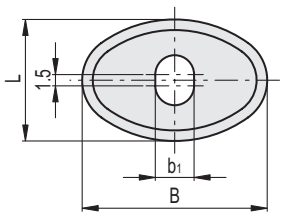


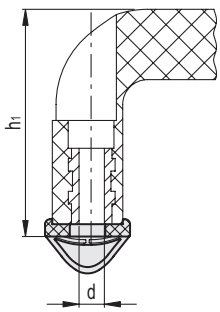
Fig.2











Code	Description	L	d	D	H	h1	B	b1	D Tube	F1 [N]	F2 [N]	L1 [J]	L2 [J]	C# [Nm]	⚖
260051	ADT-M.643-FM/100	17	5	28.6	11	45	26	5.5	28.6÷32	1600	2500	9	7	5	3
260053	ADT-M.643-FM/140	19	6	28.6	13	51	28.5	6.5	28.6÷32	1700	2900	9	7	6	4

Maximum tightening torque.

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Handles for heat insulation

Steel and technopolymer

METAL STRUCTURE
Steel round cross section bar with fine ground matte chrome-plated surface.
Threaded blind holes.

END BUSHES
Steel, chrome-plated matte surface.

HEAT INSULATION ELEMENT
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

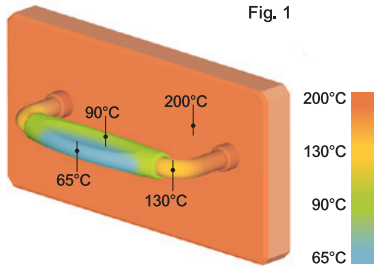
FEATURES AND APPLICATIONS
The MMT. handle is particularly suitable for applications on surfaces subject to high temperatures. The internal aeration canals of the technopolymer heat insulation element minimize the heat transfer. Its particular shape offers a comfortable grip and puts the operator's fingers away from the heat source.

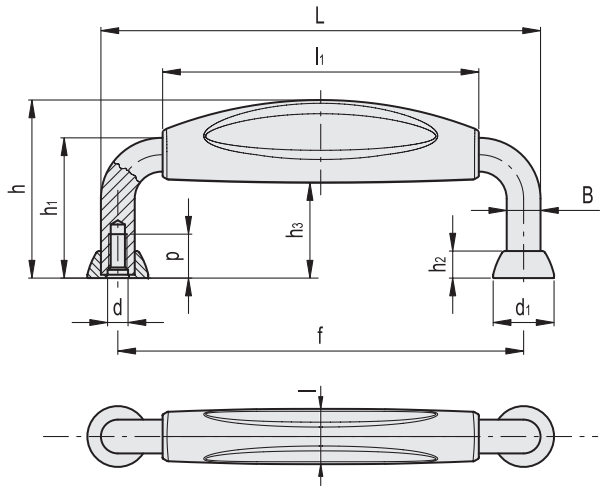
TECHNICAL DATA
Figure 1 shows the different temperatures reached in various points of the handle assembled to a plate stabilized at 200°C during laboratory tests.



ELESA Original design

Fig. 1





Code	Description	L	f	d	d1	h	h1	h2	h3	B	l	l1	p	⚖
41051	MMT.130 M5	130	120±0.5	M5	18	53	43	8	28	10	16	94	13	132
41061	MMT.190 M5	190	180±0.5	M5	18	56	43	8	29.5	10	16	140	13	195

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GN 225

Cabinet "U" handles

Cast iron

SPECIFICATION

Cast iron (GS45)

plastic coated
black, RAL 9005, textured finish **SW**

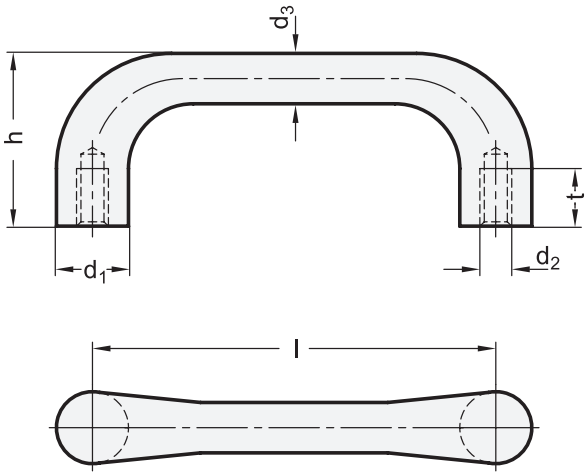
blank **BL**
unfinished casting, fettled

Contact surface machined

INFORMATION

Cabinet "U" handles GN 225 are simple, very rugged handles.





GN 225

Description	d1	d2	d3	h	l ±0.25	t min.	⚖
GN 225-18-BL	18	M 6	12	42	100	12	190
GN 225-18-SW	18	M 6	12	42	100	12	200
GN 225-20-BL	20	M 8	14	47	112	15	250
GN 225-20-SW	20	M 8	14	47	112	15	260
GN 225-22-BL	22	M 10	16	53	125	18	370
GN 225-22-SW	22	M 10	16	53	125	18	380
GN 225-25-BL	25	M 12	18	59	140	20	520
GN 225-25-SW	25	M 12	18	59	140	20	530

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Bridge handles

Technopolymer



MATERIAL
Glass-fibre reinforced polyamide based (PA) technopolymer, grey-black colour, matte finish.

SCREW-COVERS
Technopolymer in Ergostyle colours, matte finish; supplied with the handle, press-fit assembly, removable by a screwdriver.
Available also as accessories sold separately (see table ECA.).

Code	Description	Caps for
29830-*	ECA.B0-*	EBP.110
29831-*	ECA.B1-*	EBP.140 EBP.150 EBP.180 EBP.200

* Complete with colour index (C1, ..., C6).

STANDARD EXECUTIONS
- **EBP.**: pass-through holes for front or rear mounting by means of cylindrical-head screws with hexagon socket, hexagonal-head screws or standard nuts.
- **EBP-B**: brass bosses, threaded blind holes for back mounting.

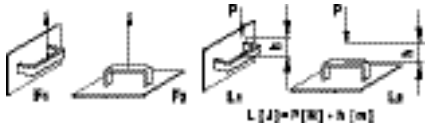
FEATURES AND APPLICATIONS
EBP. handles with front mounting can be assembled in pairs opposed to EBP.B handles with back mounting (Fig. 1).



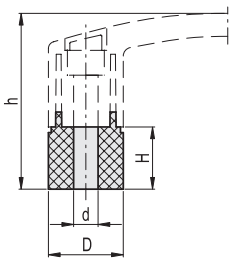
Fig.1

TECHNICAL DATA
Tensile stress and impact strength: F1, F2, L1 and L2 values reported in the table are the result of breaking tests carried out with the appropriate dynamometric equipment under the test conditions shown in the figure with ambient temperature.

ACCESSORIES ON REQUEST
Spacer sleeves DS-EBP in polyamide based (PA) technopolymer to increase the distance between the handle and the fitting surface.



DS-EBP.

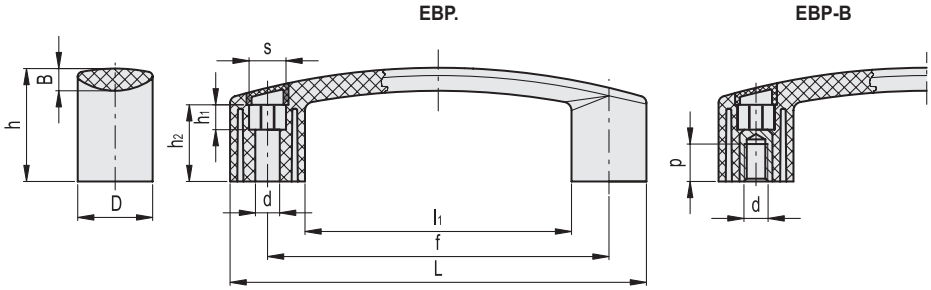




DS-EBP.

Code	Description	d	D	H	h	F1 [N]	F2 [N]	L1 [J]	L2 [J]	⚖
260001	DS-EBP.110	6.5	22.5	18	53	1600	1500	8	3	7
260003	DS-EBP.140	8.5	26.5	19.5	58.5	2200	1800	10	4	9
260005	DS-EBP.180	9	29	20.5	64.5	2200	1500	12	5	11
260005	DS-EBP.200	9	29	20.5	70.5	2200	1500	12	5	11

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*Complete with colour index, example: 260111-C2 EBP.110-6-C2

C1	C2	C3	C4	C5	C6
RAL7021	RAL2004	RAL7035	RAL1021	RAL5024	RAL3000

EBP.

Code	Description	L	f	d	s	D	h	h1	h2	B	l1	F1 [N]	F2 [N]	L1 [J]	L2 [J]	⚖
260111-*	EBP.110-6-*	116	93.5±0.5	6.5	10	22	35	6.5	23.5	7.5	72	2000	1500	8	3	35
260210-*	EBP.140-6-*	144	117±0.5	6.5	11	26	39	19.5	26.5	8.5	92	2700	1800	10	4	57
260211-*	EBP.140-8-*	144	117±0.5	8.5	13	26	39	8.5	26.5	8.5	92	2700	1800	10	4	55
260251-*	EBP.150-8-*	159	132±0.5	8.5	13	27	42	10.5	28	9.5	105	2700	1800	11	4	65
260311-*	EBP.180-8-*	178	150±1	8.5	13	28	45	14	32	9.5	122	2700	1500	12	5	78
260411-*	EBP.200-8-*	208.5	179±1	8.5	13	28.5	51	16	35	9.5	150.5	2200	1500	16	9	95

EBP-B

Code	Description	L	f	d6H	D	h	B	l1	p	F1 [N]	F2 [N]	L1 [J]	L2 [J]	⚖
260120-*	EBP.110-B M5-*	116	93.5±0.5	M5	22	35	7.5	72	10	2000	1500	8	3	46
260121-*	EBP.110 B-M6-*	116	93.5±0.5	M6	22	35	7.5	72	12	2000	1500	8	3	45
260220-*	EBP.140 B-M6-*	144	117±0.5	M6	26	39	8.5	92	12	2700	1800	10	4	70
260221-*	EBP.140 B-M8-*	144	117±0.5	M8	26	39	8.5	92	13	2700	1800	10	4	65
260255-*	EBP.150-B M6-*	159	132±0.5	M6	27	42	9.5	105	13	2700	1800	10	4	84
260256-*	EBP.150 B-M8-*	159	132±0.5	M8	27	42	9.5	105	13	2700	1800	11	4	82
260321-*	EBP.180 B-M8-*	178	150±1	M8	28	45	9.5	122	13	2700	1500	12	5	98
260421-*	EBP.200 B-M8-*	208.5	179±1	M8	28.5	51	9.5	150.5	13	2200	1500	16	9	108
260422-*	EBP.200-B M10-*	208.5	179±1	M10	28.5	51	9.5	150.5	13	2200	1500	16	9	106

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Bridge handle

Technopolymer with antimicrobial protection

MATERIAL
Glass-fibre reinforced polyamide based (PA) technopolymer with silver ions on an inorganic ceramic base, black colour, matte finish.

SCREW-COVERS
Technopolymer, black colour, matte finish. Supplied with the handle, press-fit assembly, removable by a screwdriver.

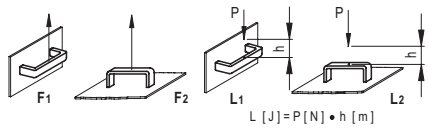
STANDARD EXECUTION
Pass-through holes for cylindrical-head screws with hexagon socket.

FEATURES
The antimicrobial material EBP.SAN handle is made out of, stops any deposit of bacteria, mildew and fungi, offering a sanitized effect on the surface.
Tests carried out on material samples confirmed the absolute stability of the antimicrobial action after several cleaning cycles at high temperatures with soap and solvents.
The great resistance to high temperatures of the antimicrobial additive allows this handle to reach sterilisation temperatures (130°C).
Samples of this material have undergone laboratory tests in compliance with JIS Z 2801. The microbes used to carry out these tests are the ones which present the greatest resistance to antimicrobial products:
- Klebsiella pneumoniae ATCC 4352;
- Escherichia coli ATCC 8739;
- Staphilococcus aureus ATCC 6538P;
- Pseudomonas aeruginosa ATCC 12055.

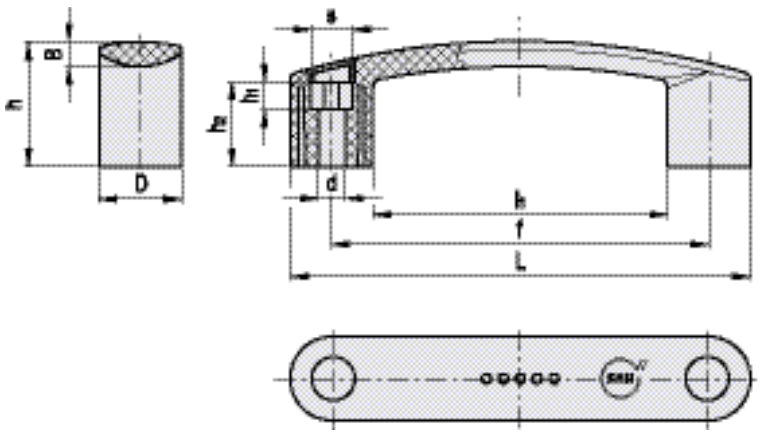
APPLICATIONS
EBP.SAN handle is suitable for applications where hygienic and sanitary elements are required:
- medical and hospital equipment
- disability aids
- machines for food processing and pharmaceutical industry
- equipment for catering service
- urban and public fittings.



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TECHNICAL DATA
Tensile stress and impact strength: the values F1, F2, L1 and L2 indicated in the table were obtained during breaking tests carried out with the appropriate dynamometric equipment under the test conditions shown in the figure with ambient temperature.



Code	Description	L	f	d	d1	D	h	h1	h2	B	l1	F1 [N]	F2 [N]	L1 [J]	L2 [J]	⚖
153211-C1	EBP.140-8-SAN-C1	144	117±0.5	8.5	13.5	26	39	8.5	26.5	8.5	92	2700	1800	10	4	55

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Flexible bridge handles

Technopolymer with elastomer

MATERIAL
Polypropylene based (PP) technopolymer with elastomer (TPE), greyblack colour, matte finish.

SCREW-COVERS
Technopolymer in Ergostyle colours, matte finish; supplied with the handle, press-fit assembly, removable by a screwdriver.
Available also as accessories sold separately (see table ECA.).

Code	Description	Caps for
29831-*	ECA.B1-*	EBP.140-FLX / EBP.180-FLX

* Complete with colour index (C1, ..., C6)

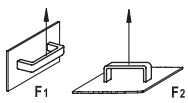
STANDARD EXECUTION
Brass bosses with pass-through holes for cylindrical-head screws with hexagon socket.

FEATURES AND APPLICATIONS
EBP.FLX flexible handle (elastomer) can be assembled on curved surfaces with diameters between 300 and 800 mm. For diameters exceeding 800 mm, EBP. standard handle can be used.

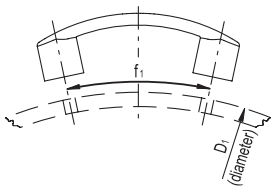
TECHNICAL DATA
Tensile stress: F1 and F2 values reported in the table represent the maximum limit value under which EBP.FLX handle can perform elastic deformation. Impact strength does not apply in this case due to the high elastic features of the product.



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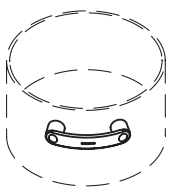


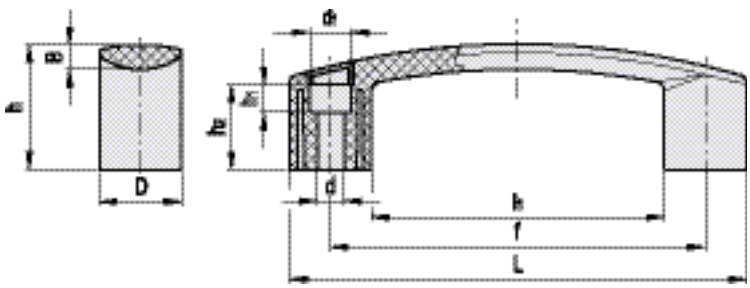
Application EBP.FLX



Calculation of (curved) centers distance f1

EBP.140	$f_1 = 0.044 \times D_1 + 81.5$
EBP.180	$f_1 = 0.056 \times D_1 + 102.8$







*Complete with colour index, example: 260262-C2 EBP.140-8-FLX-C2

C1 RAL7021 | C2 RAL2004 | C3 RAL7035 | C4 RAL1021 | C5 RAL5024 | C6 RAL3000

Code	Description	L	f	d	d1	D	h	h1	h2	B	l1	F1 [N]	F2 [N]	⚖
260262-*	EBP.140-8-FLX-*	144	117	8.5	13.5	26	39	8.5	26.5	8.5	92	1000	1000	56
260361-*	EBP.180-8-FLX-*	178	150	8.5	13.5	28	45	14	32	9.5	122	1000	1000	67

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Handle with microswitch

Technopolymer



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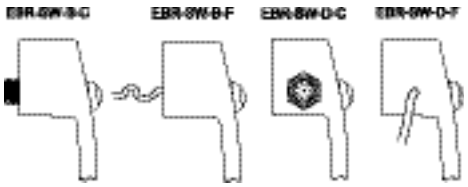
MATERIAL
Glass-fibre reinforced polyamide based (PA) technopolymer, grey-black colour, matte finish.

MICROSWITCH WITH BUTTON
The device is made up of a normally open contact (NO) and a normally closed contact (NC).
Switching takes place by pressing the button (monostable contact).

LED
A red light and a green light indicate the microswitch status.
Tension feed 24Vdc.

SCREW-COVERS
Technopolymer, grey-black colour, matte finish. Supplied assembled, removable by a screwdriver.

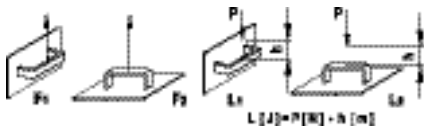
STANDARD EXECUTIONS
Pass-through holes for cylindrical head screws with hexagon socket.
- **EBR-SW-B-C:** zinc-plated connector with 8 poles, back axial output.
- **EBR-SW-B-F2.5:** 8 pole cable, length 2.5 metres, back output.
- **EBR-SW-B-F5:** 8 pole cable, length 5 metres, back output.
- **EBR-SW-D-C:** zinc-plated steel connector with 8 poles, side axial output.
- **EBR-SW-D-F2.5:** 8 pole cable, length 2.5 metres, side output.
- **EBR-SW-D-F5:** 8 pole cable, length 5 metres, side output.



FEATURES AND APPLICATIONS
These handles are typically assembled on machine doors or protections. With the correct electrical connection and the machine working, the red light is turned on and the green light is off. By pressing the button, the operator, via external contact, requests access to the protected area: in this case the green light will turn on, while the red one will be off.
The EBR-SW handle is an ideal combination: ergonomic, functional and compact.

TECHNICAL DATA
Tensile stress and impact strength: the values F1, F2, L1 and L2 indicated in the table were obtained during breaking tests carried out with the appropriate dynamometric equipment under the test conditions shown in the figure with ambient temperature.

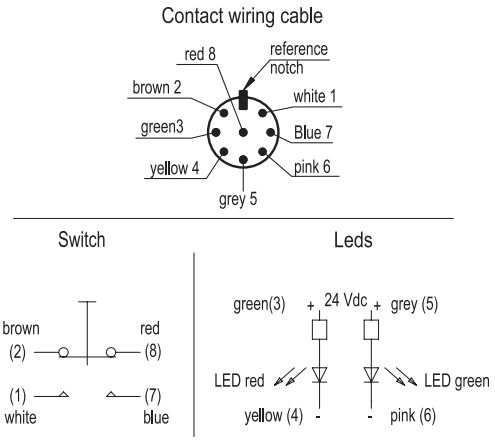
ACCESSORIES ON REQUEST
FC-M12x1: extensions with 8 pole M12 female axial connector, sheath in PVC black colour type UL/CSA STYLE 2587 8 X AWG 22.
- Code **426503**: CABLE WITH CONNECTOR M12-8 FEMALE CONTACTS 2.5m (length 2.5 m).
- Code **426506**: CABLE WITH CONNECTOR M12-8 FEMALE CONTACTS 5m (length 5 m).
- Code **426511**: CABLE WITH CONNECTOR M12-8 FEMALE CONTACTS 10m (length 10 m).



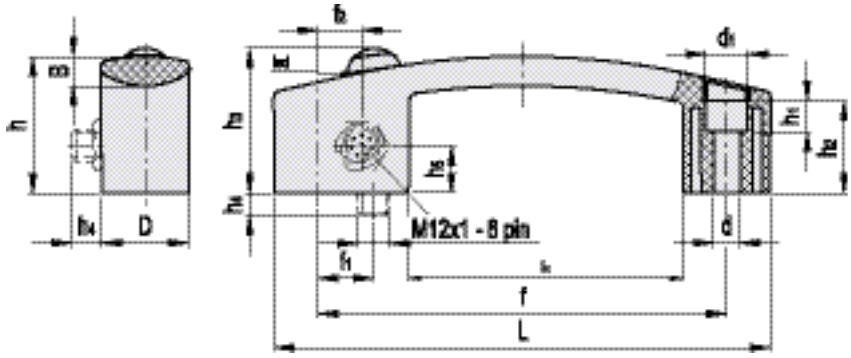
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EBR-SW

Handle with microswitch



Technical features	
Protection class	IP65
Mechanical life-span	cicli 1 x 10^6
Led light voltage	24 Vdc ± 15%
Maximum commutable voltage	max 28 Vdc / 30 Vac / max 1 A



Code	Description	L	f	d	d1	f1	f2	D	h	h1	h2	h3	h4	h5	B	l1	F1 [N]	F2 [N]	L1 [J]	L2 [J]	⚖
260541-C1	EBR.150-SW-B-C	160	132±0.5	8.5	13.5	16	-	28	44	10	30	47	10	-	8.5	89	2800	2900	35	8	85
260542-C1	EBR.150-SW-B-F5	160	132±0.5	8.5	13.5	16	-	28	44	10	30	47	-	-	8.5	89	2800	2900	35	8	95
260546-C1	EBR.150-SW-B-F2.5	160	132±0.5	8.5	13.5	16	-	28	44	10	30	47	-	-	8.5	89	2800	2900	35	8	90
260551-C1	EBR.150-SW-D-C	160	132±0.5	8.5	13.5	-	14.5	28	44	10	30	47	13.5	13	8.5	89	2800	2900	35	8	85
260552-C1	EBR.150-SW-D-F5	160	132±0.5	8.5	13.5	-	14.5	28	44	10	30	47	-	13	8.5	89	2800	2900	35	8	95
260556-C1	EBR.150-SW-D-F2.5	160	132±0.5	8.5	13.5	-	14.5	28	44	10	30	47	-	13	8.5	89	2800	2900	35	8	90

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Handle with pneumatic valve

Technopolymer



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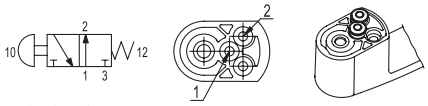
MATERIAL
Glass-fibre reinforced polyamide based (PA) technopolymer, grey-black colour, matte finish.

PUSH BUTTON
Light-blue technopolymer, glossy finish.

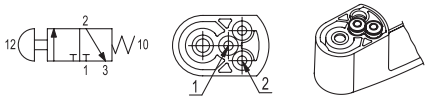
SCREW-COVERS
Technopolymer, grey-black colour, matte finish. Supplied assembled, removable by a screwdriver.

STANDARD EXECUTIONS
Brass bosses, threaded blind hole.

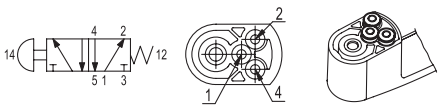
- **EBR-PN-3/2-NO**: the pneumatic valve is normally open. The actuation of the button stops the air passage.



- **EBR-PN-3/2-NC**: the pneumatic valve is normally closed. The actuation of the button opens the air passage.



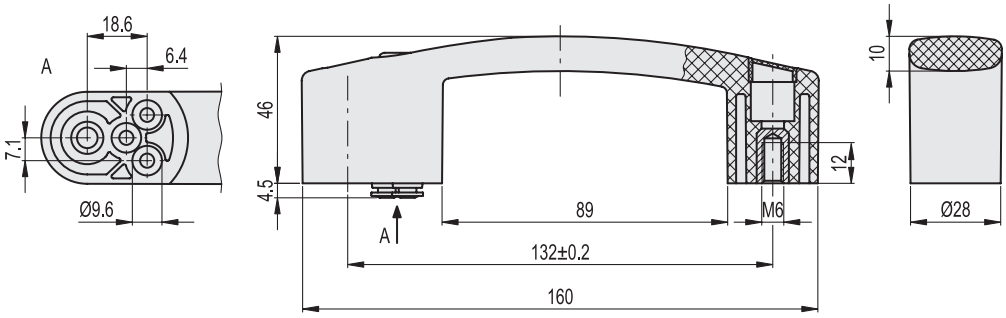
- **EBR-PN-5/2**: the actuation of the button switches the output channel of the air, between the two available.



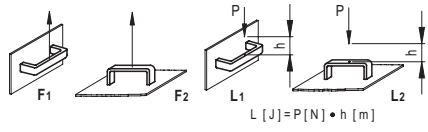
FUNCTIONING
The handle is supplied with quick couplings for direct fitting of a tube Ø 4 mm for pneumatics.
The handle allows the direct drive of a single-acting pneumatic actuator (execution 3.2) or double acting (execution 5.2). The force to be applied to the button for the actuation of the drive is independent from the operating pressure.
The handle is already set up with discharge function of the pressure chamber.

TECHNICAL DATA
Tensile stress and impact strength: the values F1, F2, L1 and L2 indicated in the table were obtained during breaking tests carried out with the appropriate dynamometric equipment under the test conditions shown in the figure with ambient temperature.

Technical features	
Operating medium	Filtered air
Operating pressure	2 ÷ 10 bar
Operating temperature	-20° ÷ +80°C: dry air 0° ÷ +80°C: lubricated air
Normal rated flow	130 Nl/min (6 bar, free exhaust)
Actuation force	22 N (independent from the operating pressure)
Nominal diameter air passage	Ø 2.5 mm



Code	Description	F1 [N]	F2 [N]	L1 [J]	L2 [J]	⚖
260601-C1	EBR.150-PN-3/2-NO	4000	4400	31	13	107
260603-C1	EBR.150-PN-3/2-NC	4000	4400	31	13	107
260611-C1	EBR.150-PN-5/2	4000	4400	31	13	110



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Bridge handles

Technopolymer

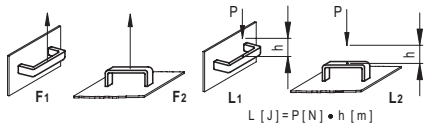
STANDARD EXECUTIONS

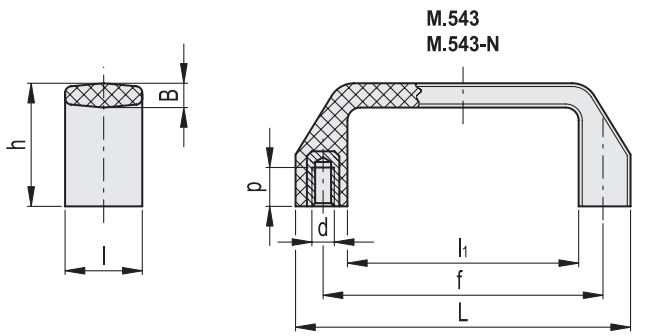
- **M.543**: glass-fibre reinforced polyamide based (PA) technopolymer, black or orange colour, matte finish. Brass boss, threaded blind hole.
- **M.543-N**: glass-fibre reinforced polypropylene based (PP) technopolymer, black colour, matte finish. Brass boss, threaded blind hole.
- **M.543-p**: glass-fibre reinforced polyamide based (PA) technopolymer, black or orange colour, matte finish. Zinc-plated steel threaded stud, chamfered flat end according to UNI 947: ISO 4753 (see Technical Data on page A11).



TECHNICAL DATA

Tensile stress and impact strength: F1, F2, L1 and L2 values reported in the table are the result of breaking tests carried out with the appropriate dynamometric equipment under the test conditions shown in the figure with ambient temperature.





*Complete with colour index, example: 37284 M.543/110 B-M6-C2

C9 RAL9005 C2 RAL2004

M.543

Code C9	Code C2	Description	L	f	d6H	h	B	l	l1	p	F1 [N]	F2 [N]	L1 [J]	L2 [J]	⚖
37283	37284	M.543/110 B-M6-*	107	93.5±0.5	M6	36	6	21	79	10	2000	1800	10	6	36
37287	37289	M.543/120 B-M5-*	120	105±0.5	M5	37	7	23	90	10	2000	1800	10	7	40
37288	37290	M.543/120 B-M6-*	120	105±0.5	M6	37	7	23	90	10	2000	1800	10	7	38
37285	37286	M.543/140 B-M6-*	134	117±0.5	M6	38	7.5	25	102	12	3000	1600	12	9	56
37291	37292	M.543/140 B-M8-*	134	117±0.5	M8	38	7.5	25	102	13	3000	1600	12	9	52
37296	37297	M.543/150 B-M8-*	150	132±0.5	M8	45	7.5	26	116	13	2000	1800	18	16	59
37381	37382	M.543/200 B-M8-*	200	179±1	M8	51	9	28	160	13	3000	2300	24	30	93
37383	37384	M.543/200 B-M10-*	200	179±1	M10	51	9	28	160	13	3200	2500	24	30	88

M.543-N

Code	Description	L	f	d6H	h	B	l	l1	p	F1 [N]	F2 [N]	L1 [J]	L2 [J]	⚖
37280	M.543/140 N-B-M6	134	117±0.5	M6	38	7.5	25	102	12	1900	950	9	4	47

M.543-p

Code C9	Code C2	Description	L	f	d6g	h	h1	B	l	l1	F1 [N]	F2 [N]	L1 [J]	L2 [J]	⚖
37293	37294	M.543/140 p-M6x16-*	134	117±0.5	M6	38	16	7.5	25	102	2200	1400	11	9	56
37387	37388	M.543/200 p-M8x16-*	200	179±1	M8	51	16	9	28	160	3400	2600	24	30	109

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Bridge handles

Technopolymer

STANDARD EXECUTIONS

- **M.443-CH:** glass-fibre reinforced polyamide based (PA) technopolymer, black, orange, grey and red colours, matte finish.

Pass-through holes for cylindrical-head screws with hexagon socket.

- **M.443-N-CH:** glass-fibre reinforced polypropylene based (PP) technopolymer, black colour.

Pass-through holes for cylindrical-head screws with hexagon socket.

- **M.443-SH:** glass-fibre reinforced polyamide based (PA) technopolymer, black colour.

Pass-through holes for countersunk head screws.

- **M.443-EH:** glass-fibre reinforced polyamide based (PA) technopolymer, black colour.

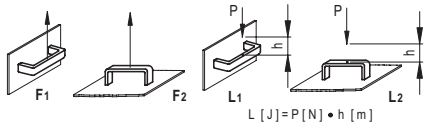
Pass-through holes for cylindrical-head screws with hexagon socket, hexagonal-head screws or standard lock nuts.

TECHNICAL DATA

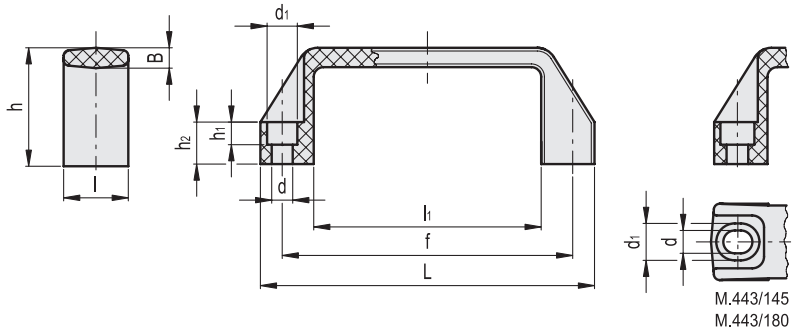
Tensile stress and impact strength: F1, F2, L1 and L2 values reported in the table are the result of breaking tests carried out with the appropriate dynamometric equipment under the test conditions shown in the figure with ambient temperature.



ELESA Original design



M.443-CH



*Complete with colour index, example: 37002 M.443/110-CH-C2

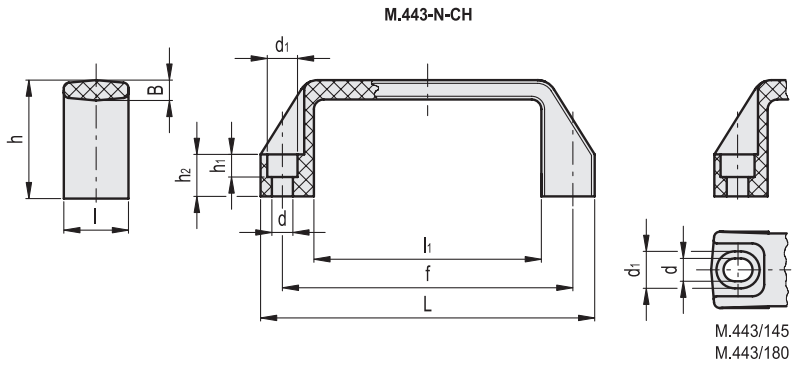
C9	C2	C31	C6
RAL9005	RAL2004	RAL7031	RAL3000

M.443-CH

Code C9	Code C2	Code C31	Code C6	Description	L	f	d	d1	h	h1	h2	B	l	l1	F1 [N]	F2 [N]	L1 [J]	L2 [J]	⚖
37001	37002	37004	37005	M.443/110-CH-*	109	93.5±0.5	6.5	10.5	38	7	13	6	21	74	3500	2500	15	8	26
37111	-	-	-	M.443/140-6-CH-*	137	117±1	6.5	10.5	41	7	15	7	26	93	4500	2500	20	13	44
37101	37102	37104	37105	M.443/140-8-CH-*	137	117±1	8.5	13.5	41	8.5	15	7	26	93	4500	2500	20	13	42
37145	-	-	-	M.443/145-CH-*	142	120÷122±1	8.5	13.5	41	8.5	15	7	26	100	3700	2500	25	14	44
37151	37152	37154	37155	M.443/150-CH-*	150	132±1	8.5	13.5	45	8.5	16	7	27	108	3500	2500	27	14	47
37183	37184	37185	-	M.443/170-CH-*	160	140±1	8.5	13.5	46	8.5	16	7	27	113	3400	2600	27	20	50
37191	37192	37193	-	M.443/180-CH-*	172	149÷152±1	8.5	13.5	47	8.5	17	7	27	125	3000	2700	27	20	53
37241	37242	37244	-	M.443/190-CH-*	179	160±1	8.5	13.5	50	8.5	17	7.5	28	132	3300	2700	29	20	60
37201	37202	37204	37205	M.443/200-CH-*	196	179±1	8.5	13.5	50	8.5	17	7.5	28	151	2800	2700	33	20	70
37251	37252	37254	-	M.443/260-CH-*	260	235±1	10.5	16.5	54	10.5	20	8.5	30	201	3200	3500	40	34	118

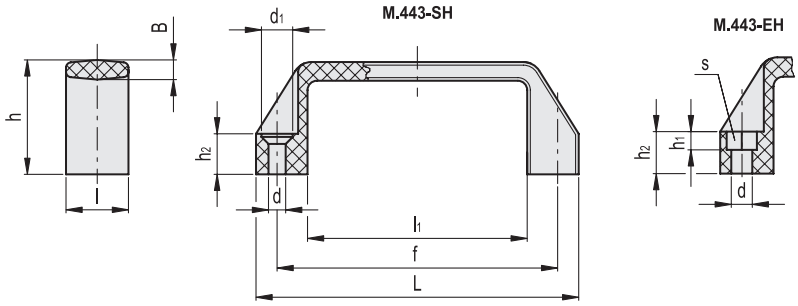
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M.443 Bridge handles



M.443-N-CH

Code	Description	L	f	d	d1	h	h1	h2	B	l	l1	F1 [N]	F2 [N]	L1 [J]	L2 [J]	⚖
37031	M.443/110 N-CH	109	93.5±0.5	6.5	10.5	38	7	13	6	21	74	1700	1300	8	3	21
37132	M.443/140 6-N-CH	137	117±1	6.5	10.5	41	7	15	7	26	93	2000	1500	10	4	36
37131	M.443/140 8-N-CH	137	117±1	8.5	13.5	41	8.5	15	7	26	93	2000	1500	10	4	34
37143	M.443/145-6-N-CH	142	120÷122±1	6.5	13.5	41	8.5	15	7	26	100	1600	1500	12	5	37
37144	M.443/145 N-CH	142	120÷122±1	8.5	13.5	41	8.5	15	7	26	100	1600	1500	12	5	36
37181	M.443/150 N-CH	150	132±1	8.5	13.5	45	8.5	16	7	27	108	2000	1300	12	5	40
37186	M.443/170 N-CH	160	140±1	8.5	13.5	46	8.5	16	7	27	113	1800	1300	13	6	44
37196	M.443/180 N-CH	172	149÷152±1	8.5	13.5	47	8.5	17	7	27	125	1800	1300	14	7	46
37246	M.443/190 N-CH	179	160±1	8.5	13.5	50	8.5	17	7.5	28	132	1800	1300	15	7	54
37231	M.443/200 N-CH	196	179±1	8.5	13.5	50	8.5	17	7.5	28	151	1800	1300	16	8	62
37281	M.443/260 N-CH	260	235±1	10.5	16.5	54	10.5	20	8.5	30	201	1700	1700	17	11	92



M.443-SH

Code	Description	L	f	d	d1	h	h2	B	l	l1	F1 [N]	F2 [N]	L1 [J]	L2 [J]	⚖
37036	M.443/110-SH	109	93.5±0.5	5.5	10	38	13	6	21	74	3500	2500	16	6	24
37136	M.443/140-SH	137	117±1	6.5	12	41	15	7	26	93	4500	2500	17	7	44
37146	M.443/145-SH	142	122±1	6.5	12	41	15	7	26	100	3700	2500	25	14	45
37187	M.443/170-SH	160	140±1	6.5	12	46	16	7	27	113	3400	2600	27	20	64
37199	M.443/180-SH	172	150±1	6.5	12	47	17	7	27	125	3000	2600	27	15	54
37247	M.443/190-SH	179	160±1	6.5	12	50	17	7	28	132	3300	2700	29	20	70
37236	M.443/200-SH	196	179±1	6.5	12	50	17	7.5	28	151	3500	2700	22	15	72

M.443-EH

Code	Description	L	f	d	s	h	h1	h2	B	l	l1	F1 [N]	F2 [N]	L1 [J]	L2 [J]	⚖
37037	M.443/110-EH-5	109	93.5±0.5	5.5	8	38	6	13	6	21	74	3500	2500	15	8	27
37137	M.443/140-EH-6	137	117±1	6.5	10	41	6	15	7	26	93	4500	2500	20	13	44
37141	M.443/145-EH-6	142	122±1	6.5	10	41	6.5	15	7	26	100	3700	2500	25	14	45
37189	M.443/170-EH-6	160	140±1	6.5	10	46	6.5	16	7	27	113	3400	2600	27	20	51
37198	M.443/180-EH-6	172	150±1	6.5	10	47	6.5	17	7	27	125	3000	2600	27	15	54
37249	M.443/190-EH-6	179	160±1	6.5	10	50	6.5	17	7	28	132	3300	2700	29	20	57

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M.443 AE-V0

Bridge handles

Self-extinguish technopolymer

MATERIAL

Glass-fibre reinforced polyamide based (PA) technopolymer certified self-extinguish UL-94 V0, black colour, matte finish.

STANDARD EXECUTION

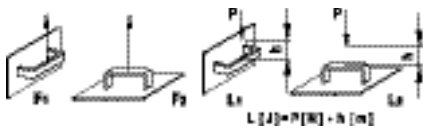
Pass-through holes for cylindrical-head screws with hexagon socket.

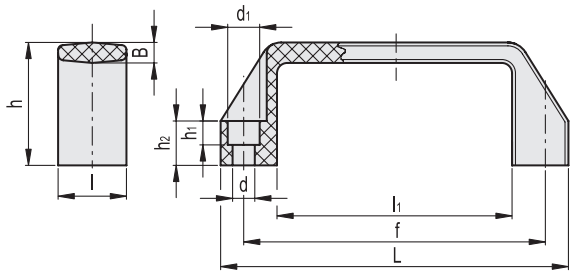
TECHNICAL DATA

In long-term thermal ageing tests, with a maximum decrease in critical mechanical properties by 50%, the relative temperature index UL 746 B (RTI) was equal to 65.
The "V0" certification in accordance with UL-94 V (Underwriters Laboratories) (see Technical Data on page A5) indicates that on a plastic test sample with specific shape and dimensions, in the vertical position, the flame is extinguished within 10 seconds, without generating any incandescent drops.
Tensile stress and impact strength: F1, F2, L1 and L2 values reported in the table are the result of breaking tests carried out with the appropriate dynamometric equipment under the test conditions shown in the figure with ambient temperature.



ELESA Original design





Code	Description	L	f	d	d1	h	h1	h2	B	l	l1	F1 [N]	F2 [N]	L1 [J]	L2 [J]	⚖
150001	M.443/110 AE-V0	109	93.5±0.5	6.5	10.5	38	7	13	6	21	74	1750	1700	9	5	28
150012	M.443/140-6 AE-V0	137	117±1	6.5	10.5	41	7	15	7	26	93	3500	2200	10	8	51
150011	M.443/140 AE-V0	137	117±1	8.5	13.5	41	8.5	15	7	26	93	3500	2200	10	8	50
150021	M.443/150 AE-V0	150	132±1	8.5	13.5	45	8.5	16	7	27	108	3000	1800	12	8	55
150031	M.443/200 AE-V0	196	179±1	8.5	13.5	50	8.5	17	7.5	28	151	1400	2100	20	13	80

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M.443 ESD

Bridge handles

ESD conductive technopolymer

MATERIAL

Glass-fibre reinforced polyamide based (PA) special conductive technopolymer, black colour, matte finish. 10^3 Ω surface resistivity (ASTM D257 trial method), 10^3 Ωcm volume resistivity (ASTM D257 trial method).

STANDARD EXECUTION

Pass-through holes for cylindrical-head screws with hexagon socket.

FEATURES AND APPLICATIONS

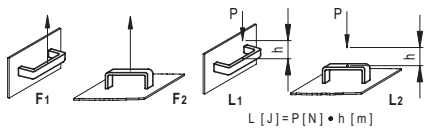
The special conductive technopolymer (ESD-C Electrostatic Discharge Conductive) prevents the accumulation of electrostatic charge. M.443-ESD handles are suitable for ESD PROTECTED AREA (EPA) where components which are susceptible to electrostatic discharges are to be handled with the minimum risk of damage. The indelibly printed mark (ESD-C) on the surface of the handle identifies the particular conductivity feature according to EN 100015/1 and IEC 61340-5-1.

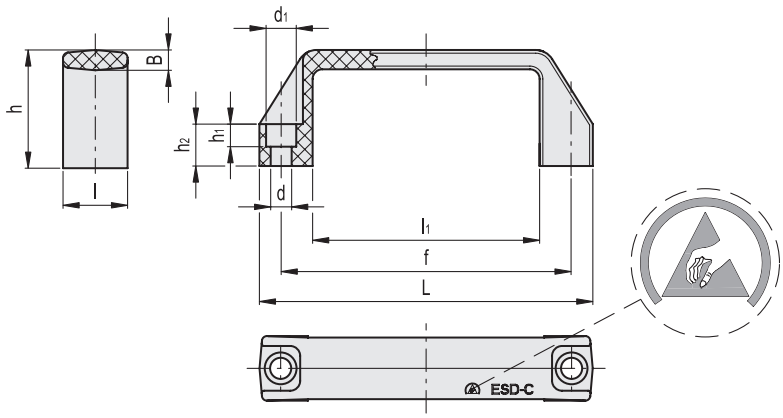
TECHNICAL DATA

Tensile stress and impact strength: F1, F2, L1 and L2 values reported in the table are the result of breaking tests carried out with the appropriate dynamometric equipment under the test conditions shown in the figure with ambient temperature.



ELESA Original design





Code	Description	L	f	d	d1	h	h1	h2	B	l	l1	F1 [N]	F2 [N]	L1 [J]	L2 [J]	⚖
154601	M.443/110-CH-ESD-C	109	93.5±0.5	6.5	10.5	38	7	13	6	21	74	3500	2500	15	8	21
154611	M.443/140-8-CH-ESD-C	137	117±1	8.5	13.5	41	8.5	15	7	26	93	4500	2500	20	13	34

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Flat cabinet "U" handles

Aluminium

SPECIFICATION

Types

- Type **A**: Mounting from the back (threaded blind bore)
- Type **B**: Mounting from the operator's side

Aluminium

plastic coated
black, RAL 9005, textured finish **SW**
blank, tumbled **BL**

Handle base
Plastic
Technopolymer (Polyamide PA)
black, matt



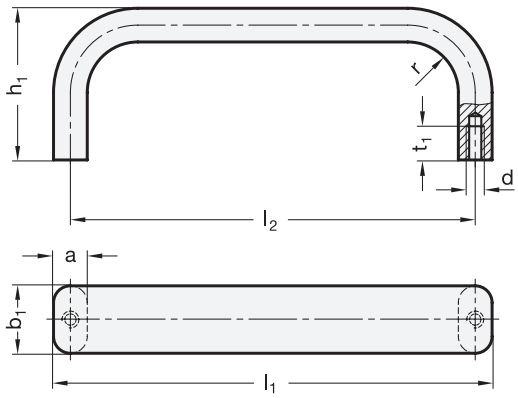
INFORMATION

Cabinet handles GN 668 are produced from aluminium extrusions. They can be mounted either from the back (type A) or by means of the handle base from the operator's side (type B).
The manufacturing process (bending) allows the production of **special lengths** in relatively small quantities.

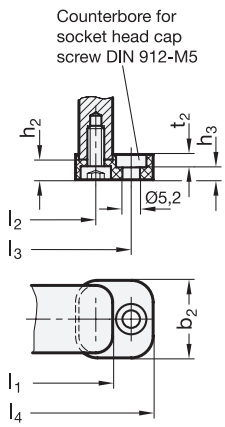
TECHNICAL INFORMATION

- Load rating information (see page A35)

Type **A**



Type **B**



*Complete with colour index of the Cabinet "U" handles (SW or BL)

SW	BL
RAL9005	blank

GN 668

Description	b1	l1 ±0.25	a	b2	d	h1	h2	h3	l2	l3	l4	r	t1 min.	t2	⚖
GN 668-20-130-A-*	20	130	10	-	M 5	45	-	-	120	-	-	15	10	-	89
GN 668-20-170-A-*	20	170	10	-	M 5	45	-	-	160	-	-	15	10	-	111
GN 668-20-190-A-*	20	190	10	-	M 5	45	-	-	180	-	-	15	10	-	120
GN 668-20-210-A-*	20	210	10	-	M 5	45	-	-	200	-	-	15	10	-	125
GN 668-30-262-A-*	30	262	12	-	M 6	50	-	-	250	-	-	15	12	-	289
GN 668-30-312-A-*	30	312	12	-	M 6	50	-	-	300	-	-	15	12	-	334
GN 668-30-362-A-*	30	362	12	-	M 6	50	-	-	350	-	-	15	12	-	380
GN 668-30-412-A-*	30	412	12	-	M 6	50	-	-	400	-	-	15	12	-	425
GN 668-20-130-B-*	20	130	10	23	M 5	45	6.5	2	120	141	153	15	-	5.5	100
GN 668-20-170-B-*	20	170	10	23	M 5	45	6.5	2	160	181	193	15	-	5.5	120
GN 668-20-190-B-*	20	190	10	23	M 5	45	6.5	2	180	201	213	15	-	5.5	130
GN 668-20-210-B-*	20	210	10	23	M 5	45	6.5	2	200	221	233	15	-	5.5	136

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GN 728

Cabinet "U" handles

Aluminium

SPECIFICATION

Types

- Type **A**: Mounting from the back (threaded blind bore)
- Type **B**: Mounting from the operator´s side

Aluminium pressure die casting

plastic coated
black, RAL 9005, textured finish **SW**
silver, RAL 9006, textured finish **SR**

blank, tumbled **BL**

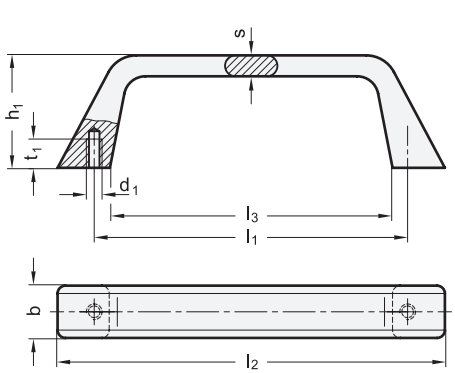
INFORMATION

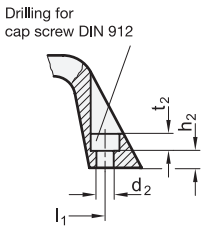
The installation of cabinet "U" handles GN 728 can be carried out from the back (Type A) as well as from the operator's side (Type B). The hole centers dimension is identical on all variants. As a result they can be mounted in pairs opposite each other.

TECHNICAL INFORMATION

- Load rating information (see page A35)







*Complete with colour index of the Cabinet "U" handles (SW, SR or BL)

SW RAL9005 SR RAL9006 BL blank

GN 728

Description	l1 ±0.25	b	d1	d2	d3	h1	h2	l2	l3	s	t1 min.	t2	⚖
GN 728-120-A-*	120	22.5	M 6	-	11	42.5	-	147	108	8	10	-	90
GN 728-180-A-*	180	27	M 8	-	13.5	47.5	-	214	165	10	12	-	180
GN 728-120-B-*	120	22.5	-	6.4	11	42.5	6.5	147	108	8	-	6.5	80
GN 728-180-B-*	180	27	-	8.4	13.5	47.5	7.5	214	165	10	-	8.5	172

GN 728.5

Stainless Steel-Cabinet "U" handles

SPECIFICATION

Types

- Type **A**: Mounting from the back (threaded blind bore)
- Type **B**: Mounting from the operator's side

Stainless Steel AISI CF-8

- Precision casting
- matt shot-blasted

INFORMATION

The installation of cabinet "U" handles GN 728.5 can be carried out from the back (Type A) as well as from the operator's side (Type B). The hole centers dimension is identical on all variants. As a result they can be mounted in pairs opposite each other.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)
- Load rating information (see page A35)

GN 728.5 STAINLESS STEEL

Description	l1 ±0.25	b	d1	d2	d3	h1	h2	l2	l3	s	t1 min.	t2	⚖
GN 728.5-120-A	120	22.5	M 6	-	11	42.5	-	147	108	8	10	-	300
GN 728.5-120-B	120	22.5	-	6.4	11	42.5	6.5	147	108	8	-	8.5	252

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RoHS PA +130° -30°

Rack handles

Technopolymer

MATERIAL
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

STANDARD EXECUTIONS
- **M.943-B:** brass bosses, threaded blind holes.
- **M.943-AF:** blind holes for self-tapping screws Ø 4.8 (UNI ISO 7049). Maximum torque recommended 5 Nm.

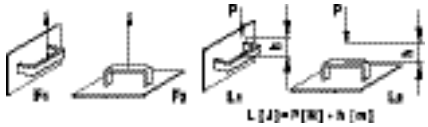
FEATURES AND APPLICATIONS
Suitable for applications on a 19" rack and instruments in general.
In the column HE of the table below the height units of the front panel are contained: 1 HE = 44.45 mm (1 6/8") to enable you to choose the correct handles.

TECHNICAL DATA
Tensile stress and impact strength: F1, F2, L1 and L2 values reported in the table are the result of breaking tests carried out with the appropriate dynamometric equipment under the test conditions shown in the figure with ambient temperature.

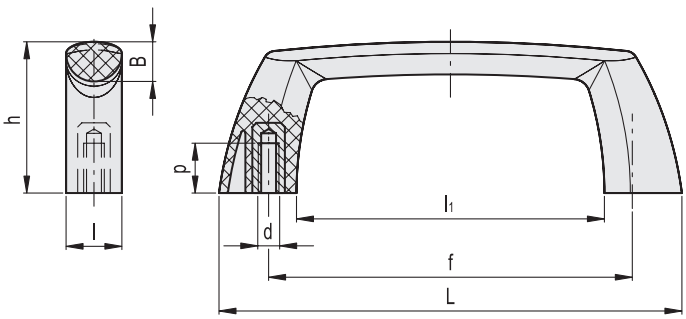
SPECIAL EXECUTIONS ON REQUEST
- RAL 7031 grey colour handle, matte finish.
- Chrome-plated handle, matte finish.



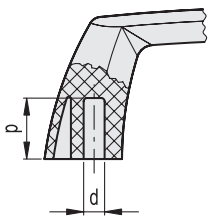
ELESA Original design



M.943-B



M.943-AF



Code	Description	L	f	d	h	B	l	l1	p	HE	F1 [N]	F2 [N]	L1 [J]	L2 [J]	⚖
137901	M.943-112-B-M5	112	88±0.5	M5	36.5	9	13.5	74.5	10	3	2000	2200	11	9	26
137921	M.943-144-B-M5	144	120±0.5	M5	42	11	15	105	10	4	2000	2200	11	9	34
137906	M.943-112-AF-4.8	112	88±0.5	4.5	36.5	9	13.5	74.5	14	3	2000	2200	11	9	21
137926	M.943-144-AF-4.8	144	120±0.5	4.5	42	11	15	105	14	4	2000	2200	11	9	29

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GN 565.3

Cabinet "U" handles

Aluminium

SPECIFICATION

Types

- Type **A**: Mounting from the back (threaded blind bore)
- Type **B**: Mounting from the operator's side

Aluminium

plastic coated
black, RAL 9005, textured finish **SW**
silver, RAL 9006, textured finish **SR**

anodized, natural colour **EL**

blank, tumbled **BL**

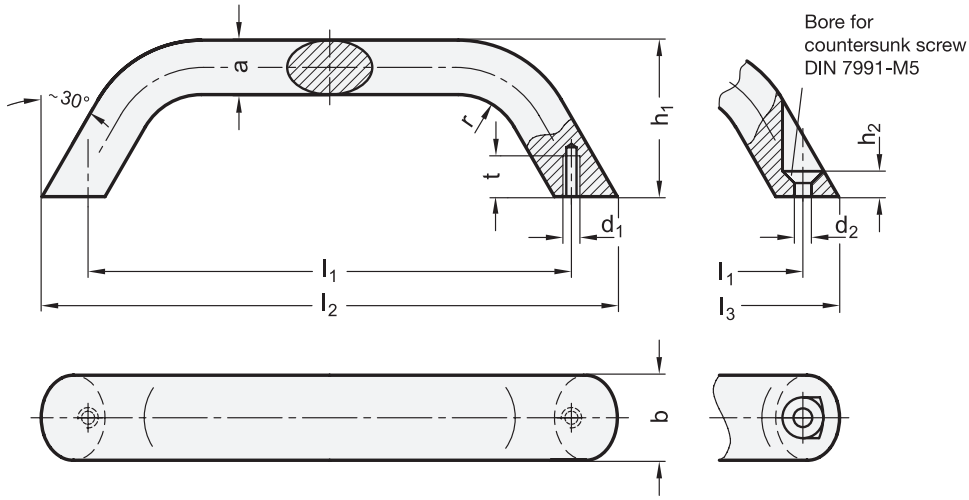


INFORMATION

Cabinet "U" handles GN 565.3 are suitable for applications where lower „lifting forces are required such as on lids or protective machine covers.
The countersunk holes of type B allow fixing with self tapping screws or countersunk rivets.
The manufacturing process (bending) allows the production of **special lengths** in relatively small quantities.

TECHNICAL INFORMATION

- Load rating information (see page A35)



*Complete with colour index of the Cabinet "U" handles (SW, SR, EL or BL)

SW	SR	EL	BL
RAL9005	RAL9006	anodized	blank

GN 565.3

Description	b	l1 ±0.25	l2	l3 ≈	a	d1	d2	h1	h2	r	t min.	⚖
GN 565.3-20-120-A-*	20	120	142	-	13	M 5	-	41	-	13	10	86
GN 565.3-20-160-A-*	20	160	182	-	13	M 5	-	45	-	13	10	115
GN 565.3-20-120-B-*	20	120	-	137	13	-	5.3	41	5	13	10	82
GN 565.3-20-160-B-*	20	160	-	177	13	-	5.3	45	5	13	10	101

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GN 423

RoHS

Rack Handles

SPECIFICATION

Types

- Type **A**: Mounting from the back (Self-tapping screws)
- Type **B**: Mounting from the operators side

Handle bar
Aluminium

Handle shanks
Plastic (Polyamide PA)

- glas fibre reinforced
- temperature resistant up to 130 °C

Handle bar **ELS**
anodized, natural colour
Handle shanks
black, matt

Handle bar **ESS**
anodized, black
Handle shanks
black, matt

Handle bar **ELG**
anodized, natural colour
Handle shanks
light grey, matt

Cylinder head screws DIN 912-M5-45
Steel, zinc plated, black

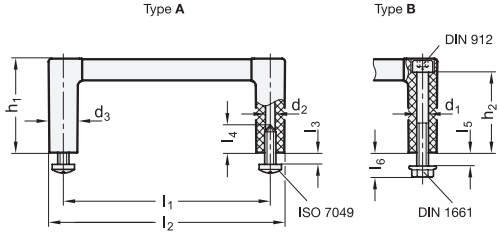
Flange nuts DIN 1661-M5
Steel, zinc plated, blue passivated

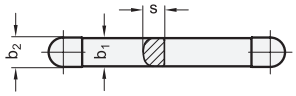
Self-tapping screws ISO 7049
Steel zinc plated ST 4.8-19



INFORMATION

The dimensisons of the Rack Handles GN 423 have been designed to match a 19" rack and ennclosure layout.
Handle bar and handle shanks are interconnected via a plug-type connection, with the effect that special lengths are easily realised.
Thanks to the fixing screws included in the set, the Rack Handles are easily and economically mounted.





*Complete with Finish of the Rack handles (ELS, ESS or ELG)

ELS	ESS	ELG
anodized, black	completely black	anodized, light grey

GN 423

Description	b1	l1 ±0.25	b2	d1	d2	d3	h1	h2	l2	l3 max.	l4 min.	l5 max.	l6	s	HE	⚖
GN 423-12-55-A-*	12	55	12.5	M 5	-	12.5	40	34.5	67.5	5	-	5	10.5	9	2	25
GN 423-12-88-A-*	12	88	12.5	M 5	-	12.5	40	34.5	100.5	5	-	5	10.5	9	3	31
GN 423-12-100-A-*	12	100	12.5	M 5	-	12.5	40	34.5	112.5	5	-	5	10.5	9	3	34
GN 423-12-120-A-*	12	120	12.5	M 5	-	12.5	40	34.5	132.5	5	-	5	10.5	9	4	37
GN 423-12-180-A-*	12	180	12.5	M 5	-	12.5	40	34.5	192.5	5	-	5	10.5	9	5	50
GN 423-12-235-A-*	12	235	12.5	M 5	-	12.5	40	34.5	247.5	5	-	5	10.5	9	6	59
GN 423-12-55-B-*	12	55	12.5	-	4.3	12.5	40	34.5	67.5	5	14	5	10.5	9	2	37
GN 423-12-88-B-*	12	88	12.5	-	4.3	12.5	40	34.5	100.5	5	14	5	10.5	9	3	42
GN 423-12-100-B-*	12	100	12.5	-	4.3	12.5	40	34.5	112.5	5	14	5	10.5	9	3	45
GN 423-12-120-B-*	12	120	12.5	-	4.3	12.5	40	34.5	132.5	5	14	5	10.5	9	4	48
GN 423-12-180-B-*	12	180	12.5	-	4.3	12.5	40	34.5	192.5	5	14	5	10.5	9	5	59
GN 423-12-235-B-*	12	235	12.5	-	4.3	12.5	40	34.5	247.5	5	14	5	10.5	9	6	66

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GN 428

Cabinet "U" handles

Aluminium



SPECIFICATION

Types

- Type **A**: Mounting from the back (threaded blind bore)
- Type **B**: Mounting from the operator's side

Aluminium **AL**

- plastic coated, black RAL 9005, textured finish **SW**
- anodized, natural colour **EL**

Type B

- Lens screws ISO 7380
- Hexagon nuts ISO 4032
- Washers DIN 125

Stainless Steel AISI 304

INFORMATION

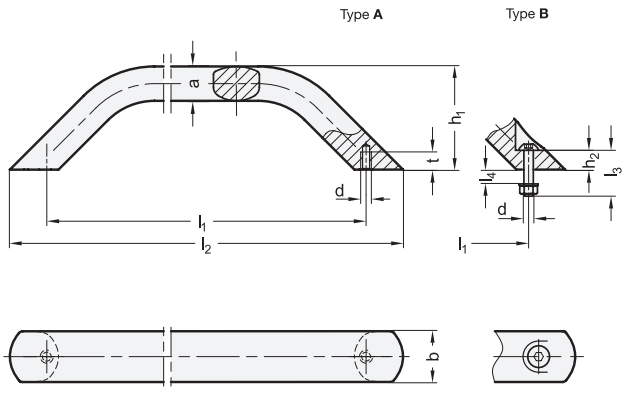
Cabinet "U" handles GN 428 are produced from profiled aluminum extrusions.
The manufacturing process (bending) allows the production of **special lengths** in relatively small quantities.
In type B lens screws, hexagon nuts and washers are included parts of the order.

ON REQUEST

- other finishes

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



* Complete with colour index of the Cabinet "U" handles (SW or EL)

SW RAL9005 EL anodized

GN 428

Description	b	l1	a	d	h1	h2	l2	l3	l4	t	⚖
GN 428-AL-28-250-A-*	28	250	18	M 8	63	-	290	-	-	10	340
GN 428-AL-28-300-A-*	28	300	18	M 8	63	-	340	-	-	10	391
GN 428-AL-28-400-A-*	28	400	18	M 8	63	-	440	-	-	10	505
GN 428-AL-36-300-A-*	36	300	26	M 10	71	-	355	-	-	14	740
GN 428-AL-36-400-A-*	36	400	26	M 10	71	-	455	-	-	14	948
GN 428-AL-36-500-A-*	36	500	26	M 10	71	-	555	-	-	14	1160
GN 428-AL-36-600-A-*	36	600	26	M 10	71	-	655	-	-	14	1300
GN 428-AL-36-800-A-*	36	800	26	M 10	71	-	855	-	-	14	1882
GN 428-AL-28-250-B-*	28	250	18	M 8	63	11.8	290	30	10	-	369
GN 428-AL-28-300-B-*	28	300	18	M 8	63	11.8	340	30	10	-	425
GN 428-AL-28-400-B-*	28	400	18	M 8	63	11.8	440	30	10	-	535
GN 428-AL-36-300-B-*	36	300	26	M 10	71	16.6	355	40	13	-	774
GN 428-AL-36-400-B-*	36	400	26	M 10	71	16.6	455	40	13	-	1000
GN 428-AL-36-500-B-*	36	500	26	M 10	71	16.6	555	40	13	-	1250
GN 428-AL-36-600-B-*	36	600	26	M 10	71	16.6	655	40	13	-	1500
GN 428-AL-36-800-B-*	36	800	26	M 10	71	16.6	855	40	13	-	1820

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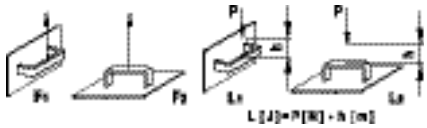
Bridge handle

Technopolymer

MATERIAL
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, glossy finish.

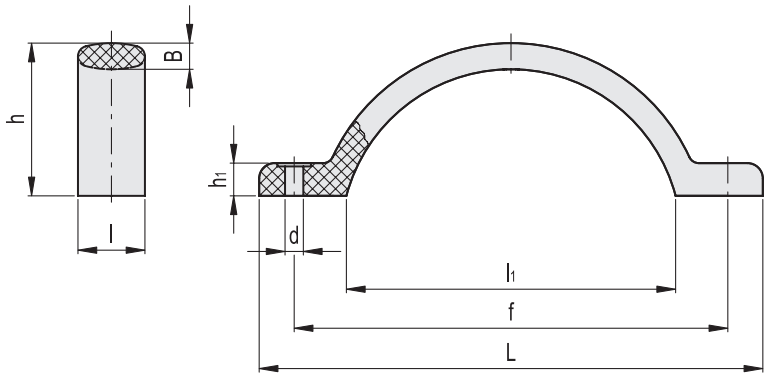
STANDARD EXECUTION
Pass-through holes for screws or rivets.

TECHNICAL DATA
Tensile stress and impact strength: the values F1, F2, L1 and L2 indicated in the table were obtained during breaking tests carried out with the appropriate dynamometric equipment under the test conditions shown in the figure with ambient temperature.





ELESA Original design



Code	Description	L	f	d	h	h1	B	l	l1	F1 [N]	F2 [N]	L1 [J]	L2 [J]	⚖
37451	M.478/150-6	173	150±0.5	6	52.5	9	9	23	113	1800	4500	18	8	46

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M.479

Bridge handle

Technopolymer



ELESA Original design

MATERIAL

Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, glossy finish.

SCREW-COVERS

Technopolymer in six standard colours, matte finish. Supplied with the handle, removable by a screwdriver.
Available also as accessories sold separately (see table ECA.).

Code	Description	Cap for
29831-*	ECA.B1-*	M.479/150

* Complete with colour index (C1, ..., C6).

STANDARD EXECUTIONS

- **M.479/150-8:** pass-through holes for cylindrical-head screws with hexagon socket.

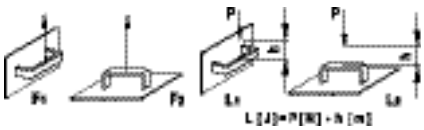
Screw covers to be press-fit assembled.

- **M.479/150 B-M8:** brass bosses, threaded holes.

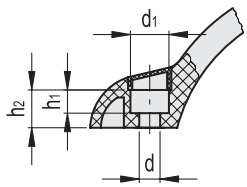
Screw covers supplied assembled.

TECHNICAL DATA

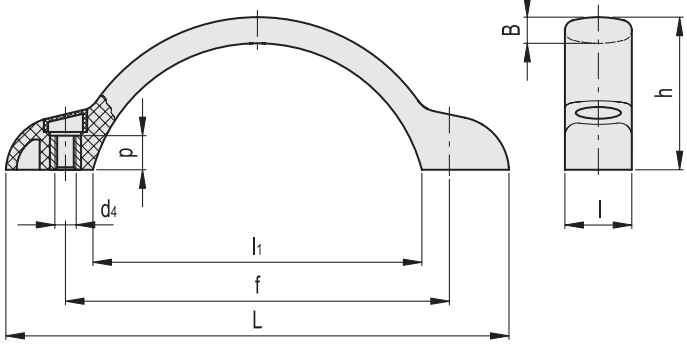
Tensile stress and impact strength: F1, F2, L1 and L2 values reported in the table are the result of breaking tests carried out with the appropriate dynamometric equipment under the test conditions shown in the figure with ambient temperature.



M.479/150-8



M.479/150 B-M8





*Complete with colour index, example: 37461-C2 M.479/150-8-C2

C1 RAL7021 | C2 RAL2004 | C3 RAL7035 | C4 RAL1021 | C5 RAL5024 | C6 RAL3000

Code	Description	L	f	d4	d	d1	h	h1	h2	B	l	l1	p	F1 [N]	F2 [N]	L1 [J]	L2 [J]	⚖
37461-*	M.479/150-8-*	173	132±0.5	-	8.5	13.5	52.5	8.5	13	9	23	113	-	2100	2600	15	7	49
37466-*	M.479/150 B-M8-*	173	132±0.5	M8	-	-	52.5	-	-	9	23	113	12	2100	2600	15	7	57

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Cabinet "U" handles

Aluminum

SPECIFICATION

Types

- Type **A**: closed type
- Type **B**: open ended type, mounting from the back (threaded blind bore)
- Type **C**: open ended type, mounting from the operator´s side

Aluminium
plastic coated
black, RAL 9005, textured finish **SW**
silver, RAL 9006, textured finish **SR**

Cap (type C)
Plastic
black for SW
light grey for SR

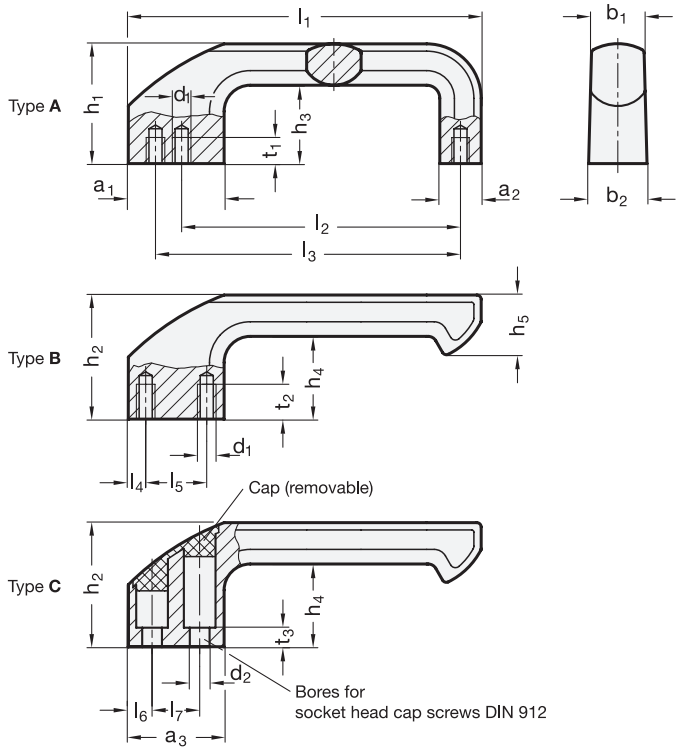


INFORMATION

A special characteristic of the Handle GN 559 is the thumb rest pad on the front of the leg.
At the same time the extended leg offers an open ended version with wide access.
Handles GN 559 are known for their high stability. They are fixed by two M8 screws whereby type A offers two alternative hole centers (l_2 or l_3).

TECHNICAL INFORMATION

- Load rating information (see page A35)



*Complete with colour index of the Cabinet "U" handles (SW or SR)

SW RAL9005 SR RAL9006

GN 559

Description	l1 ±0.25	a1	a2	a3	b1	b2	d1	d2	h1	h2	h3	h4	h5	l2	l3 ±0.2	l4	l5	l6	l7	t1 min.	t2 min.	t3	⚖
GN 559-162-A-*	162	38	19	-	25	28	M 8	-	55	-	36	-	-	128	140	-	-	-	-	12	-	-	254
GN 559-162-B-*	162	-	-	40	25	28	M 8	-	-	57	-	38	28	-	-	8	22	-	-	-	16	-	237
GN 559-162-C-*	162	-	-	40	25	28	-	8.3	-	57	-	38	28	-	-	-	-	10	20	-	-	8	223

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GN 424.1

Arch handles

Steel

SPECIFICATION

Steel

plastic coated
black, RAL 9005, textured finish **SW**
silver, RAL 9006, textured finish **SR**

chrome-plated **CR**

TECHNICAL INFORMATION

- Load rating information (see page A35)

GN 424.5

Stainless Steel-Arch handles

SPECIFICATION

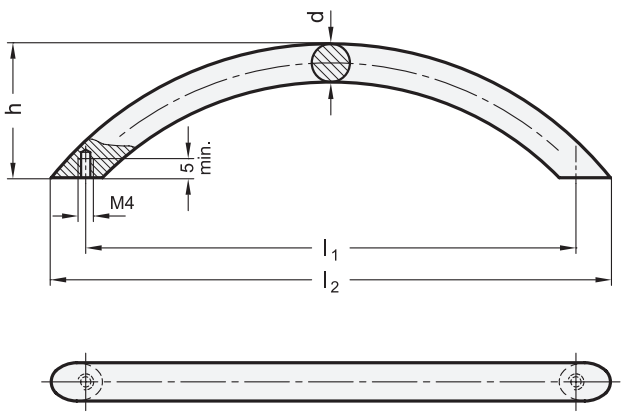
Stainless Steel AISI 303
matt brushed

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)
- Load rating information (see page A35)







* Complete with colour index of the Arch handles (SW, SR or CR)

SW RAL9005 | SR RAL9006 | CR chrome-plated

GN 424.1

Description	d	l1	l2 ≈	h ≈	⚖
GN 424.1-10-64-*	10	64 ±0.25	75	35	59
GN 424.1-10-96-*	10	96 ±0.25	111	35	72
GN 424.1-10-128-*	10	128 ±0.25	146	35	85
GN 424.1-10-160-*	10	160 ±0.25	181	35	100
GN 424.1-10-192-*	10	192 ±0.35	219	35	132

GN 424.5 **STAINLESS STEEL**

Description	d	l1	l2 ≈	h ≈	⚖
GN 424.5-10-64	10	64 ±0.25	75	35	58
GN 424.5-10-96	10	96 ±0.25	111	35	73
GN 424.5-10-128	10	128 ±0.25	146	35	89
GN 424.5-10-160	10	160 ±0.25	181	35	109
GN 424.5-10-192	10	192 ±0.35	219	35	127

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RoHS

Arch handles

Aluminium

SPECIFICATION

Types

- Type **A**: Mounting from the back (threaded blind bore)
- Type **B**: Mounting from operator´s side

Aluminium

plastic coated
black, RAL 9005, textured finish **SW**
red, RAL 3000, textured finish **RS**
silver, RAL 9006, textured finish **SR**

anodized, natural colour **EL**

blank, tumbled **BL**

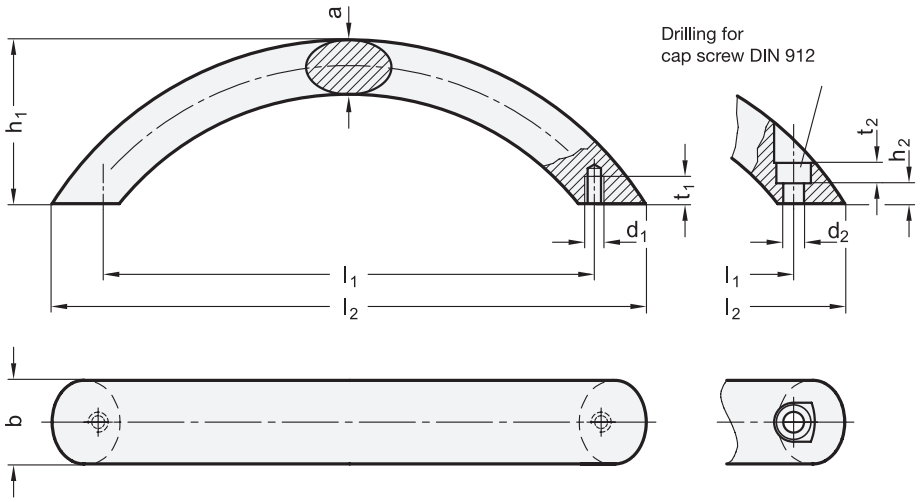


INFORMATION

The manufacturing process (bending) allows the production of **special lengths** in relatively small quantities.

TECHNICAL INFORMATION

- Load rating information (see page A35)



* Complete with colour index of the Arch handles (SW, RS, SR, EL or BL)

SW	RS	SR	EL	BL
RAL 9005	RAL 3000	RAL 9006	anodized	blank

GN 565.4

Description	b	l1 ±0.25	l2 ≈	a	d1	d2	h1	h2	t1	t2	⚖
GN 565.4-20-160-A-*	20	160	185	13	M 6	-	50	-	8	-	106
GN 565.4-20-192-A-*	20	192	221	13	M 6	-	50	-	8	-	123
GN 565.4-26-160-A-*	26	160	190	17	M 8	-	57	-	11	-	188
GN 565.4-26-192-A-*	26	192	227	17	M 8	-	57	-	11	-	220
GN 565.4-20-160-B-*	20	160	185	13	-	5.3	50	5	-	5	108
GN 565.4-20-192-B-*	20	192	221	13	-	5.3	50	5	-	5	117
GN 565.4-26-160-B-*	26	160	190	17	-	6.4	57	6	-	6	190
GN 565.4-26-192-B-*	26	192	227	17	-	6.4	57	6	-	6	209

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GN 665

Arch handles

Aluminium

SPECIFICATION

Arch handle
Aluminium
plastic coated
black, RAL 9005, textured finish **SW**
silver, RAL 9006, textured finish **SR**

End pieces (for SW and SR)
Zinc die casting
plastic coated
silver, RAL 9006, textured finish

Grub screw
Steel, tensile strength class 5.8 (500 N/mm^2)
zinc plated, blue passivated

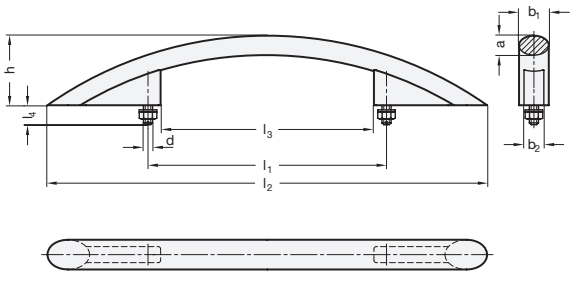
Hexagon nuts ISO 4032-M8
Steel, zinc plated

Washers DIN 125
Steel, zinc plated

TECHNICAL INFORMATION

- Load rating information (see page A35)





GN 565.9

Stainless Steel-Arch handles

SPECIFICATION

Types

- Type **A**: Mounting from the back (threaded blind bore)
- Type **B**: Mounting from the operator's side

Stainless Steel AISI 304
matt shot-blasted **MT**

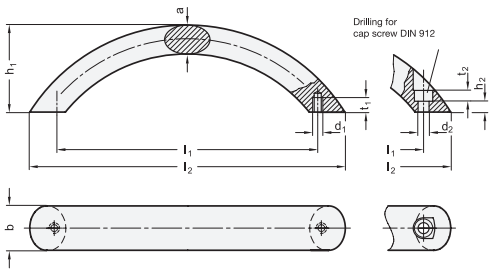
INFORMATION

The manufacturing process (bending) allows the production of **special lengths** in relatively small quantities.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)
- Load rating information (see page A35)





GN 665

Description	b1	l1 ±0.25	a	b2	d	h -1	l2 ≈	l3	l4 ≈	⚖
GN 665-26-350-SW	26	350	17	14	M 8	69	526	328	17	621
GN 665-26-450-SW	26	450	17	14	M 8	69	632	428	20	699
GN 665-26-350-SR	26	350	17	14	M 8	69	526	328	17	621
GN 665-26-450-SR	26	450	17	14	M 8	69	632	428	20	699

GN 565.9 **STAINLESS STEEL**

Description	b	l1 ±0.25	l2 ≈	a	d1	d2	h1	h2	t1 min.	t2	⚖
GN 565.9-20-160-A-MT	20	160	185	13	M 6	-	50	-	8	-	318
GN 565.9-20-192-A-MT	20	192	221	13	M 6	-	50	-	8	-	366
GN 565.9-20-160-B-MT	20	160	185	13	-	5.3	50	5	-	5	306
GN 565.9-20-192-B-MT	20	192	221	13	-	5.3	50	5	-	5	350

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Finger handles

Technopolymer

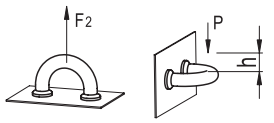
MATERIAL
Polyamide based (PA) technopolymer.

STANDARD EXECUTIONS
Blind holes for fitting by means of no. 2 self-tapping screws for plastic materials Ø3.5 (UNI ISO 7049), not included in the supply.
Maximum tightening torque of the self-tapping screws 1,2 [Nm].
- **MFH-AF**: in 4 standard colours: black, orange, grey, red, matte finish.
- **MFH-AF-CLEAN**: white colour similar to RAL 9002, matte finish.
- **MFH-CR**: chrome-plated, matte finish.

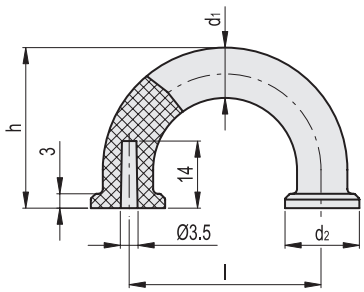
CHEMICAL AGENTS RESISTANCE (FOR MFH-CR)
The chrome-plating makes the surface finish semi-glossy and homogeneous to facilitate cleaning operations.
The chrome-plated surface is resistant to wear, scrapes and shocks.
Laboratory tests carried out at ambient temperature (23°C) proved the resistance of the surface to: detergents, acetone, ethyl alcohol, formic acid, chlorine solutions.

TECHNICAL DATA
Tensile stress and impact strength: the values F2 and L1 indicated in the table were obtained during breaking tests carried out with the appropriate dynamometric equipment under the test conditions shown in the figure with ambient temperature.





$L_1 [J] = P [N] \cdot h [m]$



*Complete with colour index, example: 138201-C2 MFH-30-AF 3.5-C2

C9	C2	C3	C6
RAL9005	RAL2004	RAL7035	RAL3000

MFH-AF

Code	Description	l	d1	d2	h	F2 [N]	L1 [J]	⚖
138201-*	MFH-30-AF 3,5-*	29.5	9	12	27	2300	6	6
138221-*	MFH-40-AF 3,5-*	39.5	10	15	33.5	2300	10	9

MFH-AF-CLEAN

Code	Description	l	d1	d2	h	F2 [N]	L1 [J]	⚖
151456	MFH-30-AF 3,5 CLEAN	29.5	9	12	27	2300	6	6
151458	MFH-40-AF 3,5 CLEAN	39.5	10	15	33.5	2300	10	9

MFH-CR

Code	Description	l	d1	d2	h	F2 [N]	L1 [J]	⚖
152501	MFH-30-AF 3,5-CR	29.5	9	12	27	2300	6	6
152511	MFH-40-AF 3,5-CR	39.5	10	15	33.5	2300	10	9

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GN 224.1

Finger handles

Steel

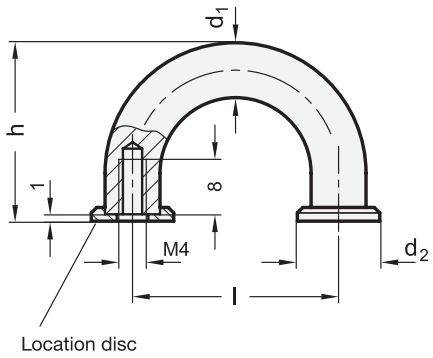
SPECIFICATION

Steel
chrome-plated **CR**

Location discs
Zinc die casting, nickel-plated









GN 224.1

Description	d1	l ±0.25	d2	h	⚖
GN 224.1-8-30-CR	8	30	12	26	23
GN 224.1-10-40-CR	10	40	15	31	40

GN 224.5

Stainless Steel-Finger handles

SPECIFICATION

Stainless Steel AISI 304
matt shot-blasted

Location discs
Stainless Steel AISI 303

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)

GN 224.5 **STAINLESS STEEL**

Description	d1	l ±0.25	d2	h	⚖
GN 224.5-8-30	8	30	12	26	20
GN 224.5-10-40	10	40	15	31	50

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Cabinet "U" handles

Steel / Aluminium / Stainless Steel



SPECIFICATION

Version in Steel

Steel

plastic coated
black, RAL 9005, textured finish **SW**

chrome-plated **CR**
blackened **BT**

Location discs
Zinc die casting, nickel plated

Version in Aluminium

Aluminium **AL**

plastic coated
black, RAL 9005, textured finish **SW**
silver, RAL 9006, textured finish **SR**
red, RAL 3000, textured finish **RS**

Location discs
Stainless Steel AISI 303

anodized, natural colour **EL**

Version in Stainless Steel

- AISI 303 / AISI 304 (A2) **NI**
- matt shot-blasted **GS**
- electropolished **EP**

Stainless Steel AISI 316L **A4**
matte shot-blasted **GS**

Location discs
Stainless Steel AISI 303 / AISI 316L

INFORMATION

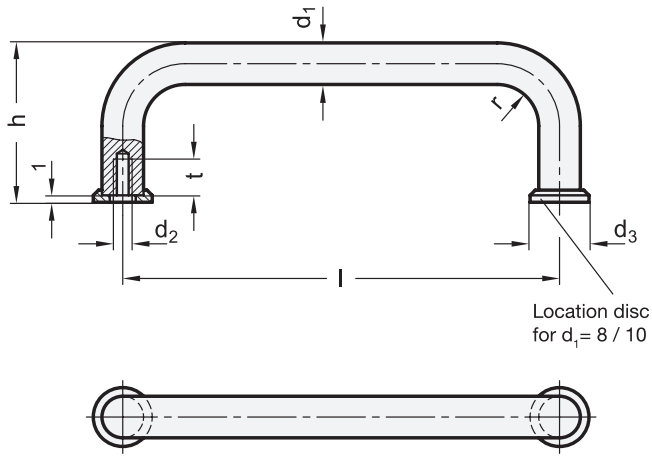
Cabinet "U" handles GN 425 Ø 8 and Ø 10 are supplied with two location discs. They gurantee a perfect location even with large holes in the cabinet. The discs are loosely enclosed.
The chrome-plated design is only conditionally suitable for outdoor use. The stainless steel design version should be given preference.
The manufacturing process (bending) allows the production of **special lengths** in relatively small quantities.

ON REQUEST

- Stainless Steel version A4 electropolished

TECHNICAL INFORMATION

- Load rating information (see page A35)



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GN 425 | Cabinet "U" handles

*Complete with colour index of the Cabinet "U" handles (SW, CR or BT)

SW RAL9005 | CR chrome-plated | BT blackened

GN 425

Description	d1	l ±0.5	d2	d3	h	r	t min.	⚖
GN 425-8-55-*	8	55**	M 4	12	35	10	8	40
GN 425-8-64-*	8	64	M 4	12	35	10	8	43
GN 425-8-88-*	8	88**	M 4	12	35	10	8	50
GN 425-8-96-*	8	96	M 4	12	35	10	8	56
GN 425-8-100-*	8	100	M 4	12	35	10	8	58
GN 425-8-120-*	8	120**	M 4	12	35	10	8	66
GN 425-8-128-*	8	128	M 4	12	35	10	8	69
GN 425-10-88-*	10	88**	M 5	15	43	12	12	88
GN 425-10-100-*	10	100	M 5	15	43	12	12	98
GN 425-10-120-*	10	120**	M 5	15	43	12	12	108
GN 425-10-180-*	10	180**	M 5	15	43	12	12	147
GN 425-10-200-*	10	200	M 5	15	43	12	12	160
GN 425-10-235-*	10	235**	M 5	15	43	12	12	183
GN 425-12-125-*	12	125	M 6	-	51	14	12	165
GN 425-12-160-*	12	160	M 6	-	51	14	12	196
GN 425-12-200-*	12	200	M 6	-	51	14	12	230
GN 425-12-250-*	12	250	M 6	-	51	14	12	274
GN 425-16-160-*	16	160	M 6	-	59	18	12	371
GN 425-16-200-*	16	200	M 6	-	59	18	12	430
GN 425-16-250-*	16	250	M 6	-	59	18	12	503
GN 425-16-300-*	16	300	M 6	-	59	18	12	581

* Complete with colour index of the Cabinet "U" handles (SW, SR, RS or EL)

SW RAL 9005 | SR RAL 9006 | RS RAL 3000 | EL anodized

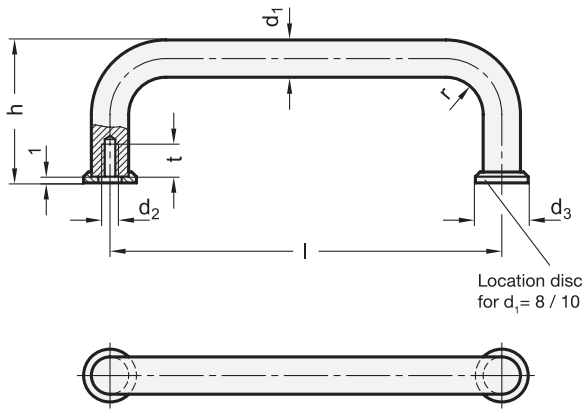
GN 425-AL

Description	d1	l ±0.5	d2	d3	h	r	t min.	⚖
GN 425-AL-8-55-*	8	55**	M 4	12	35	10	8	15
GN 425-AL-8-64-*	8	64	M 4	12	35	10	8	18
GN 425-AL-8-88-*	8	88**	M 4	12	35	10	8	20
GN 425-AL-8-96-*	8	96	M 4	12	35	10	8	22
GN 425-AL-8-100-*	8	100	M 4	12	35	10	8	24
GN 425-AL-8-120-*	8	120**	M 4	12	35	10	8	27
GN 425-AL-8-128-*	8	128	M 4	12	35	10	8	30
GN 425-AL-10-88-*	10	88**	M 5	15	43	12	12	34
GN 425-AL-10-100-*	10	100	M 5	15	43	12	12	37
GN 425-AL-10-120-*	10	120**	M 5	15	43	12	12	40
GN 425-AL-10-180-*	10	180**	M 5	15	43	12	12	60
GN 425-AL-10-200-*	10	200	M 5	15	43	12	12	80
GN 425-AL-10-235-*	10	235**	M 5	15	43	12	12	86
GN 425-AL-12-125-*	12	125	M 6	-	51	14	12	59
GN 425-AL-12-160-*	12	160	M 6	-	51	14	12	71
GN 425-AL-12-200-*	12	200	M 6	-	51	14	12	83
GN 425-AL-12-250-*	12	250	M 6	-	51	14	12	114
GN 425-AL-16-160-*	16	160	M 6	-	59	18	12	129
GN 425-AL-16-200-*	16	200	M 6	-	59	18	12	150
GN 425-AL-16-250-*	16	250	M 6	-	59	18	12	179
GN 425-AL-16-300-*	16	300	M 6	-	59	18	12	206

** suitable for 19" rack and enclosure layout

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GN 425 | Cabinet "U" handles



*Complete with material of the Cabinet "U" handles (GS or EP)

GS matt shot-blasted

EP electropolished

GN 425-NI

STAINLESS STEEL

Description	d1	Material	l ±0.5	d2	d3	h	r	t min.	⚖
GN 425-NI-8-55-*	8	AISI 303	55**	M 4	12	35	10	8	39
GN 425-NI-8-64-*	8	AISI 303	64	M 4	12	35	10	8	43
GN 425-NI-8-88-*	8	AISI 303	88**	M 4	12	35	10	8	53
GN 425-NI-8-96-*	8	AISI 303	96	M 4	12	35	10	8	57
GN 425-NI-8-100-*	8	AISI 303	100	M 4	12	35	10	8	60
GN 425-NI-8-120-*	8	AISI 303	120**	M 4	12	35	10	8	66
GN 425-NI-8-128-*	8	AISI 303	128	M 4	12	35	10	8	70
GN 425-NI-10-88-*	10	AISI 303	88**	M 5	15	43	12	12	91
GN 425-NI-10-100-*	10	AISI 303	100	M 5	15	43	12	12	95
GN 425-NI-10-120-*	10	AISI 303	120**	M 5	15	43	12	12	100
GN 425-NI-10-180-*	10	AISI 303	180**	M 5	15	43	12	12	146
GN 425-NI-10-200-*	10	AISI 303	200	M 5	15	43	12	12	161
GN 425-NI-10-235-*	10	AISI 303	235**	M 5	15	43	12	12	181
GN 425-NI-12-125-*	12	AISI 304	125	M 6	-	51	14	12	169
GN 425-NI-12-160-*	12	AISI 304	160	M 6	-	51	14	12	200
GN 425-NI-12-200-*	12	AISI 304	200	M 6	-	51	14	12	236
GN 425-NI-12-250-*	12	AISI 304	250	M 6	-	51	14	12	283
GN 425-NI-16-160-*	16	AISI 304	160	M 6	-	59	18	12	373
GN 425-NI-16-200-*	16	AISI 304	200	M 6	-	59	18	12	437
GN 425-NI-16-250-*	16	AISI 304	250	M 6	-	59	18	12	521
GN 425-NI-16-300-*	16	AISI 304	300	M 6	-	59	18	12	600

GN 425-A4

STAINLESS STEEL

Description	d1	Material	l ±0.5	d2	d3	h	r	t min.	⚖
GN 425-A4-10-88-GS	10	AISI 316L	88**	M 5	15	43	12	12	92
GN 425-A4-10-100-GS	10	AISI 316L	100	M 5	15	43	12	12	99
GN 425-A4-10-120-GS	10	AISI 316L	120**	M 5	15	43	12	12	111
GN 425-A4-10-180-GS	10	AISI 316L	180**	M 5	15	43	12	12	151
GN 425-A4-10-200-GS	10	AISI 316L	200	M 5	15	43	12	12	163
GN 425-A4-10-235-GS	10	AISI 316L	235**	M 5	15	43	12	12	185

** suitable for 19" rack and enclosure layout

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GN 425.3

Cabinet "U" handles

Steel / Stainless Steel, without thread, for welding

SPECIFICATION

Version in Steel

Steel **ST**
matt, shot-blasted

Version in Stainless Steel

Stainless Steel AISI 304 **NI**
matt, shot-blasted

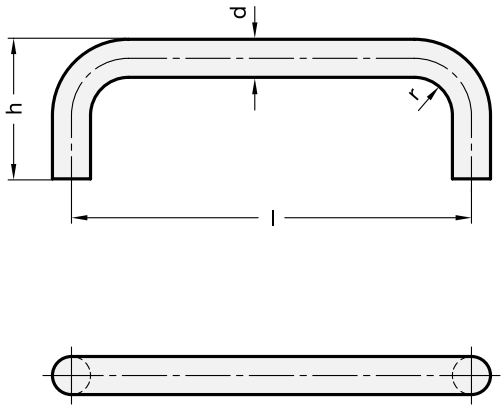
INFORMATION

The manufacturing process (bending) of the cabinet "U" handles GN 425.3 allows the production of **special lengths** in relatively small quantities.

TECHNICAL INFORMATION

- Stainless Steel charachteristics (see page A26)





*Complete with material of the Cabinet "U" handles (ST or NI)

ST	NI
Steel	Stainless Steel

GN 425.3

Description	d	l ±0.5	h	r	⚖
GN 425.3-8-64-*	8	64	35	10	45
GN 425.3-8-88-*	8	88	35	10	55
GN 425.3-8-100-*	8	100	35	10	59
GN 425.3-10-100-*	10	100	43	12	113
GN 425.3-10-125-*	10	125	43	12	117
GN 425.3-10-160-*	10	160	43	12	138
GN 425.3-12-125-*	12	125	51	14	170
GN 425.3-12-160-*	12	160	51	14	210
GN 425.3-12-200-*	12	200	51	14	245
GN 425.3-16-125-*	16	125	59	18	321
GN 425.3-16-160-*	16	160	59	18	377
GN 425.3-16-200-*	16	200	59	18	440
GN 425.3-20-200-*	20	200	68	22	707
GN 425.3-20-250-*	20	250	68	22	831

Weight material ST

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GN 425.1

Cabinet "U" handles

Steel / Aluminium / Stainless Steel



SPECIFICATION

Version in Steel

Steel

plastic coated
black, RAL 9005, textured finish **SW**

chrome-plated **CR**
blackened **BT**

Location discs
Zinc die casting, nickel plated

Version in Aluminium

Aluminium **AL**

plastic coated
black, RAL 9005, textured finish **SW**
silver, RAL 9006, textured finish **SR**
red, RAL 3000, textured finish **RS**

anodized, natural colour **EL**

Version in Stainless Steel

- AISI 303 / AISI 304 (A2) **NI**
- matt shot-blasted **GS**
- electropolished **EP**

Stainless Steel AISI 316L **A4**
matte shot-blasted **GS**

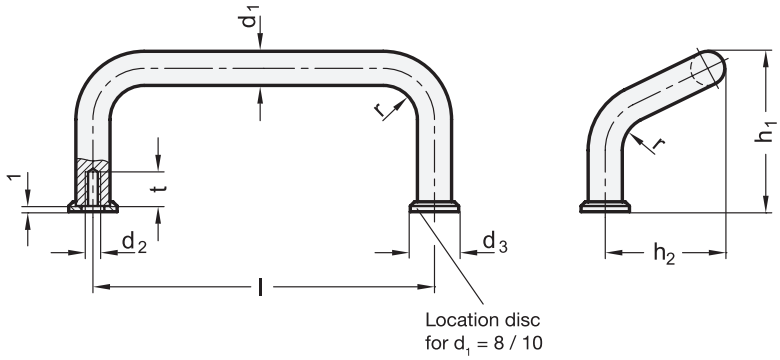
Location discs
Stainless Steel AISI 303 / AISI 316L

INFORMATION

Cabinet "U" handles GN 425.1 Ø 8 and Ø 10 are supplied with two location discs. They guarantee a perfect location even with large holes in the cabinet. The discs are loosely enclosed.
The chrome-plated design is only conditionally suitable for outdoor use. The stainless steel design version should be given preference.
The manufacturing process (bending) allows the production of **special lengths** in relatively small quantities.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)
- Load rating information (see page A35)



GN 425.1-A4 **STAINLESS STEEL**

Description	d1	l ±0.25	d2	d3	h1	h2	r	t min.	⚖
GN 425.1-A4-10-88-GS	10	88	M 5	15	47	35	11	12	92
GN 425.1-A4-10-100-GS	10	100	M 5	15	47	35	11	12	99
GN 425.1-A4-10-120-GS	10	120	M 5	15	47	35	11	12	111
GN 425.1-A4-10-180-GS	10	180**	M 5	15	47	35	11	12	159
GN 425.1-A4-10-200-GS	10	200	M 5	15	47	35	11	12	163

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GN 425.1 | Cabinet "U" handles

*Complete with colour index of the Cabinet "U" handles (SW, CR or BT)

SW RAL9005 | CR chrome-plated | BT blackened

GN 425.1

Description	d1	l ±0.25	d2	d3	h1	h2	r	t min.	⚖
GN 425.1-8-55-*	8	55**	M 4	12	40	30	9	8	40
GN 425.1-8-64-*	8	64	M 4	12	40	30	9	8	43
GN 425.1-8-96-*	8	96	M 4	12	40	30	9	8	56
GN 425.1-8-100-*	8	100	M 4	12	40	30	9	8	58
GN 425.1-10-88-*	10	88**	M 5	15	47	35	11	12	88
GN 425.1-10-100-*	10	100	M 5	15	47	35	11	12	98
GN 425.1-10-120-*	10	120**	M 5	15	47	35	11	12	108
GN 425.1-10-180-*	10	180**	M 5	15	47	35	11	12	147
GN 425.1-10-200-*	10	200	M 5	15	47	35	11	12	160
GN 425.1-12-125-*	12	125	M 6	-	60	44	12	12	165
GN 425.1-12-160-*	12	160	M 6	-	60	44	12	12	196
GN 425.1-12-200-*	12	200	M 6	-	60	44	12	12	230
GN 425.1-12-250-*	12	250	M 6	-	60	44	12	12	274

* Complete with colour index of the Cabinet "U" handles (SW, SR, RS or EL)

SW RAL 9005 | SR RAL 9006 | RS RAL 3000 | EL anodized

GN 425.1-AL

Description	d1	l ±0.25	d2	d3	h1	h2	r	t min.	⚖
GN 425.1-AL-8-55-*	8	55**	M 4	12	40	30	9	8	15
GN 425.1-AL-8-64-*	8	64	M 4	12	40	30	9	8	18
GN 425.1-AL-8-88-*	8	88**	M 4	12	40	30	9	8	20
GN 425.1-AL-8-96-*	8	96	M 4	12	40	30	9	8	22
GN 425.1-AL-8-100-*	8	100	M 4	12	40	30	9	8	23
GN 425.1-AL-10-88-*	10	88**	M 5	15	47	35	11	12	34
GN 425.1-AL-10-100-*	10	100	M 5	15	47	35	11	12	40
GN 425.1-AL-10-120-*	10	120**	M 5	15	47	35	11	12	50
GN 425.1-AL-10-180-*	10	180**	M 5	15	47	35	11	12	60
GN 425.1-AL-10-200-*	10	200	M 5	15	47	35	11	12	68
GN 425.1-AL-12-125-*	12	125	M 6	-	60	44	12	12	59
GN 425.1-AL-12-160-*	12	160	M 6	-	60	44	12	12	71
GN 425.1-AL-12-200-*	12	200	M 6	-	60	44	12	12	83
GN 425.1-AL-12-250-*	12	250	M 6	-	60	44	12	12	114

*Complete with material of the Cabinet "U" handles (GS or EP)

GS matt shot-blasted | EP electropolished

GN 425.1-NI

STAINLESS STEEL

Description	d1	l ±0.25	d2	d3	h1	h2	r	t min.	⚖
GN 425.1-NI-8-55-*	8	55**	M 4	12	40	30	9	8	37
GN 425.1-NI-8-64-*	8	64	M 4	12	40	30	9	8	40
GN 425.1-NI-8-88-*	8	88	M 4	12	40	30	9	8	53
GN 425.1-NI-8-96-*	8	96	M 4	12	40	30	9	8	57
GN 425.1-NI-8-100-*	8	100	M 4	12	40	30	9	8	58
GN 425.1-NI-10-88-*	10	88	M 5	15	47	35	11	12	91
GN 425.1-NI-10-100-*	10	100	M 5	15	47	35	11	12	95
GN 425.1-NI-10-120-*	10	120	M 5	15	47	35	11	12	105
GN 425.1-NI-10-180-*	10	180**	M 5	15	47	35	11	12	146
GN 425.1-NI-10-200-*	10	200	M 5	15	47	35	11	12	161
GN 425.1-NI-12-125-*	12	125	M 6	-	60	44	12	12	169
GN 425.1-NI-12-160-*	12	160	M 6	-	60	44	12	12	200
GN 425.1-NI-12-200-*	12	200	M 6	-	60	44	12	12	236
GN 425.1-NI-12-250-*	12	250	M 6	-	60	44	12	12	283

** suitable for 19" rack and enclosure layout

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GN 426.3

Cabinet "U" handles

for welding, made of seamless steel tubing

SPECIFICATION

Type

- Type **A**: simply curved, 90°

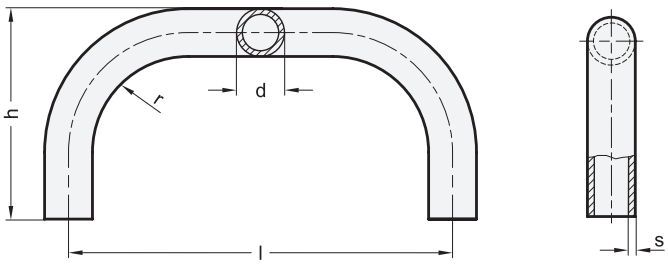
Steel **ST**

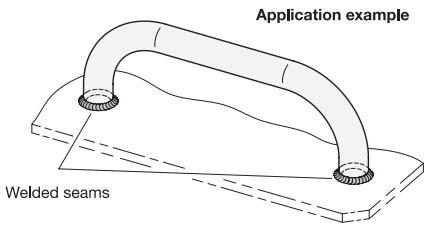
blank, oiled

INFORMATION

GN 426.3 cabinet "U" handles are produced through bending. This allows **special lengths** or **special geometries** with the same **r** and **s** dimensions to be delivered even in comparatively small unit quantities.







GN 426.3

Description	d	l1 ±1.5	h ±1.5	r	s	⚖
GN 426.3-ST-20-150-A	20	150	90	40	3	288
GN 426.3-ST-20-200-A	20	200	90	40	3	340
GN 426.3-ST-20-250-A	20	250	90	40	3	400
GN 426.3-ST-20-300-A	20	300	90	40	3	455
GN 426.3-ST-20-400-A	20	400	90	40	3	560
GN 426.3-ST-25-200-A	25	200	110	50	3	565
GN 426.3-ST-25-250-A	25	250	110	50	3	640
GN 426.3-ST-25-300-A	25	300	110	50	3	720
GN 426.3-ST-25-400-A	25	400	110	50	3	890
GN 426.3-ST-25-500-A	25	500	110	50	3	1050
GN 426.3-ST-30-300-A	30	300	130	60	3	835
GN 426.3-ST-30-350-A	30	350	130	60	3	1040
GN 426.3-ST-30-400-A	30	400	130	60	3	1140
GN 426.3-ST-30-500-A	30	500	130	60	3	1340
GN 426.3-ST-30-600-A	30	600	130	60	3	1555

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GN 427

Cabinet "U" handles

Aluminium

SPECIFICATION

Aluminium

plastic coated
black, RAL 9005, textured finish **SW**
silver, RAL 9006, textured finish **SR**

anodized, natural colour **EL**

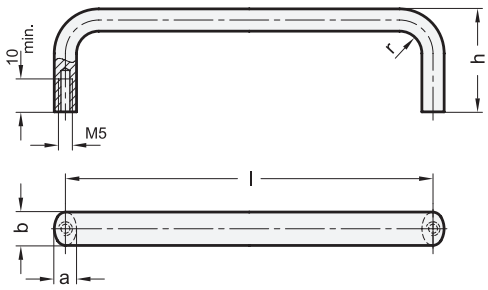
INFORMATION

Cabinet "U" handles GN 427 are produced from profiled aluminum extrusions.
The manufacturing process (bending) allows the production of **special lengths** in relatively small quantities.

TECHNICAL INFORMATION

- Load rating information (see page A35)





* Complete with colour index of the Cabinet "U" handles (SW, SR or EL)

SW RAL9005 SR RAL9006 EL anodized

GN 427

Description	b	l ±0.25	a	h	r	⚖
GN 427-12-55-*	12	55**	8	40	8	23
GN 427-12-88-*	12	88**	8	40	8	30
GN 427-12-100-*	12	100	8	40	8	33
GN 427-12-120-*	12	120**	8	40	8	37
GN 427-12-180-*	12	180**	8	40	8	51
GN 427-12-200-*	12	200	8	40	8	56
GN 427-12-235-*	12	235**	8	40	8	60

** suitable for 19" rack and enclosure layout

GN 427.5

Stainless Steel-
Cabinet "U" handles

SPECIFICATION

Stainless Steel AISI 304
matt shot-blasted

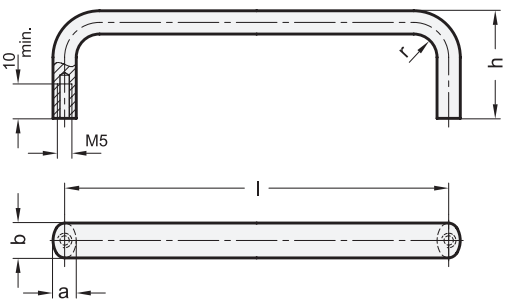
INFORMATION

Cabinet "U" handles GN 427.5 are produced from profiled extrusions. The manufacturing process (bending) allows the production of **special lengths** in relatively small quantities.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)
- Load rating information (see page A35)





GN 427.5 **STAINLESS STEEL**

Description	b	l ±0.25	a	h	r	⚖
GN 427.5-12-55	12	55**	8	40	8	60
GN 427.5-12-88	12	88**	8	40	8	85
GN 427.5-12-100	12	100	8	40	8	90
GN 427.5-12-120	12	120**	8	40	8	105
GN 427.5-12-180	12	180**	8	40	8	145
GN 427.5-12-200	12	200	8	40	8	150
GN 427.5-12-235	12	235**	8	40	8	180

** suitable for 19" rack and enclosure layout

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Cabinet "U" handles

Aluminium

SPECIFICATION

Aluminium **AL**
d1 = 20: Solid material
d1 = 28: Tube-Ø 28 x 4

plastic coated
black, RAL 9005, textured finish **SW**
silver, RAL 9006, textured finish **SR**
white, RAL 9016, antimicrobial **WSA**

blank, tumbled **BL**

Threaded bushings
Aluminium

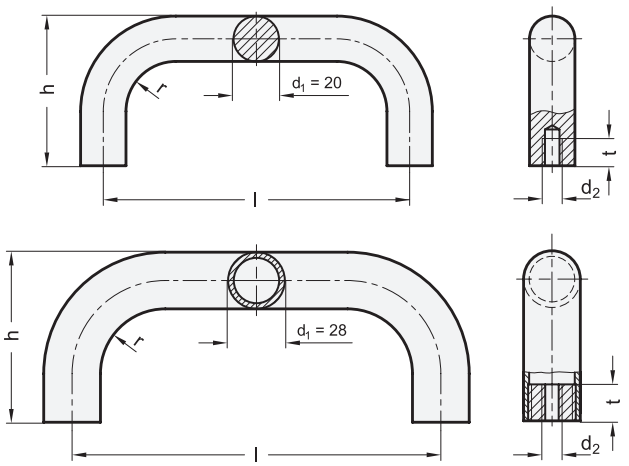


INFORMATION

GN 426 cabinet „U“ handles are made from a bent aluminum profile and have excellent stability and ergonomic design. Due to the production process, special designs can be supplied even in relatively small quantities.
In addition to the standard surfaces, these cabinet „U“ handles are also available with a functional coating.
The **WSA** version has a powder coating based on zinc molybdate, which gives it antimicrobial properties. The principle of action, which is activated by the presence of moisture, demonstrably reduces the growth of viruses, bacteria, and fungi within 24 hours, so that contaminated surfaces ultimately have less than 0.2% of the original number of microbes.
Standard elements with antimicrobial plastic coating are primarily used in the health care sector and in public buildings, such as airports, train stations, stadiums, etc.

TECHNICAL INFORMATION

- Load rating information (see page A35)



*Complete with colour index of the Cabinet "U" handles (SW, SR, WSA or BL)

SW	SR	WSA	BL
RAL9005	RAL9006	RAL9016	blank

GN 426

Description	d1	l ±0.25	d2	h	r	t min.	⚖
GN 426-AL-20-200-*	20	200	M 8	68	22	15	231
GN 426-AL-20-250-*	20	250	M 8	68	22	15	285
GN 426-AL-20-300-*	20	300	M 8	68	22	15	330
GN 426-AL-20-350-*	20	350	M 8	68	22	15	375
GN 426-AL-28-250-*	28	250	M 10	78	32	15	290
GN 426-AL-28-300-*	28	300	M 10	78	32	15	330
GN 426-AL-28-350-*	28	350	M 10	78	32	15	375
GN 426-AL-28-400-*	28	400	M 10	78	32	15	415

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GN 426.5

Stainless Steel-Cabinet "U" handles

SPECIFICATION

Types

- Type **A**: Mounting from the back (threaded blind bore)
- Type **B**: Mounting from the operator´s side

Stainless Steel
d_1 = 20: Solid material
d_1 = 28: Tube-Ø 28 x 2

- AISI 304
- matt shot-blasted

Threaded bush / Mounting stud
Stainless Steel AISI 303

Grub screw (Type B)
d_1= 20: DIN 914-M5-6-NI
d_1= 28: DIN 914-M6-8-NI

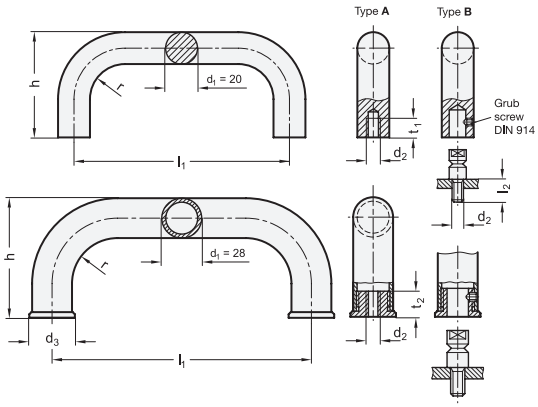


INFORMATION

Stainless Steel-Cabinet "U" handles GN 426.5 can be mounted from the back (type A) as well as from the operator's side (type B). In this case the stud is first screwed in from the machine side and then the handle is pushed on and secured with the grub screw.
Both mounting methods allow the mounting of a pair of handles in opposite position. This method could be used e.g. on doors (double handle). In general, a mounting stud with special length l_2 might be required.
The manufacturing process (bending) allows the production of **special lengths** in relatively small quantities.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)
- Load rating information (see page A35)



GN 426.5 STAINLESS STEEL

Description	d_1	l_1 ±0.5	l_1 ±0.3	d_2	d_3	h	l_2	r ≈	t_1	t_2	⚖
GN 426.5-20-200-A	20	200	-	M 8	-	68	20	22	15	-	700
GN 426.5-20-250-A	20	250	-	M 8	-	68	20	22	15	-	696
GN 426.5-20-300-A	20	300	-	M 8	-	68	20	22	15	-	900
GN 426.5-20-350-A	20	350	-	M 8	-	68	20	22	15	-	1080
GN 426.5-20-200-B	20	-	200	M 8	-	68	20	22	-	-	706
GN 426.5-20-250-B	20	-	250	M 8	-	68	20	22	-	-	829
GN 426.5-20-300-B	20	-	300	M 8	-	68	20	22	-	-	957
GN 426.5-20-350-B	20	-	350	M 8	-	68	20	22	-	-	1086
GN 426.5-28-250-A	28	250	-	M 10	32	90	20	32	-	17	550
GN 426.5-28-300-A	28	300	-	M 10	32	90	20	32	-	17	625
GN 426.5-28-350-A	28	350	-	M 10	32	90	20	32	-	17	680
GN 426.5-28-400-A	28	400	-	M 10	32	90	20	32	-	17	729
GN 426.5-28-250-B	28	-	250	M 10	32	90	20	32	-	-	625
GN 426.5-28-300-B	28	-	300	M 10	32	90	20	32	-	-	690
GN 426.5-28-350-B	28	-	350	M 10	32	90	20	32	-	-	720
GN 426.5-28-400-B	28	-	400	M 10	32	90	20	32	-	-	820

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Cabinet "U" handles

Aluminium

SPECIFICATION

Aluminium **AL**
d1 = 20: Solid material
d1 = 28: Tube-Ø 28 x 4

plastic coated
black, RAL 9005, textured finish **SW**
silver, RAL 9006, textured finish **SR**

blank, tumbled **BL**

Threaded bushings
Aluminium

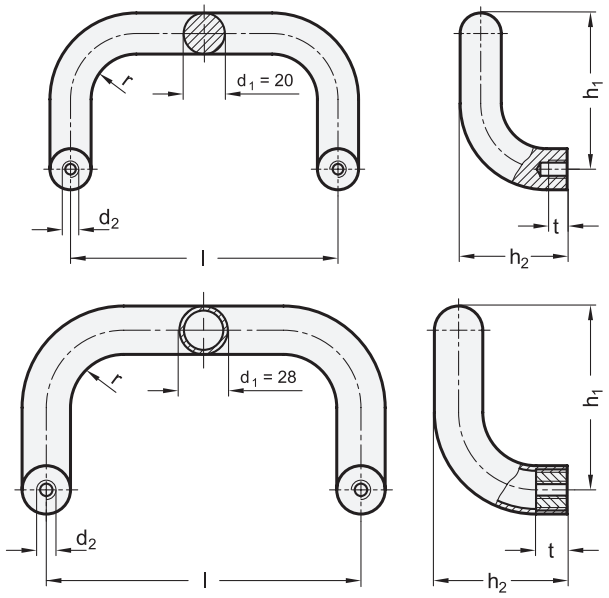


INFORMATION

Cabinet "U" handles GN 426.1 are produced from profiled aluminium extrusions.
The manufacturing process (bending) allows the production of **special lengths** in relatively small quantities.

TECHNICAL INFORMATION

- Load rating information (see page A35)



*Complete with colour index of the Cabinet "U" handles (SW, SR or BL)

SW	SR	BL
RAL9005	RAL9006	blank

GN 426.1

Description	d1	l ±0.25	d2	h1	h2	r	t min.	⚖
GN 426.1-AL-20-200-*	20	200	M 8	105	68	22	15	380
GN 426.1-AL-20-300-*	20	300	M 8	105	68	22	15	475
GN 426.1-AL-28-250-*	28	250	M 10	125	78	32	15	470
GN 426.1-AL-28-350-*	28	350	M 10	125	78	32	15	505
GN 426.1-AL-28-500-*	28	500	M 10	125	78	32	15	620

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GN 426.6

Stainless Steel-Cabinet "U" handles



SPECIFICATION

Types

- Type **A**: Mounting from the back (threaded blind bore)
- Type **B**: Mounting from the operator´s side

Stainless Steel
d_1 = 20: Solid material
d_1 = 28: Tube-Ø 28 x 2

- AISI 304
- matt shot-blasted

Threaded bush / Mounting stud
Stainless Steel AISI 303

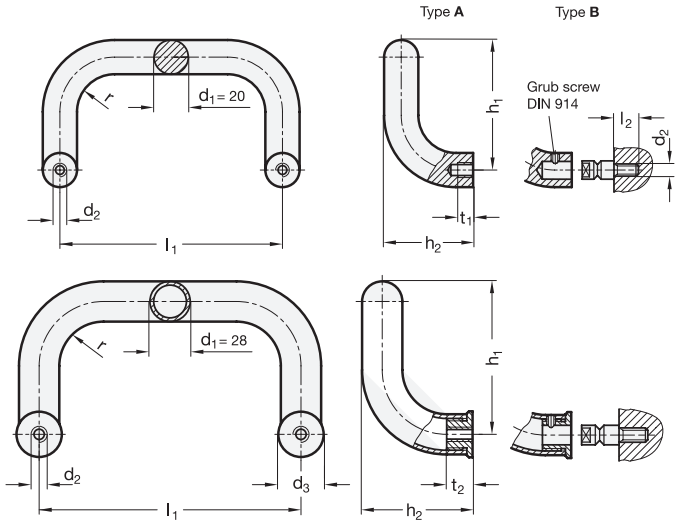
Grub screws (Type B)
d_1= 20: DIN 914-M5-6-NI
d_1= 28: DIN 914-M6-8-NI

INFORMATION

Stainless Steel-Cabinet "U" handles GN 426.6 can be mounted from the back (type A) as well as from the operator's side (type B). In this case the stud is first screwed in from the machine side and then the handle is pushed on and secured with the grub screw.
Both mounting methods allow the mounting of a pair of handles in opposite position. This method could be used e.g. on doors (double handle). In general, a mounting stud with special length l2 might be required.
The manufacturing process (bending) allows the production of **special lengths** in relatively small quantities.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)
- Load rating information (see page A35)



*Complete with types of the Cabinet "U" handles (A or B)

A Mounting from the back
B Mounting from the operator´s side

GN 426.6 **STAINLESS STEEL**

Description	d1	l1 ±0.5	l1 ±0.3	d2	d3	h1	h2	l2	r ≈	t1	t2	⚖
GN 426.6-20-200-*	20	200	200	M 8	-	105	68	20	22	15	-	1094
GN 426.6-20-300-*	20	300	300	M 8	-	105	68	20	22	15	-	1357
GN 426.6-28-250-*	28	250	250	M 10	32	128	90	20	32	-	17	820
GN 426.6-28-350-*	28	350	350	M 10	32	128	90	20	32	-	17	950
GN 426.6-28-500-*	28	500	500	M 10	32	128	90	20	32	-	17	1160

Weight type A

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Folding handles

Steel / Stainless Steel, in both end positions retained

SPECIFICATION

Hexagon nuts ISO 8675-M10x1
Stainless Steel AISI 304

Washers DIN 125
Stainless Steel AISI 304

Version in Steel
Steel
chrome-plated **CR**

Version in Stainless Steel
Stainless Steel AISI 303 **NI**
matt shot-blasted

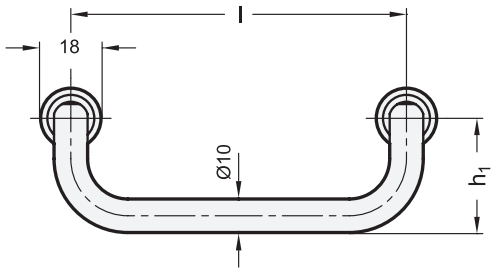


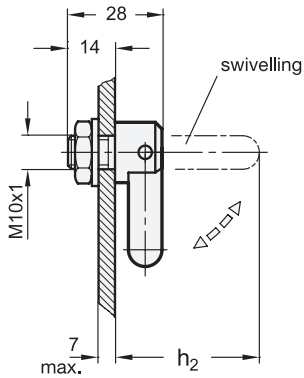
INFORMATION

Folding handles GN 425.2 are used in such applications where minimal protrusion is required.
In both positions the handle is retained by a spring loaded detent.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)
- Load rating information (see page A35)





GN 425.2

Description	l ±0.25	h1	h2	⚖
GN 425.2-100-CR	100	34	43	149
GN 425.2-120-CR	120	34	43	161
GN 425.2-180-CR	180	34	43	201

GN 425.2-NI STAINLESS STEEL

Description	l ±0.25	h1	h2	⚖
GN 425.2-100-NI	100	34	43	150
GN 425.2-120-NI	120	34	43	162
GN 425.2-180-NI	180	34	43	200

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GN 425.5

Folding handles

Steel / Stainless Steel, in both end positions retained

SPECIFICATION

Handle

Steel, chrome-plated **CR**

Stainless Steel AISI 303 **NI**
matt shot-blasted

Attachement part
Plastic
Technopolymer (Polyamide PA)

- temperature resistant up to 100 °C
- black, matt

Cover
Plastic
Technopolymer (Polyamide PA)

- temperature resistant up to 100 °C
- black-grey, matt

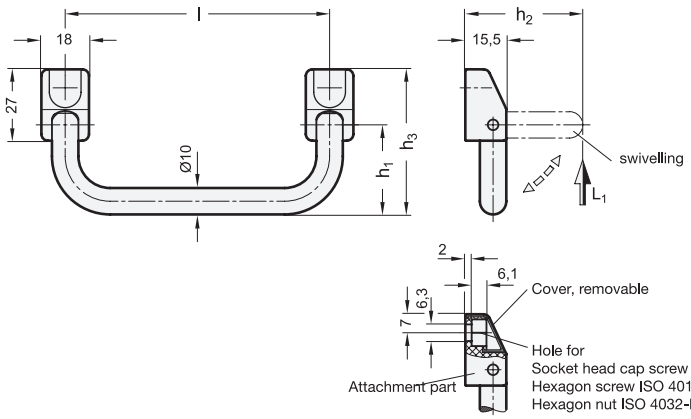


INFORMATION

Folding handles GN 425.5 are used in places where the handle must not protrude or protrude only a short distance.
The handle is locked in place in the resting position by means of a spring-loaded (cup springs) thrust bolt.
The static load capacity value given in the table is an approximate value which, if exceeded, may result in permanent deformation or fracture of the plastic attachment part. The folding handle GN 425.2 (see page 466) may be used as an alternative.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)
- Load rating information (see page A35)



GN 425.5

Description	l ±0.25	h1	h2	h3	L1 Static load in N swivelling	⚖
GN 425.5-100-CR	100	34	44.5	55	500	111
GN 425.5-120-CR	120	34	44.5	55	500	123
GN 425.5-180-CR	180	34	44.5	55	500	163

GN 425.5-NI — **STAINLESS STEEL**

Description	l ±0.25	h1	h2	h3	L1 Static load in N swivelling	⚖
GN 425.5-100-NI	100	34	44.5	55	500	111
GN 425.5-120-NI	120	34	44.5	55	500	123
GN 425.5-180-NI	180	34	44.5	55	500	162

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GN 425.8

RoHS

Folding handles with recessed tray

SPECIFICATION

Types

- Type **A**: with handle locking in the folded up or folded down position
- Type **B**: with spring return of the handle in the folded down position

Tray
Zinc die casting
plastic coated
black, RAL 9005, textured finish **SW**
silver, RAL 9006, textured finish **SR**

Folding handle

Version in Steel
chrome plated **CR**

Version in Stainless Steel AISI 303
matt shot-blasted **NI**

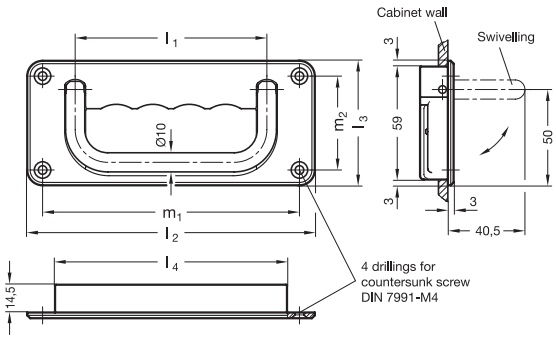
INFORMATION

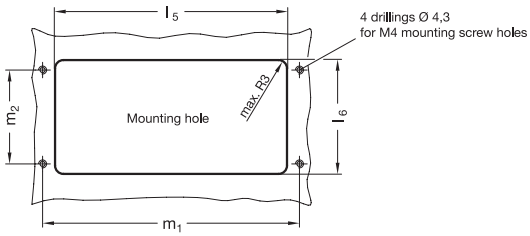
The folding handles with recessed tray GN 425.8 are used if the handle is to protrude by a maximum of 3 mm when folded down.
In type A, the folding handle is held in both end positions by spring-loaded thrust pieces.
In type B, the folding handle always spring-returns to the starting position after being released, preventing it from protruding with potentially interfering effect.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)







*Complete with types of the Folding handles (A or B)

A with handle locking
B with spring return

GN 425.8-CR

Description	l1	l2	l3	l4	l5	l6	m1	m2	⚖
GN 425.8-100-CR-SW-*	100	150	65	121	122	60	134	49	339
GN 425.8-100-CR-SR-*	100	150	65	121	122	60	134	49	339
GN 425.8-120-CR-SW-*	120	170	65	141	142	60	154	49	376
GN 425.8-120-CR-SR-*	120	170	65	141	142	60	154	49	376

GN 425.8-NI **STAINLESS STEEL**

Description	l1	l2	l3	l4	l5	l6	m1	m2	⚖
GN 425.8-100-NI-SW-*	100	150	65	121	122	60	134	49	339
GN 425.8-100-NI-SR-*	100	150	65	121	122	60	134	49	339
GN 425.8-120-NI-SW-*	120	170	65	141	142	60	154	49	376
GN 425.8-120-NI-SR-*	120	170	65	141	142	60	154	49	376

Weight type A

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Folding handles with recessed tray

with return springs, technopolymer

MATERIAL
Glass-fibre reinforced polyamide based (PA) technopolymer.

STANDARD EXECUTIONS
Pass-through holes for M4 countersunk-head screws (not supplied).
- **MPR**: RAL 9005 black colour or RAL 7040 (C33) grey colour, matte finish.
- **MPR-CLEAN**: white colour similar to RAL 9002, matte finish.

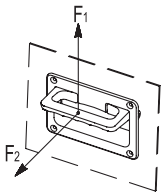
ROTATION PIN AND RETURN SPRINGS
AISI 303 stainless steel pin, AISI 302 stainless steel springs.

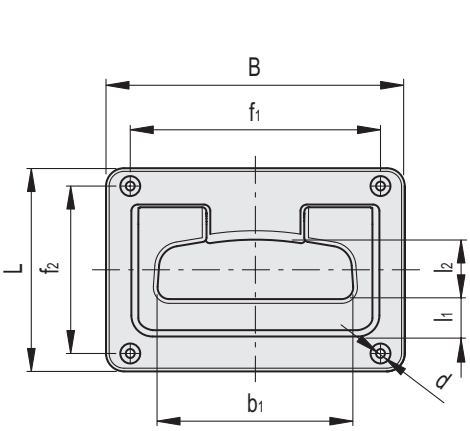
TECHNICAL DATA
The lifting resistance (F1) and tensile strength (F2) values reported in the table are the result of permanent deformation by means of the appropriate dynamometric equipment under the test conditions shown in the figure with ambient temperature.

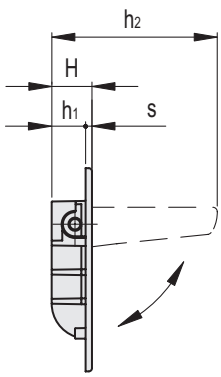
ASSEMBLY INSTRUCTIONS
Drill the handle housing according to the template dimensions.

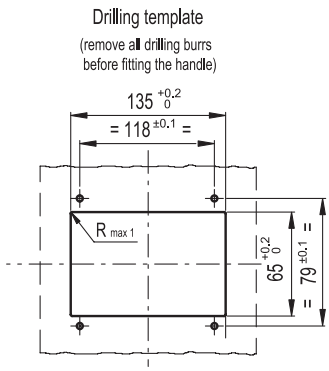


ELESA Original design









Code	Description	B	f1	f2	L	H	h1	h2	b1	l1	l2	s	d	F1 [N]	F2 [N]	⚖
43851	MPR.141	141	118	79	96	19	16	63	90	16.5	29	3	4.2	1650	2400	146
43851-C33	MPR.141-C33	141	118	79	96	19	16	63	90	16.5	29	3	4.2	1650	2400	146
151061	MPR.141-CLEAN	141	118	79	96	19	16	63	90	16.5	29	3	4.2	1650	2400	146

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Folding handles

with return springs, technopolymer

MATERIAL
Glass-fibre reinforced polyamide based (PA) technopolymer.

STANDARD EXECUTIONS
Pass-through holes for countersunk-head screws with cross mark ISO-7046-1-M6 (not included in the supply).
- **MPE**: RAL 9005 black colour or RAL 7040 (C33) grey colour, matte finish.
- **MPE-CLEAN**: white colour similar to RAL 9002, matte finish.

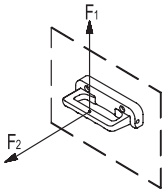
ROTATION PIN AND RETURN SPRINGS
AISI 303 stainless steel pin, AISI 302 stainless steel springs.

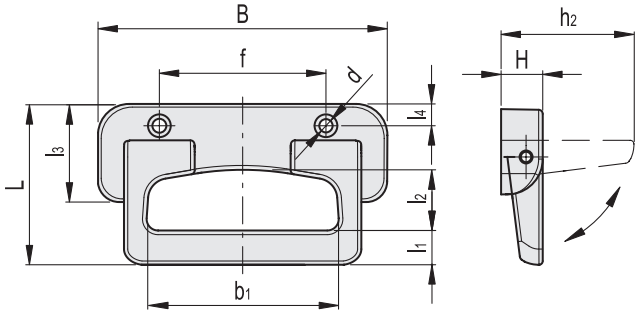
TECHNICAL DATA
The lifting resistance (F1) and tensile strength (F2) values reported in the table are the result of permanent deformation by means of the appropriate dynamometric equipment under the test conditions shown in the figure with ambient temperature.

ASSEMBLY INSTRUCTIONS
Drill holes with centre distance 80 +0.1/-0.1 in the sheet.



ELESA Original design





Code	Description	B	f	L	H	h2	b1	l1	l2	l3	l4	d	F1 [N]	F2 [N]	⚖
43801	MPE.135	135	80	74	20	63	90	16.5	29	41	8	6.3	1700	2500	127
43801-C33	MPE.135-C33	135	80	74	20	63	90	16.5	29	41	8	6.3	1700	2500	127
151051	MPE.135-CLEAN	135	80	74	20	63	90	16.5	29	41	8	6.3	1700	2500	127

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GN 730

Ledge handles

Aluminium

SPECIFICATION

Aluminium

plastic coated
black, RAL 9005, textured finish **SW**
silver, RAL 9006, textured finish **SR**

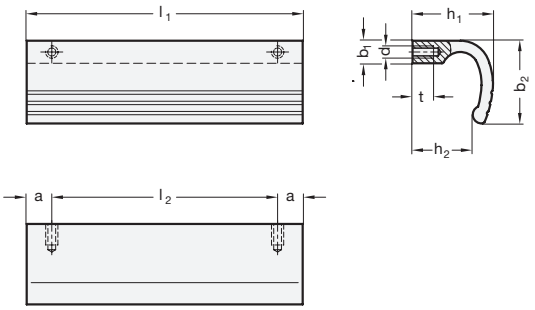
anodized, natural colour **EL**

blank, tumbled **BL**

INFORMATION

A typical field of application is on hinged protective doors on machinery and installations.
Manufactured from aluminum extrusion allows **special lengths** and material sold by the meter to be realised easily.





GN 730

Description	l1 ±0.25	d	a	b1	b2	h1	h2	l2 ±0.2	t min.	⚖
GN 730-110-BL	110	M 6	10	9.5	33	32	24	90	9	94
GN 730-110-EL	110	M 6	10	9.5	33	32	24	90	9	98
GN 730-110-SR	110	M 6	10	9.5	33	32	24	90	9	100
GN 730-110-SW	110	M 6	10	9.5	33	32	24	90	9	100
GN 730-125-BL	125	M 6	10	9.5	33	32	24	105	9	105
GN 730-125-EL	125	M 6	10	9.5	33	32	24	105	9	108
GN 730-125-SR	125	M 6	10	9.5	33	32	24	105	9	110
GN 730-125-SW	125	M 6	10	9.5	33	32	24	105	9	110
GN 730-140-BL	140	M 6	10	9.5	33	32	24	120	9	120
GN 730-140-EL	140	M 6	10	9.5	33	32	24	120	9	120
GN 730-140-SR	140	M 6	10	9.5	33	32	24	120	9	125
GN 730-140-SW	140	M 6	10	9.5	33	32	24	120	9	125

GN 730.5

Stainless Steel-Ledge handle

SPECIFICATION

Stainless Steel precision casting **A4**

- AISI 316
- matte shot-blasted **GS**

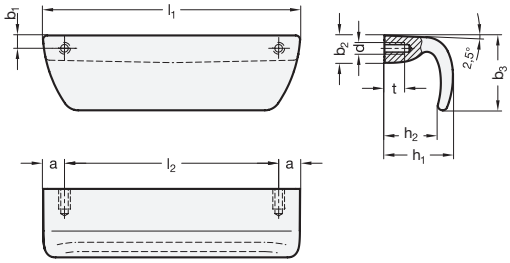
INFORMATION

The GN 730.5 Stainless Steel-Ledge handle is used on doors, guards and hatches on machines, as well as on drawers and pull-out units. Due to the A4 material used, the handle is intended especially for use in corrosive environments with aggressive media.
The ledge handle is made in a way that does not allow pooling of fluids, which makes cleaning easier and prevents build up of residue and bacteria.
It can be attached from the back side via the mounting thread. Alternatively, the handles can be welded from the front.

ON REQUEST

- polished or plastic coated





GN 730.5 **STAINLESS STEEL**

Description	l1	d	a	b1	b2	b3	h1	h2	l2	t min.	⚖
GN 730.5-A4-120-GS	120	M6	10	6	12.5	35	32	25	100	9	347

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GN 430

Ledge handles

SPECIFICATION

Aluminium

plastic coated
black, RAL 9005, textured finish **SW**

anodized, natural colour **EL**

End caps
Plastic
Technopolymer (Polyamide PA)
black-grey

INFORMATION

Typical applications for ledge handles GN 430 include swivel or sliding doors on protective doors and equipment. They are also suitable for use as drawer handles.
The screw channel for screw sizes M6 (extruded aluminium) allows an optional number of fixing screws in any position within the dimension l_2.
Special lengths can be manufactured from relatively small quantities upwards.

ON REQUEST

- Special lengths

TECHNICAL INFORMATION

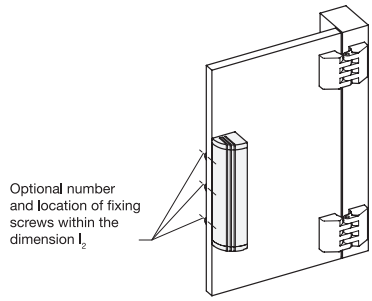
- Plastic characteristics (see page A2)

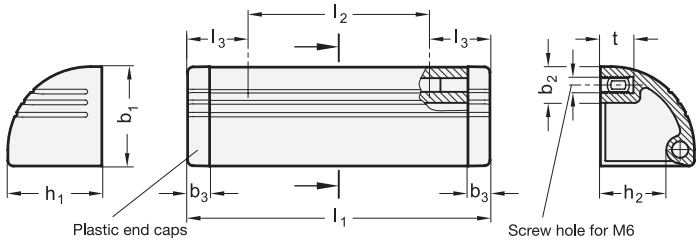
MOUNTING INFORMATION

- Minimum screw-in-depth: 10 mm
- Max. load (screw): 400 N
- Max. tightening torque: 4 Nm



EXAMPLE OF APPLICATION





*Complete with colour index of the Ledge handles (SW or EL)

SW RAL9005 EL anodized

GN 430

Description	l_1	b_1	b_2	b_3	h_1	h_2	l_2	l_3	t	⚖
GN 430-110-*	110	36	13	8	34	24	66	22	12	86
GN 430-130-*	130	36	13	8	34	24	86	22	12	101
GN 430-150-*	150	36	13	8	34	24	106	22	12	117
GN 430-200-*	200	36	13	8	34	24	156	22	12	159
GN 430-250-*	250	36	13	8	34	24	206	22	12	196
GN 430-300-*	300	36	13	8	34	24	256	22	12	233
GN 430-400-*	400	36	13	8	34	24	356	22	12	314
GN 430-500-*	500	36	13	8	34	24	456	22	12	388

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GN 430.1

Ledge handles

with lettering block

SPECIFICATION

Aluminium

plastic coated
black, RAL 9005, textured finish **SW**

anodized, natural colour **EL**

Ends
plastic
Technopolymer (Polyamide PA)
black-grey

Lettering block
Insert groove supplied with:

paper strip 200 g/m^2, width 19.5 mm
bright white, age-resistant

PVC hard film
transparent



INFORMATION

Typical applications for ledge handles with lettering block GN 430.1 include swivel or sliding doors on protective doors and equipment. They are also suitable for use as drawer handles.
The screw channel for screw sizes M6 (extruded aluminium) allows an optional number of fixing screws in any position within the dimension l_2.
Special lengths can be manufactured from relatively small quantities upwards.
In the design with lettering block, the end cap when delivered is mounted on one side such that the paper / film strip supplied can be lettered and pushed into the groove provided.
The paper strip can also be used as substrate for common lettering tape in widths below 18 mm.

ON REQUEST

- Special lengths
- single paper strips / film strips

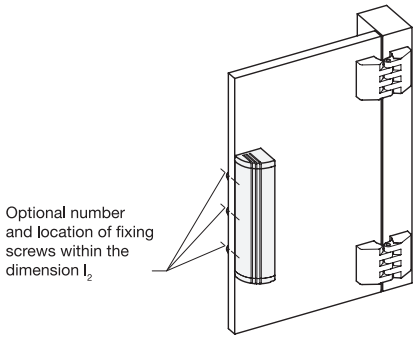
TECHNICAL INFORMATION

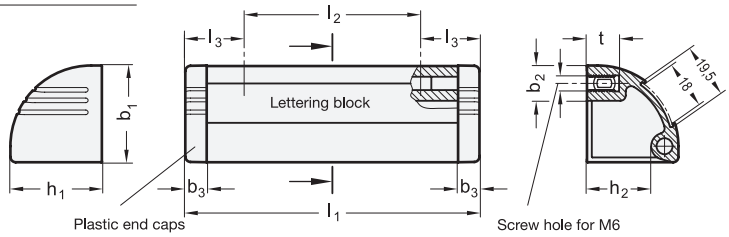
- Plastic characteristics (see page A2)

MOUNTING INFORMATION

- Minimum screw-in-depth: 10 mm
- Max. load (screw): 400 N
- Max. tightening torque: 4 Nm

EXAMPLE OF APPLICATION





*Complete with colour index of the Ledge handles (SW or EL)

SW RAL9005 EL anodized

GN 430.1

Description	l1	b1	b2	b3	h1	h2	l2	l3	t	⚖
GN 430.1-110-*	110	36	13	8	34	24	66	22	12	87
GN 430.1-130-*	130	36	13	8	34	24	86	22	12	101
GN 430.1-150-*	150	36	13	8	34	24	106	22	12	140
GN 430.1-200-*	200	36	13	8	34	24	156	22	12	154
GN 430.1-250-*	250	36	13	8	34	24	206	22	12	195
GN 430.1-300-*	300	36	13	8	34	24	256	22	12	234
GN 430.1-400-*	400	36	13	8	34	24	356	22	12	320
GN 430.1-500-*	500	36	13	8	34	24	456	22	12	400

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Guard safety handles

Technopolymer

MATERIAL
Polyamide based (PA) technopolymer, black colour, matte finish.

SCREW COVER
Technopolymer in standard colours: black, orange, grey, yellow, light-blue, red, matte finish, snap-in assembly, removable by a screwdriver.

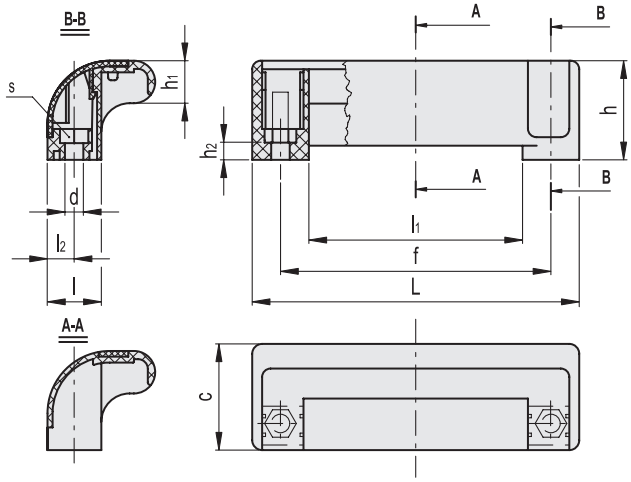
STANDARD EXECUTION
Pass-through holes for cylindrical-head screws with hexagon socket, hexagonal-head screws or standard lock nuts.

FEATURES AND APPLICATIONS
M.990 handles have been especially designed to fit machine guards or automation systems with double-leaf door. The special closed design of the handle represents a safety element for the operator's fingers. Moreover, the coloured cover improves the visibility of the handle and offers the possibility of product customisation.

TECHNICAL DATA
Tensile stress: F1 value reported in the table is the result of breaking tests carried out with an appropriate dynamometric equipment under the test conditions shown in the figure with ambient temperature.
Maximum tightening torque for screw assembly 3 Nm.



FM design





C9	C2	C3	C4	C5	C6
RAL9005	RAL2004	RAL7035	RAL1021	RAL5024	RAL3000

M.990

Code	Description	L	f±0.5	d	s	h	h1	h2	c	l	l1	l2	F1 [N]	⚖
138511	M.990/115 EH-6-C9	115	93.5	6.5	10	35	15	6	37.5	19	75.5	9.5	900	33
138512	M.990/115 EH-6-C2	115	93.5	6.5	10	35	15	6	37.5	19	75.5	9.5	900	33
138513	M.990/115 EH-6-C3	115	93.5	6.5	10	35	15	6	37.5	19	75.5	9.5	900	33
138514	M.990/115 EH-6-C4	115	93.5	6.5	10	35	15	6	37.5	19	75.5	9.5	900	33
138515	M.990/115 EH-6-C5	115	93.5	6.5	10	35	15	6	37.5	19	75.5	9.5	900	33
138516	M.990/115 EH-6-C6	115	93.5	6.5	10	35	15	6	37.5	19	75.5	9.5	900	33

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Guard safety handles

Technopolymer

MATERIAL

Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

STANDARD EXECUTION

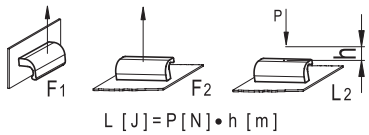
- **MSP-B**: brass boss, threaded blind hole. Fitting by means of no. 2 M6 screws, not included in the supply.
- **MSP-AF**: blind holes for fitting by means of no. 2 self-tapping screws for plastic materials Ø5 (UNI ISO 7049), not included in the supply.

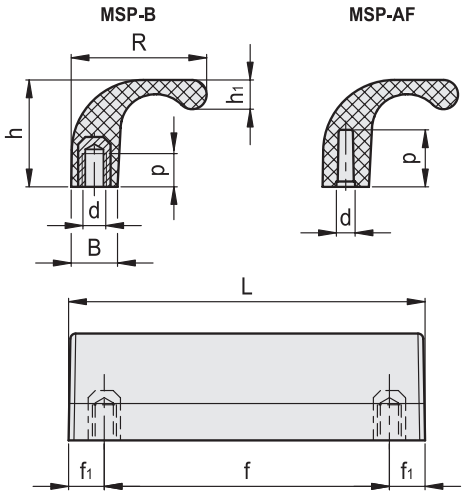
TECHNICAL DATA

Tensile stress and impact strength: F1, F2 and L2 values reported in the table are the result of breaking tests, carried out with the appropriate dynamometric equipment, under the test conditions shown in the figure with ambient temperature.



ELESA Original design





Code	Description	L	f±0.5	d	f1	h	h1	B	R	p	F1 [N]	F2 [N]	L2 [J]	⚖
43961	MSP.100-B M6	100	80	M6	10	30	8.7	13	38	12	3000	1900	10	54
43965	MSP.100-AF 4.8	100	80	4.5	10	30	8.7	13	38	14	700	900	7	47

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Guard safety handles

Technopolymer

MATERIAL
Glass-fibre reinforced polyamide based (PA) technopolymer, grey-black colour, matte finish.

SCREW COVER
Technopolymer in Ergostyle colours, glossy finish. Supplied with the handle, press-fit assembly, removable by a screwdriver.
Available also as accessories sold separately (see table ECO.).

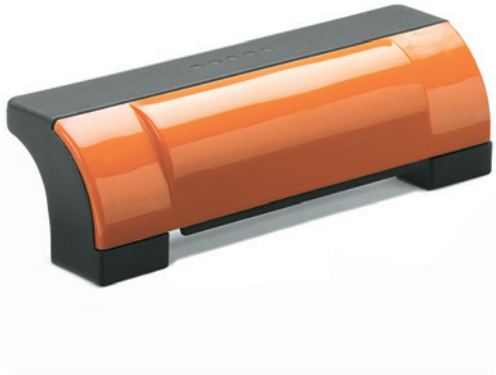
Code	Description
29864-*	ECO.S4-*

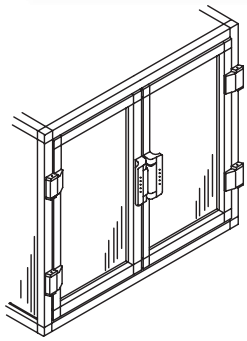
* Complete with colour index (C1, ..., C6).

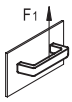
STANDARD EXECUTIONS
- **ESP-EH:** pass-through holes for cylindrical-head screws with hexagon socket, hexagonal-head screws or standard lock nuts.
- **ESP-SH:** pass-through holes for countersunk head screws.

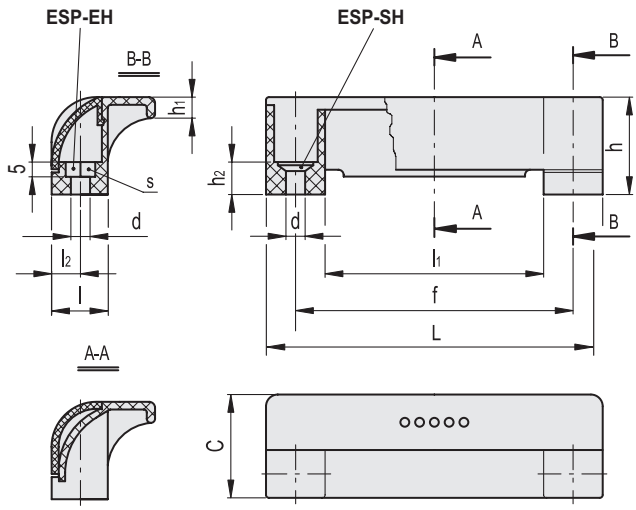
FEATURES AND APPLICATIONS
ESP handles have been especially designed to fit machine guards or automation systems with double-leaf door. The special closed design of the handle represents a safety element for the operator's fingers. Moreover, the coloured cover improves the visibility of the handle and offers the possibility of product customisation.

TECHNICAL DATA
Tensile stress: F1 value reported in the table is the result of breaking tests carried out with an appropriate dynamometric equipment under the test conditions shown in the figure with ambient temperature.











*Complete with colour index, example: 265111-C1 ESP.110-EH-C1

C1	C2	C3	C4	C5	C6
RAL7021	RAL2004	RAL7035	RAL1021	RAL5024	RAL3000

Code	Description	L	f±0.5	d	s	h	h1	h2	C	l	l1	l2	F1 [N]	⚖
265111-*	ESP.110-EH-*	114	93.5	6.5	10	33	7	11	35	19	74	9.5	900	33
265151-*	ESP.110-SH-*	114	93.5	6.5	-	33	7	11	35	19	74	9.5	900	33

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Guard wing handles

Technopolymer

MATERIAL
Glass-fibre reinforced polyamide based (PA) technopolymer, grey-black colour, matte finish.

SCREW-COVERS
Technopolymer in Ergostyle colours, glossy finish. Supplied with the handle, press-fit assembly, removable by a screwdriver.
Available also as accessories sold separately (see table ECA.).

Code	Description
29865-*	ECA.P5-*

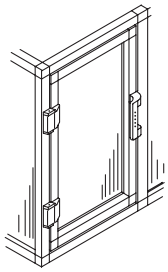
* Complete with colour index (C1, ..., C6).

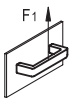
STANDARD EXECUTIONS
- **EWP-EH:** pass-through holes for cylindrical-head screws with hexagon socket, hexagonal-head screws or standard lock nuts.
- **EWP-SH:** pass-through holes for countersunk head screws.

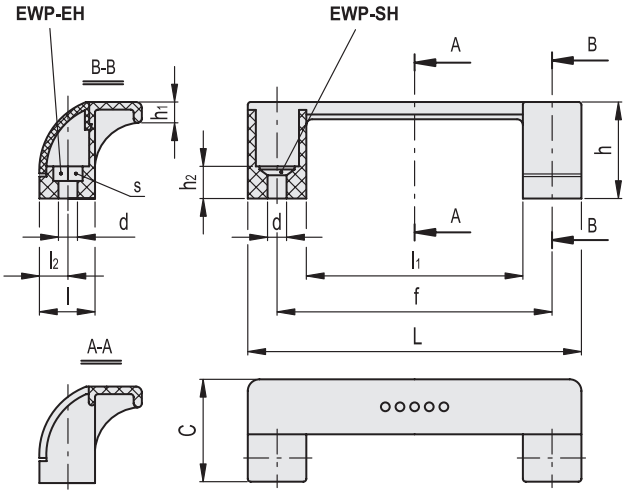
FEATURES AND APPLICATIONS
EWP. handles have been especially designed to fit machine guards or automation systems with single-leaf door. The coloured caps improve the visibility of the handle and offer the possibility of product customisation.

TECHNICAL DATA
Tensile stress: F1 value reported in the table is the result of breaking tests carried out with an appropriate dynamometric equipment under the test conditions shown in the figure with ambient temperature.











*Complete with colour index, example: 265211-C2 EWP.110-EH-C2

C1	C2	C3	C4	C5	C6
RAL7021	RAL2004	RAL7035	RAL1021	RAL5024	RAL3000

Code	Description	L	f±0.5	d	s	h	h1	h2	C	l	l1	l2	F1 [N]	⚖
265211-*	EWP.110-EH-*	114	93.5	6.5	10	33	7	11	35	19	74	9.5	900	26
265251-*	EWP.110-SH-*	114	93.5	6.5	-	33	7	11	35	19	74	9.5	900	26

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Flush pull handles

for snap-in assembly, technopolymer

STANDARD EXECUTIONS

Snap-in assembly (see Assembly Instructions).

- **PR-PF**: glass-fibre reinforced polyamide based (PA) technopolymer, grey-black, orange and light grey colours, matte finish.
- **PR-PF-CLEAN**: glass-fibre reinforced polyamide based (PA) technopolymer white colour similar to RAL 9002, matte finish.

ERGONOMY AND DESIGN

A modern design thanks to the compact shape. The internal profile of the cavity offers a safe, comfortable and ergonomic grip.
PR-PF-CLEAN in white colour is particularly suitable for applications on medical and hospital equipment and for food processing machines.

TECHNICAL DATA

The lifting (F1) and pull out (F2) resistance values reported in the table are the result of the tests carried out in laboratory with handles assembled on strengthened metal sheet panels with thickness = 1.5 mm (strengthened for test purposes).

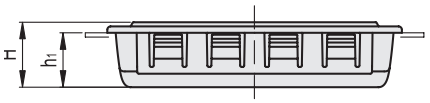
ASSEMBLY INSTRUCTIONS

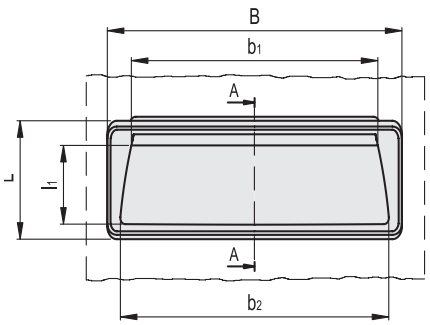
1. Drill the handle housing according to the template dimensions reported in the table.
2. Remove all drilling burrs before fitting the handle.
3. Fit the upper part of the handle into the housing (Fig. 1).
4. Press onto the lower part until the handle is completely snapped in (Fig. 2).

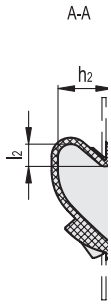


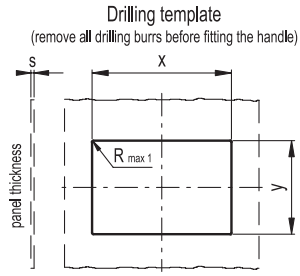
ELESA Original design

s	PR.92-PF x	PR.92-PF y	PR.137-PF x	PR.137-PF y
0.7÷1	87.5	30.5	132	30.5
1÷1.5	87.5	30.7	132	30.7
1.5÷2	87.5	31.7	132	31.7
2÷2.2	87.5	31.7	132	31.7









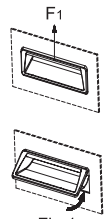


Fig.1

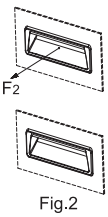


Fig.2

C1 RAL7021 C2 RAL2004 C3 RAL7035

PR-PF

Code	Description	B	L	H	h1	h2	b1	b2	l1	l2	F1 [N]	F2 [N]	⚖
51955-C1	PR.92-PF-C1	92	37	19	17	17	76	83	25	7	1800	500	19
51955-C2	PR.92-PF-C2	92	37	19	17	17	76	83	25	7	1800	500	19
51955-C3	PR.92-PF-C3	92	37	19	17	17	76	83	25	7	1800	500	19
51958-C1	PR.137-PF-C1	137	37	19	17	17	122	128	25	7	1800	500	28
51958-C2	PR.137-PF-C2	137	37	19	17	17	122	128	25	7	1800	500	28
51958-C3	PR.137-PF-C3	137	37	19	17	17	122	128	25	7	1800	500	28

PR-PF-CLEAN

Code	Description	B	L	H	h1	h2	b1	b2	l1	l2	F1 [N]	F2 [N]	⚖
151081	PR.92-PF-CLEAN	92	37	19	17	17	76	83	25	7	1800	500	19
151086	PR.137-PF-CLEAN	137	37	19	17	17	122	128	25	7	1800	500	28

PR-PF-AE-V0

Flush pull handles

for snap-in assembly, technopolymer certified self-extinguishing

MATERIAL
Glass-fibre reinforced polyamide based (PA) technopolymer certified self-extinguishing UL-94 V0, grey-black colour, matte finish.

STANDARD EXECUTION
Snap-in assembly (see Assembly Instructions).

ERGONOMY AND DESIGN
A modern design thanks to the compact shape. The internal profile of the cavity offers a safe, comfortable and ergonomic grip.

TECHNICAL DATA
The "V0" certification in accordance with UL-94 V (Underwriters Laboratories) (see Technical Data on page A5) indicates that on a plastic test sample with specific shape and dimensions, in the vertical position, the flame is extinguished within 10 seconds, without generating any incandescent drops.
The lifting (F1) and pull out (F2) resistance values reported in the table are the result of the tests carried out in laboratory with handles assembled on strengthened metal sheet panels with thickness = 1.5 mm (strengthened for test purposes).

ASSEMBLY INSTRUCTIONS
1. Drill the handle housing according to the template dimensions reported in the table.
2. Remove all drilling burrs before fitting the handle.
3. Fit the upper part of the handle into the housing (Fig. 1).
4. Press onto the lower part until the handle is completely snapped in (Fig. 2).



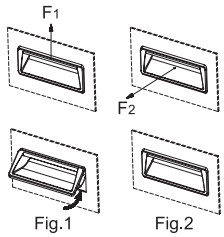
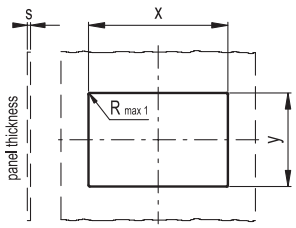


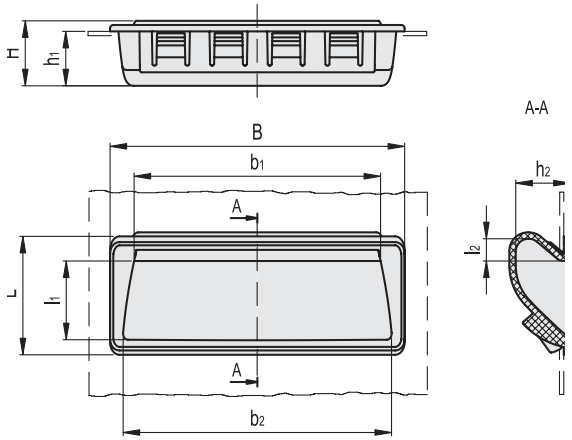
Fig.1 Fig.2

ELESA Original design

Drilling template
(remove all drilling burrs before fitting the handle)



s	PR.92-PF AE-V0 x	PR.92-PF AE-V0 y	PR.137-PF AE-V0 x	PR.137-PF AE-V0 y
0.7÷1	87.5	30.7	132	30.8
1÷1.5	87.5	30.9	132	30.8
1.5÷2	87.5	31.9	132	31.8
2÷2.2	87.5	31.9	132	31.8



Code	Description	B	L	H	h1	h2	b1	b2	l1	l2	F1 [N]	F2 [N]	⚖
150701-C1	PR.92-PF-AE-V0-C1	92	37	19	17	17	76	83	25	7	1800	500	19
150711-C1	PR.137-PF-AE-V0-C1	137	37	19	17	17	122	128	25	7	1800	500	28

CLEAN RoHS PA +80° 0°

Flush pull handles

for snap-in assembly, technopolymer



STANDARD EXECUTIONS

Snap-in assembly (see Assembly Instructions).

- **EPR-PF:** glass-fibre reinforced polyamide based (PA) technopolymer, grey-black colour, matte finish.
- **EPR-PF-CLEAN:** glass-fibre reinforced polyamide based (PA) technopolymer, white colour similar to RAL 9002, matte finish.

ERGONOMY AND DESIGN

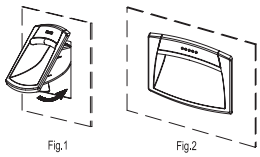
A modern design thanks to the compact shape. The internal profile of the cavity offers a safe, comfortable and ergonomic grip.
EPR-PF CLEAN in white colour is particularly suitable for application medical and hospital equipment and for food processing machines.

TECHNICAL DATA

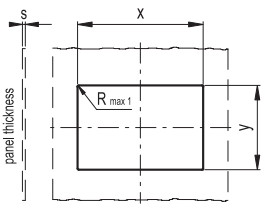
The lifting (F1) and pull out (F2) resistance values reported in the table are the result of the tests carried out in laboratory with handles assembled on strengthened metal sheet panels with thickness = 1.5 mm (strengthened for test purposes).

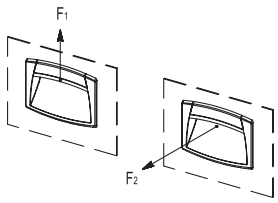
ASSEMBLY INSTRUCTIONS

1. Drill the handle housing according to the template dimensions reported in the table.
2. Remove all drilling burrs before fitting the handle.
3. Fit the upper part of the handle into the housing (Fig. 1).
4. Press onto the lower part until the handle is completely snapped in (Fig. 2).



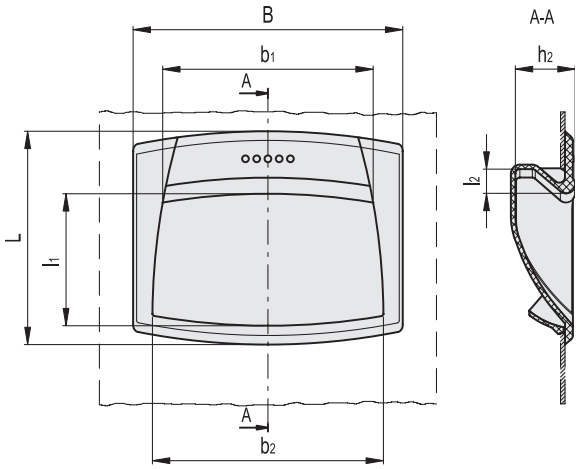
Drilling template
(remove all drilling burrs before fitting the handle)





ERGOSTYLE® product design award 2007





s	EPR.90-PF		EPR.110-PF		EPR.120-PF	
	x	y	x	y	x	y
0.7	$85^{+0.2}$	$34.9^{\pm0.1}$	$100^{\pm0.2}$	$49.7^{\pm0.1}$	$107.5^{+0.2}$	$70.5^{\pm0.1}$
1	$85^{+0.2}$	$35.1^{\pm0.1}$	$100^{\pm0.2}$	$50^{\pm0.1}$	$107.5^{+0.2}$	$70.8^{\pm0.1}$
1.5	$85^{+0.2}$	$36.1^{\pm0.1}$	$100^{\pm0.2}$	$50.4^{\pm0.1}$	$107.5^{+0.2}$	$71.2^{\pm0.1}$
2	$85^{+0.2}$	$36.1^{\pm0.1}$	$100^{\pm0.2}$	$50.7^{\pm0.1}$	$107.5^{+0.2}$	$71.5^{\pm0.1}$
2.2	$85^{+0.2}$	$36.1^{\pm0.1}$	$100^{\pm0.2}$	$50.7^{\pm0.1}$	$107.5^{+0.2}$	$71.5^{\pm0.1}$

EPR-PF

Code	Description	B	L	H	h1	h2	b1	b2	l1	l2	F1 [N]	F2 [N]	⚖
261051-C1	EPR.90-PF-C1	90	50	19	17	17.5	76	79	28	7	1800	500	20
261081-C1	EPR.110-PF-C1	109	73	24	20	21.5	91	96	42	9	1300	400	45
261111-C1	EPR.120-PF-C1	120	95	28.5	24	26.5	94	103	58	11	1000	250	58

EPR-PF-CLEAN

Code	Description	B	L	H	h1	h2	b1	b2	l1	l2	F1 [N]	F2 [N]	⚖
151001	EPR.90-PF-CLEAN	90	50	19	17	17.5	76	79	28	7	1800	500	20
151005	EPR.110-PF-CLEAN	109	73	24	20	21.5	91	96	42	9	1300	400	45
151011	EPR.120-PF-CLEAN	120	95	28.5	24	26.5	94	103	58	11	1000	250	58

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EPR-PF-AE-V0

Flush pull handles

for snap-in assembly,

technopolymer certified self-extinguishing

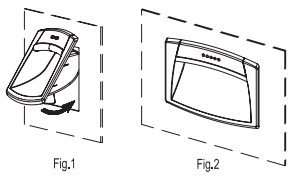
MATERIAL
Glass-fibre reinforced polyamide based (PA) technopolymer certified self-extinguishing UL-94 V0, grey-black colour, matte finish.

STANDARD EXECUTION
Snap-in assembly (see Assembly Instructions).

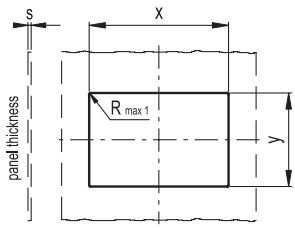
ERGONOMY AND DESIGN
A modern design thanks to the compact shape. The internal profile of the cavity offers a safe, comfortable and ergonomic grip.

TECHNICAL DATA
The "V0" certification in accordance with UL-94 V (Underwriters Laboratories) (see Technical Data on page A5) indicates that on a plastic test sample with specific shape and dimensions, in the vertical position, the flame is extinguished within 10 seconds, without generating any incandescent drops.
The lifting (F1) and pull out (F2) resistance values reported in the table are the result of the tests carried out in laboratory with handles assembled on strengthened metal sheet panels with thickness = 1.5 mm (strengthened for test purposes).

ASSEMBLY INSTRUCTIONS
1. Drill the handle housing according to the template dimensions reported in the table.
2. Remove all drilling burrs before fitting the handle.
3. Fit the upper part of the handle into the housing (Fig. 1).
4. Press onto the lower part until the handle is completely snapped in (Fig. 2).

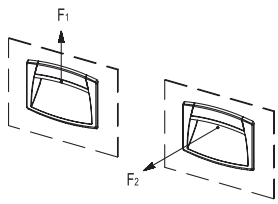


Drilling template
(remove all drilling burrs before fitting the handle)

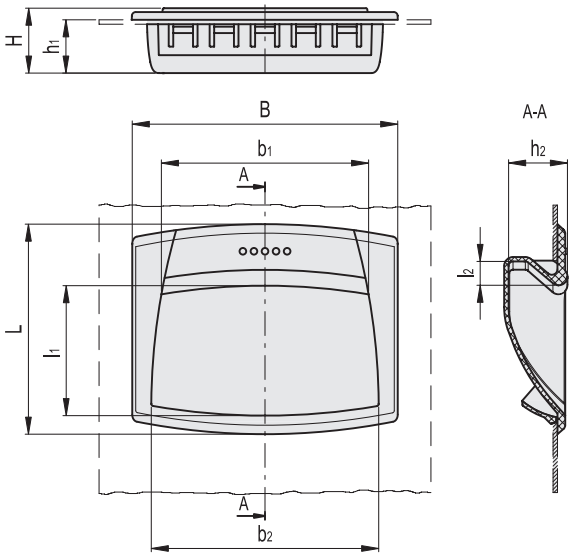


	EPR.90-PF AE-V0		EPR.110-PF AE-V0		EPR.120-PF AE-V0	
s	x	y	x	y	x	y
0.7	$85^{+0.2}$	$35.2^{\pm0.1}$	$100.5^{+0.2}_{0}$	$50.1^{\pm0.1}$	$107.5^{+0.2}$	$70.6^{\pm0.1}$
1	$85^{+0.2}$	$35.3^{\pm0.1}$	$100.5^{+0.2}_{0}$	$50.4^{\pm0.1}$	$107.5^{+0.2}$	$70.9^{\pm0.1}$
1.5	$85^{+0.2}$	$36.3^{\pm0.1}$	$100.5^{+0.2}_{0}$	$50.8^{\pm0.1}$	$107.5^{+0.2}$	$71.3^{\pm0.1}$
2	$85^{+0.2}$	$36.3^{\pm0.1}$	$100.5^{+0.2}_{0}$	$51.1^{\pm0.1}$	$107.5^{+0.2}$	$71.6^{\pm0.1}$
2.2	$85^{+0.2}$	$36.3^{\pm0.1}$	$100.5^{+0.2}_{0}$	$51.1^{\pm0.1}$	$107.5^{+0.2}$	$71.6^{\pm0.1}$





ERGOSTYLE® product design award 2007



Code	Description	B	L	H	h1	h2	b1	b2	l1	l2	F1 [N]	F2 [N]	⚖
150611-C1	EPR.90-PF-AE-V0-C1	90	50	19	17	17.5	76	79	28	7	1800	500	20
150631-C1	EPR.110-PF-AE-V0-C1	109	73	24	20	21.5	91	96	42	9	1300	400	45
150651-C1	EPR.120-PF-AE-V0-C1	120	95	28.5	24	26.5	94	103	58	11	1000	250	58

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Flush pull handles

for screw mounting, technopolymer

MATERIAL

Glass-fibre reinforced polyamide based (PA) technopolymer, grey-black colour, matte finish.

COVER

Technopolymer in Ergostyle colours, glossy finish, removable by a screwdriver by playing upon the central part (see drawing).
Available also as accessory sold separately (see table ECO.).

Code	Description	Cover for
29851-*	ECO.R1-*	EPR.110
29852-*	ECO.R2-*	EPR.120

* Complete with colour index (C1, ..., C6).

STANDARD EXECUTIONS

Pass-through holes for AISI 304 stainless steel self-tapping screws according to ISO 7050 Ø 2.9x9.5 mm, supplied (see Assembly instructions).
- **EPR-SH:** open cavity handle without flap.
- **EPR-F-SH:** handle with grey-black technopolymer flap, matte finish, stainless steel return spring.

ERGONOMY AND DESIGN

A modern design thanks to the compact shape. The internal profile of the cavity offers a safe, comfortable and ergonomic grip. The coloured screw cover improves the visibility of the handle and offers the possibility of product customization.
The flap is a unique feature for closing completely the recess and opens by simply putting the hand into.

TECHNICAL DATA

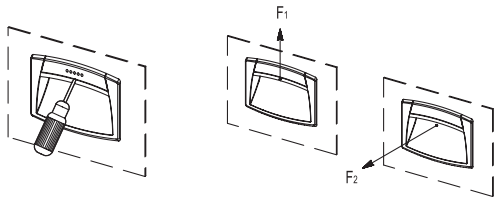
The lifting (F1) and pull out (F2) resistance values reported in the table are the result of the tests carried out in laboratory with handles assembled on strengthened metal sheet panels with thickness = 1.5 mm (strengthened for test purposes).

DRILLING TEMPLATE

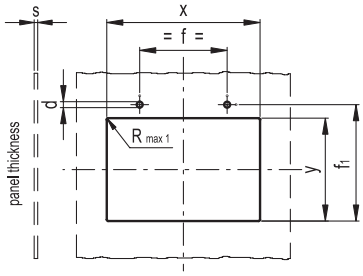
On panels with thickness (s) exceeding 2.5 mm, we recommend you to fit the handle following one of the here-under reported ways:
- by two self-tapping screws in the bores "d";
- by two countersunk head screws M3x6 after tapping the bores in the panel;
- by two countersunk head screws M3x10 with nuts, after drilling blind holes Ø 3.2 mm.



ERGOSTYLE®



Drilling template
(remove all drilling burrs before fitting the handle)



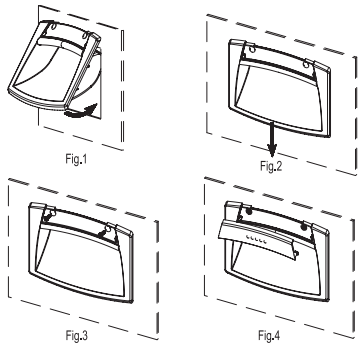
	EPR.110-SH				EPR.120-SH				
s	x	y	f	f1	x	y	f	f1	d
1÷1.2	100 +0.2	52 +0.5	64 ±0.1	55.5 ±0.1	107.5 +0.2	73 +0.5	64 ±0.1	76.8 ±0.1	2.5 ±0.02
>1.2÷1.5	100 +0.2	52.2 +0.5	64 ±0.1	55.7 ±0.1	107.5 +0.2	73 +0.5	64 ±0.1	77 ±0.1	2.55 ±0.02
>1.5÷2	100 +0.2	52.5 +0.5	64 ±0.1	56 ±0.1	107.5 +0.2	73 +0.5	64 ±0.1	77.2 ±0.1	2.6 ±0.02
>2÷2.5	100 +0.2	52.7 +0.5	64 ±0.1	56.2 ±0.1	107.5 +0.2	74 +0.5	64 ±0.1	77.5 ±0.1	2.65 ±0.02
>2.5÷3	100 +0.2	53 +0.5	64 ±0.1	56.5 ±0.1	107.5 +0.2	74 +0.5	64 ±0.1	77.8 ±0.1	2.65 ±0.02
>3÷3.5	100 +0.2	53.2 +0.5	64 ±0.1	56.7 ±0.1	107.5 +0.2	74 +0.5	64 ±0.1	78.1 ±0.1	2.7 ±0.02
>3.5÷4	100 +0.2	53.4 +0.5	64 ±0.1	56.9 ±0.1	107.5 +0.2	75 +0.5	64 ±0.1	78.4 ±0.1	2.7 ±0.02
>4÷4.5	100 +0.2	53.6 +0.5	64 ±0.1	57.1 ±0.1	107.5 +0.2	75 +0.5	64 ±0.1	78.7 ±0.1	2.7 ±0.02
>4.5÷5	100 +0.2	53.8 +0.5	64 ±0.1	57.3 ±0.1	107.5 +0.2	75 +0.5	64 ±0.1	79 ±0.1	2.7 ±0.02

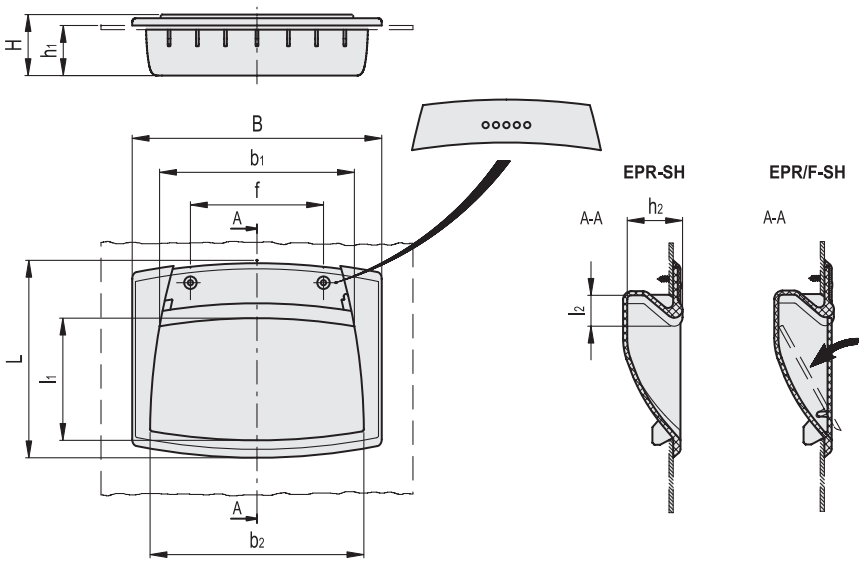
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EPR. | Flush pull handles

ASSEMBLY INSTRUCTIONS

1. Drill the handle housing according to the template dimensions reported in the table.
2. Remove all drilling burrs before fitting the handle.
3. Fit the upper part of the handle into the housing (Fig. 1) and press onto the lower part until firmly in place.
4. Gently push the handle downward (Fig. 2).
5. Fit the two self-tapping screws (Fig. 3).
6. Assemble the screw cover by pressing on the lateral sides first and finally on the central part (Fig. 4).







*Complete with colour index, example: 261091-C2 EPR.110-SH-C2

C1	C2	C3	C4	C5	C6
RAL7021	RAL2004	RAL7035	RAL1021	RAL5024	RAL3000

Code	Description	B	f	L	H	h1	h2	b1	b2	l1	l2	F1 [N]	F2 [N]	⚖
261091-*	EPR.110-SH-*	109	64	73	24	20	21.5	90	96	42	9	1300	500	39
261121-*	EPR.120-SH-*	120	64	95	28.5	24	26.5	94	103	58	11	1200	400	55
261131-*	EPR.120/F-SH-*	120	64	95	28.5	24	26.5	94	103	-	11	1200	400	70

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Bi-directional flush pull handles

for snap-in assembly, technopolymer



ELESA Original design

STANDARD EXECUTIONS

- **ERB-PF**: glass-fibre reinforced polyamide based (PA) technopolymer grey-black colour, matte finish.
- **ERB-PF-CLEAN**: glass-fibre reinforced polyamide based (PA) technopolymer white colour similar to RAL 9002, matte finish.

FEATURES AND APPLICATIONS

ERB-PF bi-directional flush pull handles are suitable to open and close sliding doors. The ergonomy of the cavity offers a safe and comfortable grip.
ERB-CLEAN in white colour is suitable for applications on medical and hospital equipment and food processing machines.

TECHNICAL DATA

The pull out resistance values (F2) reported in the table are the result of laboratory tests carried out with the handle assembled on a panel with a thickness of 1.5 mm, stiffened for testing purposes.

ASSEMBLY INSTRUCTIONS

1. Drill the handle housing according to the template dimensions reported in the table.
2. Remove all drilling burrs before fitting the handle.
3. Fit the side of the handle with fixed toothing into the housing (Fig. 1).
4. Press onto the opposite side (elastic toothing) until the handle is completely snapped in (Fig. 2).

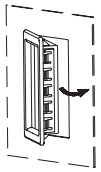


Fig.1

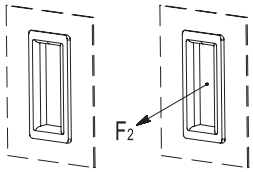
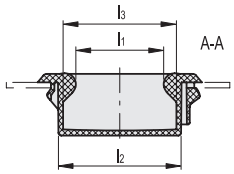
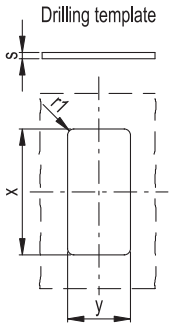
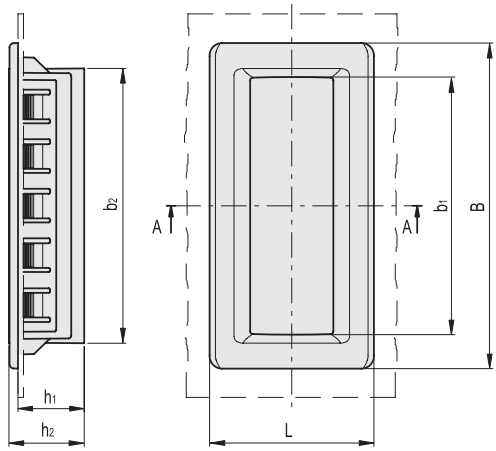


Fig.2

	ERB-PF ERB-PF-CLEAN	
S	X	Y
0,7 - 1	105,3 +0,2	51,5 + 0,2
1 - 1,5	105,3 +0,2	51,7 + 0,2
1,5 - 2,2	105,3 +0,2	52,0 + 0,2







ERB-PF

Code	Description	B	L	h1	h2	b1	b2	l1	l2	l3	F2 [N]	⚖
261401-C1	ERB.115-PF-C1	115	58	19	22	91	94	31	43.5	40	600	42

ERB-PF-CLEAN

Code	Description	B	L	h1	h2	b1	b2	l1	l2	l3	F2 [N]	⚖
151301	ERB.115-PF-CLEAN	115	58	19	22	91	94	31	43.5	40	600	42

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ERB-PF-AE-V0

Bi-directional flush pull handles

for snap-in assembly, technopolymer certified self-extinguishing



ELESA Original design

MATERIAL
Glass-fibre reinforced polyamide based (PA) technopolymer certified self-extinguishing UL-94 V0, grey-black colour, matte finish.

FEATURES AND APPLICATIONS
ERB-PF bi-directional flush pull handles are suitable to open and close sliding doors. The ergonomy of the cavity offers a safe and comfortable grip.

TECHNICAL DATA
The "V0" certification in accordance with UL-94 V (Underwriters Laboratories) (see Technical Data on page A5) indicates that on a plastic test sample with specific shape and dimensions, in the vertical position, the flame is extinguished within 10 seconds, without generating any incandescent drops.
The pull out resistance value (F2) reported in the table is the result of laboratory tests carried out with the handle assembled on a panel with a thickness of 1.5 mm, stiffened for testing purposes.

ASSEMBLY INSTRUCTIONS
1. Drill the handle housing according to the template dimensions reported in the table.
2. Remove all drilling burrs before fitting the handle.
3. Fit the side of the handle with fixed toothing into the housing (Fig. 1).
4. Press onto the opposite side (elastic toothing) until the handle is completely snapped in (Fig. 2).



Fig.1

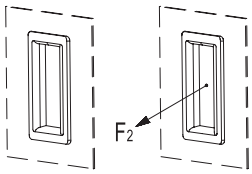
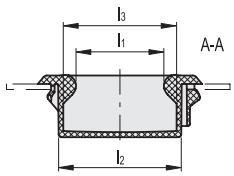
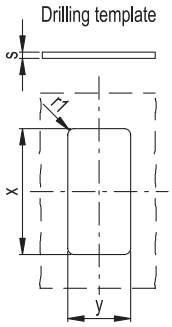
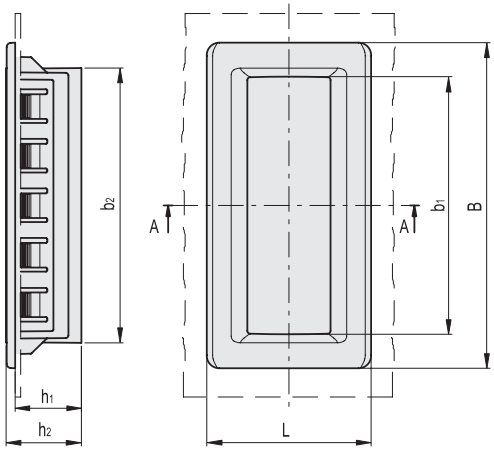


Fig.2

	ERB-PF-AE-V0	
S	X	Y
0,7 - 1	105,7 +0,2	51,7 + 0,2
1 - 1,5	105,7 +0,2	51,8 + 0,2
1,5 - 2,2	105,7 +0,2	52,2 + 0,2







Code	Description	B	L	h1	h2	b1	b2	l1	l2	l3	F2 [N]	⚖
150901-C1	ERB.115-PF-AE-V0-C1	115	58	19	22	91	94	31	43.5	40	600	42

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CLEAN RoHS PA +110° -30°

Bi-directional flush pull handles

for screw mounting, technopolymer



ERGOSTYLE®

MATERIAL

Glass-fibre reinforced polyamide based (PA) technopolymer.

STANDARD EXECUTIONS

Assembly by means of 4 zinc-plated steel self-tapping screws, Ø 3.5x20, supplied. Maximum tightening torque of the screws 1.2 [Nm].

- **ERB:** grey-black colour, matte finish.
- **ERB-CLEAN:** white colour similar to RAL 9002, matte finish.

FEATURES AND APPLICATIONS

ERB. bi-directional flush pull handles are suitable to open and close sliding doors.
ERB-CLEAN in white colour is suitable for applications on medical and hospital equipment and food processing machines.
The ergonomy of the cavity offers a safe and secure, comfortable and ergonomic grip. Rounded and compact lines.

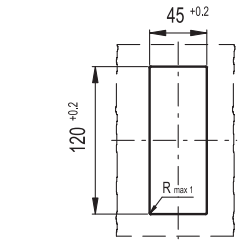
TECHNICAL DATA

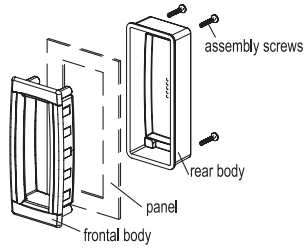
The lifting (F1) and pull out (F2) resistance values reported in the table are the result of the tests carried out in laboratory with handles assembled on strengthened metal sheet panels with thickness = 1.5 mm (strengthened for test purposes).

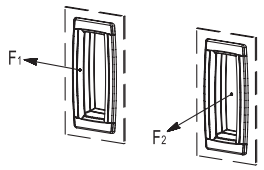
ASSEMBLY INSTRUCTIONS

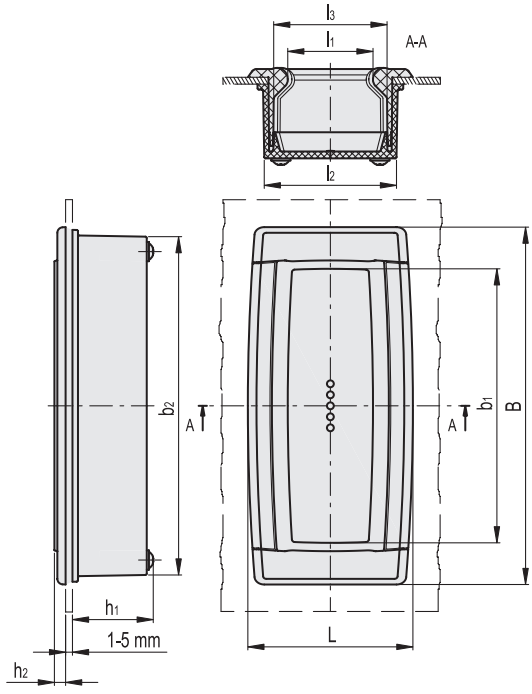
1. Drill the handle housing according to the template dimensions reported in the table.
2. Remove all drilling burrs before fitting the handle.
3. Fit the frontal body of the handle into the housing of the panel.
4. Fit the rear body of the handle onto the rear panel and press until the complete fitting with the frontal handle part.
5. Fit the two bodies with self-tapping screws.

Drilling template
(remove all drilling burrs before fitting the handle)









Code	Description	B	L	h1	h2	b1	b2	l1	l2	l3	F1 [N]	F2 [N]	⚖
261511-C1	ERB.130-C1	130	60	29.5	3	101	123	31	48	41	3500	3500	95
151311	ERB.130 CLEAN	130	60	29.5	3	101	123	31	48	41	3500	3500	95

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Side handles with protection

Technopolymer

MATERIAL
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

STANDARD EXECUTION
- **MLP-B**: brass bosses, threaded blind holes. Fitting by means of no. 2 screws M4, not included in the supply.
- **MLP-AF**: blind holes for fitting by means of no. 2 self-tapping screws for plastic materials Ø5 (UNI ISO 7049), not included in the supply.

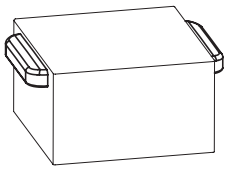
TECHNICAL DATA
Tensile stress and impact strength: F1, F2 and L2 values reported in the table are the result of breaking tests, carried out with the appropriate dynamometric equipment, under the test conditions shown in the figure with ambient temperature.

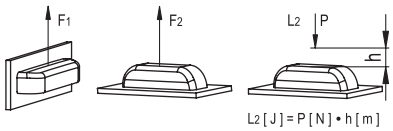
FEATURES AND APPLICATIONS
Ergonomic and comfortable handles. If used in pairs they allow an easy lifting.

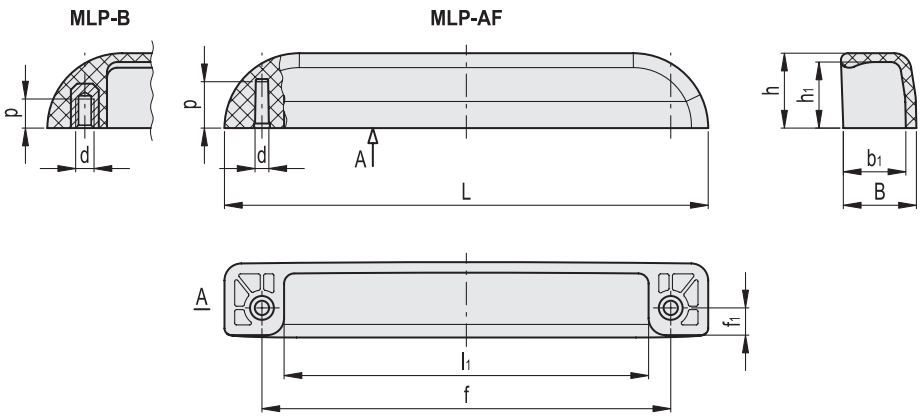




Application example







Code	Description	L	f±0.5	d	f1	h	h1	B	b1	l1	p	F1 [N]	F2 [N]	L2 [J]	⚖
43951	MLP.142-B M4	142	120	M4	8	22	19.5	21	18	107	10	3500	2800	3	36
43955	MLP.142-AF 4,8	142	120	4.5	8	22	19.5	21	18	107	13	3000	2800	3	31

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Fastening sets

for cabinet "U" handles

SPECIFICATION

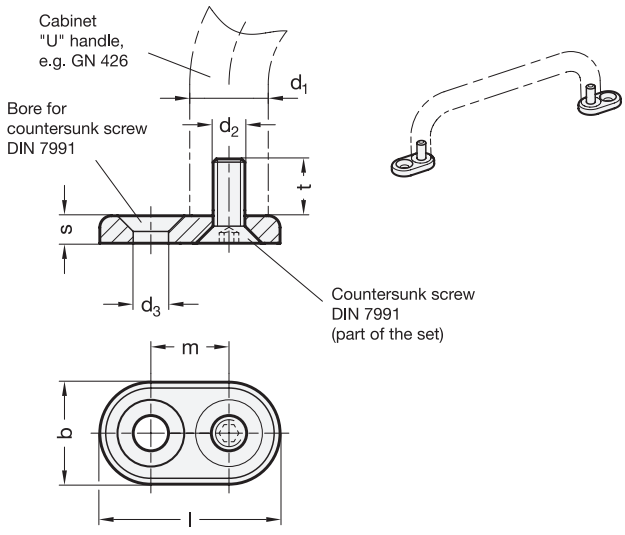
Zinc die casting
plastic coated
black, RAL 9005, textured finish **SW**
silver, RAL 9006, textured finish **SR**

Countersunk screws
DIN 7991
Steel, zinc plated, blue passivated

INFORMATION

Fastening sets GN 181 make it possible to mount different cabinet "U" handles and tubular handles with internal thread from the operator's side.
The mounting position of the fastening plates is freely customizable, allowing a sideways offset or mounting with different drillhole spacings.
A fastening set consists of 2 fastening plates and 2 countersunk screws.





*Complete with colour index of the Fastening sets (SW or SR)

SW RAL9005 SR RAL9006

GN 181

Description	d1	d2	b	d3 +0.2 / +0.5	l	m	s	t	Countersunk screw DIN 7991	For cabinet "U" handles	⚖
GN 181-ZD-8-M4-*	8	M 4	10	4	20	10	3	7	M4x10	GN 425-8-...	4
GN 181-ZD-10-M5-*	10	M 5	12	5	24	12	4	8	M5x12	GN 425-10-... / GN 425.1-10...	8
GN 181-ZD-12-M6-*	12	M 6	15	6	30	15	4.5	9.5	M6x14	GN 425-12-... / GN 425.1-12...	14
GN 181-ZD-16-M6-*	16	M 6	18	6	34	16	4.5	9.5	M6x14	GN 425-16...	22
GN 181-ZD-20-M6-*	20	M 6	22	6	40	18	4.5	9.5	M6x14	GN 565-20-... / GN 565.5-20-...	35
GN 181-ZD-20-M8-*	20	M 8	22	8	42	20	6	12	M8x18	GN 426-20-... / GN 426.1-20-...	43
GN 181-ZD-26-M8-*	26	M 8	28	8	52	24	6	12	M8x18	GN 565-26-...	79
GN 181-ZD-28-M10-*	28	M 10	30	10	56	26	6.5	13.5	M10x20	GN 426-28-.../ GN 426.1-28-...	89

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GN 333.3

Tubular handles

with movable handle shanks



SPECIFICATION

Type
- Type **A**: Mounting from the back (threaded blind bore)

Tube
Aluminium (wall thickness 1.5)

Handle shanks
Zinc die casting
plastic coated

Cover
Plastic

Tube / handle shanks **SW**
plastic coated
black, RAL 9005, textured finish
Cover
black, matt

Tube **ELS**
anodized, natural colour
Handle shanks
black, RAL 9005, textured finish
Cover
black, matt

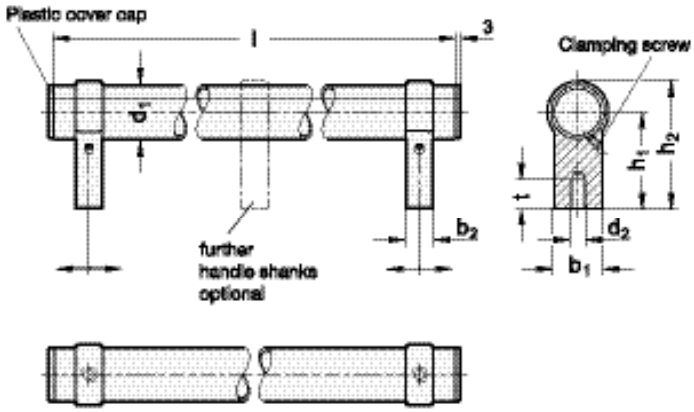
Tube **ELG**
anodized, natural colour
Handle shanks
silver, RAL 9006, textured finish
Cover
light grey, matt

INFORMATION

The spacing of the attachment holes of the tubular handles GN 333.3 is adjustable. Further handle shanks can be added for very long tubular handles.
Tubular handles GN 333.3 are supplied unassembled.

TECHNICAL INFORMATION

- Load rating information (see page A35)



*Complete with Finish of the Tubular handles (SW, ELS or ELG)

SW	ELS	ELG
black	anodized, black	anodized, light grey

GN 333.3

Description	d1	l ±0.25	d2	b1	b2	h1	h2	t min.	⚖
GN 333.3-28-242-A-*	28	242	M 8	25	14	50	66	15	300
GN 333.3-28-292-A-*	28	292	M 8	25	14	50	66	15	340
GN 333.3-28-392-A-*	28	392	M 8	25	14	50	66	15	375
GN 333.3-28-492-A-*	28	492	M 8	25	14	50	66	15	400
GN 333.3-28-592-A-*	28	592	M 8	25	14	50	66	15	480

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Tubular handles

with power switching function

SPECIFICATION

Types

- Type **T0**: without button
- Type **T1**: with 1 button
- Type **T2**: with 2 buttons

Identification no.

- Version **1**: without emergency stop
- Version **2**: with emergency stop

Tube Ø 30 x 1.5
Aluminium

plastic coated
black, RAL 9005, textured finish **SW**

anodized, natural colour **EL**

Handle shanks zinc die casting
plastic coated
black, RAL 9005, textured finish

Cover caps
(for version without emergency stop)
Plastic
light grey

INFORMATION

Tubular handles GN 331 with power switching function are suitable for unlocking safety tumblers in rotating, detachable or side-sliding safety devices which must be closed in order to safeguard the required operational safety.
By integrating functions such as emergency stop, start, release, reset and LED status display, this tubular handle allows the machine to be monitored and operated directly at the door or gate.

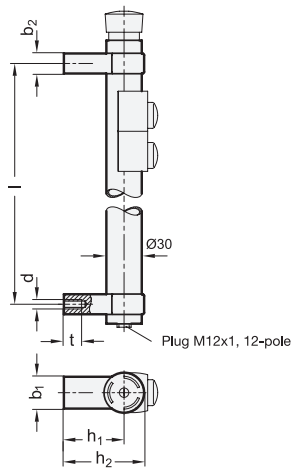
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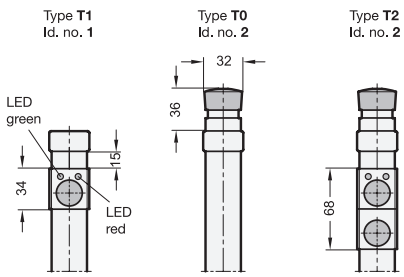
- Cables with connector GN 330 (see page 1448)

TECHNICAL INFORMATION

- Load rating information (see page A35)







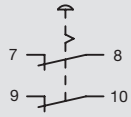
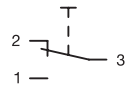
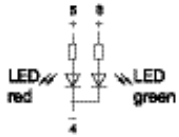
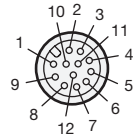
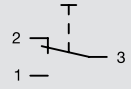
*Complete with colour index of the Tubular handles (SW or EL)

SW RAL9005 EL anodized

GN 331

Description	l ±0.25	d	b1	b2	h1	h2	t min.	⚖
GN 331-200-*-T0-2	200	M 8	27	17	51	68	15	360
GN 331-300-*-T0-2	300	M 8	27	17	51	68	15	647
GN 331-200-*-T1-1	200	M 8	27	17	51	68	15	449
GN 331-300-*-T1-1	300	M 8	27	17	51	68	15	636
GN 331-200-*-T1-2	200	M 8	27	17	51	68	15	500
GN 331-300-*-T1-2	300	M 8	27	17	51	68	15	675
GN 331-200-*-T2-1	200	M 8	27	17	51	68	15	466
GN 331-300-*-T2-1	300	M 8	27	17	51	68	15	660
GN 331-200-*-T2-2	200	M 8	27	17	51	68	15	501
GN 331-300-*-T2-2	300	M 8	27	17	51	68	15	686

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Characteristics of the standard executions GN 331		
The tubular handles have the CE marking, low voltage guideline 06 / 95 / EG		
Emergency stop	2 channel, Breaker	
1st button with 2 LED	Changover contact	
	LED, red and green	
2nd button	Maker	
Contact termination, Pin configuration	Plug M12x1, 12-pole	
Switching voltage / Switching current	max. 30 V AC / max. 1.5 A	
Operating voltage (LEDs)	24 V DC ± 15 %	
Protection class	IP 67	
Button colour	for each button a set of caps is included, in this colours: red, green, blue	
Additional variants as special application		
Emergency stop	1 channel	
Number of buttons >2 **Button special with**	Maker	
	Breaker	
	Changeover contact	
Button with labelling area		

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GN 332

RoHS

Tubular handles

with power switching function



SPECIFICATION

Types

- Type **T0**: without button
- Type **T1**: with 1 button
- Type **T2**: with 2 buttons

Identification no.

- Version **1**: without emergency stop
- Version **2**: with emergency stop

Door opening

- Version **L**: left
- Version **R**: right

Tube Ø 30 x 1.5
Aluminium

plastic coated
black, RAL 9005, textured finish **SW**

anodized, natural colour **EL**

Handle shanks
Zinc die casting
plastic coated
black, RAL 9005, textured finish

Cover caps
(for version without emergency stop)
Plastic
light grey

INFORMATION

Tubular handles GN 332 with power switching function are suitable for unlocking safety tumblers in rotating, detachable or side-sliding safety devices which must be closed in order to safeguard the required operational safety.
By integrating functions such as emergency stop, start, release, reset and LED status display, this tubular handle allows the machine to be monitored and operated directly at the door or gate.
Tubular handles GN 332 save mounting and installation work, are attractively designed and optimise ergonomy: the switching and operating functions are located precisely where they are needed.

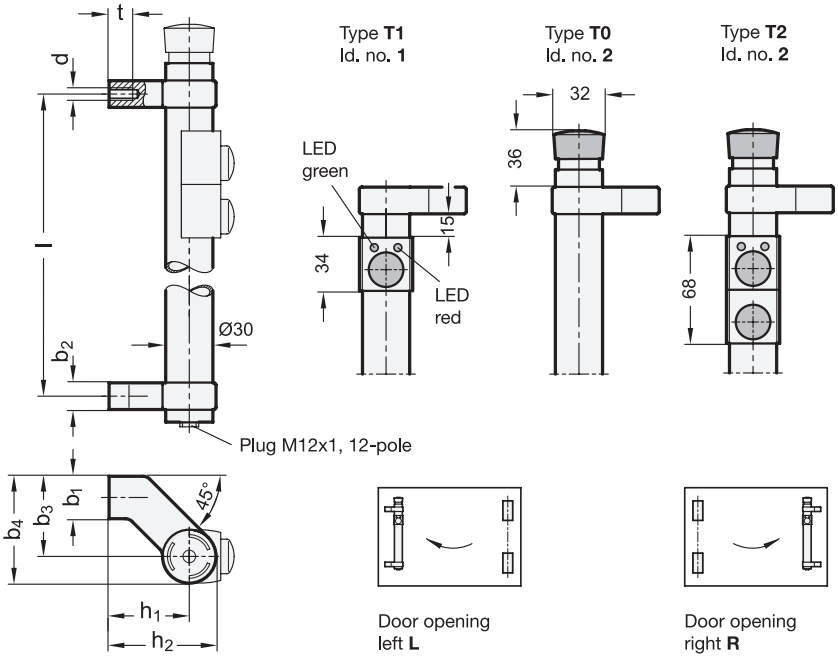
ACCESSORY

- Cables with connector GN 330 (see page 1448)

TECHNICAL INFORMATION

- Load rating information (see page A35)

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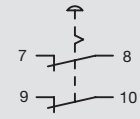
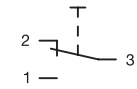
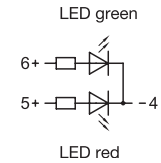
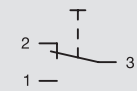
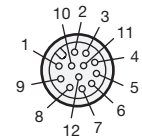
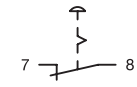
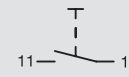
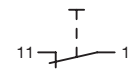
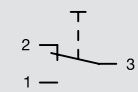
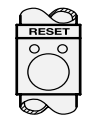
*Complete with colour index of the Tubular handles (SW or EL)

SW RAL9005 EL anodized

GN 332

Description	l ±0.25	d	b1	b2	b3	b4	h1	h2	t min.	⚖
GN 332-200-*-T0-2-L	200	M 8	27	17	51	68	51	68	15	550
GN 332-300-*-T0-2-L	300	M 8	27	17	51	68	51	68	15	758
GN 332-200-*-T0-2-R	200	M 8	27	17	51	68	51	68	15	574
GN 332-300-*-T0-2-R	300	M 8	27	17	51	68	51	68	15	757
GN 332-200-*-T1-1-L	200	M 8	27	17	51	68	51	68	15	570
GN 332-200-*-T1-2-L	200	M 8	27	17	51	68	51	68	15	588
GN 332-300-*-T1-1-L	300	M 8	27	17	51	68	51	68	15	756
GN 332-300-*-T1-2-L	300	M 8	27	17	51	68	51	68	15	940
GN 332-200-*-T1-1-R	200	M 8	27	17	51	68	51	68	15	558
GN 332-200-*-T1-2-R	200	M 8	27	17	51	68	51	68	15	580
GN 332-300-*-T1-1-R	300	M 8	27	17	51	68	51	68	15	745
GN 332-300-*-T1-2-R	300	M 8	27	17	51	68	51	68	15	778
GN 332-200-*-T2-1-L	200	M 8	27	17	51	68	51	68	15	500
GN 332-200-*-T2-2-L	200	M 8	27	17	51	68	51	68	15	605
GN 332-300-*-T2-1-L	300	M 8	27	17	51	68	51	68	15	752
GN 332-300-*-T2-2-L	300	M 8	27	17	51	68	51	68	15	792
GN 332-200-*-T2-1-R	200	M 8	27	17	51	68	51	68	15	598
GN 332-200-*-T2-2-R	200	M 8	27	17	51	68	51	68	15	604
GN 332-300-*-T2-1-R	300	M 8	27	17	51	68	51	68	15	753
GN 332-300-*-T2-2-R	300	M 8	27	17	51	68	51	68	15	800

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Characteristics of the standard execution GN 332		
The tubular handles have the CE marking, low voltage guideline 06 / 95 / EG		
Emergency stop	2 channel, Breaker	
1st button with 2 LED	Changover contact	
	LED, red and green	
2nd button	Maker	
Contact termination, Pin configuration	Plug M12x1, 12-pole	
Switching voltage / Switching current	max. 30 V AC / max. 1.5 A	
Operating voltage (LEDs)	24 V DC ± 15 %	
Protection class	IP 67	
Button colour	for each button a set of caps is included, in this colours: red, green, blue	
Additional variants as special application		
Emergency stop	1 channel	
Number of buttons >2 Button special with	Maker	
	Breaker	
	Changeover contact	
Button with labelling area		

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Tubular handles



SPECIFICATION

Types

- Type **A**: Mounting from the back (threaded blind bore)
- Type **B**: Mounting from the operator´s side (only for d_1 = 28)

Handle tube
Aluminium (wall thickness 1.5)

Handle shanks
Zinc die casting

Tube **SW**
plastic coated
black, RAL 9005, textured finish
Handle shanks plastic coated
black, RAL 9005, textured finish

Tube **EL**
anodized, natural colour
Handle shanks plastic coated
black, RAL 9005, textured finish

Tube **ES**
anodized, natural colour
Handle shanks plastic coated
silver, RAL 9006, textured finish

Cover caps
Plastic, light grey

Socket head screws
ISO 7380-M6-20
Steel, black zinc plated

Hexagon nuts ISO 4032-M6
Steel, zinc plated

Washers DIN 125
Steel, zinc plated

INFORMATION

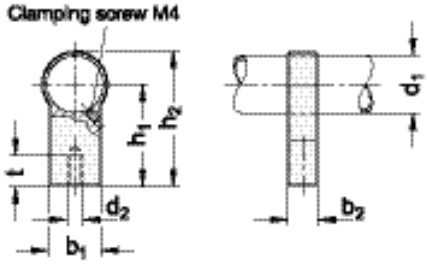
The handle tube of the GN 333.1 tubular handles can be screwed to the handle bases without further machining or processing, allowing **special lengths** to be realised easily.
For type B, lens head screws, hexagon nuts and washers are included.

TECHNICAL INFORMATION

- Load rating information (see page A35)

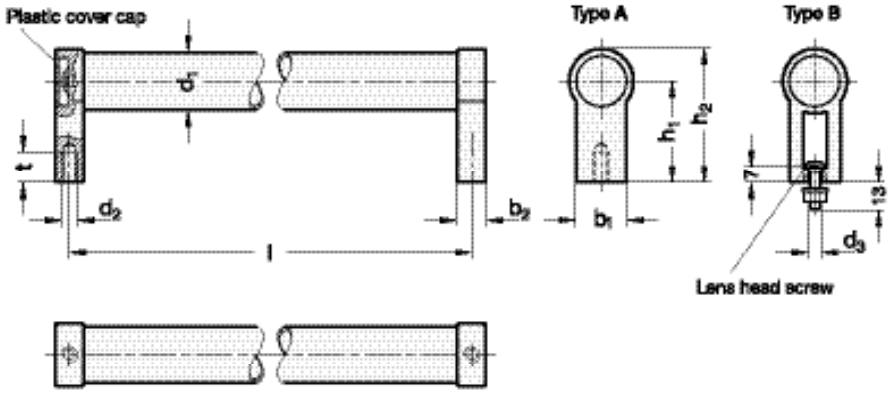
MOUNTING INFORMATION

For longer handle lengths or greater loads, the GN 333.9 shank is available for GN 333.1 tubular handles with tube diameter 28, Type A.



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GN 333.1 | Tubular handles



*Complete with Finish of the Tubular handles (SW, EL or ES)

SW	EL	ES
black	anodized, black	anodized, silver

GN 333.1

Description	d1	l ±0.25	d2	d3	b1	b2	h1	h2	t min.	⚖
GN 333.1-20-180-A-*	20	180	M 6	-	24	12	42	54	12	190
GN 333.1-20-200-A-*	20	200	M 6	-	24	12	42	54	12	200
GN 333.1-20-250-A-*	20	250	M 6	-	24	12	42	54	12	200
GN 333.1-20-300-A-*	20	300	M 6	-	24	12	42	54	12	230
GN 333.1-20-350-A-*	20	350	M 6	-	24	12	42	54	12	250
GN 333.1-20-400-A-*	20	400	M 6	-	24	12	42	54	12	263
GN 333.1-28-200-A-*	28	200	M 8	-	25	14	50	66	12	340
GN 333.1-28-250-A-*	28	250	M 8	-	25	14	50	66	12	360
GN 333.1-28-300-A-*	28	300	M 8	-	25	14	50	66	12	390
GN 333.1-28-350-A-*	28	350	M 8	-	25	14	50	66	14	410
GN 333.1-28-400-A-*	28	400	M 8	-	25	14	50	66	14	480
GN 333.1-28-500-A-*	28	500	M 8	-	25	14	50	66	14	400
GN 333.1-28-600-A-*	28	600	M 8	-	25	14	50	66	14	500
GN 333.1-30-200-A-*	30	200	M 8	-	27	17	51	68	14	318
GN 333.1-30-300-A-*	30	300	M 8	-	27	17	51	68	14	375
GN 333.1-30-350-A-*	30	350	M 8	-	27	17	51	68	14	405
GN 333.1-30-400-A-*	30	400	M 8	-	27	17	51	68	15	440
GN 333.1-30-500-A-*	30	500	M 8	-	27	17	51	68	15	467
GN 333.1-30-600-A-*	30	600	M 8	-	27	17	51	68	15	535
GN 333.1-30-1000-A-*	30	1000	M 8	-	27	17	51	68	15	768
GN 333.1-28-200-B-*	28	200	-	M 6	25	14	50	66	15	305
GN 333.1-28-250-B-*	28	250	-	M 6	25	14	50	66	15	320
GN 333.1-28-300-B-*	28	300	-	M 6	25	14	50	66	15	353
GN 333.1-28-350-B-*	28	350	-	M 6	25	14	50	66	15	381
GN 333.1-28-400-B-*	28	400	-	M 6	25	14	50	66	15	440
GN 333.1-28-500-B-*	28	500	-	M 6	25	14	50	66	15	470
GN 333.1-28-600-B-*	28	600	-	M 6	25	14	50	66	15	500

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Tubular handles



SPECIFICATION

Types

- Type **A**: Mounting from the back (threaded blind bore)
- Type **B**: Mounting from the operator´s side (only for d1=28)

Handle tube
Aluminium (wall thickness 1.5)

Handle shanks
Zinc die casting

Tube, plastic coated
black, RAL 9005, textured finish **SW**
Handle shanks plastic coated
black, RAL 9005, textured finish

Tube, anodized, natural colour **EL**
Handle shanks plastic coated
black, RAL 9005, textured finish

Tube, anodized, natural colour **ES**
Handle shanks plastic coated
silver, RAL 9006, textured finish

Cover caps plastic, light grey

Cap (Type B)
Plastic (Technopolymer)
black (for SW / EL)
ligth grey (for ES)

INFORMATION

The handle tube of the GN 333 tubular handles can be screwed to the handle bases without further machining or processing, allowing **special lengths** to be realised easily.
A typical application area for tubular handles GN 333 are double-winged doors at machines or devices.

TECHNICAL INFORMATION

- Load rating information (see page A35)

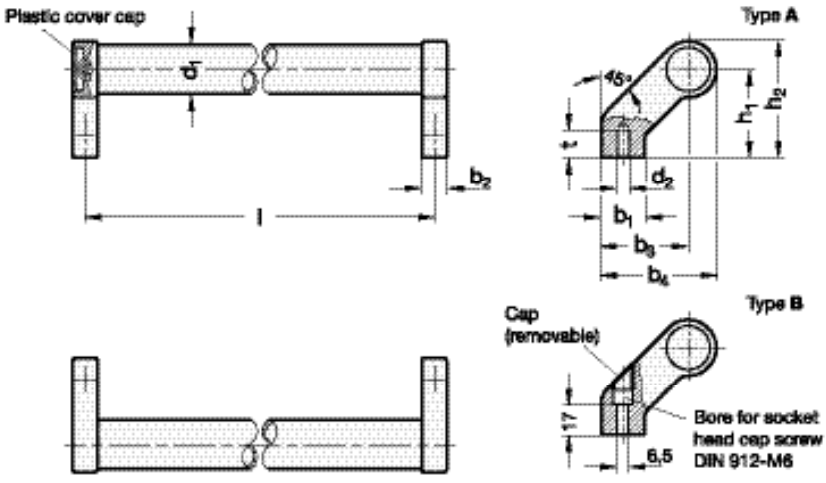
ON REQUEST

- Handle shank GN 333.8 (see page 501)

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GN 333

Tubular handles



*Complete with Finish of the Tubular handles (SW, EL or ES)

SW	EL	ES
black	anodized, black	anodized, silver

GN 333

Description	d1	l ±0.25	d2	b1	b2	b3	b4	h1	h2	t min.	⚖
GN 333-20-180-A-*	20	180	M 6	24	12	42	54	42	54	12	242
GN 333-20-200-A-*	20	200	M 6	24	12	42	54	42	54	12	246
GN 333-20-250-A-*	20	250	M 6	24	12	42	54	42	54	12	259
GN 333-20-300-A-*	20	300	M 6	24	12	42	54	42	54	12	277
GN 333-20-350-A-*	20	350	M 6	24	12	42	54	42	54	12	294
GN 333-20-400-A-*	20	400	M 6	24	12	42	54	42	54	12	311
GN 333-28-200-A-*	28	200	M 8	25	14	50	66	50	66	15	430
GN 333-28-250-A-*	28	250	M 8	25	14	50	66	50	66	15	420
GN 333-28-300-A-*	28	300	M 8	25	14	50	66	50	66	15	470
GN 333-28-350-A-*	28	350	M 8	25	14	50	66	50	66	15	495
GN 333-28-400-A-*	28	400	M 8	25	14	50	66	50	66	15	525
GN 333-28-500-A-*	28	500	M 8	25	14	50	66	50	66	15	550
GN 333-28-600-A-*	28	600	M 8	25	14	50	66	50	66	15	580
GN 333-30-200-A-*	30	200	M 8	27	17	51	68	51	68	15	420
GN 333-30-300-A-*	30	300	M 8	27	17	51	68	51	68	15	480
GN 333-30-350-A-*	30	350	M 8	27	17	51	68	51	68	15	511
GN 333-30-400-A-*	30	400	M 8	27	17	51	68	51	68	15	530
GN 333-30-500-A-*	30	500	M 8	27	17	51	68	51	68	15	600
GN 333-30-600-A-*	30	600	M 8	27	17	51	68	51	68	15	658
GN 333-30-1000-A-*	30	1000	M 8	27	17	51	68	51	68	15	870
GN 333-28-200-B-*	28	200	-	25	14	50	66	50	66	-	401
GN 333-28-250-B-*	28	250	-	25	14	50	66	50	66	-	420
GN 333-28-300-B-*	28	300	-	25	14	50	66	50	66	-	447
GN 333-28-350-B-*	28	350	-	25	14	50	66	50	66	-	483
GN 333-28-400-B-*	28	400	-	25	14	50	66	50	66	-	500
GN 333-28-500-B-*	28	500	-	25	14	50	66	50	66	-	540
GN 333-28-600-B-*	28	600	-	25	14	50	66	50	66	-	600

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Tubular handles

with movable handle shanks



SPECIFICATION

Type
- Type **A**: Mounting from the back (threaded blind bore)

Tube
Aluminium (wall thickness 1.5)

Handle shanks
Zinc die casting
plastic coated

Cover
Plastic

Tube / handle shanks **SW**
plastic coated
black, RAL 9005, textured finish
Cover
black, matt

Tube **ELS**
anodized, natural colour
Handle shanks
black, RAL 9005 textured finish
Cover
black, matt

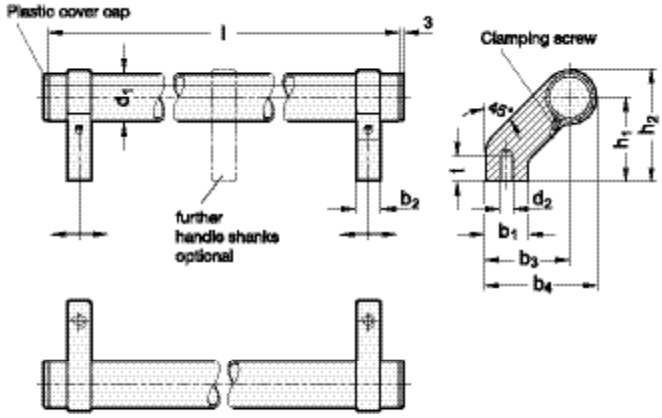
Tube **ELG**
anodized, natural colour
Handle shanks
silver, RAL 9006, textured finish
Cover
light grey, matt

INFORMATION

The spacing of the attachment holes of the tubular handles GN 333.2 is adjustable. Further handle shanks can be added for very long tubular handles.
Tubular handles GN 333.2 are supplied unassembled.

TECHNICAL INFORMATION

- Load rating information (see page A35)



*Complete with Finish of the Tubular handles (SW, ELS or ELG)

SW	ELS	ELG
black	anodized, black	anodized, light grey

GN 333.2

Description	d1	l ±0.25	d2	b1	b2	b3	b4	h1	h2	t min.	⚖
GN 333.2-28-242-A-*	28	242	M 8	25	14	50	66	50	66	15	380
GN 333.2-28-292-A-*	28	292	M 8	25	14	50	66	50	66	15	392
GN 333.2-28-392-A-*	28	392	M 8	25	14	50	66	50	66	15	470
GN 333.2-28-492-A-*	28	492	M 8	25	14	50	66	50	66	15	520
GN 333.2-28-592-A-*	28	592	M 8	25	14	50	66	50	66	15	560

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GN 333.8

Handle shank

for tubular handles, inclined

SPECIFICATION

Type

- Type **A**: Mounting from the back (threaded blind bore)

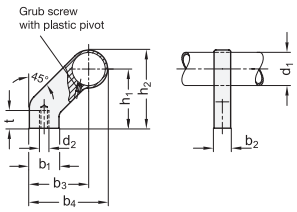
Zinc die casting
plastic coated
black, RAL 9005, textured finish **SW**
silver, RAL 9006, textured finish **SR**

Grub screw with plastic pad GN 913.3-M4-6-KU (see page 921)

INFORMATION

Handle shanks GN 333.8 can be used for longer tubes or higher loads of tubular handles.
They can be used for tube Ø 28 of the tubular handles GN 333.1 (see page 496).





GN 333.8

Description	d1	d2	b1	b2	b3	b4	h1	h2	t min.	⚖
GN 333.8-28-A-SR	28	M 8	25	14	50	66	50	66	15	120
GN 333.8-28-A-SW	28	M 8	25	14	50	66	50	66	15	120

GN 333.9

Handle shanks

for tubular handles, straight

SPECIFICATION

Type

- Type **A**: Mounting from the back (threaded blind bore)

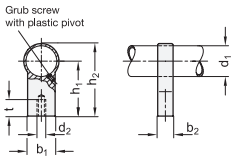
Zinc die casting
plastic coated
black, RAL 9005, textured finish **SW**
silver, RAL 9006, textured finish **SR**

Grub screw with plastic pad GN 913.3-M4-6-KU (see page 921)

INFORMATION

Handle shanks GN 333.9 can be used for longer tubes or higher loads of tubular handles.
They can be used for tube Ø 28 of the tubular handles GN 333.1 (see page 496).





GN 333.9

Description	d1	d2	b1	b2	h1	h2	t min.	⚖
GN 333.9-28-A-SR	28	M 8	25	14	50	66	15	88
GN 333.9-28-A-SW	28	M 8	25	14	50	66	15	80

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Offset tubular handles

Technopolymer and aluminium



ELESA Original design

HANDLE SHANKS
Glass-fibre reinforced polyamide based (PA) technopolymer, matte finish.
To prevent tube rotation, screw up to the stop the self-tapping screw ø3,9x6,5 arranged inside the handle shank.

CLOSING CAPS
Polyamide based (PA) technopolymer, in the colours specified in the standard executions, matte finish.
Included in the supply, push-fit assembly (Fig.1), removable by a screwdriver.

MOUNTING
Pass-through hole for front or rear mounting by means of cylindrical-head screws with hexagon socket, hexagonal-head screws or standard nuts.

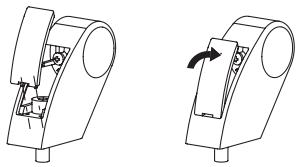
STANDARD EXECUTIONS
- **M.1053-EP**: aluminium tube, epoxy resin coating, metalflake graphite colour, matte finish. Highly resistant to wear, scratches and chemical agents. Avoid continuous and prolonged contact with boiling water or steam. Handle shanks and closing caps in RAL 9005 (C9)black colour.
- **M.1053-AN-BK**: anodised aluminium tube, natural colour, handle shanks and closing caps in RAL 9005 (C9) black colour.
- **M.1053-AN-GR**: anodised aluminium tube, natural colour, handle shanks and closing caps in RAL 7031 (C31) grey colour.
- **M.1053-CLEAN**: aluminium tube, coating in white colour similar to RAL 9002, handle shanks and closing caps in white colour similar to RAL 9002 (CLEAN).

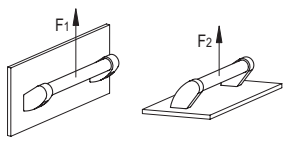
TECHNICAL DATA
Tensile stress: F values reported in the table are the result of breaking tests carried out with the appropriate dynamometric equipment under the test conditions shown in the figure with ambient temperature.

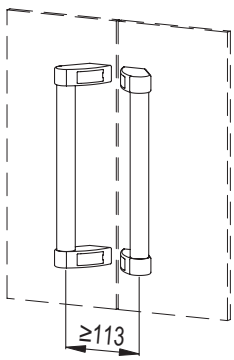
SPECIAL EXECUTIONS ON REQUEST
- Different lengths.
- Closing caps in different colours.

ACCESSORIES ON REQUEST
Polyamide based (PA) technopolymer closing caps, in the colours RAL 9005 (C9) black, RAL 7031 (C31) grey, RAL 9002 (CLEAN) white, (see table ECS.T).

Fig.1





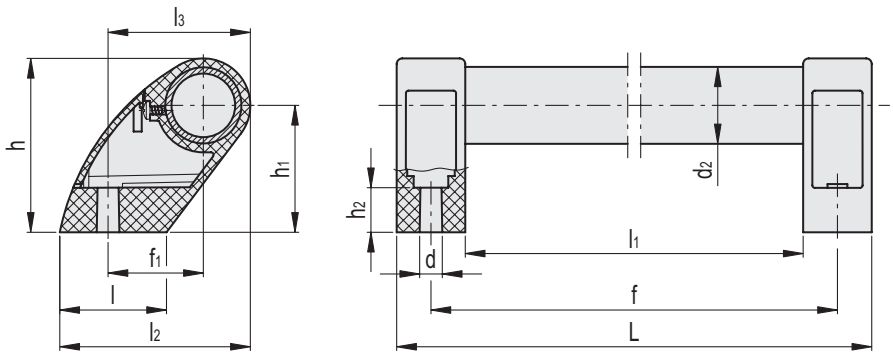


Code	Description
29882-C9	ECS.T2-C9
29882-C31	ECS.T2-C31
29882	ECS.T2-CLEAN

C9 RAL9005 C31 RAL7031 CLEAN RAL9002

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M.1053 | Offset tubular handles



M.1053-EP

Code	Description	f±1	f1	L	d	h	h1	h2	l	l1	l2	l3	d2	F1 [N]*	F1 [N]#	F2 [N]*	F2 [N]#	⚖
36801	M.1053/30-300-EP	300	37.5	327	8.5	68.5	50	17.5	42	273	75	56	30	1850	3400	2500	4000	231
36811	M.1053/30-350-EP	350	37.5	377	8.5	68.5	50	17.5	42	323	75	56	30	1650	3150	2000	3300	249
36821	M.1053/30-400-EP	400	37.5	427	8.5	68.5	50	17.5	42	373	75	56	30	1450	2600	1900	3000	266
36831	M.1053/30-500-EP	500	37.5	527	8.5	68.5	50	17.5	42	473	75	56	30	1300	2000	1500	1900	301
36841	M.1053/30-600-EP	600	37.5	627	8.5	68.5	50	17.5	42	573	75	56	30	1100	1900	1200	1800	336
36851	M.1053/30-700-EP	700	37.5	727	8.5	68.5	50	17.5	42	673	75	56	30	1000	1600	1100	1500	371

M.1053-AN-BK

Code	Description	f±1	f1	L	d	h	h1	h2	l	l1	l2	l3	d2	F1 [N]*	F1 [N]#	F2 [N]*	F2 [N]#	⚖
36803	M.1053/30-300-AN-BK	300	37.5	327	8.5	68.5	50	17.5	42	273	75	56	30	1850	3400	2500	4000	231
36813	M.1053/30-350-AN-BK	350	37.5	377	8.5	68.5	50	17.5	42	323	75	56	30	1650	3150	2000	3300	249
36823	M.1053/30-400-AN-BK	400	37.5	427	8.5	68.5	50	17.5	42	373	75	56	30	1450	2600	1900	3000	266
36833	M.1053/30-500-AN-BK	500	37.5	527	8.5	68.5	50	17.5	42	473	75	56	30	1300	2000	1500	1900	301
36843	M.1053/30-600-AN-BK	600	37.5	627	8.5	68.5	50	17.5	42	573	75	56	30	1100	1900	1200	1800	336
36853	M.1053/30-700-AN-BK	700	37.5	727	8.5	68.5	50	17.5	42	673	75	56	30	1000	1600	1100	1500	371

M.1053-AN-GR

Code	Description	f±1	f1	L	d	h	h1	h2	l	l1	l2	l3	d2	F1 [N]*	F1 [N]#	F2 [N]*	F2 [N]#	⚖
36805	M.1053/30-300-AN-GR	300	37.5	327	8.5	68.5	50	17.5	42	273	75	56	30	1850	3400	2500	4000	231
36815	M.1053/30-350-AN-GR	350	37.5	377	8.5	68.5	50	17.5	42	323	75	56	30	1650	3150	2000	3300	249
36825	M.1053/30-400-AN-GR	400	37.5	427	8.5	68.5	50	17.5	42	373	75	56	30	1450	2600	1900	3000	266
36835	M.1053/30-500-AN-GR	500	37.5	527	8.5	68.5	50	17.5	42	473	75	56	30	1300	2000	1500	1900	301
36845	M.1053/30-600-AN-GR	600	37.5	627	8.5	68.5	50	17.5	42	573	75	56	30	1100	1900	1200	1800	336
36855	M.1053/30-700-AN-GR	700	37.5	727	8.5	68.5	50	17.5	42	673	75	56	30	1000	1600	1100	1500	371

M.1053-CLEAN

Code	Description	f±1	f1	L	d	h	h1	h2	l	l1	l2	l3	d2	F1 [N]*	F1 [N]#	F2 [N]*	F2 [N]#	⚖
151461	M.1053/30-300-CLEAN	300	37.5	327	8.5	68.5	50	17.5	42	273	75	56	30	1850	3400	2500	4000	231
151463	M.1053/30-350-CLEAN	350	37.5	377	8.5	68.5	50	17.5	42	323	75	56	30	1650	3150	2000	3300	249
151465	M.1053/30-400-CLEAN	400	37.5	427	8.5	68.5	50	17.5	42	373	75	56	30	1450	2600	1900	3000	266
151467	M.1053/30-500-CLEAN	500	37.5	527	8.5	68.5	50	17.5	42	473	75	56	30	1300	2000	1500	1900	301
151469	M.1053/30-600-CLEAN	600	37.5	627	8.5	68.5	50	17.5	42	573	75	56	30	1100	1900	1200	1800	336
151471	M.1053/30-700-CLEAN	700	37.5	727	8.5	68.5	50	17.5	42	673	75	56	30	1000	1600	1100	1500	371

***** Maximum working load **#** Load at breakage

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Offset tubular handles

Movable handle shanks, technopolymer and aluminium



ELESA Original design

PASS-THROUGH HANDLE SHANKS
Glass-fibre reinforced polyamide based (PA) technopolymer, matte finish.
To prevent tube rotation, screw up to the stop the self-tapping screw ø3,9x6,5 arranged inside the handle shank.

CLOSING CAPS
Polyamide based (PA) technopolymer, in the colours specified in the standard executions, matte finish.
Included in the supply, push-fit assembly (Fig.1), removable by a screwdriver.

END CAPS
Polyamide based (PA) technopolymer, matte finish.

MOUNTING
Pass-through hole for front or rear mounting by means of cylindrical-head screws with hexagon socket, hexagonal-head screws or standard nuts.

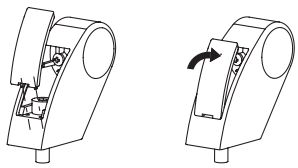
STANDARD EXECUTIONS
- **M.1053-P-EP**: aluminium tube, epoxy resin coating, metalflake graphite colour, matte finish. Highly resistant to wear, scratches and chemical agents. Avoid continuous and prolonged contact with boiling water or steam. Handle shanks and closing caps in RAL 9005 (C9) black colour.
- **M.1053-P-AN-BK**: anodised aluminium tube, natural colour, handle shanks and closing caps in RAL 9005 (C9) black colour.
- **M.1053-P-AN-GR**: anodised aluminium tube, natural colour, handle shanks and closing caps in RAL 7031 (C31) grey colour.
- **M.1053-P-CLEAN**: aluminium tube, coating in white colour similar to RAL 9002, handle shanks and closing caps in white colour similar to RAL 9002 (CLEAN).

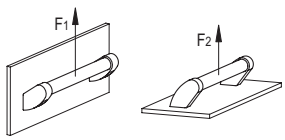
TECHNICAL DATA
Tubular handles are characterised by a variable handle shank, the handle shanks being adjustable on the tube by means of the set screw.
Tensile stress: F values reported in the table are the result of breaking tests carried out with the appropriate dynamometric equipment under the test conditions shown in the figure with ambient temperature.

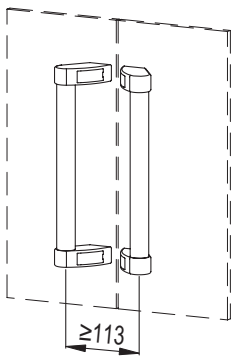
SPECIAL EXECUTIONS ON REQUEST
- Different lengths.
- Closing caps in different colours.

ACCESSORIES ON REQUEST
Polyamide based (PA) technopolymer closing caps, in the colours RAL 9005 (C9) black, RAL 7031 (C31) grey, RAL 9002 (CLEAN) white, (see table ECS.T).

Fig.1





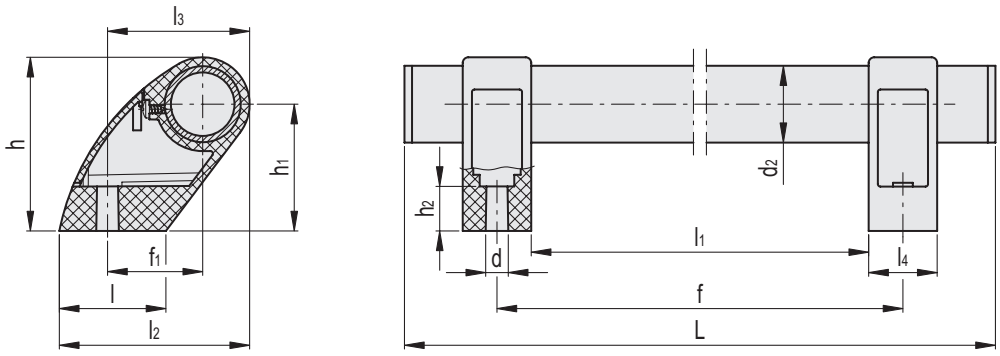


Code	Description
29882-C9	ECS.T2-C9
29882-C31	ECS.T2-C31
29882	ECS.T2-CLEAN

C9 RAL9005 C31 RAL7031 CLEAN RAL9002

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M.1053-P | Offset tubular handles with movable handle shank



M.1053-P-EP

Code	Description	fmax.±1	f1	L	d	h	h1	h2	l	l1 max.	l2	l3	l4	d2	F1 [N]*	F1 [N]#	F2 [N]*	F2 [N]#	⚖
36901	M.1053 P/30-295-EP	295	37.5	324	8.5	68.5	50	17.5	42	268	75	56	27	30	1850	3400	2500	4000	231
36911	M.1053 P/30-345-EP	345	37.5	374	8.5	68.5	50	17.5	42	318	75	56	27	30	1650	3150	2000	3300	249
36921	M.1053 P/30-395-EP	395	37.5	424	8.5	68.5	50	17.5	42	368	75	56	27	30	1450	2600	1900	3000	266
36931	M.1053 P/30-495-EP	495	37.5	524	8.5	68.5	50	17.5	42	468	75	56	27	30	1300	2000	1500	1900	301
36941	M.1053 P/30-595-EP	595	37.5	624	8.5	68.5	50	17.5	42	568	75	56	27	30	1100	1900	1200	1800	336
36951	M.1053 P/30-695-EP	695	37.5	724	8.5	68.5	50	17.5	42	668	75	56	27	30	1000	1600	1100	1500	371

M.1053-P-AN-BK

Code	Description	fmax.±1	f1	L	d	h	h1	h2	l	l1 max.	l2	l3	l4	d2	F1 [N]*	F1 [N]#	F2 [N]*	F2 [N]#	⚖
36903	M.1053 P/30-295-AN-BK	295	37.5	324	8.5	68.5	50	17.5	42	268	75	56	27	30	1850	3400	2500	4000	231
36913	M.1053 P/30-345-AN-BK	345	37.5	374	8.5	68.5	50	17.5	42	318	75	56	27	30	1650	3150	2000	3300	249
36923	M.1053 P/30-395-AN-BK	395	37.5	424	8.5	68.5	50	17.5	42	368	75	56	27	30	1450	2600	1900	3000	266
36933	M.1053 P/30-495-AN-BK	495	37.5	524	8.5	68.5	50	17.5	42	468	75	56	27	30	1300	2000	1500	1900	301
36943	M.1053 P/30-595-AN-BK	595	37.5	624	8.5	68.5	50	17.5	42	568	75	56	27	30	1100	1900	1200	1800	336
36953	M.1053 P/30-695-AN-BK	695	37.5	724	8.5	68.5	50	17.5	42	668	75	56	27	30	1000	1600	1100	1500	371

M.1053-P-AN-GR

Code	Description	fmax.±1	f1	L	d	h	h1	h2	l	l1 max.	l2	l3	l4	d2	F1 [N]*	F1 [N]#	F2 [N]*	F2 [N]#	⚖
36905	M.1053 P/30-295-AN-GR	295	37.5	324	8.5	68.5	50	17.5	42	268	75	56	27	30	1850	3400	2500	4000	231
36915	M.1053 P/30-345-AN-GR	345	37.5	374	8.5	68.5	50	17.5	42	318	75	56	27	30	1650	3150	2000	3300	249
36925	M.1053 P/30-395-AN-GR	395	37.5	424	8.5	68.5	50	17.5	42	368	75	56	27	30	1450	2600	1900	3000	266
36935	M.1053 P/30-495-AN-GR	495	37.5	524	8.5	68.5	50	17.5	42	468	75	56	27	30	1300	2000	1500	1900	301
36945	M.1053 P/30-595-AN-GR	595	37.5	624	8.5	68.5	50	17.5	42	568	75	56	27	30	1100	1900	1200	1800	336
36955	M.1053 P/30-695-AN-GR	695	37.5	724	8.5	68.5	50	17.5	42	668	75	56	27	30	1000	1600	1100	1500	371

M.1053-P-CLEAN

Code	Description	fmax.±1	f1	L	d	h	h1	h2	l	l1 max.	l2	l3	l4	d2	F1 [N]*	F1 [N]#	F2 [N]*	F2 [N]#	⚖
151481	M.1053 P/30-295-CLEAN	295	37.5	324	8.5	68.5	50	17.5	42	268	75	56	27	30	1850	3400	2500	4000	231
151483	M.1053 P/30-345-CLEAN	345	37.5	374	8.5	68.5	50	17.5	42	318	75	56	27	30	1650	3150	2000	3300	249
151485	M.1053 P/30-395-CLEAN	395	37.5	424	8.5	68.5	50	17.5	42	368	75	56	27	30	1450	2600	1900	3000	266
151487	M.1053 P/30-495-CLEAN	495	37.5	524	8.5	68.5	50	17.5	42	468	75	56	27	30	1300	2000	1500	1900	301
151489	M.1053 P/30-595-CLEAN	595	37.5	624	8.5	68.5	50	17.5	42	568	75	56	27	30	1100	1900	1200	1800	336
151491	M.1053 P/30-695-CLEAN	695	37.5	724	8.5	68.5	50	17.5	42	668	75	56	27	30	1000	1600	1100	1500	371

***** Maximum working load **#** Load at breakage

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GN 333.5

Stainless Steel-
Tubular handles

SPECIFICATION

Tube Ø 28 x 2
Stainless Steel

- AISI 304
- matt

Handle shanks
Stainless Steel-precision casting

- AISI CF-8
- matt shot-blasted

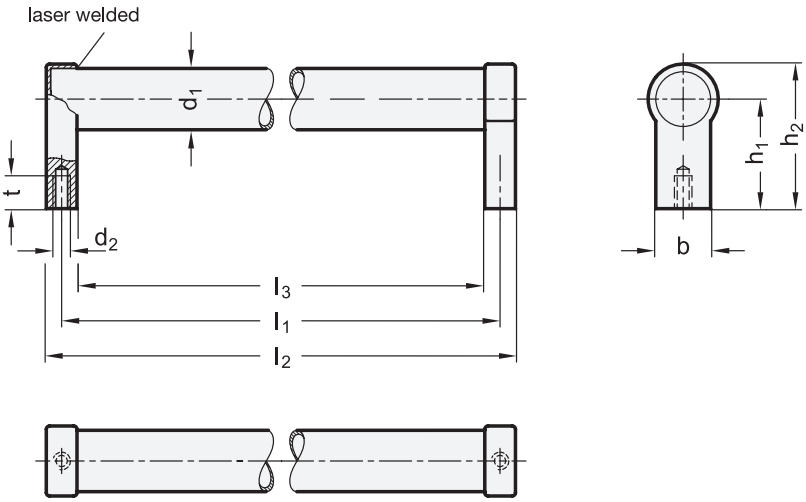


INFORMATION

The tube of the Stainless Steel-Tubular handles GN 333.5 is laser welded with the shanks without gap and with tight fit,preventing dirt from entering at this point.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)
- Load rating information (see page A35)



GN 333.5 **STAINLESS STEEL**

Description	d1	l1 ±1	b	d2	h1	h2	l2	l3	t min.	⚖
GN 333.5-28-200	28	200	25	M 8	50	66	214	186	15	500
GN 333.5-28-250	28	250	25	M 8	50	66	264	236	15	563
GN 333.5-28-300	28	300	25	M 8	50	66	314	286	15	626
GN 333.5-28-400	28	400	25	M 8	50	66	414	386	15	760
GN 333.5-28-500	28	500	25	M 8	50	66	514	486	15	861
GN 333.5-28-600	28	600	25	M 8	50	66	614	586	15	900

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GN 669

System handles

Aluminium

SPECIFICATION

Types

- Type **A**: Mounting from the back (threaded blind bore)
- Type **B**: Mounting from the operator´s side

Tube / End pieces
Aluminium

plastic coated
black, RAL 9005, textured finish **SW**

anodized, natural colour **EL**

Cover caps
Plastic
Technopolymer (Polyamide PA)
black, matt

Socket head screws DIN 912-M8x75
Steel, zinc plated

Hexagon nuts ISO 4032-M8
Steel, zinc plated

Washers DIN 125
Steel, zinc plated

INFORMATION

System handles GN 669 offer the the advantage of high stability due to the connection of tube / handle shank.
The screws of type B (mounting from operator´s side) are shrouded.

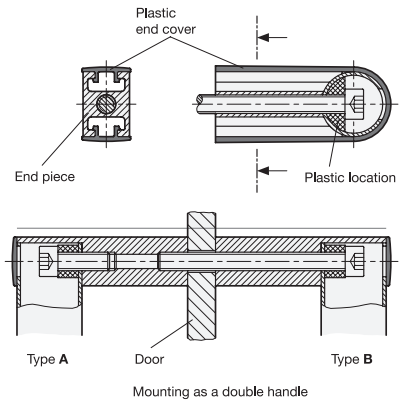
TECHNICAL INFORMATION

- Load rating information (see page A35)

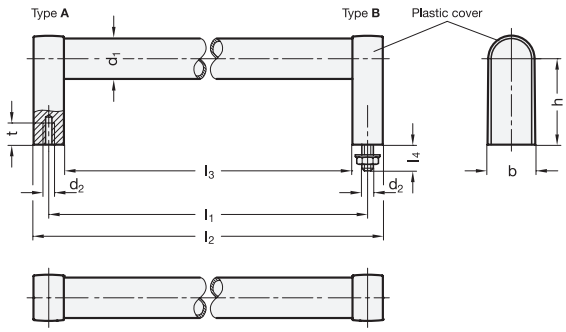
MOUNTING INFORMATION

When mounting from the operator´s side (Type B) the plastic end covers are supplied loose. Once the handle has been-mounted the end covers are pushed over the end of the handle tube and the foot until they snap into the end of the groove at the tube end.
Both mounting methods (Type A and B) allow the mounting of a pair of handles in opposite position. This method could be used on doors (double handle). Depending on the door thickness longer socket head screws DIN 912 might be required.





Mounting as a double handle



*Complete with colour index of the System handles (SW or EL)

SW RAL9005 EL anodized

GN 669

Description	d1	l1 ±0.5	b	d2	h ≈	l2	l3	l4	t min.	⚖
GN 669-28-200-A-*	28	200	32	M 8	60	220	180	-	15	180
GN 669-28-250-A-*	28	250	32	M 8	60	270	230	-	15	208
GN 669-28-300-A-*	28	300	32	M 8	60	320	280	-	15	220
GN 669-28-400-A-*	28	400	32	M 8	60	420	380	-	15	260
GN 669-28-500-A-*	28	500	32	M 8	60	520	480	-	15	290
GN 669-28-600-A-*	28	600	32	M 8	60	620	580	-	15	330
GN 669-28-200-B-*	28	200	32	M 8	60	220	180	20	-	245
GN 669-28-250-B-*	28	250	32	M 8	60	270	230	20	-	260
GN 669-28-300-B-*	28	300	32	M 8	60	320	280	20	-	275
GN 669-28-400-B-*	28	400	32	M 8	60	420	380	20	-	300
GN 669-28-500-B-*	28	500	32	M 8	60	520	480	20	-	350
GN 669-28-600-B-*	28	600	32	M 8	60	620	580	20	-	400

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Stainless Steel-Tubular handles

Mounting from the back



SPECIFICATION

Types

- Type **K**: with plastic cover cap
- Type **E**: with Stainless Steel cover cap

Tube Ø 30 x 1.5
Stainless Steel AISI 304
matt shiny finish, ground

Handle shanks
Stainless Steel AISI 304
matt shiny finish, ground

Grub screw DIN 914-M5
Stainless Steel AISI 304

Cover caps

- Type K: Plastic (Polyamide PA), black matt
- Type E: Stainless Steel AISI 304

INFORMATION

Type E of Stainless Steel-Tubular handles GN 666.5 is completely made of A2-Stainless Steel.

ON REQUEST

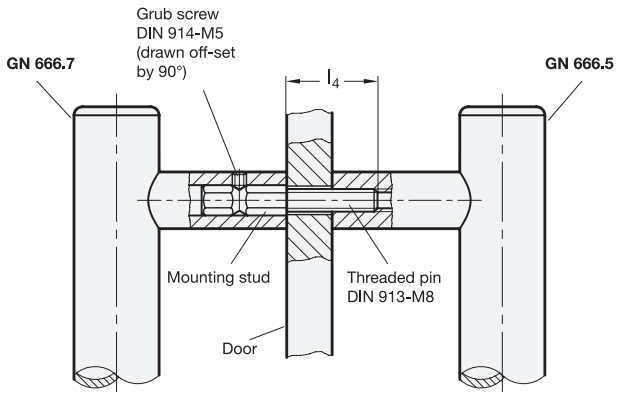
- Special lenghts

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)

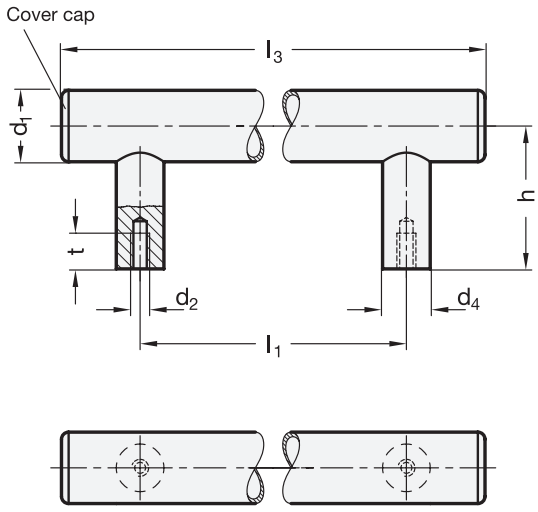
EXAMPLE OF APPLICATION

Tubular handles GN 666.5 allow the mounting of a pair of handles in opposite position. This method could be used on doors (double handle).
Generally a modification of the thread length l_4 required for this. The included threaded pin DIN 913-M8x25-A2 of mounting stud needs to be replaced by a longer threaded pin, too.
Handles with modified thread length l_4 are available on request.



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GN 666.5 | Stainless Steel-Tubular handles



GN 666.5 — **STAINLESS STEEL**

Description	d1	d2	l1 ±0.5	d4	h	l3	l4	t min.	⚖
GN 666.5-30-M6-200-E	30	M 6	200	20	60	265	15	15	600
GN 666.5-30-M6-250-E	30	M 6	250	20	60	315	15	15	616
GN 666.5-30-M6-300-E	30	M 6	300	20	60	365	15	15	688
GN 666.5-30-M6-400-E	30	M 6	400	20	60	465	15	15	772
GN 666.5-30-M6-500-E	30	M 6	500	20	60	565	15	15	885
GN 666.5-30-M6-600-E	30	M 6	600	20	60	665	15	15	968
GN 666.5-30-M8-200-E	30	M 8	200	20	60	265	15	15	585
GN 666.5-30-M8-250-E	30	M 8	250	20	60	315	15	15	620
GN 666.5-30-M8-300-E	30	M 8	300	20	60	365	15	15	655
GN 666.5-30-M8-400-E	30	M 8	400	20	60	465	15	15	725
GN 666.5-30-M8-500-E	30	M 8	500	20	60	565	15	15	800
GN 666.5-30-M8-600-E	30	M 8	600	20	60	665	15	15	880
GN 666.5-30-M6-200-K	30	M 6	200	20	60	265	15	15	490
GN 666.5-30-M6-250-K	30	M 6	250	20	60	315	15	15	540
GN 666.5-30-M6-300-K	30	M 6	300	20	60	365	15	15	589
GN 666.5-30-M6-400-K	30	M 6	400	20	60	465	15	15	707
GN 666.5-30-M6-500-K	30	M 6	500	20	60	565	15	15	800
GN 666.5-30-M6-600-K	30	M 6	600	20	60	665	15	15	880
GN 666.5-30-M8-200-K	30	M 8	200	20	60	265	15	15	500
GN 666.5-30-M8-250-K	30	M 8	250	20	60	315	15	15	580
GN 666.5-30-M8-300-K	30	M 8	300	20	60	365	15	15	640
GN 666.5-30-M8-400-K	30	M 8	400	20	60	465	15	15	720
GN 666.5-30-M8-500-K	30	M 8	500	20	60	565	15	15	800
GN 666.5-30-M8-600-K	30	M 8	600	20	60	665	15	15	880

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Stainless Steel-Tubular handles

Mounting from the operator´s side



SPECIFICATION

Types

- Type **K**: with plastic cover cap
- Type **E**: with Stainless Steel cover cap

Tube Ø 30 x 1.5
Stainless Steel AISI 304
matt shiny finish, ground

Handle shanks
Stainless Steel AISI 304
matt shiny finish, ground

Mounting stud
with threaded pin DIN 913-M8
Stainless Steel AISI 304

Grub screw DIN 914-M5
Stainless Steel AISI 304

Cover caps

- Type K: Plastic (Polyamide PA), black matt
- Type E: Stainless Steel AISI 304

INFORMATION

For a mounting of Stainless Steel-Tubular handles GN 666.7 (mounting from the back) the stud is first screwed in from the machine side with the threaded pin DIN 913-M8x25 (included) and then the handle is pushed on and secured with the grub screw DIN 914-M5.
Type E of Stainless Steel-Tubular handles GN 666.7 is completely made of A2-Stainless Steel.

ON REQUEST

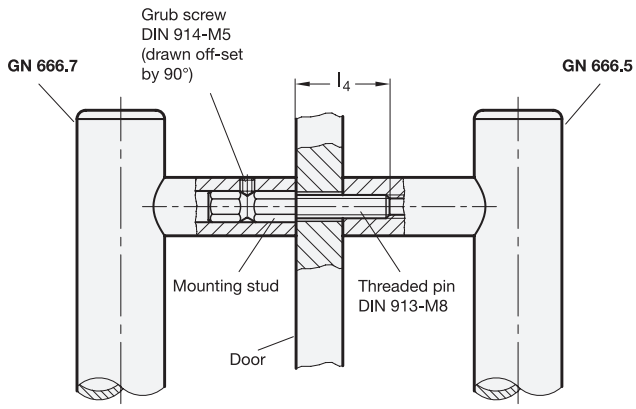
- Special lengths

TECHNICAL INFORMATION

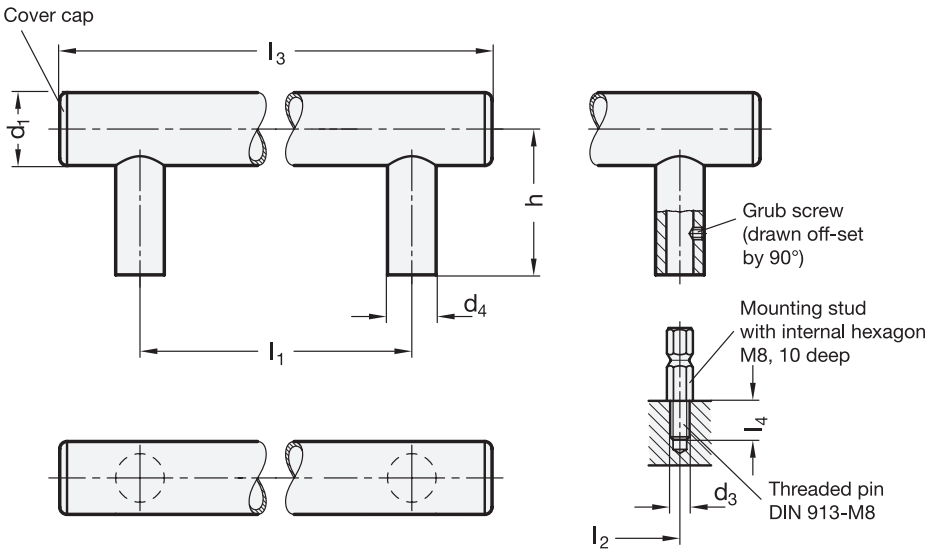
- Stainless Steel characteristics (see page A26)

EXAMPLE OF APPLICATION

Tubular handles GN 666.7 allow the mounting of a pair of handles in opposite position. This method could be used on doors (double handle).
Generally a modification of the thread length l_4 required for this. The included threaded pin DIN 913-M8x25-A2 of mounting stud needs to be replaced by a longer threaded pin, too.
Handles with modified thread length l_4 are available on request.



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GN 666.7 **STAINLESS STEEL**

Description	d1	d3	l1 ±0.5	l2 ±0.3	d4	h	l3	l4	⚖
GN 666.7-30-M8-200-E	30	M 8	200	200	20	60	265	15	581
GN 666.7-30-M8-250-E	30	M 8	250	250	20	60	315	15	640
GN 666.7-30-M8-300-E	30	M 8	300	300	20	60	365	15	700
GN 666.7-30-M8-400-E	30	M 8	400	400	20	60	465	15	796
GN 666.7-30-M8-500-E	30	M 8	500	500	20	60	565	15	900
GN 666.7-30-M8-600-E	30	M 8	600	600	20	60	665	15	990
GN 666.7-30-M8-200-K	30	M 8	200	200	20	60	265	15	520
GN 666.7-30-M8-250-K	30	M 8	250	250	20	60	315	15	550
GN 666.7-30-M8-300-K	30	M 8	300	300	20	60	365	15	580
GN 666.7-30-M8-400-K	30	M 8	400	400	20	60	465	15	740
GN 666.7-30-M8-500-K	30	M 8	500	500	20	60	565	15	800
GN 666.7-30-M8-600-K	30	M 8	600	600	20	60	665	15	860

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Tubular handles

Tube Aluminium or Stainless Steel

SPECIFICATION

Tube Ø 30 x 1.5
Aluminium / Stainless Steel

Handle shanks / cover caps
Plastic (Polyamide PA)

- glass fibre reinforced
- temperature resistant up tp 100 °C

Tube Aluminium
plastic coated
black, RAL 9005, textured finish **SW**
Handle shanks / cover caps, black, matt

Tube Aluminium
anodized, natural colour **EL**
Handle shanks / cover caps, black, matt

Tube Aluminium
anodized, natural colour **ELG**
Handle shanks / cover caps, light grey, matt

Tube Stainless Steel AISI 304
ground, matt shiny finish **NG**
Handle shanks / cover caps, black, matt

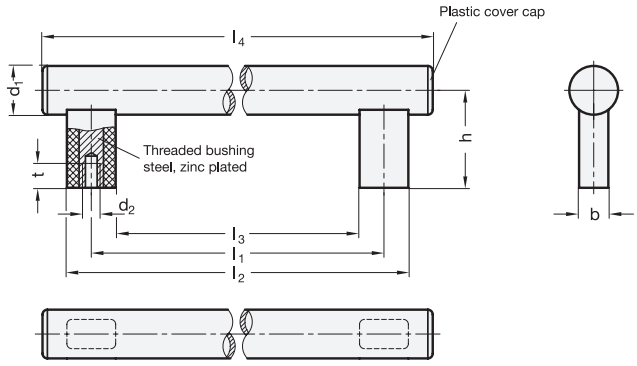


INFORMATION

Owing to their large range of variants and their classic design, GN 666 tubular handles are the perfect choice for many applications. With the modular structure, special lengths are avaiable even in comparatively small unit quanitites. Large handle can be supplied with additional centre struts.

ON REQUEST

- Cleanline version (CL)



*Complete with Finish of the Tubular handles (SW, EL, ELG or NG)

SW	EL	ELG	NG
black	anodized, black	anodized, light grey	Stainless Steel, black

GN 666

Description	d1	d2	l1 ±0.5	b	h	l2	l3	l4	t min.	⚖
GN 666-30-M6-200-*	30	M 6	200	18	60	230	170	265	12	213
GN 666-30-M6-250-*	30	M 6	250	18	60	280	220	315	12	236
GN 666-30-M6-300-*	30	M 6	300	18	60	330	270	365	12	260
GN 666-30-M6-350-*	30	M 6	350	18	60	380	320	415	12	284
GN 666-30-M6-400-*	30	M 6	400	18	60	430	370	465	12	308
GN 666-30-M6-500-*	30	M 6	500	18	60	530	470	565	12	332
GN 666-30-M6-600-*	30	M 6	600	18	60	630	570	665	12	355
GN 666-30-M8-200-*	30	M 8	200	18	60	230	170	265	15	248
GN 666-30-M8-250-*	30	M 8	250	18	60	280	220	315	15	263
GN 666-30-M8-300-*	30	M 8	300	18	60	330	270	365	15	278
GN 666-30-M8-350-*	30	M 8	350	18	60	380	320	415	15	293
GN 666-30-M8-400-*	30	M 8	400	18	60	430	370	465	15	308
GN 666-30-M8-500-*	30	M 8	500	18	60	530	470	565	15	339
GN 666-30-M8-600-*	30	M 8	600	18	60	630	570	665	15	370

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GN 666.1

Tubular handles

Tube Aluminium or Stainless Steel



SPECIFICATION

Tube Ø 30 x 1.5
Aluminium / Stainless Steel

Handle shanks / cover caps
Plastic (Polyamide PA)

- glass fibre reinforced
- temperature resistant up to 100 °C

Tube Aluminium
plastic coated
black, RAL 9005, textured finish **SW**
Handle shanks / cover caps, black, matt

Tube Aluminium
anodized, natural colour **EL**
Handle shanks / cover caps, black, matt

Tube Aluminium
anodized, natural colour **ELG**
Handle shanks / cover caps, light grey, matt

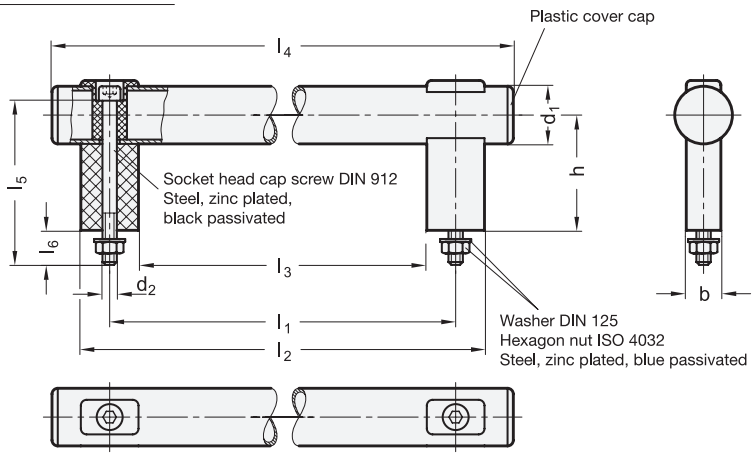
Tube Stainless Steel AISI 304
ground, matt shiny finish **NG**
Handle shanks / cover caps, black, matt

INFORMATION

Owing to their large range of variants and their classic design, GN 666.1 tubular handles are the perfect choice for many applications.
With the modular structure, special lengths are avaiable even in comparatively small unit quanitites. Large handle can be supplied with additional centre struts.

TECHNICAL INFORMATION

- Load rating information (see page A35)



*Complete with Finish of the Tubular handles (SW, EL, ELG or NG)

SW	EL	ELG	NG
black	anodized, black	anodized, light grey	Stainless Steel, black

GN 666.1

Description	d1	l1 ±0.5	b	d2	h	l2	l3	l4	l5	l6	⚖
GN 666.1-30-200-*	30	200	18	M 8	60	230	170	265	85	17	247
GN 666.1-30-250-*	30	250	18	M 8	60	280	220	315	85	17	265
GN 666.1-30-300-*	30	300	18	M 8	60	330	270	365	85	17	284
GN 666.1-30-400-*	30	400	18	M 8	60	430	370	465	85	17	321
GN 666.1-30-500-*	30	500	18	M 8	60	530	470	565	85	17	357
GN 666.1-30-600-*	30	600	18	M 8	60	630	570	665	85	17	394

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Tubular handles

Technopolymer, aluminium, stainless steel



ELESA Original design

HANDLE SHANKS

Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish. Supplied not assembled. The handle shank connection to the tube avoids tube rotation.
Handle shanks group can be sold separately as well (tube not included).

Code	Description
15302	GR-M.1043/20
15301	GR-M1043/30

ANTI-ROTATION TUBE END PLUGS

NBR synthetic rubber.

STANDARD EXECUTIONS

Pass-through holes for cylindrical-head screws with hexagon socket. Two reference pins (to be fitted during handle assembly) guarantee an exact positioning of the shanks.

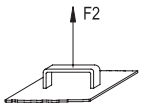
- **M.1043-EP:** aluminium tube, epoxy resin coating, metalflake graphite colour, matte finish. Highly resistant to wear, scratches and chemical agents. Avoid continuous and prolonged contact with boiling water or steam.
- **M.1043-AN:** anodised aluminium tube, natural colour.
- **M.1043-SST:** AISI 304 stainless steel tube.

Threaded blind holes. Two reference pins (to be fitted during handle assembly) guarantee an exact positioning of the shanks.

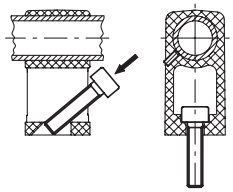
- **M.1043-BM-EP**: aluminium tube, epoxy resin coating, metalflake graphite colour, matte finish. Highly resistant to wear, scratches and chemical agents. Avoid continuous and prolonged contact with boiling water or steam.
- **M.1043 BM-AN**: anodised aluminium tube, natural colour.
- **M.1043-BM-SST**: AISI 304 stainless steel tube.

TECHNICAL DATA

Tensile stress: F2 values reported in the table are the result of breaking tests carried out with the appropriate dynamometric equipment under the test conditions shown in the figure with ambient temperature.



Assembly
SCM. intermediate shank



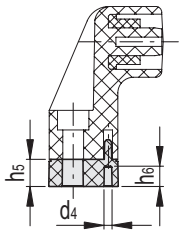
ACCESSORIES ON REQUEST

- Intermediate shank for tube diameter 20: code 15306 SCM.1043-20.
- Intermediate shank for tube diameter 30: code 15305 SCM.1043-30.

Suggested for tube longer than 700 mm.

- Distance element for side shank with connection for tube Ø30 DS-M.1043 (see table).

DS-M.1043

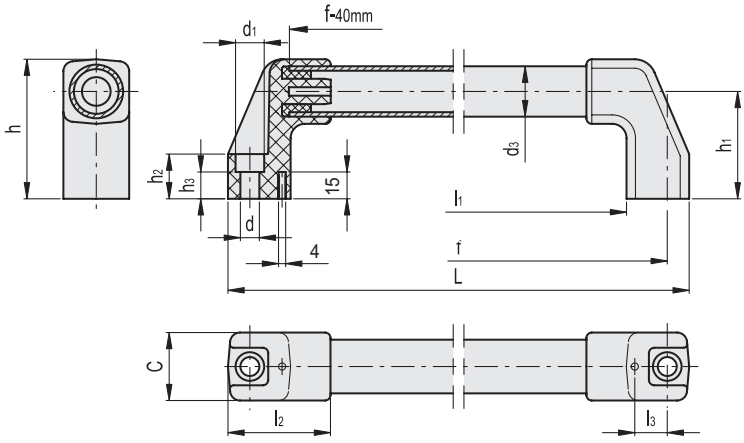


DS-M.1043

Code	Description	d4	h5	h6	For handle
15291	DS-M.1043/30-10	4	10	6	M.1043/30
15293	DS-M.1043/30-20	4	20	15	M.1043/30

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M.1043-EP
M.1043-AN
M.1043-SST



M.1043-EP **M.1043-AN**

Code	Description	Code	Description	f±1	L	d	d1	h	h1	h2	h3	l1	l2	l3	d3	C	F2 [N]*	F2 [N]#	⚖
37621	M.1043/20-200-EP	37623	M.1043/20-200-AN	200	220	8.5	13.5	58	45	18	9.5	162	47	13	20	28	1500	2000	128
37631	M.1043/20-300-EP	37633	M.1043/20-300-AN	300	320	8.5	13.5	58	45	18	9.5	262	47	13	20	28	1500	2000	140
37641	M.1043/20-350-EP	37643	M.1043/20-350-AN	350	370	8.5	13.5	58	45	18	9.5	312	47	13	20	28	1400	1800	152
37651	M.1043/20-400-EP	37653	M.1043/20-400-AN	400	420	8.5	13.5	58	45	18	9.5	362	47	13	20	28	1200	1600	163
37661	M.1043/20-500-EP	37663	M.1043/20-500-AN	500	520	8.5	13.5	58	45	18	9.5	462	47	13	20	28	1000	1200	185
37671	M.1043/20-600-EP	37673	M.1043/20-600-AN	600	620	8.5	13.5	58	45	18	9.5	562	47	13	20	28	800	1000	210
37681	M.1043/20-700-EP	37683	M.1043/20-700-AN	700	720	8.5	13.5	58	45	18	9.5	662	47	13	20	28	600	900	232
37695	M.1043/30-200-EP	37697	M.1043/30-200-AN	200	224	10.5	16	78	60	25	15	154	57	18	30	38	3000	3900	233
37701	M.1043/30-300-EP	37703	M.1043/30-300-AN	300	324	10.5	16	78	60	25	15	254	57	18	30	38	3000	3900	255
37711	M.1043/30-350-EP	37713	M.1043/30-350-AN	350	374	10.5	16	78	60	25	15	304	57	18	30	38	2600	3500	277
37721	M.1043/30-400-EP	37723	M.1043/30-400-AN	400	424	10.5	16	78	60	25	15	354	57	18	30	38	2200	3300	295
37731	M.1043/30-500-EP	37733	M.1043/30-500-AN	500	524	10.5	16	78	60	25	15	454	57	18	30	38	1800	2400	337
37741	M.1043/30-600-EP	37743	M.1043/30-600-AN	600	624	10.5	16	78	60	25	15	554	57	18	30	38	1600	2000	378
37751	M.1043/30-700-EP	37753	M.1043/30-700-AN	700	724	10.5	16	78	60	25	15	654	57	18	30	38	1300	1800	417

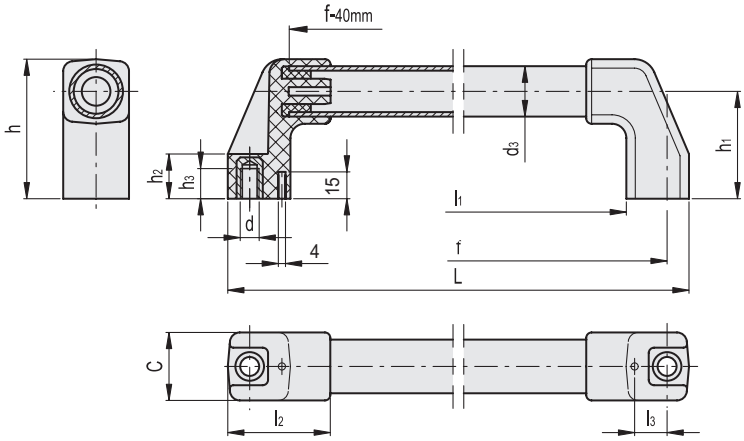
M.1043-SST **STAINLESS STEEL**

Code	Description	f±1	L	d	d1	h	h1	h2	h3	l1	l2	l3	d3	C	F2 [N]*	F2 [N]#	⚖
37622	M.1043/20-200-SST	200	220	8.5	13.5	58	45	18	9.5	162	47	13	20	28	1500	2000	128
37632	M.1043/20-300-SST	300	320	8.5	13.5	58	45	18	9.5	262	47	13	20	28	3000	4500	142
37642	M.1043/20-350-SST	350	370	8.5	13.5	58	45	18	9.5	312	47	13	20	28	2500	4000	154
37652	M.1043/20-400-SST	400	420	8.5	13.5	58	45	18	9.5	362	47	13	20	28	2000	3500	166
37662	M.1043/20-500-SST	500	520	8.5	13.5	58	45	18	9.5	462	47	13	20	28	1600	2500	190
37672	M.1043/20-600-SST	600	620	8.5	13.5	58	45	18	9.5	562	47	13	20	28	1100	1800	215
37682	M.1043/20-700-SST	700	720	8.5	13.5	58	45	18	9.5	662	47	13	20	28	900	1400	240
37696	M.1043/30-200-SST	200	224	10.5	16	78	60	25	15	154	57	18	30	38	3000	3900	233
37702	M.1043/30-300-SST	300	324	10.5	16	78	60	25	15	254	57	18	30	38	4200	5500	258
37712	M.1043/30-350-SST	350	374	10.5	16	78	60	25	15	304	57	18	30	38	4000	5250	282
37722	M.1043/30-400-SST	400	424	10.5	16	78	60	25	15	354	57	18	30	38	3800	5000	302
37732	M.1043/30-500-SST	500	524	10.5	16	78	60	25	15	454	57	18	30	38	3500	4500	343
37742	M.1043/30-600-SST	600	624	10.5	16	78	60	25	15	554	57	18	30	38	2800	4000	385
37752	M.1043/30-700-SST	700	724	10.5	16	78	60	25	15	654	57	18	30	38	2250	3500	425

***** Maximum working load **#** Load at breakage (permanent deformation).

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M.1043-BM-EP
M.1043-BM-AN
M.1043-BM-SST



M.1043-BM-EP **M.1043-BM-AN**

Code	Description	Code	Description	f±1	L	d	h	h1	h2	h3	l1	l2	l3	d3	C	F2 [N]*	F2 [N]#	⚖
37560	M.1043 BM/20-200-EP	37580	M.1043 BM/20-200-AN	200	220	M8	58	45	18	9.5	162	47	13	20	28	1500	2000	128
37561	M.1043 BM/20-300-EP	37581	M.1043 BM/20-300-AN	300	320	M8	58	45	18	10	262	47	13	20	28	1500	2000	140
37562	M.1043 BM/20-350-EP	37582	M.1043 BM/20-350-AN	350	370	M8	58	45	18	10	312	47	13	20	28	1400	1800	152
37563	M.1043 BM/20-400-EP	37583	M.1043 BM/20-400-AN	400	420	M8	58	45	18	10	362	47	13	20	28	1200	1600	163
37565	M.1043 BM/20-500-EP	37585	M.1043 BM/20-500-AN	500	520	M8	58	45	18	10	462	47	13	20	28	1000	1200	185
37567	M.1043 BM/20-600-EP	37587	M.1043 BM/20-600-AN	600	620	M8	58	45	18	10	562	47	13	20	28	800	1000	210
37569	M.1043 BM/20-700-EP	37589	M.1043 BM/20-700-AN	700	720	M8	58	45	18	10	662	47	13	20	28	600	900	232
37570	M.1043 BM/30-200-EP	37590	M.1043 BM/30-200-AN	200	224	M10	78	60	25	15	154	57	18	30	38	3000	3900	233
37571	M.1043 BM/30-300-EP	37591	M.1043 BM/30-300-AN	300	324	M10	78	60	25	17	254	57	18	30	38	3000	3900	255
37572	M.1043 BM/30-350-EP	37592	M.1043 BM/30-350-AN	350	374	M10	78	60	25	17	304	57	18	30	38	2600	3500	277
37573	M.1043 BM/30-400-EP	37593	M.1043 BM/30-400-AN	400	424	M10	78	60	25	17	354	57	18	30	38	2200	3300	295
37575	M.1043 BM/30-500-EP	37595	M.1043 BM/30-500-AN	500	524	M10	78	60	25	17	454	57	18	30	38	1800	2400	337
37577	M.1043 BM/30-600-EP	37597	M.1043 BM/30-600-AN	600	624	M10	78	60	25	17	554	57	18	30	38	1600	2000	378
37579	M.1043 BM/30-700-EP	37599	M.1043 BM/30-700-AN	700	724	M10	78	60	25	17	654	57	18	30	38	1300	1800	417

M.1043-BM-SST **STAINLESS STEEL**

Code	Description	f±1	L	d	h	h1	h2	h3	l1	l2	l3	d3	C	F2 [N]*	F2 [N]#	⚖
37599	M.1043 BM/20-200-SST	200	220	M8	58	45	18	9.5	162	47	13	20	28	1500	2000	128
37600	M.1043 BM/20-300-SST	300	320	M8	58	45	18	10	262	47	13	20	28	3000	4500	142
37602	M.1043 BM/20-350-SST	350	370	M8	58	45	18	10	312	47	13	20	28	2500	4000	154
37603	M.1043 BM/20-400-SST	400	420	M8	58	45	18	10	362	47	13	20	28	2000	3500	166
37605	M.1043 BM/20-500-SST	500	520	M8	58	45	18	10	462	47	13	20	28	1600	2500	190
37607	M.1043 BM/20-600-SST	600	620	M8	58	45	18	10	562	47	13	20	28	1100	1800	215
37609	M.1043 BM/20-700-SST	700	720	M8	58	45	18	10	662	47	13	20	28	900	1400	240
37610	M.1043 BM/30-200-SST	200	224	M10	78	60	25	15	154	57	18	30	38	3000	3900	233
37611	M.1043 BM/30-300-SST	300	324	M10	78	60	25	17	254	57	18	30	38	4200	5500	258
37612	M.1043 BM/30-350-SST	350	374	M10	78	60	25	17	304	57	18	30	38	4000	5250	282
37613	M.1043 BM/30-400-SST	400	424	M10	78	60	25	17	354	57	18	30	38	3800	5000	302
37615	M.1043 BM/30-500-SST	500	524	M10	78	60	25	17	454	57	18	30	38	3500	4500	343
37617	M.1043 BM/30-600-SST	600	624	M10	78	60	25	17	554	57	18	30	38	2800	4000	385
37619	M.1043 BM/30-700-SST	700	724	M10	78	60	25	17	654	57	18	30	38	2250	3500	425

***** Maximum working load **#** Load at breakage (permanent deformation).

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M.1043-HEI

RoHS PA +100° -30°

Tubular handles for electrical insulation

Technopolymer and polyester

HANDLE SHANKS

Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.
Supplied assembled. The seat for housing the tube in the shank is shaped so as to prevent its rotation.

TUBE

Glass-fibre reinforced polyester, black colour with high resistivity. High resistance to wear, scratches and agents.

MOUNTING

Rear fastening with screws M10.
Two reference pins (to be fitted during assembly) guarantee a precise positioning.

MECHANICAL AND DIELECTRIC FEATURES

Tensile stress: F2 values reported in the table are the result of breaking tests carried out with the appropriate dynamometric equipment under the test conditions shown in the figure with ambient temperature.
The following table lists the main dielectric features of the tube.

ACCESSORIES ON REQUEST

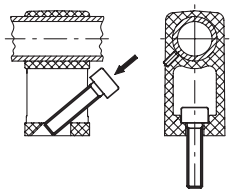
Intermediate shank for tube (recommended for lengths greater than 700 mm): code 15305 SCM.1043-30.

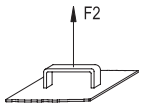


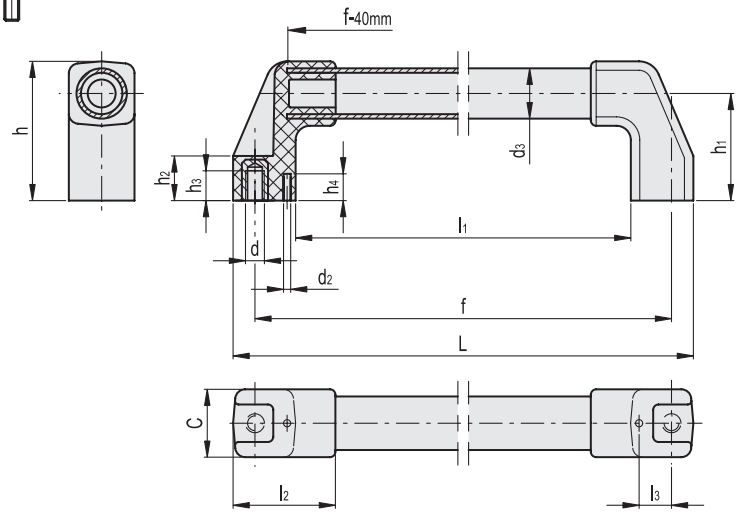
ELESA Original design

Dielectric features of the tube	
Volume Resistivity	$10^{10} \div 10^{15}$ [Ω *cm]
Surface resistivity	$10^{10} \div 10^{13}$ [Ω*] (according to IEC93 standard)
Dielectric resistivity	8 [KV/mm]
Comparative tracking index (CTI)	> 600 (V)
Dielectric constant	5

Assembly
SCM. intermediate shank







Code	Description	f±1	L	d	h	h1	h2	h3	h4	l1	l2	l3	d2	d3	C	F2 [N]*	F2 [N]#	⚖
37776	M.1043/30-500-HEI	500	524	M10	78	60	25	17	15	454	57	18	4	30	38	3000	4500	495
37786	M.1043/30-700-HEI	700	724	M10	78	60	25	17	15	654	57	18	4	30	38	2000	3500	630

***** Maximum working load **#** Load at breakage

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Tubular handles

Technopolymer and aluminium

HANDLE SHANKS
Glass-fibre reinforced polyamide based (PA) technopolymer, matte finish.

SIDE CAPS
Technopolymer in Ergostyle colours and white similar to RAL 9002 (CLEAN), glossy finish. Supplied with the handle, press-fit assembly, removable by a screwdriver.
Available also as accessories sold separately (see table ECA.).

Code	Description	Cover for
29871-*	ECA.T1-*	ETH.28
29872-*	ECA.T2-*	ETH.35
29871	ECA.T 1-CLEAN	ETH.28-CLEAN
29872	ECA.T 2-CLEAN	ETH.35-CLEAN

* Complete with colour index (C1, ..., C6).

ANTI-ROTATION TUBE ASSEMBLING SYSTEM
Special expansion-assembly system between the tube and the handle shanks to prevent rotation during operation.

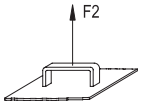
STANDARD EXECUTIONS
Pass-through holes for cylindrical-head screws with hexagon socket, hexagonal-head screws or standard lock nuts.
- **ETH-EP:** aluminium tube, epoxy resin coating, metalflake graphite colour, matte finish. Highly resistant to wear, scratches and chemical agents. Avoid continuous and prolonged contact with boiling water or steam. Side shanks in grey-black colour.
- **ETH-AN:** anodised aluminium tube, natural colour. Side shanks in grey-black colour.
- **ETH-CLEAN**: aluminium tube, coating in white colour similar to RAL 9002, glossy finish. Side shanks in white colour similar to RAL 9002.

Suggested tightening torque:
- back mounting with plain holes: 8 [Nm]
- front mounting with plain or tapped holes: 15 [Nm].

ERGONOMY AND DESIGN
The large diameter of the tube offers a good and comfortable grip; the antirotation assembly system of the handle shanks to the tube has been developed to offer a firm and secure manœuvrability during operations.

TECHNICAL DATA
Tensile stress: F2 values reported in the table are the result of breaking tests carried out with the appropriate dynamometric equipment under the test conditions shown in the figure with ambient temperature.

SPECIAL EXECUTIONS ON REQUEST
Different lengths.

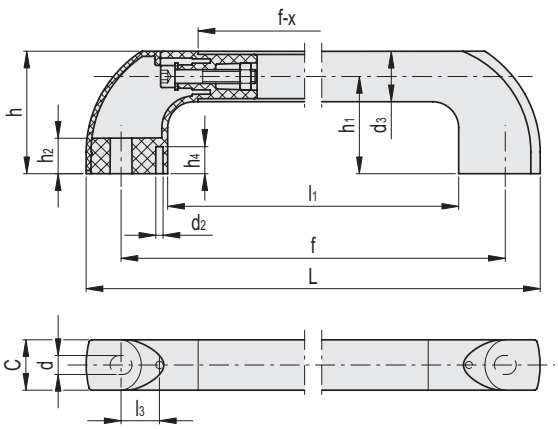




ERGOSTYLE® reddot design award



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*Complete with colour index, example: 262151-C5 ETH.28-300-EP-C5

C1	C2	C3	C4	C5	C6
RAL7021	RAL2004	RAL7035	RAL1021	RAL5024	RAL3000

ETH-EP

Code	Description	f±1	L	d	h	h1	h2	h4	l1	l3	d2	d3	C	x	F2 [N]*	F2 [N]#	⚖
262151-*	ETH.28-300-EP-*	300	339	8.5	68	54	20	15	248	20.3	4	27.5	28	86	2400	2800	235
262155-*	ETH.28-400-EP-*	400	439	8.5	68	54	20	15	348	20.3	4	27.5	28	86	2000	2300	268
262161-*	ETH.28-500-EP-*	500	539	8.5	68	54	20	15	448	20.3	4	27.5	28	86	1800	2000	301
262165-*	ETH.28-600-EP-*	600	639	8.5	68	54	20	15	548	20.3	4	27.5	28	86	1200	1500	335
262171-*	ETH.28-700-EP-*	700	739	8.5	68	54	20	15	648	20.3	4	27.5	28	86	900	1200	368
262211-*	ETH.35-300-EP-*	300	357	10.5	85	67.5	28	15	251	18.5	4	34.5	35	91	3000	3100	397
262215-*	ETH.35-400-EP-*	400	457	10.5	85	67.5	28	15	351	18.5	4	34.5	35	91	2700	2800	456
262221-*	ETH.35-500-EP-*	500	557	10.5	85	67.5	28	15	451	18.5	4	34.5	35	91	2500	2600	515
262225-*	ETH.35-600-EP-*	600	657	10.5	85	67.5	28	15	551	18.5	4	34.5	35	91	1900	2100	574
262231-*	ETH.35-700-EP-*	700	757	10.5	85	67.5	28	15	651	18.5	4	34.5	35	91	1900	2100	633
262246-*	ETH.35-1000-EP-*	1000	1057	10.5	85	67.5	28	15	951	18.5	4	34.5	35	91	1200	1400	810

ETH-AN

Code	Description	f±1	L	d	h	h1	h2	h4	l1	l3	d2	d3	C	x	F2 [N]*	F2 [N]#	⚖
262153-*	ETH.28-300-AN-*	300	339	8.5	68	54	20	15	248	20.3	4	27.5	28	86	2400	2800	235
262157-*	ETH.28-400-AN-*	400	439	8.5	68	54	20	15	348	20.3	4	27.5	28	86	2000	2300	268
262163-*	ETH.28-500-AN-*	500	539	8.5	68	54	20	15	448	20.3	4	27.5	28	86	1800	2000	301
262167-*	ETH.28-600-AN-*	600	639	8.5	68	54	20	15	548	20.3	4	27.5	28	86	1200	1500	335
262173-*	ETH.28-700-AN-*	700	739	8.5	68	54	20	15	648	20.3	4	27.5	28	86	900	1200	368
262213-*	ETH.35-300-AN-*	300	357	10.5	85	67.5	28	15	251	18.5	4	34.5	35	91	3000	3100	397
262217-*	ETH.35-400-AN-*	400	457	10.5	85	67.5	28	15	351	18.5	4	34.5	35	91	2700	2800	456
262223-*	ETH.35-500-AN-*	500	557	10.5	85	67.5	28	15	451	18.5	4	34.5	35	91	2500	2600	515
262227-*	ETH.35-600-AN-*	600	657	10.5	85	67.5	28	15	551	18.5	4	34.5	35	91	1900	2100	574
262233-*	ETH.35-700-AN-*	700	757	10.5	85	67.5	28	15	651	18.5	4	34.5	35	91	1900	2100	633
262248-*	ETH.35-1000-AN-*	1000	1057	10.5	85	67.5	28	15	951	18.5	4	34.5	35	91	1200	1400	810

ETH-CLEAN

Code	Description	f±1	L	d	h	h1	h2	h4	l1	l3	d2	d3	C	x	F2 [N]*	F2 [N]#	⚖
150911	ETH.28-300-CLEAN	300	339	8.5	68	54	20	15	248	20.3	4	27.5	28	86	2400	2800	235
150913	ETH.28-400-CLEAN	400	439	8.5	68	54	20	15	348	20.3	4	27.5	28	86	2000	2300	268
150915	ETH.28-500-CLEAN	500	539	8.5	68	54	20	15	448	20.3	4	27.5	28	86	1800	2000	301
150917	ETH.28-600-CLEAN	600	639	8.5	68	54	20	15	548	20.3	4	27.5	28	86	1200	1500	335
150919	ETH.28-700-CLEAN	700	739	8.5	68	54	20	15	648	20.3	4	27.5	28	86	900	1200	368
150931	ETH.35-300-CLEAN	300	357	10.5	85	67.5	28	15	251	18.5	4	34.5	35	91	3000	3100	397
150933	ETH.35-400-CLEAN	400	457	10.5	85	67.5	28	15	351	18.5	4	34.5	35	91	2700	2800	456
150935	ETH.35-500-CLEAN	500	557	10.5	85	67.5	28	15	451	18.5	4	34.5	35	91	2500	2600	515
150937	ETH.35-600-CLEAN	600	657	10.5	85	67.5	28	15	551	18.5	4	34.5	35	91	1900	2100	574
150939	ETH.35-700-CLEAN	700	757	10.5	85	67.5	28	15	651	18.5	4	34.5	35	91	1900	2100	633
150941	ETH.35-1000-CLEAN	1000	1057	10.5	85	67.5	28	15	951	18.5	4	34.5	35	91	1200	1400	810

***** Maximum working load **#** Load at breakage

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M.1066 BM-CLEAN

Tubular handles

Technopolymer

TUBE
Aluminium, coating in white colour similar to RAL 9002, handle shanks and end caps in white colour similar to RAL 9002.

HANDLE SHANKS
Glass-fibre reinforced polyamide based (PA) technopolymer, matte finish.

TUBE END CAPS
Polyamide based (PA) technopolymer.

COLOUR
White similar to RAL 9002.

STANDARD EXECUTION
Special zinc-plated steel screws with threaded blind holes, fitted to the tube by means of brass nuts.

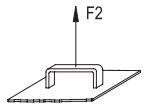
FEATURES AND APPLICATIONS
This handle, thanks to its white colour and glossy finish, is particularly suitable for applications on medical and hospital equipment and on food processing machines whose parts, for hygienic reasons, must be frequently cleaned.
Its solid shape without cavities prevents unhealthy residues from depositing.

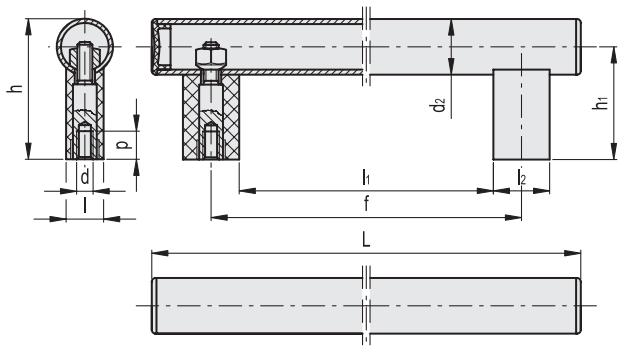
TECHNICAL DATA
Tensile stress: F2 values reported in the table are the result of breaking tests carried out with the appropriate dynamometric equipment under the test conditions shown in the figure with ambient temperature.

SPECIAL EXECUTIONS ON REQUEST
- Stainless steel tube.
- Different lengths.



ELESA Original design





Code	Description	f±1	L	d	h	h1	l	l1	l2	d2	p	F2 [N]*	F2 [N]#	⚖
151501	M.1066 BM/30-200 CLEAN	200	265	M8	75	60	18	170	30	30	15	4400	6500	240
151506	M.1066 BM/30-250 CLEAN	250	315	M8	75	60	18	220	30	30	15	3500	6000	260
151511	M.1066 BM/30-300 CLEAN	300	365	M8	75	60	18	270	30	30	15	3300	5700	280
151513	M.1066 BM/30-350 CLEAN	350	415	M8	75	60	18	320	30	30	15	3300	5700	300
151516	M.1066 BM/30-400 CLEAN	400	465	M8	75	60	18	370	30	30	15	2400	4500	320
151521	M.1066 BM/30-500 CLEAN	500	565	M8	75	60	18	470	30	30	15	1500	3800	360
151526	M.1066 BM/30-600 CLEAN	600	665	M8	75	60	18	570	30	30	15	880	3200	380

***** Maximum working load **#** Load at breakage

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Oval tubular handles

Mounting from the back side



SPECIFICATION

Handle tube
Aluminium

Handle shanks
Zinc die casting
plastic coated

Tube **SW**
plastic coated
black, RAL 9005, textured finish
Handle shanks
black, RAL 9005, textured finish

Tube **EL**
anodized, natural colour
Handle shanks
black, RAL 9005, textured finish

Tube **ES**
anodized, natural colour
Handle shanks
silver, RAL 9006, textured finish

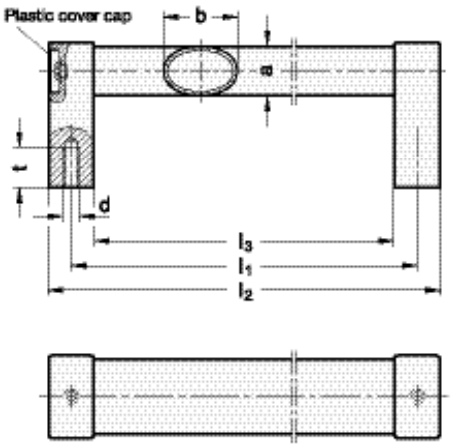
Cover caps
plastic, light grey

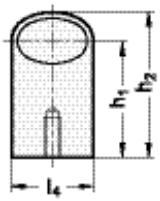
INFORMATION

Oval tubular handles GN 334.1 are highly stable.
The handle tube can be mounted without any further machining, allowing **special lengths** to be realised easily.

TECHNICAL INFORMATION

- Load rating information (see page A35)





*Complete with Finish of the Oval tubular handles (SW, EL or ES)

SW	EL	ES
black	anodized, black	anodized, silver

GN 334

Description	b	l1 ±0.5	a	d	h1	h2	l2	l3	l4	t min.	⚖
GN 334-36-200-*	36	200	24	M 8	57	71	222	178	40	15	480
GN 334-36-250-*	36	250	24	M 8	57	71	272	228	40	15	522
GN 334-36-300-*	36	300	24	M 8	57	71	322	278	40	15	564
GN 334-36-350-*	36	350	24	M 8	57	71	372	328	40	15	606
GN 334-36-400-*	36	400	24	M 8	57	71	422	378	40	15	648
GN 334-36-500-*	36	500	24	M 8	57	71	522	478	40	15	732
GN 334-36-600-*	36	600	24	M 8	57	71	622	578	40	15	800
GN 334-36-800-*	36	800	24	M 8	57	71	822	778	40	15	968

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GN 334.1

Oval tubular handles

Mounting from the operator´s side



SPECIFICATION

Handle tube
Aluminium

Handle shanks
Zinc die casting
plastic coated

Tube **SW**
plastic coated
black, RAL 9005, textured finish
Handle shanks
black, RAL 9005, textured finish

Tube **EL**
anodized, natural colour
Handle shanks
black, RAL 9005, textured finish

Tube **ES**
anodized, natural colour
Handle shanks
silver, RAL 9006, textured finish

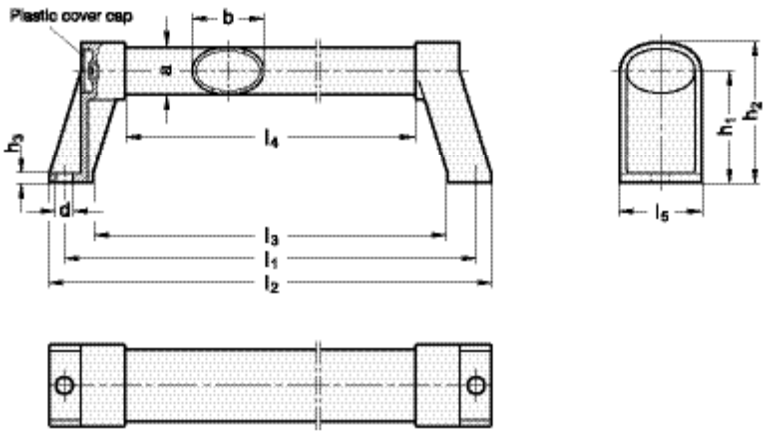
Cover caps
plastic, light grey

INFORMATION

Oval tubular handles GN 334.1 are highly stable.
The handle tube can be mounted without any further machining, allowing **special lengths** to be realised easily.

TECHNICAL INFORMATION

- Load rating information (see page A35)



*Complete with Finish of the Oval tubular handles (SW, EL or ES)

SW	EL	ES
black	anodized, black	anodized, silver

GN 334.1

Description	b	l1 ±0.5	a	d	h1	h2	h3	l2	l3	l4	l5	⚖
GN 334.1-36-200-*	36	200	24	8.5	57	72	5	215	171	139	41	430
GN 334.1-36-250-*	36	250	24	8.5	57	72	5	265	221	189	41	475
GN 334.1-36-300-*	36	300	24	8.5	57	72	5	315	271	239	41	522
GN 334.1-36-350-*	36	350	24	8.5	57	72	5	365	321	289	41	567
GN 334.1-36-400-*	36	400	24	8.5	57	72	5	415	371	339	41	613
GN 334.1-36-500-*	36	500	24	8.5	57	72	5	515	471	439	41	705
GN 334.1-36-600-*	36	600	24	8.5	57	72	5	615	571	539	41	797
GN 334.1-36-800-*	36	800	24	8.5	57	72	5	815	771	739	41	889

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GN 366

RoHS

Oval tubular handles



SPECIFICATION

Handle tube
Aluminium

Handle shanks / Cover cap
plastic
Technopolymer (Polyamide PA)

- glass fibre reinforced
- temperature resistant up to 100 °C

Tube **SW**
plastic coated
black, RAL 9005, textured finish
Handle shanks / Cover cap
black, matt

Tube anodized, natural colour **ELS**
Handle shanks / Cover cap
black, matt

Tube anodized, natural colour **ELG**
Handle shanks / Cover cap
light grey, matt

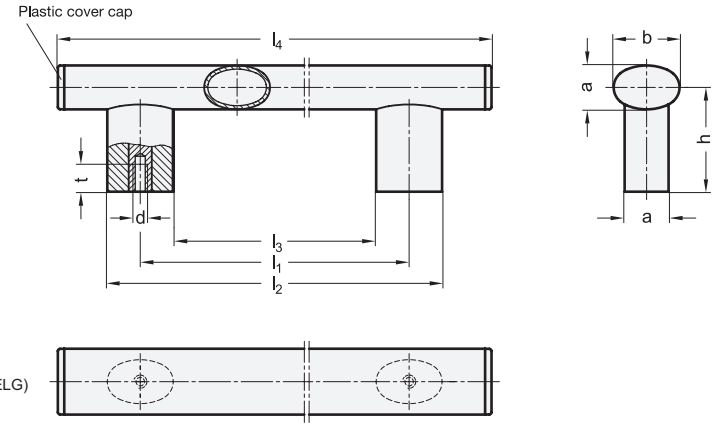
Bushing
Steel, zinc plated

INFORMATION

Characteristic for the design of the GN 366 oval handles: Tube and handle shank are made in the same elliptical profile.

TECHNICAL INFORMATION

- Load rating information (see page A35)



*Complete with Finish of the Oval tubular handles (SW, ELS or ELG)

SW	ELS	ELG
black	anodized, black	anodized, light grey

GN 366

Description	b	d	l1 ±0.5	a	h	l2	l3	l4	t min.	⚖
GN 366-36-M6-200-*	36	M 6	200	24	57	236	164	290	15	350
GN 366-36-M8-200-*	36	M 8	200	24	57	236	164	290	15	338
GN 366-36-M6-250-*	36	M 6	250	24	57	286	214	340	15	390
GN 366-36-M8-250-*	36	M 8	250	24	57	286	214	340	15	379
GN 366-36-M6-300-*	36	M 6	300	24	57	336	264	390	15	450
GN 366-36-M8-300-*	36	M 8	300	24	57	336	264	390	15	420
GN 366-36-M6-400-*	36	M 6	400	24	57	436	364	490	15	530
GN 366-36-M8-400-*	36	M 8	400	24	57	436	364	490	15	502
GN 366-36-M6-500-*	36	M 6	500	24	57	536	464	590	15	606
GN 366-36-M8-500-*	36	M 8	500	24	57	536	464	590	15	588
GN 366-36-M6-600-*	36	M 6	600	24	57	636	564	690	15	700
GN 366-36-M8-600-*	36	M 8	600	24	57	636	564	690	15	670

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GN 666.4

Tubular arch handles

Tube Aluminium or Stainless Steel



SPECIFICATION

Handle tube Ø 30 x 1.5
Aluminium / Stainless Steel

Handle shanks
Aluminium, plastic coated

Cover caps
Plastic (Polyamide PA)

- glass fibre reinforced
- temperature resistant up to 100 °C

Tube / Handle shanks Aluminium **SW**
plastic coated
black, RAL 9005, textured finish
Cover caps, black, matt

Tube Aluminium **EL**
anodized, natural colour
Handle shanks
black, RAL 9005, textured finish
Cover caps, black, matt

Tube Aluminium **ES**
anodized, natural colour
Handle shanks
silver RAL 9006, textured finish
Cover caps, light grey, matt

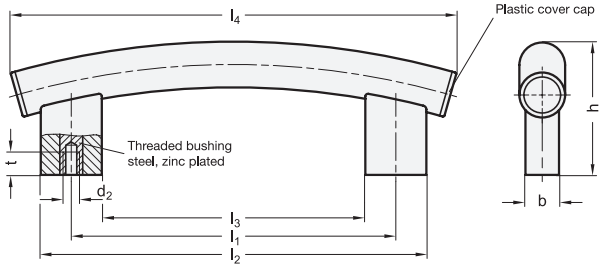
Tube Stainless Steel **NG**
AISI 304
ground, matt shiny finish
Handle shanks
black, RAL 9005, textured finish
Cover caps, black, matt

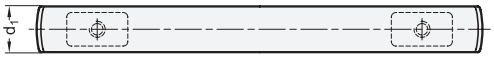
INFORMATION

With their curved type, GN 666.4 tubular arch handles highlight modern machine design.
The production method used allows special solutions to be realised, e. g. with other radii of curvature or other leg heights.

TECHNICAL INFORMATION

- Load rating information (see page A35)





* Complete with Finish of the Tubular arch handles (SW, EL, ES or NG)

SW	EL	ES	NG
black	anodized, black	anodized, light grey	ground, black

GN 666.4

Description	d1	d2	l1 ±1	b	h	l2	l3	l4	t min.	⚖
GN 666.4-30-M6-400-*	30	M 6	400	22	90	440	360	480	15	360
GN 666.4-30-M8-400-*	30	M 8	400	22	90	440	360	480	15	340
GN 666.4-30-M6-500-*	30	M 6	500	22	94	540	460	580	15	377
GN 666.4-30-M8-500-*	30	M 8	500	22	94	540	460	580	15	362
GN 666.4-30-M6-600-*	30	M 6	600	22	98	640	560	680	15	394
GN 666.4-30-M8-600-*	30	M 8	600	22	98	640	560	680	15	384

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Handle tubes

with screw channel

SPECIFICATION

Aluminium

plastic coated
black, RAL 9005, textured finish **SW**
(available up to 3000 mm length)

anodized, natural colour **EL**
(available up to 2600 mm length)

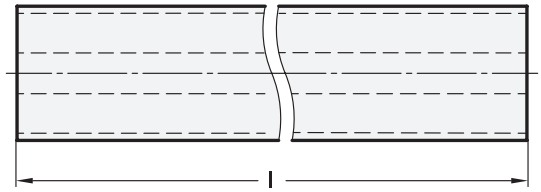
INFORMATION

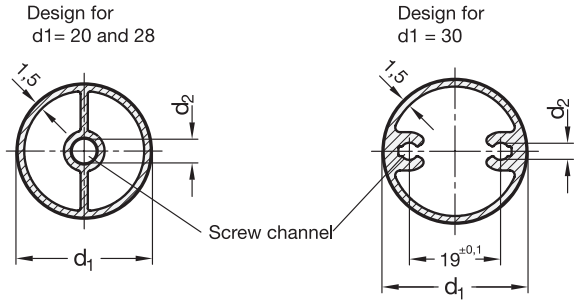
Handle tubes GN 930 with screw channel are designed for use in a variety of different tube handles (e.g. GN 333, see page 498).
For applications not requiring handle bases, the screw channel provides a very economical fixing solution with thread-tapping screws.
The lengths l listed in the table are ex stock lengths. Depending to the finish, any lengths until max. 3000 mm are available.

ON REQUEST

Plastic cover in black or light grey for tube Ø 28







*Complete with colour index of the Handle tubes (SW or EL)

SW RAL9005 EL anodized

GN 930

Description	d1 ±0.25	l ±0.25	d2	For thread tapping screws DIN 7500	⚖
GN 930-20-194-*	20	194	4.5	M 5	63
GN 930-20-244-*	20	244	4.5	M 5	80
GN 930-20-294-*	20	294	4.5	M 5	98
GN 930-20-394-*	20	394	4.5	M 5	134
GN 930-28-192-*	28	192	5.5	M 6	140
GN 930-28-242-*	28	242	5.5	M 6	160
GN 930-28-292-*	28	292	5.5	M 6	180
GN 930-28-392-*	28	392	5.5	M 6	200
GN 930-28-492-*	28	492	5.5	M 6	240
GN 930-28-592-*	28	592	5.5	M 6	280
GN 930-30-189-*	30	189	3.6	M 4	140
GN 930-30-289-*	30	289	3.6	M 4	180
GN 930-30-389-*	30	389	3.6	M 4	220
GN 930-30-489-*	30	489	3.6	M 4	260
GN 930-30-589-*	30	589	3.6	M 4	300
GN 930-30-989-*	30	989	3.6	M 4	570

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GN 481

Edge handles

SPECIFICATION

Tube extrusion
Aluminium

End caps
Zinc die casting

Tube extrusion / End caps
plastic coated
black, RAL 9005, textured finish **SW**

Self tapping countersunk screws
DIN 7500-1, type M with Torx®



INFORMATION

The tube extrusion for edge handles GN 481 is formed in such a way that two countersunk self tapping screws are used to cut their own counter thread in the extrusion to hold the end caps in position.
If an edge handle for a cabinet of non-standard length is required, a standard extrusion can simply be shortened to fit.

ACCESSORY

Four DIN 7500-1 countersunk screws are included.

ON REQUEST

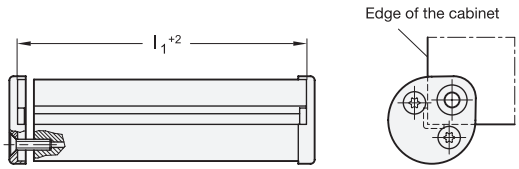
Tube extrusion
anodized, natural colour

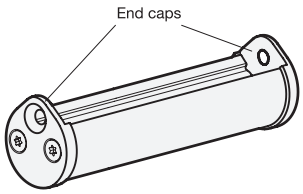
End caps, plastic coated
silver, textured finish

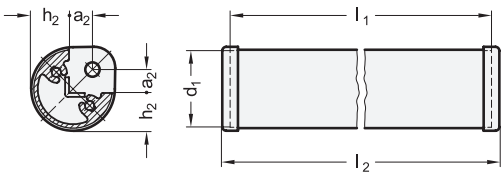
MOUNTING INFORMATION

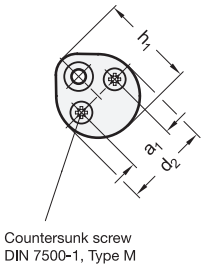
In order to allign the edge handle with the-edge of the cabinet (tolerance l_1 + 2 mm), the end caps should, to start with, only be loosely fitted
The mounting is carried out in two steps as follows:

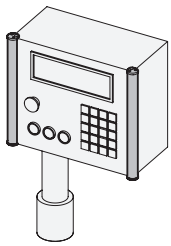
- Fit the end caps firmly to the cabinet.
- Fix the extrusion axially by using the countersunk screws.







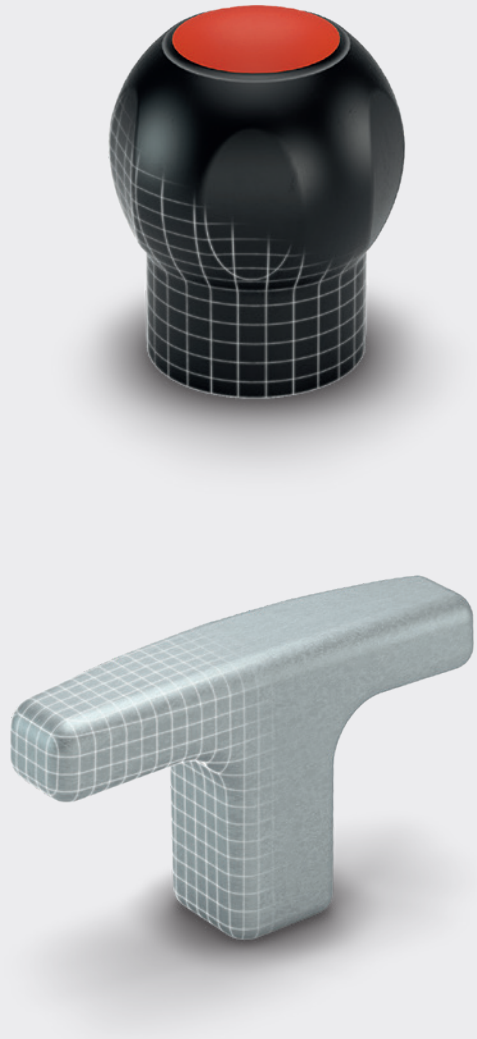




GN 481

Description	d_1 -0.5	l_1 +2	a_1	a_2	d_2	h_1	h_2 -0.1	l_2	⚖
GN 481-30-100-SW	30	100	18	9	32	34.5	14.5	106	105
GN 481-30-200-SW	30	200	18	9	32	34.5	14.5	206	150
GN 481-30-300-SW	30	300	18	9	32	34.5	14.5	306	202
GN 481-30-400-SW	30	400	18	9	32	34.5	14.5	406	250
GN 481-30-500-SW	30	500	18	9	32	34.5	14.5	506	300

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FOR ENGINEERING

5 Fixed, revolving and fold-away handles



Fixed handles

Revolving handles

Fold-away handles

T-Handles

Technopolymer

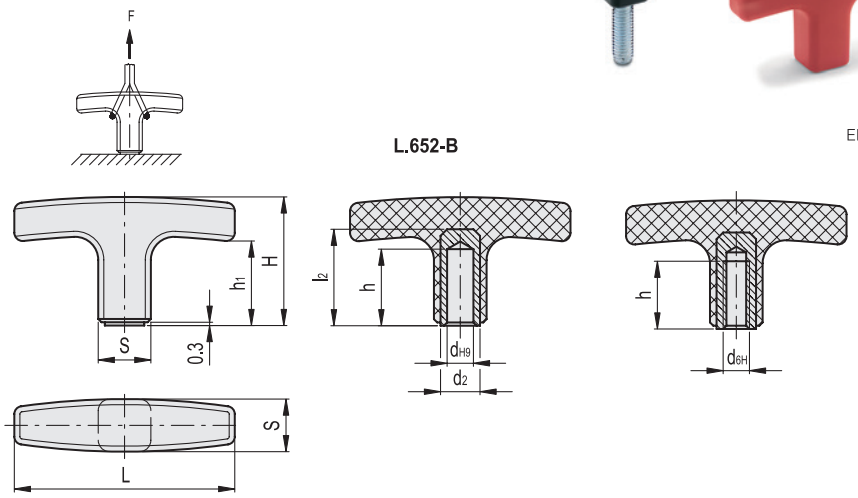
MATERIAL
Glass-fibre reinforced polyamide based (PA) technopolymer, matte finish.

STANDARD EXECUTIONS
- **L.652-B:** brass boss, plain or threaded blind hole.
Black, orange, red colours, matte finish.
- **L.652-p:** zinc-plated steel threaded stud, chamfered flat end UNI 947 : ISO 4753 (see Technical Data on page A11).

TECHNICAL DATA
Tensile stress: F values reported in the table are the result of breaking tests carried out with the appropriate dynamometric equipment under the test conditions shown in the figure with ambient temperature.



ELESA Original design



*Complete with colour index, example: 32447 L.652/67 B-M8-C2

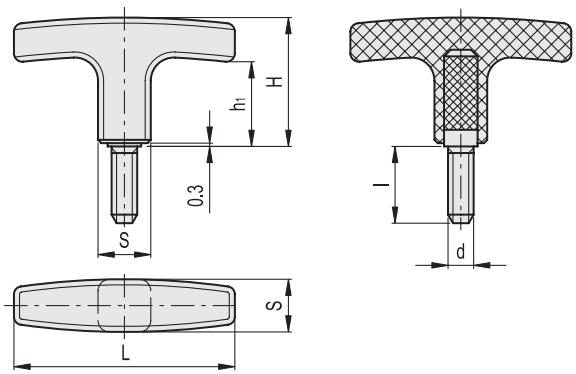
C9 RAL9005 C2 RAL2004 C6 RAL3000

L.652-B

Code C9	Code C2	Code C6	Description	L	dH9	d6H	S	H	d2	h	h1	l2	F [N]	⚖
32420	-	-	L.652/40 B-M5-*	41	-	M5	13	28	-	16	18.5	-	2400	17
32421	-	-	L.652/40 B-6-*	41	6	-	13	28	9	18	18.5	23	2500	16
32426	-	32428	L.652/40 B-M6-*	41	-	M6	13	28	-	16	18.5	-	2500	16
32430	-	-	L.652/55 B-M5-*	56.5	-	M5	15	33	-	15	21.5	-	2400	28
32431	-	-	L.652/55 B-6-*	56.5	6	-	15	33	10	18	21.5	27	3300	27
32436	-	32438	L.652/55 B-M6-*	56.5	-	M6	15	33	-	18	21.5	-	3300	27
32432	-	-	L.652/55 B-M8-*	56.5	-	M8	15	33	-	20	21.5	-	3300	28
32441	-	-	L.652/67 B-6-*	68.5	6	-	16.5	37	11	20	24.5	30	4500	38
32443	-	-	L.652/67 B-8-*	68.5	8	-	16.5	37	11	20	24.5	30	4500	36
32446	32447	32448	L.652/67 B-M8-*	68.5	-	M8	16.5	37	-	20	24.5	-	4500	36
32452	-	-	L.652/67 B-M10-*	68.5	-	M10	16.5	37	-	20	24.5	-	5000	34
32451	-	-	L.652/80 B-6-*	82	6	-	20	41.5	13	25	25	33	7000	58
32453	-	-	L.652/80 B-8-*	82	8	-	20	41.5	13	25	25	33	7000	52
32456	-	-	L.652/80 B-M8-*	82	-	M8	20	41.5	-	25	25	-	7000	50
32458	32459	32457	L.652/80 B-M10-*	82	-	M10	20	41.5	-	25	25	-	7000	56
32460	-	-	L.652/80 B-M12-*	82	-	M12	20	41.5	-	18	25	-	7000	62
32471	-	-	L.652/95 B-6-*	94	6	-	21	46	13	25	28.5	33	8000	74
32478	-	-	L.652/95 B-M10-*	94	-	M10	21	46	-	25	28.5	-	8000	70
32480	-	-	L.652/95 B-M12-*	94	-	M12	21	46	-	18	28.5	-	8000	66

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L.652-p



L.652-p

Code	Description	L	d6g	S	H	h1	l	F [N]	⚖
32425	L.652/40 p-M5x16	41	M5	13	28	18.5	16	2500	15
32423	L.652/40 p-M5x20	41	M5	13	28	18.5	20	2500	16
32429	L.652/40 p-M6x20	41	M6	13	28	18.5	20	2500	17
32424	L.652/40 p-M6x25	41	M6	13	28	18.5	25	2500	18
32433	L.652/55 p-M6x20	56.5	M6	15	33	21.5	20	2500	26
32434	L.652/55 p-M6x25	56.5	M6	15	33	21.5	25	3000	27
32439	L.652/55 p-M8x20	56.5	M8	15	33	21.5	20	3300	28
32437	L.652/55 p-M8x25	56.5	M8	15	33	21.5	25	3300	29
32440	L.652/67 p-M8x20	68.5	M8	16.5	37	24.5	20	3300	36
32449	L.652/67 p-M8x25	68.5	M8	16.5	37	24.5	25	3300	38
32442	L.652/67 p-M8x30	68.5	M8	16.5	37	24.5	30	3300	40
32444	L.652/67 p-M10x20	68.5	M10	16.5	37	24.5	20	5000	41
32445	L.652/67 p-M10x30	68.5	M10	16.5	37	24.5	30	5000	44
32461	L.652/80 p-M10x20	82	M10	20	41.5	25	20	5000	52
32462	L.652/80 p-M10x30	82	M10	20	41.5	25	30	5000	58
32943	L.652/95 p-M12x30	94	M12	21	46	28.5	30	6000	68

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Safety T-Handles

Technopolymer, push action



ELESA Original design

MATERIAL
Glass-fibre reinforced polyamide based (PA), black colour, matte finish, technopolymer with "PUSH" tampoprinted in grey colour. Avoid contact with solvents, alcohol or detergents containing alcohol to prevent deterioration of the tampoprinted inscription.

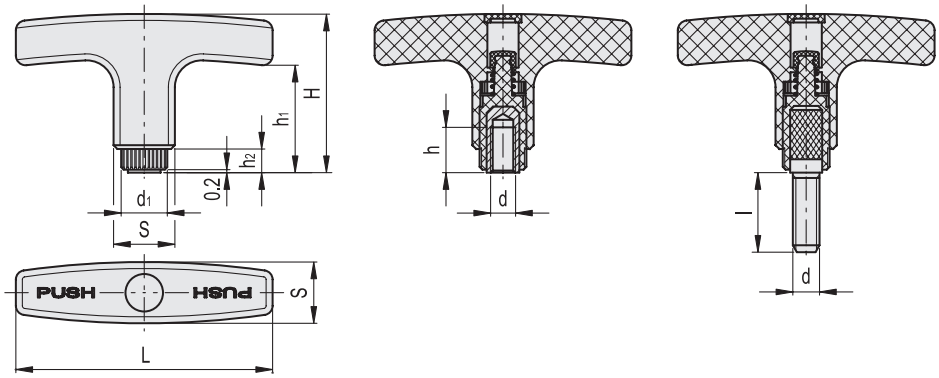
CENTRE CAP
Technopolymer, black colour. On request and for sufficient quantities, it can be supplied in yellow RAL 1021 (safety) or in other colours, with customised graphic symbols, marks or writing.

STANDARD EXECUTIONS
Glass-fibre reinforced technopolymer clamping element with toothing and retaining pin, black colour, with knurling on the protruding part to make initial tightening easier. AISI 302 stainless steel return spring.
- **L.652-S-B:** brass boss, threaded blind hole.
- **L.652-S-p:** zinc-plated steel threaded stud, chamfered flat end UNI 947 : ISO 4753 (see Technical data on page A11).

FEATURES AND APPLICATIONS
Particularly suitable where the handle needs to turn freely to avoid that clamping may be accidentally affected.

INSTRUCTIONS OF USE
Press the handle to engage the toothing and turn it. By releasing the handle the spring releases the toothing, thus the handle returns to the rest position.

L.652-S-B **L.652-S-p**



L.652-S-B

Code	Description	L	d6H	S	H	d1	h	h1	h2	Teeth no.	⚖
32531	L.652-S/67 B-M5	67	M5	16	41	12	10	29	4	18	34
32533	L.652-S/67 B-M6	67	M6	16	41	12	10	29	4	18	32
32563	L.652-S/80 B-M6	80	M6	20	47	15	16	31.5	5.5	20	46
32565	L.652-S/80 B-M8	80	M8	20	47	15	13	31.5	5.5	20	44

L.652-S-p

Code	Description	L	d6g	S	H	d1	h1	h2	l	Teeth no.	⚖
32541	L.652-S/67 p-M5x10	67	M5	16	41	12	29	4	10	18	23
32542	L.652-S/67 p-M5x16	67	M5	16	41	12	29	4	16	18	25
32552	L.652-S/67 p-M6x16	67	M6	16	41	12	29	4	16	18	27
32553	L.652-S/67 p-M6x25	67	M6	16	41	12	29	4	25	18	30
32571	L.652-S/80 p-M8x20	80	M8	20	47	15	31.5	5.5	20	20	43
32572	L.652-S/80 p-M8x25	80	M8	20	47	15	31.5	5.5	25	20	45
32582	L.652-S/80 p-M10x30	80	M10	20	47	15	31.5	5.5	30	20	51

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L.652-X

Adjustable T-Handles

Technopolymer

MATERIAL
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

CENTRE CAP
Technopolymer, black colour.

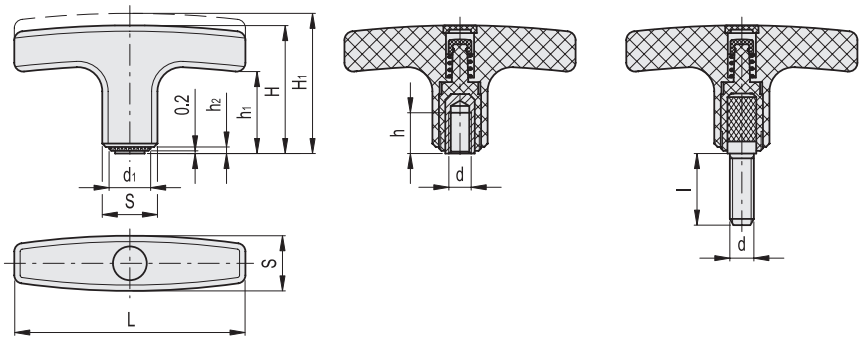
STANDARD EXECUTIONS
Glass-fibre reinforced technopolymer clamping element with toothing and retaining pin, black colour. AISI 302 stainless steel return spring.
- **L.652-X-B:** brass boss, threaded blind hole.
- **L.652-X-p:** zinc-plated steel threaded stud, chamfered flat end UNI 947: ISO 4753 (see Technical data on page A11).

FEATURES AND APPLICATIONS
Particularly suitable when clamping operations are limited owing to lack of space and the hand of the operator cannot make a complete rotation.

INSTRUCTIONS OF USE
For clamping, lift the handle to disengage the clamping device toothing and bring it back to start position. By releasing the handle, the return spring automatically engages the toothing.



ELESA Original design



L.652-X-B

Code	Description	L	d6H	S	H	H1	d1	h	h1	h2	Teeth no.	⚖
32731	L.652-X/67 B-M5	67	M5	16	39	42	12	10	26	1	18	34
32733	L.652-X/67 B-M6	67	M6	16	39	42	12	10	26	1	18	32
32763	L.652-X/80 B-M6	80	M6	20	42	46	15	16	27	1	20	46
32765	L.652-X/80 B-M8	80	M8	20	42	46	15	13	27	1	20	44

L.652-X-p

Code	Description	L	d6g	S	H	H1	d1	h1	h2	l	Teeth no.	⚖
32741	L.652-X/67 p-M5x10	67	M5	16	39	42	12	26	1	10	18	23
32742	L.652-X/67 p-M5x16	67	M5	16	39	42	12	26	1	16	18	25
32752	L.652-X/67 p-M6x16	67	M6	16	39	42	12	26	1	16	18	27
32753	L.652-X/67 p-M6x25	67	M6	16	39	42	12	26	1	25	18	30
32771	L.652-X/80 p-M8x20	80	M8	20	42	46	15	27	1	20	20	43
32772	L.652-X/80 p-M8x25	80	M8	20	42	46	15	27	1	25	20	45
32782	L.652-X/80 p-M10x30	80	M10	20	42	46	15	27	1	30	20	51

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GN 563.2

T-Handles

Aluminium

SPECIFICATION

Aluminium

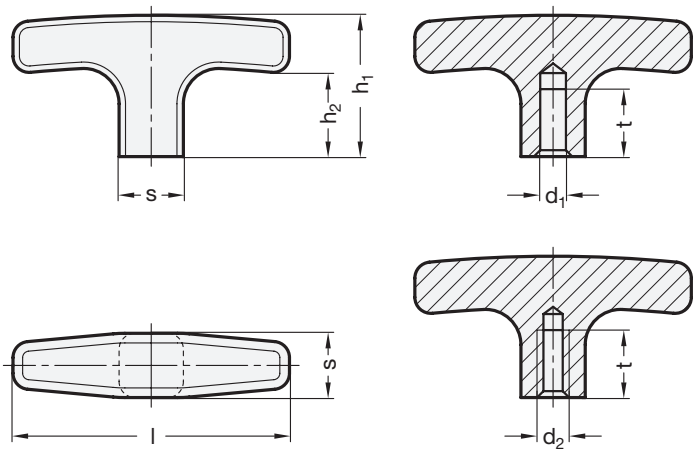
plastic coated
black, RAL 9005, textured finish **SW**
silver, RAL 9006, textured finish **SR**

blank **BL**
tumbled, flash mark not visible

INFORMATION

T-Handles GN 563.2 can be used as either operating handles or for clamping purposes, producing high clamping forces.
T-Handles are produced using a stamping process which yields a high density material of high strength and a smooth surface.
An original ELESA-Design, produced in metal with permission of ELESA s. p. a.





* Complete with colour index of the T-Handles (SW, SR or BL)

SW	SR	BL
RAL9005	RAL9006	blank

GN 563.2

Description	l	d1 H7	d2	h1	h2	s	t min.	⚖
GN 563.2-55-B6-*	55	B 6	-	33	22	14	12	30
GN 563.2-67-B8-*	67	B 8	-	37	25	16	16	45
GN 563.2-80-B8-*	80	B 8	-	41	26	20	16	80
GN 563.2-55-M6-*	55	-	M 6	33	22	14	12	29
GN 563.2-55-M8-*	55	-	M 8	33	22	14	12	40
GN 563.2-67-M8-*	67	-	M 8	37	25	16	16	45
GN 563.2-80-M8-*	80	-	M 8	41	26	20	16	80
GN 563.2-80-M10-*	80	-	M 10	41	26	20	16	61

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I.622

Tapered handles

Technopolymer

MATERIAL
Polyamide based (PA) technopolymer, six standard colours: black, orange, grey, yellow, light-blue, red, glossy finish.

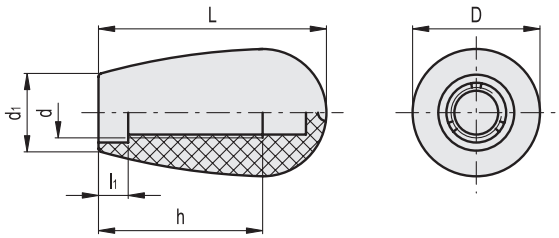
STANDARD EXECUTION
Threaded blind hole.

SPECIAL EXECUTIONS ON REQUEST
Different RAL colours.





ELESA Original design



*Complete with colour index, example: 120912 I.622/25-M6-C2

C9	C2	C3	C4	C5	C6
RAL9005	RAL2004	RAL7035	RAL1021	RAL5024	RAL3000

Code C9	Code C2	Code C3	Code C4	Code C5	Code C6	Description	D	L	d	d1	h	l1	⚖
120911	120912	120913	120914	120915	120916	I.622/25-M6-*	16	25	M6	12	16	3.5	4
120951	120952	120953	120954	120955	120956	I.622/30-M8-*	20	32	M8	14	20	3.5	7
120991	120992	120993	120994	120995	120996	I.622/40-M8-*	26	42	M8	17	30	5	18
121001	121002	121003	121004	121005	121006	I.622/40-M10-*	26	42	M10	17	30	5	16
121061	121062	121063	121064	121065	121066	I.622/55-M10-*	34	54.5	M10	21	35	8	34
121071	121072	121073	121074	121075	121076	I.622/55-M12-*	34	54.5	M12	21	35	8	32

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I.622 N

CLEAN RoHS PA +50° -20°

Tapered handles

Technopolymer



ELESA Original design

MATERIAL
High-resilience polyamide based (PA) technopolymer.

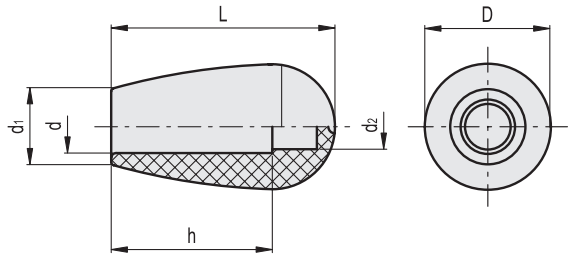
STANDARD EXECUTIONS
Plain blind hole.
- **I.622-N**: black or red colour, glossy finish.
- **I.622-N-CLEAN**: white similar RAL 9002, glossy finish.

The elastic coupling, by press-fit assembly on h9 tolerance drawn stock bars, is not affected by vibrations and prevents the handle from slipping off (see Technical Data on page A13).

FEATURES AND APPLICATIONS
This handle, thanks to its white colour and glossy finish, is particularly suitable for applications on medical and hospital equipment and on food processing machines whose parts, for hygienic reasons, must be frequently cleaned. Its solid shape without cavities prevents unhealthy residues from depositing.

SPECIAL EXECUTIONS ON REQUEST
Different RAL colours.

ASSEMBLY INSTRUCTIONS
Fit the handle onto slight chamfered shaft end and push as far as possible by hand or by means of a small press. Alternatively it is possible to tap the handle with a plastic or wooden mallet until firmly in place. In this case we strongly recommend to use a cloth or other suitable soft material over the product to avoid any surface damage.



C9 RAL9005 C6 RAL3000

I.622 N

Code	Description	D	L	d	d2	d1	h	⚖
120941	I.622/25 N-6-C9	16	25	6	4	12	17	4
120946	I.622/25 N-6-C6	16	25	6	4	12	17	4
120971	I.622/30 N-8-C9	20	32	8	6	14	21	7
120976	I.622/30 N-8-C6	20	32	8	6	14	21	7
121021	I.622/40 N-8-C9	26	42	8	6	17	25	16
121026	I.622/40 N-8-C6	26	42	8	6	17	25	16
121031	I.622/40 N-10-C9	26	42	10	7.5	17	30	14
121036	I.622/40 N-10-C6	26	42	10	7.5	17	30	14
121091	I.622/55 N-10-C9	34	54.5	10	5.5	21	40	38
121096	I.622/55 N-10-C6	34	54.5	10	5.5	21	40	38
121101	I.622/55 N-12-C9	34	54.5	12	5.5	21	40	36
121106	I.622/55-N-12-C6	34	54.5	12	5.5	21	40	36

I.622-N-CLEAN

Code	Description	D	L	d	d2	d1	h	⚖
151202	I.622/25 N-6 CLEAN	16	25	6	4	12	17	4
151212	I.622/30 N-8 CLEAN	20	32	8	6	14	21	7
151222	I.622/40 N-10 CLEAN	26	42	10	7.5	17	30	14
151232	I.622/55 N-10 CLEAN	34	54.5	10	5.5	21	40	38
151242	I.622/55 N-12 CLEAN	34	54.5	12	5.5	21	40	36

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Tapered handles

Duroplast

MATERIAL
Phenolic based (PF) Duroplast, black colour, glossy finish.

STANDARD EXECUTIONS
- **I.222:** threaded blind hole.
- **I.222-N:** glass-fibre reinforced polyamide based (PA) technopolymer self-locking boss, plain blind hole. The elastic coupling, by press-fit assembly on h9 tolerance drawn stock bars, is not affected by vibrations and prevents the handle from slipping off (see Technical Data on page A13).

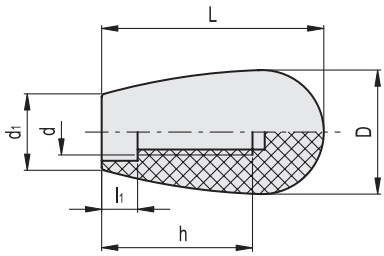
ALTERNATIVE PRODUCTS
For handles with dimensions smaller or equal to I.222/55, we suggest the new series I.622 (see page 535) and I-622 N (see page 536) with excellent performance and lower price. The handles with bigger dimensions (70-90 mm) are only available in this series (I.222), due to technical reasons.

ASSEMBLY INSTRUCTIONS (I.222-N)
Fit the handle onto slight chamfered shaft end and push as far as possible by hand or by means of a small press. Alternatively it is possible to tap the handle with a plastic or wooden mallet until firmly in place. In this case we strongly recommend to use a cloth or other suitable soft material over the product to avoid any surface damage.

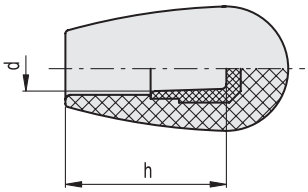


ELESA Original design

I.222



I.222-N



I.222

Code	Description	D	L	d	d1	h	l1	⚖
20901	I.222/25-M6	15	25	M6	12	16	3.5	5
21001	I.222/30-M8	20	31	M8	14	20	3.5	9
21101	I.222/40-M8	26	42	M8	17	23	5	22
21102	I.222/40-M10	26	42	M10	17	30	5	20
21201	I.222/55-M10	33	54	M10	20	35	8	42
21202	I.222/55-M12	33	54	M12	20	35	8	40
21301	I.222/70-M12	38	68	M12	23	45	11	73
21401	I.222/90-M14	41	87	M14	25	55	14	111
21402	I.222/90-M16	41	87	M16	25	55	14	109

I.222-N

Code	Description	D	L	d	d1	h	⚖
20911	I.222/25 N-6	15	25	6	12	17	5
21011	I.222/30 N-8	20	31	8	14	21	9
21111	I.222/40 N-10	26	42	10	17	30	18
21211	I.222/55 N-10	33	54	10	20	37	42
21212	I.222/55 N-12	33	54	12	20	40	40
21311	I.222/70 N-14	38	68	14	23	50	68
21411	I.222/90 N-16	41	87	16	25	58	106

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Ball knobs

Plastic / Steel / Aluminium / Stainless Steel



SPECIFICATION

Version in Plastic

Types

- Type **C**: with tapped hole, no bush
- Type **E**: with tapped bush

Plastic **KU**
Duroplast (Phenolic PF)

- Flash removed and polished
- black
- red **RT**, similar RAL 3003: add RT on order code

Bush (Type E)

- Steel, zinc plated
- Brass **MS** add MS on order code (only in black version)

Plastic **KT**
Technopolymer (Polyamide PA)

- shock resistant
- black, matt finish
- red **RT**, similar RAL 3003: add RT on order code

Version in Steel

Types

- Type **C**: with tapped hole
- Type **K**: with plain hole H7

Steel **ST**
polished

Version in Aluminium

Types

- Type **C**: with tapped hole
- Type **K**: with plain hole H7

Aluminium **AL**
polished

Version in Stainless Steel

Types

- Type **C**: with tapped hole
- Type **K**: with plain hole H7

Stainless Steel AISI 303 **NI**
matt shot-blasted

Version in Plastic (Press on type)

Types

- Type **L**: with tolerance ring
- Type **M**: with tapered bore

Type L
Plastic **KU**
Duroplast (Phenolic PF)
black, shiny finish
Tolerance ring
spring steel

Type M
Plastic **KT**
Technopolymer (Polyamide PA)

- shock resistant
- black, matt finish
- Ball knobs press on type in red

INFORMATION

When ball knobs DIN 319 (Press on type) type L and M are used the shaft does not require a thread.
During mounting, easy blows with a soft hammer are sufficient to drive the knob into place, the shaft end should be slightly rounded or chamfered (30°).
Before the assembly of the knobs, type L the tolerance ring is to be inserted into the drilling. Further it is to be noted that the button is put on perpendicular and / or axially parallel. Otherwise the knob may break.
Type M ball knobs are a cheaper solution, however, the pulling off force is less predictable.

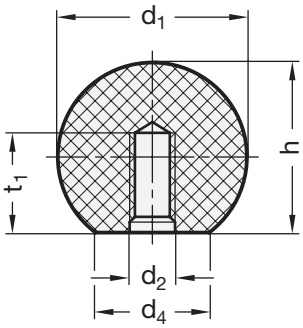
ON REQUEST

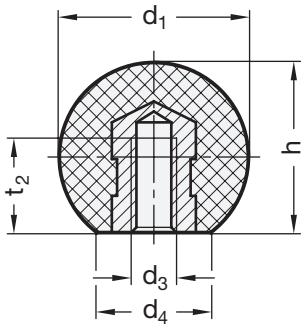
- Ball knobs press on type in red

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)
- Plastic characteristics - Duroplast (see page A2)
- Plastic characteristics - Technopolymer (see page A2)

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DIN 319-KU

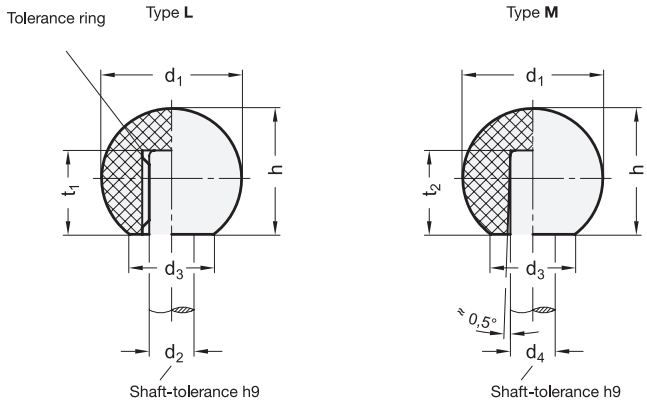
Description	d1	d2	d3	d4 ≈	h	t1 min.	t2 min.	⚖
DIN 319-KU-12-M4-C	12	M 4	-	6	11.2	6	-	1
DIN 319-KU-16-M4-C	16	M 4	-	8	15	6	-	2
DIN 319-KU-16-M5-C	16	M 5	-	8	15	6	-	2
DIN 319-KU-20-M5-C	20	M 5	-	12	18	7.5	-	5
DIN 319-KU-20-M6-C	20	M 6	-	12	18	7.5	-	5
DIN 319-KU-25-M5-C	25	M 5	-	15	22.5	9	-	10
DIN 319-KU-25-M6-C	25	M 6	-	15	22.5	9	-	10
DIN 319-KU-25-M8-C	25	M 8	-	15	22.5	9	-	10
DIN 319-KU-30-M8-C	30	M 8	-	15	28	12	-	19
DIN 319-KU-32-M6-C	32	M 6	-	18	29	12	-	23
DIN 319-KU-32-M8-C	32	M 8	-	18	29	12	-	22
DIN 319-KU-32-M10-C	32	M 10	-	18	29	12	-	22
DIN 319-KU-35-M10-C	35	M 10	-	18	32.5	15	-	27
DIN 319-KU-40-M8-C	40	M 8	-	22	37	15	-	40
DIN 319-KU-40-M10-C	40	M 10	-	22	37	15	-	39
DIN 319-KU-40-M12-C	40	M 12	-	22	37	15	-	39
DIN 319-KU-50-M12-C	50	M 12	-	28	46	18	-	89
DIN 319-KU-20-M5-E	20	-	M 5	12	18	-	7.5	10
DIN 319-KU-25-M6-E	25	-	M 6	15	22.5	-	9	14
DIN 319-KU-32-M8-E	32	-	M 8	18	29	-	12	30
DIN 319-KU-40-M10-E	40	-	M 10	22	37	-	15	53
DIN 319-KU-50-M12-E	50	-	M 12	28	46	-	18	105

DIN 319-KT

Description	d1	d2	d3	d4 ≈	h	t1 min.	t2 min.	⚖
DIN 319-KT-16-M4-C	16	M 4	-	8	15	6	-	3
DIN 319-KT-16-M5-C	16	M 5	-	8	15	6	-	2
DIN 319-KT-20-M5-C	20	M 5	-	12	18	7.5	-	5
DIN 319-KT-20-M6-C	20	M 6	-	12	18	7.5	-	5
DIN 319-KT-25-M8-C	25	M 8	-	15	22.5	9	-	10
DIN 319-KT-32-M8-C	32	M 8	-	18	29	12	-	25
DIN 319-KT-32-M10-C	32	M 10	-	18	29	12	-	22
DIN 319-KT-40-M10-C	40	M 10	-	22	37	15	-	41
DIN 319-KT-40-M12-C	40	M 12	-	22	37	15	-	40
DIN 319-KT-20-M5-E	20	-	M 5	12	18	-	7.5	8
DIN 319-KT-32-M8-E	32	-	M 8	18	29	-	12	28

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DIN 319 | Ball knobs

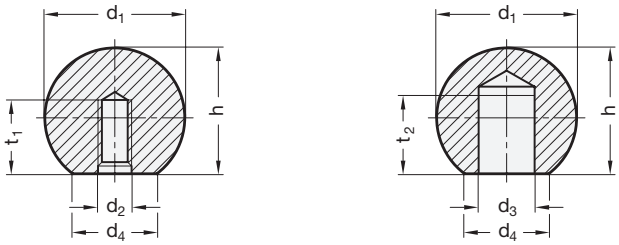


DIN 319-KU Press on type

Description	d1	d2	t1	d3 ≈	h	⚖
DIN 319-KU-16-B4-L	16	B 4	11	8	15	2
DIN 319-KU-20-B5-L	20	B 5	13	12	18	5
DIN 319-KU-25-B6-L	25	B 6	16	15	22.5	9
DIN 319-KU-25-B8-L	25	B 8	15	15	22.5	9
DIN 319-KU-25-B10-L	25	B 10	15	15	22.5	9
DIN 319-KU-32-B8-L	32	B 8	15	18	29	20
DIN 319-KU-32-B10-L	32	B 10	20	18	29	20
DIN 319-KU-32-B12-L	32	B 12	20	18	29	19
DIN 319-KU-40-B10-L	40	B 10	25	22	37	39
DIN 319-KU-40-B12-L	40	B 12	23	22	37	38
DIN 319-KU-50-B12-L	50	B 12	20	28	46	86
DIN 319-KU-50-B16-L	50	B 16	23	28	46	83

DIN 319-KT Press on type

Description	d1	d4	t2	d3 ≈	h	⚖
DIN 319-KT-16-B4-M	16	B 4	9	8	15	3
DIN 319-KT-20-B5-M	20	B 5	12	12	18	5
DIN 319-KT-20-B6-M	20	B 6	12	12	18	5
DIN 319-KT-25-B6-M	25	B 6	16	15	22.5	10
DIN 319-KT-25-B8-M	25	B 8	16	15	22.5	10
DIN 319-KT-32-B8-M	32	B 8	17	18	29	20
DIN 319-KT-32-B10-M	32	B 10	17	18	29	20
DIN 319-KT-40-B10-M	40	B 10	22	22	37	41
DIN 319-KT-40-B12-M	40	B 12	22	22	37	41



*Complete with material of the Ball knobs (ST, AL or NI)

ST	AL	NI
Steel	Aluminium	Stainless Steel

DIN 319

STAINLESS STEEL

Description	d1	d2	d3 H7	d4	h	t1 min.	t2 min.	⚖
DIN 319-*-16-B6-K	16	-	B 6	8	15	7	9	6
DIN 319-*-20-B8-K	20	-	B 8	12	18	9	11	10
DIN 319-*-25-B10-K	25	-	B 10	15	22.5	11	14	18
DIN 319-*-32-B12-K	32	-	B 12	18	29	14.5	17	41
DIN 319-*-40-B16-K	40	-	B 16	22	37	18	22	75
DIN 319-*-50-B20-K	50	-	B 20	27	46	21	28	80
DIN 319-*-16-M4-C	16	M 4	-	8	15	7	9	7
DIN 319-*-20-M5-C	20	M 5	-	12	18	9	11	11
DIN 319-*-25-M6-C	25	M 6	-	15	22.5	11	14	22
DIN 319-*-32-M8-C	32	M 8	-	18	29	14.5	17	45
DIN 319-*-40-M10-C	40	M 10	-	22	37	18	22	87
DIN 319-*-50-M12-C	50**	M 12	-	27	46	21	28	95

** This size is only available in Steel and Aluminium.

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GN 319.2

Revolving ball knobs

Shaft Steel

SPECIFICATION

Types

- Type **A**: with male thread
- Type **B**: with female thread

Plastic
Duroplast (Phenolic PF)

- temperature resistant up to 110 °C
- black, shiny finish

Shaft Steel
zinc plated, blue passivated

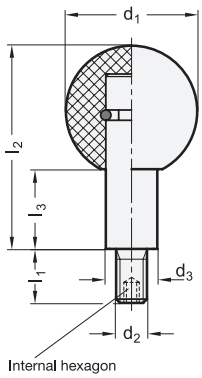
INFORMATION

Revolving ball knobs GN 319.2 can be utilized instead of revolving handles i.e. with handwheels.

TECHNICAL INFORMATION

- Plastic characteristics (see page A2)





GN 319.2

Description	d1	d2	d3	l1	l2 ±1	l3 ±1	A/F	t min.	⚖
GN 319.2-25-M6-A	25	M 6	10	11	37.5	15	-	-	29
GN 319.2-32-M8-A	32	M 8	13	13	48	19	-	-	63
GN 319.2-40-M10-A	40	M 10	16	14	61	24	-	-	119
GN 319.2-50-M12-A	50	M 12	20	21	78	31	-	-	237
GN 319.2-25-M6-B	25	M 6	10	-	37.5	15	8	10	24
GN 319.2-32-M8-B	32	M 8	13	-	48	19	10	12	51
GN 319.2-40-M10-B	40	M 10	16	-	61	24	14	16	99
GN 319.2-50-M12-B	50	M 12	20	-	78	31	17	16	198

GN 319.5

Revolving ball knobs

Shaft Stainless Steel

SPECIFICATION

Types

- Type **A**: with male thread
- Type **B**: with female thread

Plastic
Duroplast (Phenolic PF)

- temperature resistant up to 110 °C
- black, shiny finish

Shaft
Stainless Steel AISI 303
matt shot-blasted

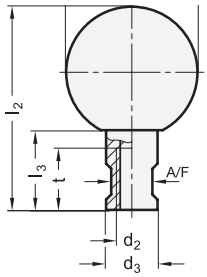
INFORMATION

Revolving ball knobs GN 319.5 can be utilized instead of revolving handles i.e. with handwheels.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)





GN 319.5 **STAINLESS STEEL**

Description	d1	d2	d3	l1	l2 ±1	l3 ±1	A/F	t min.	⚖
GN 319.5-25-M6-A	25	M 6	10	11	37.5	15	8	-	29
GN 319.5-32-M8-A	32	M 8	13	13	48	19	10	-	63
GN 319.5-40-M10-A	40	M 10	16	14	61	24	14	-	120
GN 319.5-50-M12-A	50	M 12	20	21	78	31	17	-	190
GN 319.5-25-M6-B	25	M 6	10	-	37.5	15	8	10	24
GN 319.5-32-M8-B	32	M 8	13	-	48	19	10	12	52
GN 319.5-40-M10-B	40	M 10	16	-	61	24	14	16	100
GN 319.5-50-M12-B	50	M 12	20	-	78	31	17	16	200

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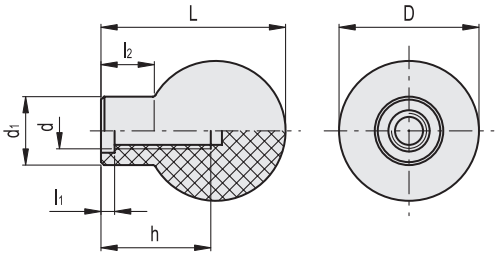
Spherical handles

Duroplast

MATERIAL
Phenolic based (PF) Duroplast, black colour, glossy finish.

STANDARD EXECUTION
Threaded blind hole.





Code	Description	D	L	d	d1	h	l1	l2	⚖
45971	P.111/37-M8	37	47	M8	18	16	4	13	38
45991	P.111/47-M10	47	62	M10	23	26	5	17	80

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Spherical handles

Duroplast

MATERIAL
Phenolic based (PF) Duroplast, black colour, glossy finish with equatorial groove.

MAGNIFIYNG LENS
Transparent polyamide based (PA-T) technopolymer. Press-fit assembly. It improves the visibility of the labels.

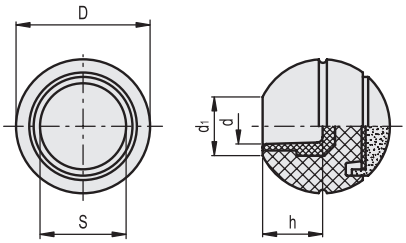
STANDARD EXECUTION
Glass-fibre reinforced polyamide based (PA) technopolymer self-locking boss, plain blind hole.
The elastic coupling, by press-fit assembly on h9 tolerance drawn stock bars, is not affected by vibrations and prevents the handle from slipping off (see Technical Data on page A13).

ACCESSORIES ON REQUEST
Self-adhesive labels MA. (on page 551) with standard marks and symbols to be ordered separately.

ASSEMBLY INSTRUCTIONS
1. Fit the handle, without the magnifying lens, onto slight chamfered shaft end and push as far as possible by hand or by means of a small press. Alternatively it is possible to tap the handle with a plastic or wooden mallet until firmly in place. In this case we strongly recommend to use a cloth or other suitable soft material over the product to avoid any surface damage.
2. Stick the self-adhesive label (printed on the adhesive side) to the inner surface of the magnifying lens by pressing from the centre to the external side to avoid air bubbles. Assemble the magnifying lens to the handle face recess by gently tapping with a wooden or plastic mallet, until firmly in place. The label is therefore protected by the watertight magnifying lens.



ELESA Original design



Code	Description	D	d	S	d1	h	⚖
55001	SH.35 N-8	35	8	20	15	14	27
55011	SH.35 N-10	35	10	20	15	18	26
55101	SH.40 N-10	40	10	25	18	18	40
55111	SH.40 N-12	40	12	25	18	21	38
55201	SH.45 N-12	45	12	25	21	21	60
55211	SH.45 N-14	45	14	25	21	24	58

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RoHS PA PA-T +90° -30°

Tapered handles

Technopolymer

MATERIAL
High-resilience polyamide based (PA) technopolymer, black colour, matte finish.

MAGNIFIYNG LENS
Transparent polyamide based (PA-T) technopolymer. Press-fit assembly. It improves the visibility of the labels.

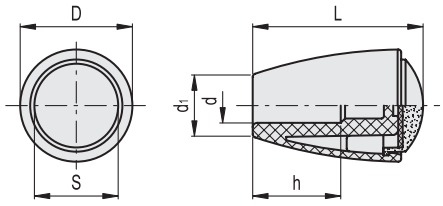
STANDARD EXECUTION
Plain blind hole.
The elastic coupling, by press-fit assembly on h9 tolerance drawn stock bars, is not affected by vibrations and prevents the handle from slipping off (see Technical Data on page A13).

ACCESSORIES ON REQUEST
Self-adhesive labels MA. (see page 551) with standard marks and symbols to be ordered separately.

ASSEMBLY INSTRUCTIONS
1. Fit the handle, without the magnifying lens, onto slight chamfered shaft end and push as far as possible by hand or by means of a small press. Alternatively it is possible to tap the handle with a plastic or wooden mallet until firmly in place. In this case we strongly recommend to use a cloth or other suitable soft material over the product to avoid any surface damage.
2. Stick the self-adhesive label (printed on the adhesive side) to the inner surface of the magnifying lens by pressing from the centre to the external side to avoid air bubbles. Assemble the magnifying lens to the handle face recess by gently tapping with a wooden or plastic mallet, until firmly in place. The label is therefore protected by the watertight magnifying lens.



ELESA Original design



Code	Description	D	L	d	S	d1	h	⚖
27001	IH.40 N-8	27	42	8	20	15	24	10
27101	IH.50 N-10	32	49	10	25	18	25	20

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IEL.N-H SOFT

SOFT RoHS PP TPE PA-T +80° 0°

Mushroom handles

“Soft-touch” technopolymer



ELESA Original design

MATERIAL

High-resilience polypropylene based (PP) technopolymer coated with "soft-touch" thermoplastic elastomer (TPE) chemically bonded, hardness 70 Shore A, black colour, matte finish.
The coating material is certified in compliance with FDA (U.S. Food and Drug Administration).

MAGNIFYING LENS

Transparent polyamide based (PA-T) technopolymer. Press-fit assembly. It improves the visibility of the labels.

STANDARD EXECUTION

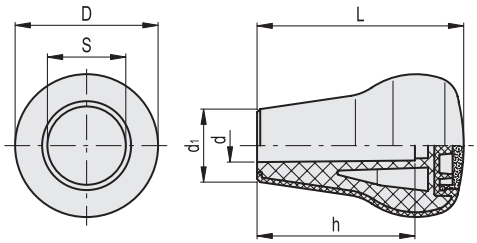
Plain blind hole.
The elastic coupling, by press-fit assembly on h9 tolerance drawn stock bars, is not affected by vibrations and prevents the handle from slipping off (see Technical Data on page A13).

ACCESSORIES ON REQUEST

Self-adhesive labels MA. (on page 551) with standard marks and symbols to be ordered separately.

ASSEMBLY INSTRUCTIONS

1. Fit the handle, without the magnifying lens, onto slight chamfered shaft end and push as far as possible by hand or by means of a small press. Alternatively it is possible to tap the handle with a plastic or wooden mallet until firmly in place. In this case we strongly recommend to use a cloth or other suitable soft material over the product to avoid any surface damage.
2. Stick the self-adhesive label (printed on the adhesive side) to the inner surface of the magnifying lens by pressing from the centre to the external side to avoid air bubbles. Assemble the magnifying lens to the handle face recess by gently tapping with a wooden or plastic mallet, until firmly in place. The label is therefore protected by the watertight magnifying lens.



Code	Description	D	L	d	S	d1	h	⚖
26672	IEL.65 N-10-H SOFT	45	65	10	25	23	50	56
26671	IEL.65 N-12-H SOFT	45	65	12	25	23	50	55

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SOFT RoHS PP TPE +80° 0°

Mushroom handles

“Soft-touch” technopolymer

MATERIAL

High-resilience polypropylene based (PP) technopolymer coated with "soft-touch" thermoplastic elastomer (TPE) chemically bonded, hardness 70 Shore A, black colour, matte finish.
The coating material is certified in compliance with FDA (U.S. Food and Drug Administration).

STANDARD EXECUTION

Plain blind hole.
The elastic coupling, by press-fit assembly on h9 tolerance drawn stock bars, is not affected by vibrations and prevents the handle from slipping off (see Technical Data on page A13).

FEATURES AND APPLICATIONS

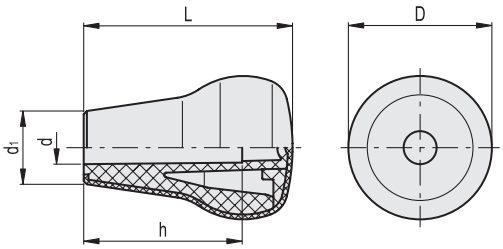
The coating, with "soft-touch" elastomer, improves the grip even in the presence of oils, greases and sweat from the hand. For this reason it is suitable for fitness machines, tools and machines for gardening and goods transport, high-precision instruments and disability aids.

ASSEMBLY INSTRUCTIONS

Fit the handle onto slight chamfered shaft end and push as far as possible by hand or by means of a small press. Alternatively it is possible to tap the handle with a plastic or wooden mallet until firmly in place. In this case we strongly recommend to use a cloth or other suitable soft material over the product to avoid any surface damage.



ELESA Original design



Code	Description	D	L	d	d1	h	⚖
26642	IEL.47 N-12 SOFT	45	47	12	28	34	48
26661	IEL.65 N-10 SOFT	45	65	10	23	50	56
26662	IEL.65 N-12 SOFT	45	65	12	23	50	55
26663	IEL.65 N-14 SOFT	45	65	14	23	30	55

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EBK-C SOFT

SOFT RoHS PP TPE +80° 0°

Mushroom lobe handles

“Soft-touch” technopolymer

MATERIAL
High-resilience polypropylene based (PP) technopolymer, coated with "soft-touch" thermoplastic elastomer (TPE) chemically bonded, hardness 70 Shore A, black colour, matte finish.
The coating material is certified in compliance with FDA (U.S. Food and Drug Administration).

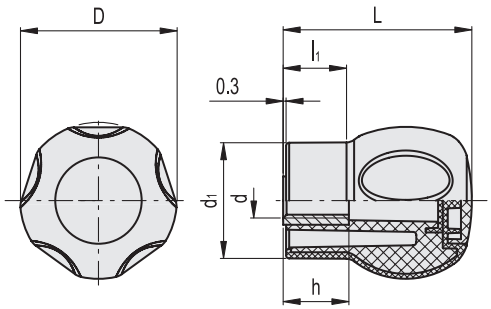
CENTRE CAP
Polypropylene based (PP) technopolymer, in Ergostyle colours, matte finish, press-fit assembly.

STANDARD EXECUTION
Brass boss, threaded hole.

FEATURES AND APPLICATIONS
The coating, with "soft-touch" elastomer, improves the grip even in the presence of oils, greases and sweat from the hand. For this reason it is suitable for fitness machines, tools and machines for gardening and goods transport, high-precision instruments and disability aids.



ERGOSTYLE® Good Design GOOD DESIGN AWARD 2007 by JIDPO Japan iF product design award 2007



*Complete with colour index, example: 245103-C2 EBK.43 B-M8-C-SOFT-C2

C2 RAL2004 C3 RAL7035 C4 RAL1021 C5 RAL5024 C6 RAL3000

Code	Description	D	L	d6H	d1	h	l1	⚖
245103-*	EBK.43 B-M8-C-SOFT-*	43	53.5	M8	32.5	18	17.5	72
245105-*	EBK.43 B-M10-C-SOFT-*	43	53.5	M10	32.5	18	17.5	71
245203-*	EBK.50 B-M8-C-SOFT-*	50	60	M8	37	20	20	85
245205-*	EBK.50 B-M10-C-SOFT-*	50	60	M10	37	20	20	82
245207-*	EBK.50 B-M12-C-SOFT-*	50	60	M12	37	20	20	80

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SOFT RoHS PP TPE +80° 0°

Mushroom lobe handles

“Soft-touch” technopolymer





ERGOSTYLE® Good Design product design award 2007

MATERIAL

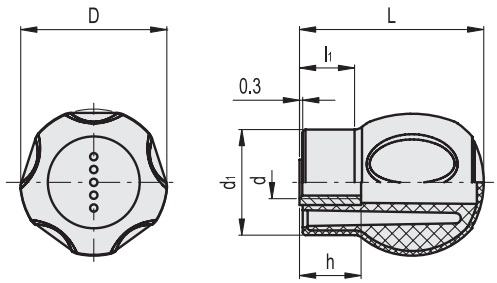
High-resilience polypropylene based (PP) technopolymer, coated with "soft-touch" thermoplastic elastomer (TPE) chemically bonded, hardness 70 Shore A, black colour, matte finish.
The coating material is certified in compliance with FDA (U.S. Food and Drug Administration).

STANDARD EXECUTIONS

- **EBK-B-SOFT:** brass boss, threaded blind hole.
- **EBK-p-SOFT:** zinc-plated steel threaded stud, chamfered flat end UNI 947 : ISO 4753 (see Technical Data on page A11).

FEATURES AND APPLICATIONS

The coating, with "soft-touch" elastomer, improves the grip even in the presence of oils, greases and sweat from the hand. For this reason it is suitable for fitness machines, tools and machines for gardening and goods transport, high-precision instruments and disability aids.

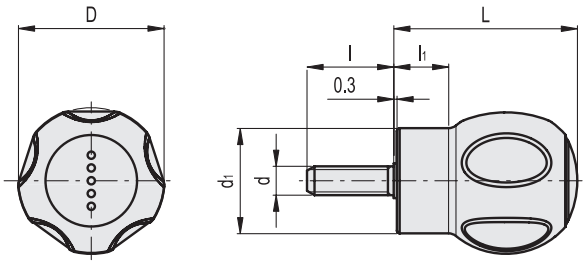


EBK-B-SOFT

Code	Description	D	L	d6H	d1	h	l1	⚖
245101-C1	EBK.43 B-M6-SOFT-C1	43	55	M6	32.5	18	17.5	74
245103-C1	EBK.43 B-M8-SOFT-C1	43	55	M8	32.5	18	17.5	72
245105-C1	EBK.43 B-M10-SOFT-C1	43	55	M10	32.5	18	17.5	71
245203-C1	EBK.50 B-M8-SOFT-C1	50	64	M8	37	26	20	86
245205-C1	EBK.50 B-M10-SOFT-C1	50	64	M10	37	26	20	83
245207-C1	EBK.50 B-M12-SOFT-C1	50	64	M12	37	26	20	79

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EBK.SOFT | Mushroom lobe handles



EBK-p-SOFT

Code	Description	D	L	d6g	d1	l	l1	⚖
245121-C1	EBK.43 p-M6x16-C1-SOFT	43	55	M6	32.5	16	17.5	74
245123-C1	EBK.43 p-M6x20-C1-SOFT	43	55	M6	32.5	20	17.5	76
245125-C1	EBK.43 p-M6x25-C1-SOFT	43	55	M6	32.5	25	17.5	78
245131-C1	EBK.43 p-M8x16-SOFT-C1	43	55	M8	32.5	16	17.5	80
245133-C1	EBK.43 p-M8x20-SOFT-C1	43	55	M8	32.5	20	17.5	81
245135-C1	EBK.43 p-M8x25-SOFT-C1	43	55	M8	32.5	25	17.5	83
245137-C1	EBK.43 p-M8x30-SOFT-C1	43	55	M8	32.5	30	17.5	85
245143-C1	EBK.43 p-M10x20-SOFT-C1	43	55	M10	32.5	20	17.5	83
245144-C1	EBK.43 p-M10x25-SOFT-C1	43	55	M10	32.5	25	17.5	86
245147-C1	EBK.43 p-M10x30-SOFT-C1	43	55	M10	32.5	30	17.5	89
245151-C1	EBK.43 p-M10x50-SOFT-C1	43	55	M10	32.5	50	17.5	98
245231-C1	EBK.50 p-M8x16-SOFT-C1	50	64	M8	37	16	20	80
245233-C1	EBK.50 p-M8x20-SOFT-C1	50	64	M8	37	20	20	86
245235-C1	EBK.50 p-M8x25-SOFT-C1	50	64	M8	37	25	20	91
245237-C1	EBK.50 p-M8x30-SOFT-C1	50	64	M8	37	30	20	97
245243-C1	EBK.50 p-M10x20-SOFT-C1	50	64	M10	37	20	20	110
245244-C1	EBK.50 p-M10x25-SOFT-C1	50	64	M10	37	25	20	116
245247-C1	EBK.50 p-M10x30-SOFT-C1	50	64	M10	37	30	20	122
245251-C1	EBK.50 p-M10x50-SOFT-C1	50	64	M10	37	50	20	143

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SOFT | RoHS | PP | TPE | PA-T | +80° 0°

Mushroom lobe handles

“Soft-touch” technopolymer with magnifying lens

MATERIAL
High resilience polypropylene based (PP) technopolymer, coated with "soft-touch" thermoplastic elastomer (TPE) chemically bonded, hardness 70 Shore A, black colour, matte finish.
The coating material is certified in compliance with FDA (U.S. Food and Drug Administration).

MAGNIFIYNG LENS
Transparent polyamide based (PA-T) technopolymer. Resistant to solvents, oils, greases, petrol and other chemical agents (avoid contact with alcohol). Press-fit assembly. It improves the visibility of the labels.

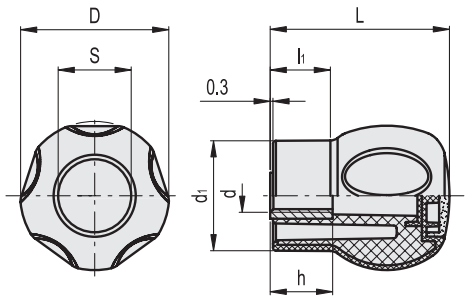
STANDARD EXECUTION
Brass boss, threaded hole.

ACCESSORIES ON REQUEST
Self-adhesive labels MA. on page 551 with standard marks and symbols to be ordered separately.

LABEL ASSEMBLY INSTRUCTIONS
Stick the self-adhesive label (printed on the adhesive side) to the inner surface of the magnifying lens by pressing from the centre to the external side to avoid air bubbles. Assemble the magnifying lens to the handle face recess by gently tapping with a wooden or plastic mallet, until firmly in place. The label is therefore protected by the watertight magnifying lens.



ERGOSTYLE® Good Design GOOD DESIGN AWARD 2007 by JIDPO Japan — if product design award 2007



Code	Description	D	L	d6H	S	d1	h	l1	⚖
245104	EBK.43 B-M8-H-SOFT	43	53.5	M8	20	32.5	18	17.5	72
245106	EBK.43 B-M10-H-SOFT	43	53.5	M10	20	32.5	18	17.5	71
245204	EBK.50 B-M8-H-SOFT	50	60	M8	25	37	20	20	85
245206	EBK.50 B-M10-H-SOFT	50	60	M10	25	37	20	20	82
245208	EBK.50 B-M12-H-SOFT	50	60	M12	25	37	20	20	80

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Labels with marks and symbols

Self-adhesive vinyl film

MATERIAL

Self-adhesive vinyl film, suitable for sticking to the inner surface of the magnifying lens of all the following handles: SH.N (see page 543), IH.N (see page 544), IEL.N-H SOFT (see page 545), EBK-H SOFT (see page 550).

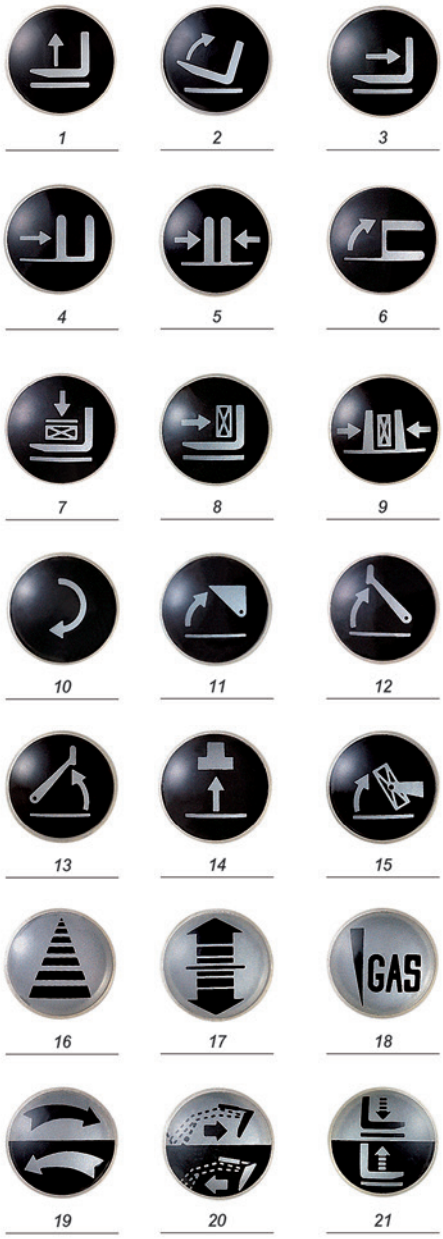
STANDARDIZED GRAPHIC SYMBOLS

According to ISO 3287 regulations, printed on the adhesive side; 21 standard models.
The visibility of the symbol is improved by the magnifying effect of the lens provided with the handle.

ASSEMBLY INSTRUCTIONS

Stick the self-adhesive label (printed on the adhesive side) to the inner surface of the magnifying lens by pressing from the centre to the external side to avoid air bubbles.

Code	Description	Figure
33601	MA.20-ISO 3287-P1	1
33602	MA.20-ISO 3287-P2	2
33603	MA.20-ISO 3287-P3	3
33604	MA.20-ISO 3287-P4	4
33605	MA.20-ISO 3287-P5	5
33606	MA.20-ISO 3287-P6	6
33607	MA.20-ISO 3287-P7	7
33608	MA.20-ISO 3287-P8	8
33609	MA.20-ISO 3287-P9	9
33610	MA.20-ISO 3287-P10	10
33611	MA.20-ISO 3287-P11	11
33612	MA.20-ISO 3287-P12	12
33613	MA.20-ISO 3287-P13	13
33614	MA.20-ISO 3287-P14	14
33615	MA.20-ISO 3287-P15	15
33616	MA.20-P16	16
33617	MA.20-P17	17
33618	MA.20-P18	18
33619	MA.20-P19	19
33620	MA.20-P20	20
33621	MA.20-P21	21
33701	MA.25-ISO 3287-P1	1
33702	MA.25-ISO 3287-P2	2
33703	MA.25-ISO 3287-P3	3
33704	MA.25-ISO 3287-P4	4
33705	MA.25-ISO 3287-P5	5
33706	MA.25-ISO 3287-P6	6
33707	MA.25-ISO 3287-P7	7
33708	MA.25-ISO 3287-P8	8
33709	MA.25-ISO 3287-P9	9
33710	MA.25-ISO 3287-P10	10
33711	MA.25-ISO 3287-P11	11
33712	MA.25-ISO 3287-P12	12
33713	MA.25-ISO 3287-P13	13
33714	MA.25-ISO 3287-P14	14
33715	MA.25-ISO 3287-P15	15
33716	MA.25-P16	16
33717	MA.25-P17	17
33718	MA.25-P18	18
33719	MA.25-P19	19
33720	MA.25-P20	20
33721	MA.25-P21	21



ELESA Original design

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Knurled grip knobs

Technopolymer

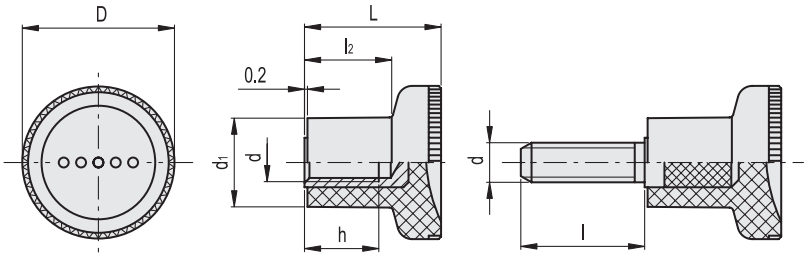


MATERIAL
Glass-fibre reinforced polyamide based (PA) technopolymer.

STANDARD EXECUTIONS
- **EKK-B:** brass boss, tapped blind hole.
Ergostyle colours, matte finish.
- **EKK-p:** zinc-plated steel threaded stud, chamfered end UNI 947 : ISO 4753 (see Technical Data on page A11).
Colour grey-black, matte finish.

SPECIAL EXECUTIONS ON REQUEST
The knurled grip knobs EKK-p can be provided in one of the other Ergostyle colours.

EKK-B **EKK-p**



ERGOSTYLE®

*Complete with colour index, example: 242081-C2 EKK.16 B-M3-C2

C1	C2	C3	C4	C5	C6
RAL7021	RAL2004	RAL7035	RAL1021	RAL5024	RAL3000

EKK-B

Code	Description	D	L	d6H	d1	h	l2	⚖
242081-*	EKK.16 B-M3-*	16	13	M3	8.5	6	8.5	7
242091-*	EKK.18 B-M4-*	18	15.5	M4	10.5	6	10.5	6
242111-*	EKK.21 B-M4-*	21	18	M4	12.5	10	10.5	8
242121-*	EKK.21 B-M5-*	21	18	M5	12.5	10	10.5	7
242211-*	EKK.25 B-M6-*	25	22.5	M6	14.5	12	14	11
242221-*	EKK.25 B-M8-*	25	22.5	M8	14.5	12	14	10
242311-*	EKK.31 B-M8-*	31	27	M8	18.5	15	17	20
242321-*	EKK.31 B-M10-*	31	27	M10	18.5	17	17	19

EKK-p

Code	Description	D	L	d6g	d1	l	l2	⚖
243001-C1	EKK.16-p M3x10-C1	16	13	M3	8.5	10	8.5	8
243006-C1	EKK.16-p M3x16-C1	16	13	M3	8.5	16	8.5	9
243111-C1	EKK.18-p M4x10-C1	18	15.5	M4	10.5	10	10.5	9
243116-C1	EKK.18-p M4x16-C1	18	15.5	M4	10.5	16	10.5	10
243121-C1	EKK.21 p-M5x10-C1	21	18	M5	12.5	10	10.5	10
243126-C1	EKK.21 p-M5x16-C1	21	18	M5	12.5	16	10.5	11
243131-C1	EKK.21 p-M5x20-C1	21	18	M5	12.5	20	10.5	12
243146-C1	EKK.21 p-M6x16-C1	21	18	M6	12.5	16	10.5	11
243151-C1	EKK.21 p-M6x20-C1	21	18	M6	12.5	20	10.5	12
243161-C1	EKK.21 p-M6x30-C1	21	18	M6	12.5	30	10.5	14
243226-C1	EKK.25 p-M6x16-C1	25	22.5	M6	14.5	16	14	13
243231-C1	EKK.25 p-M6x20-C1	25	22.5	M6	14.5	20	14	14
243236-C1	EKK.25 p-M6x25-C1	25	22.5	M6	14.5	25	14	15
243241-C1	EKK.25 p-M6x30-C1	25	22.5	M6	14.5	30	14	16
243251-C1	EKK.25-p M8x20-C1	25	22.5	M8	14.5	20	14	15
243256-C1	EKK.25-p M8x25-C1	25	22.5	M8	14.5	25	14	16
243261-C1	EKK.25-p M8x30-C1	25	22.5	M8	14.5	30	14	17
243271-C1	EKK.25-p M8x40-C1	25	22.5	M8	14.5	40	14	19
243326-C1	EKK.31 p-M8x20-C1	31	27	M8	18.5	20	17	26
243331-C1	EKK.31 p-M8x25-C1	31	27	M8	18.5	25	17	28
243336-C1	EKK.31 p-M8x30-C1	31	27	M8	18.5	30	17	30
243346-C1	EKK.31 p-M8x40-C1	31	27	M8	18.5	40	17	32
243361-C1	EKK.31 p-M10x30-C1	31	27	M10	18.5	30	17	34
243371-C1	EKK.31 p-M10x40-C1	31	27	M10	18.5	40	17	40

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GN 676.1

Knobs

SPECIFICATION

Types

- Type **A**: without knurl
- Type **B**: with knurl

Steel
blackened

INFORMATION

Knobs GN 676.1 are used in applications where a push or pull movement is required. Their concave top gives a more comfortable thumb grip.
The knurled model (Type B) can be used as an attractively shaped knurled knob with a threaded blind hole.

GN 676.5

Stainless Steel-Knobs

SPECIFICATION

Types

- Type **A**: without knurl
- Type **B**: with knurl

Stainless Steel

AISI 303
matt shot-blasted

INFORMATION

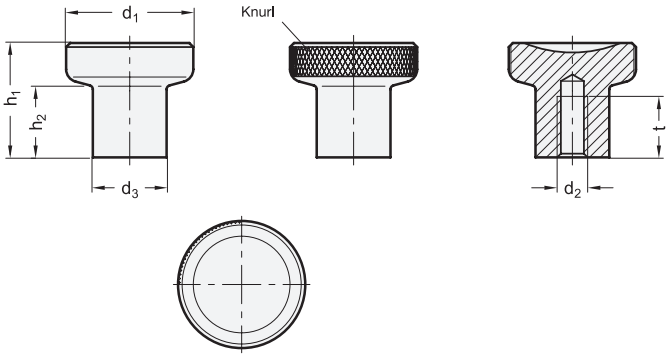
Knobs GN 676.5 are used in applications where a push or pull movement is required. Their concave top gives a more comfortable thumb grip.
The knurled model (Type B) can be used as an attractively shaped knurled knob with a threaded blind hole.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)







GN 676.1

Description	d1	d2	d3	h1	h2	t min.	⚖
GN 676.1-21-M4-A	21	M 4	12.5	18	10.5	10	26
GN 676.1-21-M5-A	21	M 5	12.5	18	10.5	10	26
GN 676.1-25-M6-A	25	M 6	14.5	22.5	14	12	42
GN 676.1-25-M8-A	25	M 8	14.5	22.5	14	12	42
GN 676.1-31-M8-A	31	M 8	18.5	27	17	15	75
GN 676.1-31-M10-A	31	M 10	18.5	27	17	17	75
GN 676.1-21-M4-B	21	M 4	12.5	18	10.5	10	20
GN 676.1-21-M5-B	21	M 5	12.5	18	10.5	10	20
GN 676.1-25-M6-B	25	M 6	14.5	22.5	14	12	40
GN 676.1-25-M8-B	25	M 8	14.5	22.5	14	12	40
GN 676.1-31-M8-B	31	M 8	18.5	27	17	15	75
GN 676.1-31-M10-B	31	M 10	18.5	27	17	17	75

GN 676.5 STAINLESS STEEL

Description	d1	d2	d3	h1	h2	t min.	⚖
GN 676.5-21-M4-A	21	M 4	12.5	18	10.5	10	26
GN 676.5-21-M5-A	21	M 5	12.5	18	10.5	10	26
GN 676.5-25-M6-A	25	M 6	14.5	22.5	14	12	42
GN 676.5-25-M8-A	25	M 8	14.5	22.5	14	12	42
GN 676.5-31-M8-A	31	M 8	18.5	27	17	15	80
GN 676.5-31-M10-A	31	M 10	18.5	27	17	17	75
GN 676.5-21-M4-B	21	M 4	12.5	18	10.5	10	26
GN 676.5-21-M5-B	21	M 5	12.5	18	10.5	10	20
GN 676.5-25-M6-B	25	M 6	14.5	22.5	14	12	40
GN 676.5-25-M8-B	25	M 8	14.5	22.5	14	12	40
GN 676.5-31-M8-B	31	M 8	18.5	27	17	15	79
GN 676.5-31-M10-B	31	M 10	18.5	27	17	17	75

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P.131

RoHS PF +110° -20°

Mushroom knobs

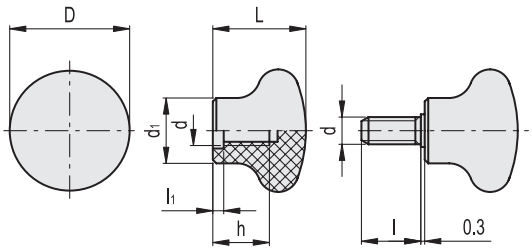
Duroplast

MATERIAL
Phenolic based (PF) Duroplast, black colour, glossy finish.

STANDARD EXECUTIONS
- **P.131:** threaded blind hole.
- **P.131-p:** zinc-plated steel stud, chamfered flat end UNI 947 : ISO 4753 (see Technical Data on page A11).



P.131 P.131-p



P.131

Code	Description	D	L	d	d1	h	l1	⚖
46401	P.131/35-M8	34	24.5	M8	19	15	3.5	16
46501	P.131/45-M10	44	34	M10	24	20	4	36

P.131-p

Code	Description	D	L	d6g	d1	l	⚖
46411	P.131/35 p-M8x25	34	24.5	M8	19	25	36
46511	P.131/45 p-M10x20	44	34	M10	24	20	58

I.150

RoHS PF +110° -20°

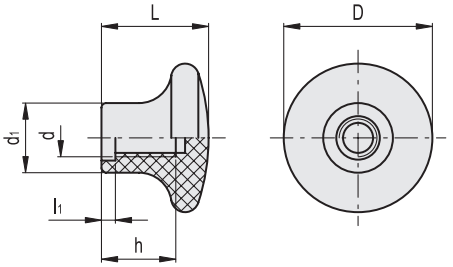
Mushroom knobs

Duroplast

MATERIAL
Phenolic based (PF) Duroplast, black colour, glossy finish.

STANDARD EXECUTION
Threaded blind hole.





Code	Description	D	L	d	d1	h	l1	⚖
20201	I.150/25-M5	25	19	M5	12	10	3	6
20202	I.150/25-M6	25	19	M6	12	10	3	5
20211	I.150/30-M6	32	23	M6	15	16	3	13
20212	I.150/30-M8	32	23	M8	15	19	3	12

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GN 75

Waist shaped knobs

SPECIFICATION

Types

- Type **D**: with female thread
- Type **E**: with threaded rod

Steel

fine turned
blackened

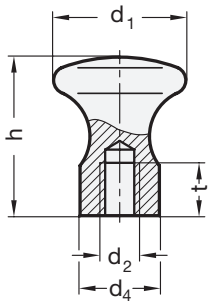
INFORMATION

Waist shaped knobs GN 75 boast a compact and timeless design.

ON REQUEST

- Steel, zinc plated





GN 75

Description	d1	d2	d3	d4	h	l	t min.	⚖
GN 75-16-M5-D	16	M 5	-	10	18	-	7	10
GN 75-20-M6-D	20	M 6	-	12	24	-	9	21
GN 75-25-M6-D	25	M 6	-	14	29	-	9	41
GN 75-32-M8-D	32	M 8	-	18	37	-	12	82
GN 75-36-M10-D	36	M 10	-	20	42	-	15	110
GN 75-16-M6-E	16	-	M 6	10	18	10	-	14
GN 75-20-M8-E	20	-	M 8	12	24	12	-	28
GN 75-25-M8-E	25	-	M 8	14	29	14	-	46
GN 75-32-M10-E	32	-	M 10	18	37	16	-	87
GN 75-36-M12-E	36	-	M 12	20	42	18	-	138

GN 75.5

Stainless Steel-
Waist shaped knobs

SPECIFICATION

Types

- Type **D**: with female thread
- Type **E**: with threaded rod

Stainless Steel

- AISI 304
- matt shot-blasted **MT**
- highly polished **PL****

** Version PL is not available from stock, requires a minimum order quantity.

INFORMATION

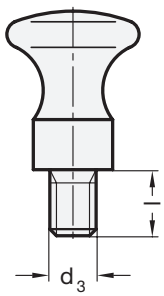
Waist shaped knobs GN 75.5 boast a compact and timeless design. They are made of high-grade stainless steel which makes them the first choice when it comes to applications requiring high standards of hygiene. The favourably designed and non-scooped geomtery helps to prevent damp and the related risk of dirt collecting.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)

ON REQUEST

- Steel, zinc plated
- Stainless Steel (A4 quality)



*Complete with finish index of the Waist shaped knobs (MT or PL)

MT
Matt shot-blasted

PL
Highly polished

GN 75.5 **STAINLESS STEEL**

Description	d1	d2	d3	d4	h	l	t min.	⚖
GN 75.5-16-M5-D-*	16**	M 5	-	10	18	-	7	12
GN 75.5-20-M6-D-*	20**	M 6	-	12	24	-	9	23
GN 75.5-25-M6-D-*	25**	M 6	-	14	29	-	9	43
GN 75.5-32-M8-D-*	32**	M 8	-	18	37	-	12	83
GN 75.5-36-M10-D-*	36**	M 10	-	20	42	-	15	119
GN 75.5-16-M6-E-*	16**	-	M 6	10	18	10	-	15
GN 75.5-20-M8-E-*	20**	-	M 8	12	24	12	-	30
GN 75.5-25-M8-E-*	25**	-	M 8	14	29	14	-	51
GN 75.5-32-M10-E-*	32**	-	M 10	18	37	16	-	83
GN 75.5-36-M12-E-*	36**	-	M 12	20	42	18	-	144

** Version PL is not available from stock, requires a minimum order quantity

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P.390

Tapered handles

Duroplast

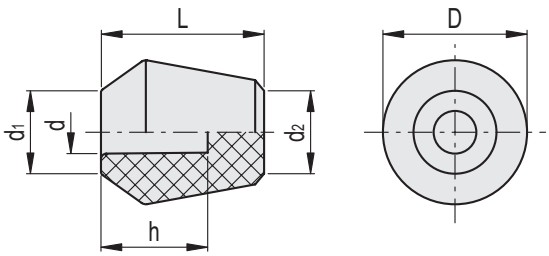
MATERIAL
Phenolic based (PF) Duroplast, black colour, glossy finish.

STANDARD EXECUTION
Plain blind hole.
The elastic coupling, by press-fit assembly on h9 tolerance drawn stock bars, is not affected by vibrations and prevents the handle from slipping off (see Technical Data on page A13).

ASSEMBLY INSTRUCTIONS
Fit the handle onto slight chamfered shaft end and push as far as possible by hand or by means of a small press. Alternatively it is possible to tap the handle with a plastic or wooden mallet until firmly in place. In this case we strongly recommend to use a cloth or other suitable soft material over the product to avoid any surface damage.



ELESA Original design



Code	Description	D	L	d	d1	d2	h	⚖
47011	P.390/25-8	25	28	8	15	16	13	12
47111	P.390/30-10	30	34	10	18	19	18	20
47211	P.390/35-12	35	39	12	20	22	20	32
47311	P.390/40-14	40	45	14	23	25	24	47

I.307

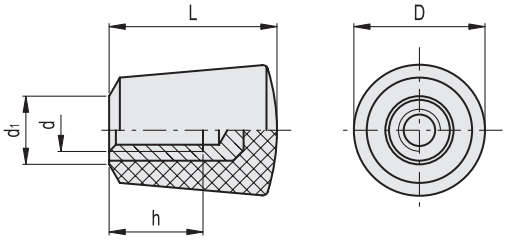
Tapered handles

Duroplast

MATERIAL
Phenolic based (PF) Duroplast, black colour, glossy finish.

STANDARD EXECUTION
Brass boss, tapped blind hole.





Code	Description	D	L	d6H	d1	h	⚖
23801	I.307/20 B-M5	15	20	M5	7	12	6
23901	I.307/25 B-M6	20	26	M6	10	16	12
23902	I.307/25 B-M8	20	26	M8	10	15	14
24001	I.307/30 B-M10	25	32	M10	13	17	25

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I.168 SOFT

Knurled handle

“Soft-touch” technopolymer

MATERIAL

Glass-fibre reinforced polyamide based (PA) technopolymer coated with "soft-touch" thermoplastic elastomer (TPE), hardness 90 Shore A, black colour. matte finish. The coating material is certified in compliance with FDA (U.S. Food and Drug Administration).

STANDARD EXECUTION

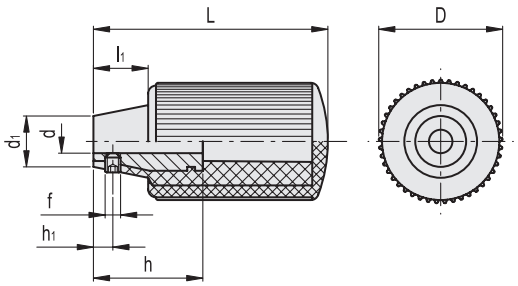
Brass boss, plain blind hole.
Fitting to the shaft by means of a black-oxide steel socket set screw according to ISO 4029 (grub screws with hexagon socket and cup end).

FEATURES AND APPLICATIONS

The coating, with "soft-touch" elastomer, improves the grip even in the presence of oils, greases and sweat from the hand. For this reason it is suitable for fitness machines, tools and machines for gardening and goods transport, high-precision instruments and disability aids.



ELESA Original design



Code	Description	D	L	dH7	d1	h	h1	l1	f	⚖
120402	I.168/60 B-6-SOFT	30	60	6	13	28	5	14	M4	59

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I.137

RoHS PF +110° -20°

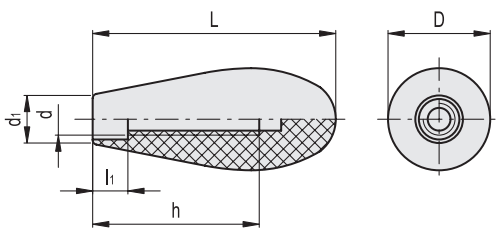
Tapered handles

Duroplast

MATERIAL
Phenolic based (PF) Duroplast, black colour, glossy finish.

STANDARD EXECUTION
Threaded blind hole.





Code	Description	D	L	d	d1	h	l1	⚖
19301	I.137/70-M8	29	69	M8	14	45	10	37
19302	I.137/70-M10	29	69	M10	14	45	15	35
19401	I.137/80-M12	35	79	M12	17	55	12	60

I.218

RoHS PF +110° -20°

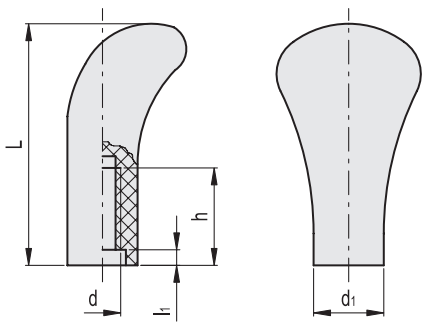
Shaped handle

Duroplast

MATERIAL
Phenolic based (PF) Duroplast, black colour, glossy finish.

STANDARD EXECUTION
Threaded blind hole.





Code	Description	L	d	d1	h	l1	⚖
20801	I.218/60-M10	62	M10	18	25	4	32

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I.142

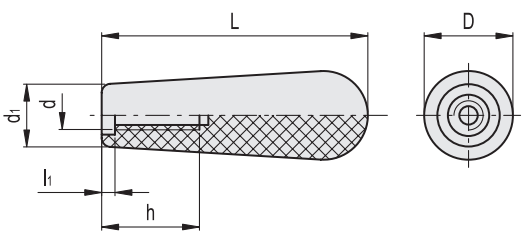
Tapered handles

Duroplast

MATERIAL
Phenolic based (PF) Duroplast, black colour, glossy finish.

STANDARD EXECUTION
Threaded blind hole.





Code	Description	D	L	d	d1	h	l1	⚖
19701	I.142/60-M8	20	60	M8	14	20	3	17

I.195

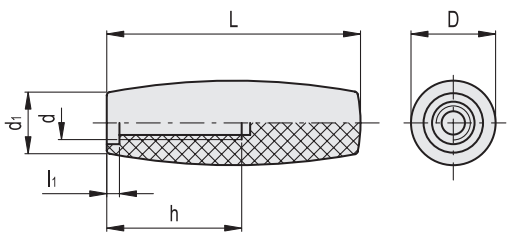
Tapered handles

Duroplast

MATERIAL
Phenolic based (PF) Duroplast, black colour, glossy finish.

STANDARD EXECUTION
Threaded blind hole.





Code	Description	D	L	d	d1	h	l1	⚖
20401	I.195/60-M8	20	60	M8	14	30	4	18

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I.147

RoHS PF +110° -20°

Tapered handles

Duroplast

MATERIAL
Phenolic based (PF) Duroplast, black colour, glossy finish.

STANDARD EXECUTION
Threaded blind hole.



Code	Description	D	L	d	d1	h	l1	⚖
19801	I.147/40-M6	24	40	M6	14	25	3	16
19802	I.147/40-M8	24	40	M8	14	28	3.5	14
19901	I.147/50-M8	29	47	M8	16	28	3.5	25
19902	I.147/50-M10	29	47	M10	16	28	3.5	24
20001	I.147/60-M10	35	60	M10	19	35	8	46
20002	I.147/60-M12	35	60	M12	19	35	8	44
20101	I.147/75-M14	39	77	M14	22	45	6	72

I.149

RoHS PF +110° -20°

Tapered handles

Duroplast

MATERIAL
Phenolic based (PF) Duroplast, black colour, glossy finish.

STANDARD EXECUTION
Threaded blind hole.



ELESA Original design

Code	Description	D	L	d	d1	h	l1	⚖
120035	I.149/65-M10	34	67	M10	19	40	8	56
120055	I.149/85-M10	34	86	M10	20	48	7	72

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I.580 N

Cylindrical handles

Technopolymer

MATERIAL

High-resilience polypropylene based (PP) technopolymer, black colour, matte finish.

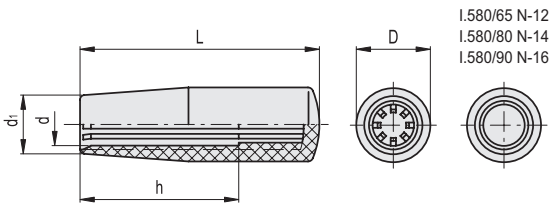
STANDARD EXECUTION

Blind hole.
The elastic coupling, by press-fit assembly on h9 tolerance drawn stock bars, is not affected by vibrations and prevents the handle from slipping off (see Technical Data on page A13).

ASSEMBLY INSTRUCTIONS

Fit the handle onto slight chamfered shaft end and push as far as possible by hand or by means of a small press. Alternatively it is possible to tap the handle with a plastic or wooden mallet until firmly in place. In this case we strongly recommend to use a cloth or other suitable soft material over the product to avoid any surface damage.





Code	Description	D	L	d	d1	h	⚖
24821	I.580/40 N-8	18	40	8	15	28	8
24831	I.580/50 N-10	21	50	10	17	35	10
24846	I.580/65 N-10	23	65	10	19	45	17
24848	I.580/65 N-12*	23	65	12	19	45	16
24861	I.580/80 N-12	26	80	12	21	50	25
24863	I.580/80 N-14*	26	80	14	21	50	24
24875	I.580/90 N-15	28	90	15	22	60	33
24876	I.580/90 N-16*	28	90	16	22	60	32

* The assembly holes marked with * are cylindrical holes without fins.

I.680 SOFT

Cylindrical handles

“Soft-touch” technopolymer

MATERIAL

High-resilience polypropylene based (PP) technopolyme, coated with "soft-touch" thermoplastic elastomer (TPE) chemically bonded, hardness 70 Shore A, black colour, matte finish.
The coating material is certified in compliance with FDA (U.S. Food and Drug Administration).

STANDARD EXECUTION

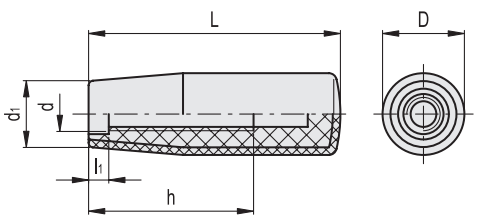
Threaded blind hole.

FEATURES AND APPLICATIONS

The coating, with "soft-touch" elastomer, improves the grip even in the presence of oils, greases and sweat from the hand. For this reason it is suitable for fitness machines, tools and machines for gardening and goods transport, high-precision instruments and disability aids.



ELESA Original design



Code	Description	D	L	d	d1	h	l1	⚖
124861	I.680/65-M8 SOFT	24.5	65	M8	20.5	30	7	34
124862	I.680/65-M10 SOFT	24.5	65	M10	20.5	40	7	33
124864	I.680/80-M8 SOFT	26.5	80	M8	21	40	7	46
124865	I.680/80-M10 SOFT	26.5	80	M10	21	55	7	45
124866	I.680/80-M12 SOFT	26.5	80	M12	21	55	7	44
124871	I.680/90-M10 SOFT	28.5	90	M10	22	56	7	51
124872	I.680/90-M12 SOFT	28.5	90	M12	22	58	10	50

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SOFT RoHS PP TPE +80° 0°

Cylindrical lobe handle

“Soft-touch” technopolymer

MATERIAL

High-resilience polypropylene based (PP) technopolymer, coated with "soft-touch" thermoplastic elastomer (TPE) chemically bonded, hardness 70 Shore A, black colour, matte finish.
The coating material is certified in compliance with FDA (U.S. Food and Drug Administration).

STANDARD EXECUTION

Plain blind hole.
The elastic coupling, by press-fit assembly on h9 tolerance drawn stock bars, is not affected by vibrations and prevents the handle from slipping off (see Technical Data on page A13).

FEATURES AND APPLICATIONS

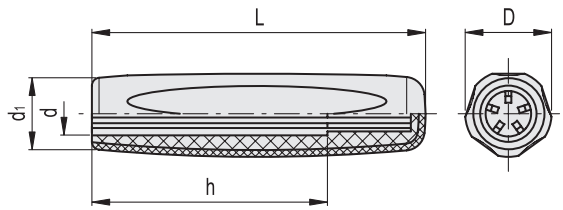
The coating, with "soft-touch" elastomer, improves the grip even in the presence of oils, greases and sweat from the hand. For this reason it is suitable for fitness machines, tools and machines for gardening and goods transport, high-precision instruments and disability aids.

ASSEMBLY INSTRUCTIONS

Fit the handle onto slight chamfered shaft end and push as far as possible by hand or by means of a small press. Alternatively it is possible to tap the handle with a plastic or wooden mallet until firmly in place. In this case we strongly recommend to use a cloth or other suitable soft material over the product to avoid any surface damage.



ERGOSTYLE®



Code	Description	D	L	d	d1	h	⚖
286151-C1	EGH.85 N-8-C1-SOFT	22	85	8	18	60	30

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I.780

RoHS PA +110° -20°

Cylindrical handles

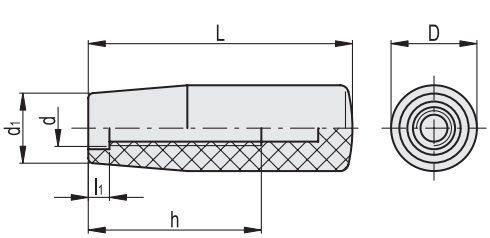
Technopolymer

MATERIAL
Glass-fibre reinforced polyamide based (PA) technopolymer, black or red colour, matte finish.

ASSEMBLY
Threaded blind hole.



ELESA Original design



C9 RAL9005 C6 RAL3000

Code	Description	D	L	d	d1	h	l1	⚖
124791	I.780/65-M8-C9	24.5	65	M8	20.5	30	7	34
124792	I.780/65-M10-C9	24.5	65	M10	20.5	40	7	34
124806	I.780/80-M8-C9	26.5	80	M8	21	40	7	45
124807	I.780/80-M10-C9	26.5	80	M10	21	55	7	45
124808	I.780/80-M12-C9	26.5	80	M12	21	55	7	45
124817	I.780/90-M10-C9	28.5	90	M10	22.5	55	7	50
124818	I.780/90-M12-C9	28.5	90	M12	22.5	58	7	50
124801	I.780/65-M8-C6	24.5	65	M8	20.5	30	7	34
124812	I.780/80-M10-C6	26.5	80	M10	21	55	7	45
124822	I.780/90-M12-C6	28.5	90	M12	22.5	58	7	50

I.167 p

RoHS PF PA +110° -20°

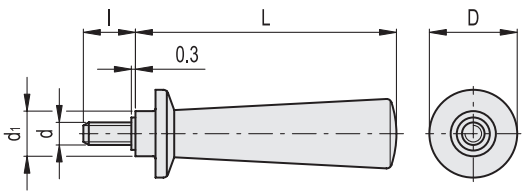
Tapered handles

Duroplast

MATERIAL
Phenolic based (PF) Duroplast body, polyamide based (PA) technopolymer flange, black colour, glossy finish.

STANDARD EXECUTION
Zinc-plated steel threaded stud, chamfered flat end according to UNI 947 : ISO 4753 (see Technical Data on page A11).





Code	Description	D	L	d6g	d1	l	⚖
20306	I.167/103 p-M8x16	35	104	M8	18	16	90
20311	I.167/103 p-M8x25	35	104	M8	18	25	94

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IF

RoHS PA +130° -30°

Cylindrical handles

with protection, technopolymer

MATERIAL

Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

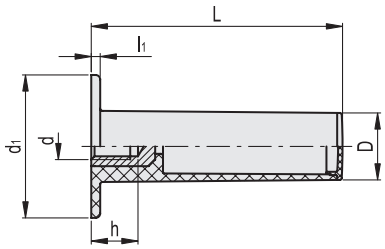
STANDARD EXECUTIONS

- **IF-B**: brass boss, threaded blind hole.
- **IF-p**: zinc-plated steel threaded stud, chamfered flat end according to UNI 947 : ISO 4753 (see Technical Data on page A11).

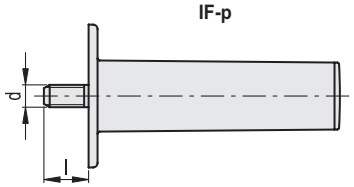


ELESA Original design

IF-B



IF-p



IF-B

Code	Description	D	L	d6H	d1	h	l1	⚖
26801	IF.112 B-M8	30	112	M8	64	20	4	73
26802	IF.112 B-M10	30	112	M10	64	18	4	75

IF-p

Code	Description	D	L	d6g	d1	l	l1	⚖
26824	IF.112 p-M8x20	30	112	M8	64	20	4	78
26834	IF.112 p-M10x20	30	112	M10	64	20	4	87

IFF

RoHS PA +130° -30°

Cylindrical handles

with double protection, technopolymer

MATERIAL

Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

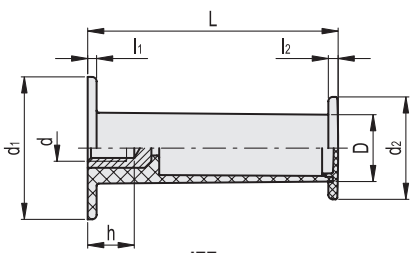
STANDARD EXECUTIONS

- **IFF-B**: brass boss, threaded blind hole.
- **IFF-p**: zinc-plated steel threaded stud, chamfered flat end according to UNI 947: ISO 4753 (see Technical Data on page A11).

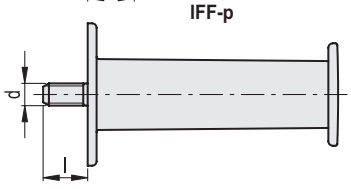


ELESA Original design

IFF-B



IFF-p



IFF-B

Code	Description	D	L	d6H	d1	d2	h	l1	l2	⚖
26901	IFF.112 B-M8	30	112	M8	64	46	20	4	4	78
26902	IFF.112 B-M10	30	112	M10	64	46	18	4	4	80

IFF-p

Code	Description	D	L	d6g	d1	d2	l	l1	l2	⚖
26924	IFF.112 p-M8x20	30	112	M8	64	46	20	4	4	83
26934	IFF.112 p-M10x20	30	112	M10	64	46	20	4	4	92

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DIN 39

PA | INOX STAINLESS STEEL | RoHS

Fixed handles

SPECIFICATION

Types

- Type **D**: with plain shaft
- Type **E**: with threaded shaft

Version in Steel

Steel **ST**
zinc plated, blue passivated

Version in Stainless Steel

Stainless Steel AISI 316L **A4**

Version in Plastic
Plastic **KT**
Technopolymer (Polyamide PA)

- temperature resistant up to 100 °C
- black, matt finish
- threaded bolt Steel, blackened

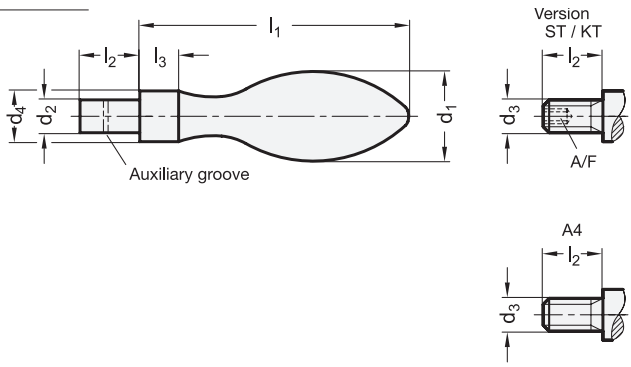


INFORMATION

On the official DIN standard sheet you can find the additional sizes 10 and 13.
For reasons of hygiene, no hexagonal recess is used in type A4.

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Plastic characteristics (see page A2)
- Stainless Steel characteristics (see page A26)



DIN 39

Description	d1	d2 h8	d3	d4 h13	l1 ≈	l2	l3	A/F	⚖
DIN 39-ST-16-D	16	7	-	10	50	11	7	-	43
DIN 39-ST-20-D	20	8	-	13	64	13	8	-	92
DIN 39-ST-25-D	25	10	-	16	80	14	10	-	182
DIN 39-ST-32-D	32	13	-	20	100	21	13	-	368
DIN 39-ST-36-D	36	16	-	22	112	26	14	-	512
DIN 39-ST-16-E	16	-	M 6	10	50	11	7	3	42
DIN 39-ST-20-E	20	-	M 8	13	64	13	8	4	89
DIN 39-ST-25-E	25	-	M 10	16	80	14	10	5	174
DIN 39-ST-32-E	32	-	M 12	20	100	21	13	6	350
DIN 39-ST-36-E	36	-	M 16	22	112	26	14	8	503

DIN 39-KT

Description	d1	d3	d4 h13	l1 ≈	l2	l3	A/F	⚖
DIN 39-KT-20-E	20	M 8	13	64	13	8	4	27
DIN 39-KT-25-E	25	M 10	16	80	14	10	5	40
DIN 39-KT-32-E	32	M 12	20	100	21	13	6	100

DIN 39-A4 — STAINLESS STEEL

Description	d1	d3	d4 h13	l1 ≈	l2	l3	⚖
DIN 39-A4-16-E	16	M 6	10	50	11	7	44
DIN 39-A4-20-E	20	M 8	13	64	13	8	90
DIN 39-A4-25-E	25	M 10	16	80	14	10	177

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Gear lever handles

Steel, Zinc plated / Stainless Steel



SPECIFICATION

Version in Steel

Types

- Type **A**: Ball knob DIN 319 (see page 538)
- Type **D**: Domed gear knob I.222 (see page 537)
- Type **E**: Cylindrical knob I.280 (see page 568)

Shafts

Steel zinc plated, blue passivated **ZB**

Knobs
Plastic
Duroplast (Phenolic PF)

- black, shiny finish
- screwed on

Version in Stainless Steel

Types

- Type **A**: Ball knob DIN 319 (see page 538)
- Type **D**: Domed gear knob I.222 (see page 537)
- Type **E**: Cylindrical knob I.280 (see page 568)

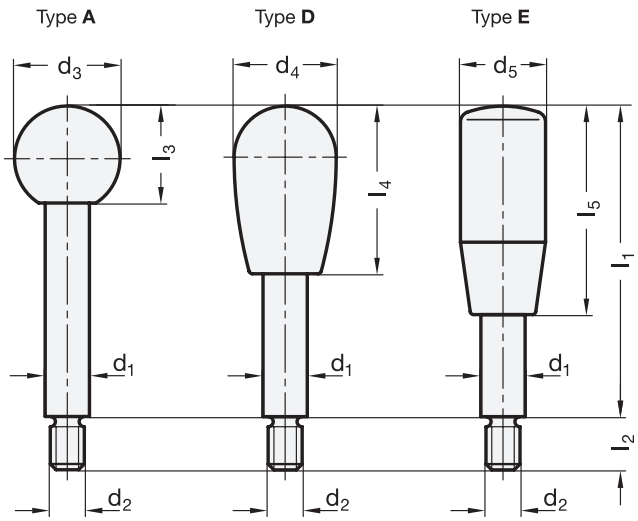
Shafts
Stainless Steel AISI 303 **NI**
matt shot-blasted

Knobs
Plastic
Duroplast (Phenolic PF)

- black, shiny finish
- screwed on

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)



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GN 310

Gear lever handles

*Complete with types of the Gear lever handles (A, D or E)

A Ball knobs **D** Domed gear knobs **E** Cylindrical knobs

GN 310

Description	d1	l1	d2	d3	d4	d5	l2	l3	l4	l5	⚖
GN 310-8-63-*-ZB	8	63	M 6	20	20	18	9	18	32	40	28
GN 310-8-80-*-ZB	8	80	M 6	20	20	18	9	18	32	40	36
GN 310-8-100-*-ZB	8	100	M 6	20	20	18	9	18	32	40	40
GN 310-10-80-*-ZB	10	80	M 8	25	26	21	11	22.5	42	50	54
GN 310-10-100-*-ZB	10	100	M 8	25	26	21	11	22.5	42	50	63
GN 310-10-125-*-ZB	10	125	M 8	25	26	21	11	22.5	42	50	78
GN 310-12-100-*-ZB	12	100	M 10	32	33	23	14	29	55	65	93
GN 310-12-125-*-ZB	12	125	M 10	32	33	23	14	29	55	65	123
GN 310-12-160-*-ZB	12	160	M 10	32	33	23	14	29	55	65	154
GN 310-14-125-*-ZB	14	125	M 12	35	33	26	16	32.5	55	80	159
GN 310-14-160-*-ZB	14	160	M 12	35	33	26	16	32.5	55	80	202
GN 310-14-200-*-ZB	14	200	M 12	35	33	26	16	32.5	55	80	240
GN 310-16-160-*-ZB	16	160	M 14	40	38	28	18	37	69	90	271
GN 310-16-200-*-ZB	16	200	M 14	40	38	28	18	37	69	90	331
GN 310-16-250-*-ZB	16	250	M 14	40	38	28	18	37	69	90	410

GN 310-NI **STAINLESS STEEL**

Description	d1	l1	d2	d3	d4	d5	l2	l3	l4	l5	⚖
GN 310-8-63-*-NI	8	63	M 6	20	20	18	9	18	32	40	26
GN 310-8-80-*-NI	8	80	M 6	20	20	18	9	18	32	40	32
GN 310-8-100-*-NI	8	100	M 6	20	20	18	9	18	32	40	44
GN 310-10-80-*-NI	10	80	M 8	25	26	21	11	22.5	42	50	55
GN 310-10-100-*-NI	10	100	M 8	25	26	21	11	22.5	42	50	63
GN 310-10-125-*-NI	10	125	M 8	25	26	21	11	22.5	42	50	78
GN 310-12-100-*-NI	12	100	M 10	32	33	23	14	29	55	65	103
GN 310-12-125-*-NI	12	125	M 10	32	33	23	14	29	55	65	123
GN 310-12-160-*-NI	12	160	M 10	32	33	23	14	29	55	65	147
GN 310-14-125-*-NI	14	125	M 12	35	33	26	16	32.5	55	80	159
GN 310-14-160-*-NI	14	160	M 12	35	33	26	16	32.5	55	80	190
GN 310-14-200-*-NI	14	200	M 12	35	33	26	16	32.5	55	80	250
GN 310-16-160-*-NI	16	160	M 14	40	38	28	18	37	69	90	271
GN 310-16-200-*-NI	16	200	M 14	40	38	28	18	37	69	90	331
GN 310-16-250-*-NI	16	250	M 14	40	38	28	18	37	69	90	410

Weight type A

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Cylindrical handles

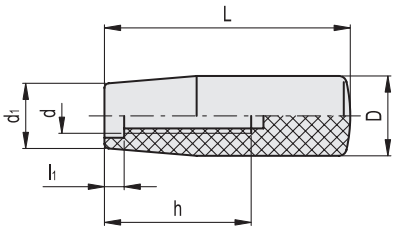
Duroplast

MATERIAL
Phenolic based (PF) Duroplast, black colour, glossy finish.

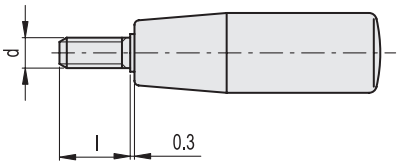
STANDARD EXECUTIONS
- **I.280:** threaded blind hole.
- **I.280-p:** zinc-plated steel threaded stud, chamfered flat end UNI 947 : ISO 4753 (see Technical Data on page A11).



I.280



I.280-p



I.280

Code	Description	D	L	d	d1	h	l1	⚖
21501	I.280/28-M5	14	28	M5	11	12	1.5	5
21601	I.280/40-M6	18	40	M6	15	25	3.5	12
21602	I.280/40-M8	18	40	M8	15	25	3.5	12
21701	I.280/50-M6	21	50	M6	17	25	3.5	21
21702	I.280/50-M8	21	50	M8	17	35	7.5	20
21801	I.280/65-M8	23	65	M8	19	30	7.5	33
21802	I.280/65-M10	23	65	M10	19	40	7.5	30
21803	I.280/65-M12	23	65	M12	19	40	7.5	28
21900	I.280/80-M8	26	80	M8	21	45	8	45
21901	I.280/80-M10	26	80	M10	21	55	7	47
21902	I.280/80-M12	26	80	M12	21	55	10	45
22000	I.280/90-M8	28	90	M8	22	55	15	62
22001	I.280/90-M10	28	90	M10	22	55	7	64
22002	I.280/90-M12	28	90	M12	22	58	8	62
22101	I.280/100-M12	31	102	M12	25	58	8	90
22102	I.280/100-M14	31	102	M14	25	65	5	85
22201	I.280/115-M12	29	116	M12	23	58	8	88

I.280-p

Code	Description	D	L	d6g	d1	l	⚖
21611	I.280/40 p-M6x16	18	40	M6	15	16	18
21711	I.280/50 p-M8x16	21	50	M8	17	16	38
21712	I.280/50 p-M8x25	21	50	M8	17	25	40
21811	I.280/65 p-M10x16	23	65	M10	19	16	60
21812	I.280/65 p-M10x30	23	65	M10	19	30	67
21911	I.280/80 p-M10x16	26	80	M10	21	16	80
21912	I.280/80 p-M10x30	26	80	M10	21	30	87
22011	I.280/90 p-M12x16	28	90	M12	22	16	113
22012	I.280/90 p-M12x30	28	90	M12	22	30	122
22111	I.280/100 p-M12x16	31	102	M12	25	16	142
22112	I.280/100 p-M12x30	31	102	M12	25	30	150

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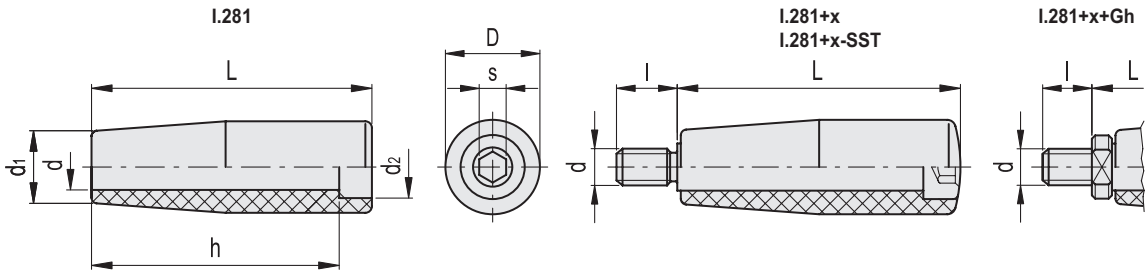
Cylindrical revolving handles

Duroplast

MATERIAL
Phenolic based (PF) Duroplast, black colour, glossy finish.

STANDARD EXECUTION
- **I.281**: plain pass-through hole.
- **I.281+x**: matte chrome-plated steel shank, cylindrical-head with hexagon socket.
- **I.281+x-SST**: AISI 304 stainless steel shank, cylindrical-head with hexagon socket.
- **I.281+x+Gh**: matte chrome-plated steel shank and locking nut, cylindrical-head with hexagon socket.





I.281

Code	Description	D	L	d	d1	d2	h	⚖
22301	I.281/40	18	39	8	15	12	35	10
22401	I.281/50	21	49	10	17	14	43	16
22501	I.281/65	23	64	12	19	16	56	22
22601	I.281/80	26	79	13	21	17	70	37
22701	I.281/90	28	89	14	22	19	79	49
22801	I.281/100	31	100	16	25	20	89	66

I.281+x

Code	Description	D	L	d6g	d1	l	s	⚖
22311	I.281/40+x-M6	18	40	M6	15	13	4	28
22411	I.281/50+x-M8	21	50	M8	17	15	5	52
22511	I.281/65+x-M8	23	65	M8	19	17	6	86
22512	I.281/65+x-M10	23	65	M10	19	17	6	90
22611	I.281/80+x-M10	26	80	M10	21	18	6	132
22711	I.281/90+x-M10	28	90	M10	22	18	8	170
22811	I.281/100+x-M12	31	102	M12	25	20	8	245
22812	I.281/100+x-M14	31	102	M14	25	20	8	248

I.281+x-SST **STAINLESS STEEL**

Code	Description	D	L	d6g	d1	l	s	⚖
22312	I.281/40+x-M6-SST	18	40	M6	15	13	4	28
22412	I.281/50+x-M8-SST	21	50	M8	17	15	5	52
22513	I.281/65+x-M8-SST	23	65	M8	19	17	6	87
22514	I.281/65+x-M10-SST	23	65	M10	19	17	6	91
22612	I.281/80+x-M10-SST	26	80	M10	21	18	6	133
22712	I.281/90+x-M10-SST	28	90	M10	22	18	8	172
22813	I.281/100+x-M12-SST	31	102	M12	25	20	8	247
22814	I.281/100+x-M14-SST	31	102	M14	25	20	8	250

I.281+x+Gh

Code	Description	D	L	d6g	d1	l	s	⚖
22321	I.281/40+x-M6+Gh	18	45	M6	15	8	4	33
22421	I.281/50+x-M8+Gh	21	55	M8	17	10	5	56
22521	I.281/65+x-M8+Gh	23	70	M8	19	12	6	90
22522	I.281/65+x-M10+Gh	23	71	M10	19	12	6	98
22621	I.281/80+x-M10+Gh	26	86	M10	21	12	6	143
22721	I.281/90+x-M10+Gh	28	96	M10	22	12	8	180
22821	I.281/100+x-M12+Gh	31	109	M12	25	13	8	256
22822	I.281/100+x-M14+Gh	31	109	M14	25	13	8	262

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EBK+x

RoHS PP +80° 0°

Spherical revolving handle

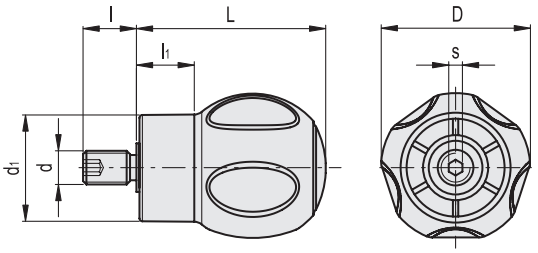
Technopolymer

MATERIAL
High-resilience polypropylene based (PP) technopolymer, black colour, matte finish.

STANDARD EXECUTION
Zinc-plated steel shank, hexagon socket at threaded end.



ERGOSTYLE®



Code	Description	D	L	d6g	d1	l	l1	s	⚖
245292	EBK.50+x-M10	50	62	M10	36	17	19	5	90

EBS+x

RoHS PP +80° 0°

Spherical revolving handle

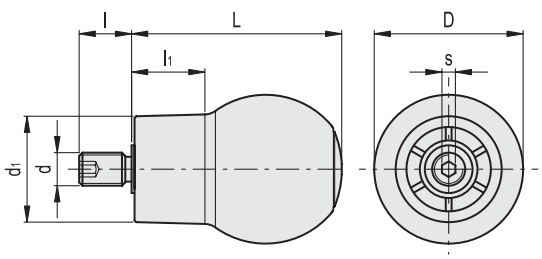
Technopolymer

MATERIAL
High-resilience polypropylene based (PP) technopolymer, black colour, matte finish.

STANDARD EXECUTION
Zinc-plated steel shank, hexagon socket at threaded end.



ERGOSTYLE®



Code	Description	D	L	d6g	d1	l	l1	s	⚖
247011	EBS.45+x-M10	45	63	M10	32	17	21.5	5	89

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EBS+x SOFT

SOFT · RoHS · PP · TPE · +80° 0°

Spherical revolving handle

"Soft-touch" technopolymer

MATERIAL

High-resilience polypropylene based (PP) technopolymer, coated with "soft-touch" thermoplastic elastomer (TPE) chemically bonded, hardness 70 Shore A, black colour, matte finish.
The coating material is certified in compliance with FDA (U.S. Food and Drug Administration).

STANDARD EXECUTION

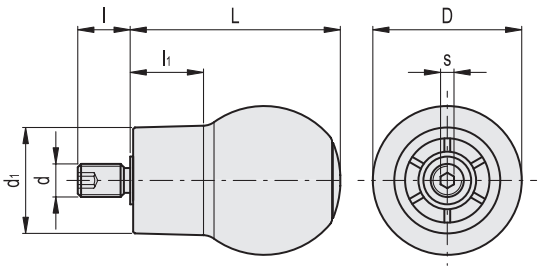
Zinc-plated steel shank, hexagon socket at threaded end.

FEATURES AND APPLICATIONS

The coating, with "Soft-touch" elastomer, improves the grip even in the presence of oils, greases and sweat from the hand. For this reason it is suitable for fitness machines, tools and machines for gardening and goods transport, high-precision instruments and disability aids.



ERGOSTYLE®



Code	Description	D	L	d6g	d1	l	l1	s	⚖
247051	EBS.48 SOFT+x-M10	48	66	M10	35	17	23	5	100

P.111+x

RoHS · PF · +110° -20°

Spherical revolving handles

Duroplast

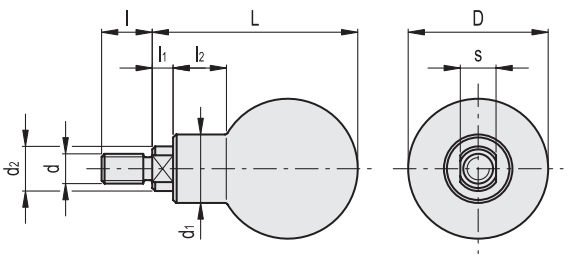
MATERIAL

Phenolic based (PF) Duroplast, black colour, glossy finish.

STANDARD EXECUTION

Zinc-plated steel threaded shank, two flat faces for fitting with 12 mm spanner.





Code	Description	D	L	d6g	d1	d2	l	l1	l2	s	⚖
45981	P.111/37+x-M8	37	54	M8	18	15	15	7	13	12	55
46011	P.111/47+x-M10	47	69	M10	23	15	17	7	17	12	130

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SOFT RoHS PP TPE +80° 0°

Mushroom revolving handles

“Soft-touch” technopolymer



ELESA Original design

MATERIAL

High resilience polypropylene based (PP) technopolymer, coated with "soft-touch" thermoplastic elastomer (TPE) chemically bonded, hardness 70 Shore A, black colour, matte finish.
The coating material is certified in compliance with FDA (U.S. Food and Drug Administration).

STANDARD EXECUTIONS

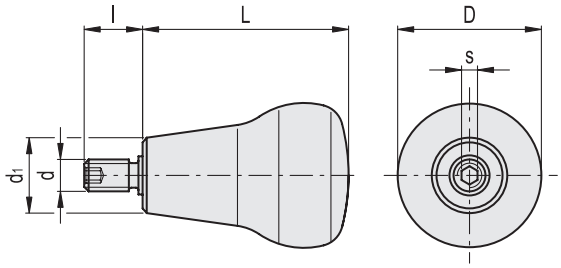
Zinc-plated steel shank, hexagon socket at threaded end.
- **IEL+x:** without ring.
- **IEL+x-A:** with matte anodised aluminium ring (ELESA original design).

FEATURES AND APPLICATIONS

The coating, with "soft-touch" elastomer, improves the grip even in the presence of oils, greases and sweat from the hand. For this reason it is suitable for fitness machines, tools and machines for gardening and goods transport, high-precision instruments and disability aids.

SPECIAL EXECUTIONS ON REQUEST

IEL+x-H: with magnifying lens for labels with marks and symbols.



Code	Description	D	L	d6g	d1	l	s	⚖
26651	IEL.47+x-M10 SOFT	45	47	M10	28	17	5	80
26679	IEL.65+x-M8 SOFT	45	65	M8	23	17	5	102
26681	IEL.65+x-M10 SOFT	45	65	M10	23	17	5	99
26691	IEL.65+x-M10-A SOFT	45	65	M10	23	17	5	99

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GN 598

Cylindrical Revolving handles

Spindle Steel, zinc plated

SPECIFICATION

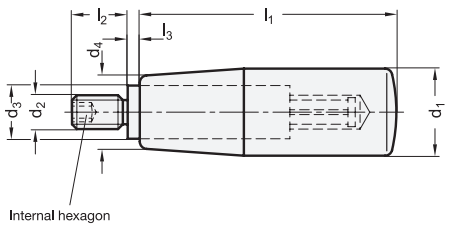
Steel **ST**
Plastic coated
black, textured finish

Spindle Steel
zinc plated, blue passivated

INFORMATION

Steel revolving handles GN 598 are mainly used on safety handwheels to increase imbalance and thus avoid free wheeling.





GN 598

Description	d1	d2	d3	d4	l1	l2	l3	⚖
GN 598-ST-18-M6	18	M 6	10	15	40	12	2.5	71
GN 598-ST-21-M6	21	M 6	10	17	50	13	2.5	120
GN 598-ST-21-M8	21	M 8	10	17	50	13	2.5	122
GN 598-ST-23-M8	23	M 8	13	19	65	14	2.5	188
GN 598-ST-23-M10	23	M 10	13	19	65	14	2.5	190
GN 598-ST-26-M8	26	M 8	13	21	80	16	2.5	295
GN 598-ST-26-M10	26	M 10	13	21	80	16	2.5	298
GN 598-ST-28-M10	28	M 10	13	22	90	16	2.5	390
GN 598-ST-31-M12	31	M 12	14	25	102	20	2.5	563

I.644

Tapered handle

Technopolymer with antimicrobial pretection

MATERIAL

Glass-fibre reinforced polyamide based (PA) technopolymer with silver ions on an inorganic ceramic base, black colour, matte finish.

STANDARD EXECUTION

Zinc-plated steel shank, hexagon socket at threaded end.

FEATURES

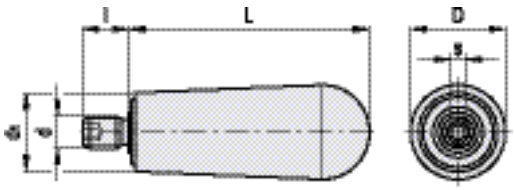
The special antimicrobial material, I.644 is made out of, stops any deposit of bacteria, mildew and fungi, offering a sanitized effect on the surface.
Tests carried out on material samples confirmed the stability of the antimicrobial action after several cleaning cycles at high temperatures with soap and solvents.
The great resistance to high temperatures of the antimicrobial additive allows this handle to reach sterilisation temperatures (130°C).

APPLICATIONS

I.644 handle is suitable for applications where hygienic and sanitary elements are required:
- medical and hospital equipment
- disability aids
- machines for food processing and pharmaceutical industry
- equipment for catering service
- urban and public fittings.



ELESA Original design



Code	Description	D	L	d	d1	l	s	⚖
122701	I.644/90+x-M8 SAN	36	90	M8	30	16	4	130

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I.301+x

Cylindrical revolving handles

Duroplast and technopolymer

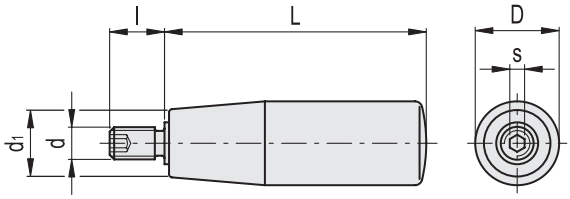
MATERIAL

Phenolic based (PF) Duroplast.
Handle I.301+x with length L = 28, polyamide based (PA) technopolymer, black colour, glossy finish.

STANDARD EXECUTIONS

- **I.301+x:** zinc-plated steel shank, hexagon socket at threaded end.
- **I.301+x-SST:** AISI 303 stainless steel shank, hexagon socket at threaded end.





I.301+x

Code	Description	D	L	d6g	d1	l	s	⚖
23001	I.301/28+x-M6	14	28	M6	11	10	3	13
23101	I.301/40+x-M6	18	40	M6	15	13	3	27
23201	I.301/50+x-M6	21	50	M6	17	13	3	37
23202	I.301/50+x-M8	21	50	M8	17	13	4	38
23301	I.301/65+x-M8	23	65	M8	19	15	4	75
23302	I.301/65+x-M10	23	65	M10	19	17	5	77
23401	I.301/80+x-M8	26	80	M8	21	15	4	95
23402	I.301/80+x-M10	26	80	M10	21	17	5	98
23501	I.301/90+x-M10	28	90	M10	22	17	5	118
23601	I.301/100+x-M10	31	102	M10	25	17	5	143
23602	I.301/100+x-M12	31	102	M12	25	20	5	160
23701	I.301/115+x-M10	29	116	M10	23	17	5	143

I.301+x-SST **STAINLESS STEEL**

Code	Description	D	L	d6g	d1	l	s	⚖
23205	I.301/50+x-M6-SST	21	50	M6	17	13	3	37
23305	I.301/65+x-M8-SST	23	65	M8	19	15	4	75
23505	I.301/90+x-M10-SST	28	90	M10	22	17	5	118

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I.481+x

Cylindrical revolving handles

Duroplast

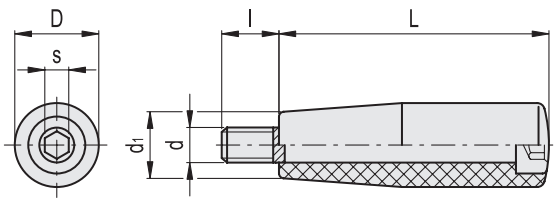
MATERIAL

Phenolic based (PF) Duroplast, black colour, glossy finish.

STANDARD EXECUTION

Black-oxide steel shoulder screw, cylindrical-head with hexagon socket. A knurling acts as obstruction when the handle is fully screwed into its hole which must be slightly chamfered.





Code	Description	D	L	d6g	d1	l	s	⚖
24551	I.481/40+x-M6	18	40	M6	15	13	5	25
24601	I.481/50+x-M6	21	50	M6	17	13	5	35
24651	I.481/65+x-M8	23	65	M8	19	15	6	62
24701	I.481/80+x-M8	26	80	M8	21	15	6	85

I.601+x

Cylindrical revolving handles

Technopolymer

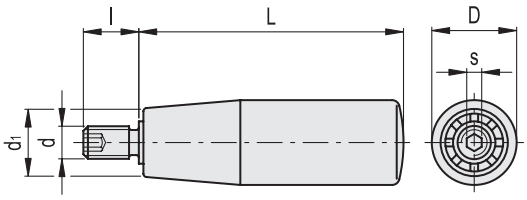
MATERIAL

High-resilience polypropylene based (PP) technopolymer, black colour, matte finish.

STANDARD EXECUTIONS

- **I.601+x:** zinc-plated steel shank, hexagon socket at threaded end.
- **I.601+x-SST:** AISI 303 stainless steel shank, hexagonal socket at threaded end.





I.601+x

Code	Description	D	L	d6g	d1	l	s	⚖
24921	I.601/40+x-M6	18	40	M6	15	13	3	25
24931	I.601/50+x-M6	21	50	M6	17	13	3	35
24941	I.601/56+x-M6	22	56	M6	18	13	3	40
24951	I.601/65+x-M8	23	65	M8	19	15	4	68
24952	I.601/65+x-M10	23	65	M10	19	17	5	70
24961	I.601/80+x-M8	26	80	M8	21	15	4	75
24962	I.601/80+x-M10	26	80	M10	21	17	5	78
24971	I.601/90+x-M10	28	90	M10	22	17	5	85
24972	I.601/90+x-M12	28	90	M12	22	20	5	100

I.601+x-SST **STAINLESS STEEL**

Code	Description	D	L	d6g	d1	l	s	⚖
24925	I.601/40+x-M6-SST	18	40	M6	15	13	3	25
24935	I.601/50+x-M6-SST	21	50	M6	17	13	3	35
24955	I.601/65+x-M8-SST	23	65	M8	19	15	4	68
24965	I.601/80+x-M10-SST	26	80	M10	21	17	5	78
24975	I.601/90+x-M10-SST	28	90	M10	22	17	5	85

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Revolving handles

Technopolymer

MATERIAL

Polyamide based (PA) technopolymer, black colour, matte finish.

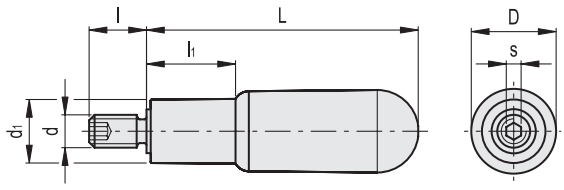
STANDARD EXECUTIONS

- **I.621+x**: zinc-plated steel shank, hexagon socket at threaded end.
- **I.621+x+SST**: AISI 303 stainless steel shank, hexagonal socket at threaded end.
- **I.621+Gx**: zinc-plated steel threaded shank, with two large and flat faces for frontal fastening.

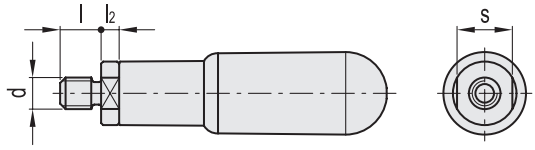


ELESA Original design

I.621+x
I.621+x-SST



I.621+x+Gx



I.621+x

Code	Description	D	L	d6g	d1	l	l1	s	⚖
120601	I.621/35+x-M5	14	35	M5	11	10	10.5	3	23
120611	I.621/35+x-M6	14	35	M6	11	10	10.5	3	25
120621	I.621/45+x-M6	15.5	45	M6	13	13	15	3	27
120622	I.621/45+x-M8	15.5	45	M8	13	13	15	4	30
120631	I.621/60+x-M6	18	60	M6	14.5	13	19	3	32
120632	I.621/60+x-M8	18	60	M8	14.5	13	19	4	35
120641	I.621/65+x-M8	22	65	M8	18	15	21	4	80
120642	I.621/65+x-M10	22	65	M10	18	15	21	4	82
120646	I.621/73+x-M8	23	73	M8	19	15	24	4	85
120647	I.621/73+x-M10	23	73	M10	19	15	24	4	87
120651	I.621/80+x-M8	24	80	M8	19	15	27	4	88
120652	I.621/80+x-M10	24	80	M10	19	15	27	4	100
120661	I.621/90+x-M10	25	90	M10	19.5	17	30	5	120
120671	I.621/100+x-M10	27	101	M10	22	17	34	5	125

I.621+x-SST **STAINLESS STEEL**

Code	Description	D	L	d6g	d1	l	l1	s	⚖
120623	I.621/45+x-M6-SST	15.5	45	M6	13	13	15	3	27
120624	I.621/45+x-M8-SST	15.5	45	M8	13	15	15	4	30
120633	I.621/60+x-M6-SST	18	60	M6	14.5	13	19	3	32
120634	I.621/60+x-M8-SST	18	60	M8	14.5	15	19	4	35
120643	I.621/65+x-M8-SST	22	65	M8	18	15	21	4	80
120644	I.621/65+x-M10-SST	22	65	M10	18	15	21	4	82
120648	I.621/73+x-M8-SST	23	73	M8	19	15	24	4	85
120649	I.621/73+x-M10-SST	23	73	M10	19	15	24	4	87
120653	I.621/80+x-M8-SST	24	80	M8	19	15	27	4	88
120654	I.621/80+x-M10-SST	24	80	M10	19	15	27	4	100
120663	I.621/90+x-M10-SST	25	90	M10	19.5	17	30	5	120
120673	I.621/100+x-M10-SST	27	101	M10	22	17	34	5	125

I.621+Gx

Code	Description	D	L	d6g	d1	l	l1	l2	s	⚖
120741	I.621/65+Gx-M8	22	65	M8	18	12	21	6.5	16	93
120752	I.621/80+Gx-M10	24	80	M10	18.5	12	27	6.5	16	103
120772	I.621/100+Gx-M12	27	101	M12	22	13	34	7.5	19	155

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GN 798

Cylindrical Revolving handles

Spindle steel, zinc plated



SPECIFICATION

Plastic **KT**
Technopolymer

- temperature resistant up to 90 °C
- black, matt finish

Aluminium **AL**
polished

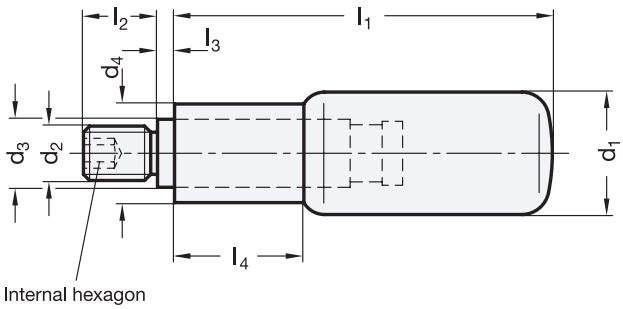
Spindle Steel
zinc plated, blue passivated

INFORMATION

Typical in design are the revolving handles GN 798 with their stepped shape consisting of two cylinders giving the operator a better grip.

TECHNICAL INFORMATION

- Plastic characteristics (see page A2)



*Complete with material of the Revolving handles (KT or AL)

KT	AL
Plastic	Aluminium

GN 798

Description	d1	d2	d3	d4	l1	l2	l3	l4	⚖
GN 798-*-16-M6	16	M 6	10	13	41.5	12	25	15	40
GN 798-*-18-M6	18	M 6	10	14.5	56	13	25	19	50
GN 798-*-18-M8	18	M 8	10	14.5	56	13	25	19	40
GN 798-*-22-M10	22	M 10	14	18.5	59	14	25	21	103
GN 798-*-22-M6	22	M 6	14	18.5	59	14	25	21	100
GN 798-*-22-M8	22	M 8	14	18.5	59	14	25	21	101
GN 798-*-24-M10	24	M 10	14	18.5	74	16	25	27	115
GN 798-*-24-M8	24	M 8	14	18.5	74	16	25	27	120
GN 798-*-25-M10	25	M 10	16	20	84	16	25	30	150

Weight AL

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GN 798.1

Revolving Stainless Steel-Handles

SPECIFICATION

Stainless Steel **NI**

- AISI 303
- matt, shot-blasted

Spindle
Stainless Steel AISI 303

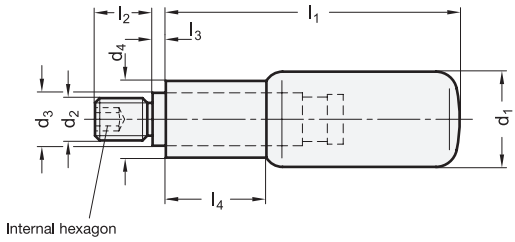
INFORMATION

Typical in design are the revolving handles GN 798.1 with their stepped shape consisting of two cylinders giving the operator a better grip.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)





GN 798.1 **STAINLESS STEEL**

Description	d1	d2	d3	d4	l1	l2	l3 ≈	l4	⚖
GN 798.1-NI-18-M6	18	M 6	10	14.5	56	13	2.5	19	95
GN 798.1-NI-18-M8	18	M 8	10	14.5	56	13	2.5	19	97
GN 798.1-NI-22-M8	22	M 8	14	18.5	59	14	2.5	21	163
GN 798.1-NI-22-M10	22	M 10	14	18.5	59	14	2.5	21	165
GN 798.1-NI-24-M8	24	M 8	14	18.5	74	16	2.5	27	210
GN 798.1-NI-24-M10	24	M 10	14	18.5	74	16	2.5	27	212

GN 798.2

Cylindrical Revolving handles

Spindle Steel, zinc plated / with female

SPECIFICATION

Plastic **KT**
Technopolymer (Polyamide PA)

- temperature resistant up to 90 °C
- black, matt finish

Spindle Steel
zinc plated, blue passivated

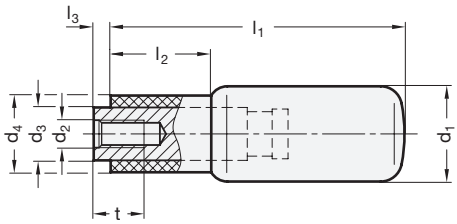
INFORMATION

Typical in design are the revolving handles GN 798.2 with their stepped shape consisting of two cylinders giving the operator a better grip.

TECHNICAL INFORMATION

- Plastic characteristics (see page A2)





GN 798.2

Description	d1	d2	d3	d4	l1	l2	l3	t	⚖
GN 798.2-KT-16-M5	16	M 5	10	13	41.5	12	2.5	10	20
GN 798.2-KT-18-M5	18	M 5	10	14.5	56	13	2.5	10	28
GN 798.2-KT-22-M6	22	M 6	14	18.5	59	14	2.5	12	75
GN 798.2-KT-24-M6	24	M 6	14	18.5	74	16	2.5	12	86
GN 798.2-KT-25-M8	25	M 8	16	20	84	16	2.5	14	116

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DIN 98

Revolving handles

SPECIFICATION

Types

- Type D: with plain shaft
- Type E: with threaded shaft

Steel **ST**
zinc plated, blue passivated

Aluminium **AL**
glossy finish

Plastic **KT**
Technopolymer (Polyamide PA)

- temperature resistant up to 110 °C
- black, matt finish

Spindle Steel
zinc plated, blue passivated

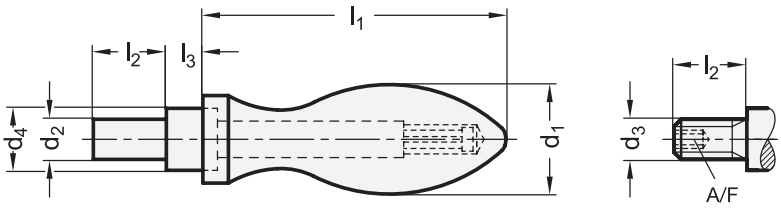


INFORMATION

This handle is supplied unassembled so that the shaft can be press fitted or screwed into a tapped blind bore prior to assembly.
During mounting, easy blows with a soft hammer are sufficient to drive the handle into place.

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Plastic characteristics (see page A2)



* Complete with material of the Revolving handles (ST, AL or KT)

ST	AL	KT
Steel	Aluminium	Plastic

DIN 98

Description	d1	d2 h8	d3	d4 h13	l1 ≈	l2	l3	A/F	⚖
DIN 98-*-16-D	16	7	-	10	49	11	5.5	3	33
DIN 98-*-20-D	20	8	-	13	61	13	6	4	63
DIN 98-*-25-D	25	10	-	16	75	14	8	5	110
DIN 98-*-32-D	32	13	-	20	95	21	10.5	6	217
DIN 98-*-36-D	36	16	-	22	106	26	11	8	321
DIN 98-*-16-E	16	-	M 6	10	49	11	5.5	3	33
DIN 98-*-20-E	20	-	M 8	13	61	13	6	4	50
DIN 98-*-25-E	25	-	M 10	16	75	14	8	5	110
DIN 98-*-32-E	32	-	M 12	20	95	21	10.5	6	240
DIN 98-*-36-E	36	-	M 16	22	106	26	11	8	299

Weight AL

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I.631+x

RoHS PP +80° 0°

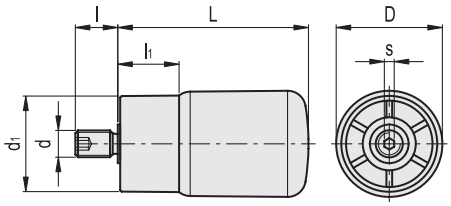
Revolving handle

Technopolymer

MATERIAL
High-resilience polypropylene based (PP) technopolymer, black colour, matte finish.

STANDARD EXECUTION
Zinc-plated steel shank, hexagon socket at threaded end.





Code	Description	D	L	d6g	d1	l	l1	s	⚖
122622	I.631/65+x-M10	35	63	M10	32	17	19	5	79

I.701+x

RoHS PA +90° -20°

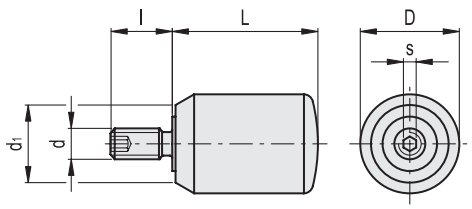
Revolving handles

Technopolymer

MATERIAL
Polyamide based (PA) technopolymer, black colour, matte finish.

STANDARD EXECUTION
Zinc-plated steel shank, hexagon socket at threaded end.





Code	Description	D	L	d6g	d1	l	s	⚖
24974	I.701/20+x-M4	13.5	20	M4	11	8	2	7
24979	I.701/20+x-M5	13.5	20	M5	11	10	2.5	10
24980	I.701/23+x-M5	16	23	M5	12.5	10	2.5	12

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I.731+x

Revolving handles

Technopolymer

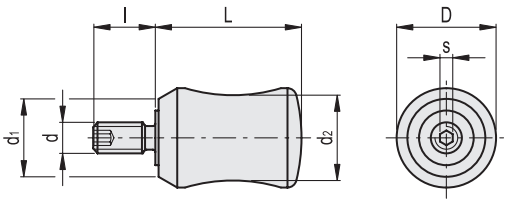
MATERIAL
Polyamide based (PA) technopolymer, black colour, matte finish.

STANDARD EXECUTION
Zinc-plated steel shank, hexagon socket at threaded end.

ERGONOMY
The grooves cut into the cylindrical surface allow the optimization of the grip with the tips of the fingers, due to the small size of the handle.



ELESA Original design



Code	Description	D	L	d6g	d1	d2	l	s	⚖
24990	I.731/20+x-M4	13.5	20	M4	11	11	8	2	6
24991	I.731/20+x-M5	13.5	20	M5	11	11	10	2.5	9
24995	I.731/23+x-M5	16	23	M5	12.5	13	10	2.5	11

I.741+x

Revolving handles

Technopolymer

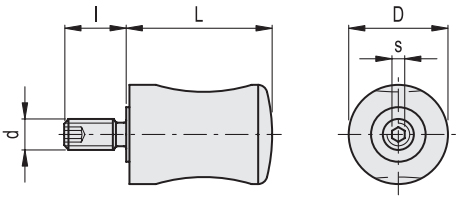
MATERIAL
Polyamide based (PA) technopolymer, black colour, matte finish.

STANDARD EXECUTION
Zinc-plated steel shank, hexagon socket at threaded end.

FEATURES AND APPLICATIONS
The grooves cut into the cylindrical surface allow an effective and ergonomic grip, though necessarily limited to the fingertips, due to the small size of the handle.



ELESA Original design



Code	Description	D	L	d6g	l	s	⚖
25004	I.741/20+x-M4	12	20	M4	8	2	8.5
25005	I.741/20+x-M5	12	20	M5	10	2.5	9
25014	I.741/23-1+x-M4	13	23	M4	8	2	9.5
25015	I.741/23-1+x-M5	13	23	M5	10	2.5	10
25017	I.741/23-2+x-M5	14.5	23	M5	10	2.5	11

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I.135

RoHS PF PA +110° -20°

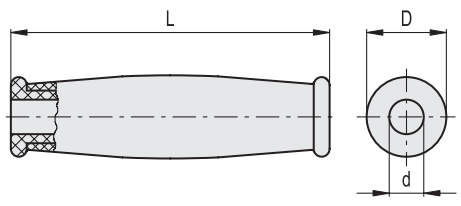
Tapered flanged handles

Duroplast

MATERIAL
Phenolic based (PF) Duroplast, black colour, glossy finish.

STANDARD EXECUTION
Plain pass-through hole with polyamide based (PA) technopolymer guide bosses in both ends.





Code	Description	D	L	d	⚖
19001	I.135/120-10	30	120	10	77
19002	I.135/120-11	30	120	11	76
19003	I.135/120-13	30	120	13	74

SI.134

RoHS PA PF +110° -20°

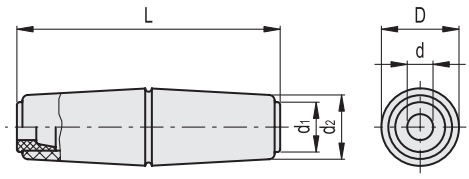
Revolving handles

Duroplast

MATERIAL
Phenolic based (PF) Duroplast, black colour, matte finish with equatorial groove.

STANDARD EXECUTION
Plain pass-through hole with polyamide based (PA) technopolymer guide bosses in both ends.





Code	Description	D	L	d	d1	d2	⚖
55701	SI.134/105-6	29	105	6	18	23	52
55711	SI.134/105-7	29	105	7	18	23	52
55721	SI.134/105-8	29	105	8	18	23	51
55731	SI.134/105-10	29	105	10	18	23	50

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EFH.620

Fold-away handles

Technopolymer

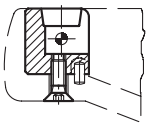
MATERIAL
Polyamide based (PA) technopolymer handle, black colour, matte finish.

STANDARD EXECUTION
Black-oxide steel stud, sintered and oxidised steel flat base for embedded mounting, black-oxide steel screw.

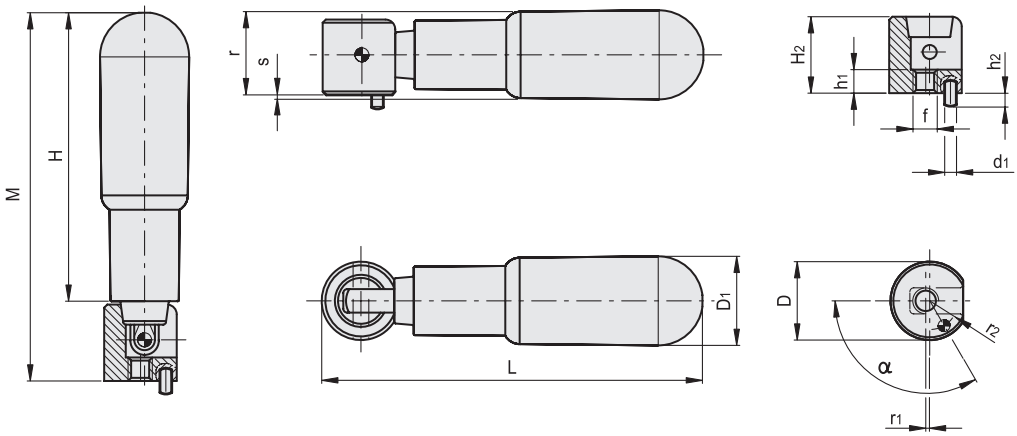
FEATURES AND APPLICATIONS
Handle pivots freely during operation: a system of coaxial bushings compensates return spring load.
This series of fold-away handles has been designed for all those applications for which, owing to lack of space or for safety reasons, the handle must be folded-away once the operation has been completed.



Normal assembly example with embedded base



ERGOSTYLE®



Code	Description	H	D	L	M	D1	H2	r	r1	s	f	h1	d1	h2 -0.2	r2	α	⚖
285151-R	EFH.620/60 S.D.16	60	16	78	76	18	15	17.5	1	1	M4	5	3	3	5.5	90°	38
285161-R	EFH.620/65 S.D.16	65	16	83.5	81	22	15	19.5	1	2	M4	5	3	3	5.5	90°	75
285166-R	EFH.620/65 S.D.20	65	20	90.5	86	22	19.5	21.5	0.6	0.5	M6	6	3	3	7	120°	110
285171-R	EFH.620/80 S.D.20	80	20	105	101	24	19.5	22.5	0.6	1.5	M6	6	3	3	7	120°	120
285181-R	EFH.620/90 S.D.20	90	20	115	111	25	19.5	23	0.6	2	M6	6	3	3	7	120°	136

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Fold-away handles

Technopolymer

MATERIAL

Polyamide based (PA) technopolymer handle, black colour, matte finish.

STANDARD EXECUTIONS

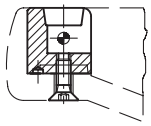
- **IR.620:** black-oxide steel stud, sintered and oxidised steel flat base for embedded mounting, black-oxide steel screw.
- **IR.620-SST**: AISI 303 stainless steel stud, sintered AISI 303 stainless steel flat base for embedded mounting, AISI 303 stainless steel screw.

FEATURES AND APPLICATIONS

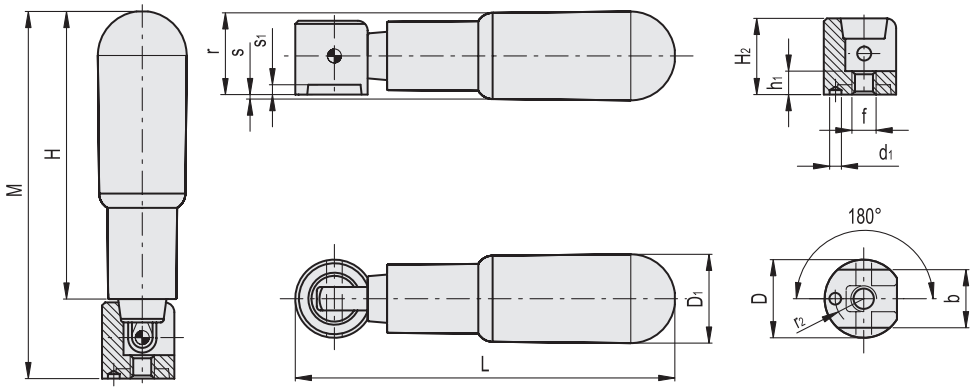
Handle pivots freely during operation: a system of coaxial bushings compensates return spring load.
This series of fold-away handles has been designed for all those applications for which, owing to lack of space or for safety reasons, the handle must be folded-away once the operation has been completed.



Normal assembly example with embedded base



ELESA Original design



IR.620

Code	Description	H	D	L	M	D1	H2	r	s	s1	b	f	h1	d1	r2	⚖
128442	IR.620/45 S.D.16	45	16	63	60	15.5	14	15	0.5	1.7	10	M4	4	3	5.5	36
128444	IR.620/60 S.D.16	60	16	78	74	18	14	16.5	1.5	1.7	10	M4	4	3	5.5	38
128445	IR.620/65 S.D.16	65	16	89.5	80.5	22	14	20.5	1.5	1.7	10	M4	4	3	5.5	74
128446	IR.620/65 S.D.20	65	20	91.5	85	22	18.5	20.5	1.5	2.3	14	M6	5	3	7	78
128447	IR.620/73 S.D.20	73	20	99	93	23	18.5	21	2	2.3	14	M6	5	3	7	86
128448	IR.620/80 S.D.20	80	20	106	100	24	18.5	21.5	2.5	2.3	14	M6	5	3	7	90
128449	IR.620/90 S.D.20	90	20	115.5	110	25	18.5	24.5	0.5	2.3	14	M6	5	3	7	118
128450	IR.620/90 S.D.26	90	26	119	114	25	23	24.5	0.5	2.3	18	M6	7	3	9	145

IR.620-SST **STAINLESS STEEL**

Code	Description	H	D	L	M	D1	H2	r	s	s1	b	f	h1	d1	r2	⚖
128462	IR.620/45-SST-S.D.16	45	16	63	60	15.5	14	15	0.5	1.7	10	M5	4	3	5.5	36
128464	IR.620/60-SST-S.D.16	60	16	78	74	18	14	16.5	1.5	1.7	10	M4	4	3	5.5	38
128465	IR.620/65-SST-S.D.16	65	16	89.5	80.5	22	14	20.5	1.5	1.7	10	M4	4	3	5.5	74
128466	IR.620/65-SST-S.D.20	65	20	91.5	85	22	18.5	20.5	1.5	2.3	14	M6	5	3	7	78
128467	IR.620/73-SST-S.D.20	73	20	99	93	23	18.5	21	2	2.3	14	M6	5	3	7	86
128468	IR.620/80-SST-S.D.20	80	20	106	100	24	18.5	21.5	2.5	2.3	14	M6	5	3	7	90
128469	IR.620/90-SST-S.D.20	90	20	115.5	110	25	18.5	24.5	0.5	2.3	14	M6	5	3	7	118
128470	IR.620/90-SST-S.D.26	90	26	119	114	25	23	24.5	0.5	2.3	18	M6	7	3	9	145

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GN 598.3

Retractable handles

**Rectractable mechanism Steel,
with hold in both positions**

SPECIFICATION

Handle
Plastic **KU**
Duroplast (Phenolic PF)

- temperature resistant up to 110 °C
- black, shiny finish
- revolving

Retractable mechanism
Steel, blackened

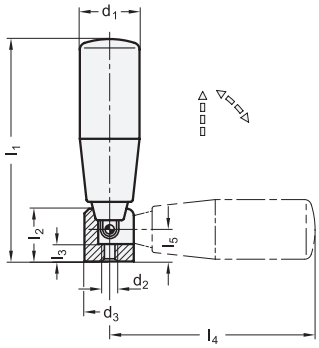
INFORMATION

Retractable handles with hold in both positions GN 598.3 are suitable when the handle must be withdrawn during automatic operations.

TECHNICAL INFORMATION

- Plastic characteristics (see page A2)





GN 598.3

Description	d1	d2	d3	l1 ≈	l2	l3	l4 ≈	l5	⚖
GN 598.3-KU-18	18	M 5	16	57	15	5	52	9.5	50
GN 598.3-KU-21	21	M 5	16	67	15	5	62	9.5	58
GN 598.3-KU-22	22	M 5	16	73	15	5	68	9.5	63
GN 598.3-KU-23	23	M 6	20	87	19.5	6	80	10.5	106
GN 598.3-KU-26	26	M 6	20	102	19.5	6	95	10.5	130
GN 598.3-KU-28	28	M 8	26	118	26	10	106	16	230

GN 598.5

Retractable handles

**Rectractable mechanism Stainless Steel,
with hold in both positions**

SPECIFICATION

Handle
Plastic **KU**
Duroplast (Phenolic PF)

- temperature resistant up to 110 °C
- black, shiny finish
- revolving

Retractable mechanism
Stainless Steel AISI 303

- Stud AISI 303
- Flat base Sintered Steel 316L

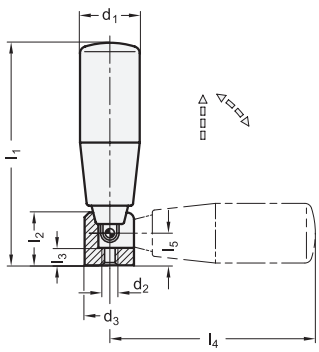
INFORMATION

Retractable handles GN 598.5 are suitable when the handle must be withdrawn during automatic operations.

TECHNICAL INFORMATION

- Plastic characteristics (see page A2)
- Stainless Steel characteristics (see page A26)





GN 598.5 **STAINLESS STEEL**

Description	d1	d2	d3	l1 ≈	l2	l3	l4 ≈	l5	⚖
GN 598.5-KU-23	23	M 6	20	87	19.5	6	80	10.5	102
GN 598.5-KU-26	26	M 6	20	102	19.5	6	95	10.5	134
GN 598.5-KU-28	28	M 8	26	118	26	10	106	16	214

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GN 798.3

Rectractable handles

Rectractable mechanism Steel, with hold in both positions

SPECIFICATION

Handle
Plastic **KT**
Technopolymer (Polyamide PA)

- temperature resistant up to 90 °C
- black, matt finish
- revolving

Retractable mechanism
Steel, blackened

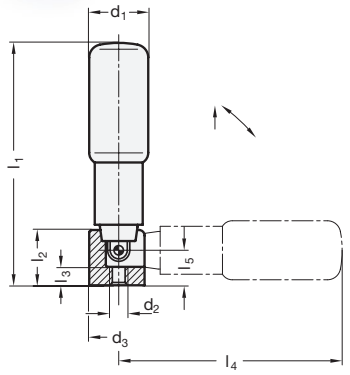
INFORMATION

Typical in design are the retractable handles GN 798.3 with their stepped shape consisting of two cylinders giving the operator a better grip, especially when pulling the handle out from its locked position before it can be folded back into the rest position.
Retractable handles GN 798.3 are suitable when the handle must be withdrawn during automatic operations.

TECHNICAL INFORMATION

- Plastic characteristics (see page A2)





GN 798.3

Description	d1	d2	d3	l1 ≈	l2	l3	l4 ≈	l5	⚖
GN 798.3-KT-16	16	M 5	16	58	15	5	52.5	9.5	35
GN 798.3-KT-18	18	M 5	16	72.5	15	5	67	9.5	41
GN 798.3-KT-22	22	M 6	20	80.5	19.5	6	74	10.5	78
GN 798.3-KT-24	24	M 6	20	95.5	19.5	6	89	10.5	90
GN 798.3-KT-25	25	M 6	20	105.5	19.5	6	98.5	10.5	110

GN 798.5

Rectractable handles

Rectractable mechanism Stainless Steel, with hold in both positions

SPECIFICATION

Handle
Plastic **KT**
Technopolymer (Polyamide PA)

- temperature resistant up to 90 °C
- black, matt finish
- revolving

Retractable mechanism
Stainless Steel AISI 303

- Axle parts AISI 303
- Flat base Sintered Steel 316L

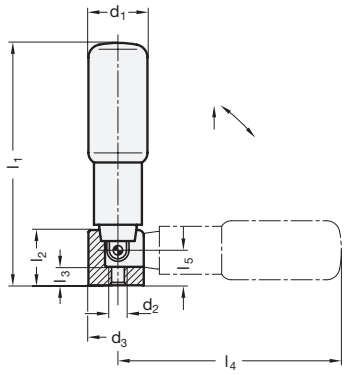
INFORMATION

Typical in design are the retractable handles GN 798.5 with their stepped shape consisting of two cylinders giving the operator a better grip, especially when pulling the handle out from its locked position before it can be folded back into the rest position.
Retractable handles GN 798.5 are suitable when the handle must be withdrawn during automatic operations.

TECHNICAL INFORMATION

- Plastic characteristics (see page A2)
- Stainless Steel characteristics (see page A26)





GN 798.5 **STAINLESS STEEL**

Description	d1	d2	d3	l1 ≈	l2	l3	l4 ≈	l5	⚖
GN 798.5-KT-16	16	M 5	16	58	15	5	52.5	9.5	35
GN 798.5-KT-18	18	M 5	16	72.5	15	5	67	9.5	45
GN 798.5-KT-22	22	M 6	20	80.5	19.5	6	74	10.5	84
GN 798.5-KT-24	24	M 6	20	95.5	19.5	6	89	10.5	95
GN 798.5-KT-25	25	M 6	20	105.5	19.5	6	98.5	10.5	110

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GN 798.7

Safety retractable handles

automatic return to the retracted position

SPECIFICATION

Handle
Plastic **KT**
Technopolymer (Polyamide PA)

- temperature resistant up to 90 °C
- black, matt finish
- revolving

Retractable mechanism
Steel, blackened



INFORMATION

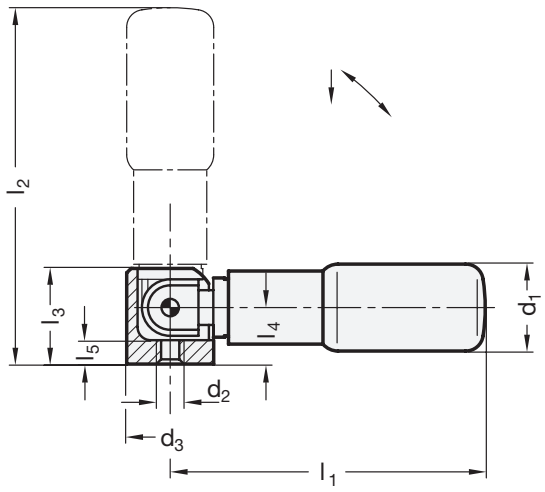
Safety retractable handles GN 798.7 are suitable for applications where the handle must not remain in the operating position.
In order to bring the handle into the operating position it has to be turned first through 90° to a stop against a torsion spring and then it is pushed against spring pressure into its hold position.
By maintaining the forward thrust on the handle, the handwheel can easily be rotated.
When "releasing" the handle, the springs return it back to the retracted position.

ON REQUEST

- Stainless Steel-Safety retractable handles

TECHNICAL INFORMATION

- Plastic characteristics (see page A2)



GN 798.7

Description	d1	d2	d3	l1	l2 ≈	l3	l4	l5	⚖
GN 798.7-KT-22	22	M 6	20	73	82	22	13	5.5	81
GN 798.7-KT-24	24	M 6	20	88	97	22	13	5.5	91
GN 798.7-KT-25	25	M 6	20	98	107	22	13	5.5	101

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Safety fold-away handles

Technopolymer

MATERIAL

High-resilience polypropylene based (PP) technopolymer handle, black colour, matte finish.

STANDARD EXECUTIONS

- **IRS.802:** black-oxide steel double guide stud, sintered and oxidised steel flat base for embedded mounting, black-oxide steel screw.
- **IRS.802-SST:** AISI 303 stainless steel double guide stud, sintered AISI 303 stainless steel flat base for embedded mounting, AISI 303 stainless steel screw.

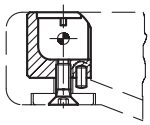
FEATURES AND APPLICATIONS

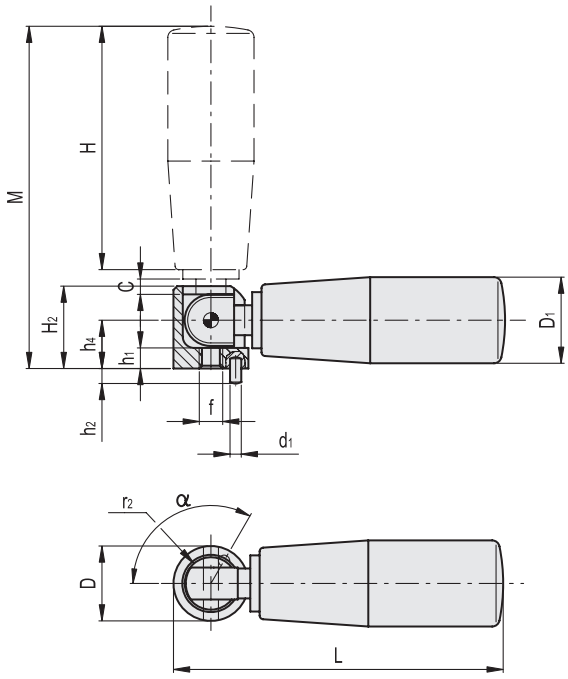
Handle pivots freely during operation: a system of coaxial bushings compensates return spring load.
The safety fold-away handle (ELESA patent) is provided with a special return mechanism "Fold-O-matic"® which automatically folds the handle into the retracted position when the operation has been completed. A light pressure on the handle in the direction of the handwheel axes is enough to bring it in the operation position allowing the operator to turn the handwheel freely.



ELESA Original design

Normal assembly example with embedded base





IRS.802

Code	Description	H	D	L	M	D1	H2	C	f	h1	h4	d1	h2 -0.2	r2	α	⚖
28471	IRS.802/65 FOLD-O-MATIC	65	20	88	91	23	22	4	M6	5.5	13	3	3	7	120°	90
28475	IRS.802/80 FOLD-O-MATIC	80	20	104	107	26	22	4	M6	5.5	13	3	3	7	120°	100
28481	IRS.802/90 FOLD-O-MATIC	90	20	114	117	28	22	4	M6	5.5	13	3	3	7	120°	110

IRS.802-SST **STAINLESS STEEL**

Code	Description	H	D	L	M	D1	H2	C	f	h1	h4	d1	h2 -0.2	r2	α	⚖
28477	IRS.802/80-FOLD-O-MATIC-SST	80	20	104	107	26	22	4	M6	5.5	13	3	3	7	120°	101
28483	IRS.802/90-FOLD-O-MATIC-SST	90	20	114	117	28	22	4	M6	5.5	13	3	3	7	120°	111

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IRS.820

Safety fold-away handles

Technopolymer

MATERIAL

Glass-fibre reinforced polyamide based (PA) technopolymer handle, black colour, matte finish.

STANDARD EXECUTIONS

- **IRS.820:** black-oxide steel stud, glass-fibre reinforced technopolymer flat base for embedded mounting, black colour, black-oxide steel screw.
- **IRS.820-SST:** AISI 303 stainless steel double guide stud, glass-fibre reinforced technopolymer flat base for embedded mounting, black colour, AISI 303 stainless steel screw.

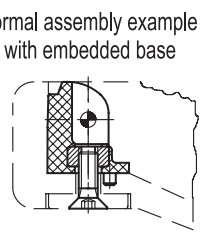
FEATURES AND APPLICATIONS

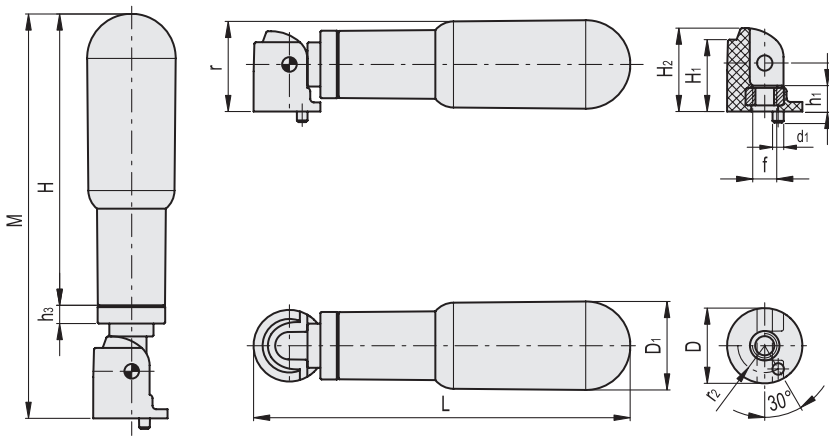
Handle pivots freely during operation: a system of coaxial bushings compensates return spring load.
The safety fold-away handle (ELESA patent) is provided with a special return mechanism "Fold-O-matic"® which automatically folds the handle into the retracted position when the operation has been completed. A light pressure on the handle in the direction of the handwheel axes is enough to bring it in the operation position allowing the operator to turn the handwheel freely.



ELESA Original design

Normal assembly example with embedded base





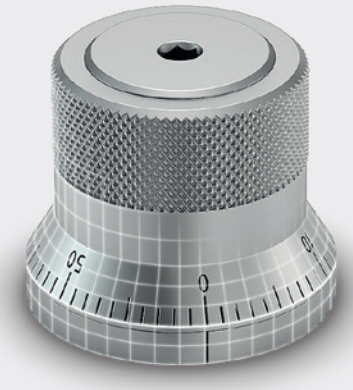
IRS.820

Code	Description	H	D	L	M	D1	H1	H2	r	f	h1	h2	h3	h4	d1	r2	⚖
28491	IRS.820/65 FOLD-O-MATIC	65	20	88	95	22	19	22	24	M6	7	3	4	13	3	7	73
28492	IRS.820/80 FOLD-O-MATIC	80	20	103	110	24	19	22	25	M6	7	3	4	13	3	7	80
28493	IRS.820/90 FOLD-O-MATIC	90	20	112	119	25	19	22	26	M6	7	3	4	13	3	7	87

IRS.820-SST — **STAINLESS STEEL**

Code	Description	H	D	L	M	D1	H1	H2	r	f	h1	h2	h3	h4	d1	r2	⚖
28496	IRS.820/65 FOLD-O-MATIC-SST	65	20	88	95	22	19	22	24	M6	7	3	4	13	3	7	73
28497	IRS.820/80 FOLD-O-MATIC-SST	80	20	103	110	24	19	22	25	M6	7	3	4	13	3	7	80
28498	IRS.820/90 FOLD-O-MATIC-SST	90	20	112	119	25	19	22	26	M6	7	3	4	13	3	7	87

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DESIGNED
FOR ENGINEERING

6 Control elements



Control knobs

Control levers

Linear slides

Bull's eye levels

Scale rings





SPECIFICATION

Types

Type **MCR**: matt chrome plated
Type **MCRS**: matt chrome plated, standard scale 0...90, 100 graduations, acc. scale scheme d1/100 A RA 0-10-20...90/10

Bore codes

- Version **B**: without friction ring
- Version **R**: with friction ring

Steel

- Knurl milled
- Scale lug d1 fine turned
- blank (standard version)
- matt chrome plated **MCR**
- matt chrome plated with standard scale **MCRS**

Scale
engraved with laser precision, black

Clamp ring Rubber

Friction ring Polyamide

INFORMATION

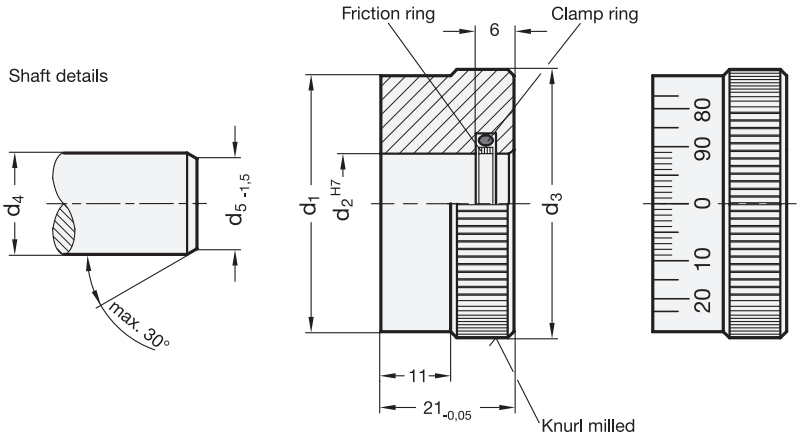
The non-wearing friction ring ensures perfect engagement of the scale ring when re-aligning the spindle. In addition it allows the setting of the scale ring on a static shaft.
Also this scale rings can be supplied with any type of graduation.
Regarding design, numbering run, numbering position and numbering sequence of the scale please see the layout for scale rings on the order sheet "How to order graduations" (see page 594).

ON REQUEST

- special graduations see "How to order graduations" (see page 594)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)



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GN 164

Description	d1 ±0.02	d2 H7	d3	d4 -0.02/-0.05	d5	⚖
GN 164-30-B12	30	12	31.7	12	10.5	98
GN 164-30-B14	30	14	31.7	14	10.5	90
GN 164-40-B14	40	14	41.3	14	12.5	180
GN 164-40-B16	40	16	41.3	16	12.5	172
GN 164-50-B16	50	16	51.8	16	14.5	292
GN 164-50-B18	50	18	51.8	18	14.5	282
GN 164-60-B18	60	18	61.4	18	16.5	420
GN 164-60-B20	60	20	61.4	20	16.5	413
GN 164-30-R12	30	12	31.7	12	10.5	100
GN 164-30-R14	30	14	31.7	12	10.5	92
GN 164-40-R14	40	14	41.3	14	12.5	182
GN 164-40-R16	40	16	41.3	16	12.5	174
GN 164-50-R16	50	16	51.8	16	14.5	293
GN 164-50-R18	50	18	51.8	18	14.5	283
GN 164-60-R18	60	18	61.4	18	16.5	424
GN 164-60-R20	60	20	61.4	20	16.5	413

GN 164-MCR/MCRS

Description	d1 ±0.02	d2 H7	d3	d4 -0.02/-0.05	d5	⚖
GN 164-30-B12-MCR	30	12	31.7	12	10.5	98
GN 164-30-B14-MCR	30	14	31.7	14	10.5	90
GN 164-40-B14-MCR	40	14	41.3	14	12.5	180
GN 164-40-B16-MCR	40	16	41.3	16	12.5	172
GN 164-50-B16-MCR	50	16	51.8	16	14.5	292
GN 164-50-B18-MCR	50	18	51.8	18	14.5	281
GN 164-60-B18-MCR	60	18	61.4	18	16.5	422
GN 164-60-B20-MCR	60	20	61.4	20	16.5	413
GN 164-30-B12-MCRS	30	12	31.7	12	10.5	98
GN 164-30-B14-MCRS	30	14	31.7	14	10.5	90
GN 164-40-B14-MCRS	40	14	41.3	14	12.5	180
GN 164-40-B16-MCRS	40	16	41.3	16	12.5	172
GN 164-50-B16-MCRS	50	16	51.8	16	14.5	292
GN 164-50-B18-MCRS	50	18	51.8	18	14.5	281
GN 164-60-B18-MCRS	60	18	61.4	18	16.5	422
GN 164-60-B20-MCRS	60	20	61.4	20	16.5	413
GN 164-30-R12-MCR	30	12	31.7	12	10.5	100
GN 164-30-R14-MCR	30	14	31.7	14	10.5	92
GN 164-40-R14-MCR	40	14	41.3	14	12.5	184
GN 164-40-R16-MCR	40	16	41.3	16	12.5	174
GN 164-50-R16-MCR	50	16	51.8	16	14.5	293
GN 164-50-R18-MCR	50	18	51.8	18	14.5	285
GN 164-60-R18-MCR	60	18	61.4	18	16.5	424
GN 164-60-R20-MCR	60	20	61.4	20	16.5	413
GN 164-30-R12-MCRS	30	12	31.7	12	10.5	100
GN 164-30-R14-MCRS	30	14	31.7	14	10.5	92
GN 164-40-R14-MCRS	40	14	41.3	14	12.5	162
GN 164-40-R16-MCRS	40	16	41.3	16	12.5	174
GN 164-50-R16-MCRS	50	16	51.8	16	14.5	293
GN 164-50-R18-MCRS	50	18	51.8	18	14.5	283
GN 164-60-R18-MCRS	60	18	61.4	18	16.5	424
GN 164-60-R20-MCRS	60	20	61.4	20	16.5	413

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Graduations

"How to order"

Graduations can be laser-engraved on the plain surface of the control knobs and on plain flanges with high-precision and perfect readability. The graduations, consisting of marks and numbers, are available as indicated in the diagram here below.
All the graduations are available for minimum quantities that depend on the size of the knob and on the type of graduation chosen. These quantities are determined during the quotation analysis.

Graduations can be engraved on the following elements:

- GN 164 (see page 592)
- GN 726.1 (see page 600)
- GN 726.2 (see page 601)
- IZP. (see page 608)
- IZN.380 (see page 606)
- F.N - F.K. -F.GS (see page 609)
- GN 264 (see page 597)
- GN 436.1 (see page 603)
- GN 723.4 (see page 604)
- GN 736.1 (see page 617)
- GN 727 (see page 620)
- GN 200 (see page 622)
- GN 700 (see page 624)

To create graduations on other elements, special graduations, symbols or personalisations, please contact the ELESA+GANTER sales departments.



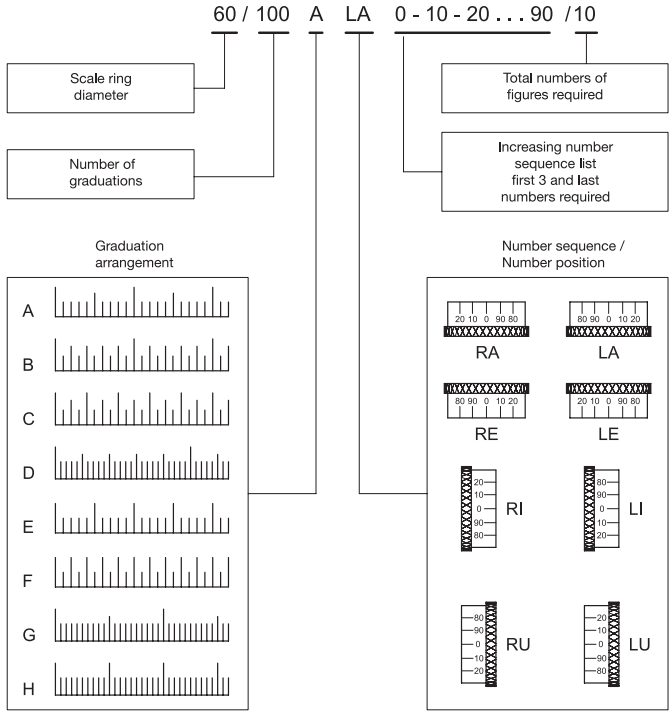
Graduation examples

Order example

How to order a graduation on a scale ring GN 164 knob with:
- diameter 60 mm
- 100 marks
- graduation type A
- sequence/graduation position type LA
- figures engraved from 0 to 90 for a total of 10 numbers.

Information

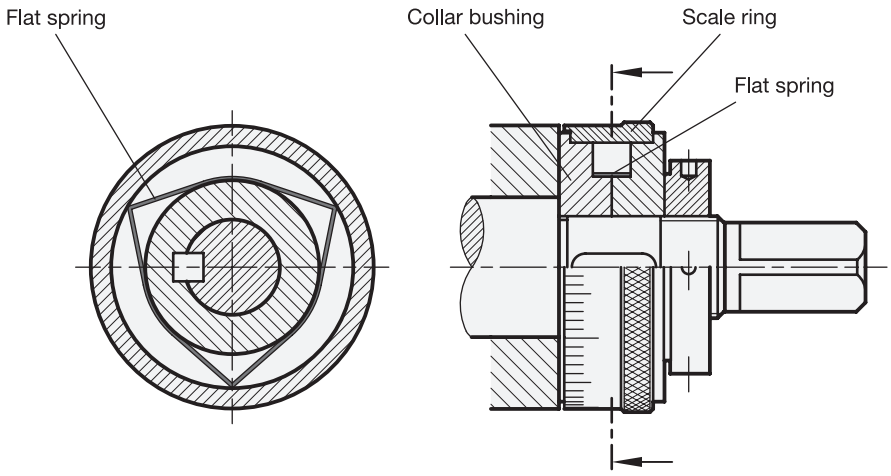
The size of numbers and length of graduations depend on the number of graduations, quantity of numbers and the scale ring diameter.



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Scaling sets

Assembly and installation example



A complete scale set is composed of:

1 Scale ring	2 Collar bushings	3 Flat springs
GN 264-30	GN 268-24-K12	GN 374-0,3-10
GN 264-40	GN 268-32-K12	GN 374-0,4-10
GN 264-40	GN 268-32-K14	GN 374-0,4-10
GN 264-40	GN 268-32-K16	GN 374-0,4-10
GN 264-60	GN 268-50-K12	GN 374-0,6-10
GN 264-60	GN 268-50-K16	GN 374-0,6-10
GN 264-60	GN 268-50-K20	GN 374-0,6-10
GN 264-60	GN 268-50-K28	GN 374-0,6-10
GN 264-80	GN 268-68-K12	GN 374-0,8-10
GN 264-80	GN 268-68-K14	GN 374-0,8-10
GN 264-80	GN 268-68-K16	GN 374-0,8-10
GN 264-80	GN 268-68-K22	GN 374-0,8-10

Information

The scale set is used for the precision setting of all machine components which are adjustable via spindles.

All individual parts are made of steel. The flat springs are a perfect and virtually non-wearing connecting link between scale ring and spindle or collar bushings. When adjusting the spindle, they ensure that the scale ring is safely driven without impairing the setting options of the ring when the shaft is at rest.

The individual parts belonging to a scale set must be ordered separately.

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RoHS

Flat springs

Accessories for scaling sets

SPECIFICATION

Steel
blank

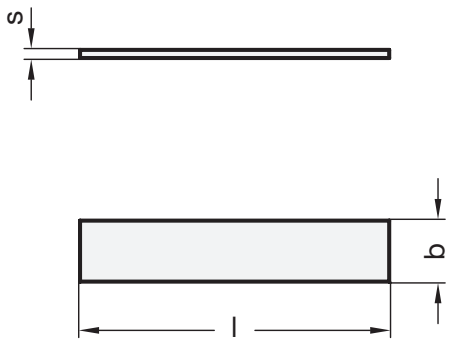
INFORMATION

Flat springs GN 374 present an ideal and practical connection piece between scale ring and shaft resp. collar bushes.
When adjusting the shaft, the flat springs guarantee the move of the scale ring without affecting the possibility of adjustment of the scale ring when the shaft does not turn.

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)





GN 374

Description	s	b	l	⚖
GN 374-0,3-10	0.3	10	21	1
GN 374-0,4-10	0.4	10	29	1
GN 374-0,6-10	0.6	10	45	3
GN 374-0,8-10	0.8	10	60	4

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GN 264

Graduated rings

Steel, matt chrome plated / blank





SPECIFICATION

Types

Type **MCR**: matt chrome plated
Type **MCRS**: matt chrome plated, standard scale 0...90, 100 graduations, acc. scale scheme d1/100 A RA 0-10-20...90/10

Steel

- Scale lug d1 fine turned
- blank (standard version)
- matt chrome plated **MCR**
- matt chrome plated with standard scale **MCRS**

Scale
engraved with laser precision, black

INFORMATION

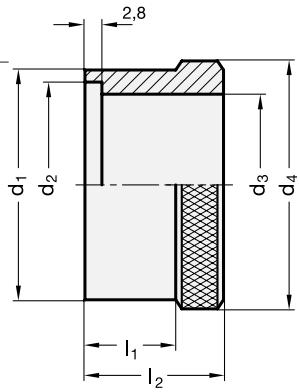
Besides the standard scale (Type MCRS) the scale rings can be supplied with any type of graduation. It is suggested to use the matt chrome plated version (MCR) so that a nice discrepancy in colour is given.
Regarding design, numbering run, numbering position and numbering sequence of the scale please see the layout for scale rings on the order sheet "How to order Graduations" (see page 594).

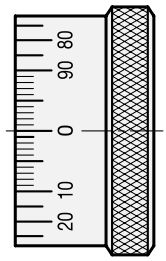
ON REQUEST

- special graduations see "How to order graduations" (see page 594)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)





GN 264

Description	d1	d2	d3 H7	d4	l1	l2	Scaling set consists of: 1 Scale ring 2 Collar bushes	Scaling set consists of: 1 Scale ring 3 Flat springs	⚖
GN 264-30	30	27	24	33	16	23.7	GN 268-24-K...	GN 374-0.3-10	49
GN 264-40	40	36	32	43	16	23.7	GN 268-32-K...	GN 374-0.4-10	86
GN 264-60	60	55	50	63	16	25.7	GN 268-50-K...	GN 374-0.6-10	177
GN 264-80	80	75	68	83	16	25.7	GN 268-68-K...	GN 374-0.8-10	282

GN 264-MCR/MCRS

Description	d1	d2	d3 H7	d4	l1	l2	Scaling set consists of: 1 Scale ring 2 Collar bushes	Scaling set consists of: 1 Scale ring 3 Flat springs	⚖
GN 264-30-MCR	30	27	24	33	16	23.7	GN 268-24-K...	GN 374-0.3-10	58
GN 264-30-MCRS	30	27	24	33	16	23.7	GN 268-24-K...	GN 374-0.3-10	58
GN 264-40-MCR	40	36	32	43	16	23.7	GN 268-32-K...	GN 374-0.4-10	86
GN 264-40-MCRS	40	36	32	43	16	23.7	GN 268-32-K...	GN 374-0.4-10	86
GN 264-60-MCR	60	55	50	63	16	25.7	GN 268-50-K...	GN 374-0.6-10	177
GN 264-60-MCRS	60	55	50	63	16	25.7	GN 268-50-K...	GN 374-0.6-10	177
GN 264-80-MCR	80	75	68	83	16	25.7	GN 268-68-K...	GN 374-0.8-10	282
GN 264-80-MCRS	80	75	68	83	16	25.7	GN 268-68-K...	GN 374-0.8-10	282

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Collar bushes

Accessories for scaling sets

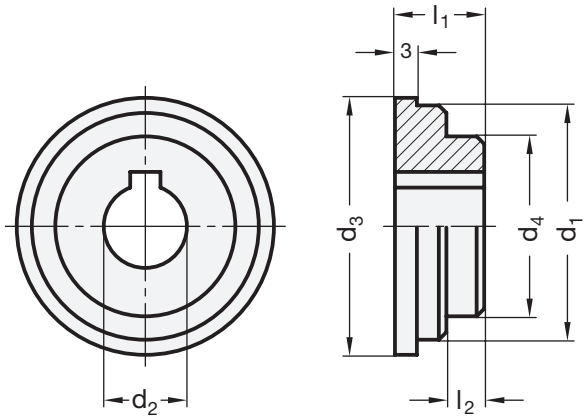
SPECIFICATION

Steel
blank

TECHNICAL INFORMATION

- Keyway P9 DIN 6885 (see page A16)
- ISO-Fundamental Tolerances (see page A21)





GN 268

Description	d1 f7	d2 H7	d3	d4	l1	l2	Scaling set consists of: 2 Collar bushes 1 Scale ring	Scaling set consists of: 2 Collar bushes 3 Flat springs	⚖
GN 268-24-K12	24	K 12	26.7	18	13.5	5.5	GN 264-30	GN 374-0.3-10	28
GN 268-32-K12	32	K 12	35.7	25	13.5	5.5	GN 264-40	GN 374-0.4-10	61
GN 268-32-K14	32	K 14	35.7	25	13.5	5.5	GN 264-40	GN 374-0.4-10	57
GN 268-32-K16	32	K 16	35.7	25	13.5	5.5	GN 264-40	GN 374-0.4-10	51
GN 268-50-K12	50	K 12	54.7	38	14.5	5.5	GN 264-60	GN 374-0.6-10	180
GN 268-50-K16	50	K 16	54.7	38	14.5	5.5	GN 264-60	GN 374-0.6-10	169
GN 268-50-K20	50	K 20	54.7	38	14.5	5.5	GN 264-60	GN 374-0.6-10	153
GN 268-50-K28	50	K 28	54.7	38	14.5	5.5	GN 264-60	GN 374-0.6-10	119
GN 268-68-K12	68	K 12	74.7	50	14.5	5.5	GN 264-80	GN 374-0.8-10	334
GN 268-68-K14	68	K 14	74.7	50	14.5	5.5	GN 264-80	GN 374-0.8-10	332
GN 268-68-K16	68	K 16	74.7	50	14.5	5.5	GN 264-80	GN 374-0.8-10	325
GN 268-68-K22	68	K 22	74.7	50	14.5	5.5	GN 264-80	GN 374-0.8-10	304

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GN 726

Knurled Control knobs

Aluminium

SPECIFICATION

Types

- Type **N**: Cover neutral
- Type **M**: Cover with indicator point

Identification no.

- No. **1**: with grub screw
- No. **2**: with collet

Aluminium
anodized, black

Cover
Plastic, light grey

Collet / hexagon nut
Brass

Stainless Steel-Grub screw DIN 916
with internal hexagon and serrated point

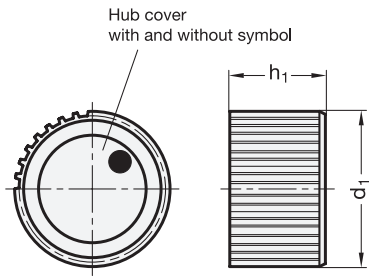


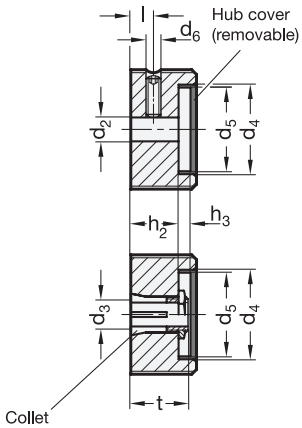
INFORMATION

The light grey cover of the control knobs GN 726 shrouds the fixing components as well as the shaft end. The cover also lends itself for a logo or other symbols.
Made from an aluminum extrusion allows the manufacture of **customized solutions** in existing diameters at relatively low cost.

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)





GN 726

Description	d1	d2 H8	d3	d4	d5	d6	h1	h2	h3	l	t	⚖
GN 726-22-B5-N-1	22	B 5	-	16	14	M 4	15	9	4.3	5	-	11
GN 726-27-B6-N-1	27	B 6	-	20	18	M 4	17	11	4.3	5.5	-	21
GN 726-34-B6-N-1	34	B 6	-	25	23	M 5	20	14	4.2	7	-	39
GN 726-34-B8-N-1	34	B 8	-	25	23	M 5	20	14	4.2	7	-	38
GN 726-42-B8-N-1	42	B 8	-	32	30	M 5	23	17	4	8.5	-	69
GN 726-42-B10-N-1	42	B 10	-	32	30	M 5	23	17	4	8.5	-	67
GN 726-22-B5-M-1	22	B 5	-	16	14	M 4	15	9	4.3	5	-	11
GN 726-27-B6-M-1	27	B 6	-	20	18	M 4	17	11	4.3	5.5	-	21
GN 726-34-B6-M-1	34	B 6	-	25	23	M 5	20	14	4.2	7	-	39
GN 726-34-B8-M-1	34	B 8	-	25	23	M 5	20	14	4.2	7	-	38
GN 726-42-B8-M-1	42	B 8	-	32	30	M 5	23	17	4	8.5	-	69
GN 726-42-B10-M-1	42	B 10	-	32	30	M 5	23	17	4	8.5	-	67
GN 726-27-Z6-N-2	27	-	Z 6	20	18	-	17	11	4.3	-	14	23
GN 726-34-Z8-N-2	34	-	Z 8	25	23	-	20	14	4.2	-	17	42
GN 726-42-Z10-N-2	42	-	Z 10	32	30	-	23	17	4	-	20	73
GN 726-27-Z6-M-2	27	-	Z 6	20	18	-	17	11	4.3	-	14	23
GN 726-34-Z8-M-2	34	-	Z 8	25	23	-	20	14	4.2	-	17	42
GN 726-42-Z10-M-2	42	-	Z 10	32	30	-	23	17	4	-	20	73

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Knurled Control knobs

Aluminium



SPECIFICATION

Types

- Type **A**: with arrow
- Type **B**: neutral, without indicator point or scale
- Type **S**: with scale 0...9, 20 graduations

Identification no.

- No. **1**: with grub screw
- No. **2**: with collet

Aluminium
anodized, black

Scale (Type S) and arrow (Type A)
white, engraved with laser precision

Cover
Plastic, light grey

Collet / hexagon nut
Brass

Stainless Steel-Grub screw DIN 916
with internal hexagon and serrated point

INFORMATION

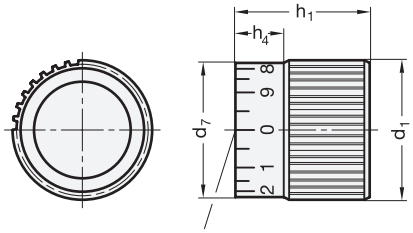
The light grey cover of the control knobs GN 726.1 shrouds the fixing components as well as the shaft end. The cover also lends itself for a logo or other symbols.
The collet version permits a simple adjustment of the types with scale or arrow.
Scale and arrow on the control knobs are indelibly marked and easily legible.
Besides the standard scale (Type S) the control knobs can be supplied with any type of graduation.
Regarding design, numbering run, numbering position and mubering sequence of the scale please see the layout for scale rings on the order sheet "How to order graduations" (see page 594).

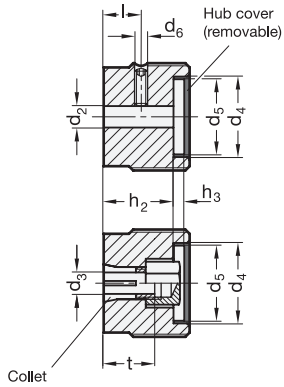
ON REQUEST

- special graduations see "How to order graduations" (see page 594)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)





*Complete with types of the Knurled Control knobs (A, B or S)

A	B	S
with arrow	neutral	with scale

GN 726.1

Description	d1	d2 H8	d3	d4	d5	d6	d7	h1	h2	h3	h4	l	t	⚖
GN 726.1-22-B5-*-1	22	B 5	-	16	14	M 4	20	22	16	4.3	8	12.5	-	17
GN 726.1-27-B6-*-1	27	B 6	-	20	18	M 4	25	26	20	4.3	9	14	-	32
GN 726.1-34-B6-*-1	34	B 6	-	25	23	M 5	32	30	24	4.2	10	15	-	59
GN 726.1-34-B8-*-1	34	B 8	-	25	23	M 5	32	30	24	4.2	10	15	-	58
GN 726.1-42-B8-*-1	42	B 8	-	32	30	M 5	40	34	28	4	11	16	-	102
GN 726.1-42-B10-*-1	42	B 10	-	32	30	M 5	40	34	28	4	11	16	-	101
GN 726.1-27-Z6-*-2	27	-	Z 6	20	18	-	25	26	20	4.3	9	14	14	37
GN 726.1-34-Z8-*-2	34	-	Z 8	25	23	-	32	30	24	4.2	10	15	17	65
GN 726.1-42-Z10-*-2	42	-	Z 10	32	30	-	40	34	28	4	11	16	20	112

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GN 726.2

Knurled Control knobs

Aluminum



SPECIFICATION

Types

- Type **A**: with arrow
- Type **B**: neutral, without indicator point or scale
- Type **S**: with scale 0...9, 20 graduations

Identification no.

- No. **1**: with grub screw
- No. **2**: with collet

Aluminium
anodized, black

Scale ring
Plastic, black
pressed on

Arrow (Type A)
and scale (Type S)
white, engraved with laser precision

Cover
Plastic, light grey

Collet / hexagon nut
Brass

Stainless Steel-Grub screw DIN 916
with internal hexagon and serrated point

INFORMATION

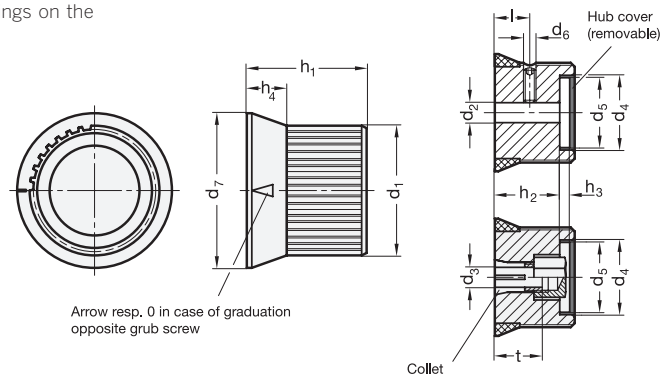
The light grey cover of the control knobs GN 726.2 shrouds the fixing components as well as the shaft end. The cover also lends itself for a logo or other symbols.
The collet version permits a simple adjustment of the types with scale or arrow.
Besides the standard scale (Type S) the control knobs can be supplied with any type of graduation.
Regarding design, numbering run, numbering position and mubering sequence of the scale please see the layout for scale rings on the order sheet "How to order graduations" (see page 594).

ON REQUEST

- special graduations see "How to order graduations" (see page 594)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)



*Complete with types of the Knurled Control knobs (A, B or S)

A	B	S
with arrow	neutral	with scale

GN 726.2

Description	d1	d2 H8	d3	d4	d5	d6	d7	h1	h2	h3	h4	l	t	⚖
GN 726.2-22-B5-*-1	22	B 5	-	16	14	M 4	27.5	22	16	4.3	8	12.5	-	20
GN 726.2-27-B6-*-1	27	B 6	-	20	18	M 4	33.5	26	20	4.3	9	14	-	36
GN 726.2-34-B6-*-1	34	B 6	-	25	23	M 5	41	30	24	4.2	10	15	-	64
GN 726.2-34-B8-*-1	34	B 8	-	25	23	M 5	41	30	24	4.2	10	15	-	63
GN 726.2-42-B8-*-1	42	B 8	-	32	30	M 5	50	34	28	4	11	16	-	109
GN 726.2-42-B10-*-1	42	B 10	-	32	30	M 5	50	34	28	4	11	16	-	108
GN 726.2-27-Z6-*-2	27	-	Z 6	20	18	-	33.5	26	20	4.3	9	-	14	41
GN 726.2-34-Z8-*-2	34	-	Z 8	25	23	-	41	30	24	4.2	10	-	17	70
GN 726.2-42-Z10-*-2	42	-	Z 10	32	30	-	50	34	28	4	11	-	20	119

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GN 436

Stainless Steel-Control knobs

SPECIFICATION

Types

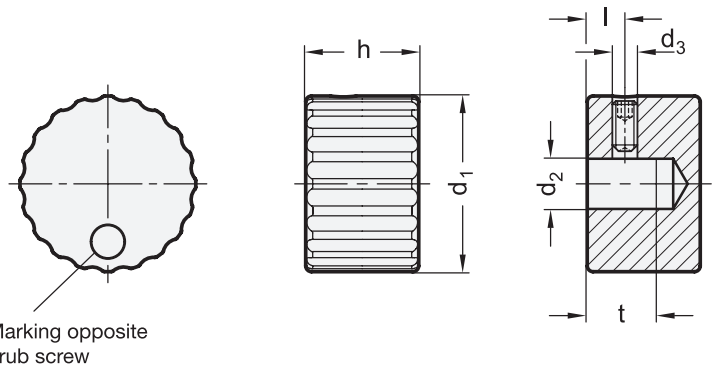
- Type **N**: without indicator point
- Type **M**: with indicator point

Stainless Steel AISI 304
matt shot-blasted **MT**

Indicator point (Type M)
engraved with laser precision

Stainless Steel-Grub screw DIN 916
with internal hexagon and serrated point





GN 436 **STAINLESS STEEL**

Description	d1	d2 H8	d3	h	l	t min.	⚖
GN 436-24-B5-N-MT	24	B 5	M 4	16	4	10	53
GN 436-24-B6-N-MT	24	B 6	M 4	16	4	10	52
GN 436-28-B6-N-MT	28	B 6	M 4	18	4	11	80
GN 436-28-B8-N-MT	28	B 8	M 4	18	4	11	78
GN 436-24-B5-M-MT	24	B 5	M 4	16	4	10	53
GN 436-24-B6-M-MT	24	B 6	M 4	16	4	10	52
GN 436-28-B6-M-MT	28	B 6	M 4	18	4	11	80
GN 436-28-B8-M-MT	28	B 8	M 4	18	4	11	78

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GN 436.1

Stainless Steel-Knurled Control knobs

SPECIFICATION

Types

- Type **A**: with arrow
- Type **B**: neutral, without arrow or scale
- Type **S**: with standard scale 0...9, 20 graduations

Stainless Steel AISI 304
matt shot-blasted **MT**

Scale (Type S) and arrow (Type A)
engraved with laser precision

Stainless Steel-Grub screw DIN 916
with internal hexagon and serrated point

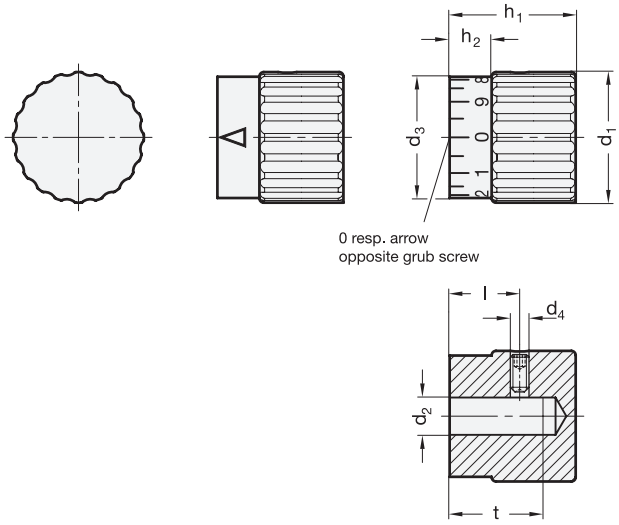


INFORMATION

Scale and arrow on the Stainless Steel-control knobs GN 436.1 are indelibly marked and easily legible.
Besides the standard scale (Type S) the control knobs can be supplied with any type of graduation.
Regarding design, numbering run, numbering position and numbering sequence of the scale please see the layout for scale knobs on the order sheet "How to order graduations" (see page 594).

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)



GN 436.1 — **STAINLESS STEEL**

Description	d1	d2 H8	d3	d4	h1	h2	l	t min.	⚖
GN 436.1-24-B5-A-MT	24	B 5	22	M 4	24	8	12	18	80
GN 436.1-24-B6-A-MT	24	B 6	22	M 4	24	8	12	18	80
GN 436.1-28-B6-A-MT	28	B 6	26	M 4	27	9	13	20	116
GN 436.1-28-B8-A-MT	28	B 8	26	M 4	27	9	13	20	115
GN 436.1-24-B5-B-MT	24	B 5	22	M 4	24	8	12	18	80
GN 436.1-24-B6-B-MT	24	B 6	22	M 4	24	8	12	18	79
GN 436.1-28-B6-B-MT	28	B 6	26	M 4	27	9	13	20	116
GN 436.1-28-B8-B-MT	28	B 8	26	M 4	27	9	13	20	114
GN 436.1-24-B5-S-MT	24	B 5	22	M 4	24	8	12	18	84
GN 436.1-24-B6-S-MT	24	B 6	22	M 4	24	8	12	18	83
GN 436.1-28-B6-S-MT	28	B 6	26	M 4	27	9	13	20	120
GN 436.1-28-B8-S-MT	28	B 8	26	M 4	27	9	13	20	119

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Knurled Control knobs

Aluminium

SPECIFICATION

Types

- Type **N**: neutral
- Type **M**: with arrow
- Type **S**: with scale 0...9, 20 graduations

Aluminium
anodized, natural colour

Scale (Type S) and arrow (Type M)
engraved with laser precision

Stainless Steel-Grub screw DIN 916
with internal hexagon and serrated point

INFORMATION

Control knobs GN 723.4 can be combined with reference flanges GN 723.3 which offer the following advantages:
- they are provided with a reference mark relating to the scale on the control knobs
- they give additional support to the control shaft.
- the version with a friction ring prevents unexpected movement through vibration.

Scale and arrow on the control knobs are indelibly marked and easily legible. Besides the standard scale (Type S) they can be supplied with any type of graduation.
Regarding design, numbering run, numbering position and numbering sequence of the scale please see the layout for scale knobs on the order sheet "How to order graduations" (see page 594).

ACCESSORY

- Reference flanges GN 723.3 (see page 605) are to be ordered seperately)

ON REQUEST

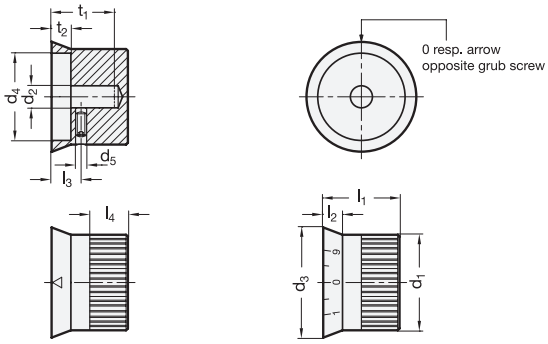
- special graduations see "How to order graduations" (see page 594)

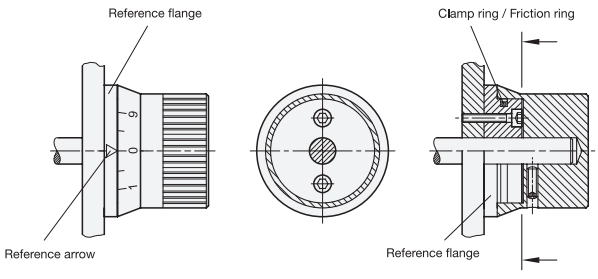
TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)

CONTROL KNOB GN 723.4 COMBINED WITH A REFERENCE FLANGE GN 723.3







*Complete with types of the Knurled Control knobs (N, M or S)

N	M	S
neutral	with arrow	with scale

GN 723.4

Description	d1	d2 H8	d3 -0.2	d4	d5	l1	l2	l3	l4	t1	t2	⚖
GN 723.4-27-B6-*	27	B 6	33.5	23.5	M 4	25.5	7.5	10.5	12.5	23.5	7.5	38
GN 723.4-34-B6-*	34	B 6	41	29.5	M 5	29.5	9.5	13.5	13	26.5	9.5	60
GN 723.4-34-B8-*	34	B 8	41	29.5	M 5	29.5	9.5	13.5	13	26.5	9.5	53
GN 723.4-42-B8-*	42	B 8	50	37.5	M 5	33.5	10.5	15.5	15	30.5	11.5	100
GN 723.4-42-B10-*	42	B 10	50	37.5	M 5	33.5	10.5	15.5	15	30.5	11.5	99

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GN 723.3

Reference flanges

for control knobs GN 723.4



SPECIFICATION

Types

- Type **A**: with fricition ring
- Type **B**: without friction ring

Aluminium
anodized, black

Reference arrow
white, engraved with laser precision

Clamping ring
Rubber

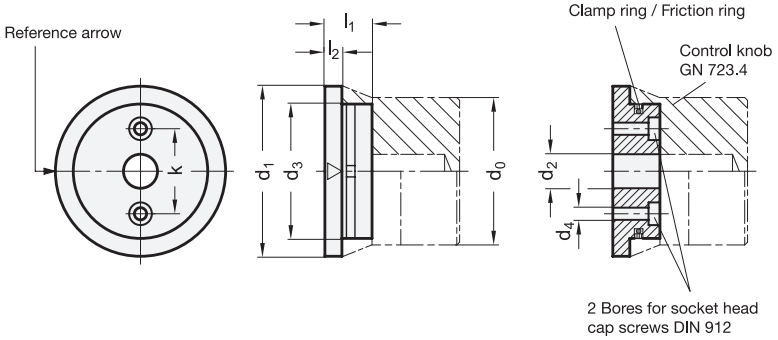
Friction ring
Polyamide

INFORMATION

Reference flanges GN 723.3 are used together with control knobs GN 723.4 which offer the following advantages:
- they have a reference mark to line up with the control knob scale,
- they offer additional support for the control shaft.
- the version with friction ring prevents an unexpected movement of the control knob by vibration.

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)



GN 723.3

Description	d0	d1	d2 H8	d3 -0.1	d4	k	l1	l2	⚖
GN 723.3-33,5-B6-A	27	33.5	B 6	23.3	3.4	13	11.2	4	16
GN 723.3-41-B6-A	34	41	B 6	29.3	3.4	18	14.2	5	33
GN 723.3-41-B8-A	34	41	B 8	29.3	3.4	18	14.2	5	32
GN 723.3-50-B8-A	42	50	B 8	37.3	4.5	24	16.2	5	63
GN 723.3-50-B10-A	42	50	B 10	37.3	4.5	24	16.2	5	55
GN 723.3-33,5-B6-B	27	33.5	B 6	23.3	3.4	13	11.2	4	15
GN 723.3-41-B6-B	34	41	B 6	29.3	3.4	18	14.2	5	31
GN 723.3-41-B8-B	34	41	B 8	29.3	3.4	18	14.2	5	30
GN 723.3-50-B8-B	42	50	B 8	37.3	4.5	24	16.2	5	55
GN 723.3-50-B10-B	42	50	B 10	37.3	4.5	24	16.2	5	51

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RoHS PA POM +130° -30°

Knurled control knobs

Technopolymer



ELESA Original design

MATERIAL
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, glossy finish.

BOSS CAP
Acetal resin based (POM) technopolymer, light-grey colour, push-fit assembly, removable by pressing on the outer edge (ELESA original design).

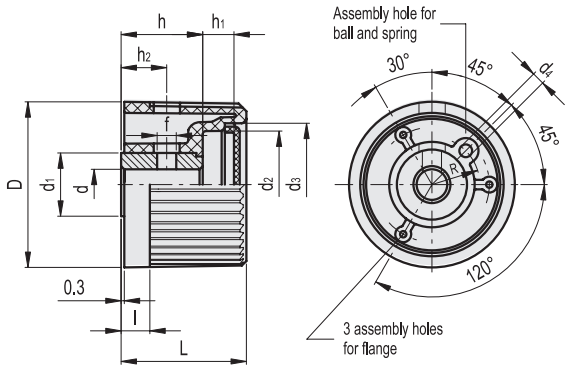
STANDARD EXECUTIONS
Black-oxide steel boss, H7 reamed hole.
Assembly by means of a keyway or a transversal pin in the semi-machined hole f or a set screw (redrill and tap hole f).
- **IZN.380:** plain knob.
- **IZN.380+K:** knob with matte anodised aluminium flange, triangular black index.
- **IZN.380+FGS:** knob with matte anodised aluminium flange, black graduation (marks and numbers).
  - FGS 10/40 = 40 marks, numbering from 0 to 9 increases as the knob is turned clockwise.
  - FGS 10/100 = 100 marks, numbering from 0 to 9 increases as the knob is turned clockwise.

For other numbering (see Graduations on page 594).

ACCESSORIES ON REQUEST
Ball and spring for clicking operation to be fitted in the assembly hole for knobs with diameter D ≥ 48 mm, available only for IZN.380, (see ball and spring MS. on page 610).

SPECIAL EXECUTIONS ON REQUEST
On the surface of the boss cap words, marks, graphic symbols, etc... can be tampoprinted in colours.

IZN.380

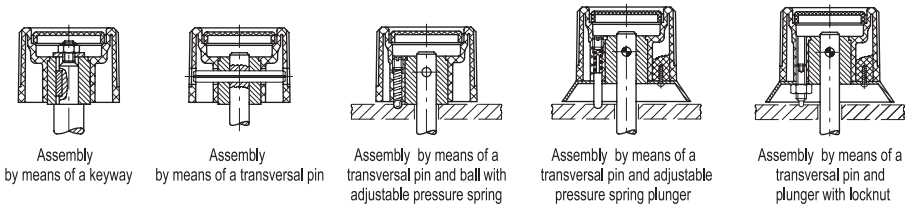


IZN.380

Code	Description	D	dH7	L	l	d1	d2	d3	d4	h	h1	h2	f	R	⚖
29001	IZN.380/32 A-6	32	6	26	5	15	19	21	-	16	8	9	3	-	28
30001	IZN.380/36 A-6	37	6	29	6	15	25	27	-	16	10	10	3	-	34
30101	IZN.380/40 A-8	42	8	32	7	18	29	31	-	17	11	11	4	-	48
30201	IZN.380/45 A-8	48	8	35	8	22	32	34	3.2	22	10	14	4	14	86
30301	IZN.380/50 A-10	52	10	39	9	22	37	39	4.2	22	13	14	4	15	90
30331	IZN.380/50 A-12	52	12	39	9	22	37	39	4.2	22	13	14	4	15	85
30401	IZN.380/56 A-12	58	12	41	10	26	42	44	5.2	27	11	16	5	17	130
30451	IZN.380/63 A-10	63	10	44	11	26	48	50	6.2	30	10	16	5	19	155
30466	IZN.380/63 A-12	63	12	44	11	26	48	50	6.2	30	10	16	5	19	150
30501	IZN.380/63 A-14	63	14	44	11	26	48	50	6.2	30	10	16	5	19	145
30601	IZN.380/80 A-16	80	16	48	12	26	59	62	6.2	30	13	17	5	24	175

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Assembly examples



Assembly by means of a keyway

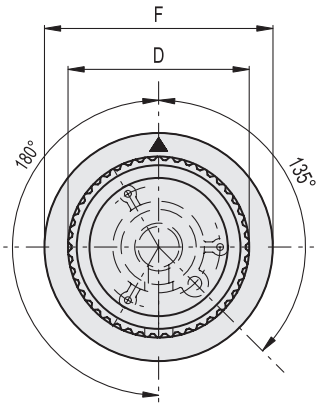
Assembly by means of a transversal pin

Assembly by means of a transversal pin and ball with adjustable pressure spring

Assembly by means of a transversal pin and adjustable pressure spring plunger

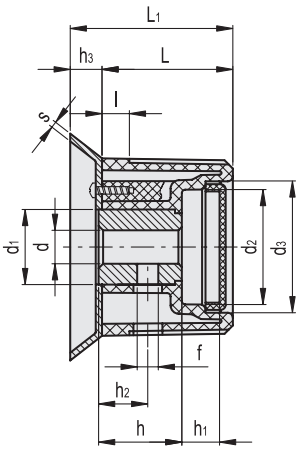
Assembly by means of a transversal pin and plunger with locknut

IZN.380+K



IZN.380+FGS





IZN.380+K

Code	Description	D	dH7	L	L1	F	l	d1	d2	d3	h	h1	h2	h3	f	s	⚖
29021	IZN.380/32 A-6+K	32	6	26	32	38	5	15	19	21	16	8	9	6	3	0.8	32
30021	IZN.380/36 A-6+K	37	6	29	36	45	6	15	25	27	16	10	10	7	3	1	40
30121	IZN.380/40 A-8+K	42	8	32	39	50	7	18	29	31	17	11	11	7	4	1	54
30221	IZN.380/45 A-8+K	48	8	35	43	55	8	22	32	34	22	10	14	8	4	1	93
30321	IZN.380/50 A-10+K	52	10	39	48	63	9	22	37	39	22	13	14	9	4	1	100
30421	IZN.380/56 A-12+K	58	12	41	52	70	10	26	42	44	27	11	16	9	5	1	140
30461	IZN.380/63 A-10+K	63	10	44	57	78	11	26	48	50	30	10	16	13	5	1	172
30476	IZN.380/63 A-12+K	63	12	44	57	78	11	26	48	50	30	10	16	13	5	1	167
30521	IZN.380/63 A-14+K	63	14	44	57	78	11	26	48	50	30	10	16	13	5	1	162

IZN.380+FGS

Code	Description	D	dH7	L	L1	F	l	d1	d2	d3	h	h1	h2	h3	f	s	⚖
29016	IZN.380/32 A-6+FGS-10/40	32	6	26	32	38	5	15	19	21	16	8	9	6	3	0.8	32
30016	IZN.380/36 A-6+FGS-10/40	37	6	29	36	45	6	15	25	27	16	10	10	7	3	1	40
30116	IZN.380/40 A-8+FGS-10/40	42	8	32	39	50	7	18	29	31	17	11	11	7	4	1	54
30216	IZN.380/45 A-8+FGS-10/100	48	8	35	43	55	8	22	32	34	22	10	14	8	4	1	93
30316	IZN.380/50 A-10+FGS-10/100	52	10	39	48	63	9	22	37	39	22	13	14	9	4	1	100
30416	IZN.380/56 A-12+FGS-10/100	58	12	41	52	70	10	26	42	44	27	11	16	11	5	1	140
30458	IZN.380/63 A-10+FGS-10/100	63	10	44	57	78	11	26	48	50	30	10	16	13	5	1	172
30473	IZN.380/63 A-12+FGS-10/100	63	12	44	57	78	11	26	48	50	30	10	16	13	5	1	167
30516	IZN.380/63 A-14+FGS-10/100	63	14	44	57	78	11	26	48	50	30	10	16	13	5	1	162

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Knurled control knobs

Technopolymer

MATERIAL
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

SELF-ADHESIVE FRONT PLATE
Anodised aluminium

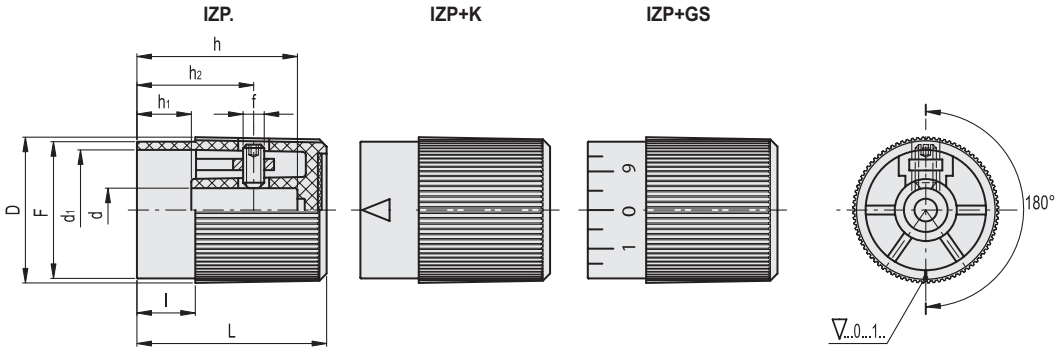
STANDARD EXECUTIONS
Plain blind hole. Assembly by means of a supplied stainless steel transversal grub screw UNI 5929 (grub screw with hexagon socket and cup end).
- **IZP.**: plain knob.
- **IZP+K**: knob with triangular index.
- **IZP+GS**: knob with standard graduation, 20 marks, numbering from 0 to 9 increases as the knob is turned clockwise.

Laser-engraved precision graduations.

SPECIAL EXECUTIONS ON REQUEST
The front plate can be customized with words, marks, graphic symbols, etc.
On the plain surface of the knob high precision graduations (see Graduations on page 594) can be laser-engraved.



ELESA Original design



IZP.

Code	Description	D	dH10	L	F	l	d1	h	h1	h2	f	⚖
31011	IZP.25 N-6	27	6	30	25	12	22	24	12	18	M4	10
31111	IZP.30 N-8	32	8	38	30	13	25	30	13	23	M4	20
31211	IZP.35 N-10	35	10	45	33	15	28	37	15	27	M5	25
31311	IZP.40 N-12	40	12	52	38	16	33	44	16	32	M5	33

IZP+K

Code	Description	D	dH10	L	F	l	d1	h	h1	h2	f	⚖
31031	IZP.25 N-6+K	27	6	30	25	12	22	24	12	18	M4	10
31131	IZP.30 N-8+K	32	8	38	30	13	25	30	13	23	M4	20
31231	IZP.35 N-10+K	35	10	45	33	15	28	37	15	27	M5	25
31331	IZP.40 N-12+K	40	12	52	38	16	33	44	16	32	M5	33

IZP+GS

Code	Description	D	dH10	L	F	l	d1	h	h1	h2	f	⚖
31021	IZP.25 N-6+GS-10/20	27	6	30	25	12	22	24	12	18	M4	10
31121	IZP.30 N-8+GS-10/20	32	8	38	30	13	25	30	13	23	M4	20
31221	IZP.35 N-10+GS-10/20	35	10	45	33	15	28	37	15	27	M5	25
31321	IZP.40 N-12+GS-10/20	40	12	52	38	16	33	44	16	32	M5	33

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Flanges for graduations

for IZN. 380 control knobs

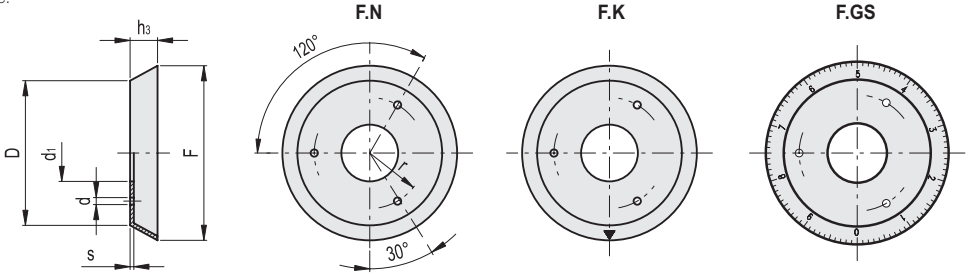


MATERIAL
Matte anodised aluminium.

MOUNTING
By means of three supplied self-tapping rivets for fitting to control knobs IZN.380 (see page 606).

STANDARD EXECUTIONS
- **F.N**: plain flange.
- **F.K**: flange with triangular black index.
- **F.GS**: flange with black graduation (marks and numbers).
  - **F.36 GS e F.40 GS**: 40 marks, numbering 0, 1, 2 .... 9 increases as the knob is turned clockwise.
  - **F.45, 50, 56, 63 GS**: 100 marks, numbering 0, 1, 2 .... 9 increases as the knob is turned clockwise.

SPECIAL EXECUTIONS ON REQUEST
On the surface of the flanges other kinds of precision graduations can be laser-engraved (see Graduations on page 594), numbers, graphic symbols, etc.



F.N

Code	Description	D	F	d	d1	h3	s	r	⚖
29002	F.32 N	32	38	2.1	15	6	0.8	9.5	3
30002	F.36 N	37	45	2.1	15	7	1	12	5
30102	F.40 N	42	50	3	18	7	1	14	7
30202	F.45 N	48	55	2.7	22	7	1	15.8	8
30302	F.50 N	52	63	2.7	22	9	1	18.1	10
30402	F.56 N	58	70	2.7	26	11	1	20.6	12
30452	F.63 N	63	78	2.7	26	13	1	22.7	16
30002	F.36 N	37	45	2.1	15	7	1	12	5
30102	F.40 N	42	50	3	18	7	1	14	7
30202	F.45 N	48	55	2.7	22	7	1	15.8	8
30302	F.50 N	52	63	2.7	22	9	1	18.1	10
30402	F.56 N	58	70	2.7	26	11	1	20.6	12
30452	F.63 N	63	78	2.7	26	13	1	22.7	16

F.K

Code	Description	D	F	d	d1	h3	s	r	⚖
30004	F.36 K	37	45	2.1	15	7	1	12	5
30104	F.40 K	42	50	3	18	7	1	14	7
30204	F.45 K	48	55	2.7	22	7	1	15.8	8
30304	F.50 K	52	63	2.7	22	9	1	18.1	10
30404	F.56 K	58	70	2.7	26	11	1	20.6	12
30454	F.63 K	63	78	2.7	26	13	1	22.7	16

F.GS

Code	Description	D	F	d	d1	h3	s	r	⚖
30003	F.36 GS-10/40	37	45	2.1	15	7	1	12	5
30103	F.40 GS-10/40	42	50	3	18	7	1	14	7
30203	F.45 GS-10/100	48	55	2.7	22	7	1	15.8	8
30303	F.50 GS-10/100	52	63	2.7	22	9	1	18.1	10
30403	F.56 GS-10/100	58	70	2.7	26	11	1	20.6	12
30453	F.63 GS-10/100	63	78	2.7	26	13	1	22.7	16

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Ball and spring

for control elements, stainless steel

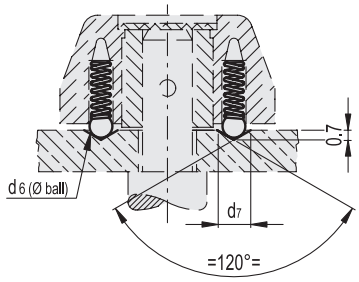
SPRING
AISI 302 stainless steel.

BALL
AISI 420 stainless steel.

FEATURES AND APPLICATIONS
MS. group is indicated for fitting on the following operating and control knobs where clicking operation is required:
- IZN.380 (see page 606)
- EGK.SOFT (see page 615)
- LBR (see page 628)
- LBR-N (see page 628)
- ELC (see page 630)
- ELCR. (see page 632)



Assembly example with ball and spring for clicking operation



STAINLESS STEEL

Code	Description	d6	d7 -0.3
35001	MS.D3	3	2
35051	MS.D4	4	3.0
35101	MS.D5	5	4.0
35201	MS.D6	6	5.5
35301	MS.D8	8	7.0
35401	MS.D10	10	8.5

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MI.204

Indicator knobs

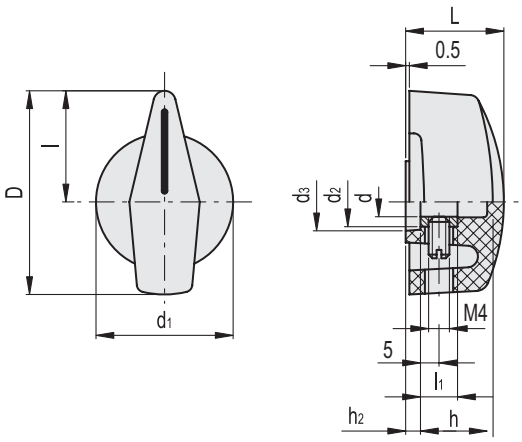
Duroplast

MATERIAL
Phenolic based (PF) Duroplast, black colour, glossy finish.

INDEX
White line.

STANDARD EXECUTION
Brass boss, plain blind hole. Assembly by means of a supplied transversal screw.
- D=45: ISO 7436 (grub screw with screwdriver slotted head and cup end).
- D=55: ISO 4762 (cylindrical-head screw with hexagon socket and cup end).





Code	Description	D	dD9	L	l	l1	d1	d2	d3	h	h2	⚖
40201	MI.204/45 B-6	45	6	25	24	10	35	10	15	15	7	19
40202	MI.204/45 B-8	45	8	25	24	10	35	12	12	18	3	19
40301	MI.204/55 B-6	55	6	26	30	10	37	12	12	18	3	28
40302	MI.204/55 B-8	55	8	26	30	10	37	15	15	18	3	30

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VC.192+F

RoHS PF PA +110° -20°

Lobe knobs

with flange and pointer, Duroplast

MATERIAL
Phenolic based (PF) Duroplast, black colour, glossy finish.

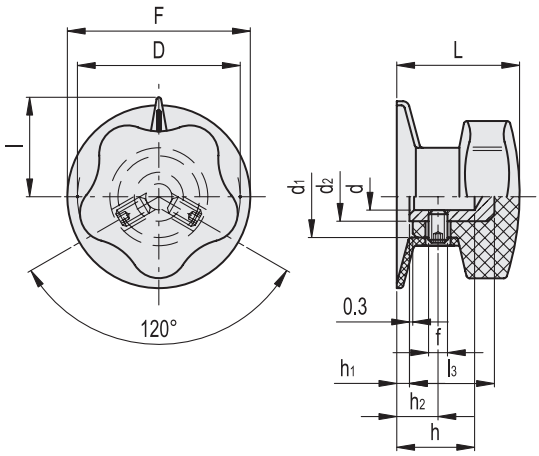
FLANGE WITH POINTER
Polyamide based (PA) technopolymer, with white indicator line.

STANDARD EXECUTIONS
- **VC.192-B+F:** brass boss, plain blind hole.
- **VC.192-A+F:** black-oxide steel boss, plain blind hole.

Assembly by means of supplied transversal grub screws UNI 5929-85 (grub screws with hexagon socket and cup end).



ELESA Original design



Code	Description	D	dH9	L	F	l	l3	d1	d2	h	h1	h2	f	⚖
66211	VC.192/30 B-6+F	32	6	27	36	19	19	19	14	22	3	9	M4	30
66311	VC.192/40 B-6+F	40	6	30	45	24	19	21	14	22	3	9	M4	46
66421	VC.192/50 A-8+F	50	8	36	56	30	25	25	15	23	3	10	M5	70
66521	VC.192/60 A-8+F	60	8	42	70	37	25	27	15	25	5	12	M5	105
66621	VC.192/70 A-10+F	70	10	48	80	42	31	30	18	30	5	16	M6	152

elesa+GANTER
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VC.192+IN

Lobe knobs

with pointer, Duroplast

MATERIAL
Phenolic based (PF) Duroplast, black colour, glossy finish.

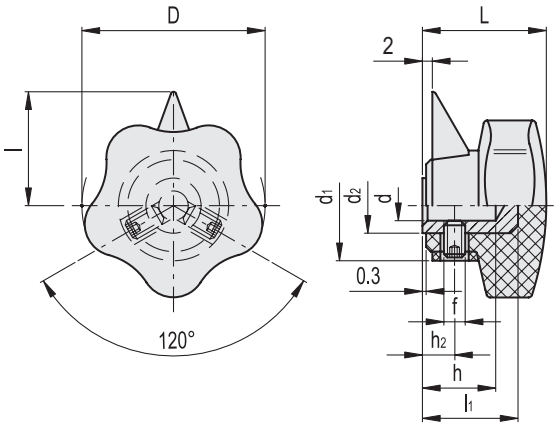
INDEX
Polyamide based (PA) technopolymer.

STANDARD EXECUTIONS
- **VC.192-B+IN:** brass boss, plain blind hole.
- **VC.192-A+IN:** black-oxide steel boss, plain blind hole.

Assembly by means of supplied transversal grub screws UNI 5929-85 (grub screws with hexagon socket and cup end).



ELESA Original design



Code	Description	D	dH9	L	l	l1	d1	d2	h	h2	f	⚖
66321	VC.192/40 B-6+IN	40	6	27	25	17	25	14	14	6	M4	37
66431	VC.192/50 A-8+IN	50	8	33	31	25	30	15	20	7	M5	70
66531	VC.192/60 A-8+IN	60	8	37	38	25	32	15	20	7	M5	105
66631	VC.192/70 A-10+IN	70	10	44	45	31	35	18	25	11	M6	150
66711	VC.192/85 A-10+IN	85	10	55	50	38	41	22	25	14	M6	250

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Control knobs

Aluminium

SPECIFICATION

Aluminium
anodized, black

Indexing line
white, engraved with laser precision

Stainless Steel-Grub screw DIN 916
with internal hexagon and serrated point

INFORMATION

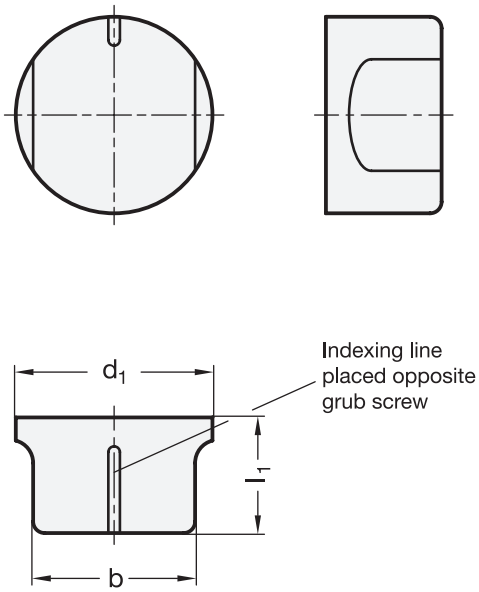
Control knobs GN 729 are usually selected for applications which require a limited movement within 180°.

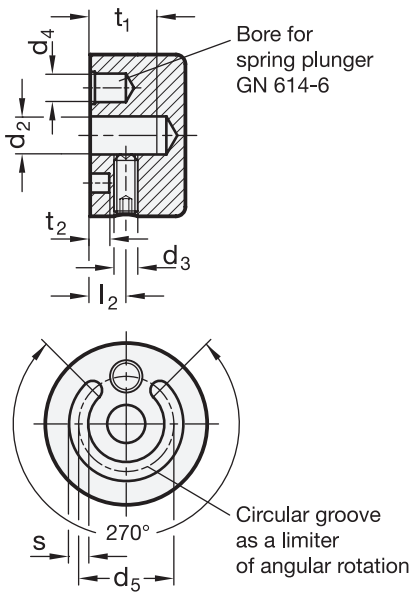
With the aid of limiting pins which protrude into the circular groove the angle of rotation can be restricted. The bore d4 is for a spring plunger GN 614 (see page 847) to act as a simple detent.
The indexing line is indelible and visible from two sides.

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)







GN 729

Description	d1	d2 H8	b	d3	d4	d5	l1	l2	t1 min.	t2 +0.2	s +0.3/+0.1	⚖
GN 729-34-B6	34	B 6	28	M 5	6	20	20	7.5	14	4	4	43
GN 729-34-B8	34	B 8	28	M 5	6	20	20	7.5	14	4	4	41
GN 729-42-B8	42	B 8	35	M 5	6	30	22	7.5	16	4	4	72
GN 729-42-B10	42	B 10	35	M 5	6	30	22	7.5	16	4	4	69

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EGK.SOFT

Grip knobs

arranged for clicking operation

MATERIAL

High-resilience technopolymer coated with "soft-touch" thermoplastic elastomer (TPE), grey-black colour, matte finish.

CENTRE CAP

Glass-fibre reinforced polyamide based (PA) technopolymer in Ergostyle colours, matte finish. Provided with the supply, push-fit assembly, removable by a screwdriver.
Available also as accessory sold separately (see table ECB.).

Code	Description	Closing cap for
29672-*	ECB.G2-*	EGK.50
29673-*	ECB.G3-*	EGK.63

* Complete with colour index (C1, ..., C6).

STANDARD EXECUTIONS

Assembly by means of a keyway or a transversal pin in the semi-machined hole f or a set screw (redrill and tap hole f).
- **EGK.SOFT**: black-oxide steel boss, H7 reamed hole.
- **EGK-SST-SOFT**: AISI 303 stainless steel boss, H7 reamed hole.

FEATURES AND APPLICATIONS

The special four-concave-mark shape of the knob and the "soft-touch" elastomer coating allow the best grip during clicking operation even in the presence of oils, grease and sweat from the hand. Particularly suitable for fitness machines, disability aids, tools and machines for gardening and high-precision instruments.

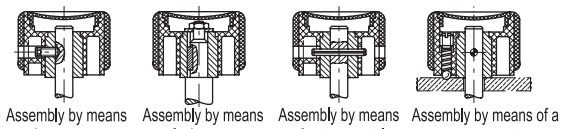
ACCESSORIES ON REQUEST

Ball and spring for clicking operation to be fitted in the assembly hole (see ball and spring MS. on page 610).

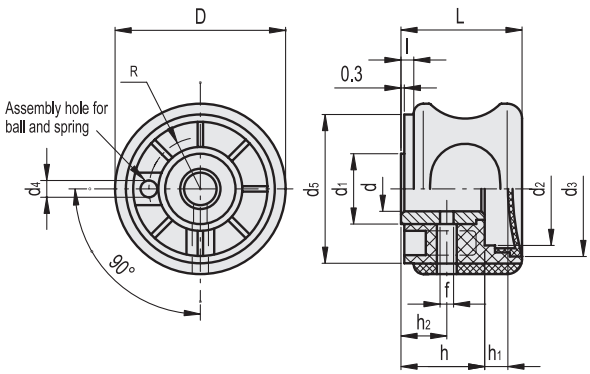


ERGOSTYLE® design 96/97 stuttgart IF INDUSTRIE FORUM DESIGN HANNOVER 1995

Assembly examples



Assembly by means of a set screw | Assembly by means of a keyway | Assembly by means of a transversal pin | Assembly by means of a transversal pin and ball with adjustable pressure spring





*Complete with colour index, example: 215161-C2 EGK.50 A-10-C2

C1 RAL7021 | C2 RAL2004 | C3 RAL7035 | C4 RAL1021 | C5 RAL5024 | C6 RAL3000

EGK.SOFT

Code	Description	D	dH7	L	l	d1	d2	d3	d4	d5	h	h1	h2	f	R	⚖
215161-*	EGK.50 A-10-SOFT-*	50	10	38	3.5	22	28	40	4.2	43	22	12	14	4	15	95
215181-*	EGK.63 A-12-SOFT-*	63	12	44	3.5	26	42	49.5	6.2	55	30	9	16	5	19	185

EGK-SST-SOFT

STAINLESS STEEL

Code	Description	D	dH7	L	l	d1	d2	d3	d4	d5	h	h1	h2	f	R	⚖
215189-*	EGK.50-SST-6-SOFT-*	50	6	38	3.5	22	28	40	4.2	43	22	12	14	4	15	100
215191-*	EGK.50-SST-8-SOFT-*	50	8	38	3.5	22	28	40	4.2	43	22	12	14	4	15	97
215196-*	EGK.63-SST-10-SOFT-*	63	10	44	3.5	26	42	49.5	6.2	55	30	9	16	5	19	180

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Control handwheels

Aluminium black, anodized

SPECIFICATION

Types

- Type **A**: without handle
- Type **D**: with revolving handle

Bore codes

- Version **B**: without keyway
- Version **K**: with keyway
- Version **Z**: with collet

Aluminium
anodized, black

Hub cover
Plastic, light grey

Collet / Hexagon nut
Brass

Stainless Steel-Grub screw DIN 916
with internal hexagon and serrated point

Revolving cylindrical handles
Plastic, Technopolymer
black, matt

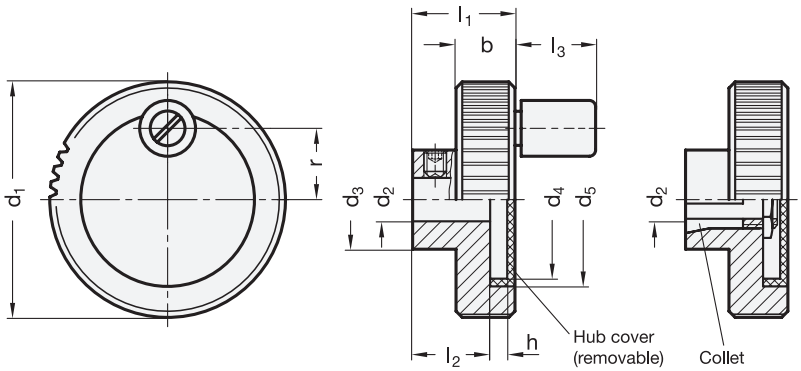


INFORMATION

Control handwheels GN 736 are used for setting operations with low torque.
Coarse setting is made by means of the cylindrical handle (fingertip grip) followed by fine setting using the knurled rim of the handwheel.

TECHNICAL INFORMATION

- Keyway P9 DIN 6885 (see page A16)
- ISO-Fundamental Tolerances (see page A21)



GN 736

Description	d1	d2 H8	d3	d4	d5	b -0.5	h	l1	l2	l3 ≈	r	Ø Handle	⚖
GN 736-52-B10-A	52	10	22	37	39.5	13	3.8	23	17	-	15.5	-	56
GN 736-52-K10-A	52	10	22	37	39.5	13	3.8	23	17	-	15.5	-	59
GN 736-52-Z10-A	52	10	22	37	39.5	13	3.8	23	17	-	15.5	-	65
GN 736-62-B10-A	62	10	25	47	49.5	13	3.8	23	17	-	20.5	-	76
GN 736-62-K10-A	62	10	25	47	49.5	13	3.8	23	17	-	20.5	-	82
GN 736-62-Z10-A	62	10	25	47	49.5	13	3.8	23	17	-	20.5	-	100
GN 736-52-B10-D	52	10	22	37	39.5	13	3.8	23	17	19	15.5	13	69
GN 736-52-K10-D	52	10	22	37	39.5	13	3.8	23	17	19	15.5	13	71
GN 736-52-Z10-D	52	10	22	37	39.5	13	3.8	23	17	19	15.5	13	77
GN 736-62-B10-D	62	10	25	47	49.5	13	3.8	23	17	21	20.5	14	90
GN 736-62-K10-D	62	10	25	47	49.5	13	3.8	23	17	21	20.5	14	94
GN 736-62-Z10-D	62	10	25	47	49.5	13	3.8	23	17	21	20.5	14	112

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GN 736.1

Control handwheels with scale lug

Aluminium black, anodized

SPECIFICATION

Types

- Type **A**: without handle
- Type **D**: with revolving handle

Bore codes

- Version **B**: without keyway
- Version **K**: with keyway
- Version **Z**: with collet

Coding

- Coding **S**: with standard scale 0...90, 100 graduations acc. scale scheme d_1/100 A RA 0-10 20...90/10 (only for bore code Z)

Aluminium
anodized, black

Hub cover
Plastic, light grey

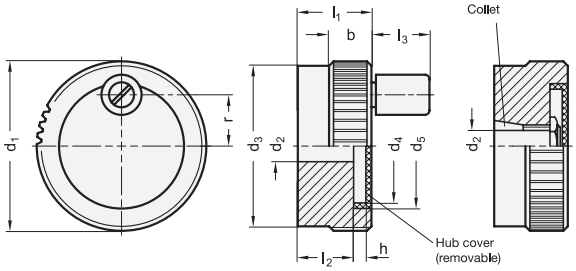
Collet / Hexagon nut
Brass

Revolving cylindrical handles
Plastic, Technopolymer
black, matt



INFORMATION

Control handwheels GN 736.1 are used for setting operations with low torque. Coarse setting is made by means of the cylindrical handle (fingertip grip) followed by fine setting using the knurled rim of the knob.
The model fitted with collet offers an absolutely reliable mounting on the shaft and at the same time allows an easy setting of the adjustable scale ring wheel. The scale is wear resistant and easily legible since the engraved alu coloured numbers contrast with the black anodized surface. Besides the standard scale (Coding S) the control handwheels can be supplied with any type of graduation.
Full details of the available graduations, numbering sequence, number position and type of scale see under "How to order graduations" (see page 594).



* Complete with type of the Control handwheel (A or D)

A	D
without handle	with revolving handle

GN 736.1

Description	d_1	d_2 H8	d_3	d_4	d_5	b -0.5	h	l_1	l_2	l_3 ≈	r	Ø Handle	⚖
GN 736.1-52-B10-*	52	10	50	37	39.5	13	3.8	23	17	19	15.5	13	100
GN 736.1-52-K10-*	52	10	50	37	39.5	13	3.8	23	17	19	15.5	13	99
GN 736.1-52-Z10-*	52	10	50	37	39.5	13	3.8	23	17	19	15.5	13	111
GN 736.1-62-B10-*	62	10	60	47	49.5	13	3.8	23	17	21	20.5	14	142
GN 736.1-62-K10-*	62	10	60	47	49.5	13	3.8	23	17	21	20.5	14	141
GN 736.1-62-Z10-*	62	10	60	47	49.5	13	3.8	23	17	21	20.5	14	154

GN 736.1-S

Description	d_1	d_2 H8	d_3	d_4	d_5	b -0.5	h	l_1	l_2	l_3 ≈	r	Ø Handle	⚖
GN 736.1-52-Z10-*-S	52	10	37	50	39.5	13	3.8	23	17	19	15.5	13	110
GN 736.1-62-Z10-*-S	62	10	47	60	49.5	13	3.8	23	17	21	20.5	14	154

Weight type A

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RoHS PP PA +90° 0°

Diamond cut knurled control knobs

with revolving handle, technopolymer



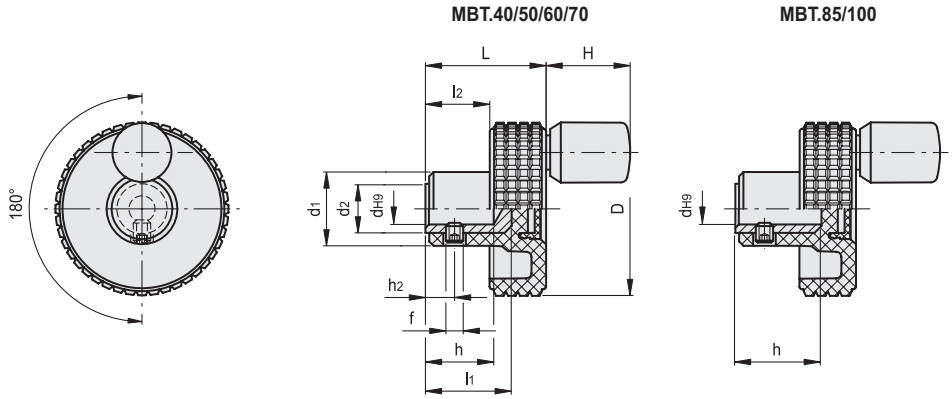
MATERIAL
High-resilience polypropylene based (PP) technopolymer, black colour, matte finish.

COLOURED CENTRE CAP
Technopolymer, matte finish.
To order, add the index of the desired colour (C9, ..., C6) to the code and the description.
On request and for sufficient quantities, it can be supplied in other colours or with customised graphic symbols, marks or writings.

REVOLVING HANDLE
I.701+x (see page 580) in technopolymer.

STANDARD EXECUTION
Brass boss, plain hole. Assembly by means of a supplied transversal grub screw UNI 5929-85 (grub screw with hexagon socket and cup end).

ELESA Original design





*Complete with colour index, example: 34398-C2 MBT.40+I B-6-C2

C9 RAL9005 | C2 RAL2004 | C3 RAL7035 | C4 RAL1021 | C5 RAL5024 | C6 RAL3000

Code	Description	D	dH9	L	l1	l2	d1	d2	h	h2	f	H	⚖
34398-*	MBT.40+I B-6-*	39.5	6	26.5	17	12.5	17	12	14	4	M4	20	34
34498-*	MBT.50+I B-6-*	50	6	33	23	16	20	15	18	5	M5	20	54
34598-*	MBT.60+I B-8-*	61	8	39	25	18.5	23	15	20	6	M5	23	65
34698-*	MBT.70+I B-10-*	70	10	42	30	20.5	24	16	25	6	M5	23	73
34798-*	MBT.85+I B-10-*	85	10	30.5	-	10.5	29	16	22	6	M5	23	84
34898-*	MBT.100+I B-10-*	100	10	31	-	11	35	16	22	6	M5	23	102

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VL.140+I

Control handwheels

with revolving handle, Duroplast

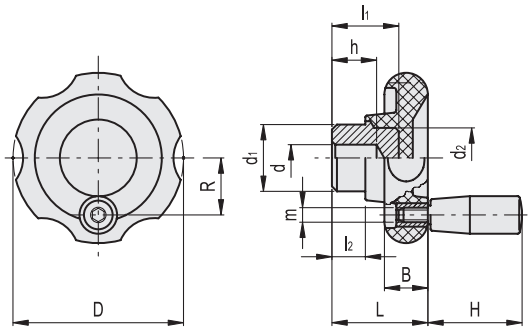
MATERIAL
Phenolic based (PF) Duroplast, black colour, glossy finish.

REVOLVING HANDLE
I.281+x (see page 569) in Duroplast.

STANDARD EXECUTION
Black-oxide steel hub, with pre-drilled blind hole.



ELESA Original design



Code	Description	D	dH9	d-0.1	L	B	l1	l2	d1	d2	h	H	m	R	⚖
74431	VL.140/80+I	82	-	6	40	19	23	12	24	20	15	40	M6	26	180
74521	VL.140/100+I	99	8	-	44	20	31	14	36	30	22	50	M8	32	385
74621	VL.140/130+I	129	8	-	47	22	30	13	40	40	20	65	M8	43	585

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Control knobs with adjustable spindle



SPECIFICATION

Types

- Type **A**: Fixing hole parallel to the spindle axle
- Type **B**: Fixing hole vertical to the spindle axle
- Type **S1**: Mounting with hexagon head screw

Coding

- Version **SR**: with scale 0,1...0,9, 50 graduations ascending, clockwise
- Version **SL**: with scale 0,1,...0,9, 50 graduations ascending, anti-clockwise

Body
Steel
matt chrome plated

Spindle
Steel
blank

Control knob
Aluminium
anodized, black

Hexagon head screw
Steel, zinc plated, blue passivated

Scales engraved with laser precision

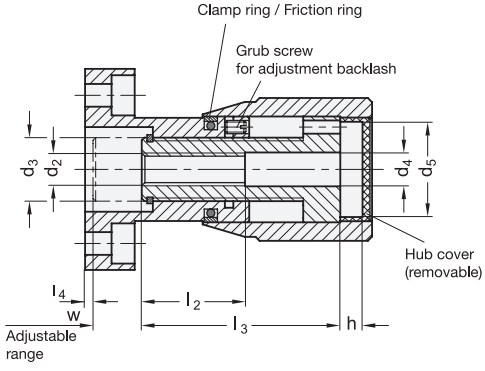
Cover
Plastic, light grey

INFORMATION

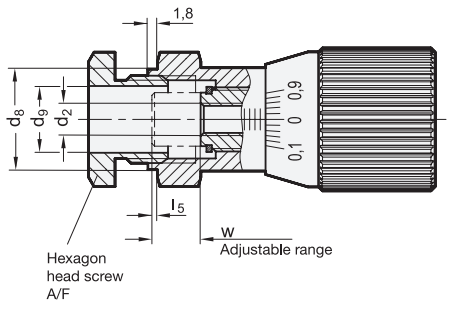
Control knobs with adjustable spindle GN 727 allow precise adjustment or aligning i. e. of a positive stop. The spindle thread is without backlash.
The graduations on the control knob are non-abrasive and well legible.
The light grey cover shrouds the fixing components as well as the shaft end.
Regarding design, numbering run, numbering position and mubering sequence of the scale please see the layout for scale rings on the order sheet "How to order graduations" (see page 594).

COMPLEMENTARY DIMENSIONS WITH TECHNICAL DETAILS

Type **A**



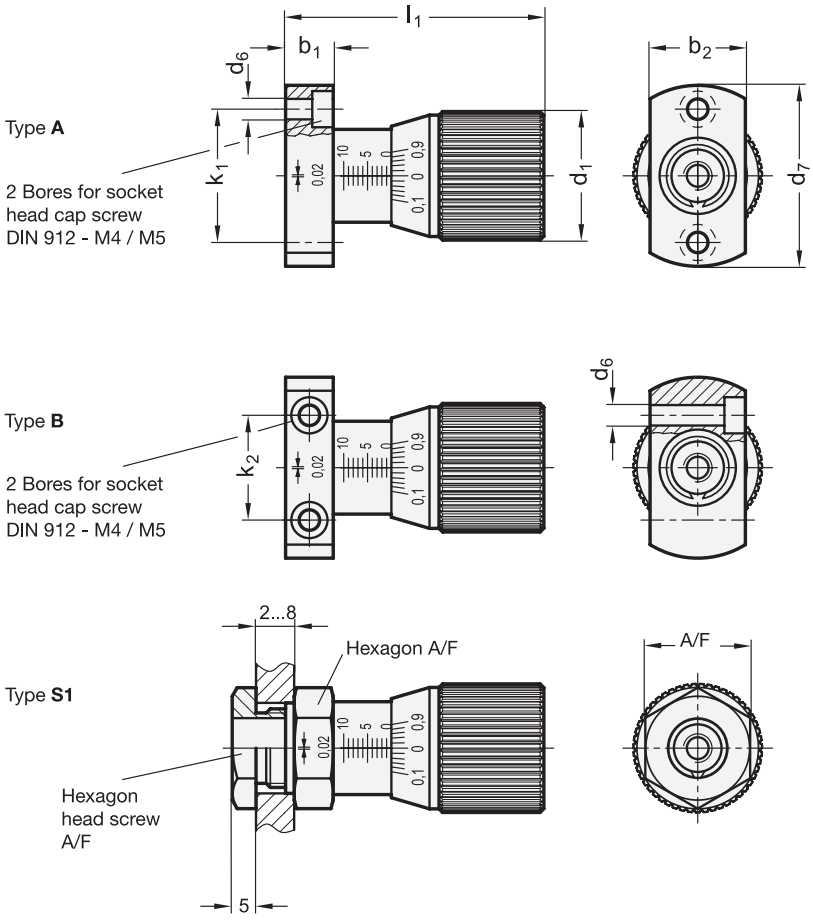
Type **S1**



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GN 727

Control knobs with adjustable spindle



GN 727

Description	d1	d2	d3	d4	d5	d6	d7	d8 -0.05	d9	b1	b2	h	k1	k2	l1 +0.2	l2	l3	l4	l5	A/F	w	⚖
GN 727-27-A-SR	27	M 6	M 12 x 1	6.4	18	-	38	-	-	10	20	4.3	28	-	54	19.5	37.5	0.5	-	-	10	103
GN 727-27-A-SL	27	M 6	M 12 x 1	6.4	18	-	38	-	-	10	20	4.3	28	-	54	19.5	37.5	0.5	-	-	10	103
GN 727-34-A-SR	34	M 8	M 16 x 1	8.5	23	-	50	-	-	11	25	4.2	36	-	67	23.5	45.5	0.5	-	-	15	210
GN 727-34-A-SL	34	M 8	M 16 x 1	8.5	23	-	50	-	-	11	25	4.2	36	-	67	23.5	45.5	0.5	-	-	15	210
GN 727-27-B-SR	27	M 6	M 12 x 1	6.4	18	4.3	-	-	-	10	20	4.3	-	22	54	19.5	37.5	0.5	-	-	10	103
GN 727-27-B-SL	27	M 6	M 12 x 1	6.4	18	4.3	-	-	-	10	20	4.3	-	22	54	19.5	37.5	0.5	-	-	10	103
GN 727-34-B-SR	34	M 8	M 16 x 1	8.5	23	5.3	-	-	-	11	25	4.2	-	30	67	23.5	45.5	0.5	-	-	15	206
GN 727-34-B-SL	34	M 8	M 16 x 1	8.5	23	5.3	-	-	-	11	25	4.2	-	30	67	23.5	45.5	0.5	-	-	15	205
GN 727-27-S1-SR	27	M 6	M 12 x 1	6.4	18	-	-	20	14	10	-	4.3	-	-	54	19.5	37.5	0.5	1	22	10	113
GN 727-27-S1-SL	27	M 6	M 12 x 1	6.4	18	-	-	20	14	10	-	4.3	-	-	54	19.5	37.5	0.5	1	22	10	113
GN 727-34-S1-SR	34	M 8	M 16 x 1	8.5	23	-	-	24	18	11	-	4.2	-	-	67	23.5	45.5	0.5	1	27	15	182
GN 727-34-S1-SL	34	M 8	M 16 x 1	8.5	23	-	-	24	18	11	-	4.2	-	-	67	23.5	45.5	0.5	1	27	15	182

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Indexing mechanisms

Steel / Stainless Steel

SPECIFICATION

Version in Steel

Types

- Type **A**: Control knob, blackened, without scale
- Type **AS**: Control knob, matt chrome plated, with scale 0...50, 60 graduations
- Type **B**: with 1 tension lever
- Type **C**: with 2 tension levers

Steel
blackened

Type AS:
Control knob matt chrome plated

- Scale engraved with laser precision, black
- Reference line on location ring

Fixed cylindrical handles I.280 (see page 568)
Plastic, Technopolymer
black, shiny finish

Version in Stainless Steel

Types

- Type **A**: without scale
- Type **AS**: with scale 0...50, 60 graduations

Stainless Steel AISI 303 **NI**

Type AS:

- Scale engraved with laser precision
- Reference line on locating ring

Keyway P9 DIN 6885 for bore > K 10 (Steel and Stainless Steel)

INFORMATION

Indexing mechanisms GN 200 replace and simplify complicated indexing and safety mechanisms.
Besides the standard scale (Type AS) the control knob version may be supplied with any scale. In such cases, it is recommended to use the matt chrome plated version since the colour contrast is better).
Regarding design, numbering run, numbering position and numbering sequence of the scale please see the layout for scale rings on the order sheet "How to order graduations" (see page 594).

ON REQUEST

- Special graduations see "How to order graduations" (see page 594)



TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)

Applications

With these indexing mechanisms, shaft and lead screws can be turned and positioned in steps of 6° or multiples of it.

Description

The indexing mechanism is a selfcontained unit, all the adjusting and securing components are housed in the smallest possible space. The unit consists of three main parts:

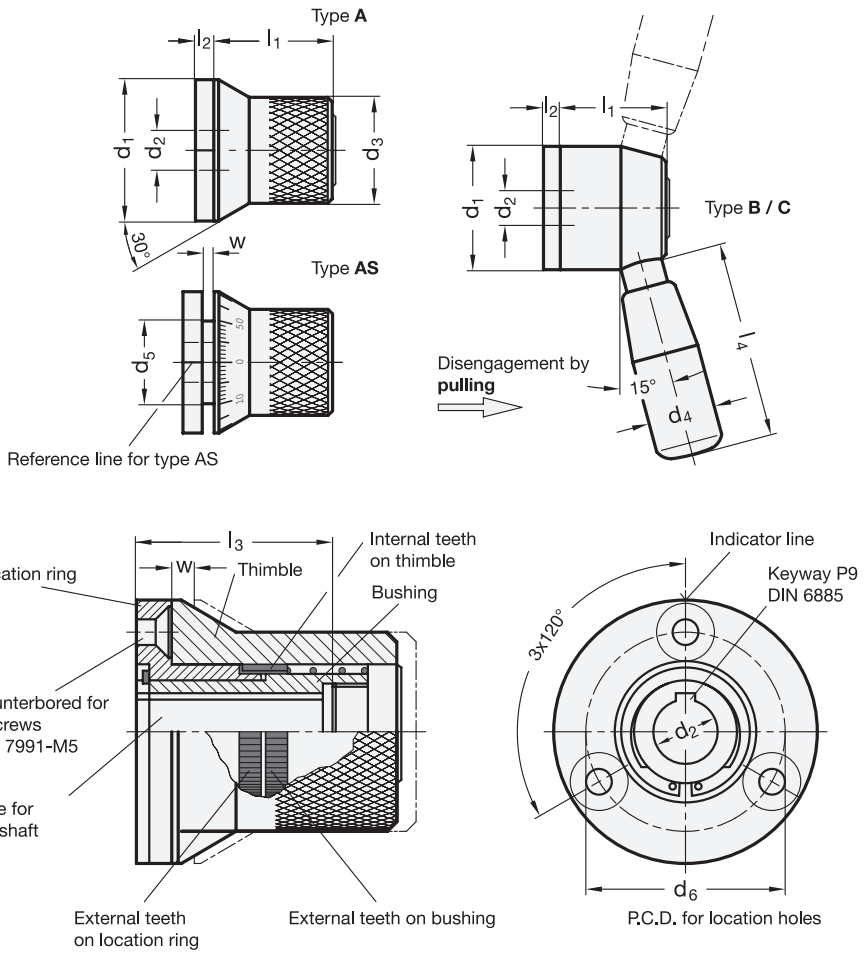
- Bushing – can be connected to the shaft with a key or crossdowel.
- Location ring – is screwed and doweled to the machine or equipment. The bushing is also a bearing for the location ring.
- Knurled housing – providing engagement between the locating ring and the shaft which can be turned or positioned.

In the locked position, the knurled housing via the internal teeth (60) connects the locating ring and the bush (both via external teeth), the latter being connected to the shaft. To turn the shaft, the knurled housing is pulled out against the spring pressure, disengaging from the location ring, but still engaged with the bush.

More information

- With 60 teeth, the following divisions can be achieved: 2, 3, 4, 5, 6, 10, 20, 30.A simple method provides indexing of the shaft to limited number of positions only, i.e. every 120°.For this purpose, the location ring is manufactured with a dowel which allows engagement only when the bushing is provided with a corresponding hole (see assembly examples).This hole can be manufactured oversize as the dowel is for rough positioning only. Accurate positioning is maintained via the teeth.Knurled housing and tension levers can be supplied with scales and symbols.With teeth, a more accurate and wear-resistant indexing mechanism is obtained than with single dowel locations.When a very high torque is to be transmitted, engaging and disengaging of the teeth is made difficult due to the small clearance, i.e. the friction between them. In such cases, indexing levers GN 215 are recommended.

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*Complete with type index of the indexing mechanisms (A, AS, B or C)

A Blackened, without scale
AS Matt chrome plated, with scale
B with 1 tension lever
C with 2 tension levers

GN 200

Description	d1 -0.5	d2 H7	d3	d4	d5	d6	l1	l2	l3	l4	w	⚖
GN 200-44-K10-*	44	K 10	33	23	23	33	37	6	31	75	4	309
GN 200-44-K12-*	44	K 12	33	23	23	33	37	6	31	75	4	300
GN 200-52-K12-*	52	K 12	42	26	31.5	41.8	37.5	6	31.5	90	4	478
GN 200-52-K14-*	52	K 14	42	26	31.5	41.8	37.5	6	31.5	90	4	467
GN 200-52-K16-*	52	K 16	42	26	31.5	41.8	37.5	6	31.5	90	4	455

*Complete with type index of the indexing mechanisms (A or AS)

A Blackened, without scale
AS Matt chrome plated, with scale

GN 200-NI **STAINLESS STEEL**

Description	d1 -0.5	d2 H7	d3	d5	d6	l1	l2	l3	w	⚖
GN 200-44-K10-*-NI	44	K 10	33	23	33	37	6	31	4	309
GN 200-44-K12-*-NI	44	K 12	33	23	33	37	6	31	4	300
GN 200-52-K12-*-NI	52	K 12	42	31.5	41.8	37.5	6	31.5	4	478
GN 200-52-K14-*-NI	52	K 14	42	31.5	41.8	37.5	6	31.5	4	467
GN 200-52-K16-*-NI	52	K 16	42	31.5	41.8	37.5	6	31.5	4	455

Weight type A

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Adjustable knobs

with stepless positioning

SPECIFICATION

Types

- Type **A**: with arrow
- Type **B**: neutral, without arrow or scale
- Type **S**: with standard scale 0...9, 100 graduations
- Type **KS**: with customized scale

Attachment part and bush
Steel
blackened

Blocking mechanism
Steel
hardened and ground

Scale ring and rotating knob
Aluminium
black anodized

Scale / arrow

- engraved with laser precision
- centered between two mounting holes



INFORMATION

With this adjustable knob GN 700 a shaft can be infinitely adjusted in both directions. The anti-backlash mechanism with a max. load of 15 Nm ensures the firm locking of the shaft in any position.
This mechanism prevents any uncontrolled movement of the shaft. The locking action is a safety feature to prevent unwanted re-adjustments caused by backlash and vibration.
Scale and arrow on the control knobs are indelibly marked and easily legible.
Besides the standard scale (Type AS) the control knob version may be supplied with any other scale (Type KS).
Regarding design, numbering run, numbering position and numbering sequence of the scale please see the layout for scale rings on the order sheet "How to order graduations" (see page 594).

ON REQUEST

- special graduations see "How to order graduations" (see page 594)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)

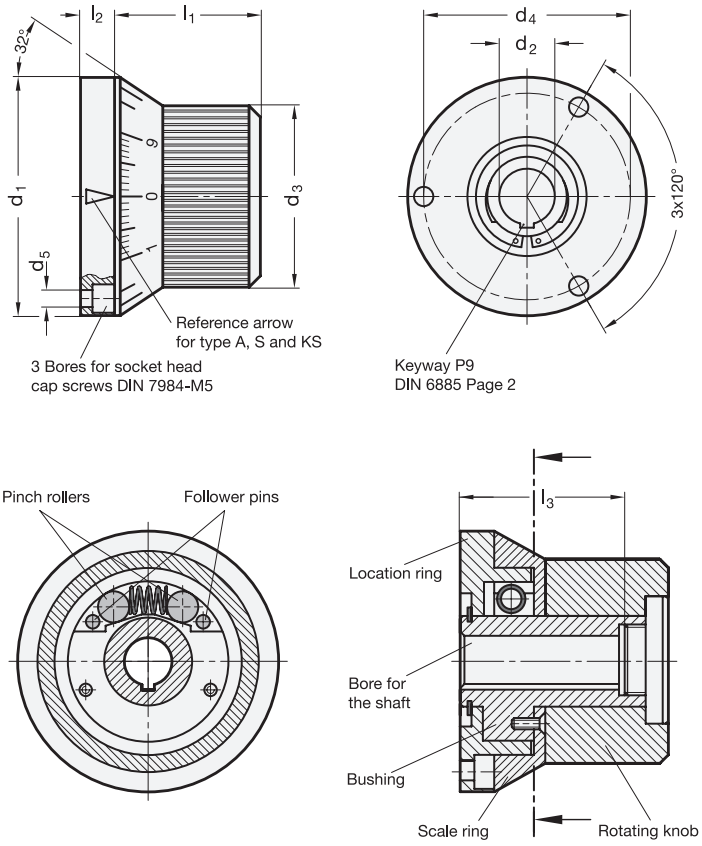
Description

The anti-backlash mechanism which operates on the principle of a bidirectional freewheeling and antireversing basis allows the transfer of movement in both directions without backlash. The adjustable knob is not suitable for applications on machines or equipments which are exposed to vibrations.
The **bush** is connected by the key and keyway to the revolving shaft.
The **location ring** remains static and centrally positioned by the bushing and the two pinch rollers, fixed to the machine frame or housing by three screws.
The **rotating knob** with the knurled barrel is carried by the bush.
The **scale ring** is firmly anchored to the bush and the driven shaft by two countersunk screws.
If the knob is repositioned, one of the follower pins – depending on the direction of rotation – pushes the pinch roller against the spring into an idling position which releases the bush and shaft to rotate freely.
The second follower pin on the opposite side reduces the movement of its pinch roller and ensures at the same time a firm grip and forward movement of the bush while the first pinch roller remains in an idling position.
When releasing the knob, the spring will push the pinch roller back into the grip position, thus linking the bush again with the static section.
The scale ring is connected firmly with the bush and any readjustment of the shaft can be accurately controlled.
This infinitely adjustable knob cannot, however, be used in such cases where the shaft to be adjusted runs ahead of the adjustment. The anti-backlash mechanism in this knob cannot be used as a bearing for the driven shaft.

Hints for installation

A perfect functioning can only be guaranteed if the shaft of the machine is positioned at a perfect right angle to the contact surface of the static part.

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GN 700

Description	d1	d2 H7	d3	d4 -0.2	d5	l1	l2	l3	⚖
GN 700-66-K12-A	66	K 12	52	55	5.5	44	9	40	600
GN 700-66-K14-A	66	K 14	52	55	5.5	44	9	40	540
GN 700-66-K12-B	66	K 12	52	55	5.5	44	9	40	580
GN 700-66-K14-B	66	K 14	52	55	5.5	44	9	40	560
GN 700-66-K12-S	66	K 12	52	55	5.5	44	9	40	580
GN 700-66-K14-S	66	K 14	52	55	5.5	44	9	40	560
GN 700-66-K12-KS	66	K 12	52	55	5.5	44	9	40	580
GN 700-66-K14-KS	66	K 14	52	55	5.5	44	9	40	560

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Control levers

Steel, blackened



SPECIFICATION

Types

- Type **M**: Cover with indicator point
- Type **N**: Cover plain

Steel
blackened

Cover
Plastic, light grey

Cylindrical knobs
Plastic, Duroplast
black

INFORMATION

The cover hides fasteners (see assembly instructions) and provides a printing facility for any symbol or logo.
On assembly, the cover is pushed in by hand and can be removed with a screw driver via a suitable slot.
Control levers GN 750 can also be supplied as standard with:
Square DIN 79 **V** + Bore diameter
Keyway DIN 6885 **K** + Bore diameter

ON REQUEST

- Control lever versions of the assembly examples

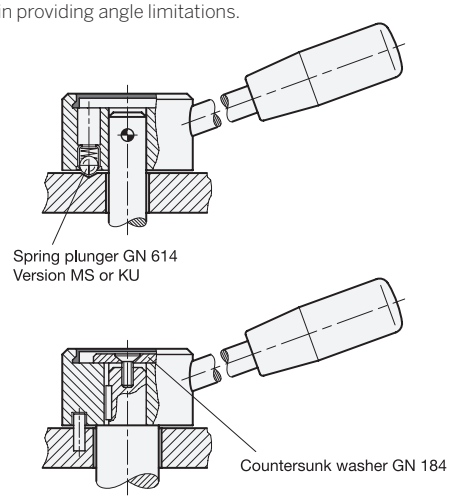
TECHNICAL INFORMATION

- Cross holes GN 110 (see page A17)
- Keyway P9 DIN 6885 (see page A16)
- ISO-Fundamental Tolerance (see page A21)

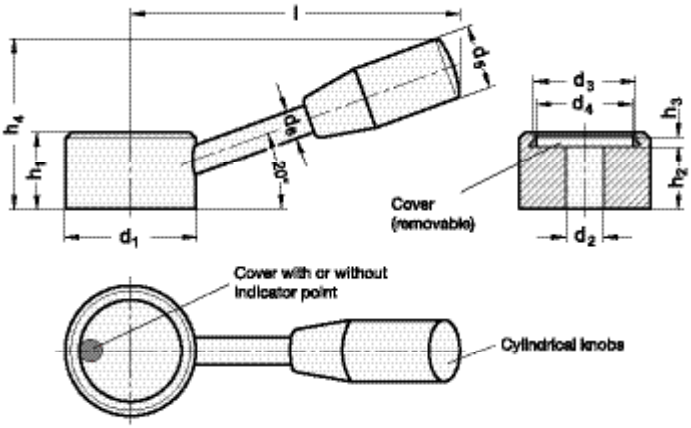
ASSEMBLY EXAMPLES

Control lever GN 750 with spring-loaded ball, GN 614 (see page 847) version brass (MS) or plastic (KU), fitted to the shaft with a dowel pin.
The spring-loaded ball provides a simple indexing assembly, the location indent can be spotted through the control lever hub.
The shaft end and the screw of the indexing ball are hidden by the plastic cover.

Control lever GN 750 with keyway and countersunk washer GN 184 (see page 971) for positive lateral location and with a radial slot and dowel pin providing angle limitations.



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GN 750

Description	d1	d2 h7	d3	d4	d5	d6	h1	h2	h3	h4 ≈	l	⚖
GN 750-32-B10-M	32	B 10	25	23	18	8	21	15	4.2	43	84	123
GN 750-40-B10-M	40	B 10	32	30	21	9	25	19	4	54	106	239
GN 750-40-B12-M	40	B 12	32	30	21	9	25	19	4	54	106	232
GN 750-50-B14-M	50	B 14	40	37.5	23	11	28	22	3.8	63	130	412
GN 750-50-B16-M	50	B 16	40	37.5	23	11	28	22	3.8	63	130	406
GN 750-32-B10-N	32	B 10	25	23	18	8	21	15	4.2	43	84	123
GN 750-40-B10-N	40	B 10	32	30	21	9	25	19	4	54	106	239
GN 750-40-B12-N	40	B 12	32	30	21	9	25	19	4	54	106	232
GN 750-50-B14-N	50	B 14	40	37.5	23	11	28	22	3.8	63	130	412
GN 750-50-B16-N	50	B 16	40	37.5	23	11	28	22	3.8	63	130	406
GN 750-32-V10-M	32	V 10	25	23	18	8	21	15	4.2	43	84	116
GN 750-40-V10-M	40	V 10	32	30	21	9	25	19	4	54	106	232
GN 750-40-V12-M	40	V 12	32	30	21	9	25	19	4	54	106	225
GN 750-50-V14-M	50	V 14	40	37.5	23	11	28	22	3.8	63	130	412
GN 750-50-V16-M	50	V 16	40	37.5	23	11	28	22	3.8	63	130	406
GN 750-32-V10-N	32	V 10	25	23	18	8	21	15	4.2	43	84	116
GN 750-40-V10-N	40	V 10	32	30	21	9	25	19	4	54	106	232
GN 750-50-V14-N	50	V 14	40	37.5	23	11	28	22	3.8	63	130	412
GN 750-50-V16-N	50	V 16	40	37.5	23	11	28	22	3.8	63	130	403
GN 750-32-K10-M	32	K 10	25	23	18	8	21	15	4.2	43	84	121
GN 750-40-K10-M	40	K 10	32	30	21	9	25	19	4	54	106	236
GN 750-40-K12-M	40	K 12	32	30	21	9	25	19	4	54	106	229
GN 750-50-K14-M	50	K 14	40	37.5	23	11	28	22	3.8	63	130	408
GN 750-50-K16-M	50	K 16	40	37.5	23	11	28	22	3.8	63	130	402
GN 750-32-K10-N	32	K 10	25	23	18	8	21	15	4.2	43	84	121
GN 750-40-K10-N	40	K 10	32	30	21	9	25	19	4	54	106	236
GN 750-40-K12-N	40	K 12	32	30	21	9	25	19	4	54	106	229
GN 750-50-K14-N	50	K 14	40	37.5	23	11	28	22	3.8	63	130	408
GN 750-50-K16-N	50	K 16	40	37.5	23	11	28	22	3.8	63	130	402

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Control levers

arranged for clicking operation, technopolymer

LEVER BODY
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, glossy finish.

LEVER ARM
Matte chrome-plated steel with cylindrical handle I.280 (see page 568) in Duroplast.

SELF-ADHESIVE FRONT PLATE
Matte anodised aluminium to be fitted after the assembly of the lever.

STANDARD EXECUTIONS
- **LBR-A:** black-oxide steel boss, H7 reamed hole.
- **LBR-N:** without boss, with plain hole and flat face.

LBR.45 N and LBR.54 N: flat face opposite to the arm.
LBR.75 N: flat face in correspondance of the arm.

MANOEUVRE ANGLE LIMITATION
A limited manoeuvre angle is possible by fitting stop pins in the rear guide slot.

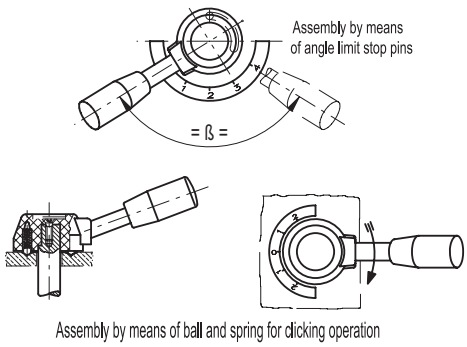
ACCESSORIES ON REQUEST
- Axial retaining washer GN 184 (see page 971).
- Ball and spring for clicking operation to be fitted into the two holes d3 drilled at 180° (see ball and spring MS. on page 610).

SPECIAL EXECUTIONS ON REQUEST
- Different arm lengths and handle shapes.
- Front plate with words, marks, symbols, graphics.



ELESA Original design

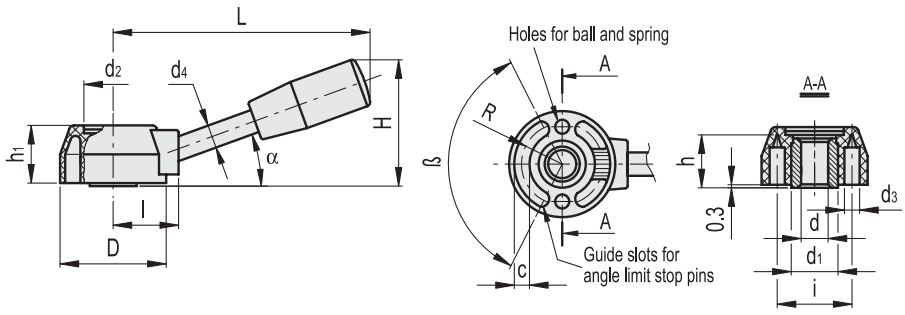
Assembly examples



Assembly by means of ball and spring for clicking operation

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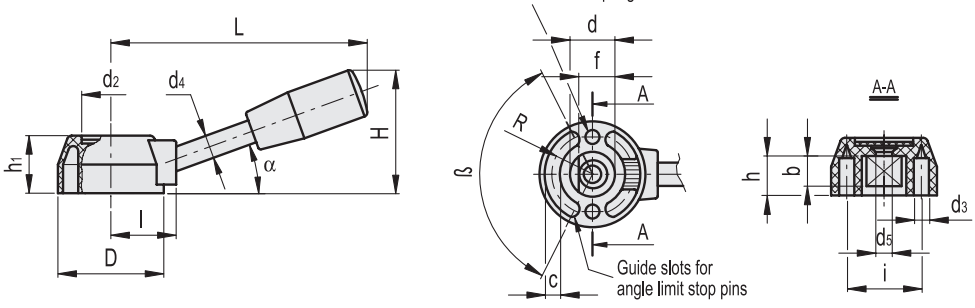
LBR-A



LBR-A

Code	Description	D	dH7	L	H	h	h1	d1	d2	d3	d4	i	l	R	c	α	β	⚖
33101	LBR.37/85 A-8	37	8	81	46	17	20	18	21	5	10	26	22	13.8	4.3	25°	125±1°	75
33102	LBR.37/85 A-10	37	10	81	46	17	20	18	21	5	10	26	22	13.8	4.3	25°	125±1°	71
33103	LBR.37/85 A-12	37	12	81	46	17	20	18	21	5	10	26	22	13.8	4.3	25°	125±1°	66
33201	LBR.45/110 A-8	45	8	108	52	22	25	22	25	6	10	32	28	17.5	7	20°	125±1°	132
33202	LBR.45/110 A-12	45	12	108	52	22	25	22	25	6	10	32	28	17.5	7	20°	125±1°	120
33203	LBR.45/110 A-15	45	15	108	52	22	25	22	25	6	10	32	28	17.5	7	20°	125±1°	105
33301	LBR.54/130 A-10	54	10	127	61	27	30	26	31	8	12	39	34	20.2	7.3	20°	125±1°	213
33302	LBR.54/130 A-14	54	14	127	61	27	30	26	31	8	12	39	34	20.2	7.3	20°	125±1°	198
33303	LBR.54/130 A-18	54	18	127	61	27	30	26	31	8	12	39	34	20.2	7.3	20°	125±1°	175
33401	LBR.75/170 A-18	75	18	170	80	34	38	30	42	10	14	55	45	26	15	20°	105±1°	360

LBR-N



LBR-N

Code	Description	D	dH8	L	H	h	h1	d2	d3	d4	d5	i	l	R	c	α	β	f+0.05	b	⚖
33211	LBR.45/110 N-16	45	16	108	52	16	25	25	6	10	6.5	32	28	17.5	7	20°	125±1°	13	12	80
33311	LBR.54/130 N-22	54	22	125	66	21	30	31	8	12	6.5	39	34	20.2	7.3	25°	125±1°	19	16	130
33411	LBR.75/170 N-25	75	25	170	80	26	38	42	10	14	8.5	55	45	26	15	20°	105±1°	22	21	255

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Control levers

arranged for clicking operation, technopolymer



MATERIAL

Glass-fibre reinforced polyamide based (PA) technopolymer, grey-black colour, matte finish.

BOSS CAP

Technopolymer, matte finish, push-fit assembly, removable by a screwdriver, included in the supply.
Available also as accessory sold separately (see table ECB.).

Code	Description	Boss cap for
29551-*	ECB.T1-*	ELC.67
29552-*	ECB.T2-*	ELC.85
29553-*	ECB.T3-*	ELC.110
29554-*	ECB.T4-*	ELC.140

* Complete with colour index (C1, ..., C6).

STANDARD EXECUTIONS

- **ELC:** black-oxide steel boss, H7 reamed hole, cap in the Ergostyle colours.
- **ELC-FC3**: black-oxide steel boss, H7 reamed hole, cap in RAL 7035 light grey colour, with arrow indicator.
- **ELC-SST:** AISI 303 stainless steel boss, H7 reamed hole, cap in the Ergostyle colours.
- **ELC-SST-FC3**: AISI 303 stainless steel boss, H7 reamed hole, cap in RAL 7035 light grey colour, with arrow indicator.

ERGONOMY

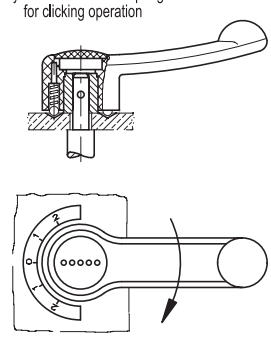
Rotations are performed smoothly and powerfully thanks to the heavy-duty arm of the lever, while the enlarged and sunken semispherical end offers an effective grip.

MANOEUVRE ANGLE LIMITATION

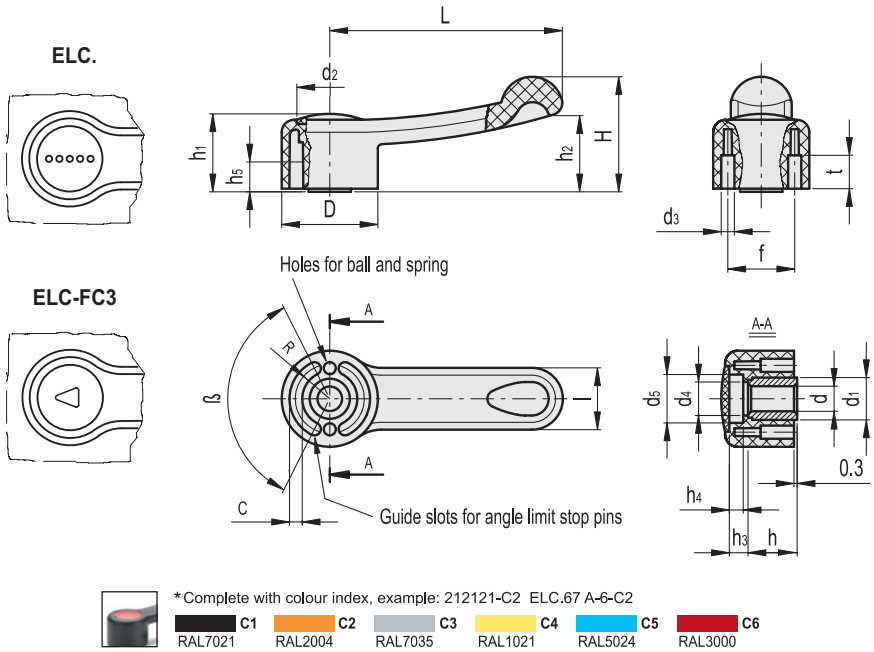
A limited manoeuvre angle is possible by fitting stop pins in the rear guide slot.

- Axial retaining washer GN 184 (see page 971).
- Ball and spring for clicking operation to be fitted into the two holes d3 drilled at 180° (see ball and spring MS. on page 610).

Assembly example
by means of ball and spring for clicking operation



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*Complete with colour index, example: 212121-C2 ELC.67 A-6-C2

C1	C2	C3	C4	C5	C6
RAL7021	RAL2004	RAL7035	RAL1021	RAL5024	RAL3000

ELC.

Code	Description	D	dH7	L	H	h	h1	h2	h3	h4	h5	d1	d2	d3	d4	d5	l	R	t	c	β	f	⚖
212121-*	ELC.67 A-6-*	32	6	67	35	16	24	24	5	3	10	15	22.5	4	10	16	20	12	9	4	125±1°	24	50
212131-*	ELC.85 A-8-*	37	8	85	41	17.5	27	27	7.5	5	10	18	26	5	13.5	20	23	13.8	12.5	4.3	125±1°	26	63
212141-*	ELC.110 A-12-*	46	12	110	54	22	35	36	10	8	10	22	31.5	6	17	25.5	29	17.5	15.5	6.5	125±1°	32	129
212151-*	ELC.140 A-14-*	54	14	140	60	27	38	38	8.5	6	10	26	36	8	21	31	34	20.2	16	7	125±1°	39	145

ELC-FC3

Code	Description	D	dH7	L	H	h	h1	h2	h3	h4	h5	d1	d2	d3	d4	d5	l	R	t	c	β	f	⚖
212121-FC3	ELC.67 A-6-FC3	32	6	67	35	16	24	24	5	3	10	15	22.5	4	10	16	20	12	9	4	125±1°	24	50
212131-FC3	ELC.85 A-8-FC3	37	8	85	41	17.5	27	27	7.5	5	10	18	26	5	13.5	20	23	13.8	12.5	4.3	125±1°	26	63
212141-FC3	ELC.110 A-12-FC3	46	12	110	54	22	35	36	10	8	10	22	31.5	6	17	25.5	29	17.5	15.5	6.5	125±1°	32	129
212151-FC3	ELC.140 A-14-FC3	54	14	140	60	27	38	38	8.5	6	10	26	36	8	21	31	34	20.2	16	7	125±1°	39	145

ELC-SST **STAINLESS STEEL**

Code	Description	D	dH7	L	H	h	h1	h2	h3	h4	h5	d1	d2	d3	d4	d5	l	R	t	c	β	f	⚖
212161-*	ELC.67-SST-6-*	32	6	67	35	16	24	24	5	3	10	15	22.5	4	10	16	20	12	9	4	125±1°	24	50
212171-*	ELC.85-SST-8-*	37	8	85	41	17.5	27	27	7.5	5	10	18	26	5	13.5	20	23	13.8	12.5	4.3	125±1°	26	63
212181-*	ELC.110-SST-12-*	46	12	110	54	22	35	36	10	8	10	22	31.5	6	17	25.5	29	17.5	15.5	6.5	125±1°	32	129
212191-*	ELC.140-SST-14-*	54	14	140	60	27	38	38	8.5	6	10	26	36	8	21	31	34	20.2	16	7	125±1°	39	145

ELC-SST-FC3 **STAINLESS STEEL**

Code	Description	D	dH7	L	H	h	h1	h2	h3	h4	h5	d1	d2	d3	d4	d5	l	R	t	c	β	f	⚖
212161-FC3	ELC.67-SST-6-FC3	32	6	67	35	16	24	24	5	3	10	15	22.5	4	10	16	20	12	9	4	125±1°	24	50
212171-FC3	ELC.85-SST-8-FC3	37	8	85	41	17.5	27	27	7.5	5	10	18	26	5	13.5	20	23	13.8	12.5	4.3	125±1°	26	63
212181-FC3	ELC.110-SST-12-FC3	46	12	110	54	22	35	36	10	8	10	22	31.5	6	17	25.5	29	17.5	15.5	6.5	125±1°	32	129
212191-FC3	ELC.140-SST-14-FC3	54	14	140	60	27	38	38	8.5	6	10	26	36	8	21	31	34	20.2	16	7	125±1°	39	145

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Control lever

arranged for clicking operation, technopolymer

MATERIAL
Glass-fibre reinforced polyamide based (PA) technopolymer, grey-black colour, matte finish.

BOSS CAP
Technopolymer in the Ergostyle colours, matte finish. Supplied, push-fit assembly, removable by a screwdriver.
Available also as accessory sold separately (see table ECB.).

Code	Description	Boss cap for
29553-*	ECB.T3-*	ELCR.118

* Complete with colour index (C1, ..., C6).

STANDARD EXECUTION
Black-oxide steel boss, H7 reamed hole

FEATURES AND APPLICATIONS
Control levers ELCR. have a straight lever, parallel to the clamping surface. Particularly suitable when the lever turning angle is limited owing to lack of space.

ERGONOMY
Rotations are performed smoothly and powerfully thanks to the heavy-duty arm of the lever, while the enlarged end offers an effective grip.

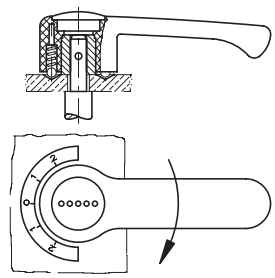
MANOEUVRE ANGLE LIMITATION
A limited manoeuvre angle is possible by fitting stop pins in the rear guide slot.

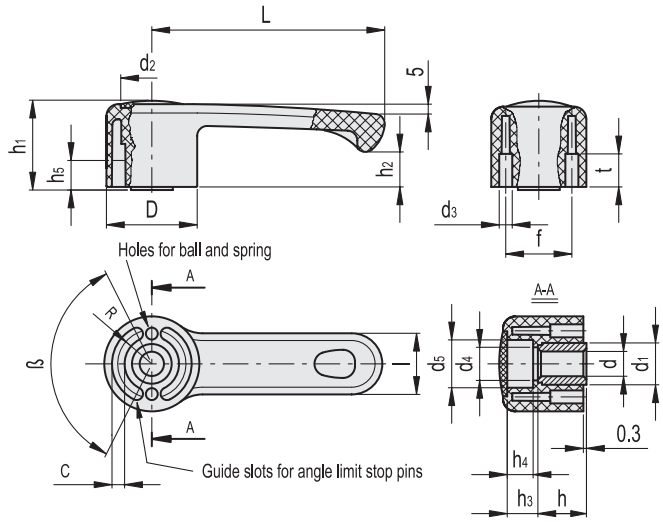
ACCESSORIES ON REQUEST
- Axial retaining washer GN 184 (see page 971).
- Ball and spring for clicking operation to be fitted into the two holes d3 drilled at 180° (see ball and spring MS. on page 610).



ERGOSTYLE®

Assembly example
by means of ball and spring for clicking operation







* Complete with colour index, example: 212241-C2 ELCR.118 A-12-C2

C1	C2	C3	C4	C5	C6
RAL7021	RAL2004	RAL7035	RAL1021	RAL5024	RAL3000

Code	Description	D	dH7	L	h	h1	h2	h3	h4	h5	d1	d2	d3	d4	d5	l	R	t	c	β	f	⚖
212241-*	ELCR.118 A-12-*	46	12	118	22	44	18.5	19	17	10	22	31.5	6	17	25.5	29	17.5	15.5	6.5	125±1°	32	135

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GN 215

RoHS

Indexing levers

SPECIFICATION

Types

- Type **A**: without serrations
- Type **B**: with 30 serrations

Steel
blackened

Cover Plastic
black, with inserted Alu-disc
matt anodized, natural colour

Keyway for bore
K10: 3 P9 x 1.1
K12 ... K16: DIN 6885/2

Ball knob DIN 319 (see page 538)
Plastic, Duroplast
black, shiny finish



INFORMATION

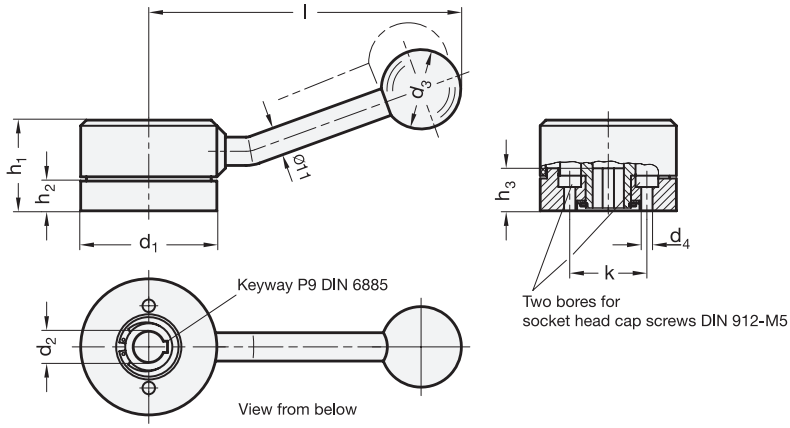
With indexing levers GN 215 shafts can be turned through a predetermined angle and positively locked. To index, lift the lever against spring pressure from serrations (one hand control).
The **bush** is connected to the shaft via keyway.
The **location flange** is bolted to the machine with two socket head cap screws (M 5).
The **lever**, via the location pin, provides the connection between shaft and location flange).
The serrations are protected from swarf and similar particles by the cover. This cover can be inserted by hand (elastic segments engage into a groove) and removed with a screw driver.

ON REQUEST

- Serrations, restricted angle to drawing

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)



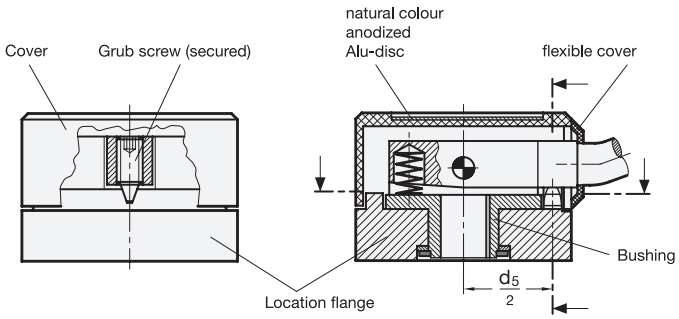
GN 215

Description	d1	d2 H7	d3	d4	d5	h1	h2	h3 max.	k	l	w +0.5°	⚖
GN 215-54-K10-A	54	K 10	32	5.2	44.5	37	13	16.5	30	122	22°	470
GN 215-54-K12-A	54	K 12	32	5.2	44.5	37	13	16.5	30	122	22°	466
GN 215-60-K14-A	60	K 14	32	5.2	50	39	15	18.5	36	125	19°	619
GN 215-60-K16-A	60	K 16	32	5.2	50	39	15	18.5	36	125	19°	597
GN 215-54-K10-B	54	K 10	32	5.2	44.5	37	13	16.5	30	122	22°	461
GN 215-54-K12-B	54	K 12	32	5.2	44.5	37	13	16.5	30	122	22°	457
GN 215-60-K14-B	60	K 14	32	5.2	50	39	15	18.5	36	125	19°	608
GN 215-60-K16-B	60	K 16	32	5.2	50	39	15	18.5	36	125	19°	580

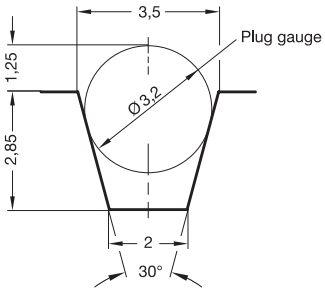
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TECHNICAL AND ASSEMBLY INSTRUCTIONS

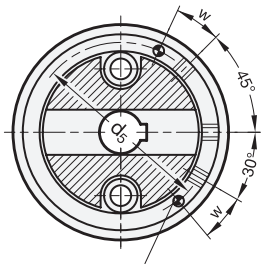
The location pin is a wedge-type as standard, which guarantees backlash-free positioning and also acheiving easy engagement and disengagement. Special serrations and dowel pins which restrict the indexing angle can be produced to customers requirement. Please ask for a quotation.
If backlash-free positioning is not required, a dowel pin (made from a grub screw) can be used. The serrations can be made square or with dowels and suitable holes. Such holes have to be made large enough to ensure that the dowel is not restricted on engagement (lever swivel radius).
Smallest available angle for special serrations:
Size 54 - 11°
Size 60 - 9°
Smaller angles can be acheived with suitable serrations and dowels.
Milling cutter for standard serrations can be supplied.



Enlargement of serrations
with plug gauge to aid checking



Example with
three serrations and restricted indexing angle



Dowel pin ISO 8750 Ø 3,5 x 7 mm protruding
(only applicable when restricted indexing angle is required)
w = angle from serration (lever position)

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Rulers

self-adhesive

SPECIFICATION

Types

- Type **W**: Figures horizontally arranged (Figure sequence L, M, R)
- Type **S**: Figure vertically arranged (Figure sequence U, M, O)

Stainless Steel **NI**

- Thickness 0.6 mm
- Scale etched

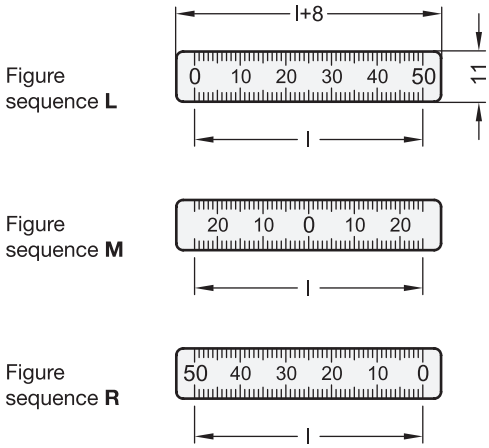
Plastic **KUS**

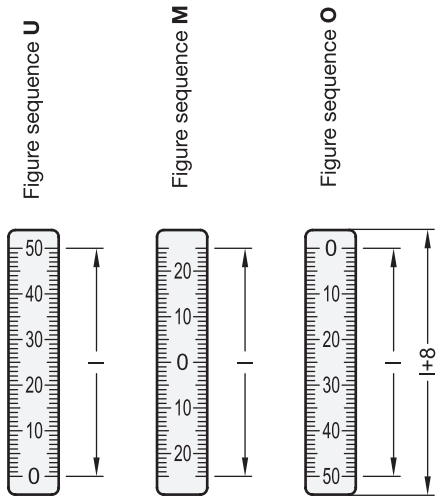
- Thickness 0.3 mm
- highlighted in silver
- Scale printed

INFORMATION

To stick the ruler GN 711 remove the protective strip at the back.
The engraved side of Stainless Steel-Rulers is also protected by a strip.







*Complete with material of the Rulers (NI or KUS)

NI	KUS
Stainless Steel	Plastic, silver

GN 711 — **STAINLESS STEEL**

Description	l	⚖
GN 711-*-50-W-L	50	3
GN 711-*-50-W-M	50	3
GN 711-*-50-W-R	50	3
GN 711-*-50-S-M	50	3
GN 711-*-50-S-U	50	3
GN 711-*-50-S-O	50	3

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*Complete with material of the Rulers (NI or KUS)

NI	KUS
Stainless Steel	Plastic, silver

GN 711 — **STAINLESS STEEL**

Description	l	⚖
GN 711-*-100-W-L	100	5
GN 711-*-100-W-M	100	5
GN 711-*-100-W-R	100	5
GN 711-*-100-S-M	100	5
GN 711-*-100-S-U	100	5
GN 711-*-100-S-O	100	5
GN 711-*-150-W-L	150	7
GN 711-*-150-W-M	150	7
GN 711-*-150-W-R	150	7
GN 711-*-150-S-M	150	7
GN 711-*-150-S-U	150	7
GN 711-*-150-S-O	150	7
GN 711-*-200-W-L	200	9
GN 711-*-200-W-M	200	9
GN 711-*-200-W-R	200	9
GN 711-*-200-S-M	200	9
GN 711-*-200-S-U	200	9
GN 711-*-200-S-O	200	9
GN 711-*-300-W-L	300	13
GN 711-*-300-W-M	300	13
GN 711-*-300-W-R	300	13
GN 711-*-300-S-M	300	13
GN 711-*-300-S-U	300	13
GN 711-*-300-S-O	300	13
GN 711-*-400-W-L	400	18
GN 711-*-400-W-M	400	18
GN 711-*-400-W-R	400	18
GN 711-*-400-S-M	400	18
GN 711-*-400-S-U	400	18
GN 711-*-400-S-O	400	18
GN 711-*-500-W-L	500	22
GN 711-*-500-W-M	500	22
GN 711-*-500-W-R	500	22
GN 711-*-500-S-M	500	22
GN 711-*-500-S-U	500	22
GN 711-*-500-S-O	500	22
GN 711-*-750-W-L	750**	33
GN 711-*-750-W-M	750**	33
GN 711-*-750-W-R	750**	33
GN 711-*-750-S-M	750**	33
GN 711-*-750-S-U	750**	33
GN 711-*-750-S-O	750**	33
GN 711-*-1000-W-L	1000**	44
GN 711-*-1000-W-M	1000**	44
GN 711-*-1000-W-R	1000**	44
GN 711-*-1000-S-M	1000**	44
GN 711-*-1000-S-U	1000**	44
GN 711-*-1000-S-O	1000**	44

** The NI-version of this length consists of 2 parts.

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Rulers

with mounting holes Ø 3.3

SPECIFICATION

Types

- Type **W**: Figures horizontally arranged (Figure sequence L, M, R)
- Type **S**: Figures vertically arranged (Figure sequence U, M, O)

Identification No.

No. **1**: with mounting holes Ø3.3

Aluminium **AL**
natural colour anodized

black imprint with numbers and scale
etched (i.e., aluminium coloured)

Imprint resistant to weak acids and lye
solutions, and against solvents in the event
of brief contact

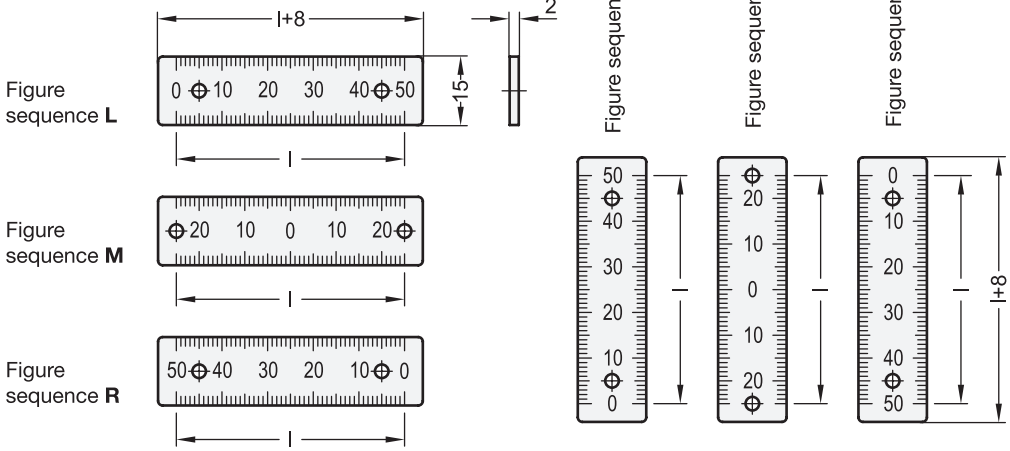
INFORMATION

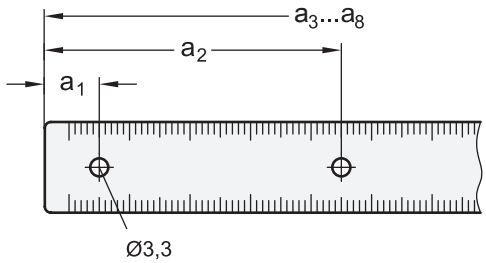
- Rulers GN 711 (Stainless Steel, Plastic, self-adhesive)
(see page 636)

ON REQUEST

- self-adhesive version







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GN 711.2

Description	l	Number	a1 ±0.1	a2 ±0.1	a3 ±0.1	a4 ±0.1	a5 ±0.1	a6 ±0.1	a7 ±0.1	a8 ±0.1	⚖
GN 711.2-AL-50-W-L-1	50	2	9	49	-	-	-	-	-	-	4
GN 711.2-AL-50-W-M-1	50	2	4	54	-	-	-	-	-	-	4
GN 711.2-AL-50-W-R-1	50	2	9	49	-	-	-	-	-	-	4
GN 711.2-AL-100-W-L-1	100	2	9	99	-	-	-	-	-	-	8
GN 711.2-AL-100-W-M-1	100	2	9	99	-	-	-	-	-	-	8
GN 711.2-AL-100-W-R-1	100	2	9	99	-	-	-	-	-	-	8
GN 711.2-AL-150-W-L-1	150	2	9	149	-	-	-	-	-	-	12
GN 711.2-AL-150-W-M-1	150	2	4	154	-	-	-	-	-	-	12
GN 711.2-AL-150-W-R-1	150	2	9	149	-	-	-	-	-	-	12
GN 711.2-AL-200-W-L-1	200	3	9	99	199	-	-	-	-	-	15
GN 711.2-AL-200-W-M-1	200	3	9	99	199	-	-	-	-	-	15
GN 711.2-AL-200-W-R-1	200	3	9	99	199	-	-	-	-	-	15
GN 711.2-AL-300-W-L-1	300	3	9	149	299	-	-	-	-	-	24
GN 711.2-AL-300-W-M-1	300	3	9	149	299	-	-	-	-	-	24
GN 711.2-AL-300-W-R-1	300	3	9	149	299	-	-	-	-	-	24
GN 711.2-AL-400-W-L-1	400	4	9	139	269	399	-	-	-	-	34
GN 711.2-AL-400-W-M-1	400	4	9	139	269	399	-	-	-	-	34
GN 711.2-AL-400-W-R-1	400	4	9	139	269	399	-	-	-	-	34
GN 711.2-AL-500-W-L-1	500	4	9	169	339	499	-	-	-	-	40
GN 711.2-AL-500-W-M-1	500	4	9	169	339	499	-	-	-	-	40
GN 711.2-AL-500-W-R-1	500	4	9	169	339	499	-	-	-	-	40
GN 711.2-AL-750-W-L-1	750*	8	9	129	249	369	389	509	629	749	60
GN 711.2-AL-750-W-M-1	750*	9	4	124	254	374	394	504	634	754	60
GN 711.2-AL-750-W-R-1	750*	8	9	129	249	369	389	509	629	749	60
GN 711.2-AL-1000-W-L-1	1000*	8	9	169	339	499	519	679	839	999	81
GN 711.2-AL-1000-W-M-1	1000*	8	9	169	499	499	514	679	839	999	81
GN 711.2-AL-1000-W-R-1	1000*	8	9	169	339	499	519	679	839	999	81
GN 711.2-AL-50-S-M-1	50	2	9	54	-	-	-	-	-	-	4
GN 711.2-AL-50-S-U-1	50	2	9	49	-	-	-	-	-	-	4
GN 711.2-AL-50-S-O-1	50	2	9	49	-	-	-	-	-	-	4
GN 711.2-AL-100-S-M-1	100	2	4	99	-	-	-	-	-	-	8
GN 711.2-AL-100-S-U-1	100	2	9	99	-	-	-	-	-	-	8
GN 711.2-AL-100-S-O-1	100	2	9	99	-	-	-	-	-	-	8
GN 711.2-AL-150-S-M-1	150	2	4	154	-	-	-	-	-	-	12
GN 711.2-AL-150-S-U-1	150	2	9	149	-	-	-	-	-	-	12
GN 711.2-AL-150-S-O-1	150	2	9	149	-	-	-	-	-	-	12
GN 711.2-AL-200-S-M-1	200	3	9	99	199	-	-	-	-	-	15
GN 711.2-AL-200-S-U-1	200	3	9	99	199	-	-	-	-	-	15
GN 711.2-AL-200-S-O-1	200	3	9	99	199	-	-	-	-	-	15
GN 711.2-AL-300-S-M-1	300	3	9	149	299	-	-	-	-	-	24
GN 711.2-AL-300-S-U-1	300	3	9	149	299	-	-	-	-	-	24
GN 711.2-AL-300-S-O-1	300	3	9	149	299	-	-	-	-	-	24
GN 711.2-AL-400-S-M-1	400	4	9	139	269	399	-	-	-	-	30
GN 711.2-AL-400-S-U-1	400	4	9	139	269	399	-	-	-	-	30
GN 711.2-AL-400-S-O-1	400	4	9	139	269	399	-	-	-	-	30
GN 711.2-AL-500-S-M-1	500	4	9	169	339	499	-	-	-	-	40
GN 711.2-AL-500-S-U-1	500	4	9	169	339	499	-	-	-	-	40
GN 711.2-AL-500-S-O-1	500	4	9	169	339	499	-	-	-	-	40
GN 711.2-AL-750-S-M-1	750*	8	4	124	254	374	394	504	634	754	60
GN 711.2-AL-750-S-U-1	750*	8	9	129	249	364	389	509	829	749	60
GN 711.2-AL-750-S-O-1	750*	8	9	129	249	364	389	509	829	749	60
GN 711.2-AL-1000-S-M-1	1000*	8	9	169	339	499	519	679	839	999	81
GN 711.2-AL-1000-S-U-1	1000*	8	9	169	329	499	519	679	839	999	81
GN 711.2-AL-1000-S-O-1	1000*	8	9	169	329	499	519	679	839	999	81

* These lengths consist of 2 parts.

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GN 711.1

Indicator arrows for rulers

self-adhesive

SPECIFICATION

Stainless Steel **NI**

- Thickness 0.6 mm
- Scale etched

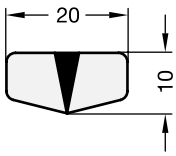
Plastic **KUS**

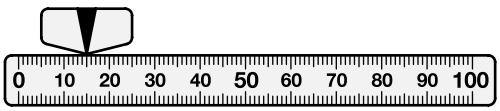
- Thickness 0.3 mm
- highlighted in silver
- Scale printed

Plastic **KUT**

- Thickness 0.3 mm
- transparent
- Scale printed







GN 711.1 **STAINLESS STEEL**

Description	⚖
GN 711.1-NI	6
GN 711.1-KUS	1
GN 711.1-KUT	3

GN 711.3

Indicator arrow scale for GN 711.2

with mounting holes Ø 3.3

SPECIFICATION

Identification No.

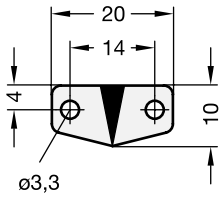
No. **1**: with mounting holes Ø3.3

Aluminium **AL**
natural colour anodized

black imprint with arrow
etched (i.e., aluminium coloured)

Imprint resistant to weak acids and lye solutions, and against solvents in the event of brief contact





GN 711.3

Description	⚖
GN 711.3-AL-1	1

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Linear slides

Structure

All linear slides consist of an outer rail with a runner moving inside. Anti-friction bearings, kept at a distance and in position by means of a ball cage, lie between the rail and the runner.

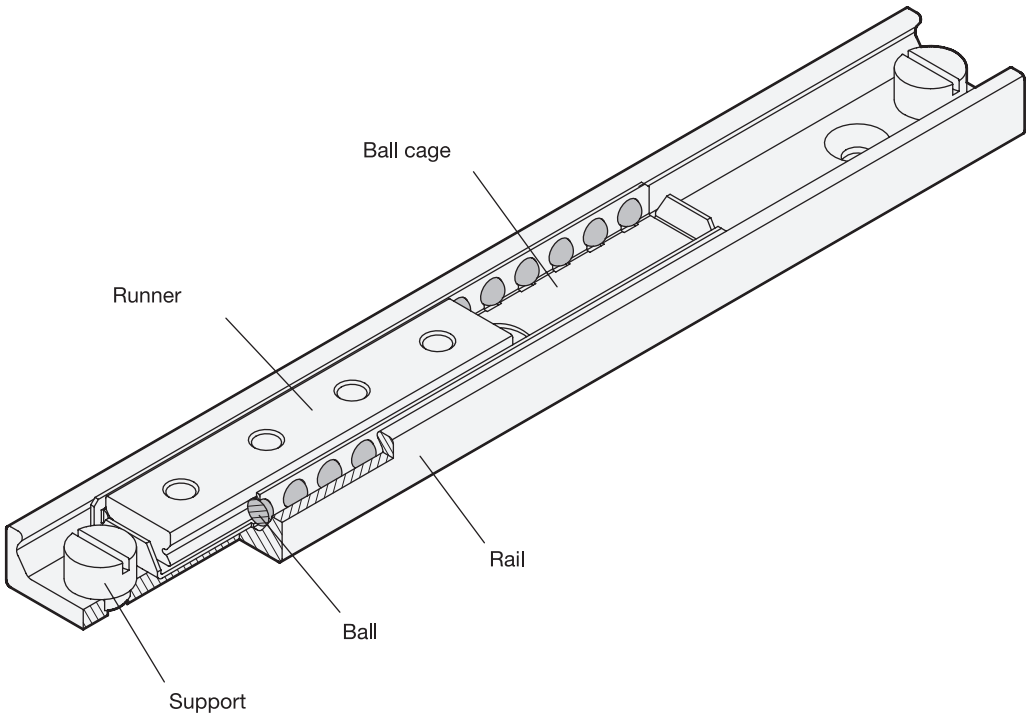
Rail and runner are made of heat treatable steel, enabling their use in industrial environments with higher requirements in terms of load rating, quiet operation and useful service life.

All designs are available in the nominal rail dimensions h_1 = 28, 35 and 43 mm and may also be supplied beyond the standard range in lengths from 130 mm to 1970 mm, appropriate for individual requirements.

Linear slides are normally adjusted so that a clearance-free (i.e. moderately pre-stressed) match-up is created between rail and runner. The raceways of the rails and runners are induction hardened, which combined with the antifriction bearings results in lower wear and longer service life. Linear slides are permanently lubricated with a high-grade special grease designed for linear guide rail systems.

Depending on requirements, a variety of different types are available. Sliding distances of the runners are inside, partly outside or entirely outside the length of the rails. Fully extendable telescopic linear slides consist of linear slides directly interconnected at the rails, the runners or with the help of an intermediate profile.

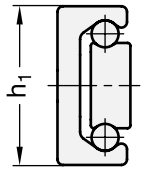
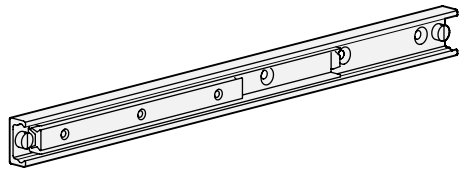
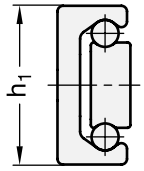
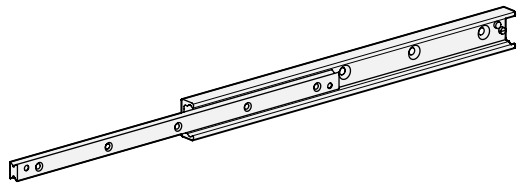
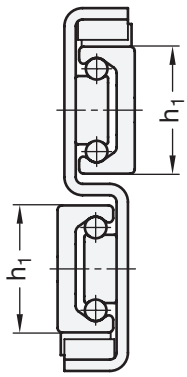
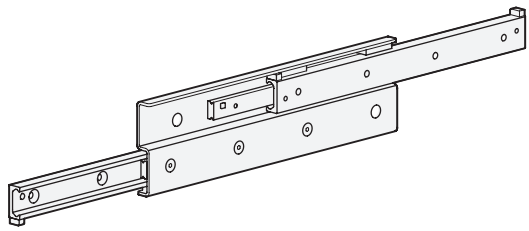
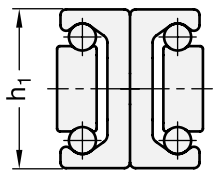
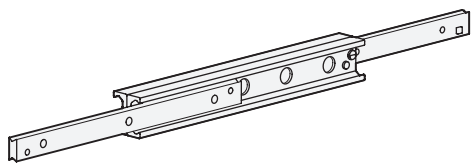
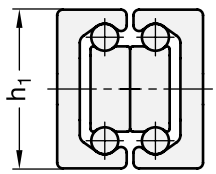
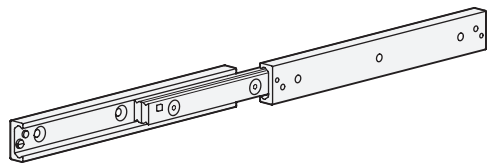
To mount linear slides, countersinks in the rails and, depending on type of construction, threaded or countersunk holes in the runners are available. The compact style is generally advantageous for use in tight spaces.



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Linear slides

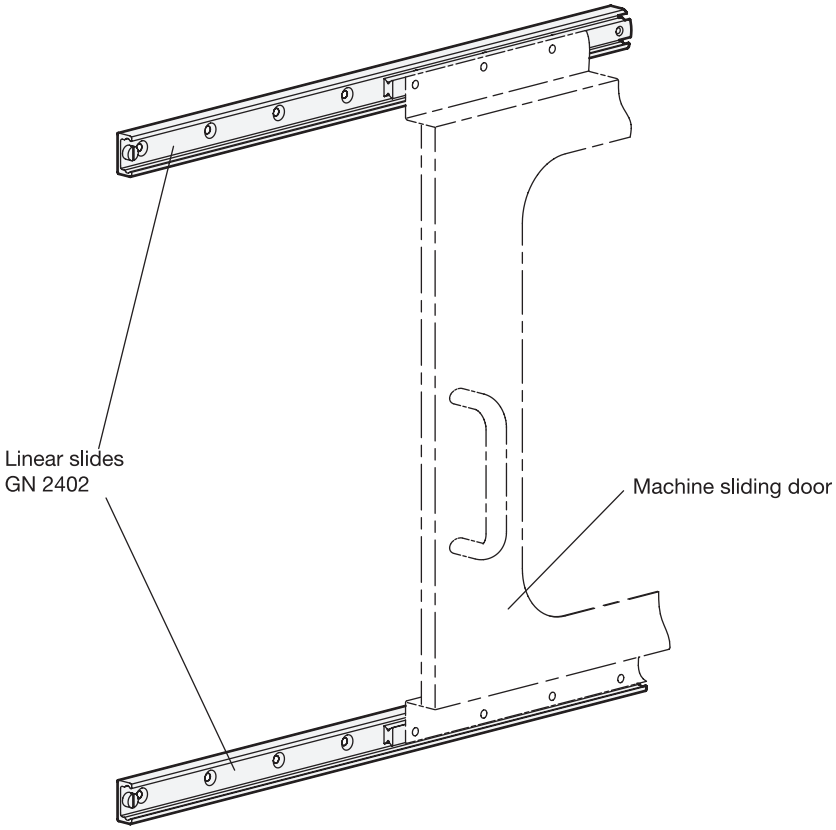
Types

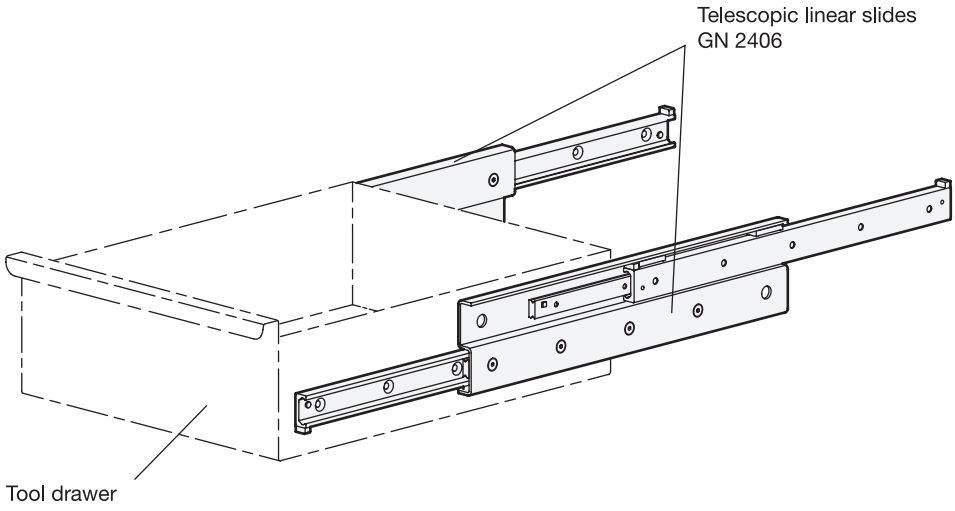
Linear slides with inside traversal distance **GN 2402** (see page 644)		
Telescopic linear slides with partly outside traversal distance (partial extension) **GN 2404** (see page 645)		
Telescopic linear slides with S-shaped intermediate profile (full extension) **GN 2406** (see page 646)		
Telescopic linear slides with rails connected in H-shape (full extension) **GN 2408** (see page 647)		
Telescopic linear slides with runners connected in dual configuration (full extension) **GN 2410** (see page 648)		

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Linear slides / Telescopic linear slides

Assembly examples





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GN 2402

RoHS

Linear slides

with no extension

SPECIFICATION

Rail / Runner
Heat treatable steel

- zinc plated, blue passivated
- Raceways hardened

Balls
Anti-friction bearing steel, hardened

Ball cage
Steel, zinc plated

INFORMATION

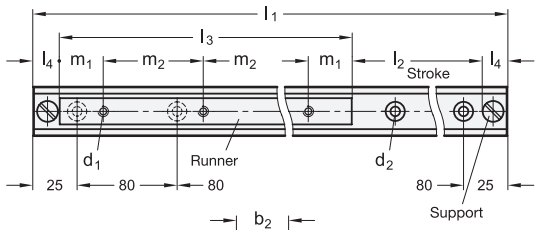
Linear slides GN 2402 are also known as linear motion bearings. They are used, for example, for storage drawers and sliding doors, or in jigmaking for a sliding motion in a linear direction.
The sliding distance of the runner lies within the length of the rail l_1. External elements should limit the maximum sliding distance; the supports of the rail have been designed to guard against the inadvertent extraction of the runner from the rail.

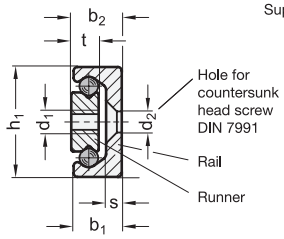
- Load rating and information to linear guide rail systems (see page 649)

ON REQUEST

- other lengths (based on the standard lengths grid dimension of 80 mm)
- Special lengths (bore, start and end distances)
- more than runner, special cages







GN 2402

Description	h1	l3	l1 - l2	b1	b2	d1	d2	l4 max.	m1	m2	s	t	⚖
GN 2402-28-60-130	28	60	130 - 34	12.3	12.9	M 5	5.5	18	10	20	4	7	228
GN 2402-28-60-210	28	60	210 - 114	12.3	12.9	M 5	5.5	18	10	20	4	7	336
GN 2402-28-60-370	28	60	370 - 274	12.3	12.9	M 5	5.5	18	10	20	4	7	540
GN 2402-28-80-290	28	80	290 - 174	12.3	12.9	M 5	5.5	18	10	20	4	7	420
GN 2402-28-80-450	28	80	450 - 334	12.3	12.9	M 5	5.5	18	10	20	4	7	672
GN 2402-28-80-610	28	80	610 - 494	12.3	12.9	M 5	5.5	18	10	20	4	7	890
GN 2402-28-130-290	28	130	290 - 124	12.3	12.9	M 5	5.5	18	25	80	4	7	504
GN 2402-28-130-450	28	130	450 - 284	12.3	12.9	M 5	5.5	18	25	80	4	7	720
GN 2402-28-130-690	28	130	690 - 524	12.3	12.9	M 5	5.5	18	25	80	4	7	1032
GN 2402-28-210-450	28	210	450 - 207	12.3	12.9	M 5	5.5	18	25	80	4	7	792
GN 2402-28-210-610	28	210	610 - 364	12.3	12.9	M 5	5.5	18	25	80	4	7	996
GN 2402-28-210-1010	28	210	1010 - 764	12.3	12.9	M 5	5.5	18	25	80	4	7	1536
GN 2402-35-130-290	35	130	290 - 114	16.5	17	M 6	6.5	23	25	80	3.5	10	847
GN 2402-35-130-450	35	130	450 - 274	16.5	17	M 6	6.5	23	25	80	3.5	10	1135
GN 2402-35-130-770	35	130	770 - 594	16.5	17	M 6	6.5	23	25	80	3.5	10	1711
GN 2402-35-210-450	35	210	450 - 194	16.5	17	M 6	6.5	23	25	80	3.5	10	1335
GN 2402-35-210-690	35	210	690 - 434	16.5	17	M 6	6.5	23	25	80	3.5	10	1767
GN 2402-35-210-1010	35	210	1010 - 754	16.5	17	M 6	6.5	23	25	80	3.5	10	2343
GN 2402-35-290-610	35	290	610 - 274	16.5	17	M 6	6.5	23	25	80	3.5	10	1823
GN 2402-35-290-930	35	290	930 - 594	16.5	17	M 6	6.5	23	25	80	3.5	10	2399
GN 2402-35-290-1330	35	290	1330 - 994	16.5	17	M 6	6.5	23	25	80	3.5	10	3119
GN 2402-43-210-450	43	210	450 - 194	21	22	M 8	8.5	23	25	80	4.5	13.5	2004
GN 2402-43-210-690	43	210	690 - 434	21	22	M 8	8.5	23	25	80	4.5	13.5	2772
GN 2402-43-210-1010	43	210	1010 - 754	21	22	M 8	8.5	23	25	80	4.5	13.5	3816
GN 2402-43-370-770	43	370	770 - 354	21	22	M 8	8.5	23	25	80	4.5	13.5	3456
GN 2402-43-370-1010	43	370	1010 - 594	21	22	M 8	8.5	23	25	80	4.5	13.5	4236
GN 2402-43-370-1490	43	370	1490 - 1074	21	22	M 8	8.5	23	25	80	4.5	13.5	5796

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GN 2404

Telescopic linear slides

with partial extension

SPECIFICATION

Rail / Runner
Heat treatable steel

- zinc plated, blue passivated
- Raceways hardened

Balls
Anti-friction bearing steel, hardened

Ball cage
Steel, zinc plated

INFORMATION

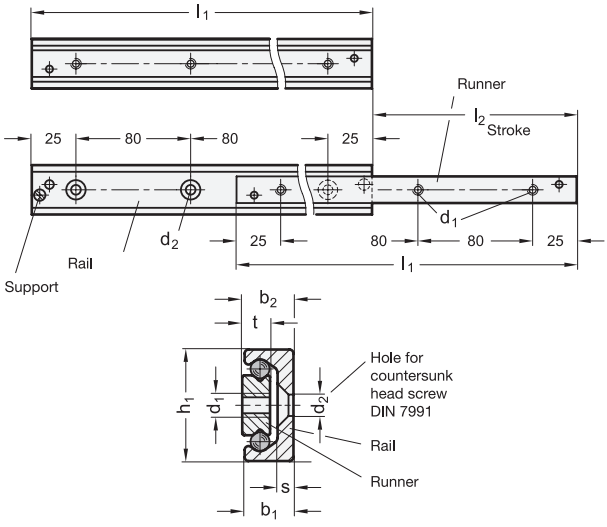
Telescopic linear slides GN 2404 are used, for example, for storage drawers and sliding doors, or in jigmaking for a sliding motion in a linear direction.
If the support screw is removed on both sides, the sliding distance extends the length of the rail plus an additional distance of slightly more than half the length of the rail.
External elements should limit the maximum sliding distance; the supports of the rail have been designed to guard against the inadvertent extraction of the runner from the rail.

- Load rating and information to linear guide rail systems (see page 649)

ON REQUEST

- other lengths (based on the standard lengths grid dimension of 80 mm)
- Special lengths (bore, start and end distances)





GN 2404

Description	h1	l1 - l2	b1	b2	d1	d2	s	t	⚖
GN 2404-28-130	28	130 - 74	12.3	12.9	M 5	5.5	4	7	290
GN 2404-28-210	28	210 - 116	12.3	12.9	M 5	5.5	4	7	460
GN 2404-28-290	28	290 - 148	12.3	12.9	M 5	5.5	4	7	640
GN 2404-28-370	28	370 - 190	12.3	12.9	M 5	5.5	4	7	810
GN 2404-28-450	28	450 - 232	12.3	12.9	M 5	5.5	4	7	990
GN 2404-28-530	28	530 - 274	12.3	12.9	M 5	5.5	4	7	1170
GN 2404-35-290	35	290 - 159	16.5	17	M 6	6.5	3.5	10	900
GN 2404-35-370	35	370 - 203	16.5	17	M 6	6.5	3.5	10	1110
GN 2404-35-450	35	450 - 247	16.5	17	M 6	6.5	3.5	10	1350
GN 2404-35-530	35	530 - 279	16.5	17	M 6	6.5	3.5	10	1590
GN 2404-35-610	35	610 - 323	16.5	17	M 6	6.5	3.5	10	1830
GN 2404-35-690	35	690 - 367	16.5	17	M 6	6.5	3.5	10	2070
GN 2404-43-370	43	370 - 208	21	22	M 8	8.5	4.5	13.5	1920
GN 2404-43-450	43	450 - 243	21	22	M 8	8.5	4.5	13.5	2340
GN 2404-43-530	43	530 - 278	21	22	M 8	8.5	4.5	13.5	2760
GN 2404-43-610	43	610 - 313	21	22	M 8	8.5	4.5	13.5	3170
GN 2404-43-690	43	690 - 363	21	22	M 8	8.5	4.5	13.5	3590
GN 2404-43-770	43	770 - 398	21	22	M 8	8.5	4.5	13.5	3730

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GN 2406

RoHS

Telescopic linear slides

with one side extension, S-shaped

SPECIFICATION

Type

Type **E**: with one side extension

Rail / Runner
Heat treatable steel

- zinc plated, blue passivated
- Raceways hardened

Balls
Anti-friction bearing steel, hardened

Ball cage
Steel, zinc plated

Intermediate metal sheet of the ball cage
Steel, zinc plated



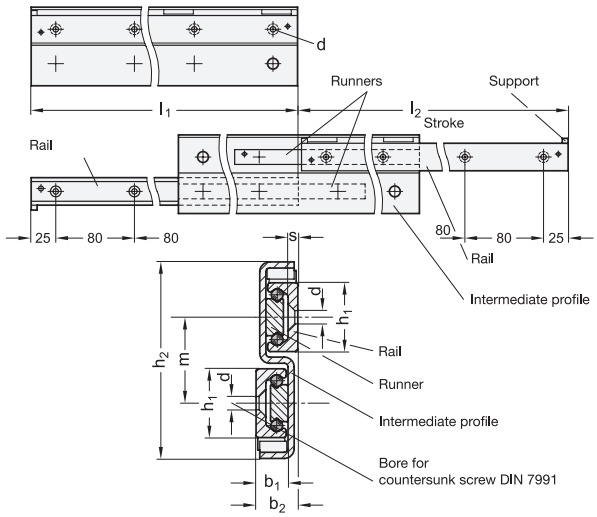
INFORMATION

Telescopic linear slides GN 2406 consist of two slides linked by an intermediate profile. They are used when the lateral space requires a small width, and when large extension is required. The S-shape of the intermediate profile gives the configuration a high degree of sturdiness.
The rails and the intermediate profile are equal in length. Both rails can be extended so that an extension is reached which is longer than the base length l_1.
External elements should limit the maximum sliding distance; the supports of the rail have been designed to guard against the inadvertent extraction of the runner from the rail.

- Load rating and information to linear guide rail systems (see page 649)

ON REQUEST

- other lengths (based on the standard lengths grid dimension of 80 mm)
- Special lengths (bore, start and end distances)
- Extensions on both side of each rail (Type D)



GN 2406

Description	h_1	$l_1 - l_2$	b_1	b_2	d	h_2	m	s	⚖
GN 2406-28-290-E	28	290 - 296	12.3	17	5.5	80	35	4	1890
GN 2406-28-370-E	28	370 - 380	12.3	17	5.5	80	35	4	2410
GN 2406-28-450-E	28	450 - 464	12.3	17	5.5	80	35	4	2930
GN 2406-28-530-E	28	530 - 548	12.3	17	5.5	80	35	4	3450
GN 2406-28-610-E	28	610 - 630	12.3	17	5.5	80	35	4	3970
GN 2406-35-450-E	35	450 - 494	16.5	22.5	6.5	97	43	3.5	4000
GN 2406-35-530-E	35	530 - 558	16.5	22.5	6.5	97	43	3.5	4520
GN 2406-35-690-E	35	690 - 734	16.5	22.5	6.5	97	43	3.5	5990
GN 2406-35-850-E	35	850 - 886	16.5	22.5	6.5	97	43	3.5	7450
GN 2406-43-530-E	43	530 - 556	21	28	8.5	117	52	4.5	7740
GN 2406-43-690-E	43	690 - 726	21	28	8.5	117	52	4.5	10070
GN 2406-43-850-E	43	850 - 866	21	28	8.5	117	52	4.5	12410
GN 2406-43-1010-E	43	1010 - 1036	21	28	8.5	117	52	4.5	14750
GN 2406-43-1490-E	43	1490 - 1516	21	28	8.5	117	52	4.5	21750

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GN 2408

Telescopic linear slides

with H-shaped rail

SPECIFICATION

Types

- Type **GG**: Runner with thread, on both sides
- Type **DG**: Runner 1x with countersunk and 1x with thread
- Type **DD**: Runner with countersunk, on both sides

Rail / Runner
Heat treatable steel

- zinc plated, blue passivated
- Raceways hardened

Balls
Anti-friction bearing steel, hardened

Ball cage
Steel, zinc plated

Rail connection

- Blank rivets, Stainless Steel (h_1 = 28 and 35)
- Screws, Steel zinc plated (h_1 = 43)

INFORMATION

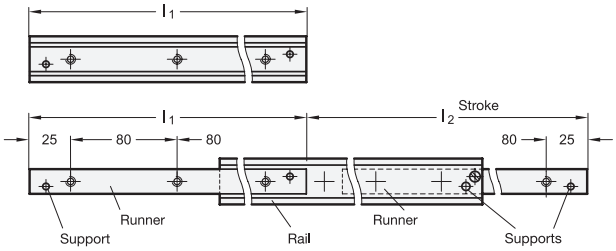
Telescopic linear slides GN 2408 consist of two interconnected linear slides. They are used, for example, in handling or automation applications and in jigmaking, for straight-line traversal distance when large extension and a low construction height of the rail are required. The H-shape of the rails profile gives the configuration a high degree of sturdiness.
The rails and runners are equal in length. Both rails can be extended so that an extension is reached which is longer than the base length l_1. Removing the support screws from the rails allows a stroke of the runners on both sides.
External elements should limit the maximum sliding distance; the supports of the rail have been designed to guard against the inadvertent extraction of the runner from the rail.

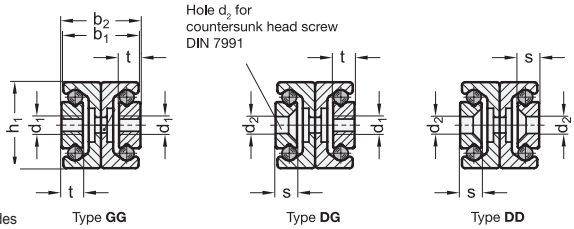
- Load rating and information to linear guide rail systems (see page 649)

ON REQUEST

- other lengths (based on the standard lengths grid dimension of 80 mm)
- Special lengths (bore, start and end distances)







* Complete with type index of the telescopic linear slide (GG, DG or DD)

GG with thread, on both sides | **DG** 1x with countersunk, 1x with thread | **DD** with countersunk, on both sides

GN 2408

Description	h1	l1 - l2	b1	b2	d1	d2	s	t	⚖
GN 2408-28-210-*	28	210 - 232	24.6	25.8	M 5	5.5	4	7	920
GN 2408-28-370-*	28	370 - 380	24.6	25.8	M 5	5.5	4	7	1630
GN 2408-28-450-*	28	450 - 464	24.6	25.8	M 5	5.5	4	7	1980
GN 2408-28-530-*	28	530 - 548	24.6	25.8	M 5	5.5	4	7	2330
GN 2408-35-370-*	35	370 - 406	33	34	M 6	6.5	3.5	10	2260
GN 2408-35-450-*	35	450 - 494	33	34	M 6	6.5	3.5	10	2750
GN 2408-35-530-*	35	530 - 558	33	34	M 6	6.5	3.5	10	3220
GN 2408-35-610-*	35	610 - 646	33	34	M 6	6.5	3.5	10	3720
GN 2408-43-450-*	43	450 - 486	42	44	M 8	8.5	4.5	13.5	4730
GN 2408-43-610-*	43	610 - 626	42	44	M 8	8.5	4.5	13.5	6410
GN 2408-43-770-*	43	770 - 796	42	44	M 8	8.5	4.5	13.5	8090
GN 2408-43-930-*	43	930 - 966	42	44	M 8	8.5	4.5	13.5	9770

Weight type GG

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Telescopic linear slides

with full extension, dual configuration



SPECIFICATION

Rail / Runner
Heat treatable steel

- zinc plated, blue passivated
- Raceways hardened

Balls
Anti-friction bearing steel, hardened

Ball cage
Steel, zinc plated

Rail Connection
Screw Steel, zinc plated

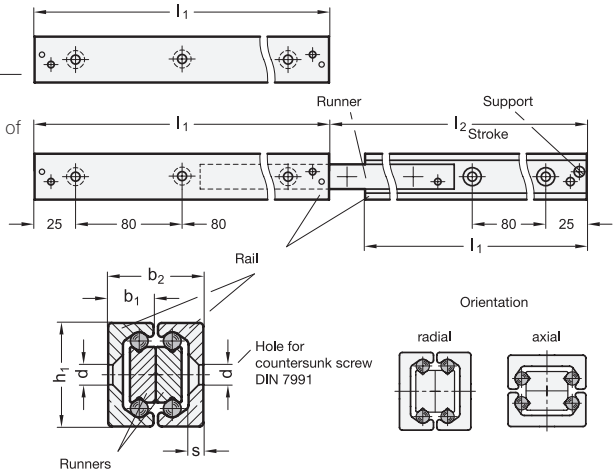
INFORMATION

Telescopic linear slides GN 2410 consist of two linear motion ball slide rails connected at the runners. They are used, for example, in material handling or automation applications, or in jigmaking, to achieve a sliding motion in a linear direction when long extensions with low construction height of the rail are required.
The dual configuration has the advantage that both the radial and axial load capacities are identical. Meanwhile this design has proven less susceptible to dirt in practical use.
The rails and runner are equal in length. Both runners can be extended so that an extension is reached which is longer than the rail base length l_1. Removing the support screws from the rails allows an extension of the rails on both sides.
External elements should limit the maximum sliding distance; the supports of the rail have been designed to guard against the inadvertent extraction of the runner from the rail.

- Load rating and information to linear guide rail systems (see page 649)

ON REQUEST

- other lengths (based on the standard lengths grid dimension of 80 mm)
- Special lengths (bore, start and end distances)



GN 2410

Description	h1	l1 - l2	b1	b2	d	s	⚖
GN 2410-28-210	28	210 - 232	12.3	25.8	5.5	4	898
GN 2410-28-370	28	370 - 380	12.3	25.8	5.5	4	1630
GN 2410-28-450	28	450 - 464	12.3	25.8	5.5	4	1980
GN 2410-28-530	28	530 - 548	12.3	25.8	5.5	4	2300
GN 2410-35-370	35	370 - 406	16.5	34	6.5	3.5	2331
GN 2410-35-450	35	450 - 494	16.5	34	6.5	3.5	2835
GN 2410-35-530	35	530 - 558	16.5	34	6.5	3.5	3339
GN 2410-35-610	35	610 - 646	16.5	34	6.5	3.5	3843
GN 2410-43-450	43	450 - 486	21	44	8.5	4.5	5000
GN 2410-43-610	43	610 - 626	21	44	8.5	4.5	6770
GN 2410-43-770	43	770 - 796	21	44	8.5	4.5	8550
GN 2410-43-930	43	930 - 966	21	44	8.5	4.5	10320

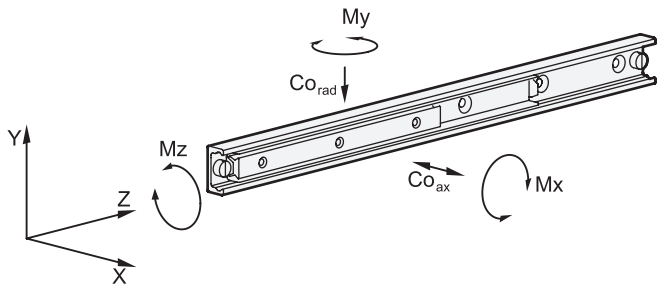
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Load rating of telescopic linear slides

in ascending order of the standard numbers

When selecting a suitable linear slide, it is primarily the available space, the desired stroke and the load carried which must be taken into consideration. The values listed below are intended as guidelines for selecting the most suitable nominal rail size.

The details on load rating are non-binding guide values given without liability and does not constitute any type of guarantee or warranty of its intended use. The user must determine in each individual case whether a product is suitable for the intended application. Environmental factors and aging may affect the stated values.



Static load rating

Article No.		Load ratings		Permissible load torques		
		Co rad in N	Co ax in N	Mx in Nm	My in Nm	Mz in Nm
GN 2402	-28-60-...	3580	2500	37	25	18
	-28-80-...	4780	3345	65	45	23
	-28-130-...	7765	5435	166	117	38
	-28-210-...	12545	8780	430	300	62
	-35-130-...	9980	6985	219	156	50
	-35-210-...	16125	11290	560	397	87
	-35-290-...	22270	15590	1085	745	109
	-43-210-...	23140	16200	790	552	157
	-43-370-...	40775	28540	2445	1710	275
GN 2404	-28-130	645	452	30	23	17
	-28-210	1165	816	86	60	27
	-28-290	2015	1410	190	135	41
	-28-370	2540	1780	309	215	52
	-28-450	3065	2145	540	316	64
	-28-530	3595	2515	625	435	74
	-35-290	2100	1470	218	155	56
	-35-370	2685	1880	348	247	69
	-35-450	3270	2285	515	365	80
	-35-530	4350	3045	787	553	101
	-35-610	4930	3450	1025	722	113
	-35-690	5510	3860	1295	914	125
	-43-370	3540	2480	444	313	119
	-43-450	4905	3435	735	514	151
	-43-530	6305	4415	1090	766	184
	-43-610	7725	5410	1525	1065	210
	-43-690	8185	5730	1850	1295	240
	-43-770	9490	6530	2405	1685	273

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Load rating of telescopic linear slides

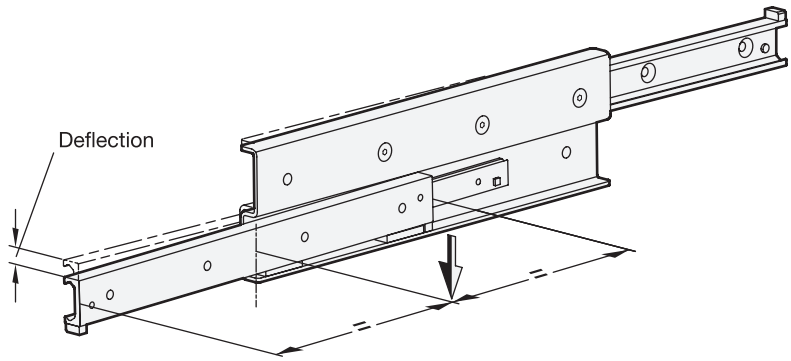
in ascending order of the standard series numbers

Article No.		Load ratings C_{0rad} in N	Article No.		Load ratings C_{0rad} in N	Article No.		Load ratings C_{0rad} in N
GN 2406	-28-290-E	587	GN 2408	-28-210-...	447	GN 2410	-28-210	444
	-28-370-E	793		-28-370-...	1000		-28-370	496
	-28-450-E	999		-28-450-...	1205		-28-450	405
	-28-530-E	1205		-28-530-...	1140		-28-530	342
	-28-610-E	1510		-35-370-...	1035		-35-370	534
	-35-450-E	1265		-35-450-...	1265		-35-450	439
	-35-530-E	1700		-35-530-...	1705		-35-530	403
	-35-690-E	2150		-35-610-...	1930		-35-610	346
	-35-850-E	2830		-43-450-...	1890		-43-450	1370
	-43-530-E	2140		-43-610-...	3035		-43-610	1115
	-43-690-E	2885		-43-770-...	3145		-43-770	870
	-43-850-E	4010		-43-930-...	2580		-43-930	714
	-43-1010-E	4755						
	-43-1490-E	3820						

No details on the permissible load torques are given for the telescopic linear slides as these are normally used for paired applications. Loads of these dimensions occur to a minor degree because it may be assumed that the surrounding construction has sufficient rigidity and stiffness. Transferring load torques within certain limited is permitted.

Static load and deflection

The load values given in the tables refer to a maximum permissible force allowed to act in the middle of the fully extended profile rail at the third segment. If the given values are observed and if the telescopic linear slide is fully extended, a minor deflection (sag) occurs at the end of the runner or of the rail. This has normally no detrimental effect on the proper function of the application. If required, guide values may be given if requested.



Mounting screws, assignment of the mounting holes

The standard mounting hardware is DIN 7991-10.9 countersunk head screws, to be mounted with the recommended tightening torque. Depending on type, not all mounting holes may be utilized. In general, these holes can be left unused. In exceptional cases, especially in bilateral stroke, mounting holes can be accessed by loosening the support screws and by pulling out the runner. The support screws are then put back in place.

Traversal speed, cage slip

The traversal speed in linear slides can be as much as 0.8 m/s. The particular application and the installation length can have an effect on this value. In the event of rapid changes of direction and high accelerating forces, cage slip may occur in some cases, especially in long ball cages. In cases such as these, the cage does not move synchronously with half the speed of the runner, but gradually loses its correct position owing to the slip. Whenever possible, running a blank stroke to the end of the traversal distance should be provided for back positioning.

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Linear guide rail systems

Structure

Linear guide rail systems allow the reliable and economical linear movement of hardware modules. Their outstanding attributes are low-maintenance operation, long service life and quiet running. These are attributes which make roller guide systems indispensable components for efficient and safe movement of devices, and meet the needs of facilities with low energy requirements.

The product range includes all components necessary for constructing linear guide rail systems that are compact and easy to assemble and install. All inear guide rail systems consist of one outer rail with rollers or roller carriages moving inside the rail.

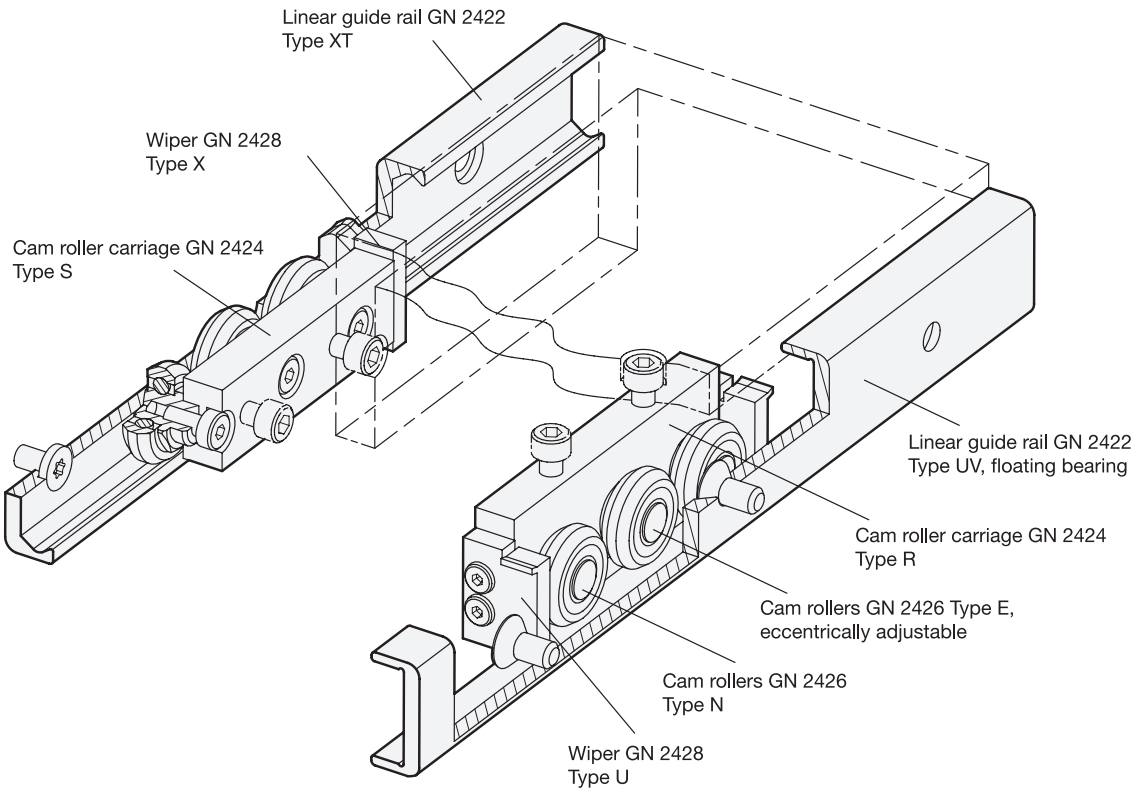
Rails are the foundations for linear guide rail systems. They can be constructed as fixed or floating bearing versions, with the fixed bearing type guiding the rollers running inside the rail on two levels, while the floating bearing type does so only on one level. By combining both versions, any misalignments or parallelism errors in the connected construction can be corrected. Complex preliminary work caused by the precision machining of surrounding parts can thus be kept to a minimum. Both rail versions can be mounted in one of two ways: cylindrical countersunk holes, or 90° conical holes for self-centering.

Cam roller carriages are available in 3 different types of designs, differing by their radial or axial assembly arrangement, their material, and their degree of sealing. All cam roller carriages consist of 3 rollers, with the middle one always supplied with an eccentrically adjustable bearing pivot for determining the initial tension or the clearance/play inside the rail. Depending on the rail version, a wiper is mounted on either end of the roller carriage.

Cam rollers are similar in structure to deep-groove ball bearings, with a non-detachable bearing pivot used as mounting point.

For special applications, cam rollers and wipers can also be supplied separately from the cam roller carriages under separate standards.

All design variants are available in the nominal rail dimensions h_1= 18, 28, 35 and 43 mm. Beyond the standard range, they can also be supplied in lengths of up to 3600 mm in one piece, or as combined rails for individual and customized requirements.



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Linear guide rail systems

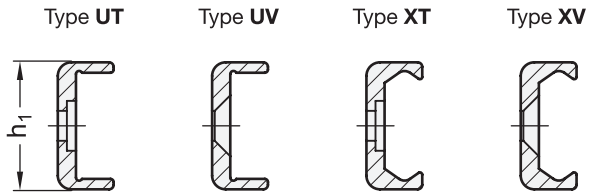
Components and extras

To insure maximum flexibility, linear guide rail systems are made from the components listed below. Depending on the requirement, the appropriate components can be supplied in the desired quantity. Because the linear guide rails and the cam roller carriages must be assembled separately in many applications, these items will be supplied unassembled and packed separately.

Upon request, fully pre-assembled linear guide rail systems including rails GN 2422 and cam roller carriages GN 2424 are available.

Cam roller linear guide rails

GN 2422 (see page 654)

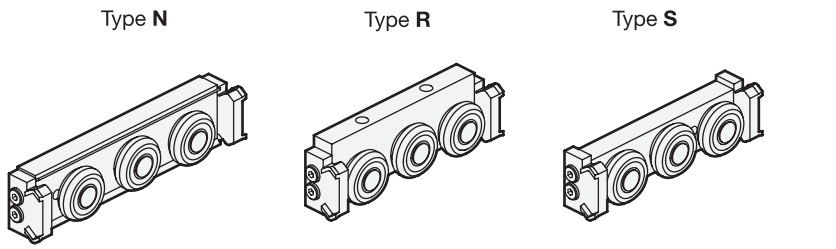


Floating bearing rails — Fixed bearing rails

Cam roller carriages

for rails

GN 2424 (see page 656)

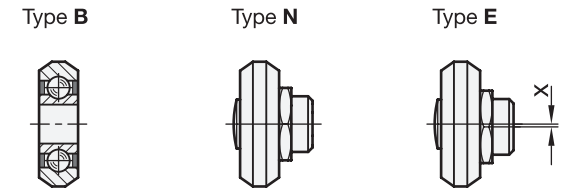


Normal cam roller carriages — Radial cam roller carriages — Narrow cam roller carriages

Cam rollers

for rails

GN 2426 (see page 658)

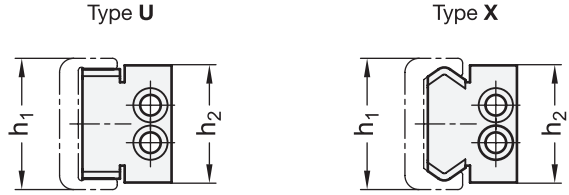


Roller with bore — Normal roller with centered bearing mounting point — Eccentric roller with eccentrical bearing mounting point

Wipers

for rails

GN 2428 (see page 659)

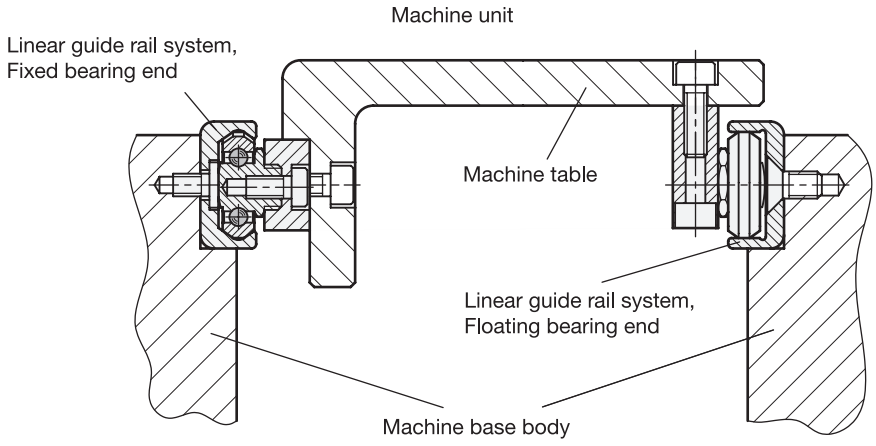


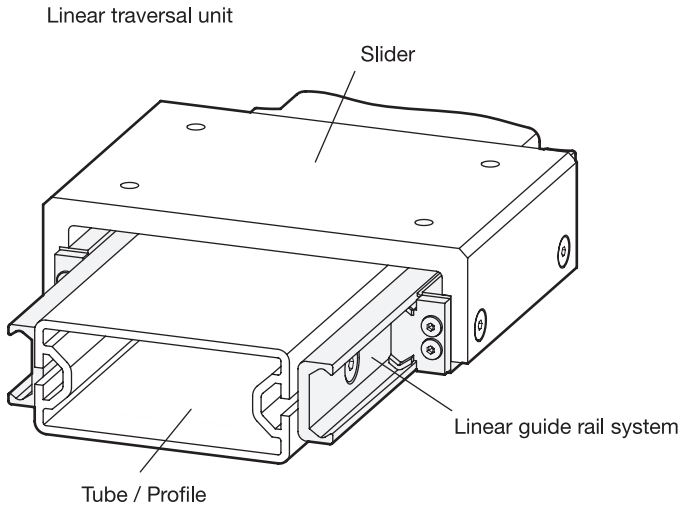
for fixed bearing rails — for floating bearing rails

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Linear guide rail systems

Assembly examples





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Cam roller linear guide rails

for linear guide rail systems, C-profile



SPECIFICATION

Types

- Type **UT**: Floating bearing rail, with mounting hole for flat head screw
- Type **UV**: Floating bearing rail, with mounting hole for countersunk screw
- Type **XT**: Fixed bearing rail, with mounting hole for flat head screw
- Type **XV**: Fixed bearing rail, with mounting hole for countersunk screw

Heat treatable steel

- zinc plated, blue passivated
- Raceways hardened, ground

Flat head screws (only for type UT / XT)
Steel, zinc plated, blue passivated

INFORMATION

Cam roller linear guide rails GN 2422 can be combined with cam roller carriages GN 2424 or cam rollers GN 2426 to construct linear guide rail systems. These space-saving units are used, for example, for carrying sliding doors, or in mechanical engineering or jigmaking for the linear movement of plant equipment.
These systems feature high stability and quiet running at high traversal speeds. Thanks to the option of combining fixed and floating bearing rails, they cause no great stress to the surrounding construction, and thus allow parallelism errors to be compensated for. Flat head screws with low head are included with the rail types UT and XT.

- Linear guide rail systems (see page 660)

ACCESSORY

- Cam roller carriages GN 2424 (see page 656)
- Cam rollers GN 2426 (see page 658)

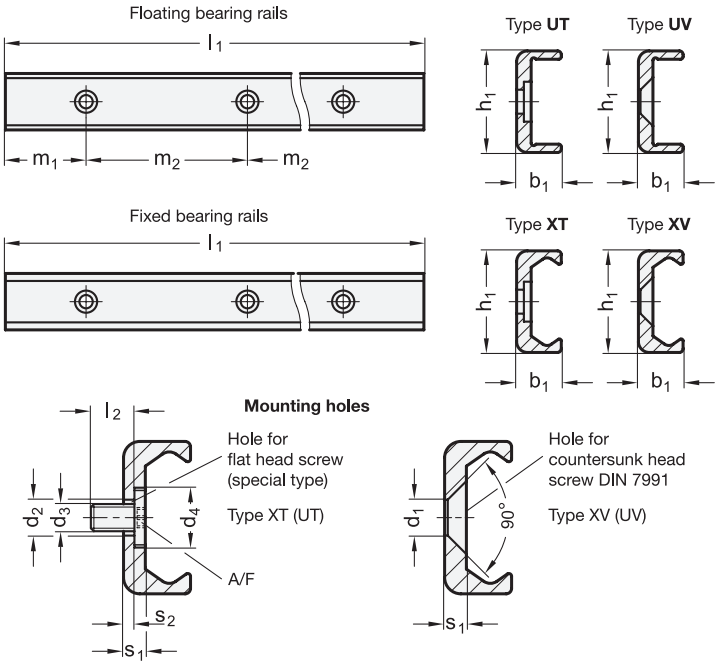
ON REQUEST

- other rail lengths (up to max. 3600 mm)
- other fixing hole distance m_1/m_2

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GN 2422

Cam roller linear guide rails



*Complete with type of the Cam roller linear guide rails

UT UV XT XV

GN 2422

Description	h1	l1	m1	b1	d1	d2	d3	d4	l2	m2	s1	s2	A/F	⚖
GN 2422-18-240-40-*	18	240	40	8.3	4.5	5	M 4	9.5	8	80	2.8	0.8	T20	132
GN 2422-18-400-40-*	18	400	40	8.3	4.5	5	M 4	9.5	8	80	2.8	0.8	T20	220
GN 2422-18-560-40-*	18	560	40	8.3	4.5	5	M 4	9.5	8	80	2.8	0.8	T20	308
GN 2422-18-800-40-*	18	800	40	8.3	4.5	5	M 4	9.5	8	80	2.8	0.8	T20	440
GN 2422-18-1040-40-*	18	1040	40	8.3	4.5	5	M 4	9.5	8	80	2.8	0.8	T20	572
GN 2422-18-1200-40-*	18	1200	40	8.3	4.5	5	M 4	9.5	8	80	2.8	0.8	T20	660
GN 2422-28-400-40-*	28	400	40	12.3	5.5	6.4	M 5	11	10	80	4	2	T25	484
GN 2422-28-560-40-*	28	560	40	12.3	5.5	6.4	M 5	11	10	80	4	2	T25	678
GN 2422-28-800-40-*	28	800	40	12.3	5.5	6.4	M 5	11	10	80	4	2	T25	968
GN 2422-28-1040-40-*	28	1040	40	12.3	5.5	6.4	M 5	11	10	80	4	2	T25	1258
GN 2422-28-1200-40-*	28	1200	40	12.3	5.5	6.4	M 5	11	10	80	4	2	T25	1452
GN 2422-28-1440-40-*	28	1440	40	12.3	5.5	6.4	M 5	11	10	80	4	2	T25	1742
GN 2422-35-400-40-*	35	400	40	16.5	6.5	8	M 6	15	12	80	3.5	0.8	T30	636
GN 2422-35-560-40-*	35	560	40	16.5	6.5	8	M 6	15	12	80	3.5	0.8	T30	890
GN 2422-35-800-40-*	35	800	40	16.5	6.5	8	M 6	15	12	80	3.5	0.8	T30	1272
GN 2422-35-1040-40-*	35	1040	40	16.5	6.5	8	M 6	15	12	80	3.5	0.8	T30	1654
GN 2422-35-1200-40-*	35	1200	40	16.5	6.5	8	M 6	15	12	80	3.5	0.8	T30	1108
GN 2422-35-1440-40-*	35	1440	40	16.5	6.5	8	M 6	15	12	80	3.5	0.8	T30	2290
GN 2422-43-400-40-*	43	400	40	21	8.5	10.5	M 8	18	16	80	4.5	1.5	T40	1004
GN 2422-43-560-40-*	43	560	40	21	8.5	10.5	M 8	18	16	80	4.5	1.5	T40	1406
GN 2422-43-800-40-*	43	800	40	21	8.5	10.5	M 8	18	16	80	4.5	1.5	T40	2008
GN 2422-43-1040-40-*	43	1040	40	21	8.5	10.5	M 8	18	16	80	4.5	1.5	T40	2610
GN 2422-43-1200-40-*	43	1200	40	21	8.5	10.5	M 8	18	16	80	4.5	1.5	T40	3012
GN 2422-43-1520-40-*	43	1520	40	21	8.5	10.5	M 8	18	16	80	4.5	1.5	T40	3815
GN 2422-43-2000-40-*	43	2000	40	21	8.5	10.5	M 8	18	16	80	4.5	1.5	T40	5020

Weight type UT

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Cam roller carriages

for cam roller linear guide rails GN 2422

SPECIFICATION

Types

- Type **N**: Normal roller carriage, central arrangement
- Type **R**: Radial roller carriage, lateral arrangement
- Type **S**: Narrow roller carriage, central arrangement

Version

- Version **U**: with wiper for floating bearing rail (U-rail)
- Version **X**: with wiper for fixed bearing rail (X-rail)

Base body

- Aluminium (Type N)
- Steel, zinc plated, blue passivated (Type R / Type S)

Rollers

- Anti-friction bearing steel, hardened
- Ball mounted, sealed (2RS)
- permanent lubrication

Wiper

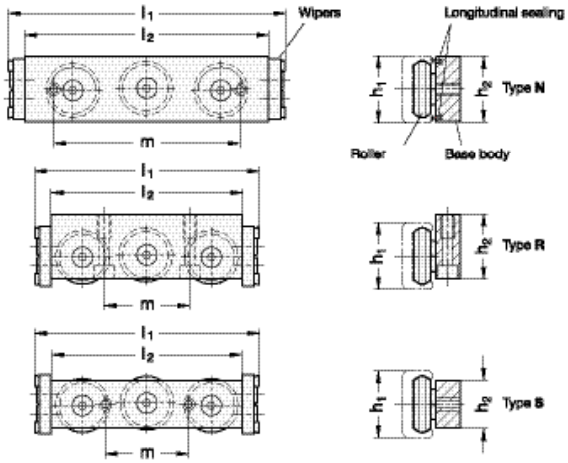
- Plastic, PUR, grey
- Steel insert, zinc plated



INFORMATION

Cam roller carriages GN 2424 are combined with cam roller linear guide rails GN 2422 (see page 654) to build linear guide rail systems. They are used in mechanical engineering or jigmaking for the linear movement of plant equipment.
Depending on cam roller carriage type, these can be mounted in axial or radial direction to the roller axes. Also depending on rail type, matching wipers are mounted, with type N featuring additional sealing lips in longitudinal direction.

- Linear guide rail systems (see page 660)



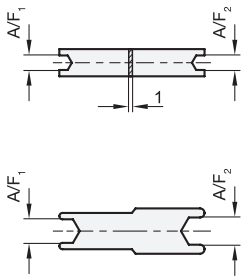
ON REQUEST

- Cam roller carriages with more than 3 rollers
- other roller arrangements

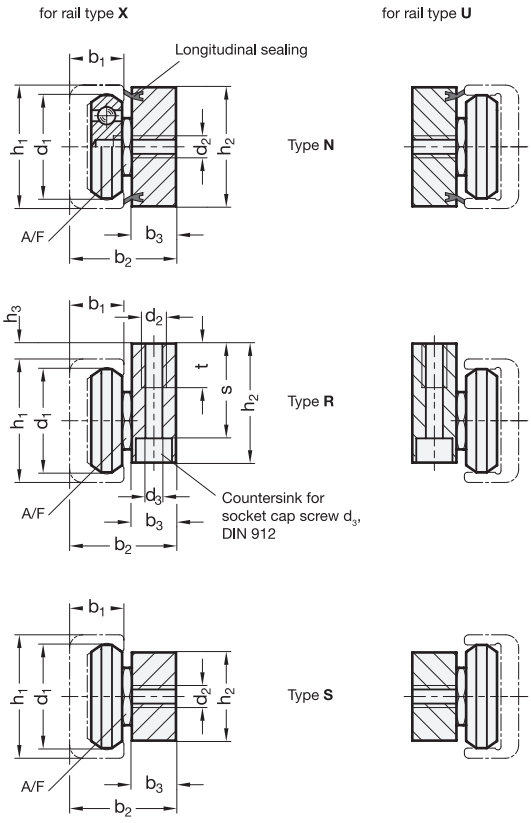
ASSEMBLY INFORMATION

The initial tension or the clearance of the cam roller carriage in the rail can be determined during assembly. Both outer rollers carry the cam roller carriage, with the middle roller (for eccentric adjustment) supporting the carriage on the opposing rail side. Detailed assembly instructions and the necessary tool are included with every cam roller carriage.

If required, the open-end wrench may also be ordered seperately GN 2424.1 with two sizes being available:
A/F_1 / A/F_2 = 8 for construction size with h_1 = 18, Article no. **GN 2424.1-8-8**
A/F_1 = 13 and A/F_2 = 15 for construction size with h_1 = 28 / 35 / 43, Article no. **GN 2424.1-13-15**



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GN 2424

Description	h1	b1	b2	b3	d1	d2	d3	h2	h3	l1	l2	m	s	t	A/F	⚖
GN 2424-18-N-X	18	8.3	16.5	7.2	14	M 5	-	17	-	94	80	52	-	-	8	30
GN 2424-18-N-U	18	8.3	16.5	7.2	14	M 5	-	17	-	94	80	52	-	-	8	30
GN 2424-28-N-X	28	12.3	24.1	10	22.4	M 6	-	25	-	116	102	78	-	-	13	120
GN 2424-28-N-U	28	12.3	24.1	10	22.4	M 6	-	25	-	116	102	78	-	-	13	120
GN 2424-43-N-X	43	21	37.5	15	35	M 8	-	40	-	148	134	114	-	-	15	415
GN 2424-43-N-U	43	21	37.5	15	35	M 8	-	40	-	148	134	114	-	-	15	415
GN 2424-18-R-X	18	8.3	17.3	8	14	M 5	M 4	20	4	74	60	20	17	8	8	86
GN 2424-18-R-U	18	8.3	17.3	8	14	M 5	M 4	20	4	74	60	20	17	8	8	86
GN 2424-28-R-X	28	12.3	24.1	10	22.4	M 6	M 5	30	4	94	80	36	24.5	10	13	240
GN 2424-28-R-U	28	12.3	24.1	10	22.4	M 6	M 5	30	4	94	80	36	24.5	10	13	240
GN 2424-35-R-X	35	16.5	37.5	12	28	M 8	M 6	36	3	114	100	45	29.5	15	15	486
GN 2424-35-R-U	35	16.5	37.5	12	28	M 8	M 6	36	3	114	100	45	29.5	15	15	486
GN 2424-43-R-X	43	21	17.3	15	35	M 8	M 6	45	4	134	120	56	38.5	16	15	697
GN 2424-43-R-U	43	21	17.3	15	35	M 8	M 6	45	4	134	120	56	38.5	16	15	697
GN 2424-18-S-X	18	8.3	15	5.7	14	M 5	-	9.5	-	74	60	20	-	-	8	40
GN 2424-18-S-U	18	8.3	15	5.7	14	M 5	-	9.5	-	74	60	20	-	-	8	40
GN 2424-28-S-X	28	12.3	23.8	9.7	22.4	M 6	-	15	-	94	80	35	-	-	13	146
GN 2424-28-S-U	28	12.3	23.8	9.7	22.4	M 6	-	15	-	94	80	35	-	-	13	146
GN 2424-35-S-X	35	16.5	30	12	28	M 8	-	20	-	114	100	45	-	-	15	368
GN 2424-35-S-U	35	16.5	30	12	28	M 8	-	20	-	114	100	45	-	-	15	368
GN 2424-43-S-X	43	21	37.5	14.5	35	M 8	-	25	-	134	120	55	-	-	15	542
GN 2424-43-S-U	43	21	37.5	14.5	35	M 8	-	25	-	134	120	55	-	-	15	542

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Cam rollers

for cam roller linear guide rails GN 2422

SPECIFICATION

Types

- Type **B**: Roller with bore
- Type **N**: Normal roller with centered bearing mounting point
- Type **E**: Eccentric roller with eccentric bearing mounting point

Roller

- Anti-friction bearing steel, hardened
- Dust and splash water protected
- permanent lubrication

Sealing disc
Plastic NBR **2RS**

Bearing pivot
Steel zinc plated, blue passivated

INFORMATION

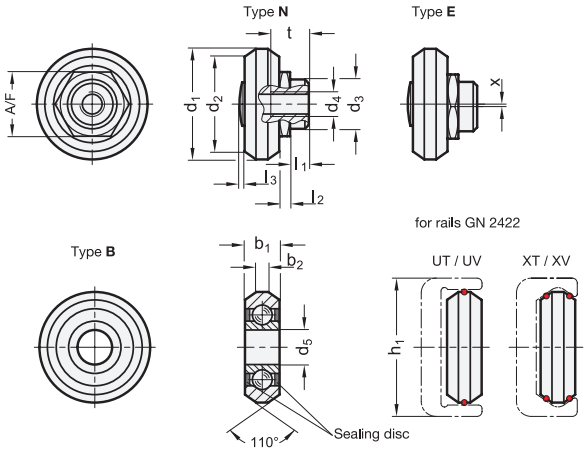
Cam rollers GN 2426 are combined with cam roller linear guide rails GN 2422 (see page 654) to build individual and space-saving linear guide rail systems.
Outer rim surfaces of the rollers are slightly convex, so that in conjunction with the correspondingly-shaped bearing rails (Type XT or XV) there is an accurate and smooth run across four contact points. The same applies to floating bearing rails (Type UT or UV), but with only two contact points.
Combined with the rail, clearance freedom or the initial tension of several rollers can be determined during assembly by using the adjustable eccentrical roller (Type E). The required open-end wrench GN 2424.1 (see page 656) is available seperately.
The sealed and permanently lubricated rollers guarantee long service life and superior running performance.

- Linear guide rail systems (see page 660)

ON REQUEST

Sealing discs, sheet metal profile with gap seal (2Z)





GN 2426

Description	h1	b1	b2	d1	d2	d3 -0.05	d4	d5 -0.008	l1	l2	l3 max.	A/F	t	x	⚖
GN 2426-18-B-2RS	18	4	1.6	14	12.4	-	-	5	-	-	-	-	-	-	4
GN 2426-28-B-2RS	28	7	2.4	22.4	19.2	-	-	7	-	-	-	-	-	-	13
GN 2426-35-B-2RS	35	7.5	3.3	28	25.1	-	-	8	-	-	-	-	-	-	23
GN 2426-43-B-2RS	43	11	5	35	30.8	-	-	10	-	-	-	-	-	-	63
GN 2426-18-E-2RS	18	4	1.6	14	12.4	6	M 4	-	1.8	1.5	0.5	8	5	0.4	4
GN 2426-28-E-2RS	28	7	2.4	22.4	19.2	10	M 5	-	3.8	2.2	0.6	13	8	0.5	17
GN 2426-35-E-2RS	35	7.5	3.3	28	25.1	12	M 5	-	4.2	2.5	0.7	15	9	0.7	32
GN 2426-43-E-2RS	43	11	5	35	30.8	12	M 6	-	4.3	2.5	0.7	15	11	0.8	63
GN 2426-18-N-2RS	18	4	1.6	14	12.4	6	M 4	-	1.8	1.5	0.5	8	5	0.4	4
GN 2426-28-N-2RS	28	7	2.4	22.4	19.2	10	M 5	-	3.8	2.2	0.6	13	8	0.5	17
GN 2426-35-N-2RS	35	7.5	3.3	28	25.1	12	M 5	-	4.2	2.5	0.7	15	9	0.7	32
GN 2426-43-N-2RS	43	11	5	35	30.8	12	M 6	-	4.3	2.5	0.7	15	11	0.8	63

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GN 2428

Wipers

for cam roller linear guide rails GN 2422

SPECIFICATION

Types

- Type **U**: for floating bearing rails
- Type **X**: for fixed bearing rails

Wiper
Plastic PUR, grey

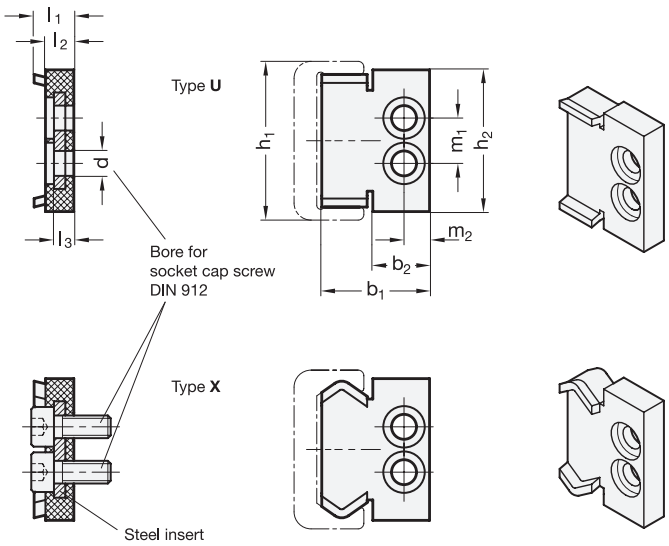
Bracing core
Steel, zinc plated

Cylinder head screw DIN 912
Steel zinc plated, blue passivated



INFORMATION

Wipers GN 2428 protect against dirt deposits on rails and rollers.
For size h_1 = 18 the wiper is attached with only one central screw.
Screws are included parts of the order.
- Linear guide rail systems (see page 660)



GN 2428

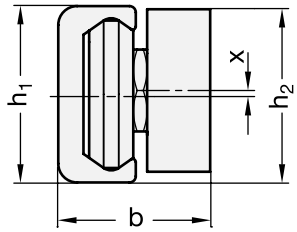
Description	h1	b1	b2	d	h2	l1	l2	l3 max.	m1	m2	⚖
GN 2428-18-U	18	12.6	5.6	M 3	17	7	5	3.5	-	3.5	2
GN 2428-28-U	28	19	10	M 4	25	7	5	3.6	8	4.5	5
GN 2428-35-U	35	25.5	12.5	M 4	32	7	5	3.7	10	5.5	10
GN 2428-43-U	43	32.2	15	M 4	40	7	5	3.8	12	7.5	16
GN 2428-18-X	18	12.6	5.6	M 3	17	7	5	3.9	-	3.5	2
GN 2428-28-X	28	19	10	M 4	25	7	5	3.10	8	4.5	5
GN 2428-35-X	35	25.5	12.5	M 4	32	7	5	3.11	10	5.5	10
GN 2428-43-X	43	32.2	15	M 4	40	7	5	3.12	12	7.5	16

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Tolerance for mounted linear guide rail systems

In the combination of rails GN 2422 (see page 654) and cam roller carriages GN 2424 (see page 656), the following dimensions / tolerances exist.

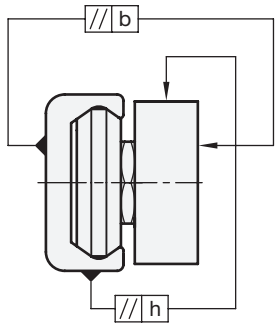
If several cam roller carriages are installed into one rail, an offset x can occur between the cam roller carriages which must be added to the dimension h_2.

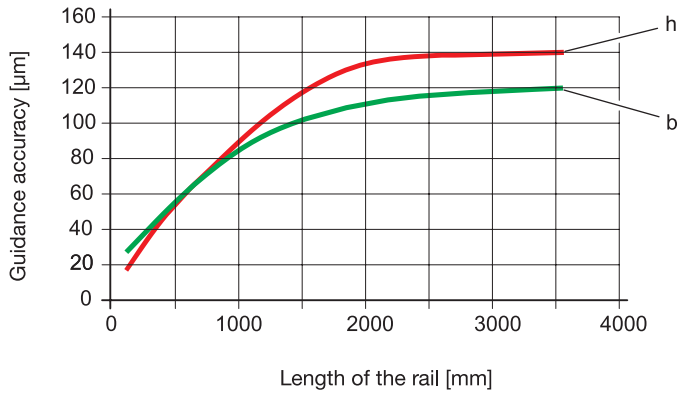


h_1	b	h_2	x
18 +0.25/-0.10	+0.15/-0.16	+0.25/-0.25	±0.20
28 +0.25/-0.10	+0.25/-0.10	+0.15/-0.35	±0.20
35 +0.35/-0.10	+0.25/-0.10	+0.10/-0.30	±0.20
43 +0.36/-0.10	+0.25/-0.10	+0.20/-0.35	±0.20

Guidance accuracy

Linear guide rail systems feature the linear guidance accuracy shown in the diagram.





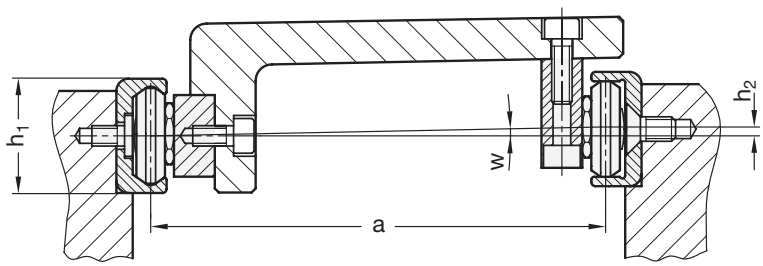
Permissible height offset

The fixed and floating bearing principle ensures that misalignments in the base construction are compensated. However, when using Type UV / UT and XV / XT rails, certain limits should not be exceeded. The following table shows the maximum permissible angle of the height offset of the fixed and floating bearing rails. Please note that the load rating must be reduced by 30% once the specified value is reached.

To calculate h_2, the following equation should be used: $h_2 = a \times \tan w$, with the tabular values shown below used for w.

Example: $h_1 = 43$, a = 650 mm, w max. = 0,171°

h_2 = 650 mm x tan 0,171° = 1,94 mm



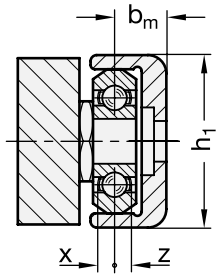
h_1	w max.
18	0.057°
28	0.143°
35	0.151°
43	0.171°

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Permissible lateral offset

It is possible to compensate for angular defects and the offset of the mounting surface with the help of fixed and floating bearing rails. The permissible offset of cam rollers and cam roller carriages in the Type UT / UV rails is given by the values for x and z. The reference is the nominal middle of the raceway b_m.

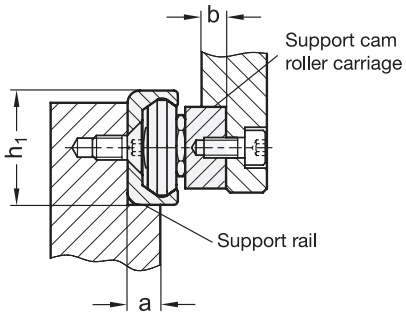
A parallelism or angular error can thus be compensated for across the whole length of the rail, which corresponds to an offset from the sum of the values for x and z.



h1	bm	x	z
18	6.3	1.1	0.3
28	8.6	1.3	0.7
35	10.5	2.7	1.3
43	14.5	2.5	1.5

Support widths

To guarantee the proper running motion, outside dimensions must be observed during the assembly of linear guide rail systems. Suitable components include supports at the rail and at the roller carriage which should not be smaller than the widths a or b. Also, forces acting from the outside can thus be transferred reliably from the linear guide rail systems without submitting the mounting screw to shear stress.

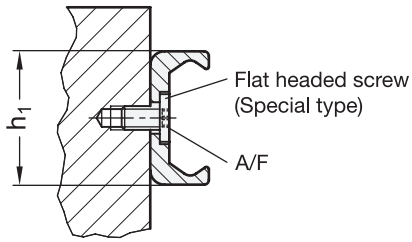


h1	a	b
18	5	4
28	8	4
35	11	5
43	14	5

Tightening torque

When positioning the rails with countersunk mounting holes, Type UT and XT, make sure the surface is flat and the mating tapped holes are tapped deep enough so the flat head screw is flush with the rail.

The specified tightening torque of the flat head screws must be maintained.



h1	Screw	A/F	Tightening torque in Nm
18	M 4 x 8	T20	3
28	M 5 x 10	T25	9
35	M 6 x 12	T30	14
43	M 8 x 16	T40	24

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Linear guide rail systems

Technical information, load rating

Traversal speed

Depending on application and installation length, the maximum traversal speed of cam roller linear guide rail systems is 7 m/s.

Lubrication

Once the cam roller carriage has been placed in the rail, it is recommended to slightly grease the raceway surfaces of the rail with a heavy duty lubricant for linear guide rail systems, such as Klüberplex BE 31-222, using a brush.

Check the lubricant film at regular intervals for any dirt or pollution, e.g. with metal chips.

In the event of visible pollution or clear discoloration of the lubricant, use a clean rag to clean the rails and the rollers and apply new lubricant.

Applying new lubricant is normally necessary once a year or after 100 km of running distance.

Operational temperatures

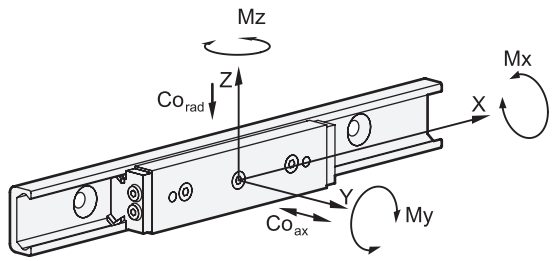
The components of the roller guide systems are suitable for use in a temperature range of -30 °C to 130 °C.

Load rating

The installation space, the desired mode of attachment and the load to be carried are the determining factors when selecting the best possible roller guide system. The values given below will help in selecting the most suitable cam roller carriage or the most suitable cam rollers.

The details on load capacity are non-binding guide values given without liability and does not constitute any type of guarantee or warranty of intended use. The user must determine in each individual case whether a product is suitable for the intended application. Environmental factors and aging may affect the stated values.

Article No.		Load ratings in main load direction		Permissible load torques		
		Co$_{rad}$ in N	**Co**$_{ax}$ in N	**Mx** in Nm	**My** in Nm	**Mz** in Nm
GN 2424	-18-...	825	260	1,6	8,3	4,8
	-28-...	2210	650	6,4	28	16,4
	-35-...	3550	1070	13,2	63	34,1
	-43-...	5520	1580	23,7	104,7	60,1
GN 2426	-18-...	410	-	-	-	-
	-28-...	1100	-	-	-	-
	-35-...	1760	-	-	-	-
	-43-...	2700	-	-	-	-



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Cam roller carriages

Instructions for installation - Linear guide rail systems

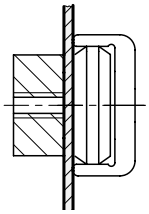
Linear guide rail systems consist of a cam roller linear guide rail GN 2422 (see page 654) and a cam roller carriage GN 2424 (see page 656). All components are packed separately and supplied not assembled. When delivered, the play between cam roller carriage and rail is not preset.

During assembly, set the cam roller carriage as follows:

1. Make sure that the raceways and the cam rollers are clean.

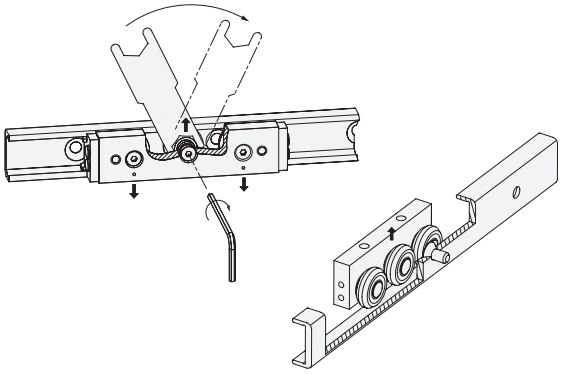
2. Slightly loosen the mounting screw of the central, eccentrically adjustable roller and insert the cam roller carriage (without the wipers supplied) into the rail (see also items 4 and 6).

3. Position the cam roller carriage at one end of the rail. For the floating bearing rails of Type UT and UV, a thin and stable support (e.g. open-end wrench or a feeler gauge) must be placed underneath the ends of the cam roller carriage body and the rail to ensure the parallel alignment of the cam roller carriage in the level raceways.



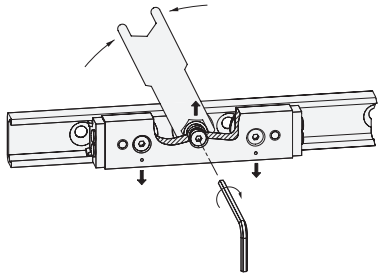
Use support for floating bearing rails!

4. Insert the open-end wrench GN 2424.1 (included) (see page 656) between the eccentric cam roller and the cam roller carriage body. (The centering bores to the left and right mark the position of the running side of the concentric cam rollers / load-bearing cam rollers.)



5. Turning the open-end wrench clockwise will press the cam roller to be adjusted against the top raceway which will set the roller carriage free of play. Excessive pre-tensioning must be avoided because this will increase friction and reduce useful service life.

6. While using the open-end wrench to hold the bearing pivot in the correct position, the mounting screw may be moderately tightened. The correct tightening torque will be checked later.



7. Move the cam roller carriage in the rail and make sure that the play / the moderate pre-tensioning is constant along the full length of the rail. The running motion should be free-moving, with the cam roller carriage having any play or jamming at no point inside the rail.

8. Now tighten the mounting screw with the recommended tightening torque shown in the table, with the open-end wrench holding the angular position of the cam rollers in place.

h_1	Tightening torque in Nm
18	3 Nm
28	7 Nm
35	7 Nm
43	12 Nm

9. Now mount the wipers, and for cam rollers carriage type N, the longitudinal seal. To do so, remove the cam roller carriage from the rail.

10. Before reinserting the cam roller carriage, make sure that the raceways / rollers are properly lubricated using a heavy duty lubricant for linear guidance.

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Adjustable slide units

Description
The adjustable slide units GN 900 (see page 664) are a work holding system which can accommodate almost any type of application.

Four standard sizes are available with different slide widths i.e. 30, 50, 80 and 120 mm which again cover almost a full specific range of applications.

As standard for each slide width there are externally guided slides with different openings. The design of these adjustable slide units can accommodate outsize components.

These adjustable slide units can be combined with a range of adaptor components to bring the adjustable slide unit into any required position whether horizontal, vertical or any other angular position for machining operations. A unique clamping technique allows simple and rapid workpiece clamping.

All components are in aluminium, stainless steel and plastic material which makes the adjustable slide units with control knob (Type D) a corrosion free unit.

A range of different operating features with or without digital position indicators is also available. In addition there is a range of other accessories.

Other features
- slides in anodized aluminium
- high load ratings
- favourable friction values
- high quality slideways by virtue of the anodized surface hardness
- backlash free shaft adjustment
- fine adjustment to 0.05 mm
- scale rings with zero position
- adjustable clamping levers to suit the positioning of the slides

Application examples
- Precision positioning of soldering / welding heads
- Adjustment of inkjet printers
- Adjustment of measurement cameras
- Adjustment of laser heads
- Re-adjustment of back stops
- Adjustment of sensors



Specifications with control knob (Type D)



Specifications with control knob and position indicator (Type DN / DR)



Specifications with handwheel (Type H)



Specifications with handwheel and position indicator (Type HN / HR)



Specifications without adjustable spindle (Type S) for manual or pneumatic operation

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Adjustable slide units

The manually operated rotary table GN 900.6 (see page 677) is a positioner which extends the range of applications for the adjustable slide units considerably. This rotary table can, of course, also be used without the adjustable slide units.



The adjustable assembly X-Y consisting of two adjustable slide units GN 900 (see page 668) and an X-Y connecting set GN 900.2 (see page 673) with a mounting plate GN 900.4 (see page 675).



The adjustable assembly X-Y-Z consisting of three adjustable slide units GN 900 (see page 668), X- and Z-axis with position indicator, plus rotary table GN 900.6 (see page 677) mounted on Z-axis, assembled on mounting plate GN 900.4 (see page 675).



The adjustable assembly X-Y consisting of two adjustable slide units GN 900 (see page 668), Y-axis with rotary plate GN 900.5 (see page 676) positioned at a horizontal cross angle of 120°.



Special execution
Adjustable slide unit type S with a mounted pneumatic cylinder.

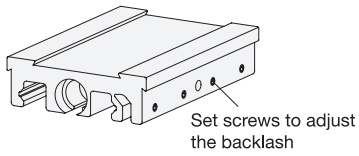


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Adjustable slide units

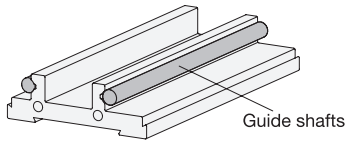
Features

The outer slide is made of a press formed block of anodized aluminium extrusion which is usually the moving part.
As a standard there is usually one outer slide size for each outside slide length on which the connecting sets GN 900.2 (see page 673) and mounting plates GN 900.4 (see page 675) and rotary plates GN 900.5 (see page 676) can be mounted.
Special lengths can be supplied.



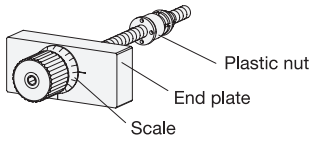
The inner slide is also made of a press formed block of anodized aluminium extrusion which is the carrier. The guides are made of two high grade shafts in stainless steel.

High load ratings and favourable friction values is achieved by the anodized hard guide surfaces.



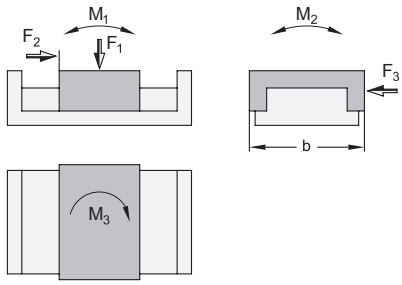
The length of the inner slide is determined by the length of the outer slide by adding the stroke.

The backlash free drive unit consists of an end plate and a preloaded stainless steel spindle, ball bearing mounted, and a preloaded plastic nut (temperature resistant from -20 °C up to + 80 °C).



The thread pitches are:
Slide size b = 30 : 0.5 mm
Slide size b = 50, 80, 120 : 1.0 mm

For positioning a scale is used (one graduation line = 0.05 mm adjustable range) which can be reset to „0".

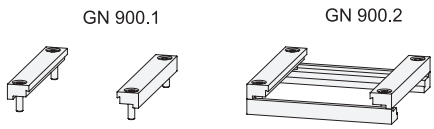


Permissible load values of the adjustable slide units GN 900

b	F_1 in N	F_2* in N	F_3 in N	M_1 in Nm	M_2 in Nm	M_3 in Nm
30	150	40	65	45	2	1
50	300	120	215	70	5	3
80	500	150	365	120	10	6
120	1000	300	700	160	20	12

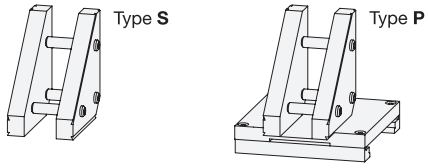
* F_2 is the max/permissible sliding thrust

Fastening units GN 900.1 (see page 672) consist to two mounting rails. On the latter, the adjustable slide unit is mounted on a base plate from the operator's side.



Connecting sets GN 900.2 (see page 673) consist of four rails. With the latter, two adjustable slide units are combined to form an adjustable assembly X-Y (or Y-Z).

Connecting sets GN 900.3 (see page 674) consist of two plates. With the latter two adjustable slide units combined to form an adjustable assembly X-Z (or Y-Z). If this slide has to be parallel to the reference axis this is achieved by using an additional plate (Type P).



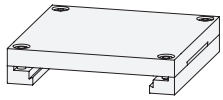
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Adjustable slide units

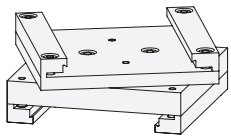
Features

Mounting plates GN 900.4 (see page 675) serve as an adaptor plate to be machined on the side which is required for mounting. By using a machined mounting plate further work on the actual slide can be eliminated.

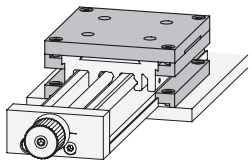
The plate is fixed with the fastening unit GN 900.1 (see page 672) on the adjustable slide unit.



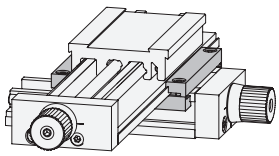
The rotary plate GN 900.5 (see page 676) allows oblique positioning of the adjustable slide unit at any angle.



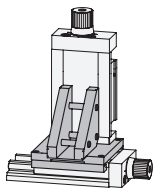
Adjustable slide unit with mounting plate GN 900.4 (see page 675) fitted to the base plate by using fastening unit GN 900.1 (see page 672).



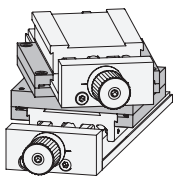
Adjustable slide unit X-Y, adjustable slide unit is fitted to the base plate using connecting set GN 900.2 (see page 673).



Adjustable slide unit X-Z, adjustable slide unit is connected together using the connecting set GN 900.3 (see page 674).



Adjustable slide unit X-Y, Y-slide with rotary plate GN 900.5 (see page 676) set shown in an angular position.



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Adjustable slide units

SPECIFICATION

Types

- Type **D**: with Control knob
- Type **H**: with handwheel (from size 50 upwards)
- Type **DN**: with control knob and digital position indicator DD51 (from size 50 upwards) (see page 718)
- Type **DR**: with control knob and digital position indicator DD51 (from size 50 upwards) (see page 718)
- Type **HN**: with handwheel and digital position indicator DD51 (from size 50 upwards) (see page 718)
- Type **HR**: with handwheel and digital position indicator DD51 (from size 50 upwards) (see page 718)
- Type **S**: without adjustable spindle and operating element (i. e. for mounting a pneumatic cylinder)

Identification No.

- No. **1**: without adjustable hand lever
- No. **2**: with adjustable hand lever (only from b=50)

Slides / end plates
Aluminium press formed
anodized extrusion, natural colour

Guide shafts
Stainless Steel

Drive

- Lead spindel / ball bearing Stainless Steel
- Lead nut Plastic

Fixing screws
Stainless Steel

Control knob / Scale ring
Aluminium, black anodized

INFORMATION

Adjustable slide units GN 900 can be combined with a range of adaptors to give various axis configurations.
These fastening units and connecting sets (GN 900.1, GN 900.2, GN 900.3) can be clamped to the adjustable slide units in a rapid and simple way.
For fine adjustment there is a scale ring graduated in increments of 0.05 mm, with digital position indicator 0.02 mm.
Furthermore this adustable slide units (Type D, with control knob) is rust proof.

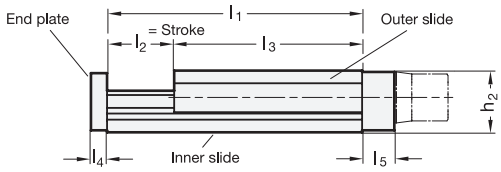
*Complete with identification no. of the adjustable slide unit (1 or 2)

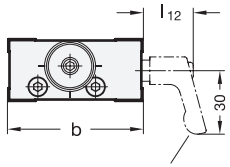
1 without adjustable hand lever
2 with adjustable hand lever

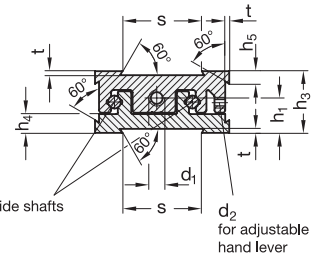


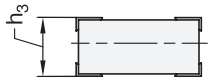
TECHNICAL INFORMATION

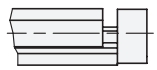
- Disc handwheels VDN.FP (see page 162)











GN 900-S

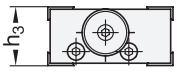
Description	b	l1 - l2	d1	d2	h1	h2	h3	h5	l3	l4	l5	l12	s	t	⚖
GN 900-50-95-25-S-*	50	95-25	M6 x 1	M 4	13	22.5	23	4.5	70	6	12	36	30	1.5	252
GN 900-50-120-50-S-*	50	120-50	M6 x 1	M 4	13	22.5	23	4.5	70	6	12	36	30	1.5	276
GN 900-50-145-75-S-*	50	145-75	M6 x 1	M 4	13	22.5	23	4.5	70	6	12	36	30	1.5	306
GN 900-50-170-100-S-*	50	170-100	M6 x 1	M 4	13	22.5	23	4.5	70	6	12	36	30	1.5	340
GN 900-80-145-25-S-*	80	145-25	M8 x 1	M 5	20.5	35.5	36	10	120	8	16	25	50	2	950
GN 900-80-170-50-S-*	80	170-50	M8 x 1	M 5	20.5	35.5	36	10	120	8	16	25	50	2	1000
GN 900-80-195-75-S-*	80	195-75	M8 x 1	M 5	20.5	35.5	36	10	120	8	16	25	50	2	1080
GN 900-80-220-100-S-*	80	220-100	M8 x 1	M 5	20.5	35.5	36	10	120	8	16	25	50	2	1250
GN 900-120-185-25-S-*	120	185-25	M10 x 1	M 5	26.3	45	46	10	160	10	18	25	80	2	2500
GN 900-120-210-50-S-*	120	210-50	M10 x 1	M 5	26.3	45	46	10	160	10	18	25	80	2	2785
GN 900-120-235-75-S-*	120	235-75	M10 x 1	M 5	26.3	45	46	10	160	10	18	25	80	2	2952
GN 900-120-260-100-S-*	120	260-100	M10 x 1	M 5	26.3	45	46	10	160	10	18	25	80	2	3457

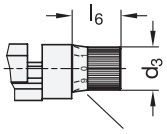
Weight identification no. 1

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GN 900

Adjustable slide units





Type of control knob
for size 50 / 80 / 120

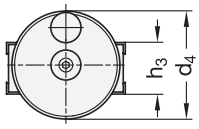
Adjustable
scale ring

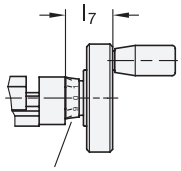


Type of control knob
for size 30

GN 900-D

Description	b	l1 - l2	d1	d2	d3	h1	h2	h3	h4	h5	l3	l4	l5	l6	l12	s	t	⚖
GN 900-30-50-5-D-1	30	50-5	M4 x 0.5	M 3	14	9.3	16	17	4	3	45	4	6	20	-	16	1	80
GN 900-30-55-10-D-1	30	55-10	M4 x 0.5	M 3	14	9.3	16	17	4	3	45	4	6	20	-	16	1	80
GN 900-30-60-15-D-1	30	60-15	M4 x 0.5	M 3	14	9.3	16	17	4	3	45	4	6	20	-	16	1	85
GN 900-30-65-20-D-1	30	65-20	M4 x 0.5	M 3	14	9.3	16	17	4	3	45	4	6	20	-	16	1	97
GN 900-50-95-25-D-1	50	95-25	M6 x 1	M 4	14	13	22.5	23	7	4.5	70	6	12	20	-	30	1.5	300
GN 900-50-120-50-D-1	50	120-50	M6 x 1	M 4	17	13	22.5	23	7	4.5	70	6	12	20	-	30	1.5	340
GN 900-50-145-75-D-1	50	145-75	M6 x 1	M 4	17	13	22.5	23	7	4.5	70	6	12	20	-	30	1.5	366
GN 900-50-170-100-D-1	50	170-100	M6 x 1	M 4	17	13	22.5	23	7	4.5	70	6	12	20	-	30	1.5	400
GN 900-80-145-25-D-1	80	145-25	M8 x 1	M 5	22	20.5	35.5	36	10	10	120	8	16	24	-	50	2	1060
GN 900-80-170-50-D-1	80	170-50	M8 x 1	M 5	22	20.5	35.5	36	10	10	120	8	16	24	-	50	2	1100
GN 900-80-195-75-D-1	80	195-75	M8 x 1	M 5	22	20.5	35.5	36	10	10	120	8	16	24	-	50	2	1220
GN 900-80-220-100-D-1	80	220-100	M8 x 1	M 5	22	20.5	35.5	36	10	10	120	8	16	24	-	50	2	1300
GN 900-120-185-25-D-1	120	185-25	M10 x 1	M 5	34	26.3	45	46	13.8	10	160	10	18	34	-	80	2	2800
GN 900-120-210-50-D-1	120	210-50	M10 x 1	M 5	34	26.3	45	46	13.8	10	160	10	18	34	-	80	2	2950
GN 900-120-235-75-D-1	120	235-75	M10 x 1	M 5	34	26.3	45	46	13.8	10	160	10	18	34	-	80	2	3118
GN 900-120-260-100-D-1	120	260-100	M10 x 1	M 5	34	26.3	45	46	13.8	10	160	10	18	34	-	80	2	7000
GN 900-50-95-25-D-2	50	95-25	M6 x 1	M 4	17	13	22.5	23	7	4.5	70	6	12	20	36	30	1.5	220
GN 900-50-120-50-D-2	50	120-50	M6 x 1	M 4	17	13	22.5	23	7	4.5	70	6	12	20	36	30	1.5	360
GN 900-50-145-75-D-2	50	145-75	M6 x 1	M 4	17	13	22.5	23	7	4.5	70	6	12	20	36	30	1.5	400
GN 900-50-170-100-D-2	50	170-100	M6 x 1	M 4	17	13	22.5	23	7	4.5	70	6	12	20	36	30	1.5	430
GN 900-80-145-25-D-2	80	145-25	M8 x 1	M 5	17	20.5	35.5	36	10	10	120	8	16	24	25	50	2	1080
GN 900-80-170-50-D-2	80	170-50	M8 x 1	M 5	22	20.5	35.5	36	10	10	120	8	16	24	25	50	2	1160
GN 900-80-195-75-D-2	80	195-75	M8 x 1	M 5	22	20.5	35.5	36	10	10	120	8	16	24	25	50	2	1250
GN 900-80-220-100-D-2	80	220-100	M8 x 1	M 5	34	20.5	35.5	36	10	10	120	8	16	24	25	50	2	1300
GN 900-120-185-25-D-2	120	185-25	M10 x 1	M 5	34	26.3	45	46	13.8	10	160	10	18	34	25	80	2	2800
GN 900-120-210-50-D-2	120	210-50	M10 x 1	M 5	34	26.3	45	46	13.8	10	160	10	18	34	25	80	2	2900
GN 900-120-235-75-D-2	120	235-75	M10 x 1	M 5	34	26.3	45	46	13.8	10	160	10	18	34	25	80	2	3000
GN 900-120-260-100-D-2	120	260-100	M10 x 1	M 5	34	26.3	45	46	13.8	10	160	10	18	34	25	80	2	3320





Adjustable scale ring

* Complete with identification no. of the adjustable slide unit (1 or 2)

1 without adjustable hand lever

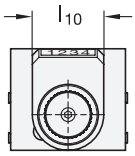
2 with adjustable hand lever

GN 900-H

Description	b	l1 - l2	d1	d2	d4	h1	h2	h3	h4	h5	l3	l4	l5	l7	l12	s	t	⚖
GN 900-50-95-25-H-*	50	95-25	M6 x 1	M 4	50	13	22.5	23	7	4.5	70	6	12	22	36	30	1.5	355
GN 900-50-120-50-H-*	50	120-50	M6 x 1	M 4	50	13	22.5	23	7	4.5	70	6	12	22	36	30	1.5	380
GN 900-50-145-75-H-*	50	145-75	M6 x 1	M 4	50	13	22.5	23	7	4.5	70	6	12	22	36	30	1.5	421
GN 900-50-170-100-H-*	50	170-100	M6 x 1	M 4	50	13	22.5	23	7	4.5	70	6	12	22	36	30	1.5	500
GN 900-80-145-25-H-*	80	145-25	M8 x 1	M 5	80	20.5	35.5	36	10	10	120	8	16	31	25	50	2	1200
GN 900-80-170-50-H-*	80	170-50	M8 x 1	M 5	80	20.5	35.5	36	10	10	120	8	16	31	25	50	2	1260
GN 900-80-195-75-H-*	80	195-75	M8 x 1	M 5	80	20.5	35.5	36	10	10	120	8	16	31	25	50	2	1380
GN 900-80-220-100-H-*	80	220-100	M8 x 1	M 5	80	20.5	35.5	36	10	10	120	8	16	31	25	50	2	1500
GN 900-120-185-25-H-*	120	185-25	M10 x 1	M 5	100	26.3	45	46	13.8	10	160	10	18	40	25	80	2	3100
GN 900-120-210-50-H-*	120	210-50	M10 x 1	M 5	100	26.3	45	46	13.8	10	160	10	18	40	25	80	2	3180
GN 900-120-235-75-H-*	120	235-75	M10 x 1	M 5	100	26.3	45	46	13.8	10	160	10	18	40	25	80	2	3400
GN 900-120-260-100-H-*	120	260-100	M10 x 1	M 5	100	26.3	45	46	13.8	10	160	10	18	40	25	80	2	3480

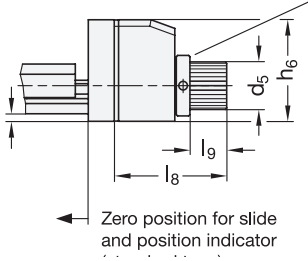
Weight identification no. 1

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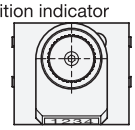
Type **DN**
Figure in front of decimal point refers to the movement in mm

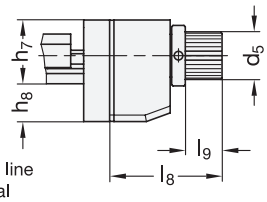
3,5 mm protruding on size 50



Set ring to re-adjust zero position of the position indicator

Zero position for slide and position indicator





Type **DR**
foreseen for front line of sight by vertical composition of slider

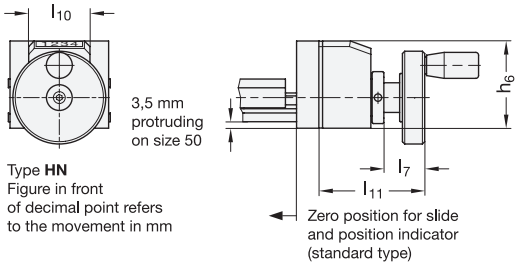
GN 900-DN/DR

Description	b	l1 - l2	d1	d2	d5	h1	h2	h3	h4	h5	h6	h7	h8	l3	l4	l5	l8	l9	l10	l12	s	t	⚖
GN 900-50-95-25-DN-1	50	95-25	M6 x 1	M 4	22	13	22.5	23	7	4.5	47	-	-	70	6	12	52	24	33	-	30	1.5	370
GN 900-50-120-50-DN-1	50	120-50	M6 x 1	M 4	22	13	22.5	23	7	4.5	47	-	-	70	6	12	52	24	33	-	30	1.5	450
GN 900-50-145-75-DN-1	50	145-75	M6 x 1	M 4	22	13	22.5	23	7	4.5	47	-	-	70	6	12	52	24	33	-	30	1.5	500
GN 900-50-170-100-DN-1	50	170-100	M6 x 1	M 4	22	13	22.5	23	7	4.5	47	-	-	70	6	12	52	24	33	-	30	1.5	520
GN 900-80-145-25-DN-1	80	145-25	M8 x 1	M 5	22	20.5	35.5	36	10	10	51	-	-	120	8	16	55	27	33	-	50	2	1200
GN 900-80-170-50-DN-1	80	170-50	M8 x 1	M 5	22	20.5	35.5	36	10	10	51	-	-	120	8	16	55	27	33	-	50	2	1250
GN 900-80-195-75-DN-1	80	195-75	M8 x 1	M 5	22	20.5	35.5	36	10	10	51	-	-	120	8	16	55	27	33	-	50	2	1340
GN 900-80-220-100-DN-1	80	220-100	M8 x 1	M 5	22	20.5	35.5	36	10	10	51	-	-	120	8	16	55	27	33	-	50	2	1400
GN 900-120-185-25-DN-1	120	185-25	M10 x 1	M 5	34	26.3	45	46	13.8	10	57	-	-	160	10	18	69	41	33	-	80	2	3500
GN 900-120-210-50-DN-1	120	210-50	M10 x 1	M 5	34	26.3	45	46	13.8	10	57	-	-	160	10	18	69	41	33	-	80	2	3400
GN 900-120-235-75-DN-1	120	235-75	M10 x 1	M 5	34	26.3	45	46	13.8	10	57	-	-	160	10	18	69	41	33	-	80	2	3400
GN 900-120-260-100-DN-1	120	260-100	M10 x 1	M 5	34	26.3	45	46	13.8	10	57	-	-	160	10	18	69	41	33	-	80	2	3400
GN 900-50-95-25-DR-1	50	95-25	M6 x 1	M 4	22	13	22.5	23	7	4.5	-	29	18	70	6	12	52	24	33	-	30	1.5	420
GN 900-50-120-50-DR-1	50	120-50	M6 x 1	M 4	22	13	22.5	23	7	4.5	-	29	18	70	6	12	52	24	33	-	30	1.5	700
GN 900-50-145-75-DR-1	50	145-75	M6 x 1	M 4	22	13	22.5	23	7	4.5	-	29	18	70	6	12	52	24	33	-	30	1.5	800
GN 900-50-170-100-DR-1	50	170-100	M6 x 1	M 4	22	13	22.5	23	7	4.5	-	29	18	70	6	12	52	24	33	-	30	1.5	900
GN 900-80-145-25-DR-1	80	145-25	M8 x 1	M 5	22	20.5	35.5	36	10	10	-	37	10	120	8	16	55	27	33	-	50	2	1180
GN 900-80-170-50-DR-1	80	170-50	M8 x 1	M 5	22	20.5	35.5	36	10	10	-	37	10	120	8	16	55	27	33	-	50	2	1263
GN 900-80-195-75-DR-1	80	195-75	M8 x 1	M 5	22	20.5	35.5	36	10	10	-	37	10	120	8	16	55	27	33	-	50	2	1330
GN 900-80-220-100-DR-1	80	220-100	M8 x 1	M 5	22	20.5	35.5	36	10	10	-	37	10	120	8	16	55	27	33	-	50	2	1415
GN 900-120-185-25-DR-1	120	185-25	M10 x 1	M 5	34	26.3	45	46	13.8	10	-	45	5	160	10	18	69	41	33	-	80	2	2900
GN 900-120-210-50-DR-1	120	210-50	M10 x 1	M 5	34	26.3	45	46	13.8	10	-	45	5	160	10	18	69	41	33	-	80	2	3074
GN 900-120-235-75-DR-1	120	235-75	M10 x 1	M 5	34	26.3	45	46	13.8	10	-	45	5	160	10	18	69	41	33	-	80	2	3240
GN 900-120-260-100-DR-1	120	260-100	M10 x 1	M 5	34	26.3	45	46	13.8	10	-	45	5	160	10	18	69	41	33	-	80	2	3420
GN 900-50-95-25-DN-2	50	95-25	M6 x 1	M 4	22	13	22.5	23	7	4.5	47	-	-	70	6	12	52	24	33	36	30	1.5	440
GN 900-50-120-50-DN-2	50	120-50	M6 x 1	M 4	22	13	22.5	23	7	4.5	47	-	-	70	6	12	52	24	33	36	30	1.5	500
GN 900-50-145-75-DN-2	50	145-75	M6 x 1	M 4	22	13	22.5	23	7	4.5	47	-	-	70	6	12	52	24	33	36	30	1.5	770
GN 900-50-170-100-DN-2	50	170-100	M6 x 1	M 4	22	13	22.5	23	7	4.5	47	-	-	70	6	12	52	24	33	36	30	1.5	958
GN 900-80-145-25-DN-2	80	145-25	M8 x 1	M 5	22	20.5	35.5	36	10	10	51	-	-	120	8	16	55	27	33	25	50	2	1220
GN 900-80-170-50-DN-2	80	170-50	M8 x 1	M 5	22	20.5	35.5	36	10	10	51	-	-	120	8	16	55	27	33	25	50	2	1280
GN 900-80-195-75-DN-2	80	195-75	M8 x 1	M 5	22	20.5	35.5	36	10	10	51	-	-	120	8	16	55	27	33	25	50	2	1360
GN 900-80-220-100-DN-2	80	220-100	M8 x 1	M 5	22	20.5	35.5	36	10	10	51	-	-	120	8	16	55	27	33	25	50	2	1460
GN 900-120-185-25-DN-2	120	185-25	M10 x 1	M 5	34	26.3	45	46	13.8	10	57	-	-	160	10	18	69	41	33	25	80	2	2900
GN 900-120-210-50-DN-2	120	210-50	M10 x 1	M 5	34	26.3	45	46	13.8	10	57	-	-	160	10	18	69	41	33	25	80	2	3140
GN 900-120-235-75-DN-2	120	235-75	M10 x 1	M 5	34	26.3	45	46	13.8	10	57	-	-	160	10	18	69	41	33	25	80	2	3300
GN 900-120-260-100-DN-2	120	260-100	M10 x 1	M 5	34	26.3	45	46	13.8	10	57	-	-	160	10	18	69	41	33	25	80	2	3500
GN 900-50-95-25-DR-2	50	95-25	M6 x 1	M 4	22	13	22.5	23	7	4.5	-	29	18	70	6	12	52	24	33	36	30	1.5	460
GN 900-50-120-50-DR-2	50	120-50	M6 x 1	M 4	22	13	22.5	23	7	4.5	-	29	18	70	6	12	52	24	33	36	30	1.5	500
GN 900-50-145-75-DR-2	50	145-75	M6 x 1	M 4	22	13	22.5	23	7	4.5	-	29	18	70	6	12	52	24	33	36	30	1.5	540
GN 900-50-170-100-DR-2	50	170-100	M6 x 1	M 4	22	13	22.5	23	7	4.5	-	29	18	70	6	12	52	24	33	36	30	1.5	680
GN 900-80-145-25-DR-2	80	145-25	M8 x 1	M 5	22	20.5	35.5	36	10	10	-	37	10	120	8	16	55	27	33	25	50	2	1200
GN 900-80-170-50-DR-2	80	170-50	M8 x 1	M 5	22	20.5	35.5	36	10	10	-	37	10	120	8	16	55	27	33	25	50	2	1289
GN 900-80-195-75-DR-2	80	195-75	M8 x 1	M 5	22	20.5	35.5	36	10	10	-	37	10	120	8	16	55	27	33	25	50	2	1360
GN 900-80-220-100-DR-2	80	220-100	M8 x 1	M 5	22	20.5	35.5	36	10	10	-	37	10	120	8	16	55	27	33	25	50	2	1444
GN 900-120-185-25-DR-2	120	185-25	M10 x 1	M 5	34	26.3	45	46	13.8	10	-	45	5	160	10	18	69	41	33	25	80	2	2938
GN 900-120-210-50-DR-2	120	210-50	M10 x 1	M 5	34	26.3	45	46	13.8	10	-	45	5	160	10	18	69	41	33	25	80	2	3100
GN 900-120-235-75-DR-2	120	235-75	M10 x 1	M 5	34	26.3	45	46	13.8	10	-	45	5	160	10	18	69	41	33	25	80	2	3273
GN 900-120-260-100-DR-2	120	260-100	M10 x 1	M 5	34	26.3	45	46	13.8	10	-	45	5	160	10	18	69	41	33	25	80	2	3453

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GN 900

Adjustable slide units



Type **HN**
Figure in front of decimal point refers to the movement in mm

Type **HR**
foreseen for front line of sight by vertical composition of slider (Z-axis)

GN 900-HN/HR

Description	b	l1 - l2	d1	d2	d4	h1	h2	h3	h4	h5	h6	h7	h8	l3	l4	l5	l6	l7	l10	l11	l12	s	t	⚖
GN 900-50-95-25-HN-1	50	95-25	M6 x 1	M 4	50	13	22.5	23	7	4.5	47	-	-	70	6	12	-	22	33	57	-	30	1.5	480
GN 900-50-120-50-HN-1	50	120-50	M6 x 1	M 4	50	13	22.5	23	7	4.5	47	-	-	70	6	12	-	22	33	57	-	30	1.5	500
GN 900-50-145-75-HN-1	50	145-75	M6 x 1	M 4	50	13	22.5	23	7	4.5	47	-	-	70	6	12	-	22	33	57	-	30	1.5	540
GN 900-50-170-100-HN-1	50	170-100	M6 x 1	M 4	50	13	22.5	23	7	4.5	47	-	-	70	6	12	-	22	33	57	-	30	1.5	580
GN 900-80-145-25-HN-1	80	145-25	M8 x 1	M 5	80	20.5	35.5	36	10	10	51	-	-	120	8	16	-	31	33	66	-	50	2	1344
GN 900-80-170-50-HN-1	80	170-50	M8 x 1	M 5	80	20.5	35.5	36	10	10	51	-	-	120	8	16	-	31	33	66	-	50	2	1350
GN 900-80-195-75-HN-1	80	195-75	M8 x 1	M 5	80	20.5	35.5	36	10	10	51	-	-	120	8	16	-	31	33	66	-	50	2	1550
GN 900-80-220-100-HN-1	80	220-100	M8 x 1	M 5	80	20.5	35.5	36	10	10	51	-	-	120	8	16	-	31	33	66	-	50	2	1560
GN 900-120-185-25-HN-1	120	185-25	M10 x 1	M 5	100	26.3	45	46	13.8	10	57	-	-	160	10	18	-	40	33	75	-	80	2	1835
GN 900-120-210-50-HN-1	120	210-50	M10 x 1	M 5	100	26.3	45	46	13.8	10	57	-	-	160	10	18	-	40	33	75	-	80	2	2400
GN 900-120-235-75-HN-1	120	235-75	M10 x 1	M 5	100	26.3	45	46	13.8	10	57	-	-	160	10	18	-	40	33	75	-	80	2	3400
GN 900-120-260-100-HN-1	120	260-100	M10 x 1	M 5	100	26.3	45	46	13.8	10	57	-	-	160	10	18	-	40	33	75	-	80	2	3660
GN 900-50-95-25-HR-1	50	95-25	M6 x 1	M 4	50	13	22.5	23	7	4.5	-	29	18	70	6	12	-	22	33	57	-	30	1.5	480
GN 900-50-120-50-HR-1	50	120-50	M6 x 1	M 4	50	13	22.5	23	7	4.5	-	29	18	70	6	12	-	22	33	57	-	30	1.5	540
GN 900-50-145-75-HR-1	50	145-75	M6 x 1	M 4	50	13	22.5	23	7	4.5	-	29	18	70	6	12	-	22	33	57	-	30	1.5	550
GN 900-50-170-100-HR-1	50	170-100	M6 x 1	M 4	50	13	22.5	23	7	4.5	-	29	18	70	6	12	20	22	33	57	-	30	1.5	570
GN 900-80-145-25-HR-1	80	145-25	M8 x 1	M 5	80	20.5	35.5	36	10	10	-	37	10	120	8	16	20	31	33	66	-	50	2	1320
GN 900-80-170-50-HR-1	80	170-50	M8 x 1	M 5	80	20.5	35.5	36	10	10	-	37	10	120	8	16	20	31	33	66	-	50	2	1400
GN 900-80-195-75-HR-1	80	195-75	M8 x 1	M 5	80	20.5	35.5	36	10	10	-	37	10	120	8	16	20	31	33	66	-	50	2	1500
GN 900-80-220-100-HR-1	80	220-100	M8 x 1	M 5	80	20.5	35.5	36	10	10	-	37	10	120	8	16	20	31	33	66	-	50	2	1560
GN 900-120-185-25-HR-1	120	185-25	M10 x 1	M 5	100	26.3	45	46	13.8	10	-	45	5	160	10	18	20	40	33	75	-	80	2	3122
GN 900-120-210-50-HR-1	120	210-50	M10 x 1	M 5	100	26.3	45	46	13.8	10	-	45	5	160	10	18	20	40	33	75	-	80	2	3300
GN 900-120-235-75-HR-1	120	235-75	M10 x 1	M 5	100	26.3	45	46	13.8	10	-	45	5	160	10	18	20	40	33	75	-	80	2	3457
GN 900-120-260-100-HR-1	120	260-100	M10 x 1	M 5	100	26.3	45	46	13.8	10	-	45	5	160	10	18	24	40	33	75	-	80	2	3750
GN 900-50-95-25-HN-2	50	95-25	M6 x 1	M 4	50	13	22.5	23	7	4.5	47	-	-	70	6	12	-	22	33	57	36	30	1.5	500
GN 900-50-120-50-HN-2	50	120-50	M6 x 1	M 4	50	13	22.5	23	7	4.5	47	-	-	70	6	12	-	22	33	57	36	30	1.5	550
GN 900-50-145-75-HN-2	50	145-75	M6 x 1	M 4	50	13	22.5	23	7	4.5	47	-	-	70	6	12	-	22	33	57	36	30	1.5	580
GN 900-50-170-100-HN-2	50	170-100	M6 x 1	M 4	50	13	22.5	23	7	4.5	47	-	-	70	6	12	-	22	33	57	36	30	1.5	600
GN 900-80-145-25-HN-2	80	145-25	M8 x 1	M 5	80	20.5	35.5	36	10	10	51	-	-	120	8	16	-	31	33	66	25	50	2	1100
GN 900-80-170-50-HN-2	80	170-50	M8 x 1	M 5	80	20.5	35.5	36	10	10	51	-	-	120	8	16	-	31	33	66	25	50	2	1460
GN 900-80-195-75-HN-2	80	195-75	M8 x 1	M 5	80	20.5	35.5	36	10	10	51	-	-	120	8	16	-	31	33	66	25	50	2	1520
GN 900-80-220-100-HN-2	80	220-100	M8 x 1	M 5	80	20.5	35.5	36	10	10	51	-	-	120	8	16	-	31	33	66	25	50	2	1600
GN 900-120-185-25-HN-2	120	185-25	M10 x 1	M 5	100	26.3	45	46	13.8	10	57	-	-	160	10	18	-	40	33	75	25	80	2	3150
GN 900-120-210-50-HN-2	120	210-50	M10 x 1	M 5	100	26.3	45	46	13.8	10	57	-	-	160	10	18	-	40	33	75	25	80	2	3330
GN 900-120-235-75-HN-2	120	235-75	M10 x 1	M 5	100	26.3	45	46	13.8	10	57	-	-	160	10	18	-	40	33	75	25	80	2	3500
GN 900-120-260-100-HN-2	120	260-100	M10 x 1	M 5	100	26.3	45	46	13.8	10	57	-	-	160	10	18	-	40	33	75	25	80	2	3800
GN 900-50-95-25-HR-2	50	95-25	M6 x 1	M 4	50	13	22.5	23	7	4.5	-	29	18	70	6	12	-	22	33	57	36	30	1.5	510
GN 900-50-120-50-HR-2	50	120-50	M6 x 1	M 4	50	13	22.5	23	7	4.5	-	29	18	70	6	12	-	22	33	57	36	30	1.5	560
GN 900-50-145-75-HR-2	50	145-75	M6 x 1	M 4	50	13	22.5	23	7	4.5	-	29	18	70	6	12	-	22	33	57	36	30	1.5	580
GN 900-50-170-100-HR-2	50	170-100	M6 x 1	M 4	50	13	22.5	23	7	4.5	-	29	18	70	6	12	-	22	33	57	36	30	1.5	620
GN 900-80-145-25-HR-2	80	145-25	M8 x 1	M 5	80	20.5	35.5	36	10	10	-	37	10	120	8	16	-	31	33	66	25	50	2	1340
GN 900-80-170-50-HR-2	80	170-50	M8 x 1	M 5	80	20.5	35.5	36	10	10	-	37	10	120	8	16	-	31	33	66	25	50	2	1400
GN 900-80-195-75-HR-2	80	195-75	M8 x 1	M 5	80	20.5	35.5	36	10	10	-	37	10	120	8	16	-	31	33	66	25	50	2	1500
GN 900-80-220-100-HR-2	80	220-100	M8 x 1	M 5	80	20.5	35.5	36	10	10	-	37	10	120	8	16	20	31	33	66	25	50	2	1600
GN 900-120-185-25-HR-2	120	185-25	M10 x 1	M 5	100	26.3	45	46	13.8	10	-	45	5	160	10	18	20	40	33	75	25	80	2	3140
GN 900-120-210-50-HR-2	120	210-50	M10 x 1	M 5	100	26.3	45	46	13.8	10	-	45	5	160	10	18	20	40	33	75	25	80	2	3320
GN 900-120-235-75-HR-2	120	235-75	M10 x 1	M 5	100	26.3	45	46	13.8	10	-	45	5	160	10	18	20	40	33	75	25	80	2	3500
GN 900-120-260-100-HR-2	120	260-100	M10 x 1	M 5	100	26.3	45	46	13.8	10	-	45	5	160	10	18	24	40	33	75	25	80	2	3660

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Fastening units

for adjustable slide units GN 900

SPECIFICATION

Types

- Type **A**: with bore for cap screw
- Type **B**: with threaded bore d2

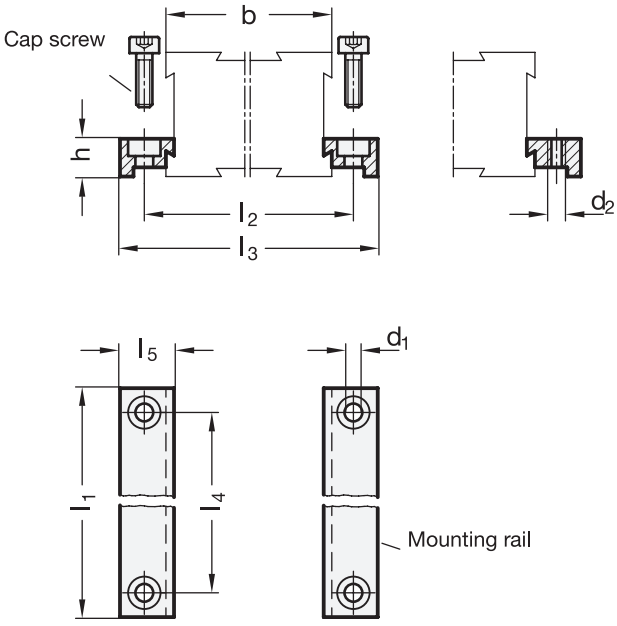
Aluminium
anodized, natural colour

Socket head cap screw DIN 912
Stainless Steel

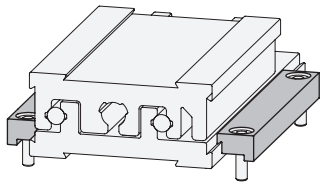
INFORMATION

Fastening units GN 900.1 are fitted to the base of the adjustable slide units GN 900 (see page 668) from the operator's side.
The mounting is made on the outside ledge of the slide so that the inner slide can still be moved.
A fastening unit GN 900.1 consists of two mounting rails. Four Stainless Steel-cap screws are inclueded.





Mounting example



GN 900.1

Description	b Size of the slide	l1	d1	d2	h	l2	l3	l4	l5	⚖
GN 900.1-30-41-A	30	41	2.7	M 2.5	4.2	35.4	41	35.4	6.5	7
GN 900.1-50-67-A	50	67	3.3	M 3	7	58	67	58	10	20
GN 900.1-80-105-A	80	105	4.5	M 4	12.5	92	105	92	14.5	84
GN 900.1-120-145-A	120	145	5.5	M 5	13.8	131.8	145	131.8	14.5	134
GN 900.1-30-41-B	30	41	2.7	M 2.5	4.2	35.4	41	35.4	6.5	8
GN 900.1-50-67-B	50	67	3.3	M 3	7	58	67	58	10	24
GN 900.1-80-105-B	80	105	4.5	M 4	12.5	92	105	92	14.5	87
GN 900.1-120-145-B	120	145	5.5	M 5	13.8	131.8	145	131.8	14.5	138

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Connecting sets X-Y

for adjustable slide units GN 900

SPECIFICATION

Aluminium
anodized, natural colour

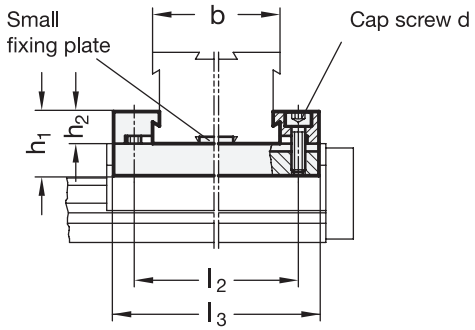
Socket head cap screws DIN 912
Stainless Steel

INFORMATION

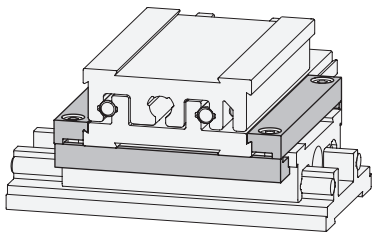
With connecting sets GN 900.2 two adjustable slide units GN 900 (see page 668) can be combined to produce an X-Y axis configuration.

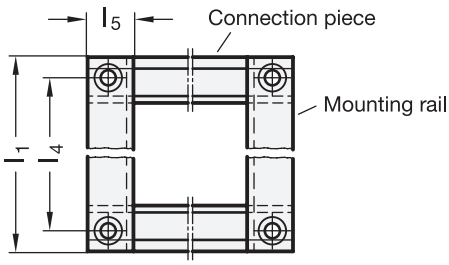
This combination is achieved with a clamping system which eliminates the use of any kind of fixing holes in the slide.
The stationary base of the second adjustable slide unit is clamped on to the slide of the first unit to give the X-Y configuration. The slides on both units together give the X-Y movement.
The small fixing plate serves for the 90° alignment and fine adjustment of the XY-axis configuration.
All parts required to make up a set are included.





Mounting example





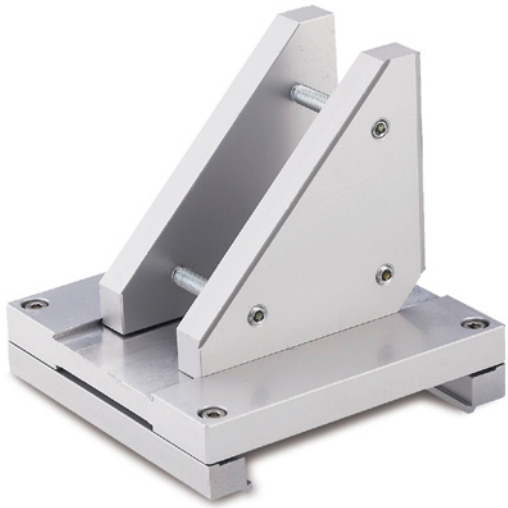
GN 900.2

Description	b Size of the slide	l1	d	h1	h2	l2	l3	l4	l5	⚖
GN 900.2-30-41	30	41	M 2.5	8.4	4.2	35.4	41	35.4	6.5	12
GN 900.2-50-67	50	67	M 3	14	7	58	67	58	10	49
GN 900.2-80-105	80	105	M 4	25	12.5	92	105	92	14.5	186
GN 900.2-120-145	120	145	M 5	27.6	13.8	131.8	145	131.8	14.5	323

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Connecting sets X-Z

for adjustable slide units GN 900



SPECIFICATION

Types

- Type **P**: Mounting the Z-axis via connecting plate and additional plate
- Type **S**: Direct mounting of the Z-axis via connecting plate

Aluminium
anodized, natural colour

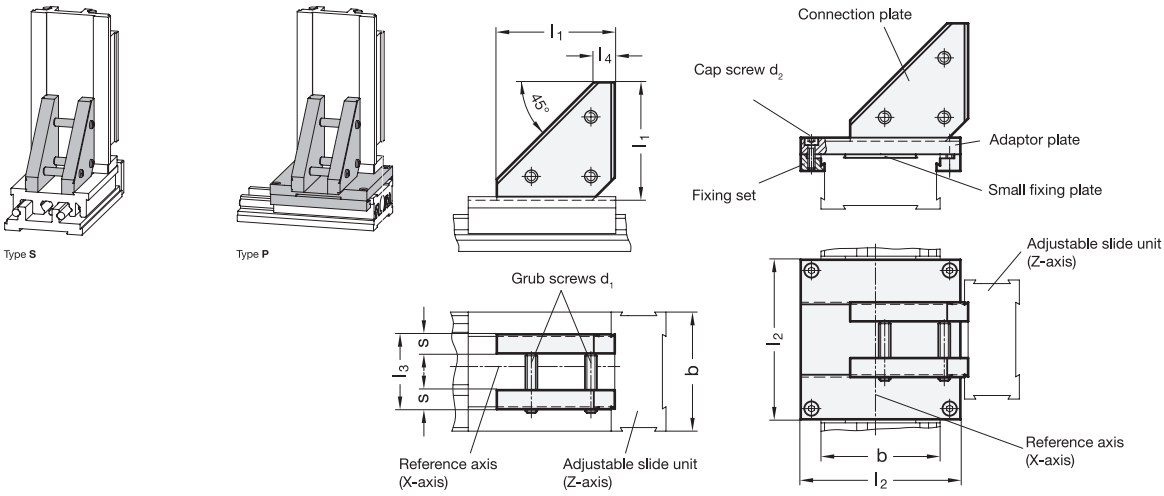
Grub screw DIN 913
Steel, zinc plated

Socket head cap screws DIN 912
Stainless Steel

INFORMATION

With connecting sets GN 900.3 two adjustable slide units GN 900 (see page 668) can be combined to produce an X-Z axis configuration. The combination is created by using two connection plates which eliminate any type of fixing holes in the slides. At the same time the adjustable slide unit with the Z-axis can, to a limited extent (vertically to the Z-axis), still be adjusted.
In the case of a slide configuration of the Z-axis parallel to the reference axis (type P) an adaptor plate (complete with a fastening set, small fixing plates and socket head cap screws) is required which is included in the set.
The small fixing plates serves for the 90° alignment of the Z-axis and fine adjustment of the adaptor plate (Type P).
All parts required to make up a set are included.

INSTALLATION EXAMPLE



GN 900.3

Description	b Size of the slide	l1	d1	d2	l2	l3	l4	s	⚖
GN 900.3-30-30-P	30	30	M 4	M 2.5	41	17	6	6	47
GN 900.3-50-50-P	50	50	M 5	M 3	67	32	8	8	185
GN 900.3-80-80-P	80	80	M 6	M 4	105	52	13	12	680
GN 900.3-120-120-P	120	120	M 8	M 5	145	82	13	16	1770
GN 900.3-30-30-S	30	30	M 4	M 2.5	41	17	6	6	50
GN 900.3-50-50-S	50	50	M 5	M 3	67	32	8	8	76
GN 900.3-80-80-S	80	80	M 6	M 4	105	52	13	12	278
GN 900.3-120-120-S	120	120	M 8	M 5	145	82	13	16	779

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GN 900.4

Mounting plates

for adjustable slide units GN 900

SPECIFICATION

Types

- Type **A**: without retaining bores
- Type **B**: with retaining bores for rotary tables

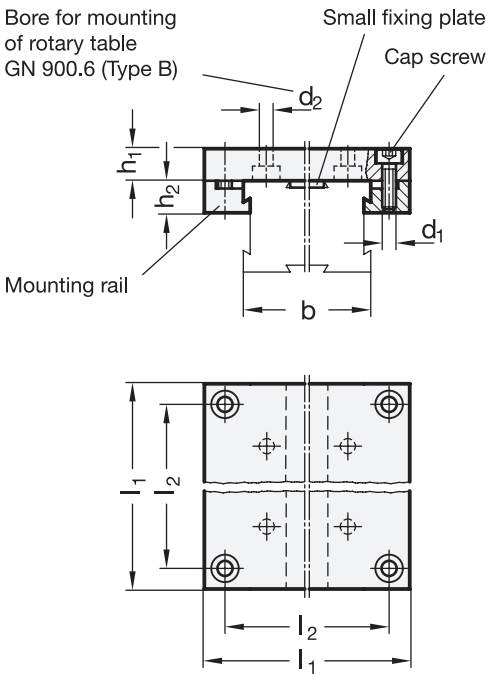
Aluminium
anodized, natural colour

Socket head cap screws DIN 912
Stainless Steel

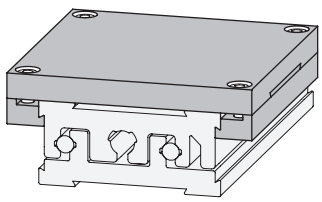
INFORMATION

Mounting plates GN 900.4 type A are used for installing fixtures on the operator's side. Type B is used for installing a rotary table GN 900.6 (see page 677).
The mounting plate can be simply clamped on to the slide and no additional drilled holes are required.
The small fixing plates serves as an additional fine adjustment of the mounting plate with the adjustable slide unit.
All parts required to make up a set are included.





Mounting example



GN 900.4

Description	b Size of the slide	l1	d1	d2	h1	h2	l2	For rotary tables	⚖
GN 900.4-30-41-A	30	41	M 2.5	-	5	4.2	35.4	-	29
GN 900.4-50-67-A	50	67	M 3	-	8	7	58	-	120
GN 900.4-80-105-A	80	105	M 4	-	12	12.5	92	-	441
GN 900.4-120-145-A	120	145	M 5	-	16	13.8	131.8	-	1100
GN 900.4-50-67-B	50	67	M 3	5.5	8	7	58	GN 900.6-55	125
GN 900.4-80-105-B	80	105	M 4	5.5	12	12.5	92	GN 900.6-80	430
GN 900.4-120-145-B	120	145	M 5	5.5	16	13.8	131.8	GN 900.6-80	1055

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Rotary plates

for adjustable slide units GN 900

SPECIFICATION

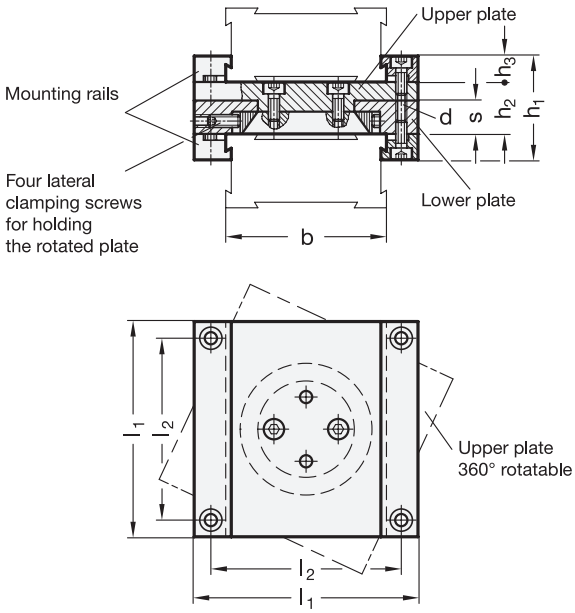
Aluminium
anodized, natural colour

Socket head screws DIN 912
Stainless Steel

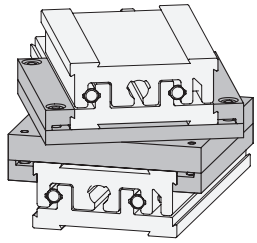
INFORMATION

Rotary plates GN 900.5 allow rotation of one of the adjustable slide units at an off-set angle to the other. This possibility offers an additional axis configuration.
The alternative adaptor consists of two plates connected together in the center so they may be rotated. The lower plate is clamped to the lower sliding part, while the upper one is clamped to the stationary base of the upper sliding unit.
All parts required are included.





Mounting example



GN 900.5

Description	b Size of the slide	l1	d	h1	h2	h3	l2	s	⚖
GN 900.5-30-41	30	41	M 2.5	18.4	10	4.2	35.4	6	60
GN 900.5-50-67	50	67	M 3	28	14	7	58	9	209
GN 900.5-80-105	80	105	M 4	39	14	12.5	92	9	568
GN 900.5-120-145	120	145	M 5	47.6	20	13.8	131.8	12	1398

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GN 900.6

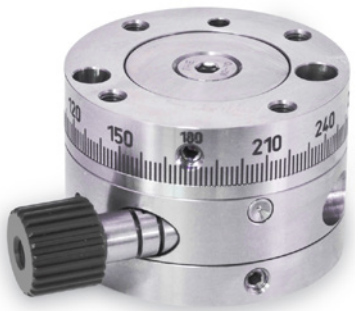
Rotary tables

SPECIFICATION

Rotary disc
Stainless Steel AISI 303

all other parts
Steel (some zinc plated)
ad/ or Brass

Control knob
Aluminium
black anodized



INFORMATION

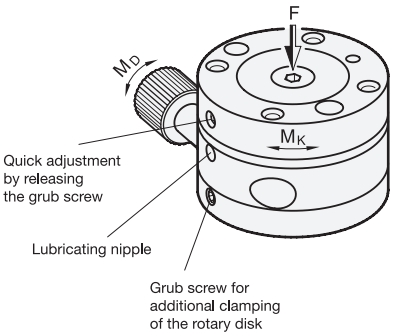
Rotary tables GN 900.6 is a turning unit for manual operation. To get the turning movement we use a high quality worm gear.
The rotary table is also fitted with a fastadjustment and for this purpose a grub screw on the side of the rotary disc has to be released. In addition the rotary disc can also be clamped via an easily accessible grub screw. In both cases internal conically shaped arresting components come into use.

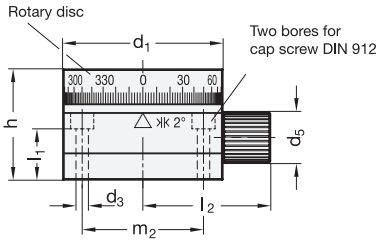
- Adjustable slide units GN 900 (see page 668)
- Mounting plate GN 900.4 (for clamping to an adjustable slide unit) (see page 675)

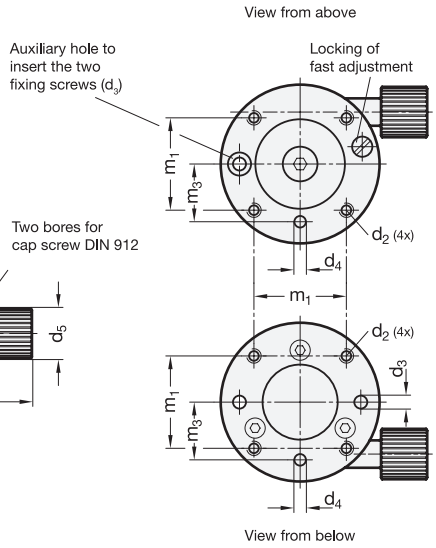
TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)

FURTHER TECHNICAL INFORMATION







d1	Rotating range	Concentricity tolerance	circular runout tolerance	max. entry torque MD	max. load capacity of rotary disc unclamped	max. load capacity of rotary disc clamped MK	F max. in Newton
55	0°	± 0.02	± 0.02	1.5 Nm	5 Nm	10 Nm	50
80	0°	± 0.03	± 0.03	2.5 Nm	5 Nm	10 Nm	100

GN 900.6

Description	d1 h7	d2	d3 Screw	d4 H7	d5	h	l1	l2	m1	m2	m3 ±0.02	Useable for mounting plates GN 900.4 Size	⚖
GN 900.6-55	55	M 5 - 8	M 4	4 - 10	17	38	17.5	44	32	42	20	50	662
GN 900.6-80	80	M 5 - 8	M 5	4 - 10	23	45	24	59	40	60	30	80 | 120	1800

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Bull's eye levels and screw-on levels

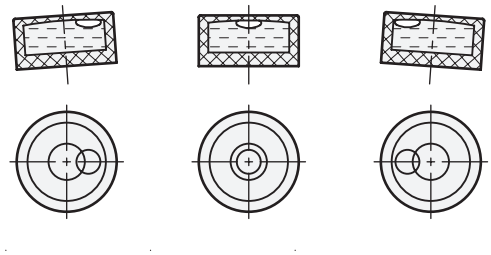
Technical information

Definition of terms

A spirit level is hollow body filled with a fluid and a gas bubble which is used to check the horizontal position of an object. The position of the gas bubble in the fluid shows the angle and the direction at which the object is inclined in relation to the horizontal level.

The function

The hollow body containing the fluid and the gas bubble has a defined radius at its topic side, causing the gas bubble to float by its buoyancy always to the highest point.
The transparent upper section normally carries markings or a circle centric to the biddle position. If the gas bubble is centered precisely inside the merking and if the air level is properly adjusted, the object to be checked is in the horizontal position.

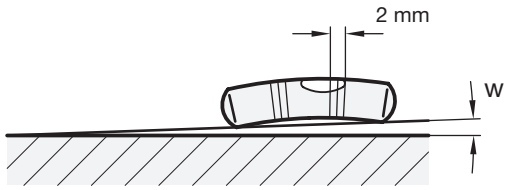


Types of spirit levels

Spirit levels are available as bull´s eye levels or screw-on levels.
Bull´s eye levels simultaneously measure the angle of inclination and the angular position, e.g. of a certain level, whereas screw-on levels indicate the angle of inclination in one dimension only along the axis of the level.

Sensitivity

The sensitivity of spirit levels is given as angle of inclination, e.g. 30 angular minutes or 0.5 degrees. This is the angle of inclination by which the spirit level must be tilted to make the bubble move by 2 mm. A spirit level with a sensitivity of 6 angular minutes therefore has a higher sensitivity than a spirit level with a sensitivity of 30 angular minutes.



Angle of inclination and difference in altitude

Sensitivity is sometimes also given in millimetre per metre, i.e. as difference in altitude per unit of the length.

See also the reference table opposite.

Difference in altitude in milimetre per metre	Angle w	
	in angular minutes	Degree, decimal
0.3	1	0.0167
0.9	3	0.0500
1.7	6	0.1000
2.9	10	0.1667
5.8	20	0.3333
8.7	30	0.5000
11.6	40	0.6667
14.5	50	0.8333
17.5	60	1.0000

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GN 2277.1

Adjustment plates

for bull´s eye levels GN 2277

SPECIFICATION

Stainless AISI 303 **NI**

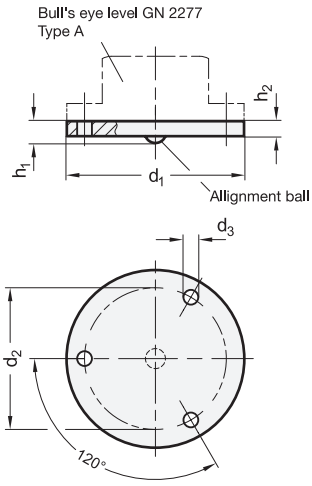
INFORMATION

Adjustment plates GN 2277.1 are used in combination with bull´s eye levels GN 2277 (Type A) (see page 680).
The mounting bore holes offset by 120° allow the bull's eye levels and the mounting plate to be aligned in relation to the mounting surface. An alignment ball at the bottom surface of the adjustment plate serves as tilting point. Specific tightening torques of the bolts allow to be achieved, so that the bubble is located inside the marking ring once the horizontal alignment is reached.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)





GN 2277.1 **STAINLESS STEEL**

Description	d1	d2	d3	h1	h2	⚖
GN 2277.1-NI-20	20	17	1.8	3.2	1.2	3
GN 2277.1-NI-25	25	21	2.2	3.2	1.2	5
GN 2277.1-NI-30	30	24	3.2	3.2	1.2	7
GN 2277.1-NI-40	40	34.5	3.2	3.2	1.2	12
GN 2277.1-NI-50	50	43	3.2	3.2	1.2	19

GN 2278

Bull´s eye levels

for insertion into bore holes

SPECIFICATION

Sensitivity

Type **30**: Angle minutes, bubble move by 2mm

Housing
Aluminium
anodized, natural colour **ALN**
anodized, black **ALS**

Spirit level element
Glass plastic body

Filling
coulourless-transparent **K**

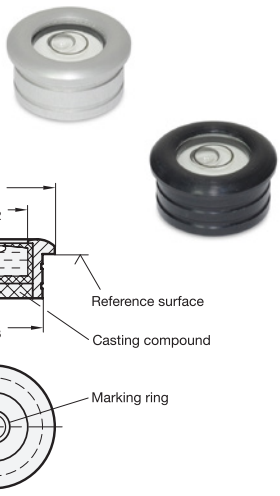
Casting compound
mineral-based

INFORMATION

Bull´s eye levels GN 2278 are used to check the horizontal position of jigs, machines, devices, appliances and instruments.
The housing is grooved at its lower diameter d_3, making it easier to mount in place, e.g. by gluing.
The spirit levels are aligned in relation to the reference or contact surface, so that the bubble is located inside the marking ring once the horizontal position of the contact surface is reached.

ON REQUEST

- Filling, green-transparent
- Other sensitivities
- Housing in brass or Stainless Steel



GN 2278

Description	d1	d2	d3 -0.05/ -0.15	h1	h2	⚖
GN 2278-ALN-20-K-30	20	12	18	10	8	4
GN 2278-ALS-20-K-30	20	12	18	10	8	4
GN 2278-ALN-25-K-30	25	14	20	12	9	4
GN 2278-ALS-25-K-30	25	14	20	12	9	4
GN 2278-ALN-30-K-30	30	20	28	13	10	7
GN 2278-ALS-30-K-30	30	20	28	13	10	7

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GN 2277

RoHS

Bull´s eye levels

with mounting flange



SPECIFICATION

Sensitivity

Type **30**: Angle minutes, bubble move by 2mm

Types

- Type **A**: Mounting flange, for bolting surface
- Type **B**: Mounting flange, for inserting (collar)

Housing
Aluminium
anodized, natural colour **ALN**
anodized, black **ALS**

Spirit level element
Glass plastic body

Filling
coulourless-transparent **K**

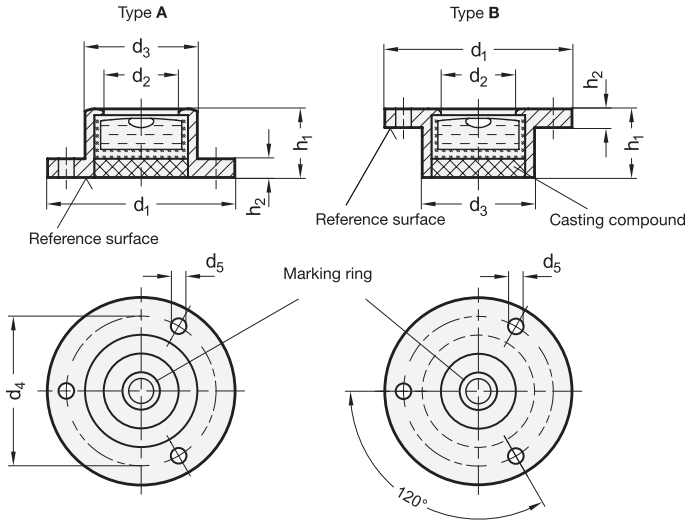
Casting compound
mineral-based

INFORMATION

Bull´s eye levels GN 2277 are used to check the horizontal position of jigs, machines, devices, appliances and instruments.
The spirit levels are aligned in relation to the reference surface so that the bubble is located inside the marking ring when the horizontal position of the contact surface is achieved.

ON REQUEST

- Filling, green-transparent
- Other sensitivities
- Housing in brass or Stainless Steel

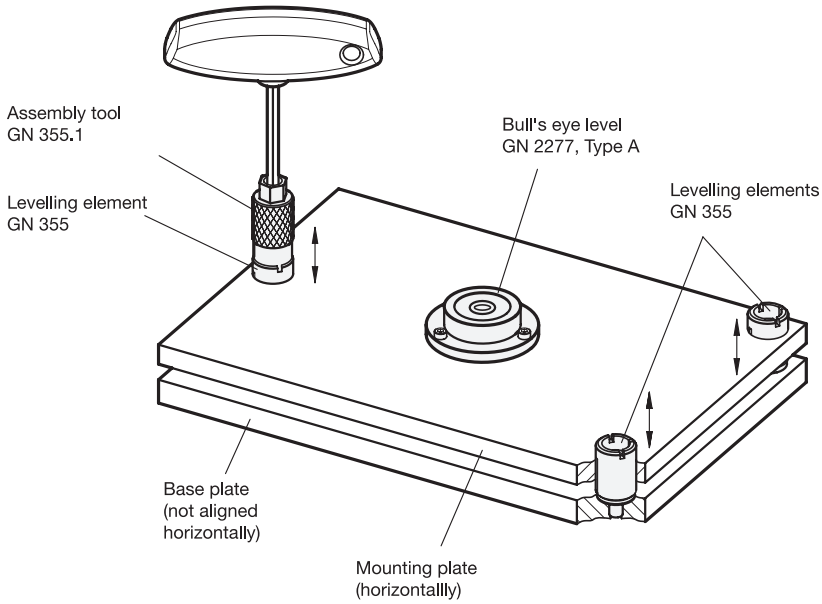


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GN 2277 | Bull´s eye levels

Installation example

Bull´s eye levels and levelling elements - in this example, levelling elements GN 355 (see page 1314) and assembly tool GN 355.1 (see page 1315) - are ideal to use when a holding plate is to be brought into an exact horizontal position.
Even after the initial adjustment, the bull´s eye level remains in the unit so that the correct allignment can be checked and adjusted again.



GN 2277

Description	d1	d2	d3	d4	d5	h1	h2	⚖
GN 2277-ALN-20-K-30-A	20	10	14	17	1.8	10	1.8	3
GN 2277-ALS-20-K-30-A	20	10	14	17	1.8	10	1.8	3
GN 2277-ALN-25-K-30-A	25	12	17	21	2.2	10	2	5
GN 2277-ALS-25-K-30-A	25	12	17	21	2.2	10	2	5
GN 2277-ALN-30-K-30-A	30	12	18	24	3.2	11	3	7
GN 2277-ALS-30-K-30-A	30	12	18	24	3.2	11	3	7
GN 2277-ALN-40-K-30-A	40	20	28	34.5	3.2	14	4	14
GN 2277-ALS-40-K-30-A	40	20	28	34.5	3.2	14	4	14
GN 2277-ALN-50-K-30-A	50	25	34	43	3.2	15	5	25
GN 2277-ALS-50-K-30-A	50	25	34	43	3.2	15	5	25
GN 2277-ALN-20-K-30-B	20	10	14	17	1.8	10	1.8	3
GN 2277-ALS-20-K-30-B	20	10	14	17	1.8	10	1.8	3
GN 2277-ALN-25-K-30-B	25	12	17	21	2.2	10	2	5
GN 2277-ALS-25-K-30-B	25	12	17	21	2.2	10	2	5
GN 2277-ALN-30-K-30-B	30	12	18	24	3.2	11	3	7
GN 2277-ALS-30-K-30-B	30	12	18	24	3.2	11	3	7
GN 2277-ALN-40-K-30-B	40	20	28	34.5	3.2	14	4	14
GN 2277-ALS-40-K-30-B	40	20	28	34.5	3.2	14	4	14
GN 2277-ALN-50-K-30-B	50	25	34	43	3.2	15	5	25
GN 2277-ALS-50-K-30-B	50	25	34	43	3.2	15	5	25

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GN 2279

RoHS

Bull´s eye levels

for surface mounting

SPECIFICATION

Sensitivity

Type **30**: Angle minutes, bubble move by 2 mm

Types

- Type **A**: with smooth reference surface
- Type **B**: with mounting thread

Housing
Aluminium
anodized, natural colour **ALN**
anodized, black **ALS**

Spirit level element
Glass plastic body

Filling
coulourless-transparent **K**

Casting compound
mineral-based



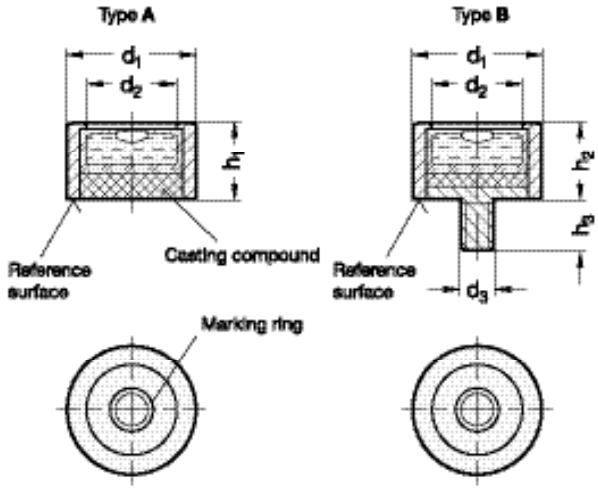


INFORMATION

Bull´s eye levels GN 2279 are used to check the horizontal position of jigs, machines, devices, appliances and instruments.
Type A is used if the spirit level is to be used as a tool, e.g. at different measuring points.
The spirit levels are aligned in relation to the reference or contact surface, such that the bubble is located inside the markir
the horizontal position of the contact surface is reached.

ON REQUEST

- Filling, green-transparent
- Other sensitivities
- Housing in brass or Stainless Steel



GN 2279

Description	d1	d2	d3	h1	h2	h3	⚖
GN 2279-ALN-14-K-30-A	14	10	M 4	9.5	7.7	5	2
GN 2279-ALS-14-K-30-A	14	10	M 4	9.5	7.7	5	2
GN 2279-ALN-20-K-30-A	20	14	M 5	13	13	6	4
GN 2279-ALS-20-K-30-A	20	14	M 5	13	13	6	4
GN 2279-ALN-30-K-30-A	30	21	M 6	15	15	7.5	7
GN 2279-ALS-30-K-30-A	30	21	M 6	15	15	7.5	7
GN 2279-ALN-14-K-30-B	14	10	M 4	9.5	7.7	5	2
GN 2279-ALS-14-K-30-B	14	10	M 4	9.5	7.7	5	2
GN 2279-ALN-20-K-30-B	20	14	M 5	13	13	6	4
GN 2279-ALS-20-K-30-B	20	14	M 5	13	13	6	4
GN 2279-ALN-30-K-30-B	30	21	M 6	15	15	7.5	14
GN 2279-ALS-30-K-30-B	30	21	M 6	15	15	7.5	14

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GN 2280

Bull´s eye levels

adjustable



SPECIFICATION

Sensitivity

Type **30**: Angle minutes, bubble move by 2mm

Housing
Aluminium
anodized, natural colour **ALN**
anodized, black **ALS**

Spirit level element
Glass plastic body

Filling
coulourless-transparent **K**

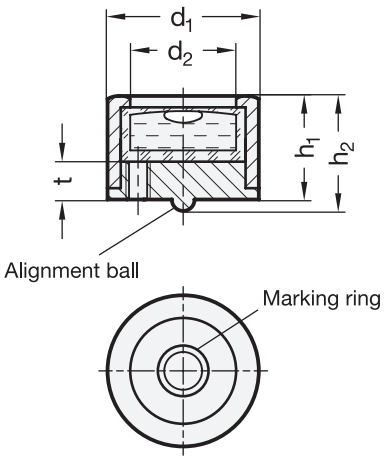
Casting compound
mineral-based

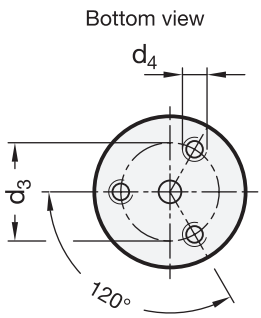
INFORMATION

Bull´s eye levels GN 2280 are used to check the horizontal position of jigs, machines, devices, appliances and instruments.
The mounting threads offset by 120° allow the spirit levels to be aligned in relation to the mounting surface. An alignment ball at the bottom surface of the adjustment plate serves as tilting point. Specific tightening torques of the bolts allow to be achieved, so that the bubble is located inside the marking ring once the horizontal alignment is reached.

ON REQUEST

- Filling, green-transparent
- Other sensitivities
- Housing in brass or Stainless Steel





GN 2280

Description	d1	d2	d3	d4	h1	h2	t	⚖
GN 2280-ALN-17-K-30	17	13	12	M 3	13	14.5	5	6
GN 2280-ALS-17-K-30	17	13	12	M 3	13	14.5	5	6
GN 2280-ALN-20-K-30	20	13	14	M 3	15	17	5	8
GN 2280-ALS-20-K-30	20	13	14	M 3	15	17	5	8
GN 2280-ALN-24-K-30	24	15	16	M 3	17	20	5	12
GN 2280-ALS-24-K-30	24	15	16	M 3	17	20	5	12

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Bull´s eye levels

for installation in plates and housings

SPECIFICATION

Sensitivity

- Type **10**: Angle minutes, bubble move by 2mm (only Version ALS)
- Type **40**: Angle minutes, bubble move by 2mm (only Version KT)

Identification no.

- No. **1**: without contrast ring
- No. **2**: with contrast ring (only version KT for d=12...18)

Housing

Aluminium, anodized, natural colour **ALS** /
Viewing window, glass

Plastic, white **KT** /
Viewing window, transparent

Filling

- coulourless-transparent **K**
- green-transparent **G** (only Version KT)

INFORMATION

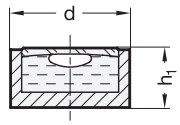
Due to their cylindrical design, bull´s eye levels GN 2281 are suitable for installation in plates and housings where they serve to check the horizontal position of jigs, machines and devices.
Bull´s eye levels are not aligned, i.e. there is no reference to the external outline of the level. The vertical position must be ensured by aligning the holding building element.
The black housing of the version ALS creates a reflection at the edge of the bubble which significantly improves the readability. Version KT is available with contrast ring inside the air level housing (Identification no. 2) which creates the same effect.
Alternatively, the contrast can also be improved by a dark surface inside the mounting bore hole.

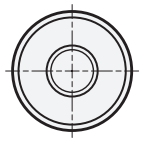
ON REQUEST

- Other sensitivities

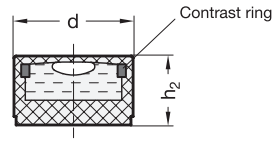


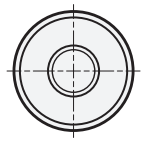
Version **ALS**





Version **KT**





GN 2281

Description	d	h1	h2	⚖
GN 2281-KT-10-G-40-1	10	-	6	1
GN 2281-KT-10-K-40-1	10	-	6	1
GN 2281-KT-12-G-40-1	12	-	7	1
GN 2281-KT-12-G-40-2	12	-	7	1
GN 2281-KT-12-K-40-1	12	-	7	1
GN 2281-KT-12-K-40-2	12	-	7	1
GN 2281-KT-14-G-40-1	14	-	8	1
GN 2281-KT-14-G-40-2	14	-	8	1
GN 2281-KT-14-K-40-1	14	-	8	1
GN 2281-KT-14-K-40-2	14	-	8	1
GN 2281-KT-15-G-40-1	15	-	8	1
GN 2281-KT-15-G-40-2	15	-	8	1
GN 2281-KT-15-K-40-1	15	-	8	1
GN 2281-KT-15-K-40-2	15	-	8	1
GN 2281-KT-18-G-40-1	18	-	9	2
GN 2281-KT-18-G-40-2	18	-	9	2
GN 2281-KT-18-K-40-1	18	-	9	2
GN 2281-KT-18-K-40-2	18	-	9	2

GN 2281

Description	d	h1	h2	⚖
GN 2281-ALS-10-K-10-1	10	6.9	-	1
GN 2281-ALS-12-K-10-1	12	6.4	-	2
GN 2281-ALS-14-K-10-1	14	6.2	-	2
GN 2281-ALS-15-K-10-1	15	7.4	-	3
GN 2281-ALS-18-K-10-1	18	7.3	-	4

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GN 2282

Screw-on levels

for mounting with screws

SPECIFICATION

Sensitivity

- Type **6**: Angle minutes, bubble move by 2mm
- Type **50**: Angle minutes, bubble move by 2mm

Identification no.

- No. **1**: Viewing window top
- No. **2**: Viewing window top - front
- No. **3**: Viewing window top - front - back

Housing brass

plastic coated, textured finish
black, RAL 9005 **MSW**
silver, RAL 9006 **MSR**

Spirit lever element
Glass plastic body

Filling
green-transparent **G**

Casting compound
mineral-based

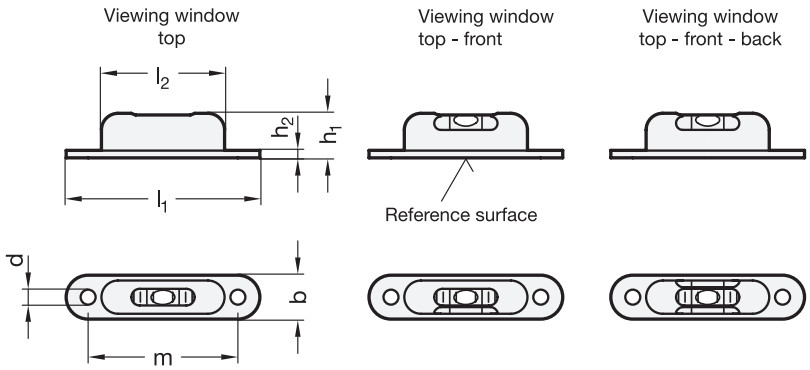


INFORMATION

Screw-on levels GN 2282 are used to check the horizontal position of jigs, machines, devices, appliances and instruments.
The spirit levels are aligned in relation to the finished reference surface so that the bubble is centered in the middle of the marking lines once the horizontal position of the contact surface in the longitudinal direction is reached.

ON REQUEST

- Filling, colourless-transparent
- Other sensitivities
- Other colours



GN 2282

Description	l1	b	d	h1	h2	l2	m	⚖
GN 2282-MSW-57-G-6-1	57	12	4.5	13	1	37	45	13
GN 2282-MSR-57-G-6-1	57	12	4.5	13	1	37	45	13
GN 2282-MSW-57-G-6-2	57	12	4.5	13	1	37	45	12
GN 2282-MSR-57-G-6-2	57	12	4.5	13	1	37	45	12
GN 2282-MSW-57-G-6-3	57	12	4.5	13	1	37	45	12
GN 2282-MSR-57-G-6-3	57	12	4.5	13	1	37	45	12
GN 2282-MSW-57-G-50-1	57	12	4.5	13	1	37	45	13
GN 2282-MSR-57-G-50-1	57	12	4.5	13	1	37	45	13
GN 2282-MSW-57-G-50-2	57	12	4.5	13	1	37	45	12
GN 2282-MSR-57-G-50-2	57	12	4.5	13	1	37	45	12
GN 2282-MSW-57-G-50-3	57	12	4.5	13	1	37	45	12
GN 2282-MSR-57-G-50-3	57	12	4.5	13	1	37	45	12

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0 1 0 9 4
CLAYTON


CLAYTON

DESIGNED
FOR ENGINEERING

7 Rotary controls



Gravity indicators

Positive drive indicators

Direct drive indicators

Handwheels with indicator

ELESA-CLAYTON position indicators

General features

ELESA-CLAYTON rotary controls are used to set and regulate a wide variety of machine functions.
In general these indicators are used to regulate flows, capacities, strokes, setting of speed variators, etc.
Each device consists of:

- a handwheel/knob, to manoeuvre the control spindle, thus changing the position of the machine element
- a position indicator, which provides the position of the machine element.

Position indicators

ELESA-CLAYTON position indicators can be classified according to the type of reading or movement.
The indicators are normally supplied separately from their relative handwheels/knobs, except for integral models, whose indicator is fitted in during the production.

Type of reading

Analogue: the reading is displayed by means of two rotating pointers over a graduated dial.
Digital-Analogue: the reading is directly displayed by means of a roller counter and a rotating pointer over a graduated dial.
Digital: the reading is directly displayed by means of a roller counter.
LCD Digital: the reading is directly displayed by means of a digital electronic display.
The analogue indicators are normally provided with a graduated dial and two pointers which indicate the number of turns and part of a turn made by the control spindle starting from an initial position zero.
The indicators with digital-analogue, digital and LCD digital reading are provided with a roller counter or a display which indicates the linear displacement of the machine element connected to the control spindle from the initial position zero.

Type of functioning

Gravity Movement: is used when the handwheel spindle is horizontal or max 60° inclined. The rotation of the handwheel with the indicator makes the pointers move while the dial, appropriately counterbalanced, is kept still by the gravity force.
Positive drive Movement: is used on spindles in any position. The rotation of the handwheel with the indicator makes the pointers move while the dial is kept still by an anchor pin fitted to the machine.
Direct drive Movement: is used on control spindles in any position, the indicator is directly mounted on the control spindle and is kept in position by means of a referring back pin.

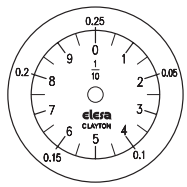
How to select the position indicators

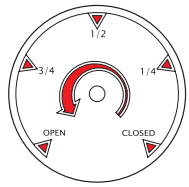
- Establish if it is necessary to display a number of turns or a linear displacement. For the first application choose an analogue indicator. For the second one choose a digital-analogue, digital or LCD digital indicator.
- Establish the indicator and the spindle position on which depends the choice of the requested movement: gravity, positive drive or direct drive.
- Establish the required ratio for analogue types or the reading after one revolution for the following types: digital-analogue, digital and LCD digital.
- Establish the direction of rotation.
  For clockwise increasing readings (right) = D.
  For anticlockwise increasing readings (left) = S.
- Consider the conditions of use of the handwheel i.e. outdoors, vibrations, corrosive environments, etc. See the complete data on the page of the chosen indicator.
- Choose the appropriate handwheel/knob for the application considering the diameter and the grip required to transmit the necessary torque. Other factors to take into consideration are the control spindle diameter and whether a handle is required for quick operations.

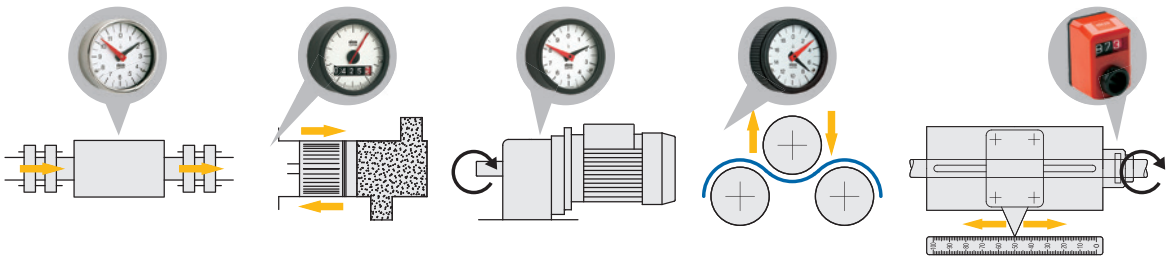
Special executions

ELESA-CLAYTON position indicators standard range available on this catalogue satisfies most applications. Changes to adapt the indicator to particular applications are possible, for example:

- special dials for indicators with analogue or digital-analogue reading, to be developed on the customer's indications
- stainless steel metal parts for application on machines and equipment where laws or particular hygienic and environmental factors make it mandatory to use corrosion resistant materials
- gravity indicators with analogue reading with glycerine-filling for high vibration applications, which may interfere with the reading, and for avoiding condensation on the indicator window
- special ratios on the customer's request and for sufficient quantities, developed by ELESA Technical Department.







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Type of reading	Type of Functioning	Type of indicator	
Analogue	Gravity	**GA01 - GA02 - GA05** metal case page 694	
		GA11 - GA12 plastic case page 695	
		MBT-GA indicator fitted in the plastic knob page 696	
	Positive drive	**PA01 - PA02 - PA05** metal case page 699	
		PA11 - PA12 plastic case page 700	
Digital-analogue	Gravity	**GW12** plastic case page 697	
		MBT-GW indicator fitted in the plastic knob page 698	
	Positive drive	**PW12** plastic case page 701	
Digital	Direct drive	**DD50** page 716	
		DD51 page 718	
		DD52R page 721	
LCD digital	Direct drive	**DD51-E** page 724	
		DD52R-E page 726	
		DE51 page 728	
		MPI-15 page 732	

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Gravity position indicators

Features

Suitable for use on control spindles with horizontal or max 60° inclined position.
The movement is housed in a sealed case (fig. 1). It consists of a counterweight system, fitted on a precision ballrace, which rotates on a central spindle integral with the indicator case, fitted on the handwheel/knob. At the end of the spindle there is a red pointer, which rotates with the handwheel/knob. A series of gears with different ratios transmits the rotation of the spindle to a black pointer. On the counterweight, a graduated dial is also fixed. If the indicator is fitted on spindles with horizontal position (or max 60° inclined) the dial is kept still by the gravity force and the pointers rotate over it when the handwheel/knob turns.

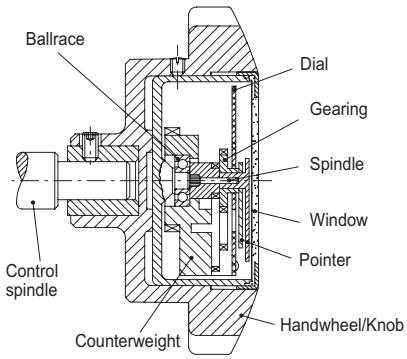


figure 1

Ratios

Each complete turn of the big pointer (red) corresponds to a fraction of turn of the small pointer (black). The number of turns of the red pointer, to make the black pointer to carry out one complete turn, is the ratio of the indicator.
Example: a ratio of 12:1 means that 12 turns of the red pointer correspond to a complete turn of the black pointer (fig. 2).
12 turns of the handwheel cover the entire setting range. For each turn of the handwheel, the black pointer indicates 1/12 of the entire dial.



figure 2

Choice of the indicator ratio

- Set the control spindle to the initial or referring position.
- Count the number of turns of the control spindle to cover the entire setting range.
- The result of this operation is the ratio. Should it not correspond to a standard ratio, choose the next highest one.
- For an optimal dial reading, and therefore for a more precise reading, we recommend to choose a ratio which is as near as possible to the handwheel turns required to cover the entire setting range. For instance, if 11 turns are required, the ratio 12:1 is the most convenient, because 11/12 of the available graduation will be used. If 24:1 ratio would be chosen, only 11/24 of the graduation would be used and reading would be less accurate.
- Indicators with standard ratios are normally on stock to suit most requirements.

Dials

Dials are available for all standard ratios in both clockwise (D) or anticlockwise (S) configurations.
Standard dials give a number which can be translated, by means of conversion tables, to the value of the set-up executed.
On request and for sufficient quantities, special dials with marks or customised graduations can be supplied to have a direct reading.

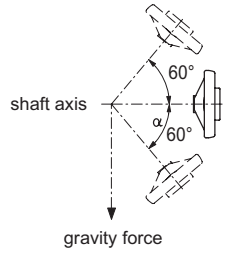


figure 3

Accuracy

The gravity indicator is more accurate when used on horizontal control spindles. It can be however used on spindles max 60° inclined, but the accuracy decreases as the angle of inclination a° increases (fig. 3).

Assembly instructions

Assembly of the indicators to handwheels/knobs:

- couple the handwheel to the control spindle by means of a pin or a grub screw.
- set the control spindle to the initial or referring position, by rotating the handwheel.
- turn the indicator, by keeping it in the hands, until the pointers are in zero position.
- fit the zeroed indicator into the handwheel/knob and uniformly tighten the radial securing screws with a moderate torque to prevent distortion of the indicator case and thus locking the movement.

Assembly of integral indicators (built-in in the handwheel):

- set the control spindle to the initial or referring position.
- turn the indicator, by keeping it in the hands, until the pointers are in zero position.
- couple the integral indicator to the control spindle by tightening the grub screw, after checking that spindle and indicator are in zero position.

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Possible assembly

Handwheels - Knobs	Gravity Indicators					
						
	GA01	**GA02** page 694	**GA05**	**GA11**	**GA12** page 695	**GW12** page 697
 **IZN-XX** page 702	•	•		•	•	•
 **MBT-XX** page 703	•	•		•	•	•
 **VHT-XX** page 704	•	•		•	•	•
 **VC.792-XX** page 705	•	•		•	•	•
 **VDSC-XX** page 706		•			•	•
 **VDN-XX** page 709			•			
 **VDC-XX** page 710	•	•	•	•	•	•
 **VRTP-XX** page 712		•			•	•
 **VAD-XX** page 713	•	•	•	•	•	•

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Positive drive indicators

Features

Suitable for use on control spindles in any position.
The movement is housed in a sealed case (fig.1). The handwheel/knob, containing the indicator, is coupled to the control spindle. On the rear of the handwheel/knob, a fl ange with internal crown gear wheel (shrouded) is fi tted to the machine frame by means of an anchor pin (or similar). By so doing, during handwheel rotation, the fl ange is integral with the machine. The rotation of the handwheel causes the planet pinion to rotate, transmitting in this way the movement inside the indicator case. The rotation is then transmitted to both pointers by means of a gearing, while the graduated dial remains still, thanks to the fi xing to the machine frame, by means of the anchor pin.

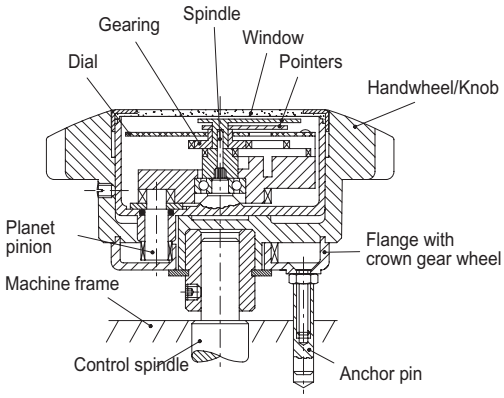


figure 1

Ratios

Each complete turn of the big pointer (red) corresponds to a fraction of turn of the small pointer (black). The number of turns of the red pointer, to make the black pointer to carry out one complete turn, is the ratio of the indicator.
Example: a ratio of 12:1 means that 12 turns of the red pointer correspond to a complete turn of the black pointer (fig. 2).
12 turns of the handwheel cover the entire setting range.
For each turn of the handwheel, the black pointer indicates 1/12 of the entire dial.



figure 2

Choice of the indicator ratio

- Set the control spindle to the initial or referring position.
- Count the number of turns of the control spindle to cover the entire setting range.
- The result of this operation is the ratio. Should it not correspond to a standard ratio, choose the next highest one.
- For an optimal dial reading, and therefore for a more precise reading, we recommend to choose a ratio which is as near as possible to the handwheel turns required to cover the entire setting range. For instance, if 11 turns are required, the ratio 12:1 is the most convenient, because 11/12 of the available graduation will be used. If 24:1 ratio would be chosen, only 11/24 of the graduation would be used and reading would be less accurate.
- Indicators with standard ratios are normally on stock to suit most requirements.

Dials

Dials are available for all standard ratios in both clockwise (D) or anticlockwise (S) configurations.
Standard dials give a number which can be translated, by means of conversion tables, to the value of the set-up executed.
On request and for sufficient quantities, special dials with marks or customised graduations can be supplied to have a direct reading.

Assembly instructions

- Drill a bore in the machine frame for the rear anchor pin of the flange.
- Set the control spindle to the initial or referring position.
- Remove the black protection cap of the planet pinion, turn the latter until the pointers are in zero position.
- Take the chosen handwheel/knob and mount the supplied anchor pin on the screw protruding from the rear fl ange. Be sure that the hole for the indicator planet pinion is at 12 o'clock. Turn the rear fl ange and position the anchor pin in line with the referring bore drilled on the machine.
- Gently fit the zeroed indicator into the handwheel/knob, inserting the planet pinion smoothly into the corresponding hole. To make the fitting of the indicator easier, gently turn by some degrees the rear flange until the planet pinion is geared to the internal crown gear wheel. Check that the indicator is zeroed and that the screw for the anchor pin is in the correct position.
- Uniformly tighten the lateral grub screws for fixing the indicator case with a moderate torque, to prevent distortion of the case itself and thus locking the movement.
- Adjust the height of the anchor pin so that no undue strain is caused to the flange and tighten the locknut.
- Couple the handwheel with the indicator to the zeroed control spindle. Be sure that the indicator pointers are in zero position and that the anchor pin is in line with the referring bore on the machine.
- Pin the handwheel on the spindle.
- Check the right functioning of the indicator over all the rotation range.

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Possible assembly

Handwheels - Knobs	Positive drive indicators					
	 **PA01**	 **PA02** page 699	 **PA05**	 **PA11** page 700	 **PA12**	 **PW12** page 701
 **MBT-XX** page 703	•	•		•	•	•
 **VHT-XX** page 704	•	•		•	•	•
 **VC.792-XX** page 705	•	•		•	•	•
 **EWW-XX** page 708		•			•	•
 **VDC-XX** page 710	•	•		•	•	•
 **VAD-XX** page 713	•	•	•	•	•	•

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Position indicators

gravity drive, steel

CASE
Zinc-plated steel.

BEZEL
AISI 303 stainless steel.

WINDOW
Glass.

DIAL
Natural matte anodised aluminium.
Clockwise (D) or anti-clockwise (S) graduation, black colour.

READING
The black pointer indicates the number of turns of the spindle from the start position (0); the red pointer indicates the fractions of turn.
Ballrace rotation: maximum reading accuracy.

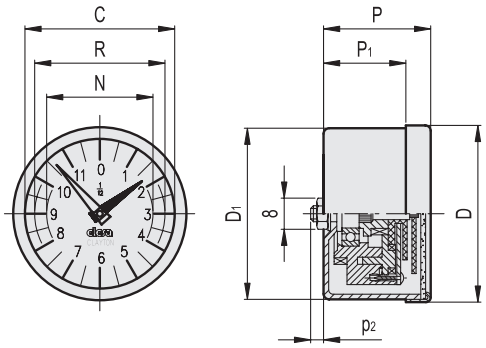
RATIO
To choose the ratio see "Gravity position indicators introduction" (on page 690).

FEATURES AND APPLICATIONS
The knobs with integral gravity position indicator are suitable on spindles with horizontal or max 60° inclined axis.
To choose the handwheel see the table "Handwheels/knobs-possible assembly with indicators" (on page 691).

SPECIAL EXECUTIONS ON REQUEST
- Special dial with logo or customized graduations
- Special ratios
- Liquid filled
- Single pointer
- Window in plexiglass instead of glass.



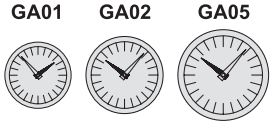
ELESA Original design



Series	D	P	D1	P1	p2	C	R	N	⚖
GA01	49.6	30	48.3	20.5	1.6	42	37	30	140
GA02	68.4	32	67.0	19.3	1.0	60	51	44	210
GA05	112.7	32	111.0	18.8	1.0	102	89	76	420

Example of description for ordering

GA01	-	0002	-	D
Series		Ratio		Graduation



Ratio	Description	Ratio	Description	Ratio	Description	Ratio	Description
2	0002	12	0012	36	0036	100	0100
4	0004	15	0015	40	0040	120	0120
5	0005	16	0016	48	0048	150 *	0150
6	0006	20	0020	50	0050	200 *	0200
8	0008	24	0024	60	0060		
10	0010	30	0030	72	0072		

** Available only for GA02 and GA05*

Increasing graduation

clockwise **D** anti-clockwise **S**



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RoHS IP67 PA PA-T +100° 0°

Position indicators

gravity drive, technopolymer

CASE
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.
Moulded-in spindle.

BEZEL
Technopolymer. Moulded over the window.

WINDOW
Transparent polyamide based (PA-T) technopolymer (practically unbreakable).
Resistant to solvents, oils, greases and other chemical agents (avoid contact with alcohol during cleaning operations).

DIAL
Natural matte anodised aluminium.
Clockwise (D) or anti-clockwise (S) graduation, black colour.

READING
The black pointer indicates the number of turns of the spindle from the start position (0); the red pointer indicates the fractions of turn.
Ballrace rotation: maximum reading accuracy.

RATIO
To choose the ratio see "Gravity position indicators introduction" (on page 690).

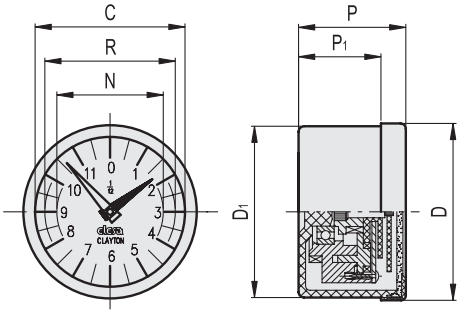
IP PROTECTION
The ultrasonic welding of the window to the case guarantees the complete sealing with IP 67 protection class, see EN 60529 table (on page A23).

FEATURES AND APPLICATIONS
The knobs with integral gravity position indicator are suitable on spindles with horizontal or max 60° inclined axis.
To choose the handwheel see the table "Handwheels/knobs-possible assembly with indicators" (on page 691).

SPECIAL EXECUTIONS ON REQUEST
- Special dial with logo or customized graduations
- Special ratios
- Liquid filled
- Single pointer



ELESA Original design



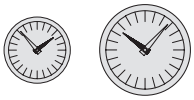
Series	D	P	D1	P1	C	R	N	⚖
GA11	49.8	30	48.2	23	42	37	30	75
GA12	68.5	32	67.0	25	60	51	44	125

Example of description for ordering

GA11 - 0002 - D

Series — Ratio — Graduation

GA11 GA12



Ratio	Description	Ratio	Description	Ratio	Description	Ratio	Description
2	0002	12	0012	36	0036	100	0100
4	0004	15	0015	40	0040	120	0120
5	0005	16	0016	48	0048	150 *	0150
6	0006	20	0020	50	0050	200 *	0200
8	0008	24	0024	60	0060		
10	0010	30	0030	72	0072		

** Available only for GA12*

Increasing graduation

clockwise **D** anti-clockwise **S**



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RoHS IP67 PA PA-T +100° 0°

Knobs with integral indicator

gravity drive, technopolymer

DIAMOND CUT KNURLED KNOB
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.
Moulded-in spindle.

BEZEL
Technopolymer. Moulded over the window.

WINDOW
Transparent polyamide based (PA-T) technopolymer (practically unbreakable).
Resistant to solvents, oils, greases and other chemical agents (avoid contact with alcohol during cleaning operations).

DIAL
Natural matte anodised aluminium.
Clockwise (D) or anti-clockwise (S) graduation, black colour.

STANDARD EXECUTION
Black-oxide steel boss, H7 reamed blind hole, fitting to shaft by means of a supplied grub screw with hexagon socket and cup end UNI 5929-85.

READING
The black pointer indicates the number of turns of the spindle from the start position (0); the red pointer indicates the fractions of turn.
Ballrace rotation: maximum reading accuracy.

RATIO
To choose the ratio see "Gravity position indicators introduction" (on page 690).

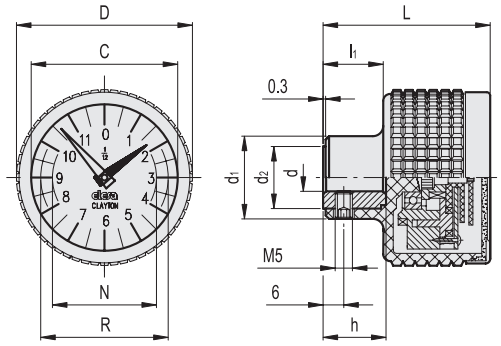
IP PROTECTION
The ultrasonic welding of the window to the case guarantees the complete sealing with IP 67 protection class, see EN 60529 table (on page A23).

FEATURES AND APPLICATIONS
The knobs with integral gravity position indicator are suitable on spindles with horizontal or max 60° inclined axis.

SPECIAL EXECUTIONS ON REQUEST
- special dial with logo or customized graduations
- special ratios
- liquid filled
- single pointer.



ELESA Original design



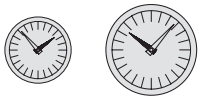
Series	D	L	d1	d2	l1	dH7	h	C	R	N	⚖
MBT.50-GA11	51	48	24	18	16.5	8	17	42	37	30	120
MBT.70-GA12	70	52	28	22	19	10	22	60	51	44	200

Example of description for ordering

MBT.50-GA11 - 0002 - D

Series | **Ratio** | **Graduation**

MBT.50-GA11 MBT.70-GA12



Ratio	Description	Ratio	Description	Ratio	Description	Ratio	Description
2	0002	12	0012	36	0036	100	0100
4	0004	15	0015	40	0040	120	0120
5	0005	16	0016	48	0048	150 *	0150
6	0006	20	0020	50	0050	200 *	0200
8	0008	24	0024	60	0060		
10	0010	30	0030	72	0072		

Increasing graduation

clockwise **D** anti-clockwise **S**



** Available only for MBT.70-GA12*

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RoHS IP67 PA PA-T +100° 0°

Digital-analogue position indicators

gravity drive, technopolymer

CASE
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.
Moulded-in spindle.

BEZEL
Technopolymer. Moulded over the window.

WINDOW
Transparent polyamide based (PA-T) technopolymer (practically unbreakable).
Resistant to solvents, oils, greases and other chemical agents (avoid contact with alcohol during cleaning operations).

DIAL
Natural matte anodised aluminium.
Clockwise (D) or anti-clockwise (S) graduation, black colour.

READING
Five-digits roller counter and one red pointer which turns on the graduated dial. The digit of the red roll shows the decimal values, while the pointer shows the hundredth.
The display indicates the displacement of the mechanism controlled by the spindle from the start position (0). One complete turn of the machine spindle corresponds to a turn of the handwheel/knob and consequently to a turn of the red pointer. A turn of the red pointer corresponds to a determinate reading on the counter (see "reading on the counter after one revolution of the red pointer" in the table).
Ballrace rotation: maximum reading accuracy.

IP PROTECTION
The ultrasonic welding of the window to the case guarantees the complete sealing with IP 67 protection class, see EN 60529 table (on page A23).

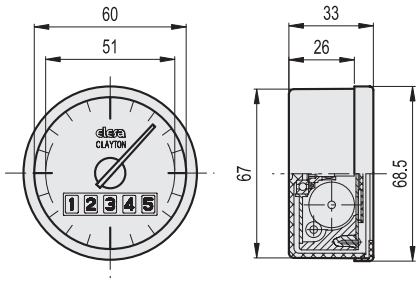
FEATURES AND APPLICATIONS
The knobs with integral gravity position indicator are suitable on spindles with horizontal or max 60° inclined axis.
To choose the handwheel see the table "Handwheels/knobs-possible assembly with indicators" (on page 691).



ELESA Original design

SPECIAL EXECUTIONS ON REQUEST
- No pointer
- Plain dial
- Special dial with logo or customized graduations
- Special readings after one revolution.

INSTRUCTIONS OF USE
These indicators are supplied with a screw on the rear case to prevent the mechanism from rotating during transportation, avoiding any displacement of reading. Before assembling the indicator into the handwheel, remove the screw from the back and fit the self-adhesive element supplied to guarantee IP 67 sealing.



Example of description for ordering

GW12 - 00002 - D

Reading on the counter after one revolution of the red pointer

0 0 0 0 2	0 0 0 0 2	0 0 0 0 2	0 0 0 0 2	Dial Graduation Number
00002	0000.2	000.02	00.002	20
00005	0000.5	000.05	00.005	50
00008	0000.8	000.08	00.008	40
00010	0001.0	000.10	00.010	100
00012	0001.2	000.12	00.012	60
00012(5)	0001.2(5)	000.12(5)	00.012(5)	100
00020	0002.0	000.20	00.020	40
00025	0002.5	000.25	00.025	50
00030	0003.0	000.30	00.030	60
00035	0003.5	000.35	00.035	70
00040	0004.0	000.40	00.040	80
00050	0005.0	000.50	00.050	100

Graduated dial resolution

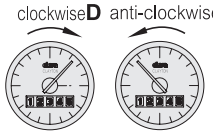
Divide the reading of the counter for the number of graduations of the dial.

Example:
00002 /20=0.1

Graduation

Increasing graduation

clockwise**D** anti-clockwise**S**



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RoHS IP67 PA PA-T +100° 0°

Knobs with digital-analogue position indicator

gravity drive, technopolymer

DIAMOND CUT KNURLED KNOB
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.
Moulded-in spindle.

BEZEL
Technopolymer. Moulded over the window.

WINDOW
Transparent polyamide based (PA-T) technopolymer (practically unbreakable).
Resistant to solvents, oils, greases and other chemical agents (avoid contact with alcohol during cleaning operations).

DIAL
Natural matte anodised aluminium.
Clockwise (D) or anti-clockwise (S) graduation, black colour.

STANDARD EXECUTION
Black-oxide steel boss, H7 reamed blind hole, fitting to shaft by means of a supplied grub screw with hexagon socket and cup end UNI 5929-85.

READING
Five-digits roller counter and one red pointer which turns on the graduated dial. The digit of the red roll shows the decimal values, while the pointer shows the hundredth.
The display indicates the displacement of the mechanism controlled by the spindle from the start position (0). One complete turn of the machine spindle corresponds to a turn of the knob and consequently to a turn of the red pointer. A turn of the red pointer corresponds to a determinate reading on the counter (see "reading on the counter after one revolution of the red pointer" in the table).
Ballrace rotation: maximum reading accuracy.

IP PROTECTION
The ultrasonic welding of the window to the case guarantees the complete sealing with IP 67 protection class, see EN 60529 (on page A23).

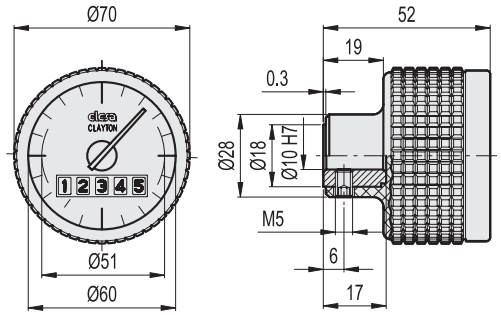
FEATURES AND APPLICATIONS
The knobs with integral gravity position indicator are suitable on spindles with horizontal or max 60° inclined axis.



ELESA Original design

SPECIAL EXECUTIONS ON REQUEST
- No pointer
- Plain dial
- Special dial with logo or customized graduations
- Special readings after one revolution.

INSTRUCTIONS OF USE
See GW12 (on page 697).



Example of description for ordering

MBT.70-GW12	-	00002	-	D

Reading on the counter after one revolution of the red pointer

0 0 0 0 2	0 0 0 0 2	0 0 0 0 2	0 0 0 0 2
00002	0000.2	000.02	00.002
00005	0000.5	000.05	00.005
00008	0000.8	000.08	00.008
00010	0001.0	000.10	00.010
00012	0001.2	000.12	00.012
00012(5)	0001.2(5)	000.12(5)	00.012(5)
00020	0002.0	000.20	00.020
00025	0002.5	000.25	00.025
00030	0003.0	000.30	00.030
00035	0003.5	000.35	00.035
00040	0004.0	000.40	00.040
00050	0005.0	000.50	00.050

Dial Graduation Number
20
50
40
100
60
100
40
50
60
70
80
100

Graduation

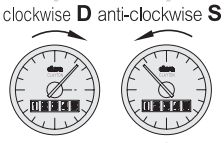
Graduated dial resolution

Divide the reading of the counter for the number of graduations of the dial.

Example: 00002 / 20=0.1

Increasing graduation

clockwise **D** anti-clockwise **S**



D **S**

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PA01 - PA02 - PA05

Position indicators

positive drive, steel

CASE
Zinc-plated steel.

BEZEL
AISI 303 stainless steel.

WINDOW
Glass.

DIAL
Natural matte anodised aluminium.
Clockwise (D) or anti-clockwise (S) graduation, black colour.

READING
The black pointer indicates the number of turns of the spindle from the start position (0); the red pointer indicates the fractions of turn.

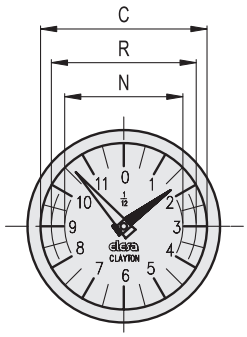
RATIO
To choose the ratio see "Positive drive indicators introduction" (on page 692).

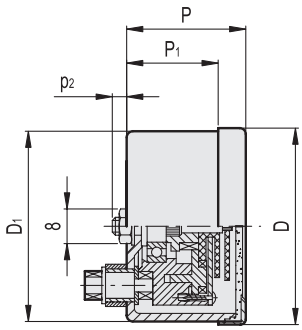
FEATURES AND APPLICATIONS
Digital-analogue positive drive indicators are suitable with spindles in any position.
To choose the handwheel see the table "Handwheels/knobs-possible assembly with indicators" (on page 693).

SPECIAL EXECUTIONS ON REQUEST
- Special dial with logo or customized graduations
- Special ratios
- Single pointer
- Window in plexiglass instead of glass.



ELESA Original design





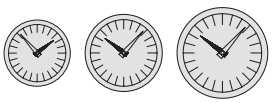
Series	D	P	D1	P1	p2	C	R	N	⚖
PA01	49.6	30	48.3	20.5	1.6	42	37	30	145
PA02	68.4	32	67.0	19.3	1.0	60	51	44	215
PA05	112.7	32	111.0	18.8	1.0	102	89	76	425

Example of description for ordering

PA01 - **0002** - **D**

Series | **Ratio** | **Graduation**

PA01 **PA02** **PA05**



Ratio	Description	Ratio	Description	Ratio	Description	Ratio	Description
2	0002	12	0012	36	0036	100	0100
4	0004	15	0015	40	0040	120	0120
5	0005	16	0016	48	0048	150 *	0150
6	0006	20	0020	50	0050	200 *	0200
8	0008	24	0024	60	0060		
10	0010	30	0030	72	0072		

Increasing graduation

clockwise **D** anti-clockwise **S**



** Available only for PA02 and PA05*

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RoHS IP65 PA PA-T +100° 0°

Position indicators

positive drive, technopolymer

CASE
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.
Moulded-in spindle.

BEZEL
Technopolymer. Moulded over the window.

WINDOW
Transparent polyamide based (PA-T) technopolymer (practically unbreakable).
Resistant to solvents, oils, greases and other chemical agents (avoid contact with alcohol during cleaning operations).

DIAL
Natural matte anodised aluminium.
Clockwise (D) or anti-clockwise (S) graduation, black colour.

READING
The black pointer indicates the number of turns of the spindle from the start position (0); the red pointer indicates the fractions of turn.

RATIO
To choose the ratio see "Positive drive indicators introduction" (on page 692).

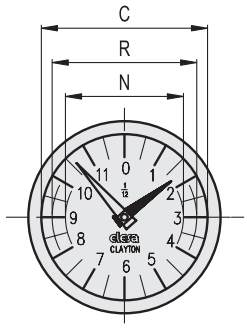
IP PROTECTION
The ultrasonic welding of the window to the case guarantees the complete sealing with IP 65 protection class, see EN 60529 (on page A23).

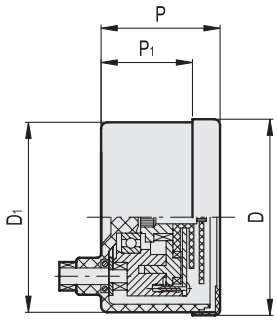
FEATURES AND APPLICATIONS
Digital-analogue positive drive indicators are suitable with spindles in any position.
To choose the handwheel see the table "Handwheels/knobs-possible assembly with indicators" (on page 693).

SPECIAL EXECUTIONS ON REQUEST
- Special dial with logo or customized graduations
- Special ratios
- Single pointer



ELESA Original design





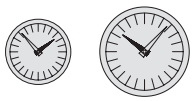
Series	D	P	D1	P1	C	R	N	⚖
PA11	49.8	30	48.2	23	42	37	30	80
PA12	68.5	32	67.0	25	60	51	44	130

Example of description for ordering

PA11 – 0002 – D

Series **Ratio** **Graduation**

PA11 PA12



Ratio	Description	Ratio	Description	Ratio	Description	Ratio	Description
2	0002	12	0012	36	0036	100	0100
4	0004	15	0015	40	0040	120	0120
5	0005	16	0016	48	0048	150 *	0150
6	0006	20	0020	50	0050	200 *	0200
8	0008	24	0024	60	0060		
10	0010	30	0030	72	0072		

** Available only for PA12*

Increasing graduation

clockwise **D** anti-clockwise **S**



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RoHS IP65 PA PA-T +100° 0°

Digital-analogue position indicators

positive drive, technopolymer

CASE
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.
Moulded-in spindle.

BEZEL
Technopolymer. Moulded over the window.

WINDOW
Transparent polyamide based (PA-T) technopolymer (practically unbreakable).
Resistant to solvents, oils, greases and other chemical agents (avoid contact with alcohol during cleaning operations).

DIAL
Natural matte anodised aluminium.
Clockwise (D) or anti-clockwise (S) graduation, black colour.

READING
Five-digits roller counter and one red pointer which turns on the graduated dial. The digit of the red roll shows the decimal values, while the pointer shows the hundredth.
The display indicates the displacement of the mechanism controlled by the spindle from the start position (0). One complete turn of the machine spindle corresponds to a turn of the handwheel/knob and consequently to a turn of the red pointer. A turn of the red pointer corresponds to a determinate reading on the counter (see "reading on the counter after one revolution of the red pointer" in the table).

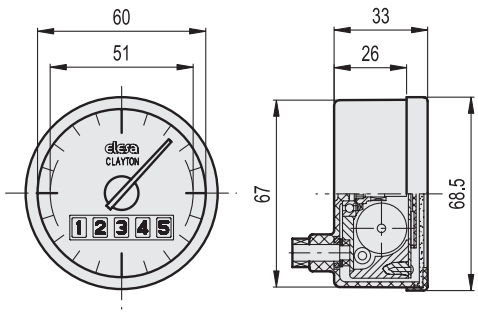
IP PROTECTION
The ultrasonic welding of the window to the case guarantees the complete sealing with IP 65 protection class, see table EN 60529 (on page A23).

FEATURES AND APPLICATIONS
Digital-analogue positive drive indicators are suitable with spindles in any position.
To choose the handwheel see the table "Handwheels/knobs-possible assembly with indicators" (on page 693).

SPECIAL EXECUTIONS ON REQUEST
- No pointer
- Plain dial
- Special dial with logo or customized graduations
- Special readings after one revolution.



ELESA Original design



Example of description for ordering

PW12 - 00002 - D

Reading on the counter after one revolution of the red pointer

0 0 0 0 2	0 0 0 0 2	0 0 0 0 2	0 0 0 0 2
00002	0000.2	000.02	00.002
00005	0000.5	000.05	00.005
00008	0000.8	000.08	00.008
00010	0001.0	000.10	00.010
00012	0001.2	000.12	00.012
00012(5)	0001.2(5)	000.12(5)	00.012(5)
00020	0002.0	000.20	00.020
00025	0002.5	000.25	00.025
00030	0003.0	000.30	00.030
00035	0003.5	000.35	00.035
00040	0004.0	000.40	00.040
00050	0005.0	000.50	00.050

Dial Graduation Number
20
50
40
100
60
100
40
50
60
70
80
100

Graduation

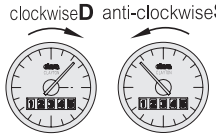
Graduated dial resolution

Divide the reading of the counter for the number of graduations of the dial.

Example:
00002 /20=0.1

Increasing graduation

clockwise**D** anti-clockwise**S**



D **S**

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Knurled grip knobs for position indicators

Technopolymer

MATERIAL
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, glossy finish.

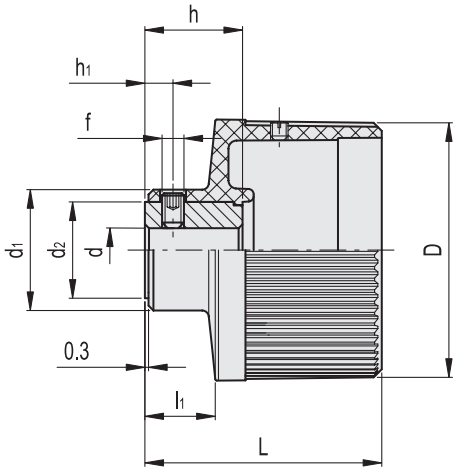
STANDARD EXECUTION
Black-oxide steel boss, H7 reamed hole, fitting to shaft by means of a supplied grub screw with hexagon socket and cup end UNI 5929-85.

INDICATOR CHOICE (TO BE ORDERED SEPARATELY)
IZN-XX knurled grip knobs can be used with analogue and digital-analogue gravity indicators.
To choose the indicator see the table below for possible assembly with indicators.
See also "Assembly instructions" (on page 690) for gravity indicators type G.

ACCESSORIES ON REQUEST
Cover CP-XX (see page 715) for fitting instead of the indicator.



ELESA Original design



Code	Description	D	L	dH7	h	d1	d2	f	h1	l1	⚖	Handwheel indicator combinations
CE.30101	IZN.60-GXX1 A-10	59	53	10	22	27	22	M5	6	15	110	GA01-GA11
CE.30201	IZN.80-GXX2 A-12	79	57	12	24	33	26	M5	6	17	190	GA02-GA12-GW12

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Diamond cut knurled knobs for position indicators

Technopolymer



ELESA Original design

MATERIAL
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

STANDARD EXECUTIONS
Black-oxide steel boss, H7 reamed hole, fitting to shaft by means of a supplied grub screw with hexagon socket and cup end UNI 5929-85.
- **MBT-GXX**: for gravity indicators.
- **MBT-PXX**: for positive drive indicators.

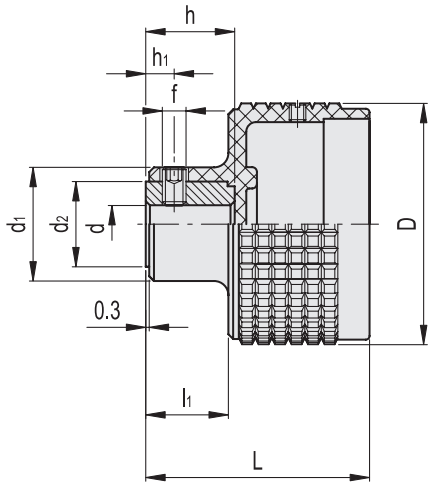
Rear flange with internal crown gear wheel in acetal resin based (POM) technopolymer. Black-oxide steel screw and anchor pin.

ERGONOMY AND DESIGN
The particular knurling on the outside rim of the knob, provided with a structure of very fine pitch, allows a safe and comfortable grip, offering the operator the possibility of operating under the most different working conditions in a sensitive and ergonomic way and simplifying the adjustment of the knob during rapid rotation (or screwing) without any unpleasant angular work for the hand and wrist.

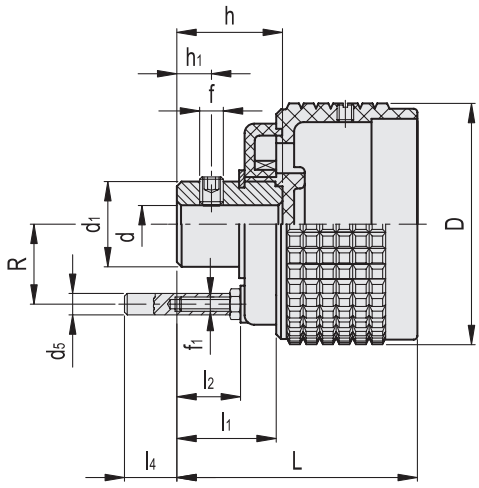
INDICATOR CHOICE (TO BE ORDERED SEPARATELY)
To choose the indicator see the table below for possible assembly with indicators.
See also "Assembly instructions" (on page 690) for gravity indicators or positive indicators type G or positive drive indicators type P (on page 692).

ACCESSORIES ON REQUEST
Cover CP-XX (see page 715) for fitting instead of the indicator.

MBT-GXX



MBT-PXX



MBT-GXX

Code	Description	D	L	dH7	h	d1	d2	f	h1	l1	⚖	Handwheel indicator combinations
CE.30001-R	MBT.60-GXX1 A-8	58	52.5	8	17	24	18	M5	6	17	72	GA01 - GA11
CE.30051-R	MBT.80-GXX2 A-10	77	61	10	22	28	22	M5	6	22	130	GA02 - GA12 - GW12

MBT-PXX

Code	Description	D	L	dH7	h	d1	d5	f	f1	h1	l1	l2	l4	R	⚖	Handwheel indicator combinations
CE.30002-R	MBT.60-PXX1 A-8	58	55	8	20.5	18	6	M5	M4	5	18.5	10.5	14.5	19	87	PA01 - PA11
CE.30052-R	MBT.80-PXX2 A-10	77	59	10	22	30	6	M5	M4	6	20	12	13	28.5	218	PA02 - PA12 - PW12

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INOX STAINLESS STEEL · RoHS · PA · +100° 0°

Lobe knobs for position indicators

Technopolymer

MATERIAL
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

STANDARD EXECUTIONS
Boss H7 reamed hole, fitting to shaft by means of a supplied grub screw with hexagon socket and cup end UNI 5929-85.
- **VHT-GXX**: for gravity indicators.
Black-oxide steel boss.
- **VHT-GXX-SST**: for gravity indicators.
AISI 303 stainless steel boss.
- **VHT-PXX**: for positive drive indicators.
Rear flange with internal crown gear wheel in acetal resin based (POM) technopolymer. Black-oxide steel screw and anchor pin.
Black-oxide steel boss.

FEATURES AND APPLICATIONS
The lobed shape with no cavities prevents unhealthy residues from depositing. Particularly suitable for applications on machines and equipment whose parts must be frequently cleaned by using water jets or steam.

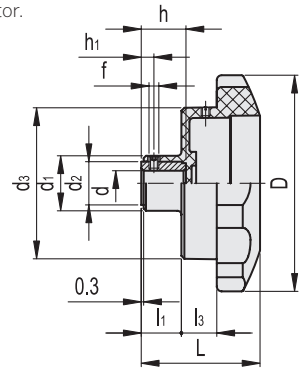
INDICATOR CHOICE (TO BE ORDERED SEPARATELY)
To choose the indicator see the table below for possible assembly with indicators.
See also "Assembly instructions" for gravity indicators type G (on page 690) or positive drive indicators type P (on page 692).

ACCESSORIES ON REQUEST
Cover CP-XX (see page 715) for fitting instead of the indicator.

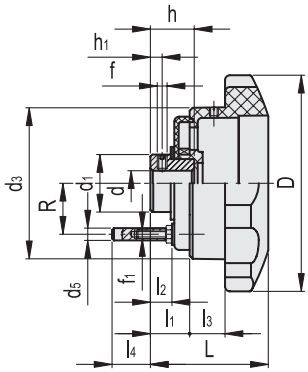


ELESA Original design

VHT-GXX
VHT-GXX-SST



VHT-PXX



VHT-GXX

Code	Description	D	L	dH7	h	d1	d2	d3	f	h1	l1	l3	⚖	Handwheel indicator combinations
CE.30251	VHT.85-GXX1 A-10	85	51	10	17	24	18	58	M5	6	15.5	18	110	GA01 - GA11
CE.30351	VHT.110-GXX2 A-12	110	58	12	22	28	22	77	M5	6	20	18	180	GA02 - GA12 - GW12

VHT-GXX-SST **STAINLESS STEEL**

Code	Description	D	L	dH7	h	d1	d2	d3	f	h1	l1	l3	⚖	Handwheel indicator combinations
CE.30255	VHT.85-GXX1-SST-10	85	51	10	17	24	18	58	M5	6	15.5	18	110	GA01 - GA11
CE.30355	VHT.110-GXX2-SST-12	110	58	12	22	28	22	77	M5	6	20	18	180	GA02 - GA12 - GW12

VHT-PXX

Code	Description	D	L	dH7	h	d1	d3	d5	f	f1	h1	l1	l2	l3	l4	R	⚖	Handwheel indicator combinations
CE.30252	VHT.85-PXX1 A-10	85	55	10	20.5	18	58	6	M5	M4	5	18.5	10.5	18	14.5	19	130	PA01 - PA11
CE.30352	VHT.110-PXX2 A-12	110	58	12	22	30	77	6	M5	M4	6	20	12	18	13.1	28.5	290	PA02 - PA12 - PW12

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VC.792-XX

Lobe knobs for position indicators

Technopolymer



ELESA Original design

MATERIAL
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

STANDARD EXECUTIONS
Black-oxide steel boss, H7 reamed hole, fitting to shaft by means of a supplied grub screw with hexagon socket and cup end UNI 5929-85.
- **VC.792-GXX**: for gravity indicators.
- **VC.792-PXX**: for positive drive indicators.

Rear flange with internal crown gear wheel in acetal resin based (POM) technopolymer. Black-oxide steel screw and anchor pin.

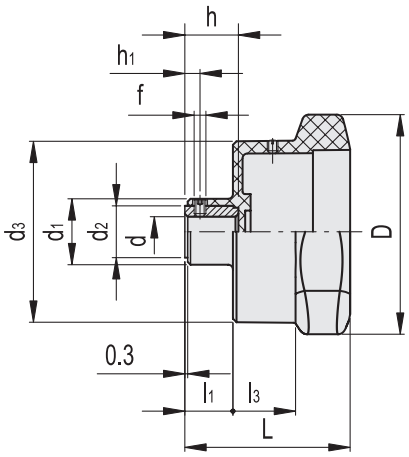
FEATURES AND APPLICATIONS
The ergonomic design enables an effective grip. The lobed shape with no cavities prevents unhealthy residues from depositing and guarantees perfect cleaning. Particularly suitable for applications on machines and equipment whose parts must be frequently cleaned by using water jets or steam.

INDICATOR CHOICE (TO BE ORDERED SEPARATELY)
To choose the indicator see the table below for possible assembly with indicators.
See also "Assembly instructions" for gravity indicators type G (on page 690) or positive drive indicators type P (on page 692).

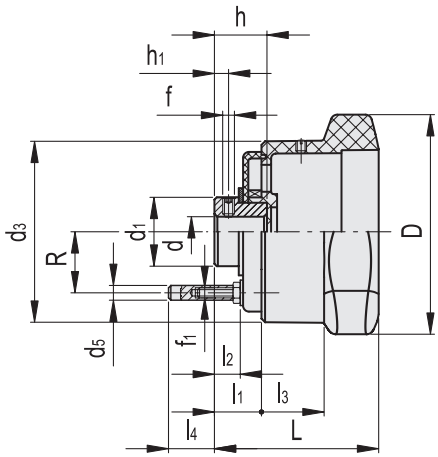
ACCESSORIES ON REQUEST
Cover CP-XX (see page 715) for use without the indicator.

SPECIAL EXECUTIONS ON REQUEST
Knob with stainless steel boss.

VC.792-GXX



VC.792-PXX



VC.792-GXX

Code	Description	D	L	dH7	h	d1	d2	d3	f	h1	l1	l3	⚖	Handwheel indicator combinations
CE.30071	VC.792/72-GXX1 A-10	72	52	10	17	24	18	56	M5	6	15.9	19	79	GA01 - GA11
CE.30081	VC.792/98-GXX2 A-12	98	58	12	22	27.5	22	76.5	M5	6	20.5	19	147	GA02 - GA12 - GW12

VC.792-PXX

Code	Description	D	L	dH7	h	d1	d3	d5	f	f1	h1	l1	l2	l3	l4	R	⚖	Handwheel indicator combinations
CE.30073	VC.792/72-PXX1 A-10	72	55	10	20.5	18	56	6	M5	M4	5	18.5	10.5	19	14.5	19	85	PA01 - PA11
CE.30083	VC.792/98-PXX2 A-12	98	58	12	22	30	76.5	6	M5	M4	6	20	12	19	13.1	28.5	207	PA02 - PA12 - PW12

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Handwheels for positions indicators

Technopolymer

MATERIAL
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

STANDARD EXECUTION
Boss H7 reamed through hole.
- **VDSC-GXX2+I**: with revolving handle I.621+x (see page 576) in polyamide based (PA) technopolymer, black colour, matte finish.

Black-oxide steel boss.
- **VDSC-GXX2-SST+I**: with revolving handle I.621+x-SST (see page 576) in polyamide based (PA) technopolymer, black colour, matte finish.

AISI 303 stainless steel boss.
- **VDSC-GXX2+IR:** with fold-away handle IR.620 (see page 584) in polyamide based (PA) technopolymer, black colour, matte finish.

Black-oxide steel boss.
- **VDSC-GXX2-SST+IR**: with fold-away handle IR.620-SST (see page 584) in polyamide based (PA) technopolymer, black colour, matte finish.

AISI 303 stainless steel boss.

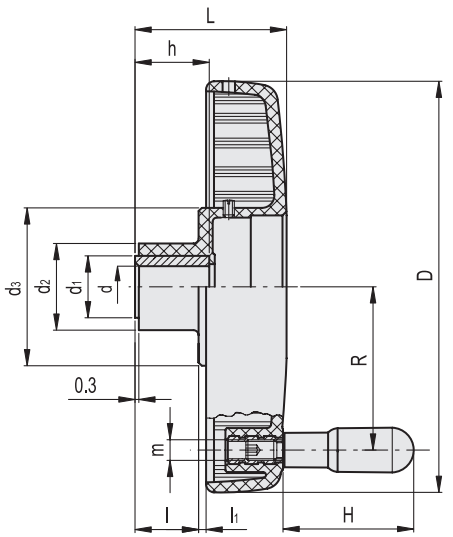
INDICATOR CHOICE (TO BE ORDERED SEPARATELY)
VDSC-XX solid handwheels can be used with analogue and digital-analogue gravity indicators.
To choose the indicator see the table below for possible assembly with indicators.
See also "Assembly instructions" for gravity indicators type G (on page 690).

ACCESSORIES ON REQUEST
Cover CP-XX (see page 715) for fitting instead of the indicator.



ELESA Original design

VDSC-GXX2+I
VDSC-GXX2-SST+I



VDSC-GXX2+I

Code	Description	D	L	dH7	h	d1	d2	d3	l	l1	H	m	R	⚖	Handwheel indicator combinations
CE.34015	VDSC.125-GXX2 A-8+I	125	63	8	22	22	35	76	22	14	65	M8	48.5	292	GA02 - GA12 - GW12
CE.34021	VDSC.125-GXX2 A-10+I	125	63	10	22	22	35	76	22	14	65	M8	48.5	290	GA02 - GA12 - GW12
CE.34075	VDSC.200-GXX2 A-16+I	200	70.5	16	34	30	42	76	30	2	90	M10	80	684	GA02 - GA12 - GW12
CE.34081	VDSC.200-GXX2 A-20+I	200	70.5	20	34	30	42	76	30	2	90	M10	80	680	GA02 - GA12 - GW12

VDSC-GXX2-SST+I **STAINLESS STEEL**

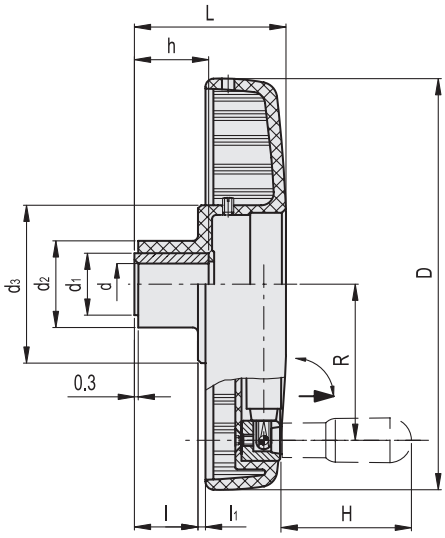
Code	Description	D	L	dH7	h	d1	d2	d3	l	l1	H	m	R	⚖	Handwheel indicator combinations
CE.34017	VDSC.125-GXX2 SST-8+I	125	63	8	22	22	35	76	22	14	65	M8	48.5	293	GA02 - GA12 - GW12
CE.34023	VDSC.125-GXX2 SST-10+I	125	63	10	22	22	35	76	22	14	65	M8	48.5	291	GA02 - GA12 - GW12
CE.34077	VDSC.200-GXX2 SST-16+I	200	70.5	16	34	30	42	76	30	2	90	M10	80	685	GA02 - GA12 - GW12
CE.34083	VDSC.200-GXX2 SST-20+I	200	70.5	20	34	30	42	76	30	2	90	M10	80	681	GA02 - GA12 - GW12

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VDSC-XX

Handwheels for positions indicators

VDSC-GXX2+IR
VDSC-GXX2-SST+IR



VDSC-GXX2+IR

Code	Description	D	L	dH7	h	d1	d2	d3	l	l1	H	R	⚖	Handwheel indicator combinations
CE.34045	VDSC.160-GXX2 A-10+IR	160	66	10	30	26	38.5	77	25.5	7.5	60	63	437	GA02 - GA12 - GW12
CE.34051	VDSC.160-GXX2 A-12+IR	160	66	12	30	26	38.5	77	25.5	7.5	60	63	435	GA02 - GA12 - GW12
CE.34085	VDSC.200-GXX2 A-16+IR	200	77	16	36	40	49	77	35	4	80	77	784	GA02 - GA12 - GW12
CE.34091	VDSC.200-GXX2 A-20+IR	200	77	20	36	40	49	77	35	4	80	77	780	GA02 - GA12 - GW12

VDSC-GXX2-SST+IR **STAINLESS STEEL**

Code	Description	D	L	dH7	h	d1	d2	d3	l	l1	H	R	⚖	Handwheel indicator combinations
CE.34047	VDSC.160-GXX2 SST-10+IR	160	66	10	30	26	38.5	77	25.5	7.5	60	63	438	GA02 - GA12 - GW12
CE.34053	VDSC.160-GXX2 SST-12+IR	160	66	12	30	26	38.5	77	25.5	7.5	60	63	436	GA02 - GA12 - GW12
CE.34087	VDSC.200-GXX2 SST-16+IR	200	77	16	36	40	49	77	35	4	80	77	785	GA02 - GA12 - GW12
CE.34093	VDSC.200-GXX2 SST-20+IR	200	77	20	36	40	49	77	35	4	80	77	781	GA02 - GA12 - GW12

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RoHS PP +80° 0°

Handwheel for position indicators

Technopolymer



ERGOSTYLE® XVI Premio Compasso d'oro 1994

MATERIAL
Glass-fibre reinforced polypropylene based (PP) technopolymer, grey-black colour, matte finish.

REVOLVING HANDLE
IEL+x-SOFT (see page 572) in technopolymer coated with "soft-touch" thermoplastic elastomer (TPE), black colour, matte finish.

STANDARD EXECUTION
Black-oxide steel hub, H7 reamed hole.
Rear flange with internal crown gear wheel in acetal resin based (POM) technopolymer. Black-oxide steel screw and anchor pin.

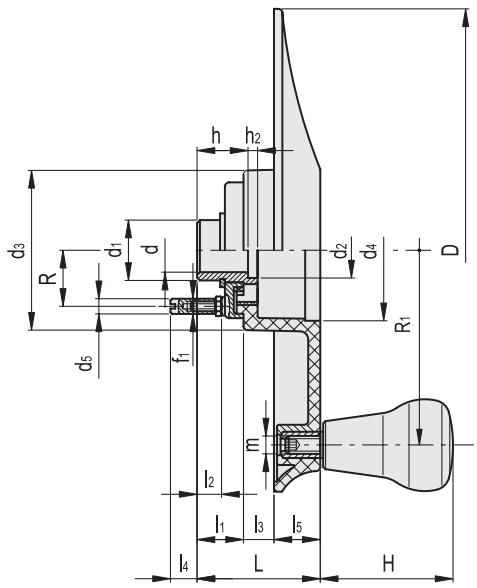
FEATURES AND APPLICATIONS
This steering handwheel has been designed to be mounted on control shafts of machines or equipment and especially for guiding lift trucks and handling vehicles.

ERGONOMY AND DESIGN
The lowered profile of the steering handwheel makes it suitable for flush mounting on the control panel, thus reducing protruding parts to a minimum.

INDICATOR CHOICE (TO BE ORDERED SEPARATELY)
The steering handwheel can be used with a position indicator PA02 (see page 699), PA12 (see page 700) or PW12 (see page 701) to read steering positions.
See also "Assembly instructions" (on page 692) for positive drive indicators type P.

ACCESSORIES ON REQUEST
- Axial retaining washer GN 184 (see page 971).
- Cover CP-XX (see page 715) for fitting instead of the indicator.

SPECIAL EXECUTIONS ON REQUEST
EWW-XX steering handwheel is suitable also for using with gravity indicators.



Code	Description	D	L	dH7	h	d1	d2	d3	d4	d5	f1	h2	l1	l2	l3	l4	l5	H	m	R	R1	⚖
208141-C0	EWW.240-PXX2+IEL-A20-C0	240	59	20	24	30	25.5	79	68.5	6	M4	4	21	13	15	13	23	65	M10	28.5	97	810

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Solid handwheels for position indicators

Duroplast

MATERIAL
High-strength, reinforced phenolic based (PF) Duroplast, black colour, glossy finish.

INDICATOR HOUSING
SC-XX (see page 715) made out of glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

REVOLVING HANDLE
I.301+x (see page 574) made out of Duroplast, black colour, glossy finish.

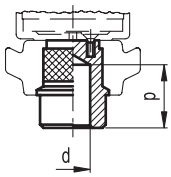
STANDARD EXECUTION
Black-oxide steel hub, not drilled.
See table for the values of max d diameter and max p depth for drilling.

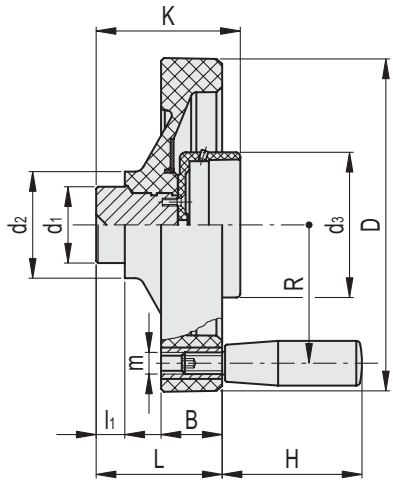
INDICATOR CHOICE (TO BE ORDERED SEPARATELY)
VDN-XX solid handwheels can be used with analogue gravity indicators GA05 (on page 694).
See also "Assembly instructions"for gravity indicators (on page 690).

SPECIAL EXECUTIONS ON REQUEST
Execution with hand reset: the indicator reading can be reset in any position within the positioning range, so that further readings can be referred to the reset point. To reset the reading turn the indicator housing until the two pointers reach the zero position, by keeping the indicator body still. By so doing the relevant position (phase) between the indicator and the handwheel can be changed by a small effort, but enough to avoid any accidental phase displacement.



ELESA Original design





Code	Description	D	L	dmax	pmax	d1	d2	d3	l1	B	K	H	m	R	⚖
CE.32121	VDN.250-GXX5+I	249	76	34	25	49	70	122	15	36	86	90	M10	106	2100
CE.32126	VDN.300-GXX5+I	301	87	42	35	58	82	122	18	36	98	90	M10	132	3138
CE.32131	VDN.350-GXX5+I	350	92	42	35	58	90	122	18	38	98	102	M10	157	4243

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Handwheels for positions indicators

Duroplast

MATERIAL
High-resistance reinforced phenolic based (PF) Duroplast, black colour, glossy finish.

STANDARD EXECUTIONS
Black-oxide steel hub.
- **VDC-GXX**: for gravity indicators.
Not drilled hub, see table for maximum permissible boring diameters d' and d''.
- **VDC-GXX+I**: for gravity indicators.
Not drilled hub, see table for maximum permissible boring diameters d' and d''.
Revolving handle I.301+x (see page 574) in Duroplast, black colour, glossy finish.
- **VDC-PXX+I:** for positive drive indicators.
Rear flange with internal crown gear wheel in acetal resin based (POM) technopolymer. Black-oxide steel screw and anchor pin.
Hub with H7 reamed through hole.
Revolving handle I.301+x (see page 574) in Duroplast, black colour, glossy finish.

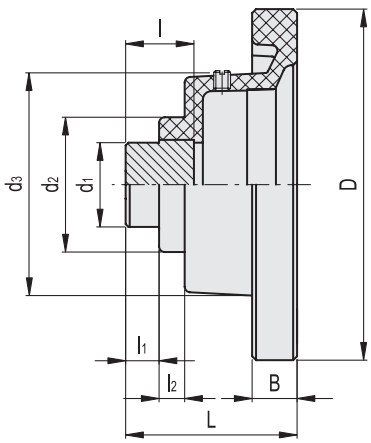
ERGONOMY
The rim with internal rear scallops (for models with diameter D ≥ 125 mm) makes the grip and the manoeuvre of the handwheel easier especially in the versions without handle.

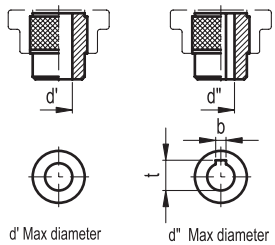
INDICATOR CHOICE (TO BE ORDERED SEPARATELY)
To choose the indicator see the table below for possible assembly with indicators.
See also "Assembly instructions" for gravity indicators type G (on page 690) or positive drive indicators type P (on page 692).



ELESA Original design

VDC-GXX





d' Max diameter permissible

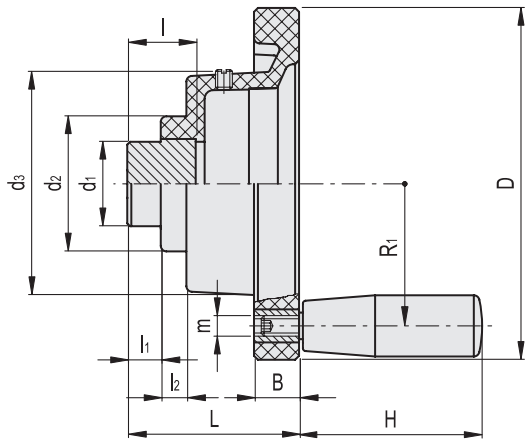
d'' Max diameter for hole with keyway

VDC-GXX

Code	Description	D	L	d'	d''	t	b	d1	d2	d3	l	l1	l2	B	⚖	Handwheel indicator combinations
CE.30501	VDC.125-GXX2	125	61	25	20	22.8	6	30	48	82	25	12	9	16	400	GA02 - GA12 - GW12
CE.30601	VDC.140-GXX2	140	65	25	20	22.8	6	30	50	82	25	12	9	17	470	GA02 - GA12 - GW12
CE.30701	VDC.160-GXX2	160	72	30	24	27.3	8	35	53	84	30	15	10	18	650	GA02 - GA12 - GW12
CE.30901	VDC.160-GXX5	160	71	31	25	28.3	8	36	53	123	34	14	11	18	730	GA05
CE.31001	VDC.180-GXX5	180	78	31	25	28.3	8	36	56	127	34	14	12	19	940	GA05
CE.31101	VDC.200-GXX5	200	79	35	29	32.3	8	40	59	127	34	13	15	20	1080	GA05

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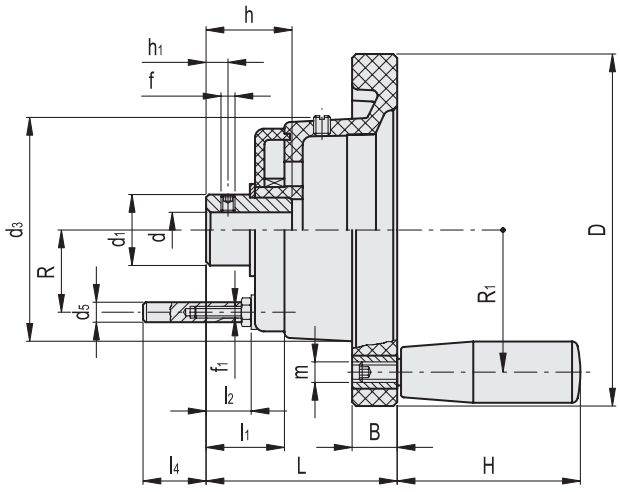
VDC-GXX+I



VDC-GXX+I

Code	Description	D	L	d'	d''	t	b	d1	d2	d3	l	l1	l2	B	H	m	R1	⚖	Handwheel indicator combinations
CE.30461	VDC.80-GXX1+I	87	57	20	16	18.3	5	25	40	58	23	11	8.5	14	40	M6	34.5	245	GA01 - GA11
CE.30481	VDC.100-GXX2+I	108	60	25	20	22.8	6	30	46	79	25	12	9.5	14	50	M6	45	375	GA02 - GA12 - GW12
CE.30511	VDC.125-GXX2+I	125	61	25	20	22.8	6	30	48	82	25	12	9	16	65	M8	53	480	GA02 - GA12 - GW12
CE.30611	VDC.140-GXX2+I	140	65	25	20	22.8	6	30	50	82	25	12	9	17	65	M8	60	540	GA02 - GA12 - GW12
CE.30711	VDC.160-GXX2+I	160	72	30	24	27.3	8	35	53	84	30	15	10	18	80	M8	68	750	GA02 - GA12 - GW12
CE.30811	VDC.180-GXX2+I	180	78	30	24	27.3	8	35	56	85	30	15	10	19	80	M10	77.5	890	GA02 - GA12 - GW12
CE.30911	VDC.160-GXX5+I	160	71	31	25	28.3	8	36	53	123	34	14	11	18	80	M8	68	825	GA05
CE.31011	VDC.180-GXX5+I	180	78	31	25	28.3	8	36	56	127	34	14	12	19	80	M10	77.5	1010	GA05
CE.31111	VDC.200-GXX5+I	200	79	35	29	32.3	8	40	59	127	34	13	15	20	80	M10	87	1180	GA05

VDC-PXX+I



VDC-PXX+I

Code	Description	D	L	dH7	h	d1	d3	d5	f	f1	h1	l1	l2	l4	B	H	m	R	R1	⚖	Handwheel indicator combinations
CE.30462	VDC.80-PXX1+I A-8	87	57	8	23	18	58	6	M5	M4	5	19	11	14.1	14	40	M6	19	34.5	230	PA01 - PA11
CE.30482	VDC.100-PXX2+I A-10	108	60	10	25	30	78	6	M5	M4	6	21	13	12.1	14	50	M6	28.5	45	390	PA02 - PA12 - PW12

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RoHS PP PA +80° 0°

Handwheels for positions indicators

Technopolymer



ELESA Original design

MATERIAL
High-resilience polypropylene based (PP) technopolymer, black colour, matte finish.

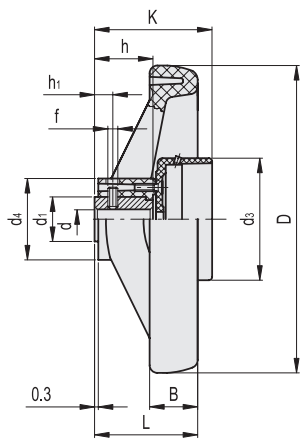
INDICATOR HOUSING
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

STANDARD EXECUTIONS
Black-oxide steel boss, H7 reamed hole, fitting to shaft by means of a supplied grub screw with hexagon socket and cup end UNI 5929-85.
- **VRTP-GXX2**: without handle.
- **VRTP-GXX2+I**: with revolving handle I.621+x (see page 576) in polyamide based (PA) technopolymer, black colour, matte finish.

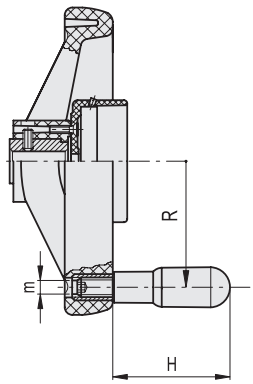
INDICATOR CHOICE (TO BE ORDERED SEPARATELY)
VRTP-XX two-spoke handwheels can be used with analogue and digital-analogue gravity indicators.
To choose the indicator see the table below for possible assembly with indicators.
See also "Assembly instructions" for gravity indicators type G (on page 690).

SPECIAL EXECUTIONS ON REQUEST
Execution with hand reset: the indicator reading can be reset in any position within the positioning range, so that further readings can be referred to the reset point. To reset the reading turn the indicator housing until the two pointers reach the zero position, by keeping the indicator body still. By so doing the relevant position (phase) between the indicator and the handwheel can be changed by a small effort, but enough to avoid any accidental phase displacement.

VRTP-GXX2



VRTP-GXX2+I



VRTP-GXX2

Code	Description	D	L	dH7	h	d1	d3	d4	f	h1	B	K	⚖	Handwheel indicator combinations
CE.33111-R	VRTP.160-GXX2 A-14	160	51	14	27	26	76	40	M8	12	25	63	340	GA02 - GA12 - GW12
CE.33211-R	VRTP.200-GXX2 A-16	200	61	16	34	30	76	48.5	M8	12	28	70	540	GA02 - GA12 - GW12
CE.33311-R	VRTP.250-GXX2 A-20	250	70	20	38	35	76	58	M8	12	32	74	790	GA02 - GA12 - GW12

VRTP-GXX2+I

Code	Description	D	L	dH7	h	d1	d3	d4	f	h1	B	K	H	m	R	⚖	Handwheel indicator combinations
CE.33121-R	VRTP.160-GXX2 A-14+I	160	51	14	27	26	76	40	M8	12	25	63	80	M8	65	425	GA02 - GA12 - GW12
CE.33221-R	VRTP.200-GXX2 A-16+I	200	61	16	34	30	76	48.5	M8	12	28	70	80	M8	84	625	GA02 - GA12 - GW12
CE.33321-R	VRTP.250-GXX2 A-20+I	250	70	20	38	35	76	58	M8	12	32	74	90	M10	105	890	GA02 - GA12 - GW12

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Handwheels for position indicators

Aluminium

MATERIAL
Aluminium, epoxy resin coating, black colour, matte finish.

STANDARD EXECUTIONS
H7 reamed through hole.
Revolving handle (for +I versions) I.621+x (see page 576) in polyamide based (PA) technopolymer, black colour, matte finish.
- **VAD-GXX:** for gravity indicators, without handle.
- **VAD-GXX+I:** for gravity indicators, with handle.
- **VAD-PXX:** for positive drive indicators, without handle.
- **VAD-PXX+I:** for positive drive indicators, with handle.

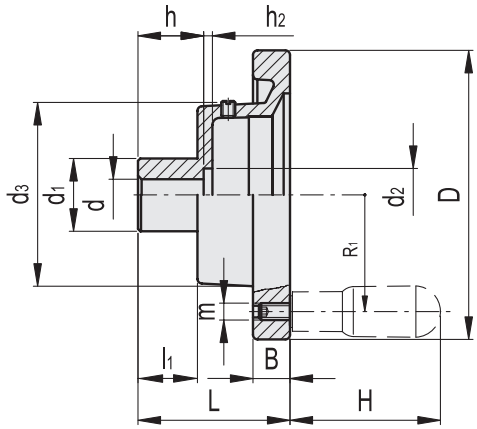
Rear flange with internal crown gear wheel in acetal resin based (POM) technopolymer. Black-oxide steel screw and anchor pin.

INDICATOR CHOICE (TO BE ORDERED SEPARATELY)
To choose the indicator see the table below for possible assembly with indicators.
See also "Assembly instructions" for gravity indicators type G (on page 690) or positive drive indicators type P (on page 692).



ELESA Original design

VAD-GXX
VAD-GXX+I



VAD-GXX

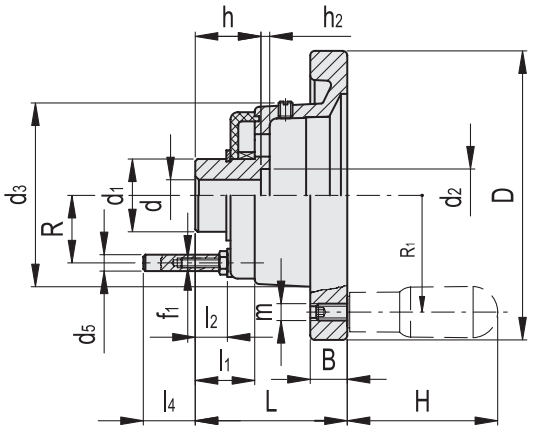
Code	Description	D	L	dH7	h	d1	d2	d3	h2	l1	B	⚖	Handwheel indicator combinations
CE.28501	VAD.80-GXX1 A-10	80	48	10	16	26	20.5	56	3.5	15.5	13	175	GA01 - GA11
CE.28551	VAD.100-GXX1 A-10	100	58	10	17	28	20.5	56	3.5	17.5	14	235	GA01 - GA11
CE.28601	VAD.125-GXX2 A-12	125	61	12	18	31	25.5	76	4	18	15	370	GA02 - GA12 - GW12
CE.28651	VAD.160-GXX2 A-14	160	68	14	20	36	29	78	4	19	18	625	GA02 - GA12 - GW12
CE.28701	VAD.160-GXX5 A-14	160	64	14	23.5	36	25.5	120	4	20	18	760	GA05
CE.28721	VAD.200-GXX2 A-18	200	75	18	24	42	33	79	4.5	21	20.5	980	GA02 - GA12 - GW12
CE.28731	VAD.250-GXX2 A-22	250	81.5	22	28	48	37	80	4.5	24.5	23	1500	GA02 - GA12 - GW12

VAD-GXX+I

Code	Description	D	L	dH7	h	d1	d2	d3	h2	l1	B	H	m	R1	⚖	Handwheel indicator combinations
CE.28511	VAD.80-GXX1 A-10+I	80	48	10	16	26	20.5	56	3.5	15.5	13	45	M6	33.5	200	GA01 - GA11
CE.28561	VAD.100-GXX1 A-10+I	100	58	10	17	28	20.5	56	3.5	17.5	14	45	M6	42.5	270	GA01 - GA11
CE.28611	VAD.125-GXX2 A-12+I	125	61	12	18	31	25.5	76	4	18	15	65	M8	54	440	GA02 - GA12 - GW12
CE.28661	VAD.160-GXX2 A-14+I	160	68	14	20	36	28	78	4	19	18	80	M10	71	705	GA02 - GA12 - GW12
CE.28711	VAD.160-GXX5 A-14+I	160	64	14	23.5	36	25.5	120	4	20	18	80	M10	71	840	GA05
CE.28726	VAD.200-GXX2 A-18+I	200	75	18	24	42	33	79	4.5	21	20.5	90	M10	89	1065	GA02 - GA12 - GW12
CE.28736	VAD.250-GXX2 A-22+I	250	81.5	22	28	48	37	80	4.5	24.5	23	90	M10	113	1595	GA02 - GA12 - GW12

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VAD-PXX
VAD-PXX+I



VAD-PXX

Code	Description	D	L	dH7	h	d1	d2	d3	d5	f1	h2	l1	l2	l4	B	R	⚖	Handwheel indicator combinations
CE.28502	VAD.80-PXX1 A-10	80	55	10	22.5	20	20.5	56	6	M4	3.5	18.5	11.5	13.6	13	19	205	PA01 - PA11
CE.28552	VAD.100-PXX1 A-10	100	63.5	10	22.5	20	20.5	56	6	M4	3.5	18.5	11.5	13.6	14	19	265	PA01 - PA11
CE.28602	VAD.125-PXX2 A-12	125	65.5	12	22.5	32	22.5	76	6	M4	4	19	12	13.1	15	28.5	450	PA02 - PA12 - PW12
CE.28652	VAD.160-PXX2 A-14	160	71.5	14	23.5	32	25.5	78	6	M4	4	20	13	12.1	18	28.5	680	PA02 - PA12 - PW12
CE.28702	VAD.160-PXX5 A-14	160	64	14	23.5	32	25.5	120	6	M4	4	20	13	12.1	18	28.5	760	PA05

VAD-PXX+I

Code	Description	D	L	dH7	h	d1	d2	d3	d5	f1	h2	l1	l2	l4	B	H	m	R	R1	⚖	Handwheel indicator combinations
CE.28512	VAD.80-PXX1 A-10+I	80	55	10	22.5	20	20.5	56	6	M4	3.5	18.5	11.5	13.6	13	45	M6	19	33.5	230	PA01 - PA11
CE.28562	VAD.100-PXX1 A-10+I	100	63.5	10	22.5	20	20.5	56	6	M4	3.5	18.5	11.5	13.6	14	45	M6	19	42.5	300	PA01 - PA11
CE.28612	VAD.125-PXX2 A-12+I	125	65.5	12	22.5	32	22.5	76	6	M4	4	19	12	13.1	15	65	M8	28.5	54	520	PA02 - PA12 - PW12
CE.28662	VAD.160-PXX2 A-14+I	160	71.5	14	23.5	32	25.5	78	6	M4	4	20	13	12.1	18	80	M10	28.5	71	760	PA02 - PA12 - PW12
CE.28712	VAD.160-PXX5 A-14+I	160	64	14	23.5	32	25.5	120	6	M4	4	20	13	12.1	18	80	M10	28.5	71	840	PA05

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SC-XX

RoHS PA +110° -30°

Housings

for position indicator, technopolymer

MATERIAL

Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

STANDARD EXECUTIONS

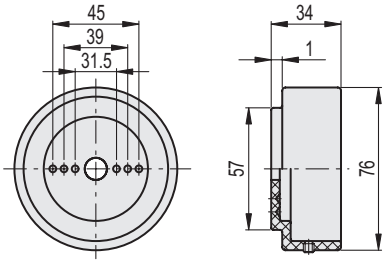
- **SC.GXX2:** three couples of dimples on the bottom of the housing (to drill according to the type of indicator) and two supplied M4x14 countersunk head screws.
- **SC.GXX5:** two holes for supplied M4x14 countersunk head screws.

APPLICATIONS

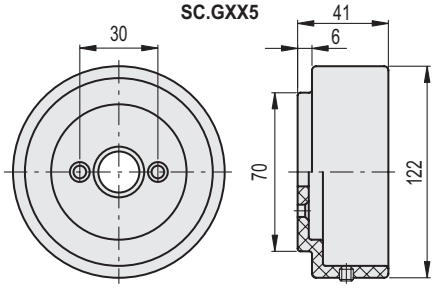
SC-XX housings are suitable with gravity indicators on any handwheel or other control devices.



SC.GXX2



SC.GXX5



Code	Description	⚖	Handwheel indicator combinations
CE.40002	SC.GXX2	72	GA02 - GA12 - GW12
CE.40005	SC.GXX5	191	GA05

CP-XX

RoHS

Covers

Technopolymer

MATERIAL

Polyester based (PBT) technopolymer, light grey colours, matte finish.

MOUNTING

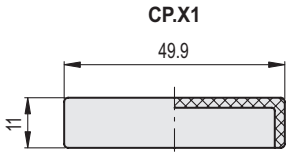
Push-fit. The cover can be removed by using a screwdriver in the proper cavity.

APPLICATIONS

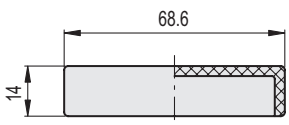
CP-XX covers are suitable for closing the indicator housing when the indicator is not required.



CP.X1



CP.X2



Code	Description	⚖	Handwheels/knobs combinations
CE.40101	CP.X1	6	IZN.60-MBT.60-VHT.85
CE.40102	CP.X2	11	IZN.80-MBT.80-VHT.110-VDSC-XX - EWW-XX

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Digital position indicators

direct drive, 3-digit counter, technopolymer

BASE AND CASE
High-resistance polyamide based (PA) technopolymer.
Black base.
Case in the following colours:
- **C2**: RAL 2004 orange, glossy finish.
- **C3**: RAL 7035 grey, glossy finish.
- **C1**: RAL 7021 grey-black, glossy finish.

The ultrasonically welding between the base and the case prevents separation and avoids dust penetration.

WINDOW
Transparent polyamide based (PA-T) technopolymer, moulded over the case and with a perfect seal. Resistant to solvents, oils, greases and other chemical agents (avoid contact with alcohol during cleaning operations).

DISPLAY
It indicates the displacement of the mechanism controlled by the spindle from the start position (0).
Three-digit roller counter. The digits of red rolls show the decimal values.
The display can be in different positions (see "Table of the possible combinations").
- **AN:** inclined display, counter in upper position.
- **AR:** inclined display, counter in lower position.
- **FN:** front display, counter in upper position.
- **FR:** front display, counter in lower position.

INTERNAL GASKET
O-ring front sealing in NBR synthetic rubber, between the case and the bushing.

REAR GASKET
Foam polyethylene, supplied.

STANDARD EXECUTION
Boss with Ø 10 mm H7 reamed hole, fitting to shaft by means of a supplied grub screw with hexagon socket and cup end, included in the supply.
- **DD50**: black-oxide steel boss.
- **DD50-SST**: AISI 303 stainless steel boss.

DIRECTION OF ROTATION
- **D:** clockwise. Increasing values with clockwise rotation of the boss.
- **S:** anti-clockwise. Increasing values with anti-clockwise rotation of the boss.

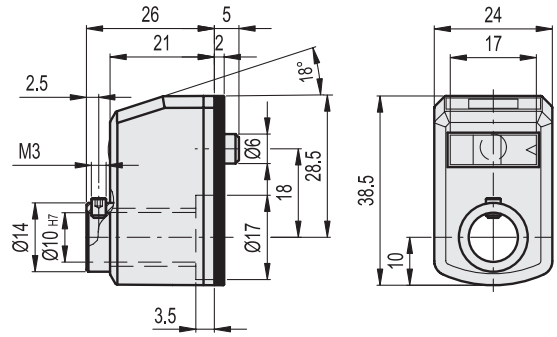
WEIGHT
22 grams.

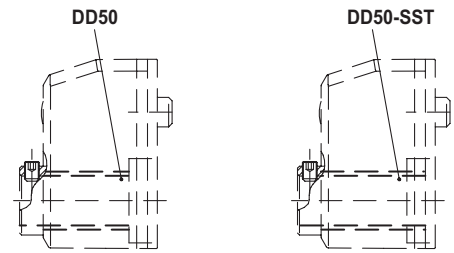
ERGONOMY AND DESIGN
Compact roller counter, ergonomically designed digits for rapid reading. The readability of the counter is increased by the magnifying window.

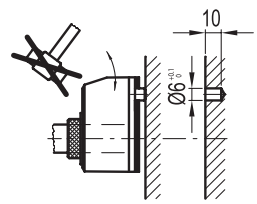
ASSEMBLY INSTRUCTIONS
1. Drill a Ø 6 mm by 10 mm hole in the body of the machine with a 18 mm centre distance from the spindle to fit the rear referring pin.
2. Set the spindle to the start or referring position.
3. Fit the indicator with the zeroed roller counter onto the spindle and make sure that the referring pin fit the hole.
4. Clamp the bushing to the spindle by tightening the grub screw with hexagon socket and cup end, according to UNI 5929-85.



ELESA Original design







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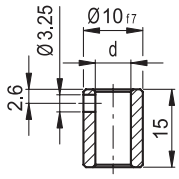
DD50

Digital position indicators

SPECIAL EXECUTIONS ON REQUEST
- Special readings after one revolution.
- Case in different colours.
- Completely sealed digital position indicators with IP 67 protection class, see table EN 60529 (on page A23) obtained by means of a brass bushing with double seal ring inside the rear cavity of the base.

FEATURES AND APPLICATIONS
Direct drive digital position indicators can be assembled on passing throught spindles in any position to give direct reading of the positioning of a machine component. They are suitable also for motor driven applications (see "Example of description for ordering").

ACCESSORIES ON REQUEST (TO BE ORDERED SEPARATELY)
- **RB50**: black-oxide steel reduction sleeves.
- **RB50-SST**: AISI 304 stainless steel reduction sleeves.



RB50

Code	Description	d H7
CE.80940	RB50-6	6
CE.80950	RB50-8	8

RB50-SST **STAINLESS STEEL**

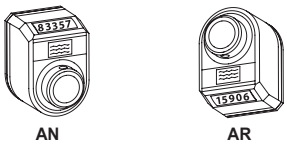
Code	Description	d H7
CE.90940	RB50-6-SST	6
CE.90950	RB50-8-SST	8

Example of description for ordering

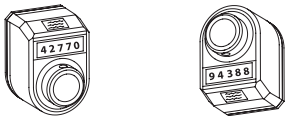
DD50 - AN - 003 - D - C2 - SST

Series

Display position



AN **AR**



FN **FR**

Reading of the counter after one revolution

Increasing numbering



D
clockwise



S
anti-clockwise

Colour

C2
RAL 2004

C3
RAL 7035

C1
RAL 7021

Stainless steel boss



To add only for the version with stainless steel boss

0 0 3	0 0 3	0 0 3	Pitch	Speed (rpm) *
003	00.3	0.03	0.3	1500
010	01.0	0.10	1.0	1500
020	02.0	0.20	2.0	1250
030	03.0	0.30	3.0	830
040	04.0	0.40	4.0	625
050	05.0	0.50	5.0	500
100	10.0	1.00	10	250

* The maximum rotation speed (rpm) of the spindle reported in the table corresponds to a maximum rotation of 25000 units of the last roll on the right of the counter.
Rotational speed tests have been performed in our laboratory under standard operating conditions. Small misalignments (not compromising the correct reading) of counter digits can occur due to high tolerances between gear teeth, designed to prevent damage from sudden acceleration or stop.

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Digital position indicators

direct drive, 4-digit counter, technopolymer

BASE AND CASE
High-resistance polyamide based (PA) technopolymer.
Black base.
Case in the following colours:
- **C2**: RAL 2004 orange, glossy finish.
- **C3**: RAL 7035 grey, glossy finish.
- **C1**: RAL 7021 grey-black, glossy finish.

The ultrasonically welding between the base and the case prevents separation and avoids dust penetration.

WINDOW
Transparent polyamide based (PA-T) technopolymer, moulded over the case and with a perfect seal (avoid contact with alcohol during cleaning operations).

DISPLAY
It indicates the displacement of the mechanism controlled by the spindle from the start position (0).
Four-digit roller counter. The digits of red rolls show the decimal values. An additional graduated scale next to the last decimal digit offers further accuracy of reading.
The display can be in different positions (see "Table of the possible combinations").
- **AN:** inclined display, counter in upper position.
- **AR:** inclined display, counter in lower position.
- **FN:** front display, counter in upper position.
- **FR:** front display, counter in lower position.

INTERNAL GASKET
O-ring front sealing in NBR synthetic rubber, between the case and the boss.

REAR GASKET
Foam polyethylene, supplied.

STANDARD EXECUTIONS
Boss with Ø 14 mm H7 reamed hole, fitting to shaft by means of a supplied grub screw with hexagon socket and cup end, included in the supply.
- **DD51**: black-oxide steel boss.
- **DD51-SST**: AISI 303 stainless steel boss.

DIRECTION OF ROTATION
- **D:** clockwise. Increasing values with clockwise rotation of the boss.
- **S:** anti-clockwise. Increasing values with anti-clockwise rotation of the boss.

WEIGHT
42 grams.

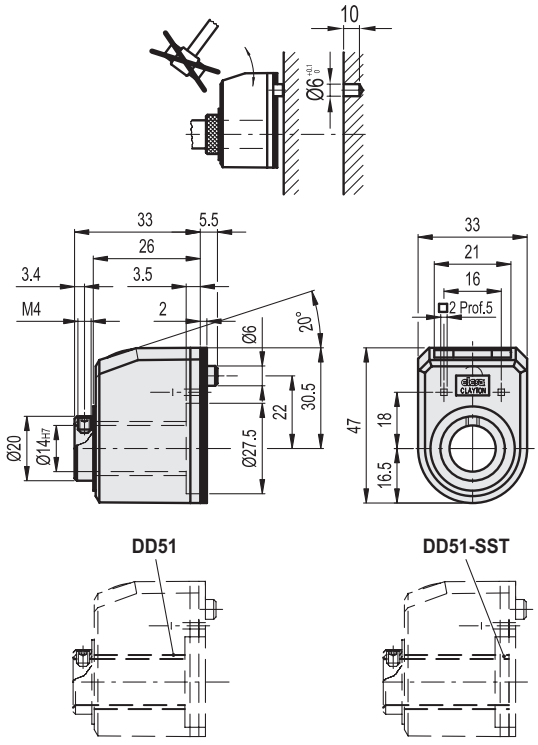
FEATURES AND APPLICATIONS
Direct drive digital position indicators can be assembled on passing through spindles in any position to give direct reading of the positioning of a machine component. They are suitable also for motor driven applications (see "Example of description for ordering").

ERGONOMY AND DESIGN
Compact roller counter, ergonomically designed digits for rapid reading. The readability of the counter is increased by the magnifying window.



ELESA Original design

ASSEMBLY INSTRUCTIONS
1. Drill a Ø 6 mm by 10 mm hole in the body of the machine with a 22 mm centre distance from the spindle to fit the rear referring pin.
2. Set the spindle to the start or referring position.
3. Fit the indicator with the zeroed roller counter onto the spindle and make sure that the referring pin fit the hole.
4. Clamp the bushing to the spindle by tightening the grub screw with hexagon socket and cup end, according to UNI 5929-85.



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Example of description for ordering

DD51 - **AN** - **0004** - **D** - **C2** - **SST**

Series

Display position



AN



AR



FN



FR

Reading of the counter after one revolution

The internal mechanism counts also the figures between brackets (even if they do not appear on the display).

Increasing numbering



D
clockwise



S
anti-clockwise

Colour

C2
RAL 2004

C3
RAL 7035

C1
RAL 7021

Stainless steel boss



To add only for the version with stainless steel boss

0 0 0 4	0 0 0 4	0 0 0 4	0 0 0 4	Pitch	Speed (rpm) *
0004	000.4	00.04	0.004	0.4	1500
0010	001.0	00.10	0.010	1.0	1500
0012(5)	001.2(5)	00.12(5)	0.012(5)	1.25	1500
0015	001.5	00.15	0.015	1.5	1500
0015(7)	001.5(7)	00.15(7)	0.015(7)	1.57	1500
0017(5)	001.7(5)	00.17(5)	0.017(5)	1.75	1420
0020	002.0	00.20	0.020	2.0	1250
0020(83)	002.0(83)	00.20(83)	0.020(83)	2.083	1200
0025	002.5	00.25	0.025	2.5	1000
0030	003.0	00.30	0.030	3.0	830
0040	004.0	00.40	0.040	4.0	625
0044	004.4	00.44	0.044	4.4	550
0050	005.0	00.50	0.050	5.0	500
0057	005.7	00.57	0.057	5.7	435
0060	006.0	00.60	0.060	6.0	415
0065(5)	006.5(5)	00.65(5)	0.065(5)	6.55	370
0075	007.5	00.75	0.075	7.5	330
0080	008.0	00.80	0.080	8.0	315
0083(3)	008.3(3)	00.83(3)	0.083(3)	8.33	300
0100	010.0	01.00	0.100	10.0	250
0120	012.0	01.20	0.120	12.0	205
0125	012.5	01.25	0.125	12.5	200
0157	015.7	01.57	0.157	15.7	150
0200	020.0	02.00	0.200	20.0	125

* The maximum rotation speed (rpm) of the spindle reported in the table corresponds to a maximum rotation of 25000 units of the last roll on the right of the counter.
Rotational speed tests have been performed in our laboratory under standard operating conditions.
Small misalignments (not compromising the correct reading) of counter digits can occur due to high tolerances between gear teeth, designed to prevent damage from sudden acceleration or stop.

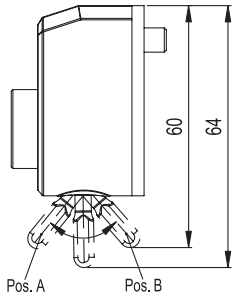
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SPECIAL EXECUTIONS ON REQUEST

- Special readings after one revolution.
- Case in different colours.
- Completely sealed digital position indicators with IP 67 protection class, see table EN 60529 (on page A23) obtained by means of a brass bushing with double seal ring inside the rear cavity of the base.

LB - LOCKING DEVICE

The DD51-LB position indicators are designed to lock the spindle on which they are mounted to avoid the risk of accidental adjustment alterations due to vibrations. To lock or unlock the spindle rotation, simply move the lever, in pos. A equivalent to unlocked spindle, in pos. B equivalent to locked spindle.
Following repeated locking cycles, the special device is highly wear resistant and functions perfectly over time.
To order the indicator with spindle locking add the –LB index after the code and description (e.g. CE.84101-LB DD51-AN-00.50-D-C3-LB).

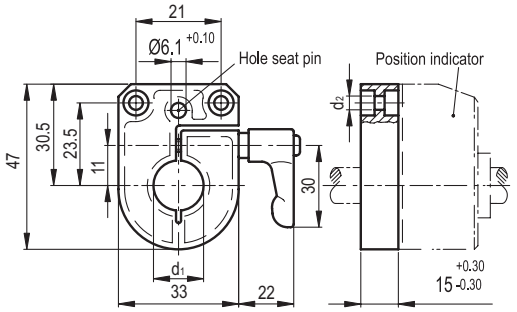




DD51-LB - with locking device

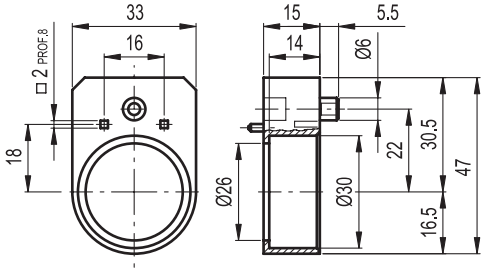
ACCESSORIES ON REQUEST (TO BE ORDERED SEPARATELY)

- **GN 954.6**: zinc die-cast bases for spindle locking, epoxy resin coating, black colour, matte finish (see table). Type GN 302 adjustable handle. GN 954.6 locking bases allow an easy and quick locking of the spindles after their positioning. They are equipped with a Ø 6.1 mm to fit the referring pin of the indicator. They can be assembled with the handle either on the right or on the left and can be fitted to the machine by means of two M4 cylindrical head screws (not included in the supply).



Description	d1 +0.06/+0.02	d2	⚖
GN 954.6-33-B8	B 8	4.5	112
GN 954.6-33-B10	B 10	4.5	109
GN 954.6-33-B12	B 12	4.5	107
GN 954.6-33-B14	B 14	4.5	102

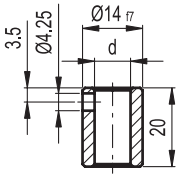
- **BS51:** glass-fibre polyamide based (PA) technopolymer spacer plate (code CE.85900).



- **MD51** (see page 730): polyamide based (PA) technopolymer fluted grip control knob.



- **RB51**: black-oxide steel reduction sleeves.
- **RB51-SST**: AISI 304 stainless steel reduction sleeves.



RB51

Code	Description	dH7
CE.85940	RB51-6	6
CE.85950	RB51-8	8
CE.85955	RB51-10	10
CE.85960	RB51-12	12

RB51-SST **STAINLESS STEEL**

Code	Description	dH7
CE.95941	RB51-6-SST-304	6
CE.95951	RB51-8-SST-304	8
CE.95956	RB51-10-SST-304	10
CE.95961	RB51-12-SST-304	12

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DD52R

Digital position indicator

direct drive, 5-digit counter, technopolymer

BASE AND CASE

High-resistance polyamide based (PA) technopolymer.
Black base.
Case in the following colours:
- **C2**: RAL 2004 orange, glossy finish.
- **C3**: RAL 7035 grey, glossy finish.
- **C1**: RAL 7021 grey-black, glossy finish.

The ultrasonically welding between the base and the case prevents separation and avoids dust penetration.

WINDOW

Transparent polyamide based (PA-T) technopolymer, moulded over the case and with a perfect seal (avoid contact with alcohol during cleaning operations).

DISPLAY

It indicates the displacement of the mechanism controlled by the spindle from the start position (0).
Five-digit roller counter. The digits of red rolls show the decimal values. An additional graduated scale next to the last decimal digit offers further accuracy of reading.
The display can be in different positions (see "Table of the possible combinations").
- **AN:** inclined display, counter in upper position.
- **AR:** inclined display, counter in lower position.
- **FN:** front display, counter in upper position.
- **FR:** front display, counter in lower position.

INTERNAL GASKET

O-ring front sealing in NBR synthetic rubber, between the case and the boss.

REAR GASKET

Foam polyethylene, supplied.

STANDARD EXECUTION

Boss with Ø 20 mm H7 reamed hole, fitting to shaft by means of a supplied grub screw with hexagon socket and cup end.
- **DD52R**: black-oxide steel boss.
- **DD52R-SST**: INOX AISI 303 stainless steel boss.

DIRECTION OF ROTATION

- **D:** clockwise. Increasing values with clockwise rotation of the boss.
- **S:** anti-clockwise. Increasing values with anti-clockwise rotation n applications (see "Example of description for ordering").

WEIGHT

97 grams.

FEATURES AND APPLICATION

Direct drive digital position indicators can be assembled on passing through spindles in any position to give direct reading of the positioning of a machine component. They are suitable also for motor driven applications (see "Example of description for ordering").

ERGONOMY AND DESIGN

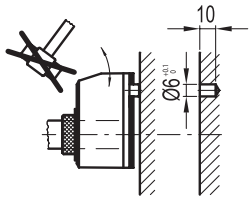
Compact roller counter, ergonomically designed digits for rapid reading. The readability of the counter is increased by the magnifying window.

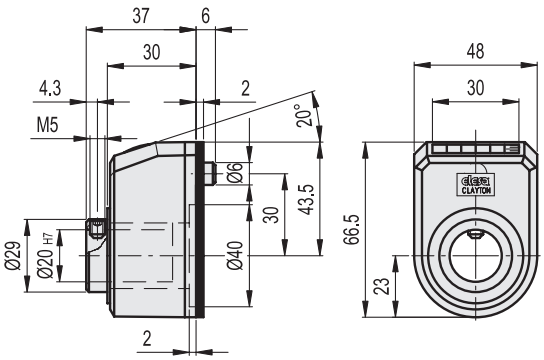


ELESA Original design

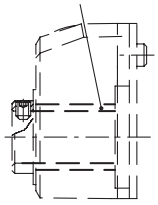
ASSEMBLY INSTRUCTIONS

1. Drill a Ø 6 mm by 10 mm hole in the body of the machine with a 30 mm centre distance from the spindle to fit the rear referring pin.
2. Set the spindle to the start or referring position.
3. Fit the indicator with the zeroed roller counter onto the spindle and make sure that the referring pin fit the hole.
4. Clamp the bushing to the spindle by tightening the grub screw with hexagon socket and cup end, according to UNI 5929-85.

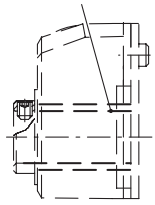




DD52R



DD52R-SST



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DD52R | Digital position indicator

Example of description for ordering

DD52R - AN - 00001 - D - C2 - SST

Series

Display position



AN



AR



FN



FR

Reading of the counter after one revolution

The internal mechanism counts also the figures between brackets (even if they do not appear on the display).

Increasing numbering


D
clockwise


S
anti-clockwise

Colour

C2
RAL 2004

C3
RAL 7035

C1
RAL 7021

Stainless steel boss



To add only for the version with stainless steel boss

0 0 0 0 1	0 0 0 0 1	0 0 0 0 1	0 0 0 0 1	Pitch	Speed (rpm) *
00001	0000.1	000.01	00.001	0.1	1500
00004	0000.4	000.04	00.004	0.4	1500
00005	0000.5	000.05	00.005	0.5	1500
00009(6)	0000.9(6)	000.09(6)	00.009(6)	0.96	1500
00010	0001.0	000.10	00.010	1.0	1500
00012(5)	0001.2(5)	000.12(5)	00.012(5)	1.25	1500
00015	0001.5	000.15	00.015	1.5	1500
00015(8)	0001.5(8)	000.15(8)	00.015(8)	1.58	1500
00015(75)	0001.5(75)	000.15(75)	00.015(75)	1.575	1500
00016(07)	0001.6(07)	000.16(07)	00.016(07)	1.607	1500
00017(5)	0001.7(5)	000.17(5)	00.017(5)	1.75	1420
00019(6875)	0001.9(6875)	000.19(6875)	00.019(6875)	1.96875	1270
00020	0002.0	000.20	00.020	2.0	1250
00025	0002.5	000.25	00.025	2.5	1000
00025(4)	0002.5(4)	000.25(4)	00.025(4)	2.54	980
00030	0003.0	000.30	00.030	3.0	830
00031(5)	0003.1(5)	000.31(5)	00.031(5)	3.15	790
00031(75)	0003.1(75)	000.31(75)	00.031(75)	3.175	780
00035	0003.5	000.35	00.035	3.5	710
00038(095)	0003.8(095)	000.38(095)	00.038(095)	3.8095	650
00039(375)	0003.9(375)	000.39(375)	00.039(375)	3.9375	640
00040	0004.0	000.40	00.040	4.0	625
00042(9)	0004.2(9)	000.42(9)	00.042(9)	4.29	580
00050	0005.0	000.50	00.050	5.0	500
00050(8)	0005.0(8)	000.50(8)	00.050(8)	5.08	490
00052(94)	0005.2(94)	000.52(94)	00.052(94)	5.294	470
00056(47)	0005.6(47)	000.56(47)	00.056(47)	5.647	440
00060	0006.0	000.60	00.060	6.0	415
00062(5)	0006.2(5)	000.62(5)	00.062(5)	6.25	400
00063(5)	0006.3(5)	000.63(5)	00.063(5)	6.35	390
00066	0006.6	000.66	00.066	6.6	370
00070	0007.0	000.70	00.070	7.0	350
00075	0007.5	000.75	00.075	7.5	330
00076(923)	0007.6(923)	000.76(923)	00.076(923)	7.6923	325
00078(75)	0007.8(75)	00078(75)	00.078(75)	7.875	310
00080	0008.0	000.80	00.080	8.0	315
00090	0009.0	000.90	00.090	9.0	270
00100	0010.0	001.00	00.100	10.0	250
00105	0010.5	001.05	00.105	10.5	235
00118(125)	0011.8(125)	001.18(125)	00.118(125)	11.8125	205
00119(05)	0011.9(05)	001.19(05)	00.119(05)	11.905	210
00120	0012.0	001.20	00.120	12.0	200
00130	0013.0	001.30	00.130	13.0	190
00150	0015.0	001.50	00.150	15.0	160
00160	0016.0	001.60	00.160	16.0	150
00200	0020.0	002.00	00.200	20.0	125

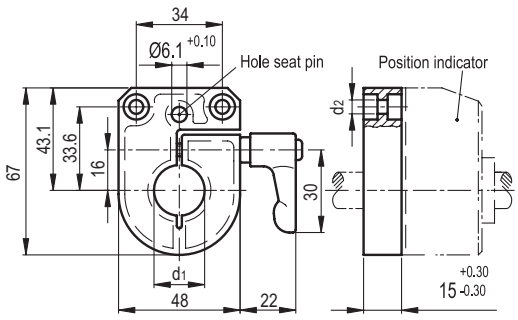
* The maximum rotation speed (rpm) of the spindle reported in the table corresponds to a maximum rotation of 25000 units of the last roll on the right of the counter.
Rotational speed tests have been performed in our laboratory under standard operating conditions.
Small misalignments (not compromising the correct reading) of counter digits can occur due to high tolerances between gear teeth, designed to prevent damage from sudden acceleration or stop.

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DD52R | Digital position indicator

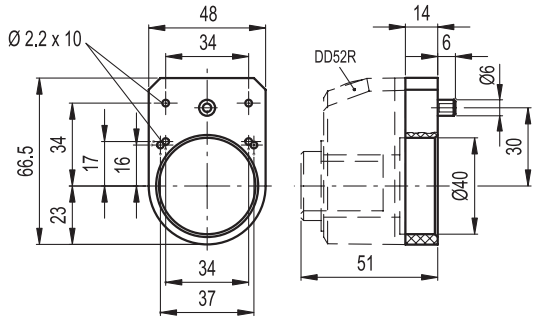
SPECIAL EXECUTIONS ON REQUEST
- Special readings after one revolution.
- Case in different colours.
- Completely sealed digital position indicators with IP 67 protection class, see table EN 60529 (on page A23) obtained by means of a brass bushing with double seal ring inside the rear cavity of the base.

ACCESSORIES ON REQUEST (TO BE ORDERED SEPARATELY)
- **GN 953.6**: zinc die-cast bases for spindle locking, epoxy resin coating, black colour, matte finish (see table). Type GN 302 adjustable handle. GN 953.6 locking bases allow an easy and quick locking of the spindles after their positioning. They are equipped with a Ø 6.1 mm hole to fit the referring pin of the indicator. They can be assembled with the handle either on the right or on the left and can be fitted to the machine by means of two M5 cylindrical-head screws (not included in the supply).

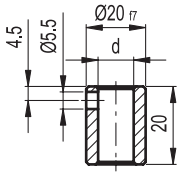


Description	d1 +0.06/+0.02	d2	⚖
GN 953.6-48-B12	B 12	5.5	179
GN 953.6-48-B14	B 12	5.5	175
GN 953.6-48-B15	B 15	5.5	173
GN 953.6-48-B16	B 16	5.5	168
GN 953.6-48-B20	B 20	5.5	161

- **BS52R**: glass-fibre reinforced polyamide based (PA) technopolyme spacer base (code CE.83950), designed with two pre-drilled holes for UNI 10227 self-tapping screws Ø 2.2 (not included in the supply).



- **RB52**: black-oxide steel reduction sleeves.
- **RB52-SST**: AISI 304 stainless steel reduction sleeves.



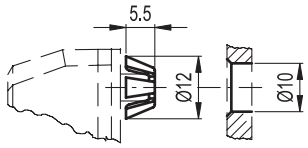
RB52

Code	Description	d H7
CE.87940	RB52-12	12
CE.87950	RB52-14	14
CE.87955	RB52-15	15
CE.87960	RB52-16	16

RB52-SST **STAINLESS STEEL**

Code	Description	d H7
CE.97941	RB52-12-SST-304	12
CE.97951	RB52-14-SST-304	14
CE.97956	RB52-15-SST-304	15
CE.97961	RB52-16-SST-304	16

- **PE.6-10**: red technopolymer pin (code CE.83960).



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Electronic position indicators

direct drive, 5-digit display, technopolymer

BASE AND CASE
High-resistance polyamide based (PA) technopolymer.
Black base.
Case in the following colours:
- **C2**: RAL 2004 orange, glossy finish.
- **C3**: RAL 7035 grey, glossy finish.

Available on request in RAL 7021 grey-black colour (C1).
Cover with perfectly sealed gasket and AISI 304 stainless steel UNI 6955 type self-tapping screws with six-lobe socket TORX® T06 (registered trademark by TEXTRON INC.).
The ultrasonic welding between the base and the case prevents separation and avoids dust and liquid penetration.

BOSS
AISI 304 stainless steel with Ø 14 mm H7 reamed hole, fitting to shaft by means of AISI 304 stainless steel grub screw, hexagon socket and cup end UNI 5929-85, included in the supply.

WINDOW
Transparent polyamide based (PA-T) technopolymer, moulded over the case and with a perfect seal. Resistant to solvents, oils, greases and other chemical agents (avoid contact with alcohol during cleaning operations).

DISPLAY
- 5-digit LCD of 8,0 mm height and special characters.

The visualization parameters can be set and modified by the operator by means of appropriate keys:
- values displayed in mm, inches or degrees
- display of mode for use (absolute or incremental mode)
- reading orientation (right or reverse).

KEYBOARD
Polyester membrane. Resistant to solvents, alcohol, acids, alkalis.

INTERNAL GASKET
O-ring front sealing in NBR synthetic rubber assembled between the case and the boss.
Brass bushing with double O-ring sealing in NBR synthetic rubber inside the rear cavity of the base (DD51-E-SST-IP67).

REAR GASKET
Foam polyethylene, included in the supply.

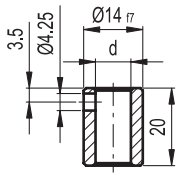
STANDARD EXECUTIONS
- **DD51-E-SST-IP65**: completely sealed indicator with IP 65 protection class, see EN 60529 table (on page A23).
- **DD51-E-SST-IP67**: completely sealed indicator with IP 67 protection class, see EN 60529 table (on page A23), obtained by means of a brass bushing with double seal ring inside the rear cavity of the base.

ASSEMBLY INSTRUCTIONS
1. Drill a Ø 6x10 mm hole in the body of the machine with a 22 mm centre distance from the shaft to fit the rear referring pin.
2. Fit the indicator onto the shaft and make sure that the referring pin fit the hole.
3. Clamp the bushing to the shaft by tightening the grub screw with hexagon socket and cup end, according to UNI 5929-85.



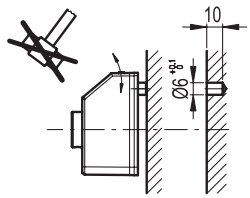
ELESA Original design

ACCESSORIES ON REQUEST (TO BE ORDERED SEPARATELY)
- AISI 304 stainless steel RB51 reduction sleeves.



RB51-SST **STAINLESS STEEL**

Code	Description	dH7
CE.95941	RB51-6-SST-304	6
CE.95951	RB51-8-SST-304	8
CE.95956	RB51-10-SST-304	10
CE.95961	RB51-12-SST-304	12



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DD51-E

Electronic position indicators

FEATURES AND APPLICATIONS

DD51-E position indicators, with battery power supply, can be used on passing through shafts in any position to provide the reading of the absolute or incremental positioning of a machine component.
The 5-digit display of 8,0 mm height ensures excellent readability even from a distance and from different viewing angles.
The window in transparent technopolymer protects the LCD display against accidental shocks.
The high protection degree, IP 65 or IP67, makes the indicator suitable for applications that require frequent washing, even with intense water jets.
In the operating mode, by using the 3 function keys, it is possible to select the incremental or the absolute mode, the unit of measure (mm, inches or degrees), reset the absolute counter or load a preset source value and the preset offset value.
In the programming mode, through the 3 function keys, it is possible to program the reading after one revolution of the shaft, the direction of rotation, the diplay orientation, the resolution (number of decimal digits displayed), the source value and the offset value, the max. speed of rotation and set the functions of the keys among different options available.
The internal battery ensures long battery life (over 5 years). A special symbol appears on the display when it is necessary to replace the battery. The replacement can be performed easily by removing the front cover (Fig.1), without disassembly of the indicator from the control shaft and without the loss of configuration parameters.
Further technical information available in Operating instructions.

Mechanical and electrical characteristics	
Tension feed	Lithium battery CR2450 3.0 V
Battery life	5 years
Display	5-digit LCD of 8 mm height and special characters
Reading scale	-19999; 99999
Number of decimal digits	programmable (1)
Unit of measure	mm. inches, degrees programmable (1)
Rotation max. speed	300/600/1000 r.p.m (2) programmable (1)
Precision	10.000 impulses / revolution
Protection class	IP65 or IP67
Working temperature	0 ÷ 50 °C
Storing temperature	-20 ÷ +60 °C
Relative humidity	Max. 95% at 25°C without condensation
Interference protection	IEC 61326-1 CE

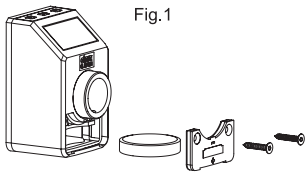
(1) See the operating instructions.

(2) Default: 600 r.p.m.

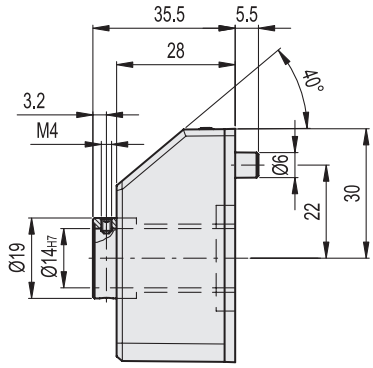
Higher rotation speed to 600 r.p.m. can be mantained for short periods of time.

The value of the max. speed affects the battery life.

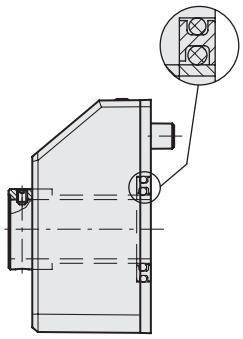
Fig.1

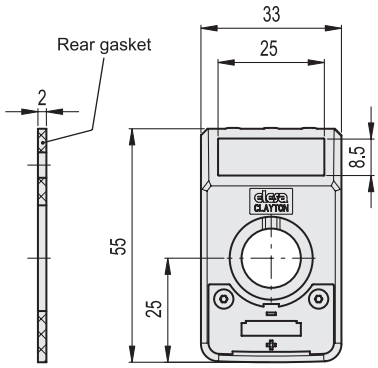


DD51-E-SST-IP65



DD51-E-SST-IP67





C2 RAL2004 C3 RAL7035

STAINLESS STEEL

Code	Description	⚖
CE.99002	DD51-E-SST-IP65-C2	67
CE.99001	DD51-E-SST-IP65-C3	67
CE.99012	DD51-E-SST-IP67-C2	72
CE.99011	DD51-E-SST-IP67-C3	72

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Electronic position indicators

direct drive, 6-digit display, technopolymer

BASE AND CASE
High-resistance polyamide based (PA) technopolymer.
Black base.
Case in the following colours:
- **C2**: RAL 2004 orange, glossy finish.
- **C3**: RAL 7035 grey, glossy finish.

Available on request in RAL 7021 grey-black colour (C1)
Cover with perfectly sealed gasket and AISI 304 stainless steel UNI 6955 type self-tapping screws with six-lobe socket TORX® T06 (registered trademark by TEXTRON INC.).
The ultrasonic welding between the base and the case prevents separation and avoids dust and liquid penetration.

BOSS
AISI 304 stainless steel with Ø 20 mm H7 reamed hole, fitting to shaft by means of AISI 304 stainless steel grub screw, hexagon socket and cup end UNI 5929-85, included in the supply.

WINDOW
Transparent polyamide based (PA-T) technopolymer, moulded over the case and with a perfect seal. Resistant to solvents, oils, greases and other chemical agents (avoid contact with alcohol during cleaning operations).

DISPLAY
- 6-digit LCD of 12,0 mm height and special characters.

The visualization parameters can be set and modified by the operator by means of appropriate keys:
- values displayed in mm, inches or degrees
- display of mode for use (absolute or incremental mode)
- reading orientation (right or reverse).

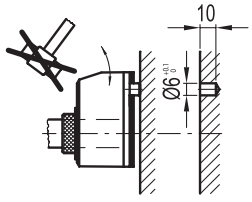
KEYBOARD
Polyester membrane. Resistant to solvents, alcohol, acids, alkalis.

INTERNAL GASKET
O-ring front sealing in NBR synthetic rubber, between the case and the boss.
Brass bushing with double O-ring sealing in NBR synthetic rubber inside the rear cavity of the base (DD52R-E-SST-IP67).

REAR GASKET
Foam polyethylene, included in the supply.

STANDARD EXECUTIONS
- **DD52R-E-SST-IP65**: completely sealed indicator with IP 65 protection class, see EN 60529 table (on page A23).
- **DD52R-E-SST-IP67**: completely sealed indicator with IP 67 protection class, see EN 60529 table (on page A23), obtained by means of a brass bushing with double seal ring inside the rear cavity of the base.

ASSEMBLY INSTRUCTIONS
1. Drill a Ø 6x10 mm hole in the body of the machine with a 30 mm centre distance from the shaft to fit the rear referring pin.
2. Fit the indicator onto the shaft and make sure that the referring pin fit the hole.
3. Clamp the bushing to the shaft by tightening the grub screw with hexagon socket and cup end, according to UNI 5929-85.

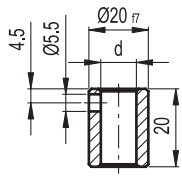






ELESA Original design

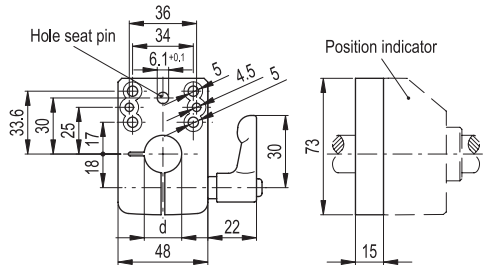
ACCESSORIES ON REQUEST (TO BE ORDERED SEPARATELY)
- **RB52-SST**: AISI 304 stainless steel reduction sleeves.



RB52-SST **STAINLESS STEEL**

Code	Description	dH7
CE.97941	RB52-12-SST-304	12
CE.97951	RB52-14-SST-304	14
CE.97956	RB52-15-SST-304	15
CE.97961	RB52-16-SST-304	16

- **BSA52-E** : die-cast zinc aloy bases for spindle locking, epoxy resin coating, black colour, matte finish. GN 302 adjustable handle with die-cast zinc alloy lever body and AISI 304 stainless steel clamping element. A Ø 6.1 mm hole to fit the referring pin of the indicator. Handle positioned either on the right or on the left. Fitting to the machine by means of two M4 cylindrica-head screws (not included in the supply).



Code	Description	dH7
CE.99091	BSA52-E-12	12
CE.99093	BSA52-E-14	14
CE.99094	BSA52-E-15	15
CE.99095	BSA52-E-16	16
CE.99099	BSA52-E-20	20

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DD52R-E

Electronic position indicators

FEATURES AND APPLICATIONS

DD52R-E position indicators, with battery power supply, can be used on passing through shafts in any position to provide the reading of the absolute or incremental positioning of a machine component.
The 6-digit display of 12,0 mm height ensures excellent readability even from a distance and from different viewing angles.
The window in transparent technopolymer protects the LCD display against accidental shocks.
The high protection class, IP 65 or IP67, makes the indicator suitable for applications that require frequent washing, even with water jets.
In the operating mode, by using the 4 function keys, it is possible to select the incremental or the absolute mode, the unit of measure (mm, inches or degrees), reset the absolute counter or load a preset source value and the preset offset value.
In the programming mode, through the 4 function keys, it is possible to program the reading after one revolution of the shaft, the direction of rotation, the display orientation, the resolution (number of decimal digits displayed), the source value and the offset value, the max. speed of rotation and set the functions of the keys among different options available.
The internal battery ensures long battery life (over 8 years).
A special symbol appears on the display when it is necessary to replace the battery. The replacement can be performed easily by removing the front cover (Fig.1), without disassembly of the indicator from the control shaft and without the loss of configuration parameters.
Further technical information available in Operating instructions.

Mechanical and electrical characteristics	
Tension feed	Lithium battery CR2450 3.0 V
Battery life	8 years
Display	6-digit LCD of 12 mm height and special characters
Reading scale	-199999; 999999
Number of decimal digits	programmable (1)
Unit of measure	mm. inches, degrees programmable programmable (1)
Rotation max. speed	300/600/1000 r.p.m (2) programmable (1)
Precision	10.000 impulses / revolution
Protection class	IP65 or IP67
Working temperature	0 ÷ 50 °C
Storing temperature	-20 ÷ +60 °C
Relative humidity	Max. 95% at 25°C without condensation
Interference protection	IEC 61326-1 CE

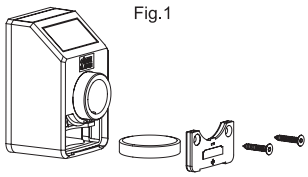
(1) See the operating instructions.

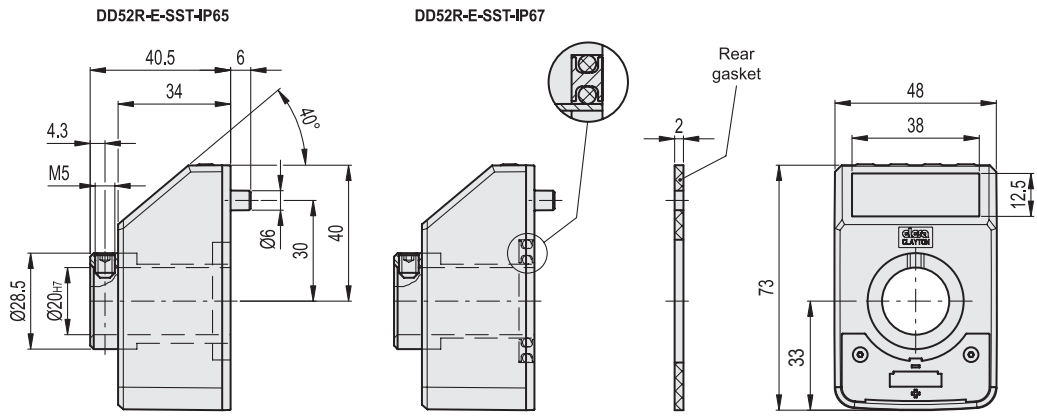
(2) Default: 600 r.p.m.

Higher rotation speed to 600 r.p.m. can be mantained for short periods of time.

The value of the max. speed affects the battery life.

Fig.1





C2 RAL2004 C3 RAL7035

STAINLESS STEEL

Code	Description	⚖
CE.99052	DD52R-E-SST-IP65-C2	129
CE.99051	DD52R-E-SST-IP65-C3	129
CE.99062	DD52R-E-SST-IP67-C2	141
CE.99061	DD52R-E-SST-IP67-C3	141

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Electronic position indicators

absolute reading, direct drive, technopolymer



BASE AND CASE
Polyamide based (PA) technopolymer certified self-extinguishing UL94 V-0.
Black base.
Black case, glossy finish.

DISPLAY
- Backlit LCD display showing two values: target position and current position.
- Adjustable reading (upper and lower).
- Cursor to indicate the rotation direction (clockwise/anti-clockwise) to reach the target position.
- Values displayed in mm or inches.

The visualization parameters can be set and modified by software at the installation of the machine.

FRONT MEMBRANE
Polyester. Resistant to solvents, alcohol, acids, alkali.

INTERNAL GASKET
O-ring front sealing in NBR synthetic rubber, between the case and the bushing.

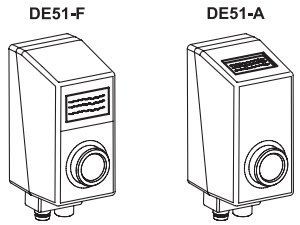
REAR GASKET
Polyurethane, supplied.

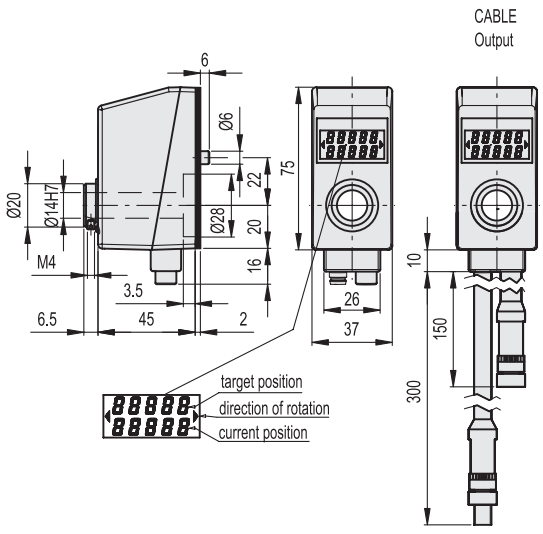
BOSS
Black-oxide steel with Ø 14 mm H7 reamed hole, fitting to shaft by means of a supplied grub screw with hexagon socket and cup end UNI 5929-85.

STANDARD EXECUTIONS
- **DE51-F:** front display, output with connectors.
- **DE51-F-Cable:** front display, output with cable and connectors.
- **DE51-A:** inclined display, output with connectors.
- **DE51-A-Cable:** inclined display, output with cable and connectors.

IP PROTECTION
Completely sealed indicator with IP 65 protection class, see EN 60529 table (on page A23).

FEATURES AND APPLICATIONS
DE51 indicators can be used on passing through spindles in any position to give absolute reading of the current position and of the target one of a machine component.
DE51 indicator is a sophisticated measuring system based on an absolute multi-turn encoder and it is not affected by magnetic fields. Therefore it is able to guarantee perfect operation, even in the presence of electric motors.
Thanks to the long-life lithium battery (more than 10 years of life-expectancy) spindle positioning variations can be registered even when the power supply is off and it prevents the loss of the preset values in case of an electrical power failure.
DE51 indicators must be networked to the central memory unit (call Elesa Customer Care) or directly to the PLC.
The connection of DE51 electronic indicators directly to the PLC of the machine functions also as a safety system. In fact, in case of mismatch for the target position of even one DE51, the PLC prevents the machine from starting working, thereby avoiding inaccurate work.





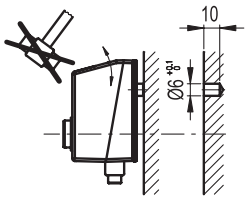
Code	Description	⚖
CE.99111	DE51-F-F.14	125
CE.99121	DE51-A-F.14	125
CE.99112	DE51-F-F.14-Cable	125
CE.99122	DE51-A-F.14-Cable	125

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Mechanical and electrical characteristics	
Input	24 Vdc ± 20%, 30mA
Buffer memory	3V lithium battery min. guaranteed life expectancy 10 years for recording current and target values
Interface	RS485
Connection	M8 - 4PIN
MAX RPM number	600 RPM
Weight	120 g
Working temperature	0 ÷ 50 °C
Storing temperature	-20 ÷ +70 °C
Relative humidity	80% at 25°C without condensation
Protection class	IP 65 according to EN 60529
General classification according to EN 61010 part 1	Protection class II Overvoltage protection category II Contamination factor 2
Immunity to interference	According to EN 61000-6-2
Interference emission	According to EN 61000-6-3

ASSEMBLY INSTRUCTIONS

1. Drill a Ø 6 mm by 10 mm hole in the body of the machine with a 22 mm centre distance from the spindle to fit the rear referring pin.
2. Set the spindle to the start or referring position.
3. Fit the indicator onto the spindle and make sure that the referring pin fit the hole.
4. Clamp the bushing to the spindle by tightening the grub screw with hexagon socket and cup end UNI 5929-85.
5. Network the indicator using cables with connectors type M8-4PIN (see table "Mechanical and electrical characteristics").

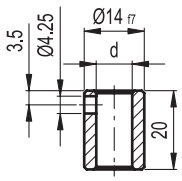


ACCESSORIES ON REQUEST (TO BE ORDERED SEPARATELY)

- **Connection cables** between PLC or central memory unit and DE51 or between two DE51 with different lenghts (see table)
- **Terminal resistor** to avoid noises and interferences on the net (see table)

Code	Description	
CE.99136	CABLE-M8-SC-5mt	Connection cable between central memory to DE51
CE.99141	CABLE-M8-1mt	Connection cable for DE51 (length 1m)
CE.99143	CABLE-M8-3mt	Connection cable for DE51 (length 3m)
CE.99145	CABLE-M8-5mt	Connection cable for DE51 (length 5m)
CE.99146	CABLE-M8-6mt	Connection cable for DE51 (length 6m)
CE.99156	RE-M8-120ohm	Terminal resistor (resistance value 120ohm)

- **RB51**: black-oxide steel reduction sleeves (see table).



RB51

Code	Description	d H7
CE.85940	RB51-6	6
CE.85950	RB51-8	8
CE.85955	RB51-10	10
CE.85960	RB51-12	12

- **MD51** (see page 730): polyamide based (PA) technopolymer fluted grip control knob.



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Fluted grip knob for digital indicators DD51 and DE51

Technopolymer

MATERIAL
Polyamide based (PA) technopolymer, black colour, matte finish.

STANDARD EXECUTION
Plain blind hole. Fitting by means of a supplied grub screw with hexagon socket and cup end UNI 5929-85.

SELF-ADHESIVE FRONT PLATE
Matte anodised aluminium. Supplied assembled.

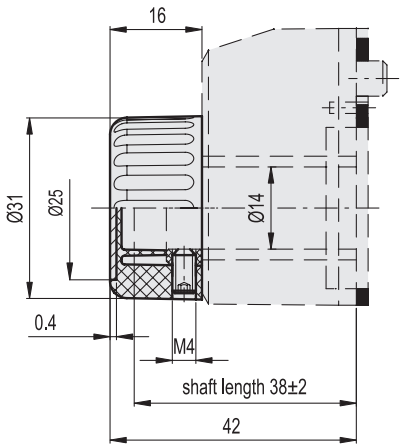
APPLICATIONS
MD51 knob has been designed to be mounted on direct drive digital position indicators DD51 (on page 718) or on direct drive electronic position indicators DE51 (on page 728).

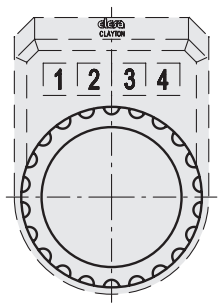
SPECIAL EXECUTIONS ON REQUEST
Stainless steel grub screw.
The front plate can be customized with words, marks, graphic symbols, etc... or supplied in other colours.

ASSEMBLY INSTRUCTIONS
1. Remove the grub screw from the indicator bushing.
2. Insert MD51 knob making sure that the grub screw seat matches the tapped blind hole of the indicator bushing.
3. Screw the grub supplied with the knob, to lock simultaneously the spindle, the indicator bushing and the knob.



ELESA Original design





Code	Description	⚖
CE.85851	MD51-31-14-NR	9

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GN 957

Control knobs

for position indicators

SPECIFICATION

TYPES

- Type **A**: Shaft-Ød2 < Bore-Ø d3
- Type **B**: Shaft-Ød2 = Bore-Ø d3

Aluminium
anodized, black

Stainless Steel-Socket set screw DIN 916
with internal hexagon and serrated point

Hub cover cap
Plastic, light grey

INFORMATION

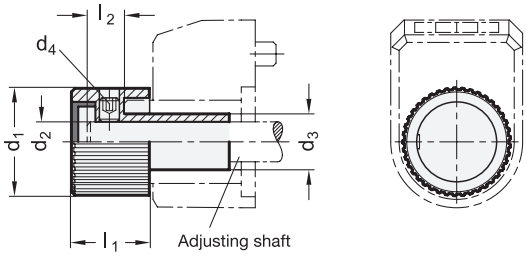
Control knobs GN 957 are used in connection with position indicators. These control knobs offer a simple solution when the assembly requires manual fine adjustment for the application for which it has been designed.
The design of this knob adapts it to the diameter of the adjustment shaft, so that no adapter bushes RB51 are needed.

TECHNICAL INFORMATION

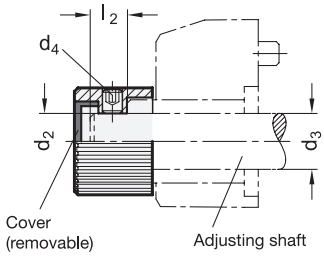
- ISO-Fundamental Tolerances (see page A21)



Type **A**



Type **B**



GN 957

Description	d1	d2 H9	d3	d4	l1	l2 min.	l2 max.	For position indicator	⚖
GN 957-22-B6-A	22	B 6	10	M 4	15.5	4.5	9.6	DD50	10
GN 957-22-B8-A	22	B 8	10	M 4	15.5	4.5	9.6	DD50	20
GN 957-27-B6-A	27	B 6	14	M 5	19.5	6	11.3	DD51	24
GN 957-27-B8-A	27	B 8	14	M 5	19.5	6	11.3	DD51	22
GN 957-27-B10-A	27	B 10	14	M 5	19.5	6	11.3	DD51	20
GN 957-27-B12-A	27	B 12	14	M 5	19.5	6	11.3	DD51	18
GN 957-42-B10-A	42	B 10	20	M 6	24	6.5	15	DD52R	72
GN 957-42-B12-A	42	B 12	20	M 6	24	6.5	15	DD52R	69
GN 957-42-B14-A	42	B 14	20	M 6	24	6.5	15	DD52R	60
GN 957-42-B15-A	42	B 15	20	M 6	24	6.5	15	DD52R	63
GN 957-42-B16-A	42	B 16	20	M 6	24	6.5	15	DD52R	60
GN 957-22-B10-B	22	B 10	10	M 4	15.5	4.5	9.6	DD50	77
GN 957-27-B14-B	27	B 14	14	M 5	19.5	6	11.3	DD51	14
GN 957-42-B20-B	42	B 20	20	M 6	24	6.5	15	DD52R	50

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Magnetic measuring system

Length and angle modes



FEATURES AND APPLICATIONS

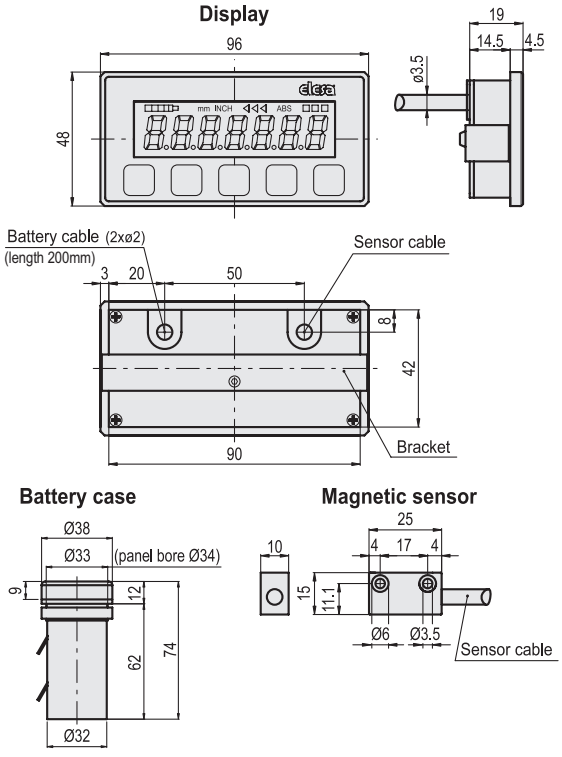
MPI-15 measuring system, made of a LCD multifunction display with built-in magnetic position sensor, combined with the magnetic band M-BAND-10 (to be ordered separately), is a complete system for the measurement of linear and angular displacement (with a minimum radius of 65 mm). Characterised by an extremely easy assembly, it allows precise alignment and positioning, reducing time and machining procedures to the minimum.
Multifunction LCD with 5 function keys.

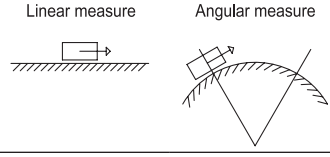
- Absolute/ incremental mode.
- Programmable offset function.
- External battery power supply 1.5 VDC.
- Buffered memory during battery substitution.
- Accidental polarity inversion protection.
- Magnetic sensor envelope material: anodized aluminium.

For further information read the operating instructions.

SPECIAL EXECUTIONS ON REQUEST

The special plate display may be supplied with customised graphic symbols, marks or writings.
Magnetic sensor with cable length different from the standard executions shown in the table, up to 20 m maximum.





MPI-15 Technical data	
Battery life	1.5 years (C-type battery)
Resolution(1)	0.1 mm - 0.01 in - 0.01°
Precision(2)	0.1 mm
Repeat accuracy(3)	0.001 mm
Operating speed	max. 5 m/s
Self-diagnostic	battery check, sensor check, magnetic tape check
Programmable measuring unit	millimetres, inches, degrees (angles)
Working temperature	0 ÷ 50 °C
Storing temperature	-20 ÷ +70 °C
Relative humidity	Max. 95% at 25°C without condensation
Protection class	IP40 whole device IP54 front side according to EN 60529 IP67 magnetic sensor
Interference protection	IEC 61000-4-2

(1) Resolution: the smallest change in length that the system is capable of displaying.

(2) Precision: the maximum deviation of the value measured by the system from the actual one.

(3) Repeat accuracy: the degree of closeness between a series of measures of the same sample, when the single measurements are carried out leaving the asurement conditions unchanged.

MPI-15

Code	Description	⚖
CE.99901-#	MPI-15-#	180

Complete by specifying the sensor cable length in decimetres (10=1 meter). Minimum length 0.2 m, maximum length 2.0 m.

Example: CE.99901-06 MPI-15-06 display with sensor cable length 0.6 m.

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MPI-15 ASSEMBLY INSTRUCTIONS

1. Make a drilling of 42 +0.2/+0.5 mm x 90 +0.2/+0.5 mm in the metal sheet for the installation of the display.
2. Fix the display to the panel by using the specific mounting bracket (the screw is included in the supply).
3. Make a drilling of diameter 34 +0.2/+0.5 mm in the metal sheet for the installation of the battery case.
4. Fix the battery case to the panel by using the specific nut.
5. Fix the magnetic sensor by using M3 screws (not included in the supply). Distance between sensor and magnetic band to ensure a correct reading of the displacement: max 2.5 mm.

ACCESSORIES ON REQUEST

M-BAND-10: the magnetic band M-BAND-10 is made of two separate parts: the magnetic band and the cover strip. The magnetic band is made of a magnetic tape, a carrier strip and an adhesive tape (Fig.2). The cover strip is made of a protection strip and an adhesive tape (Fig.1).

ASSEMBLY INSTRUCTIONS M-BAND-10

1. The cover strip must be installed over the magnetic band to protect it against possible mechanical damages.
2. Clean the mounting surface carefully.
3. Remove the protective foil from the adhesive tape of the magnetic band.
4. Stick the magnetic band on the mounting surface.
5. Clean the mounting surface carefully.
6. Remove the protective foil from the adhesive tape of the magnetic band.
7. Stick the cover strip on the magnetic band.
8. In the absence of a seat for the housing of M-BAND-10, secure the ends of the cover strip to prevent unintentional peeling.

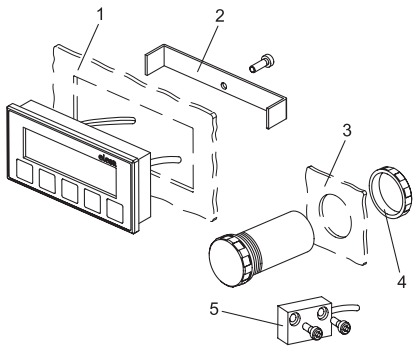
M-BAND-10 Technical data	
Precision	± 40 µm
Material	magnetic tape: nitrilic rubber
	carrier strip: stainless steel
	cover strip: stainless steel
	acrylic adhesive tape
Width	magnetic band: 10 mm ± 0.20 mm
	cover strip: 10 mm ± 0.20 mm
Thickness	magnetic band: 1.43 ± 0.15 mm
	cover strip: 0.23 mm
Magnetic pole pitch 5 mm	5 mm
Operating and storage temperature	-40 ÷ +100 °C
Linear thermic expansion factor	17 x 10^{-6}/K

M-BAND-10

Code	Description	Band width| [mm]	Band nominal thickness| [mm]
CE.99903-#	M-BAND-10-#	10	1.66

Complete by specifying the length in decimetres (10=1 meter). Minimum length 0.5 m, maximum length 25 m.

Example: CE.99903-15 M-BAND-10-15 magnetic band length 1.5 m.



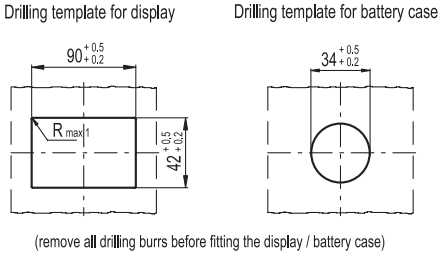


Fig.1

Cover strip

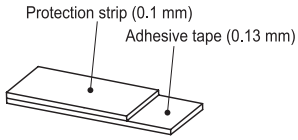


Fig.2

Magnetic band

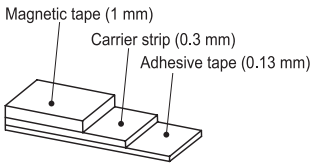
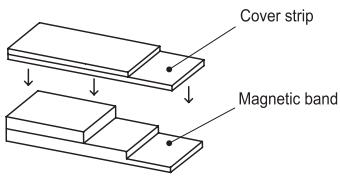


Fig.3

Proper assembling



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Direct drive electronic position indicators

One item for all applications

The position indicators **DD51-E** (see page 724) and **DD52R-E** (see page 726) with battery power supply, can be used on passing through shafts in any position to provide the reading of the absolute or incremental positioning of a machine component.
Thanks to the available functions and to the programmable parameters, one item can be used for many applications including all shaft pitch variations, direction of rotation, unit of measure etc.

Available functions

By using the function keys, it is possible to:

- select the incremental or the absolute measure mode
- convert the linear unit of measure (mm, inches) or select the angular measure mode (degrees)
- set the source value of the absolute counter
- select the offset value

Programmable parameters

The function keys allow to program:

- the reading after one revolution of the shaft
- the direction of rotation
- the resolution (number of decimal digits)
- the diplay orientation
- the source value and the offset value
- the max. speed of rotation
- the functions of the keys among different options available





Wide display

5 digit display of 8 mm (DD51-E) or **6 digit display** 12 mm (DD52R-E) height. Ensures excellent readability even from a distance and from different viewing angles. The window in transparent technopolymer protects the LCD display against accidental shocks.



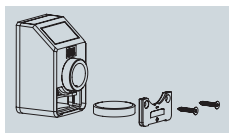
High protection class

IP65 or IP67 protection class. The indicator is suitable for applications that require frequent washing, even with water jets.



Corrosion resistance

AISI 304 stainless steel bushing with Ø 14 (DD51-E) or 20 (DD52R-E) mm H7 reamed hole. High-resistance polyamide based (PA) technopolymer base and case.



Long battery life

The internal lithium battery ensures a battery **life of over 5** (DD51-E) **or 8** (DD52R-E) **years**. The battery replacement can be performed easily, without disassembly of the indicator from the control shaft and without the loss of parameter configuration.

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Magnetic length and angle measuring system

The measuring system **MPI-15** (see page 732), made of a multifunction display with integrated magnetic position sensor, combined with the magnetic band **M-BAND**, is a complete system for the measurement of linear and angular displacement. Characterised by an extremely easy assembly, it allows precise alignment and positioning, reducing time and machining procedures to the minimum.

Magnetic measurement system:
- Absence of contact between moving parts
- No wear: no need of maintenance
- Not affected by moisture, dust, oils and process residues
- Insensitive to vibrations

Power supply
- External battery 1.5 VDC.
- Buffered memory during battery substitution.

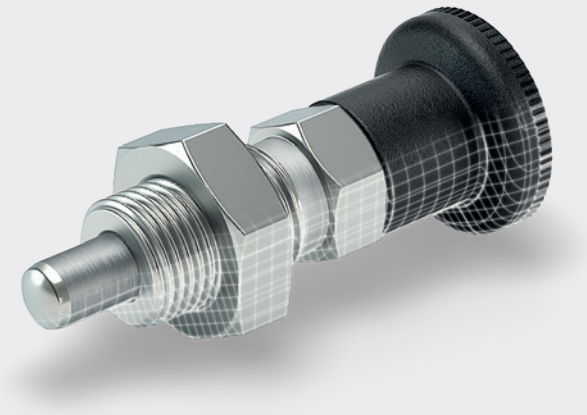


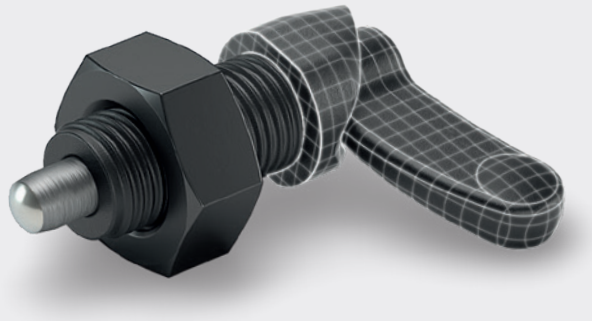
Display
- Multifunction LCD with 5 function keys.
- Absolute/ incremental mode.
- Programmable measuring unit.
- Linear and angular measures.
- Programmable offset function.
- Resolution: 0.1 mm - 0.01 in -0.01°
- Precision: 0.1 mm
- Repeat accuracy: 0.01 mm

Magnetic sensor
- IP65 protection level
- Cable length up to 20 m.
- Operating speed up to 5m/s.
- Distance between sensor and magnetic band to ensure a correct reading of the displacement: 2.5 mm max.

Magnetic band
- Magnetic pole pitch 5 mm.
- Easy assembly thanks to the adhesive tape.
- Cover strip for protection against possible mechanical damages.

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DESIGNED
FOR ENGINEERING

8 Indexing elements



Indexing plungers

Lock pins

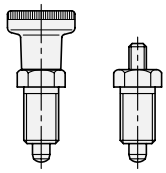
Spring plungers

Cam action indexing plungers

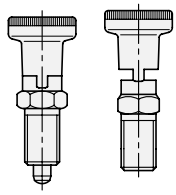
Indexing plungers - Types

Unlocking by pulling the plunger pin

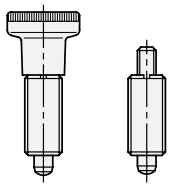
GN 617
GN 617 ... NI
see page 744
without rest position
Ø 5/6/8/10



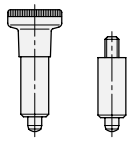
GN 617.1
GN 617.1 ... NI
see page 746
with rest position
Ø 5/6/8/10



GN 613
GN 613 ... NI
see page 748
without rest position
Ø 5/6/8/10

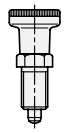


GN 618
see page 760
without rest position
without thread
weldable steel
Ø 5/6/8

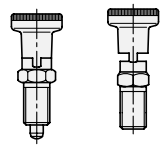


Other features:
- Guide steel, blackened or Stainless Steel
- GN 617 / GN 613 / GN 618 with or without knob
- Stainles Steel version with plastic or Stainless Steel knob
- Sturdy plunger pin: no change in Ø over the entire length
- Plunger pin, steel hardened
- High precision plunger pin guide

PMT.100
see page 750
without rest position
SUPER-Technopolymer
Ø 5 / 6 / 8 / 10

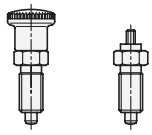


PMT.101
see page 752
with rest position
SUPER-Technopolymer
Ø 5 / 6 / 8 / 10

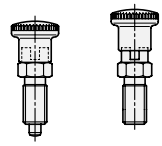


Other features:
- SUPER-technopolymer threaded body Lightness and high mechanical strength
- Steel (hardened) or Stainless Steel plunger pin
- Anticorrosive material: suitable even in the presence of liquid or humidity
- Low friction factor to the plunger stroke; no lubricating maintenance is required
- Resistant to several cleaning cycles with solvents and other chemical agents

GN 817
GN 817 ... NI
see page 754
Type B / G
without rest position
Ø 4/5/6/8/
10/12/16

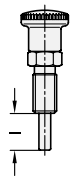


GN 817
GN 817 ... NI
see page 754
Type C
with rest position
Ø 4/5/6/8/
10/12/16

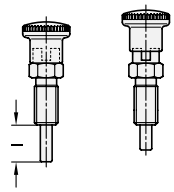


Other features:
- Guide steel, blackened or Stainless Steel
- Type G without knob, Type B/C with black or red knob
- 2 strokes/plunger pin Ø 4/5/6/8
- Plunger pin, steel hardened
- High precision plunger pin guide
- Locking mechanism integrated in the knob
- reduced dimensions

GN 817.8
GN 817.8 ... NI
see page 756
Type B
without rest position
Ø 4/5/6/8/
10/12/16



GN 817.8
GN 817.8 ... NI
see page 756
Type C
with rest position
Ø 4/5/6/8/
10/12/16



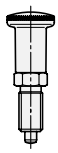
Other features:
- Designed for plunger pins in special design for small pieces
- All individual parts are delivered as an unassembled set so that the plunger pins can be modified.
- Guide steel, blackened or Stainless Steel
- Plunger pin Stainless Steel
- High precision plunger pin guide
- Locking mechanism integrated in the knob
- reduced dimensions

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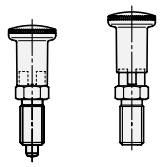
Indexing plungers - Types

Unlocking by pulling the plunger pin

GN 817.2
GN 817.2 ... NI
see page 758
Type B
without rest position
with long
operating knob
Ø 4/5/6/8/10/12



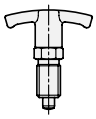
GN 817.2
GN 817.2 ... NI
see page 758
Type C
with rest position
with long
operating knob
Ø 4/5/6/8/10/12



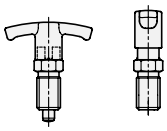
Other features:

- Guide steel, blackened or Stainless Steel
- 2 strokes/Plunger pin-Ø 4/5/6/8
- Plunger pin, steel hardened
- High precision plunger pin guide
- Locking mechanism integrated in the knob
- reduced dimensions

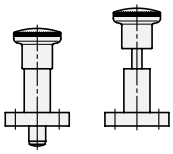
GN 817.4
GN 817.4 ... NI
see page 761
Type B
without rest position
with T-handle
Ø 6/8/10/12



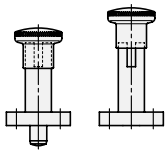
GN 817.4
GN 817.4 ... NI
see page 761
Type C
with rest position
with T-handle
Ø 6/8/10/12



GN 817.1
see page 762
Type B
without rest position
Ø 6/8/10



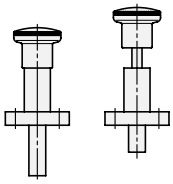
GN 817.1
see page 762
Type C
with rest position
Ø 6/8/10



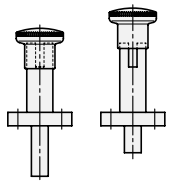
Other features:

- Guide Zinc die casting, black plastic coated
- Plunger pin Stainless Steel
- with black or red knob
- Locking mechanism integrated in the knob

GN 817.9
see page 763
Type B
without rest position
Ø 7 /8/10
Length: 20/25/30



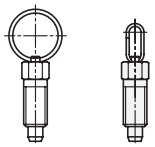
GN 817.9
see page 763
Type C
with rest position
Ø 7 /8/10
Length: 20/25/30



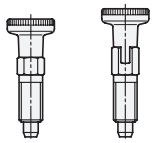
Other features:

- Designed for plunger pins in special design for small pieces
- All individual parts are delivered as an unassembled set so that the plunger pins can be modified.
- Guide zinc die casting, black plastic coated
- Plunger pin Stainless Steel
- Locking mechanism integrated in the knob

GN 717 ... ST
GN 717 ... NI
see page 764
Type A / D
without rest position
Ø 3/4/5/6/8/10



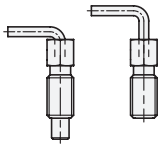
GN 717 ... ST
GN 717 ... NI
see page 764
Type B
without rest position
Type C
with rest position
Ø 3/4/5/6/8/10



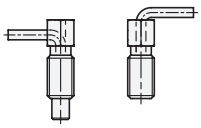
Other features:

- Guide steel, zinc plated or Stainless Steel
- Type A: with lifting ring
- Type D: with wire loop
- Standard or fine thread
- Reduced dimensions
- Reasonably priced versions

GN 7017 ... ST
GN 7017 ... NI
see page 767
Type B / BK
without rest position
Ø 4/5/6/8/10



GN 7017 ... ST
GN 7017 ... NI
see page 767
Type C / CK
with rest position
Ø 4/5/6/8/10



Other features:

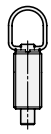
- Guide steel, zinc plated or Stainless Steel
- with lever
- Reduced dimensions
- Reasonably priced versions

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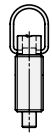
Indexing plungers - Types

Unlocking by pulling the plunger pin

GN 413 ... ST
GN 413 ... NI
see page 768
Type A
without rest position
Ø 5/6/8/10

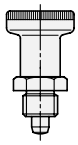


GN 413 ... ST
GN 413 ... NI
see page 768
Type C
with rest position
Ø 5/6/8/10

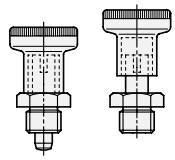


Other features:
- Guide steel, blackened or Stainless Steel
- Standard or fine thread
- Plunger pin Stainless Steel
- Reduced dimensions

GN 607 ... ST
GN 607 ... NI
see page 769
without rest position
Ø 6/8

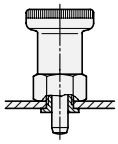


GN 607.1 ... ST
GN 607.1 ... NI
see page 769
with rest position
Ø 6/8

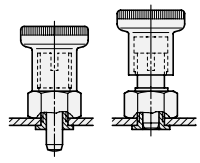


Other features:
- Guide steel, blackened or Stainless Steel
- Plunger pin, steel hardened
- High precision plunger pin guide
- Locking mechanism integrated in the knob

GN 607.2 ... ST
GN 607.2 ... NI
see page 771
without rest position
Ø 6/8

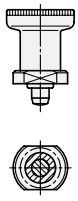


GN 607.3 ... ST
GN 607.3 ... NI
see page 772
with rest position
Ø 6/8

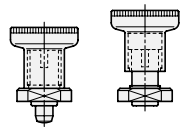


Other features:
- Designed for use in thin walled sheet metal parts
- Guide steel, zinc plated
- Plunger pin Stainless Steel
- Locking mechanism integrated in the knob

GN 607.4 ... ST
see page 773
without rest position
Ø 6/8

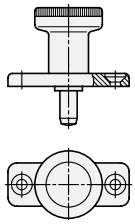


GN 607.5 ... ST
see page 774
with rest position
Ø 6/8

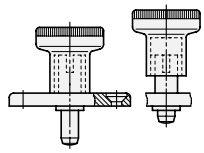


Other features:
- Plunger for welding
- Guide steel, blackened
- Plunger pin steel, hardened
- Locking mechanism integrated in the knob

GN 608
GN 608.5
see page 776
without rest position
Ø 6/8

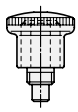


GN 608.1
GN 608.6
see page 778
with rest position
Ø 6/8

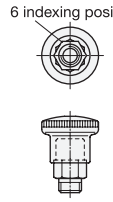


Other features:
- Guide zinc die casting, zinc plated
- GN 608/GN 608.1: Plunger pin steel, hardened
- GN 608.5/GN 608.6: Plunger pin Stainless Steel
- Locking mechanism integrated in the knob

GN 822 ... ST
GN 822 ... NI
see page 780
Type B
without rest position
Ø 4/5/6/7



GN 822 ... ST
GN 822 ... NI
see page 780
Type C
with rest position
Ø 4/5/6/7



Other features:
- Smallest dimensions (indexing plungers)
- Thread without recessed stud for fastening to thin walls (sheets)
- Guide steel, zinc plated or Stainless Steel
- Plunger pin Stainless Steel
- Knob plastic
- Covered indexing mechanism

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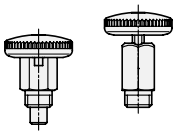
Indexing plungers - Types

Unlocking by pulling the plunger pin

GN 822.1 ... ST
GN 822.1 ... NI
see page 782
Type B
without rest position
with low knob
Ø 4/5/6/7



GN 822.1 ... ST
GN 822.1 ... NI
see page 782
Type C
with rest position
with low knob
Ø 4/5/6/7

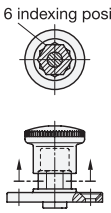


Other features:
- Smallest dimensions (indexing plungers)
- Thread without recessed stud for fastening to thin walls (sheets)
- Guide steel, zinc plated or Stainless Steel
- Plunger pin Stainless Steel
- Knob plastic
- open indexing mechanism

GN 822.6
GN 822.7
see page 775
Type B / BN
without rest position
Ø 4/5/6/7/8/10

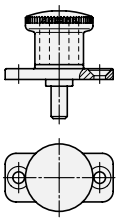


GN 822.6
GN 822.7
see page 775
Type C / CN
with rest position
Ø 4/5/6/7/8/10

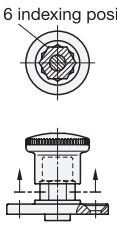


Other features:
- Smallest dimensions (indexing plungers)
- Guide steel, zinc plated or Stainless Steel
- Stainless Steel version with plastic or Stainless Steel knob
- Plunger pin Stainless Steel
- Standard or fine thread

GN 822.8
GN 822.9
see page 786
Type B / BN
without rest position
Ø 4/5/6/ 8/10

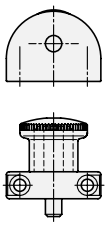


GN 822.8
GN 822.9
see page 786
Type C /CN
with rest position
Ø 4/5/6/ 8/10

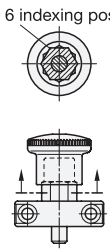


Other features:
- Reduced dimensions
- Guide zinc die casting, black plastic coated or Stainless Steel (GN 822.9)
- Plunger pin Stainless Steel
- Stainless Steel version (GN 822.9 with plastic or Stainless Steel knob)

GN 412
see page 789
Type B
without rest position
Ø 5/6 /8 /10

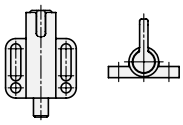


GN 412
see page 789
Type C
with rest position
Ø 5/6/8/10

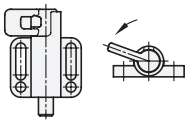


Other features:
- Short length
- Mounting from the front or rear (female thread)
- Guide zinc die casting, black plastic coated
- Plunger pin Stainless Steel
- Mounting blocks GN 412.1

GN 416
see page 790
Type S
without locking
in normal position
without rest position
Ø 6 / 8 / 10 / 12



GN 416
see page 790
Type L1 / R1
with locking
in normal position
with rest position
Ø 6/8/10/12



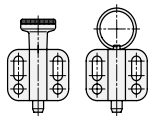
Other features:
- Guide zinc die casting, black plastic coated
- Plunger pin steel, zinc plated
- Latch lever plastic
- Operation beyond the plunger axis
- Assembly sets for profile systems
- Type L1/R1: Locking via clockwise or counterclockwise rotation of the latch lever
- Locators GN 416.1

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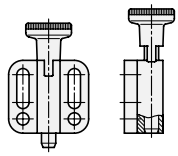
Indexing plungers - Types

Unlocking by pulling the plunger pin

GN 417
see page 792
Type A / B
without rest position
Ø 4/5/6/8/10

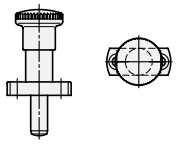


GN 417
see page 792
Type C
with rest position
Ø 4/5/6/8/10

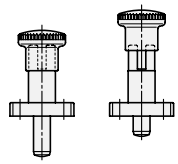


Other features:
- Indexing plungers for welding
- Guide steel, blackened
- Plunger pin steel, hardened
- Locking mechanism integrated in the knob

GN 817.3
see page 795
Type B
without rest position
Plunger pin
cylindrical
Ø 6/8/10

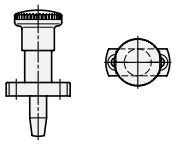


GN 817.3
see page 795
Type C
with rest position
Plunger pin
cylindrical
Ø 6/8/10

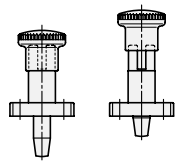


Other features:
- Designed for precision positioning by using positioning bushings
- Guide steel, blackened
- Plunger pin hardened
- Locking mechanism integrated in the knob
- reduced dimensions

GN 817.5
see page 796
Type B
without rest position
Plunger pin conical
Ø 6/8/10

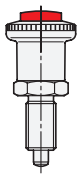


GN 817.5
see page 796
Type C
with rest position
Plunger pin conical
Ø 6/8/10



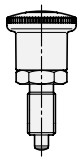
Other features:
- Designed for precision positioning by using positioning bushings
- Guide steel, blackened
- Plunger pin hardened
- Locking mechanism integrated in the knob
- reduced dimensions

GN 414
GN 414 ... NI
see page 797
with safety lock
Ø 6/8/10



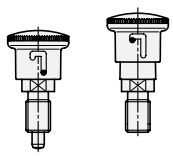
Other features:
- The latching is done automatically in case of a protruding plunger pin and the unlocking using the push-button
- Guide steel, blackened or Stainless Steel
- Plunger pin, steel hardened
- Knob black, push-button red

GN 414.1
GN 414.1 ... NI
see page 802
with rest position
Ø 6/8/10

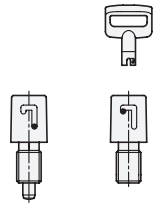


Other features:
- The rest position is achieved automatically in case of a retracted plunger pin and the unlocking using the push-button
- Guide steel, blackened or Stainless Steel
- Plunger pin, steel hardened
- Knob black, push-button red

GN 816
see page 798
Type A
Plunger pin
in normal position
protruded
with rest position
Operation with knob
Ø 6/8/10



GN 816
see page 798
Type B
Plunger pin in normal
position protruded
with rest position
Operation with key
Ø 6/8/10



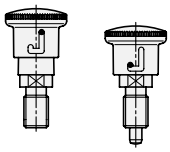
Other features:
- Rest position secured against unintended release
- Guide steel, zinc plated
- Plunger pin Stainless Steel AISI 303
- Type B: Operation possible only with special key GN 816-10 (safety function)

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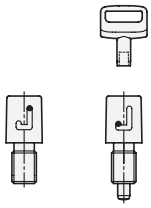
Indexing plungers - Types

Unlocking by pulling the plunger pin

GN 816.1
see page 800
Type A
Plunger pin
in normal position
retratcted
with locking
Operation with knob
Ø 6/8/10

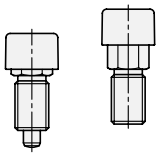


GN 816.1
see page 800
Type B
Plunger pin
in normal position
retratcted
with locking
Operation with key
Ø 6/8/10



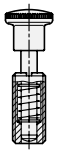
Other features:
- Latch secured against unintended release
- Guide steel, zinc plated
- Plunger pin Stainless Steel AISI 303
- Type B: Operation possible only with special key GN 816.1-10 (safety function)

GN 514
see page 803
with PUSH-PUSH
mechanism
Ø 6/8

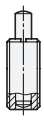


Other features:
- The plunger pin is moved over a so-called 'heart-curve'. This causes the plunger pin to be extended as well as retracted only by pressing the actuation buttons.
- Guide steel, blackened
- Knob plastic

GN 313 ... ST
GN 313 ... NI
see page 804
Plunger pin
in normal position
retratcted
Type A: with knob
Ø 5/6/8/10

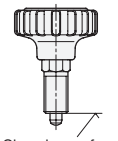


GN 313 ... ST
GN 313 ... NI
see page 804
Plunger pin
in normal position
retratcted
Type D: without knob
Ø 5/6/8/10



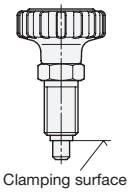
Other features:
- In the normal position (non-actuated), the bolt is not protruding, i.e. it remains retracted by a thrust spring
- Guide steel, blackened or Stainless Steel
- Plunger pin Stainless Steel

GN 7336.7
see page 806
Clamping knobs
with plunger pin
Ø 5/6/8



Other features:
- Knurled screw with "integrated" spring plunger pin. Thus, elements to be adjusted can be positioned and clamped simultaneously
- Guide steel, blackened
- Plunger pin Stainless Steel
- Knurled knob plastic

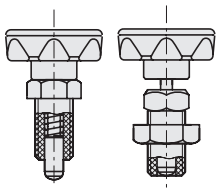
GN 7336.8
see page 807
Clamping
indexing plungers
Ø 6/8



Other features:
- Application like GN 7336.7 with additional safety function. Knurled screw does not help in clamping, but in positioning. The clamping is done using a plunger pin that is connected to an anti-twist knurled knob.

After releasing the clamping, the plunger pin cannot be retracted (safety feature!), but only after some rotations of the knurled knob
- Guide steel, zinc plated
- Plunger pin steel, nitrided
- Knurled knob plastic

PMT.110
see page 808
Indexing plunger
with knob
Ø 8/10



Other features:
- SUPER-technopolymer threaded body. Lightness and high mechanical strength
- Steel (hardened) or Stainless Steel plunger pin
- Anticorrosive material: suitable even in the presence of liquid or humidity
- Low friction factor to the plunger stroke; no lubricating maintenance is required
- Resistant to several cleaning cycles with solvents and other chemical agents

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Indexing plungers

Steel / Stainless Steel without rest position



SPECIFICATION

Types

- Type **A**: with Plastic Knob, without lock nut
- Type **AK**: with Plastic-Knob, with lock nut
- Type **AN**: with Stainless Steel-Knob, without lock nut
- Type **AKN**: with Stainless Steel-Knob, with lock nut
- Type **G**: with threaded rod, without lock nut
- Type **GK**: with threaded rod, with lock nut

Version in Steel

- blackened
- Pin hardened

Version in Stainless Steel AISI 303 NI

Pin chemically nickel plated

Knob Type A / AK

- Plastic (Polyamide PA)
- black, matt
- not removable

Knob Type AN / AKN

- Stainless Steel AISI 303
- not removable

INFORMATION

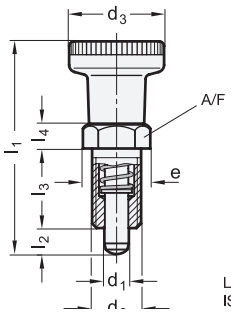
Type G or GK of the GN 617 indexing plungers have been designed for applications where the indexing plunger is not operated with the standard knob.
The indexing plungers are designed such that the plunger set in the end position (spring is "on block") can also absorb axial forces. For applications in which these forces are substantially above the tensile force applied by the operator (Type G), GN 817 (see page 754) indexing plungers are to be preferred.

- Range of indexing plungers (see page 738)

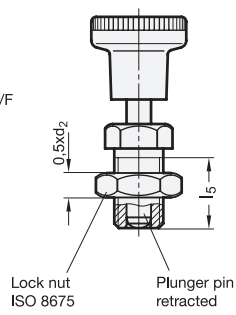
TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)

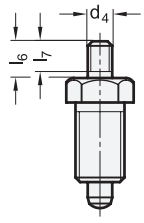
Type **A**



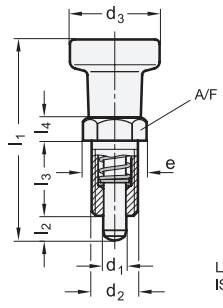
Type **AK**



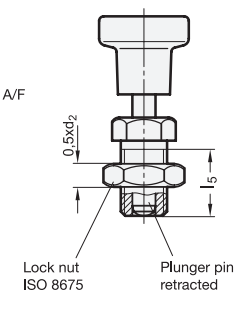
Type **G**



Type **AN**



Type **AKN**



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GN 617 (Steel with Plastic knob)

Description	d1 Pin -0.02/-0.05 Bore H7	d2	d3	d4	e	l1 ≈	l2 min.	l3	l4	l5	l6 min.	l7	A/F	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 617-5-A	5	M 10 x 1	21	-	13.8	45	5	17	5	15	-	-	12	7	17	19
GN 617-6-A	6	M 12 x 1.5	25	-	16.2	54.5	6	20	6	17	-	-	14	9	24	31
GN 617-8-A	8	M 16 x 1.5	31	-	21.9	69	8	26	8	23	-	-	19	11	30	70
GN 617-10-A	10	M 20 x 1.5	31	-	25.4	80	10	33	10	30	-	-	22	19	45	110
GN 617-5-AK	5	M 10 x 1	21	-	13.8	45	5	17	5	15	-	-	12	7	17	24
GN 617-6-AK	6	M 12 x 1.5	25	-	16.2	54.5	6	20	6	17	-	-	14	9	24	38
GN 617-8-AK	8	M 16 x 1.5	31	-	21.9	69	8	26	8	23	-	-	19	11	30	89
GN 617-10-AK	10	M 20 x 1.5	31	-	25.4	80	10	33	10	30	-	-	22	19	45	143
GN 617-5-G	5	M 10 x 1	-	M 5	13.8	-	5	17	5	15	6	4.5	12	7	17	14
GN 617-6-G	6	M 12 x 1.5	-	M 6	16.2	-	6	20	6	17	10	8	14	9	24	23
GN 617-8-G	8	M 16 x 1.5	-	M 8	21.9	-	8	26	8	23	12	10	19	11	30	54
GN 617-10-G	10	M 20 x 1.5	-	M 8	25.4	-	10	33	10	30	12	12	22	19	45	98
GN 617-5-GK	5	M 10 x 1	-	M 5	13.8	-	5	17	5	15	6	4.5	12	7	17	22
GN 617-6-GK	6	M 12 x 1.5	-	M 6	16.2	-	6	20	6	17	10	8	14	9	24	35
GN 617-8-GK	8	M 16 x 1.5	-	M 8	21.9	-	8	26	8	23	12	10	19	11	30	72
GN 617-10-GK	10	M 20 x 1.5	-	M 8	25.4	-	10	33	10	30	12	12	22	19	45	130

GN 617-NI (Stainless Steel with Plastic knob)

STAINLESS STEEL

Description	d1 Pin -0.02/-0.05 Bore H7	d2	d3	d4	e	l1 ≈	l2 min.	l3	l4	l5	l6 min.	l7	A/F	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 617-5-A-NI	5	M 10 x 1	21	-	13.8	45	5	17	5	15	-	-	12	6	15	19
GN 617-6-A-NI	6	M 12 x 1.5	25	-	16.2	54.5	6	20	6	17	-	-	14	8	21	31
GN 617-8-A-NI	8	M 16 x 1.5	31	-	21.9	69	8	26	8	23	-	-	19	9	26	71
GN 617-10-A-NI	10	M 20 x 1.5	31	-	25.4	80	10	33	10	30	-	-	22	17	40	115
GN 617-5-AK-NI	5	M 10 x 1	21	-	13.8	45	5	17	5	15	-	-	12	6	15	24
GN 617-6-AK-NI	6	M 12 x 1.5	25	-	16.2	54.5	6	20	6	17	-	-	14	8	21	42
GN 617-8-AK-NI	8	M 16 x 1.5	31	-	21.9	69	8	26	8	23	-	-	19	9	26	85
GN 617-10-AK-NI	10	M 20 x 1.5	31	-	25.4	80	10	33	10	30	-	-	22	17	40	143
GN 617-5-G-NI	5	M 10 x 1	-	M 5	13.8	-	5	17	5	15	6	4.5	12	6	15	15
GN 617-6-G-NI	6	M 12 x 1.5	-	M 6	16.2	-	6	20	6	17	10	8	14	8	21	25
GN 617-8-G-NI	8	M 16 x 1.5	-	M 8	21.9	-	8	26	8	23	12	10	19	9	26	55
GN 617-10-G-NI	10	M 20 x 1.5	-	M 8	25.4	-	10	33	10	30	12	12	22	17	40	98
GN 617-5-GK-NI	5	M 10 x 1	-	M 5	13.8	-	5	17	5	15	6	4.5	12	6	15	22
GN 617-6-GK-NI	6	M 12 x 1.5	-	M 6	16.2	-	6	20	6	17	10	8	14	8	21	35
GN 617-8-GK-NI	8	M 16 x 1.5	-	M 8	21.9	-	8	26	8	23	12	10	19	9	26	77
GN 617-10-GK-NI	10	M 20 x 1.5	-	M 8	25.4	-	10	33	10	30	12	12	22	17	40	131

GN 617-NI (Stainless Steel knob)

STAINLESS STEEL

Description	d1 Pin -0.02/-0.05 Bore H7	d2	d3	e	l1 ≈	l2 min.	l3	l4	l5	l6 min.	A/F	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 617-5-AN-NI	5	M 10 x 1	21	13.8	45	5	17	5	6	15	12	6	15	39
GN 617-6-AN-NI	6	M 12 x 1.5	25	16.2	54.5	6	20	6	10	17	14	8	21	65
GN 617-8-AN-NI	8	M 16 x 1.5	31	21.9	69	8	26	8	12	23	19	9	26	135
GN 617-10-AN-NI	10	M 20 x 1.5	31	25.4	80	10	33	10	12	30	22	17	40	175
GN 617-5-AKN-NI	5	M 10 x 1	21	13.8	45	5	17	5	6	15	12	6	15	40
GN 617-6-AKN-NI	6	M 12 x 1.5	25	16.2	54.5	6	20	6	10	17	14	8	21	130
GN 617-8-AKN-NI	8	M 16 x 1.5	31	21.9	69	8	26	8	12	23	19	9	26	156
GN 617-10-AKN-NI	10	M 20 x 1.5	31	25.4	80	10	33	10	12	30	22	17	40	220

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Indexing plungers

Steel / Stainless Steel with rest position



SPECIFICATION

Types

- Type **A**: with Plastic-Knob, without lock nut
- Type **AK**: with Plastic-Knob, with lock nut
- Type **AN**: with Stainless Steel-Knob, without lock nut
- Type **AKN**: with Stainless Steel-Knob, with lock nut

Version in Steel

- blackened
- Pin hardened

Version in Stainless Steel AISI 303 NI

Pin chemically nickel plated

Knob Type A / AK

- Plastic (Polyamide PA)
- black, matt
- not removable

Knob Type AN / AKN

- Stainless Steel AISI 303
- not removable

INFORMATION

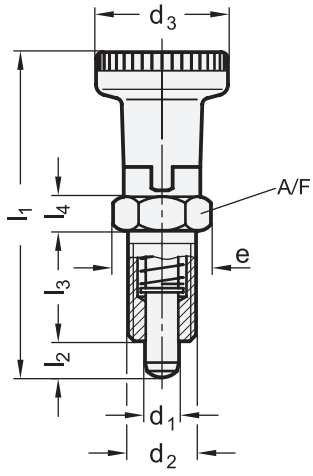
Indexing plungers GN 617.1 with rest position are used for such applications where the plunger has to stay in its retracted position. To achieve this, the knob is rotated by 90° degrees after being retracted. A notch keeps the plunger in this position.

- Range of indexing plungers (see page 738)

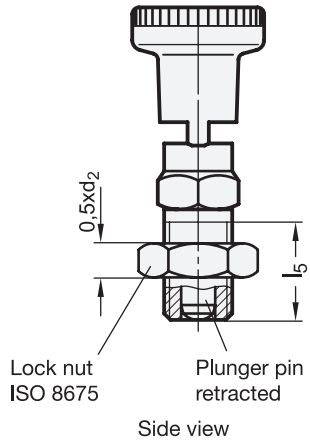
TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)

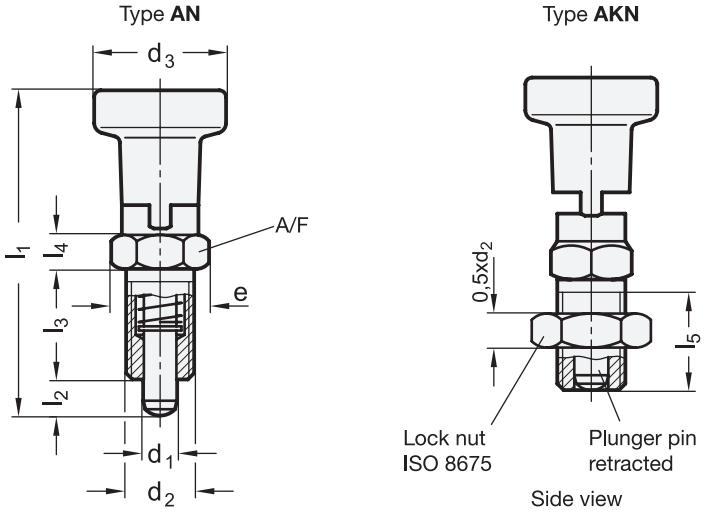
Type **A**



Type **AK**



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GN 617.1 (Steel with Plastic knob)

Description	d1 Pin -0.02/-0.05 Bore H7	d2	d3	e	l1 ≈	l2	l3	l4	l5 min.	A/F	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 617.1-5-A	5	M 10 x 1	21	13.8	51	5	17	5	15	12	7	17	22
GN 617.1-6-A	6	M 12 x 1.5	25	16.2	61	6	20	6	17	14	9	24	35
GN 617.1-8-A	8	M 16 x 1.5	31	21.9	75.5	7	26	8	23	19	11	30	78
GN 617.1-10-A	10	M 20 x 1.5	31	25.4	91	10	33	10	30	22	19	45	100
GN 617.1-5-AK	5	M 10 x 1	21	13.8	51	5	17	5	15	12	7	17	27
GN 617.1-6-AK	6	M 12 x 1.5	25	16.2	61	6	20	6	17	14	9	24	43
GN 617.1-8-AK	8	M 16 x 1.5	31	21.9	75.5	7	26	8	23	19	11	30	96
GN 617.1-10-AK	10	M 20 x 1.5	31	25.4	91	10	33	10	30	22	19	45	163

GN 617.1-NI (Stainless Steel with Plastic knob) STAINLESS STEEL

Description	d1 Pin -0.02/-0.05 Bore H7	d2	d3	e	l1 ≈	l2	l3	l4	l5 min.	A/F	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 617.1-5-A-NI	5	M 10 x 1	21	13.8	51	5	17	5	15	12	6	15	22
GN 617.1-6-A-NI	6	M 12 x 1.5	25	16.2	61	6	20	6	17	14	8	21	36
GN 617.1-8-A-NI	8	M 16 x 1.5	31	21.9	75.5	7	26	8	23	19	9	26	79
GN 617.1-10-A-NI	10	M 20 x 1.5	31	25.4	91	10	33	10	30	22	17	40	135
GN 617.1-5-AK-NI	5	M 10 x 1	21	13.8	51	5	17	5	15	12	6	15	27
GN 617.1-6-AK-NI	6	M 12 x 1.5	25	16.2	61	6	20	6	17	14	8	21	43
GN 617.1-8-AK-NI	8	M 16 x 1.5	31	21.9	75.5	7	26	8	23	19	9	26	96
GN 617.1-10-AK-NI	10	M 20 x 1.5	31	25.4	91	10	33	10	30	22	17	40	136

GN 617.1-NI (Stainless Steel knob) STAINLESS STEEL

Description	d1 Pin -0.02/-0.05 Bore H7	d2	d3	e	l1 ≈	l2	l3	l4	l5 min.	A/F	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 617.1-5-AN-NI	5	M 10 x 1	21	13.8	51	5	17	5	15	12	6	15	47
GN 617.1-6-AN-NI	6	M 12 x 1.5	25	16.2	61	6	20	6	17	14	8	21	74
GN 617.1-8-AN-NI	8	M 16 x 1.5	31	21.9	75.5	7	26	8	23	19	9	26	150
GN 617.1-10-AN-NI	10	M 20 x 1.5	31	25.4	91	10	33	10	30	22	17	40	200
GN 617.1-5-AKN-NI	5	M 10 x 1	21	13.8	51	5	17	5	15	12	6	15	52
GN 617.1-6-AKN-NI	6	M 12 x 1.5	25	16.2	61	6	20	6	17	14	8	21	82
GN 617.1-8-AKN-NI	8	M 16 x 1.5	31	21.9	75.5	7	26	8	23	19	9	26	168
GN 617.1-10-AKN-NI	10	M 20 x 1.5	31	25.4	91	10	33	10	30	22	17	40	240

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Indexing plungers

Steel / Stainless Steel without rest position



SPECIFICATION

Types

- Type **A**: with Plastic-Knob, without lock nut
- Type **AK**: with Plastic-Knob, with lock nut
- Type **AN**: with Stainless Steel-Knob, without lock nut
- Type **AKN**: with Stainless Steel-Knob, with lock nut
- Type **G**: with threaded rod, without lock nut
- Type **GK**: with threaded rod, with lock nut

Steel

- blackened
- Pin hardened

Stainless Steel AISI 303 **NI**
Pin chemically nickel plated

Knob Type A / AK

- Plastic (Polyamide PA)
- black, matt
- not removable

Knob Type AN / AKN

- Stainless Steel AISI 303
- not removable

INFORMATION

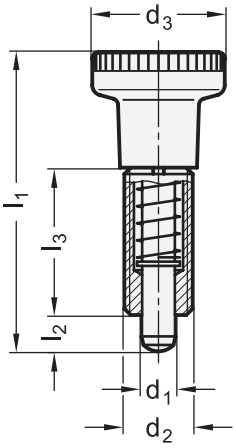
Type G or GK of the GN 613 indexing plungers have been designed for applications where the indexing plunger is not operated with the standard knob.
The indexing plungers are designed such that the plunger set in the end position (spring is "on block") can also absorb axial forces. For applications in which these forces are substantially above the tensile force applied by the operator (Type G), GN 817 (see page 754) indexing plungers are to be preferred.
A special screw driver GN 613.1 is available. Two slots are provided in the upper end of the body which are accessible with the knob in its retracted position.

- Range of indexing plungers (see page 738)

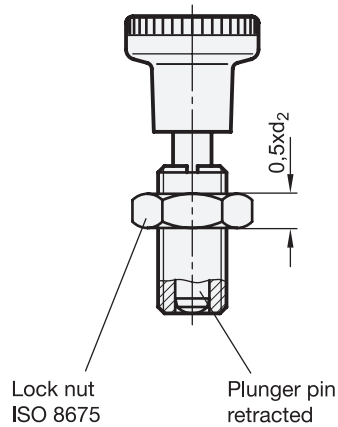
TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)

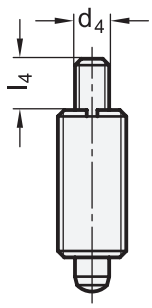
Type **A**



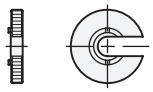
Type **AK**



Type **G**



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GN 613 (Steel with Plastic knob)

Description	d1 Pin -0.02/-0.05 Bore H7	d2	d3	d4	l1 ≈	l2 min.	l3	l4	Spring load in N ≈ initial	Spring load in N ≈ end	Code no. Screw driver	⚖
GN 613-5-A	5	M 10 x 1	21	-	45	5	22	6	7	17	GN 613.1-5	17
GN 613-6-A	6	M 12 x 1.5	25	-	54.5	6	26	10	9	24	GN 613.1-6	29
GN 613-8-A	8	M 16 x 1.5	31	-	69	8	34	12	11	30	GN 613.1-8	62
GN 613-10-A	10	M 20 x 1.5	31	-	80	10	43	12	19	45	GN 613.1-10	92
GN 613-5-AK	5	M 10 x 1	21	-	45	5	22	6	7	17	GN 613.1-5	25
GN 613-6-AK	6	M 12 x 1.5	25	-	54.5	6	26	10	9	24	GN 613.1-6	38
GN 613-8-AK	8	M 16 x 1.5	31	-	69	8	34	12	11	30	GN 613.1-8	82
GN 613-10-AK	10	M 20 x 1.5	31	-	80	10	43	12	19	45	GN 613.1-10	127
GN 613-5-G	5	M 10 x 1	-	M 5	-	5	22	6	7	17	GN 613.1-5	14
GN 613-6-G	6	M 12 x 1.5	-	M 6	-	6	26	10	9	24	GN 613.1-6	20
GN 613-8-G	8	M 16 x 1.5	-	M 8	-	8	34	12	11	30	GN 613.1-8	40
GN 613-10-G	10	M 20 x 1.5	-	M 8	-	10	43	12	19	45	GN 613.1-10	86
GN 613-5-GK	5	M 10 x 1	-	M 5	-	5	22	6	7	17	GN 613.1-5	21
GN 613-6-GK	6	M 12 x 1.5	-	M 6	-	6	26	10	9	24	GN 613.1-6	37
GN 613-8-GK	8	M 16 x 1.5	-	M 8	-	8	34	12	11	30	GN 613.1-8	64
GN 613-10-GK	10	M 20 x 1.5	-	M 8	-	10	43	12	19	45	GN 613.1-10	121

GN 613-NI (Stainless Steel with Plastic knob)

STAINLESS STEEL

Description	d1 Pin -0.02/-0.05 Bore H7	d2	d3	d4	l1 ≈	l2 min.	l3	l4	Spring load in N ≈ initial	Spring load in N ≈ end	Code no. Screw driver	⚖
GN 613-5-A-NI	5	M 10 x 1	21	-	45	5	22	6	6	15	GN 613.1-5	15
GN 613-6-A-NI	6	M 12 x 1.5	25	-	54.5	6	26	10	8	21	GN 613.1-6	29
GN 613-8-A-NI	8	M 16 x 1.5	31	-	69	8	34	12	9	26	GN 613.1-8	64
GN 613-10-A-NI	10	M 20 x 1.5	31	-	80	10	43	12	17	40	GN 613.1-10	106
GN 613-5-AK-NI	5	M 10 x 1	21	-	45	5	22	6	6	15	GN 613.1-5	25
GN 613-6-AK-NI	6	M 12 x 1.5	25	-	54.5	6	26	10	8	21	GN 613.1-6	35
GN 613-8-AK-NI	8	M 16 x 1.5	31	-	69	8	34	12	9	26	GN 613.1-8	82
GN 613-10-AK-NI	10	M 20 x 1.5	31	-	80	10	43	12	17	40	GN 613.1-10	127
GN 613-5-G-NI	5	M 10 x 1	-	M 5	-	5	22	6	6	15	GN 613.1-5	14
GN 613-6-G-NI	6	M 12 x 1.5	-	M 6	-	6	26	10	8	21	GN 613.1-6	19
GN 613-8-G-NI	8	M 16 x 1.5	-	M 8	-	8	34	12	9	26	GN 613.1-8	44
GN 613-10-G-NI	10	M 20 x 1.5	-	M 8	-	10	43	12	17	40	GN 613.1-10	88
GN 613-5-GK-NI	5	M 10 x 1	-	M 5	-	5	22	6	6	15	GN 613.1-5	21
GN 613-6-GK-NI	6	M 12 x 1.5	-	M 6	-	6	26	10	8	21	GN 613.1-6	27
GN 613-8-GK-NI	8	M 16 x 1.5	-	M 8	-	8	34	12	9	26	GN 613.1-8	64
GN 613-10-GK-NI	10	M 20 x 1.5	-	M 8	-	10	43	12	17	40	GN 613.1-10	123

GN 613-NI (Stainless Steel knob)

STAINLESS STEEL

Description	d1 Pin -0.02/-0.05 Bore H7	d2	d3	l1 ≈	l2 min.	l3	Spring load in N ≈ initial	Spring load in N ≈ end	Code no. Screw driver	⚖
GN 613-5-AN-NI	5	M 10 x 1	21	45	5	22	6	15	GN 613.1-5	37
GN 613-6-AN-NI	6	M 12 x 1.5	25	54.5	6	26	8	21	GN 613.1-6	61
GN 613-8-AN-NI	8	M 16 x 1.5	31	69	8	34	9	26	GN 613.1-8	123
GN 613-10-AN-NI	10	M 20 x 1.5	31	80	10	43	17	40	GN 613.1-10	171
GN 613-5-AKN-NI	5	M 10 x 1	21	45	5	22	6	15	GN 613.1-5	40
GN 613-6-AKN-NI	6	M 12 x 1.5	25	54.5	6	26	8	21	GN 613.1-6	69
GN 613-8-AKN-NI	8	M 16 x 1.5	31	69	8	34	9	26	GN 613.1-8	140
GN 613-10-AKN-NI	10	M 20 x 1.5	31	80	10	43	17	40	GN 613.1-10	200

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Indexing plungers

SUPER-technopolymer body

THREADED BODY
Glass-fibre reinforced polyamide based (PA) SUPER-tecnopolymer.

PLUNGER
Black-oxide hardened steel or AISI 303 stainless steel.
Suggested tolerance for matching hole = H7.

KNOB
High-resilience polyamide based (PA) technopolymer, black colour or RAL 3000 red colour (C6), matte finish.

SPRING
AISI 302 stainless steel.

LOCKING NUT (NTT)
Glass-fibre reinforced polyamide based (PA) SUPER-tecnopolymer. Available also as accessory sold separately (see table NTT).

STANDARD EXECUTIONS
- **PMT.100-A:** black-oxide steel plunger, without locking nut.
- **PMT.100-AK:** black-oxide steel plunger, with locking nut (supplied not assembled).
- **PMT.100-SST-A:** AISI 303 stainless steel plunger, without locking nut, not magnetic.
- **PMT.100-SST-AK:** AISI 303 stainless steel plunger, with locking nut (supplied not assembled), not magnetic.

FEATURES AND APPLICATIONS
- Lightness and high mechanical resistance of the product.
- The SUPER-technopolymer threaded body of the plunger offers a low friction factor to the plunger stroke; no lubricating maintenance is required.
- Anticorrosive material: suitable even in the presence of liquid or humidity (PMT.100-SST).
- Resistant to several cleaning cycles with solvents and other chemical agents, for this reason they are suitable for applications as in the pharmaceutical or food industry.

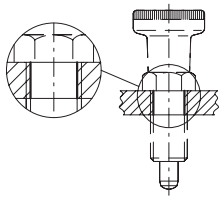
ASSEMBLY INSTRUCTIONS
Make sure that no machining residues are left on the threaded hole for the assembly of PMT.100 indexing plunger (see fig. 1). Do not make any chamfering in the hole (see fig. 2).
SUPER-technopolymer product based on ELESA technology, dimensions according to GN 617 (see page 744) standards as agreed with Otto Ganter GmbH Co. KG.

ANOTHER STANDARD EXECUTION
PMT.101: (see page 752) indexing plungers with rest position.



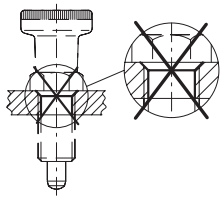
ELESA Original design

Fig.1

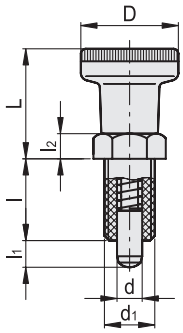


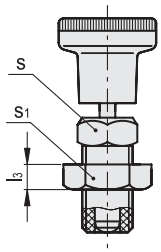
PMT.100-A
PMT.100-SST-A

Fig.2



PMT.100-AK
PMT.100-SST-AK

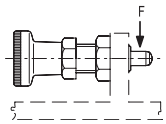




NTT

Code	Description
301083	NTT-M10x1
301085	NTT-M12x1,5
301087	NTT-M16x1,5
301089	NTT-M20x1,5

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PMT.100

Code	Description	d -0.15 -0.1	d1	L	D	l	l1	l2	l3	s	s1	[N]*	[N]#	Max. tightening torque [Nm]	Static load at breakage F [N]	⚖
51501	PMT.100-5-M10x1-A	5	M10x1	23	21	17	5	5	-	12	-	7	17	6	2300	13
51501-C6	PMT.100-5-M10x1-A-C6	5	M10x1	23	21	17	5	5	-	12	-	7	17	6	2300	13
51502	PMT.100-6-M12x1.5-A	6	M12x1.5	28	25	20	6	6	-	14	-	9	24	10	3500	20
51502-C6	PMT.100-6-M12x1,5-A-C6	6	M12x1.5	28	25	20	6	6	-	14	-	9	24	10	3500	20
51511	PMT.100-8-M16x1.5-A	8	M16x1.5	35	31	26	8	8	-	19	-	11	30	18	5900	25
51511-C6	PMT.100-8-M16x1,5-A-C6	8	M16x1.5	35	31	26	8	8	-	19	-	11	30	18	5900	25
51512	PMT.100-10-M20x1.5-A	10	M20x1.5	37	31	33	10	10	-	22	-	19	45	25	7700	32
51512-C6	PMT.100-10-M20x1,5-A-C6	10	M20x1.5	37	31	33	10	10	-	22	-	19	45	25	7700	32
51521	PMT.100-5-M10x1-AK	5	M10x1	23	21	17	5	5	7	12	16	7	17	6	2300	23
51521-C6	PMT.100-5-M10x1-AK-C6	5	M10x1	23	21	17	5	5	7	12	16	7	17	6	2300	23
51522	PMT.100-6-M12x1.5-AK	6	M12x1.5	28	25	20	6	6	8	14	19	9	24	10	3500	33
51522-C6	PMT.100-6-M12x1,5-AK-C6	6	M12x1.5	28	25	20	6	6	8	14	19	9	24	10	3500	33
51531	PMT.100-8-M16x1.5-AK	8	M16x1.5	35	31	26	8	8	10	19	24	11	30	18	5900	50
51531-C6	PMT.100-8-M16x1,5-AK-C6	8	M16x1.5	35	31	26	8	8	10	19	24	11	30	18	5900	50
51532	PMT.100-10-M20x1.5-AK	10	M20x1.5	37	31	33	10	10	11	22	30	19	45	25	7700	69
51532-C6	PMT.100-10-M20x1,5-AK-C6	10	M20x1.5	37	31	33	10	10	11	22	30	19	45	25	7700	69

PMT.100-SST **STAINLESS STEEL**

Code	Description	d -0.15 -0.1	d1	L	D	l	l1	l2	l3	s	s1	[N]*	[N]#	Max. tightening torque [Nm]	Static load at breakage F [N]	⚖
51551	PMT.100-SST-5-M10x1-A	5	M10x1	23	21	17	5	5	-	12	-	7	17	6	1800	13
51551-C6	PMT.100-SST-5-M10x1-A-C6	5	M10x1	23	21	17	5	5	-	12	-	7	17	6	1800	13
51552	PMT.100-SST-6-M12x1.5-A	6	M12x1.5	28	25	20	6	6	-	14	-	9	24	10	2900	20
51552-C6	PMT.100-SST-6-M12x1,5-A-C6	6	M12x1.5	28	25	20	6	6	-	14	-	9	24	10	2900	20
51561	PMT.100-SST-8-M16x1.5-A	8	M16x1.5	35	31	26	8	8	-	19	-	11	30	18	4400	25
51561-C6	PMT.100-SST-8-M16x1,5-A-C6	8	M16x1.5	35	31	26	8	8	-	19	-	11	30	18	4400	25
51562	PMT.100-SST-10-M20x1.5-A	10	M20x1.5	37	31	33	10	10	-	22	-	19	45	25	6800	32
51562-C6	PMT.100-SST-10-M20x1,5-A-C6	10	M20x1.5	37	31	33	10	10	-	22	-	19	45	25	6800	32
51571	PMT.100-SST-5-M10x1-AK	5	M10x1	23	21	17	5	5	7	12	16	7	17	6	1800	23
51571-C6	PMT.100-SST-5-M10x1-AK-C6	5	M10x1	23	21	17	5	5	7	12	16	7	17	6	1800	23
51572	PMT.100-SST-6-M12x1.5-AK	6	M12x1.5	28	25	20	6	6	8	14	19	9	24	10	2900	33
51572-C6	PMT.100-SST-6-M12x1,5-AK-C6	6	M12x1.5	28	25	20	6	6	8	14	19	9	24	10	2900	33
51581	PMT.100-SST-8-M16x1.5-AK	8	M16x1.5	35	31	26	8	8	10	19	24	11	30	18	4400	50
51581-C6	PMT.100-SST-8-M16x1,5-AK-C6	8	M16x1.5	35	31	26	8	8	10	19	24	11	30	18	4400	50
51582	PMT.100-SST-10-M20x1.5-AK	10	M20x1.5	37	31	33	10	10	11	22	30	19	45	25	6800	69
51582-C6	PMT.100-SST-10-M20x1,5-AK-C6	10	M20x1.5	37	31	33	10	10	11	22	30	19	45	25	6800	69

Index C6: indexing plunger with RAL 3000 red colour knob.

***** Spring preload

Spring maximum load

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Indexing plungers

Rest position, SUPER-technopolymer body

THREADED BODY
Glass-fibre reinforced polyamide based (PA) SUPER-tecnopolymer.

PLUNGER
Black-oxide hardened steel or AISI 303 stainless steel.
Suggested tolerance for matching hole = H7.

KNOB
High-resilienceolyamide based (PA) technopolymer, black colour or RAL 3000 red colour (C6), matte finish.

SPRING
AISI 302 stainless steel.

LOCKING NUT NTT
Glass-fibre reinforced polyamide based (PA) SUPER-tecnopolymer.
Available also as accessory sold separately (see table NTT).

STANDARD EXECUTIONS
- **PMT.101-A:** black-oxide steel plunger, without locking nut.
- **PMT.101-AK:** black-oxide steel plunger, with locking nut (supplied not assembled).
- **PMT.101-SST-A:** AISI 303 stainless steel plunger, without locking nut, not magnetic.
- **PMT.101-SST-AK:** AISI 303 stainless steel plunger, with locking nut (supplied not assembled), not magnetic.

FEATURES AND APPLICATIONS
- Lightness and mechanical resistance of the product.
- The SUPER-technopolymer threaded body of the plunger offers a low friction factor to the plunger stroke; no lubricating maintenance is required.
- Anticorrosive material: suitable even in the presence of liquid or humidity (PMT.101-SST).
- Resistant to several cleaning cycles with solvents and other chemical agents, for this reason they are suitable for applications as in the pharmaceutical or food industry.
- The stop toothing (for the rest position), made out of SUPER-technopolymer, protects the device from seizure or wear.

ASSEMBLY INSTRUCTIONS
Make sure that no machining residues are left on the threaded hole for the assembly of PMT.101 indexing plunger (see fig. 1). Do not make any chamfering in the hole (see fig. 2).
SUPER-technopolymer product based on ELESA technology, dimensions according to GN 617 (see page 744) standards as agreed with Otto Ganter GmbH Co. KG.

ANOTHER STANDARD EXECUTION
PMT.100: (see page 750) indexing plungers without rest position.

NTT

Code	Description
301083	NTT-M10x1
301085	NTT-M12x1,5
301087	NTT-M16x1,5
301089	NTT-M20x1,5



ELESA Original design

Fig.1

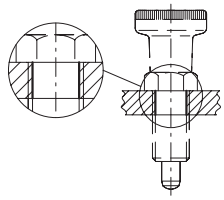
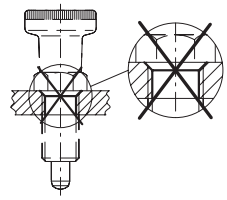
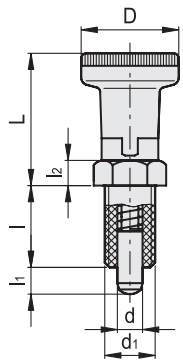


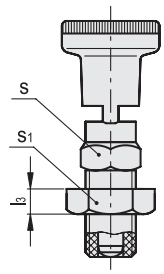
Fig.2



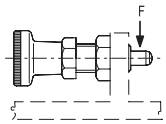
PMT.101-A
PMT.101-SST-A



PMT.101-AK
PMT.101-SST-AK



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PMT.101

Code	Description	d-0.15 -0.1	d1	L	D	l	l1	l2	l3	s	s1	[N]*	[N]#	Max. tightening torque [Nm]	Static load at breakage F [N]	⚖
51601	PMT.101-5-M10x1-A	5	M10x1	29	21	17	5	5	-	12	-	7	17	6	2300	13
51601-C6	PMT.101-5-M10x1-A-C6	5	M10x1	29	21	17	5	5	-	12	-	7	17	6	2300	13
51602	PMT.101-6-M12x1.5-A	6	M12x1.5	35	25	20	6	6	-	14	-	9	24	10	3500	20
51602-C6	PMT.101-6-M12x1,5-A-C6	6	M12x1.5	35	25	20	6	6	-	14	-	9	24	10	3500	20
51611	PMT.101-8-M16x1.5-A	8	M16x1.5	43	31	26	8	8	-	19	-	11	30	18	5900	25
51611-C6	PMT.101-8-M16x1,5-A-C6	8	M16x1.5	43	31	26	8	8	-	19	-	11	30	18	5900	25
51612	PMT.101-10-M20x1.5-A	10	M20x1.5	48	31	33	10	10	-	22	-	19	45	25	7700	32
51612-C6	PMT.101-10-M20x1,5-A-C6	10	M20x1.5	48	31	33	10	10	-	22	-	19	45	25	7700	32
51621	PMT.101-5-M10x1-AK	5	M10x1	29	21	17	5	5	7	12	16	7	17	6	2300	23
51621-C6	PMT.101-5-M10x1-AK-C6	5	M10x1	29	21	17	5	5	7	12	16	7	17	6	2300	23
51622	PMT.101-6-M12x1.5-AK	6	M12x1.5	35	25	20	6	6	8	14	19	9	24	10	3500	33
51622-C6	PMT.101-6-M12x1,5-AK-C6	6	M12x1.5	35	25	20	6	6	8	14	19	9	24	10	3500	33
51631	PMT.101-8-M16x1.5-AK	8	M16x1.5	43	31	26	8	8	10	19	24	11	30	18	5900	50
51631-C6	PMT.101-8-M16x1,5-AK-C6	8	M16x1.5	43	31	26	8	8	10	19	24	11	30	18	5900	50
51632	PMT.101-10-M20x1.5-AK	10	M20x1.5	48	31	33	10	10	11	22	30	19	45	25	7700	69
51632-C6	PMT.101-10-M20x1,5-AK-C6	10	M20x1.5	48	31	33	10	10	11	22	30	19	45	25	7700	69

PMT.101-SST **STAINLESS STEEL**

Code	Description	d-0.15 -0.1	d1	L	D	l	l1	l2	l3	s	s1	[N]*	[N]#	Max. tightening torque [Nm]	Static load at breakage F [N]	⚖
51651	PMT.101-SST-5-M10x1-A	5	M10x1	29	21	17	5	5	-	12	-	7	17	6	1800	13
51651-C6	PMT.101-SST-5-M10x1-A-C6	5	M10x1	29	21	17	5	5	-	12	-	7	17	6	1800	13
51652	PMT.101-SST-6-M12x1.5-A	6	M12x1.5	35	25	20	6	6	-	14	-	9	24	10	2900	20
51652-C6	PMT.101-SST-6-M12x1,5-A-C6	6	M12x1.5	35	25	20	6	6	-	14	-	9	24	10	2900	20
51661	PMT.101-SST-8-M16x1.5-A	8	M16x1.5	43	31	26	8	8	-	19	-	11	30	18	4400	25
51661-C6	PMT.101-SST-8-M16x1,5-A-C6	8	M16x1.5	43	31	26	8	8	-	19	-	11	30	18	4400	25
51662	PMT.101-SST-10-M20x1.5-A	10	M20x1.5	48	31	33	10	10	-	22	-	19	45	25	6800	32
51662-C6	PMT.101-SST-10-M20x1,5-A-C6	10	M20x1.5	48	31	33	10	10	-	22	-	19	45	25	6800	32
51671	PMT.101-SST-5-M10x1-AK	5	M10x1	29	21	17	5	5	7	12	16	7	17	6	1800	23
51671-C6	PMT.101-SST-5-M10x1-AK-C6	5	M10x1	29	21	17	5	5	7	12	16	7	17	6	1800	23
51672	PMT.101-SST-6-M12x1.5-AK	6	M12x1.5	35	25	20	6	6	8	14	19	9	24	10	2900	33
51672-C6	PMT.101-SST-6-M12x1,5-AK-C6	6	M12x1.5	35	25	20	6	6	8	14	19	9	24	10	2900	33
51681	PMT.101-SST-8-M16x1.5-AK	8	M16x1.5	43	31	26	8	8	10	19	24	11	30	18	4400	50
51681-C6	PMT.101-SST-8-M16x1,5-AK-C6	8	M16x1.5	43	31	26	8	8	10	19	24	11	30	18	4400	50
51682	PMT.101-SST-10-M20x1.5-AK	10	M20x1.5	48	31	33	10	10	11	22	30	19	45	25	6800	69
51682-C6	PMT.101-SST-10-M20x1,5-AK-C6	10	M20x1.5	48	31	33	10	10	11	22	30	19	45	25	6800	69

Index C6: indexing plunger with RAL 3000 red colour knob.

***** Spring preload

Spring maximum load

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Indexing plungers

Steel / Stainless Steel, with and without rest position



SPECIFICATION

Types

- Type **B**: without rest position, without lock nut
- Type **BK**: without rest position, with lock nut
- Type **C**: with rest position, without lock nut
- Type **CK**: with rest position, with lock nut
- Type **G**: with threaded rod, without lock nut
- Type **GK**: with threaded rod, with lock nut

Steel

- blackened
- Pin hardened

Stainless Steel AISI 303 **NI**
Pin chemically nickel plated

Knob Plastic (Polyamide PA)

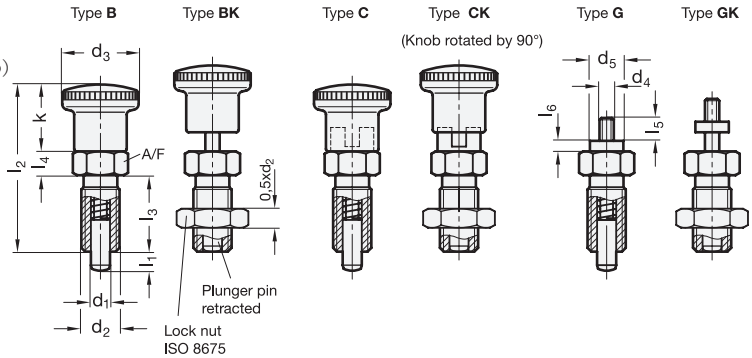
- black, matt
- red **RT** RAL 3000 (add RT on order code)
- not removable

INFORMATION

Indexing plungers GN 817 with rest position (Type C / CK) are used for such applications where the plunger has to stay in its rectracted position.
To achieve this, the knob is rotated by 90° degrees after being retracted. A notch keeps the plunger in this position.
- Range of indexing plungers (see page 738)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)



*Complete with type index of the Indexing plungers (B, BK, C, CK, G or GK)

B **BK** **C** **CK** **G** **GK**

GN 817

Description	d1 Pin -0.02/-0.05 Bore H7	l1	d2	d3	d4	d5	k	l2	l3	l4	l5	l6	A/F	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 817-4-4-*	4	4	M 8 x 1	16	M 3	7	14	35	16	5	4.5	2.5	10	4.5	12	11
GN 817-4-6-*	4	6	M 8 x 1	16	M 3	7	14	35	16	5	4.5	2.5	10	4	12.5	12
GN 817-5-5-*	5	5	M 10 x 1	19	M 4	8	16	40	18	6	5.5	3	12	5	15	19
GN 817-5-8-*	5	8	M 10 x 1	19	M 4	8	16	40	18	6	5.5	3	12	5	18	20
GN 817-6-6-*	6	6	M 12 x 1.5	23	M 5	9	20	48	22	6	7	3.5	14	6.5	19	30
GN 817-6-9-*	6	9	M 12 x 1.5	23	M 5	9	20	48	22	6	7	3.5	14	6	25	31
GN 817-8-8-*	8	8	M 16 x 1.5	28	M 6	10	24	58	26	8	8.5	4	17	8.5	26	64
GN 817-8-12-*	8	12	M 16 x 1.5	28	M 6	10	24	58	26	8	8.5	4	17	8.5	28	65
GN 817-10-12-*	10	12	M 16 x 1.5	28	M 6	10	24	58	26	8	8.5	4	17	9.5	38	65
GN 817-12-15-*	12	15	M 20 x 1.5	33	M 6	12	28.5	71.5	33	10	8.5	4	22	11.5	40	118
GN 817-16-20-*	16	20	M 24 x 2	33	M 8	15	28.5	78.5	38	12	11.5	5	27	13	54	203

Weight type B

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*Complete with type index of the Indexing plungers (B, BK, C, CK, G or GK)

B BK C CK G GK

GN 817-NI

STAINLESS STEEL

Description	d1 Pin -0.02/-0.05 Bore H7	l1	d2	d3	d4	d5	k	l2	l3	l4	l5	l6	A/F	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 817-4-4-*-NI	4	4	M 8 x 1	16	M 3	7	14	35	16	5	4.5	2.5	10	4.5	12	11
GN 817-4-6-*-NI	4	6	M 8 x 1	16	M 3	7	14	35	16	5	4.5	2.5	10	4	12.5	11
GN 817-5-5-*-NI	5	5	M 10 x 1	19	M 4	8	16	40	18	6	5.5	3	12	5	15	19
GN 817-5-8-*-NI	5	8	M 10 x 1	19	M 4	8	16	40	18	6	5.5	3	12	5	18	19
GN 817-6-6-*-NI	6	6	M 12 x 1.5	23	M 5	9	20	48	22	6	7	3.5	14	6.5	19	30
GN 817-6-9-*-NI	6	9	M 12 x 1.5	23	M 5	9	20	48	22	6	7	3.5	14	6	25	30
GN 817-8-8-*-NI	8	8	M 16 x 1.5	28	M 6	10	24	58	26	8	8.5	4	17	8.5	26	63
GN 817-8-12-*-NI	8	12	M 16 x 1.5	28	M 6	10	24	58	26	8	8.5	4	17	8.5	28	63
GN 817-10-12-*-NI	10	12	M 16 x 1.5	28	M 6	10	24	58	26	8	8.5	4	17	9.5	38	66
GN 817-12-15-*-NI	12	15	M 20 x 1.5	33	M 6	12	28.5	71.5	33	10	8.5	4	22	11.5	40	118
GN 817-16-20-*-NI	16	20	M 24 x 2	33	M 8	15	28.5	78.5	38	12	11.5	5	27	13	54	260

*Complete with type index of the Indexing plungers (B, BK, C or CK)

B BK C CK

GN 817 (red knob)

Description	d1 Pin -0.02/-0.05 Bore H7	l1	d2	d3	k	l2	l3	l4	A/F	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 817-4-4-*-RT	4	4	M 8 x 1	16	14	35	16	5	10	4.5	12	11
GN 817-4-6-*-RT	4	6	M 8 x 1	16	14	35	16	5	10	4	12.5	12
GN 817-5-5-*-RT	5	5	M 10 x 1	19	16	40	18	6	12	5	15	19
GN 817-5-8-*-RT	5	8	M 10 x 1	19	16	40	18	6	12	5	18	19
GN 817-6-6-*-RT	6	6	M 12 x 1.5	23	20	48	22	6	14	6.5	19	31
GN 817-6-9-*-RT	6	9	M 12 x 1.5	23	20	48	22	6	14	6	25	30
GN 817-8-8-*-RT	8	8	M 16 x 1.5	28	24	58	26	8	17	8.5	26	63
GN 817-8-12-*-RT	8	12	M 16 x 1.5	28	24	58	26	8	17	8.5	28	65
GN 817-10-12-*-RT	10	12	M 16 x 1.5	28	24	58	26	8	17	9.5	38	70
GN 817-12-15-*-RT	12	15	M 20 x 1.5	33	28.5	71.5	33	10	22	11.5	40	118
GN 817-16-20-*-RT	16	20	M 24 x 2	33	28.5	78.5	38	12	27	13	54	203

GN 817-NI (red knob)

STAINLESS STEEL

Description	d1 Pin -0.02/-0.05 Bore H7	l1	d2	d3	k	l2	l3	l4	A/F	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 817-4-4-*-NI-RT	4	4	M 8 x 1	16	14	35	16	5	10	4.5	12	12
GN 817-4-6-*-NI-RT	4	6	M 8 x 1	16	14	35	16	5	10	4	12.5	12
GN 817-5-5-*-NI-RT	5	5	M 10 x 1	19	16	40	18	6	12	5	15	19
GN 817-5-8-*-NI-RT	5	8	M 10 x 1	19	16	40	18	6	12	5	18	19
GN 817-6-6-*-NI-RT	6	6	M 12 x 1.5	23	20	48	22	6	14	6.5	19	30
GN 817-6-9-*-NI-RT	6	9	M 12 x 1.5	23	20	48	22	6	14	6	25	30
GN 817-8-8-*-NI-RT	8	8	M 16 x 1.5	28	24	58	26	8	17	8.5	26	63
GN 817-8-12-*-NI-RT	8	12	M 16 x 1.5	28	24	58	26	8	17	8.5	28	63
GN 817-10-12-*-NI-RT	10	12	M 16 x 1.5	28	24	58	26	8	17	9.5	38	69
GN 817-12-15-*-NI-RT	12	15	M 20 x 1.5	33	28.5	71.5	33	10	22	11.5	40	118
GN 817-16-20-*-NI-RT	16	20	M 24 x 2	33	28.5	78.5	38	12	27	13	54	200

Weight type B

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Indexing plungers

Steel / Stainless Steel, removable, with or without rest position



SPECIFICATION

Types

- Type **B**: without rest position, without lock nut
- Type **BK**: without rest position, with lock nut
- Type **C**: with rest position, without lock nut
- Type **CK**: with rest position, with lock nut

Version in Steel ST

blackened

- Threaded body
- Lock nut

Version in Stainless Steel NI

- Threaded body, AISI 303
- Lock nut, AISI 304

Pin
Stainless Steel AISI 303

Countersunk screw DIN 7991
Stainless Steel AISI 304

Knob

- Plastic (Polyamide PA)
- black, matt

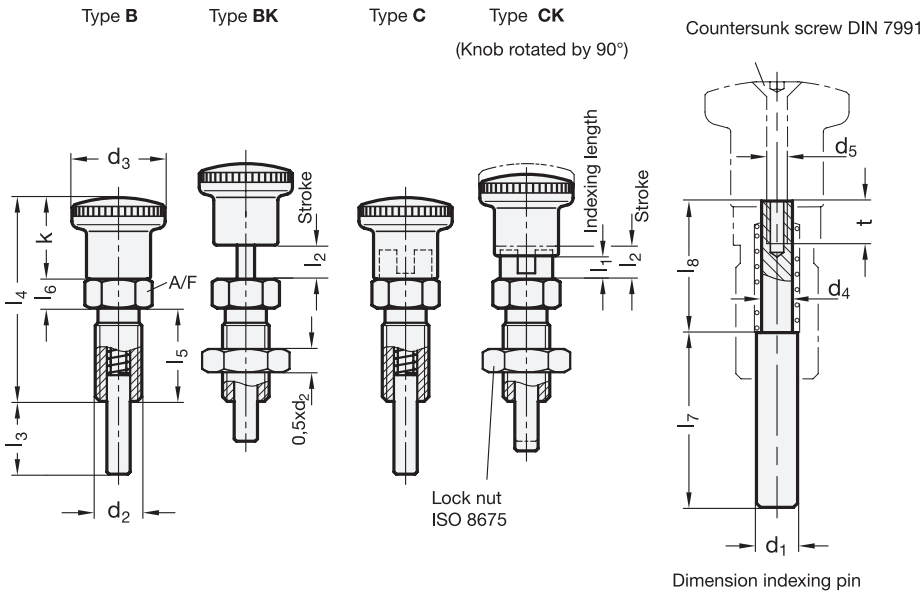
INFORMATION

Indexing plungers GN 817.8 have been designed such that special versions of the indexing pins can also be made economically in smaller unit quantities.
If reqired, the indexing pins can be machined or made by the user as shown in the drawing above. They are assembled with a countersunk screw and can therefore be assembled several times. All parts are supplied in a non-assembled set.
The indexing plungers type C / CK are used for such applications where the plunger has to stay in its retracted position. To achieve this, the knob is rotated by 90° degrees after being retracted. A notch keeps the plunger in this position.

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)

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*Complete with type index of the Indexing plungers (B, BK, C or CK)

B BK C CK

GN 817.8

Description	d1 Pin -0.02/-0.05 Bore H7	l1	l2	d2	d3	d4	d5	k	l3	l4	l5	l6	l7	l8	t	A/F	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 817.8-7-6-*-ST	7	6	8	M12x1.5	23	5	M3	20	20	48	22	6	31	17.6	7	14	6.5	19	20
GN 817.8-7-9-*-ST	7	9	11	M12x1.5	23	5	M3	20	20	48	22	6	27.5	21.1	7	14	6	25	53
GN 817.8-8-8-*-ST	8	8	10	M16x1.5	28	6	M4	24	25	58	26	8	39	20.6	8	17	8.5	26	72
GN 817.8-8-12-*-ST	8	12	14	M16x1.5	28	6	M4	24	25	58	26	8	34	25.6	8	17	8.5	28	93
GN 817.8-10-12-*-ST	10	12	14	M16x1.5	28	7.5	M4	24	30	58	26	8	39.2	25.4	8	17	9.5	38	75
GN 817.8-12-15-*-ST	12	15	17	M20x1.5	33	9	M6	28.5	35	71.5	33	10	47.3	31.3	13.5	22	11.5	40	147

GN 817.8-NI **STAINLESS STEEL**

Description	d1 Pin -0.02/-0.05 Bore H7	l1	l2	d2	d3	d4	d5	k	l3	l4	l5	l6	l7	l8	t	A/F	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 817.8-7-6-*-NI	7	6	8	M12x1.5	23	5	M3	20	20	48	22	6	31	17.6	7	14	6.5	19	20
GN 817.8-7-9-*-NI	7	9	11	M12x1.5	23	5	M3	20	20	48	22	6	27.5	21.1	7	14	6	25	53
GN 817.8-8-8-*-NI	8	8	10	M16x1.5	28	6	M4	24	25	58	26	8	39	20.6	8	17	8.5	26	68
GN 817.8-8-12-*-NI	8	12	14	M16x1.5	28	6	M4	24	25	58	26	8	34	25.6	8	17	8.5	28	75
GN 817.8-10-12-*-NI	10	12	14	M16x1.5	28	7.5	M4	24	30	58	26	8	39.2	25.4	8	17	9.5	38	84
GN 817.8-12-15-*-NI	12	15	17	M20x1.5	33	9	M6	28.5	35	71.5	33	10	47.3	31.3	13.5	22	11.5	40	148

Weight type B

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Indexing plungers

Steel / Stainless Steel, with long knob, with and without rest position



SPECIFICATION

Types

- Type **B**: without rest position, without lock nut
- Type **BK**: without rest position, with lock nut
- Type **C**: with rest position, without lock nut
- Type **CK**: with rest position, with lock nut

Version in Steel

- blackened
- Pin hardened

Version in Stainless Steel NI

- AISI 303
- Pin chemically nickel plated

Knob Plastic (Polyamide PA)

- black, matt
- not removable

INFORMATION

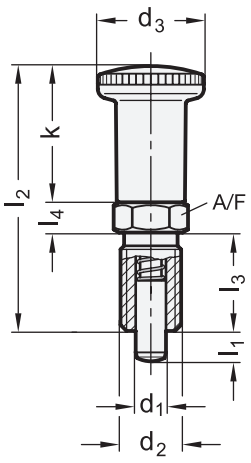
Indexing plungers GN 817.2 correspond to GN 817 (see page 754), they only differ by a longer knob.
Type C / CK are used for such applications where the plunger has to stay in its retracted position. To achieve this, the knob is roated by 90° degrees after being retracted. A notch keeps the plunger in this position.

- Range of indexing plungers (see page 738)

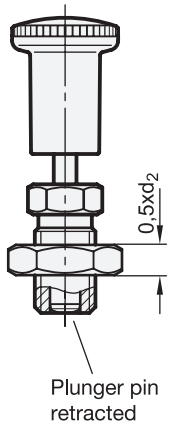
TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)

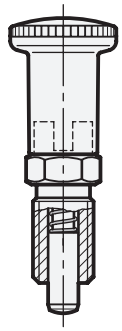
Type **B**



Type **BK**

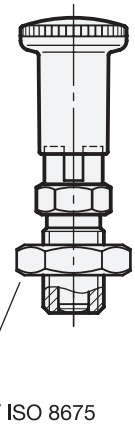


Type **C**



Type **CK**

(Knob rotated 90°)



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* Complete with type index of the Indexing plungers (B, BK, C or CK)

B **BK** **C** **CK**

GN 817.2

Description	d1 -0.02/-0.05	l1 min.	d2	d3	k	l2	l3	l4	A/F	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 817.2-4-4-*	4	4	M 8 x 1	16	21	42	16	5	10	4.5	12	11
GN 817.2-4-6-*	4	6	M 8 x 1	16	21	42	16	5	10	4	12.5	14
GN 817.2-5-5-*	5	5	M 10 x 1	19	24	48	18	6	12	5	15	20
GN 817.2-5-8-*	5	8	M 10 x 1	19	24	48	18	6	12	5	18	24
GN 817.2-6-6-*	6	6	M 12 x 1.5	23	30	58	22	6	14	6.5	19	40
GN 817.2-6-9-*	6	9	M 12 x 1.5	23	30	58	22	6	14	6	25	44
GN 817.2-8-8-*	8	8	M 16 x 1.5	28	36	70	26	8	17	8.5	26	60
GN 817.2-8-12-*	8	12	M 16 x 1.5	28	36	70	26	8	17	8.5	28	64
GN 817.2-10-12-*	10	12	M 16 x 1.5	28	36	70	26	8	17	9.5	38	70
GN 817.2-12-15-*	12	15	M 20 x 1.5	28	36	79	33	10	22	11.5	40	120

GN 817.2-NI **STAINLESS STEEL**

Description	d1 -0.02/-0.05	l1 min.	d2	d3	k	l2	l3	l4	A/F	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 817.2-4-4-*-NI	4	4	M 8 x 1	16	21	42	16	5	10	4.5	12	11
GN 817.2-4-6-*-NI	4	6	M 8 x 1	16	21	42	16	5	10	4	12.5	16
GN 817.2-5-5-*-NI	5	5	M 10 x 1	19	24	48	18	6	12	5	15	19
GN 817.2-5-8-*-NI	5	8	M 10 x 1	19	24	48	18	6	12	5	18	24
GN 817.2-6-6-*-NI	6	6	M 12 x 1.5	23	30	58	22	6	14	6.5	19	31
GN 817.2-6-9-*-NI	6	9	M 12 x 1.5	23	30	58	22	6	14	6	25	40
GN 817.2-8-8-*-NI	8	8	M 16 x 1.5	28	36	70	26	8	17	8.5	26	64
GN 817.2-8-12-*-NI	8	12	M 16 x 1.5	28	36	70	26	8	17	8.5	28	70
GN 817.2-10-12-*-NI	10	12	M 16 x 1.5	28	36	70	26	8	17	9.5	38	80
GN 817.2-12-15-*-NI	12	15	M 20 x 1.5	28	36	79	33	10	22	11.5	40	121

Weight type B

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Indexing plungers

without thread, without rest position

SPECIFICATION

Types

- Type **A**: with knob
- Type **G**: with threaded rod

Steel

- weldable
- blackened
- Pin hardened

Knob Plastic (Polyamide PA)

- black, matt
- not removable

INFORMATION

Indexing plungers GN 618 without thread are for applications where welding, resin bonding (Loctite) or clamping is favoured.
Type G has been designed for applications where the indexing plunger is not operated with the standard knob.
The indexing plungers are designed such that the plunger set in the end position (spring is "on block") can also absorb axial forces. For applications in which these forces are substantially above the tensile force applied by the operator (Type G), additional information can be submitted on request.

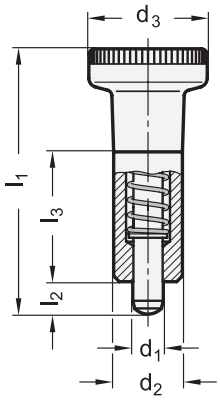
- Range of indexing plungers (see page 738)

TECHNICAL INFORMATION

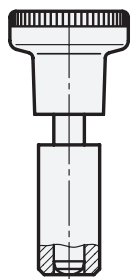
- ISO-Fundamental Tolerances (see page A21)
- Plastic characteristics (see page A2)



Type **A**

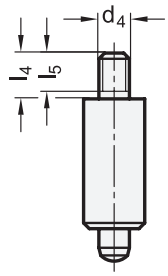


Type **A**



Plunger pin retracted

Type **G**



GN 618

Description	d1 Pin -0.02/-0.05 Bore G7	d2 h9	d3	d4	l1 ≈	l2	l3	l4	l5	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 618-5-A	5	12	21	-	45	5	22	-	-	7	17	30
GN 618-6-A	6	14	25	-	54.5	6	26	-	-	9	24	40
GN 618-8-A	8	18	31	-	69	8	34	-	-	11	30	84
GN 618-5-G	5	12	-	M 5	-	5	22	6	4.5	7	17	25
GN 618-6-G	6	14	-	M 6	-	6	26	10	8	9	24	37
GN 618-8-G	8	18	-	M 8	-	8	34	12	10	11	30	69

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GN 817.4

Indexing plungers

Steel / Stainless Steel, with T-Handle, with and without rest position



SPECIFICATION

Types

- Type **B**: without rest position, without lock nut
- Type **BK**: without rest position, with lock nut
- Type **C**: with rest position, without lock nut
- Type **CK**: with rest position, with lock nut

Version in Steel

- blackened
- Pin hardened and grounded

Version in Stainless Steel NI

- AISI 303
- Pin chemically nickel plated

T-Handle
Plastic Polyamide (PA)

- not removable
- black, matt

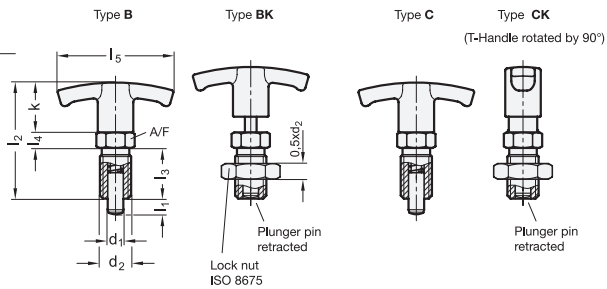
INFORMATION

Indexing plungers GN 817.4 are similar to GN 817 (see page 754) but with a T-handle instead of a round head.
This shape allows better visual orientation of the indexing position of Type C and is advantageouse when greater unlocking forces occur.
Type C with rest position is used in such applications where the plunger must not protrude continually. In that case the knob is retracted and afterwards turned by 90°. A notch keeps the plunger in this position.

- Range of indexing plungers (see page 738)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



*Complete with type index of the Indexing plungers (B, BK, C or CK)
B BK C CK

GN 817.4

Description	d1 Pin -0.02/-0.05 Bore H7	l1	d2	k	l2	l3	l4	l5	A/F	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 817.4-6-6-*	6	6	M 12 x 1.5	20	48	22	6	54	14	6.5	19	31
GN 817.4-6-9-*	6	9	M 12 x 1.5	20	48	22	6	54	14	6	25	34
GN 817.4-8-8-*	8	8	M 16 x 1.5	25	59	26	8	59	17	8.5	26	64
GN 817.4-8-12-*	8	12	M 16 x 1.5	25	59	26	8	59	17	8.5	28	65
GN 817.4-10-12-*	10	12	M 16 x 1.5	25	59	26	8	59	17	9.5	38	72
GN 817.4-12-15-*	12	15	M 20 x 1.5	25	68	33	10	59	22	11.5	40	120

GN 817.4-NI **STAINLESS STEEL**

Description	d1 Pin -0.02/-0.05 Bore H7	l1	d2	k	l2	l3	l4	l5	A/F	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 817.4-6-6-*-NI	6	6	M 12 x 1.5	20	48	22	6	54	14	6.5	19	31
GN 817.4-6-9-*-NI	6	9	M 12 x 1.5	20	48	22	6	54	14	6	25	35
GN 817.4-8-8-*-NI	8	8	M 16 x 1.5	25	59	26	8	59	17	8.5	26	64
GN 817.4-8-12-*-NI	8	12	M 16 x 1.5	25	59	26	8	59	17	8.5	28	69
GN 817.4-10-12-*-NI	10	12	M 16 x 1.5	25	59	26	8	59	17	9.5	38	72
GN 817.4-12-15-*-NI	12	15	M 20 x 1.5	25	68	33	10	59	22	11.5	40	120

Weight type B

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Indexing plungers

with or without rest position



SPECIFICATION

Types

- Type **B**: without rest position
- Type **C**: with rest position

Guide
Zinc die casting
plastic coated
black, matt textured finish

Pin
Stainless Steel AISI 303
- chemically nickel plated

Knob
Plastic (Polyamide PA)

- black, matt
- red **RT** RAL 3000, add RT on order code
- not removable

INFORMATION

Indexing plungers GN 817.1 (Type C) are used for such applications wehere the plunger has to stay in its retracted position. To achieve this, the knob is rotated 90° degrees after being retracted. A notch keeps the plunger in this position.

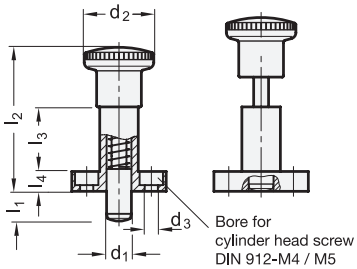
ON REQUEST

- Indexing plungers with T-Handle

TECHNICAL INFORMATION

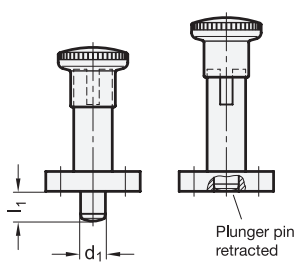
- Plastic characteristics (see page A2)
- Stainless Steel characteristics (see page A26)

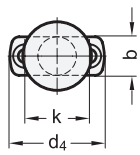
Type **B**



Type **C**

(Knob rotated by 90°)





*Complete with type index of the Indexing plungers (B or C)

B without rest position

C with rest position

GN 817.1

Description	d1 Pin -0.02/-0.05 Bore +0.10/+0.03	l1	b	d2	d3	d4	k	l2	l3	l4	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 817.1-6-6-*	6	6	13	23	4.3	34	22	48	22	6	6.5	19	38
GN 817.1-6-6-*-RT	6	6	13	23	4.3	34	22	48	22	6	6.5	19	39
GN 817.1-6-9-*	6	9	13	23	4.3	34	22	48	22	6	6	25	42
GN 817.1-6-9-*-RT	6	9	13	23	4.3	34	22	48	22	6	6	25	41
GN 817.1-8-8-*	8	8	16	28	5.3	38	26	58	26	8	8.5	26	68
GN 817.1-8-8-*-RT	8	8	16	28	5.3	38	26	58	26	8	8.5	26	67
GN 817.1-8-12-*	8	12	16	28	5.3	38	26	58	26	8	8.5	28	74
GN 817.1-8-12-*-RT	8	12	16	28	5.3	38	26	58	26	8	8.5	28	73
GN 817.1-10-12-*	10	12	16	28	5.3	38	26	58	26	8	9.5	38	76
GN 817.1-10-12-*-RT	10	12	16	28	5.3	38	26	58	26	8	9.5	38	75

Weight type B

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GN 817.9

Indexing plungers

removable, with or without rest position

SPECIFICATION

Types

- Type **B**: without rest position
- Type **C**: with rest position

Guide
Zinc die casting
plastic coated
black, textured finish

Pin
Stainless Steel AISI 303

Countersunk screw DIN 7991
Stainless Steel AISI 304

Knob
Plastic (Polyamide PA)
black, matt

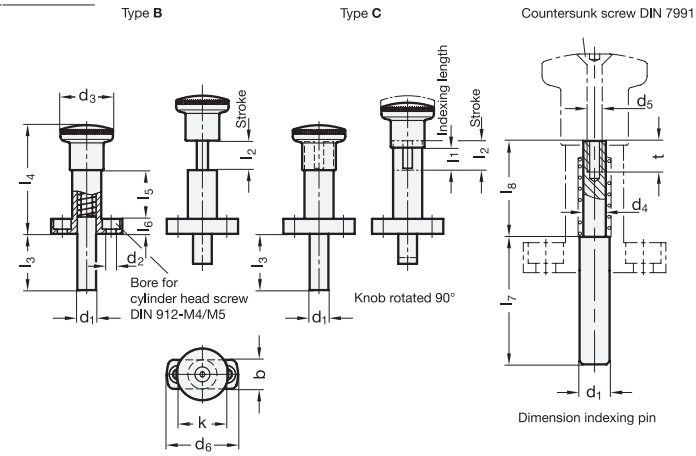


INFORMATION

Indexing plungers GN 817.9 have been designed such that special versions of the indexing pins can also be made economically in smaller unit quantities.
If reqired, the indexing pins can be machined or made by the user as shown in the drawing above. They are assembled with a countersunk screw and can therefore be assembled several times. All parts are supplied in a non-assembled set.
The indexing plungers type C are used for such applications where the plunger has to stay in its retracted position. To achieve this, the knob is rotated by 90° degrees after being retracted. A notch keeps the plunger in this position.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)



GN 817.9

Description	d1 Pin -0.02/-0.05 Bore +0.10/+0.03	l1	l2	b	d2	d3	d4	d5	d6	k	l3	l4	l5	l6	l7	l8	t	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 817.9-7-6-B	7	6	8	13	4.3	23	5	M 3	34	22	20	48	22	6	31	17.6	7	6.5	19	47
GN 817.9-7-9-B	7	9	11	13	4.3	23	5	M 3	34	22	20	48	22	6	27.5	21.1	7	6	25	48
GN 817.9-8-8-B	8	8	10	16	5.3	28	6	M 4	38	26	25	58	26	8	39	20.6	8	8.5	26	78
GN 817.9-8-12-B	8	12	14	16	5.3	28	6	M 4	38	26	25	58	26	8	34	25.6	8	8.5	28	79
GN 817.9-10-12-B	10	12	14	16	5.3	28	7.5	M 4	38	26	30	58	26	8	39.2	25.4	8	9.5	38	85
GN 817.9-7-6-C	7	6	8	13	4.3	23	5	M 3	34	22	20	48	22	6	31	17.6	7	6.5	19	49
GN 817.9-7-9-C	7	9	11	13	4.3	23	5	M 3	34	22	20	48	22	6	27.5	21.1	7	6	25	50
GN 817.9-8-8-C	8	8	10	16	5.3	28	6	M 4	38	26	25	58	26	8	39.	20.6	8	8.5	26	81
GN 817.9-8-12-C	8	12	14	16	5.3	28	6	M 4	38	26	25	58	26	8	34	25.6	8	8.5	28	82
GN 817.9-10-12-C	10	12	14	16	5.3	28	7.5	M 4	38	26	30	58	26	8	39.5	25.4	8	9.5	38	90

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Indexing plungers

Steel / Stainless Steel, with and without rest position



SPECIFICATION

Types

- Type **A**: withl lifting ring, without lock nut
- Type **AK**: with lifting ring, with lock nut
- Type **B**: without rest position (Knob), without lock nut
- Type **BK**: without rest position (Knob), with lock nut
- Type **C**: with rest position (Knob), without lock nut
- Type **CK**: with rest position (Knob), with lock nut
- Type **D**: with wire loop, without lock nut
- Type **DK**: with wire loop, with lock nut

Threaded body

- Version in Steel zinc plated, blue passivated **ST**
- Version in Stainless Steel AISI 303 **NI**

Plunger
Stainless Steel AISI 303

Spring
Stainless Steel AISI 301

Lifting ring / Wire loop
Stainless Steel AISI 301

Knob Plastic (Polyamide PA)

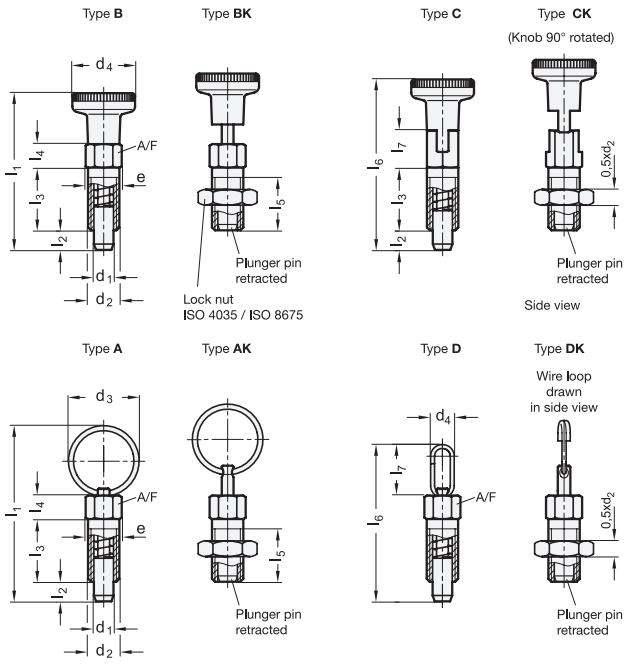
- black, matt
- not removable

INFORMATION

GN 717 Indexing plungers are characterized by small dimensions. These indexing plungers are universally applicable due to their prevention of misalignments and positioning errors of the mating indexing bores.
The type C / CK with rest position are used for such applications where the plunger has to stay in its retracted position.
During assembly, the max. tightening torques shown in the table should not be exceeded when securing the lock nut.
- Range of indexing plungers (see page 738)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)



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GN 717

Indexing plungers

*Complete with Material of the Indexing plungers (ST or NI)

ST Steel

NI Stainless Steel

GN 717

Description	d1 Bore +0.03/+0.08 Plunger 0.05	d2	d3	d4	e	l1	l2	l3	l4	l5 min.	l6	l7	A/F	Max. tighteningtorque in Nm	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 717-3-M6-A-*	3	M 6	14	-	6.9	-	3.5	12	4.5	10	-	-	6	2	3	12	5
GN 717-3-M6x0,75-A-*	3	M 6 x 0.75	14	-	6.9	-	3.5	12	4.5	10	-	-	6	3	3	12	5
GN 717-4-M6-A-*	4	M 6	14	-	6.9	-	4	12	4.5	10	-	-	6	2	3	12	5
GN 717-4-M8x1-A-*	4	M 8 x 1	14	-	9.2	-	4.5	16	6	13.5	-	-	8	8	5	24	10
GN 717-5-M8-A-*	5	M 8	18	-	9.2	-	5	16	6	13.5	-	-	8	7	5	24	9
GN 717-5-M8x1-A-*	5	M 8 x 1	18	-	9.2	-	5	16	6	13.5	-	-	8	7	5	24	14
GN 717-5-M10x1-A-*	5	M 10 x 1	18	-	11.5	-	5	16	6	13.5	-	-	10	22	5	24	14
GN 717-6-M10-A-*	6	M 10	24	-	11.5	-	6	20	7.5	17	-	-	10	15	5	21	18
GN 717-6-M12x1,5-A-*	6	M 12 x 1.5	24	-	13.8	-	6	20	7.5	16.5	-	-	12	38	5	21	24
GN 717-8-M12-A-*	8	M 12	30	-	13.8	-	8	24	9	20.5	-	-	12	20	6	22	31
GN 717-8-M12x1,5-A-*	8	M 12 x 1.5	30	-	13.8	-	8	24	9	20.5	-	-	12	20	6	22	33
GN 717-8-M16x1,5-A-*	8	M 16 x 1.5	30	-	19.6	-	8	24	9	20.5	-	-	17	80	6	22	55
GN 717-10-M16x1,5-A-*	10	M 16 x 1.5	30	-	19.6	-	10	26	9	22.5	-	-	17	80	4	25	56
GN 717-3-M6-AK-*	3	M 6	14	-	6.9	-	3.5	12	4.5	10	-	-	6	2	3	12	3
GN 717-3-M6x0,75-AK-*	3	M 6 x 0.75	14	-	6.9	-	3.5	12	4.5	10	-	-	6	3	3	12	6
GN 717-4-M6-AK-*	4	M 6	14	-	6.9	-	4	12	4.5	10	-	-	6	2	3	12	6
GN 717-4-M8x1-AK-*	4	M 8 x 1	18	-	9.2	-	4.5	16	6	13.5	-	-	8	8	5	24	12
GN 717-5-M8-AK-*	5	M 8	18	-	9.2	-	5	16	6	13.5	-	-	8	7	5	24	12
GN 717-5-M8x1-AK-*	5	M 8 x 1	18	-	9.2	-	5	16	6	13.5	-	-	8	7	5	24	14
GN 717-5-M10x1-AK-*	5	M 10 x 1	18	-	11.5	-	5	16	6	13.5	-	-	10	22	5	24	19
GN 717-6-M10-AK-*	6	M 10	24	-	11.5	-	6	20	7.5	17	-	-	10	15	5	21	23
GN 717-6-M12x1,5-AK-*	6	M 12 x 1.5	24	-	13.8	-	6	20	7.5	16.5	-	-	12	38	5	21	31
GN 717-8-M12-AK-*	8	M 12	30	-	13.8	-	8	24	9	20.5	-	-	12	20	6	22	39
GN 717-8-M12x1,5-AK-*	8	M 12 x 1.5	30	-	13.8	-	8	24	9	20.5	-	-	12	20	6	22	40
GN 717-8-M16x1,5-AK-*	8	M 16 x 1.5	30	-	19.6	-	8	24	9	20.5	-	-	17	80	6	22	71
GN 717-10-M16x1,5-AK-*	10	M 16 x 1.5	30	-	19.6	-	10	26	9	22.5	-	-	17	80	4	25	81
GN 717-3-M6-B-*	3	M 6	-	12	6.9	30	3.5	12	4.5	10	-	-	6	2	3	12	4
GN 717-3-M6x0,75-B-*	3	M 6 x 0.75	-	12	6.9	30	3.5	12	4.5	10	-	-	6	3	3	12	5
GN 717-4-M6-B-*	4	M 6	-	12	6.9	30.5	4	12	4.5	10	-	-	6	2	3	12	5
GN 717-4-M8x1-B-*	4	M 8 x 1	-	16	9.2	39.5	4.5	16	6	13.5	-	-	8	8	5	24	10
GN 717-5-M8-B-*	5	M 8	-	16	9.2	40	5	16	6	13.5	-	-	8	7	5	24	10
GN 717-5-M8x1-B-*	5	M 8 x 1	-	16	9.2	40	5	16	6	13.5	-	-	8	7	5	24	10
GN 717-5-M10x1-B-*	5	M 10 x 1	-	18	11.5	42.5	5	16	6	13.5	-	-	10	22	5	24	15
GN 717-6-M10-B-*	6	M 10	-	18	11.5	49	6	20	7.5	17	-	-	10	15	5	21	19
GN 717-6-M12x1,5-B-*	6	M 12 x 1.5	-	21	13.8	52	6	20	7.5	16.5	-	-	12	38	5	21	27
GN 717-8-M12-B-*	8	M 12	-	21	13.8	59	8	24	9	20.5	-	-	12	20	6	22	32
GN 717-8-M12x1,5-B-*	8	M 12 x 1.5	-	21	13.8	59	8	24	9	20.5	-	-	12	20	6	22	33
GN 717-8-M16x1,5-B-*	8	M 16 x 1.5	-	25	19.6	63.5	8	24	9	20.5	-	-	17	80	6	22	55
GN 717-10-M16x1,5-B-*	10	M 16 x 1.5	-	25	19.6	67.5	10	26	9	22.5	-	-	17	80	4	25	19
GN 717-3-M6-BK-*	3	M 6	-	12	6.9	30	3.5	12	4.5	10	-	-	6	2	3	12	6
GN 717-3-M6x0,75-BK-*	3	M 6 x 0.75	-	12	6.9	30	3.5	12	4.5	10	-	-	6	3	3	12	6
GN 717-4-M6-BK-*	4	M 6	-	12	6.9	30.5	4	12	4.5	10	-	-	6	2	3	12	6
GN 717-4-M8x1-BK-*	4	M 8 x 1	-	16	9.2	39.5	4.5	16	6	13.5	-	-	8	8	5	24	13
GN 717-5-M8-BK-*	5	M 8	-	16	9.2	40	5	16	6	13.5	-	-	8	7	5	24	13
GN 717-5-M8x1-BK-*	5	M 8 x 1	-	16	9.2	40	5	16	6	13.5	-	-	8	7	5	24	13
GN 717-5-M10x1-BK-*	5	M 10 x 1	-	18	11.5	42.5	5	16	6	13.5	-	-	10	22	5	24	21
GN 717-6-M10-BK-*	6	M 10	-	18	11.5	49	6	20	7.5	17	-	-	10	15	5	21	24
GN 717-6-M12x1,5-BK-*	6	M 12 x 1.5	-	21	13.8	52	6	20	7.5	16.5	-	-	12	38	5	21	36
GN 717-8-M12-BK-*	8	M 12	-	21	13.8	59	8	24	9	20.5	-	-	12	20	6	22	41
GN 717-8-M12x1,5-BK-*	8	M 12 x 1.5	-	21	13.8	59	8	24	9	20.5	-	-	12	20	6	22	44
GN 717-8-M16x1,5-BK-*	8	M 16 x 1.5	-	25	19.6	63.5	8	24	9	20.5	-	-	17	80	6	22	71
GN 717-10-M16x1,5-BK-*	10	M 16 x 1.5	-	25	19.6	67.5	10	26	9	22.5	-	-	17	80	4	25	67

Weight ST

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GN 717

Indexing plungers

*Complete with Material of the Indexing plungers (ST or NI)

ST Steel
NI Stainless Steel

GN 717

Description	d1 Bore +0.03/+0.08 Plunger 0.05	d2	d3	d4	e	l1	l2	l3	l4	l5 min.	l6	l7	A/F	Max. tigh-tening torque in Nm	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 717-3-M6-C-*	3	M 6	-	12	6.9	-	3.5	12	-	10	32.5	7	6	2	3	12	5
GN 717-3-M6x0,75-C-*	3	M 6 x 0.75	-	12	6.9	-	3.5	12	-	10	32.5	7	6	3	3	12	6
GN 717-4-M6-C-*	4	M 6	-	12	6.9	-	4	12	-	10	33	7	6	2	3	12	5
GN 717-4-M8x1-C-*	4	M 8 x 1	-	16	9.2	-	4.5	16	-	13.5	43	9.5	8	8	5	24	11
GN 717-5-M8-C-*	5	M 8	-	16	9.2	-	5	16	-	13.5	43.5	9.5	8	7	5	24	11
GN 717-5-M8x1-C-*	5	M 8 x 1	-	16	9.2	-	5	16	-	13.5	43.5	9.5	8	7	5	24	11
GN 717-5-M10x1-C-*	5	M 10 x 1	-	18	11.5	-	5	16	-	13.5	46	9.5	10	22	5	24	17
GN 717-6-M10-C-*	6	M 10	-	18	11.5	-	6	20	-	17	52	10.5	10	15	5	21	19
GN 717-6-M12x1,5-C-*	6	M 12 x 1.5	-	21	13.8	-	6	20	-	16.5	55	10.5	12	38	5	21	28
GN 717-8-M12-C-*	8	M 12	-	21	13.8	-	8	24	-	20.5	63.5	13.5	12	20	6	22	33
GN 717-8-M12x1,5-C-*	8	M 12 x 1.5	-	21	13.8	-	8	24	-	20.5	63.5	13.5	12	20	6	22	34
GN 717-8-M16x1,5-C-*	8	M 16 x 1.5	-	25	19.6	-	8	24	-	20.5	68	13.5	17	80	6	22	60
GN 717-10-M16x1,5-C-*	10	M 16 x 1.5	-	25	19.6	-	10	26	-	22.5	72.5	14	17	80	4	25	66
GN 717-3-M6-CK-*	3	M 6	-	12	6.9	-	3.5	12	-	10	32.5	7	6	2	3	12	7
GN 717-3-M6x0,75-CK-*	3	M 6 x 0,75	-	12	6.9	-	3.5	12	-	10	32.5	7	6	3	3	12	7
GN 717-4-M6-CK-*	4	M 6	-	12	6.9	-	4	12	-	10	33	7	6	2	3	12	6
GN 717-4-M8x1-CK-*	4	M 8 x 1	-	16	9.2	-	4.5	16	-	13.5	43	9.5	8	8	5	24	13
GN 717-5-M8-CK-*	5	M 8	-	16	9.2	-	5	16	-	13.5	43.5	9.5	8	7	5	24	14
GN 717-5-M8x1-CK-*	5	M 8 x 1	-	16	9.2	-	5	16	-	13.5	43.5	9.5	8	7	5	24	14
GN 717-5-M10x1-CK-*	5	M 10 x 1	-	18	11.5	-	5	16	-	13.5	46	9.5	10	22	5	24	20
GN 717-6-M10-CK-*	6	M 10	-	18	11.5	-	6	20	-	17	52	10.5	10	15	5	21	24
GN 717-6-M12x1,5-CK-*	6	M 12 x 1.5	-	21	13.8	-	6	20	-	16.5	55	10.5	12	38	5	21	36
GN 717-8-M12-CK-*	8	M 12	-	21	13.8	-	8	24	-	20.5	63.5	13.5	12	20	6	22	57
GN 717-8-M12x1,5-CK-*	8	M 12 x 1.5	-	21	13.8	-	8	24	-	20.5	63.5	13.5	12	20	6	22	23
GN 717-8-M16x1,5-CK-*	8	M 16 x 1.5	-	25	19.6	-	8	24	-	20.5	68	13.5	17	80	6	22	81
GN 717-10-M16x1,5-CK-*	10	M 16 x 1.5	-	25	19.6	-	10	26	-	22.5	72.5	14	17	80	4	25	84
GN 717-3-M6-D-*	3	M 6	-	6	6.9	-	3.5	12	-	10	32.7	12.9	6	2	3	12	5
GN 717-3-M6x0,75-D-*	3	M 6 x 0.75	-	6	6.9	-	3.5	12	-	10	32.7	12.9	6	3	3	12	6
GN 717-4-M6-D-*	4	M 6	-	6	6.9	-	4	12	-	10	33.2	12.9	6	2	3	12	5
GN 717-4-M8x1-D-*	4	M 8 x 1	-	6	9.2	-	4.5	16	-	13.5	42.5	15.5	8	8	5	24	11
GN 717-5-M8-D-*	5	M 8	-	7.2	9.2	-	5	16	-	13.5	42.5	15.5	8	7	5	24	11
GN 717-5-M8x1-D-*	5	M 8 x 1	-	7.2	9.2	-	5	16	-	13.5	42.5	15.5	8	7	5	24	11
GN 717-5-M10x1-D-*	5	M 10 x 1	-	7.2	11.5	-	5	16	-	13.5	42.5	15.5	10	22	5	24	17
GN 717-6-M10-D-*	6	M 10	-	9.5	11.5	-	6	20	-	17	54.4	15.5	10	15	5	21	19
GN 717-6-M12x1,5-D-*	6	M 12 x 1.5	-	9.5	13.8	-	6	20	-	16.5	54.4	20.9	12	38	5	21	28
GN 717-8-M12-D-*	8	M 12	-	11.8	13.8	-	8	24	-	20.5	67.2	20.9	12	20	6	22	33
GN 717-8-M12x1,5-D-*	8	M 12 x 1.5	-	11.8	13.8	-	8	24	-	20.5	67.2	20.9	12	20	6	22	33
GN 717-8-M16x1,5-D-*	8	M 16 x 1.5	-	11.8	19.6	-	8	24	-	20.5	67.2	25.9	17	80	6	22	52
GN 717-10-M16x1,5-D-*	10	M 16 x 1.5	-	11.8	19.6	-	10	26	-	22.5	70.9	25.9	17	80	4	25	66
GN 717-3-M6-DK-*	3	M 6	-	6	6.9	-	3.5	12	-	10	32.7	12.9	6	2	3	12	7
GN 717-3-M6x0,75-DK-*	3	M 6 x 0,75	-	6	6.9	-	3.5	12	-	10	32.7	12.9	6	3	3	12	7
GN 717-4-M6-DK-*	4	M 6	-	6	6.9	-	4	12	-	10	32.7	12.9	6	2	3	12	6
GN 717-4-M8x1-DK-*	4	M 8 x 1	-	7.2	9.2	-	4.5	16	-	13.5	42.5	15.5	8	8	5	24	13
GN 717-5-M8-DK-*	5	M 8	-	7.2	9.2	-	5	16	-	13.5	42.5	15.5	8	7	5	24	14
GN 717-5-M8x1-DK-*	5	M 8 x 1	-	7.2	9.2	-	5	16	-	13.5	42.5	15.5	8	7	5	24	14
GN 717-5-M10x1-DK-*	5	M 10 x 1	-	7.2	11.5	-	5	16	-	13.5	42.5	15.5	10	22	5	24	20
GN 717-6-M10-DK-*	6	M 10	-	9.5	11.5	-	6	20	-	17	54.5	20.9	10	15	5	21	24
GN 717-6-M12x1,5-DK-*	6	M 12 x 1.5	-	9.5	13.8	-	6	20	-	16.5	54.4	20.9	12	38	5	21	36
GN 717-8-M12-DK-*	8	M 12	-	11.8	13.8	-	8	24	-	20.5	67.2	25.9	12	20	6	22	43
GN 717-8-M12x1,5-DK-*	8	M 12 x 1.5	-	11.8	13.8	-	8	24	-	20.5	67.2	25.9	12	20	6	22	64
GN 717-8-M16x1,5-DK-*	8	M 16 x 1.5	-	11.8	19.6	-	8	24	-	20.5	67.2	25.9	17	80	6	22	81
GN 717-10-M16x1,5-DK-*	10	M 16 x 1.5	-	11.8	19.6	-	10	26	-	22.5	70.9	25.9	17	80	4	25	84

Weight ST

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GN 7017

Indexing plungers

Steel / Stainless Steel, with lever, with and without rest position





SPECIFICATION

Types

- Type **B**: without rest position, without locknut
- Type **BK**: without rest position, with locknut
- Type **C**: with rest position, without locknut
- Type **CK**: with rest position, with locknut

- Version in Steel zinc plated, blue passivated **ST**
- Version in Stainless Steel AISI 303 **NI**

Spring
Stainless Steel AISI 301

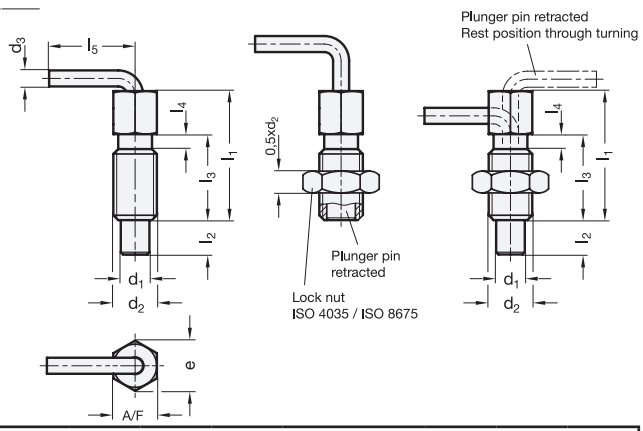
INFORMATION

GN 7017 indexing plungers are activated through a lever and are characterized by small dimensions. These indexing plungers are universally applicable due to their prevention of misalignments and positioning errors of the mating indexing bores.
The type C / CK with rest position are used for such applications where the plunger has to stay in its retracted position.
During assembly, the max. tightening torques shown in the table should not be exceeded when securing the lock nut
- Range of indexing plungers (see page 738)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)
- Load rating information (see page A42)

Type **B** Type **BK** Type **C / CK**



*Complete with type index of the Indexing plungers (B, BK, C or CK)

B **BK** **C** **CK**

GN 7017

Description	d1 Bore +0.03/+0.08 Pin h11	d2	d3	e	l1	l2 min.	l3	l4	l5 min.	A/F	Max. tightening torque in Nm	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 7017-4-M6-*-ST	4	M 6	2.5	6.9	32	9.5	20	2.5	16	6	1.6	3	10	6
GN 7017-5-M8-*-ST	5	M 8	3	9.2	42	12	27	3.1	19.5	8	4.5	3.5	13.5	18
GN 7017-6-M10-*-ST	6	M 10	3.5	11.5	51	14	33.5	3.7	24	10	10	4	16	30
GN 7017-8-M12-*-ST	8	M 12	5	13.8	54	19	31.8	4.3	32	12	13	4	22	46
GN 7017-10-M16-*-ST	10	M 16	5	19.6	77.5	25	50.5	5	33.5	16	42	4	23	110

GN 7017-NI

STAINLESS STEEL

Description	d1 Bore +0.03/+0.08 Pin h11	d2	d3	e	l1	l2 min.	l3	l4	l5 min.	A/F	Max. tightening torque in Nm	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 7017-4-M6-*-NI	4	M 6	2.5	6.9	32	9.5	20	2.5	16	6	1.6	3	10	22
GN 7017-5-M8-*-NI	5	M 8	3	9.2	42	12	27	3.1	19.5	8	4.5	3.5	13.5	30
GN 7017-6-M10-*-NI	6	M 10	3.5	11.5	51	14	33.5	3.7	24	10	10	4	16	38
GN 7017-8-M12-*-NI	8	M 12	5	13.8	54	19	31.8	4.3	32	12	13	4	22	39
GN 7017-10-M16-*-NI	10	M 16	5	19.6	77.5	25	50.5	5	33.5	16	42	4	23	70

Weight type B

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Indexing plungers

Steel / Stainless Steel, with and without rest position

SPECIFICATION

Types

- Type **A**: without rest position, without lock nut
- Type **AK**: without rest position, with lock nut
- Type **C**: with rest position, without lock nut
- Type **CK**: with rest position, with lock nut

Guide (Threaded socket)
Version in Steel **ST**
blackened

Guide (Threaded socket)
Version in Stainless Steel AISI 303 **NI**

Pin
Stainless Steel AISI 303
chemically nickel plated

Spring / Lifting ring
Stainless Steel AISI 301



INFORMATION

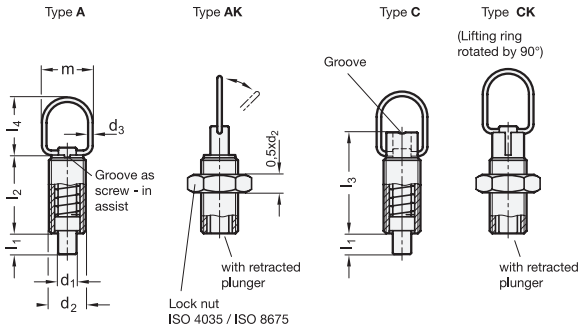
Owing to its shape, the lifting ring of the indexing plungers GN 413 can be used both as a screw-in assist during assembly or as indexing lock (Type C / Type CK).
Indexing plungers with rest position are used when the indexing pin is temporarily not allowed to protrude. After the pin is pulled in, turn the pull ring by 90°. The ring is held in position by an indexing notch.

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)
- Load rating information (see page A42)

*Complete with type index of the Indexing plungers (A, AK, C or CK)

A AK C CK



GN 413

Description	d1 Pin -0.05/-0.10 Bore H7	d2	d3	l1 min.	l2	l3	l4	m	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 413-5-M10-*-ST	5	M 10	1.5	5	22	28	23	18	5	15	11
GN 413-5-M10x1-*-ST	5	M 10 x 1	1.5	5	22	28	23	18	5	15	12
GN 413-6-M12-*-ST	6	M 12	2	6	24	31	25	22	6	21	18
GN 413-6-M12x1,5-*-ST	6	M 12 x 1.5	2	6	24	31	25	22	6	21	18
GN 413-8-M16-*-ST	8	M 16	2	9	34	44	25	22	7	27	45
GN 413-8-M16x1,5-*-ST	8	M 16 x 1.5	2	9	34	44	25	22	7	27	45
GN 413-10-M16-*-ST	10	M 16	2	9	34	44	25	22	7	27	47
GN 413-10-M16x1,5-*-ST	10	M 16 x 1.5	2	9	34	44	25	22	7	27	47

GN 413-NI

STAINLESS STEEL

Description	d1 Pin -0.05/-0.10 Bore H7	d2	d3	l1 min.	l2	l3	l4	m	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 413-5-M10-*-NI	5	M 10	1.5	5	22	28	23	18	5	15	11
GN 413-5-M10x1-*-NI	5	M 10 x 1	1.5	5	22	28	23	18	5	15	12
GN 413-6-M12-*-NI	6	M 12	2	6	24	31	25	22	6	21	18
GN 413-6-M12x1,5-*-NI	6	M 12 x 1.5	2	6	24	31	25	22	6	21	18
GN 413-8-M16-*-NI	8	M 16	2	9	34	44	25	22	7	27	42
GN 413-8-M16x1,5-*-NI	8	M 16 x 1.5	2	9	34	44	25	22	7	27	45
GN 413-10-M16-*-NI	10	M 16	2	9	34	44	25	22	7	27	47
GN 413-10-M16x1,5-*-NI	10	M 16 x 1.5	2	9	34	44	25	22	7	27	47

Weight type A

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GN 607

Indexing plungers

Steel / Stainlees Steel, without rest position

SPECIFICATION

Types

- Type **A**: without lock nut
- Type **AK**: with lock nut

Version in Steel ST

- blackened
- Pin hardened

Version in Stainless Steel AISI 303 NI

Pin chemically nickel plated

Knob
Plastic (Polyamide PA)

- black, matt
- not removable

INFORMATION

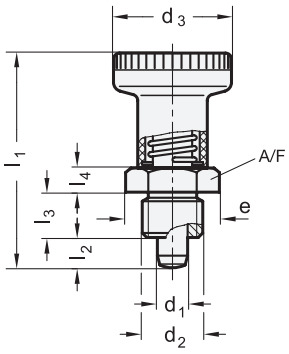
Indexing plungers GN 607 are distinguished for their small dimensions. The extremely low luck nuts GN 909 (see page 809) / GN 909.5 (see page 809) enlarge the mounting options.

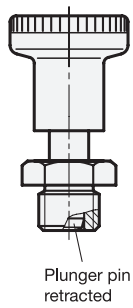
- Range of indexing plungers (see page 738)

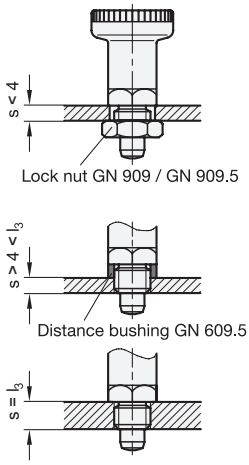
TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)
- Load rating information (see page A42)









GN 607

Description	d1 Pin -0.02/-0.05 Bore H7	d2	d3	e ≈	l1	l2 ±0.5	l3 -0.15	l4	A/F	Spring load in N ≈ initial	Spring load in N ≈ end	Axial load in N	⚖
GN 607-6-A-ST	6	M 12 x 1.5	25	19.6	45	6	10	5	17	11	28	400	34
GN 607-8-A-ST	8	M 16 x 1.5	31	21.9	54	8	12	6	19	15	29	500	61
GN 607-6-AK-ST	6	M 12 x 1.5	25	19.6	45	6	10	5	17	11	28	400	40
GN 607-8-AK-ST	8	M 16 x 1.5	31	21.9	54	8	12	6	19	15	29	500	62

GN 607-NI **STAINLESS STEEL**

Description	d1 Pin -0.02/-0.05 Bore H7	d2	d3	e ≈	l1	l2 ±0.5	l3 -0.15	l4	A/F	Spring load in N ≈ initial	Spring load in N ≈ end	Axial load in N	⚖
GN 607-6-A-NI	6	M 12 x 1.5	25	19.6	45	6	10	5	17	9	25	400	40
GN 607-8-A-NI	8	M 16 x 1.5	31	21.9	54	8	12	6	19	13	26	500	60
GN 607-6-AK-NI	6	M 12 x 1.5	25	19.6	45	6	10	5	17	9	25	400	43
GN 607-8-AK-NI	8	M 16 x 1.5	31	21.9	54	8	12	6	19	13	26	500	70

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Indexing plungers

Steel / Stainless Steel, with rest position





SPECIFICATION

Types

- Type **A**: without lock nut
- Type **AK**: with lock nut

Version in Steel ST

- blackened
- Pin hardened

Version in Stainless Steel AISI 303 NI

Pin chemically nickel plated

Knob
Plastic (Polyamide PA)

- black, matt
- not removable

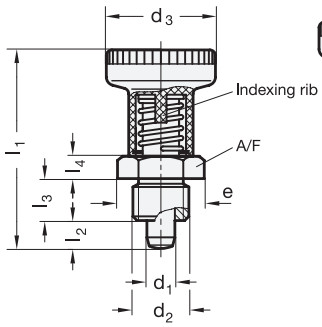
INFORMATION

Indexing plungers GN 607.1 with rest position are used for such applications where the plunger has to stay in its rectracted position. To achieve this, the knob is roated by 90° degrees after being rectracted. A notch keept the plunger in this position.
Indexing plungers GN 607.1 are distinguished for their small dimensions. The extremely low luck nuts GN 909 (see page 809) / GN 909.5 (see page 809) enlarge the mounting options. The locking tab is an integral part of the knob thus giving reliable operations at all times.

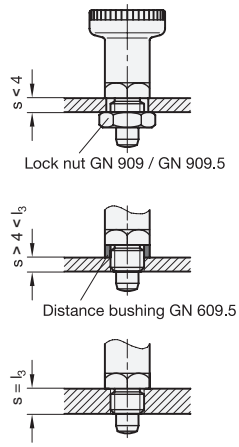
- Range of indexing plungers (see page 738)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)
- Load rating information (see page A42)



Assembly examples



GN 607.1

Description	d1 Pin -0.02/-0.05 Bore H7	d2	d3	e ≈	l1	l2 ±0.5	l3 -0.15	l4	A/F	Spring load in N ≈ initial	Spring load in N ≈ end	Axial load in N	⚖
GN 607.1-6-A-ST	6	M 12 x 1.5	25	19.6	45	6	10	5	17	11	28	400	34
GN 607.1-8-A-ST	8	M 16 x 1.5	31	21.9	54	8	12	6	19	15	29	500	59
GN 607.1-6-AK-ST	6	M 12 x 1.5	25	19.6	45	6	10	5	17	11	28	400	39
GN 607.1-8-AK-ST	8	M 16 x 1.5	31	21.9	54	8	12	6	19	15	29	500	69

GN 607.1-NI **STAINLESS STEEL**

Description	d1 Pin -0.02/-0.05 Bore H7	d2	d3	e ≈	l1	l2 ±0.5	l3 -0.15	l4	A/F	Spring load in N ≈ initial	Spring load in N ≈ end	Axial load in N	⚖
GN 607.1-6-A-NI	6	M 12 x 1.5	25	19.6	45	6	10	5	17	9	25	400	34
GN 607.1-8-A-NI	8	M 16 x 1.5	31	21.9	54	8	12	6	19	13	26	500	50
GN 607.1-6-AK-NI	6	M 12 x 1.5	25	19.6	45	6	10	5	17	9	25	400	42
GN 607.1-8-AK-NI	8	M 16 x 1.5	31	21.9	54	8	12	6	19	13	26	500	78

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GN 607.2

Indexing plungers

for installation in thin walled equipment, without rest position



SPECIFICATION

Guide Steel **ST**
zinc plated, blue passivated

Pin Stainless Steel AISI 303
chemically nickel plated

Knob Plastic (Polyamide PA)

- black, matt
- not removable

INFORMATION

Indexing plungers GN 607.2 have been developed for installation in thin walled equipment.
It has to be taken into consideration that, depending on the mounting plate thickness 's', the protruding plunger length 'l1' and the position of the hexagon nut on its centre bush, the plunger nose might not always be fully retractable.
For design reasons the positional accuracy of this indexing plunger is not as precise as plunger GN 607 (see page 769).

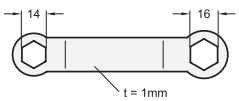
- Range of indexing plungers (see page 738)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)
- Load rating information (see page A42)

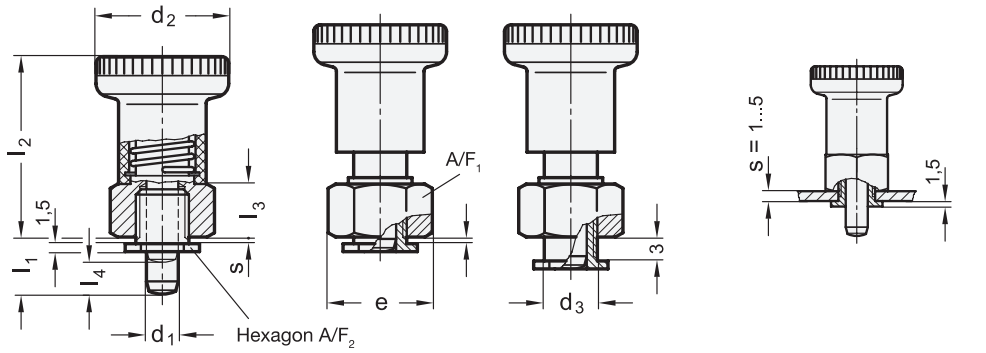
ACCESSORY

- Double ring spanner GN 607.9 -SW14-SW16 (assembling aid)



Plunger pin retracted

Assembly instruction



GN 607.2

Description	d1 Pin -0.02/-0.05 Bore G7	l1	d2	d3	e	l2	l3	l4	s	A/F 1	A/F 2	Spring load in N ≈ initial	Spring load in N ≈ end	Axial load in N	⚖
GN 607.2-6-8,5-ST	6	8.5	25	10	19.5	34	10	6	1 ... 5	17	14	9	25	400	40
GN 607.2-6-10,5-ST	6	10.5	25	10	19.5	34	10	6	1 ... 5	17	14	9	26	400	40
GN 607.2-8-10-ST	8	10	31	12	22	40	12	7.5	1 ... 5	19	16	13	25	500	62
GN 607.2-8-12-ST	8	12	31	12	22	40	12	7.5	1 ... 5	19	16	13	26	500	63

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Indexing plungers

for installation in thin walled equipment, with rest position



SPECIFICATION

Guide Steel **ST**
zinc plated, blue passivated

Pin Stainless Steel AISI 303
chemically nickel plated

Knob Plastic (Polyamide PA)

- black, matt
- not removable

INFORMATION

Indexing plungers GN 607.3 have been developed for installation in thin walled equipment.
It has to be taken into consideration that, depending on the mounting plate thickness 's', the protruding plunger length 'l1' and the position of the hexagon nut on its centre bush, the plunger nose might not always be fully retractable.
For design reasons the positional accuracy of this indexing plunger is not as precise as plunger GN 607 (see page 769).
Indexing plungers with rest position are used for such applications where the plunger pin has to stay in its retracted position. To achieve this, the knob is rotated by 90° degrees after being retracted. A notch keeps the plunger in this position.

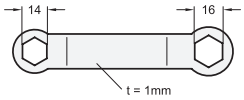
- Range of indexing plungers (see page 738)

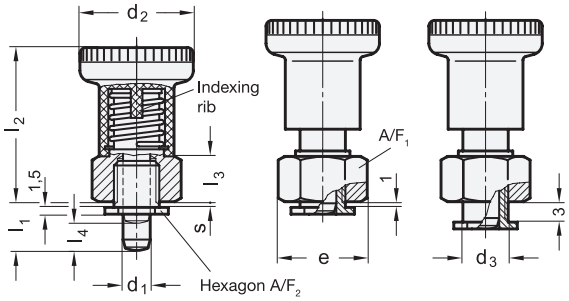
TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)
- Load rating information (see page A42)

ACCESSORY

- Double ring spanner GN 607.9 -SW14-SW16 (assembling aid)





GN 607.3

Description	d1 Pin -0.02/-0.05 Bore G7	l1	d2	d3	e	l2	l3	l4	s	A/F 1	A/F 2	Spring load in N ≈ initial	Spring load in N ≈ end	Axial load in N	⚖
GN 607.3-6-8,5-ST	6	8.5	25	10	19.5	34	10	6	1 ... 5	17	14	9	25	400	39
GN 607.3-6-10,5-ST	6	10.5	25	10	19.5	34	10	6	1 ... 5	17	14	9	25	400	39
GN 607.3-8-10-ST	8	10	31	12	22	40	12	7.5	1 ... 5	19	16	13	26	500	62
GN 607.3-8-12-ST	8	12	31	12	22	40	12	7.5	1 ... 5	19	16	13	26	500	61

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GN 607.4

Indexing plungers

for welding, without rest position

SPECIFICATION

Steel **ST**

- blackened
- Pin hardened

Knob Plastic (Polyamide PA)

- black, matt
- not removable

INFORMATION

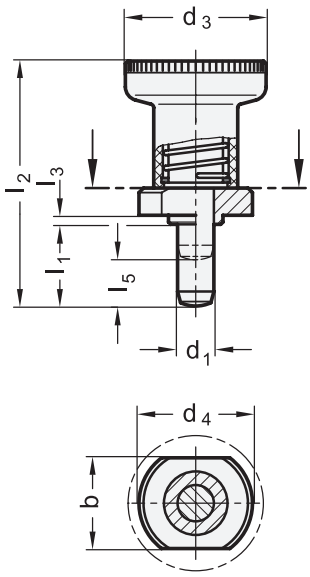
Indexing plungers GN 607.4 are designed for welded fixing, in particular for use in steel square tubings.
The lug d_2 is intended for positioning.
The plastic knob with the in-moulded indexing pin is driven on after the welding process.

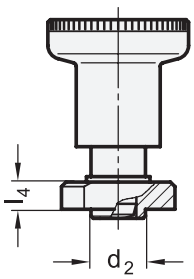
- Range of indexing plungers (see page 738)

TECHNICAL INFORMATION

- Plastic characteristics (see page A2)

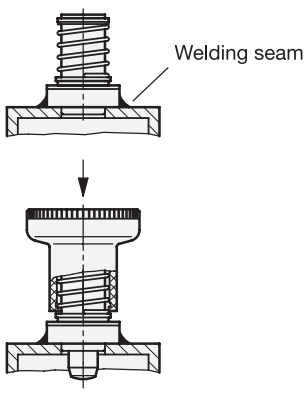






Plunger pin retracted
(if $l_1 = d_1$)

Assembly instruction



To prevent damage of the plastic knob, it will be driven onto the shaft using a plastic mallet, after the welding process.

GN 607.4

Description	d1 Pin -0.02/-0.05 Bore +0.30/+0.25	l1	b +0.3	d2 -0.02/-0.1	d3	d4	l2	l3	l4	l5	Spring load in N ≈ initial	Spring load in N ≈ end	Axial load in N	⚖
GN 607.4-6-6-ST	6	6	18	10	25	22	37	1.5	5.5	6	11	28	400	35
GN 607.4-6-14-ST	6	14	18	10	25	22	45	1.5	5.5	6	11	28	400	36
GN 607.4-8-8-ST	8	8	20	12	31	25	44	2	6.5	8	15	29	500	55
GN 607.4-8-18-ST	8	18	20	12	31	25	54	2	6.5	8	15	29	500	60

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Indexing plungers

for welding, with rest position

SPECIFICATION

Steel **ST**

- blackened
- Pin hardened

Knob Plastic (Polyamide PA)

- black, matt
- not removable

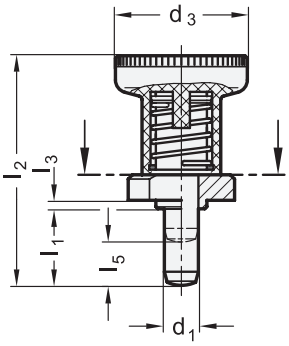
INFORMATION

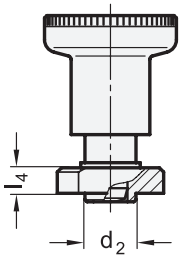
Indexing plungers GN 607.5 with rest position are used in cases where the indexing pin is temporarily not allowed to protrude. After pulling out, the knob is turned by 90°.
A notch keeps the plunger in this position.
The GN 607.5 indexing plungers are intended for welded fixing, in particular for use in steel square tubings.
The lug d_2 is intended for positioning.
The plastic knob with the in-moulded indexing pin is driven on after the welding process.
- Range of indexing plungers (see page 738)

TECHNICAL INFORMATION

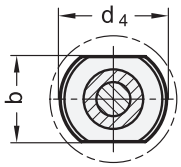
- Plastic characteristics (see page A2)
- Load rating information (see page A42)



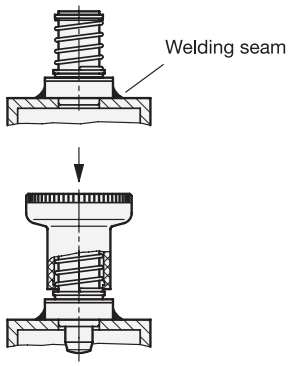




Plunger pin retracted
(if $l_1 = d_1$)



Assembly instruction



To prevent damage of the plastic knob, it will be driven onto the shaft using a plastic mallet, after the welding process.

GN 607.5

Description	d1 Pin -0.02/-0.05 Bore +0.30/+0.25	l1	b	d2 -0.02/-0.1	d3	d4	l2	l3	l4	l5	Spring load in N ≈ initial	Spring load in N ≈ end	Axial load in N	⚖
GN 607.5-6-6-ST	6	6	18	10	25	22	37	1.5	5.5	6	9	25	400	34
GN 607.5-6-14-ST	6	14	18	10	25	22	45	1.5	5.5	6	9	25	400	36
GN 607.5-8-8-ST	8	8	20	12	31	25	44	2	6.5	8	13	26	500	54
GN 607.5-8-18-ST	8	18	20	12	31	25	54	2	6.5	8	13	26	500	62

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GN 822.6

Mini indexing plungers

with and without rest position

SPECIFICATION

Types

- Type **B**: without rest position
- Type **C**: with rest position

Guide Steel zinc plated, blue passivated

Pin
Stainless Steel AISI 303

Spring
Stainless Steel AISI 301

Knob Plastic (Polyamide PA)

- black, matt
- not removable

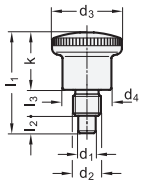


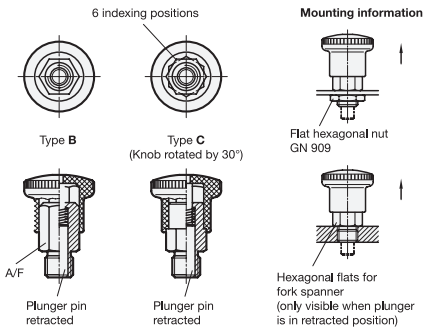
INFORMATION

Mini indexing plungers GN 822.6 are distinguished for their small dimensions.
Based on the principle of the GN 822 (see page 780) mini indexing plungers, this model combines their clever type of construction with a complete series of all current sizes of bolts and threads. They provide a reasonably priced alternative to the GN 607 (see page 769) / GN 607.1 (see page 770) indexing plungers of the appropriate sizes.
To mount, first turn the mini indexing plunger in with the knurled button. Pulling the indexing pin will release the hexagon nut which can then be tightened with an open-end spanner.
They are inserted into position by holding them by the serrated knob. The spanner flats on the lock nut are revealed when retracting the pin, so that the mini indexing plunger can be easily tightened by means of a fork spanner.
In type C, the button can be turned by 30° after retracting the indexing pin, holding it in the "retraced" position using the indexing lock.
- Range of indexing plungers (see page 738)

ACCESSORY

Distance bushings GN 609.5 (see page 810) or flat hexagonal nuts GN 909 (see page 809) are to be ordered seperately.





* Complete with type index of the Mini indexing plungers (B or C)

B without rest position

C with rest position

GN 822.6

Description	d1 Bore +0.03/+0.08 Pin h9	d2	d3	d4	l1	l2 min.	l3	k	A/F	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 822.6-4-M8-*	4	M 8	21	15	27.5	5	6	16.5	10	4	12	14
GN 822.6-4-M8x1-*	4	M 8x1	21	15	27.5	5	6	16.5	10	4	12	14
GN 822.6-5-M10-*	5	M10	25	18	34	6	8	20	12	6	16	25
GN 822.6-5-M10x1-*	5	M 10x1	25	18	34	6	8	20	12	6	16	26
GN 822.6-6-M10-*	6	M10	25	18	34	6	8	20	12	6	16	40
GN 822.6-6-M10x1-*	6	M 10x1	25	18	34	6	8	20	12	6	16	42
GN 822.6-6-M12-*	6	M12	28	20	40.5	7	10	23.5	14	10	23	60
GN 822.6-6-M12x1,5-*	6	M12x1.5	28	20	40.5	7	10	23.5	14	10	23	67
GN 822.6-7-M12-*	7	M12	28	20	40.5	7	10	23.5	14	10	23	69
GN 822.6-7-M12x1,5-*	7	M12x1.5	28	20	40.5	7	10	23.5	14	10	23	70
GN 822.6-8-M16-*	8	M 16	33	23	47.5	10	12	25.5	17	11	35	71
GN 822.6-8-M16x1,5-*	8	M 16x1.5	33	23	47.5	10	12	25.5	17	11	35	72
GN 822.6-10-M16-*	10	M 16	33	23	47.5	10	12	25.5	17	11	35	75
GN 822.6-10-M16x1,5-*	10	M 16x1.5	33	23	47.5	10	12	25.5	17	11	35	76

Weight type B

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Indexing plungers

without rest position



SPECIFICATION

Guide
Zinc die casting
zinc plated, blue passivated

Knob
Plastic (Polyamide PA)

- black, matt
- not removable

Pin
Steel, hardened
Single components Steel / Brass

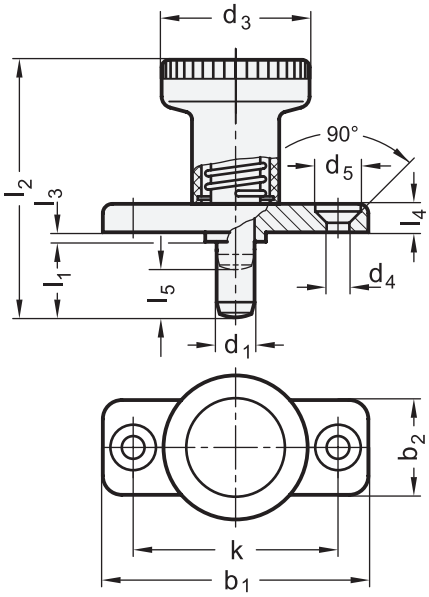
INFORMATION

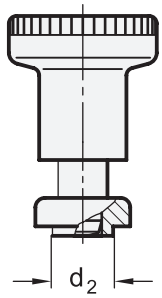
Indexing plungers GN 608 are distinguished for their small dimensions.

- Range of indexing plungers (see page 738)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)
- Load rating information (see page A42)





Plunger retracted
(if $l_1 = d_1$)

GN 608

Description	d1 Pin -0.02/-0.05 Bore H7	l1	b1	b2	d2 -0.02/-0.1	d3	d4	l3 -0.15	l4	l5	Spring load in N ≈ initial	Spring load in N ≈ end	Axial load in N	⚖
GN 608-6-6	6	6	40	18	10	25	4.3	2.5	4.5	6	9	25	400	36
GN 608-6-14	6	14	40	18	10	25	4.3	2.5	4.5	6	9	25	400	39
GN 608-8-8	8	8	46	20	12	31	5.3	2.5	4.5	8	13	26	500	59
GN 608-8-18	8	18	46	20	12	31	5.3	2.5	4.5	8	13	26	500	64

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GN 608.5

Indexing plungers with Stainless Steel-Plunger

without rest position



SPECIFICATION

Guide
Zinc die casting
zinc plated, blue passivated

Knob
Plastic (Polyamide PA)

- black, matt
- not removable

Pin Stainless Steel AISI 303
chemically nickel plated

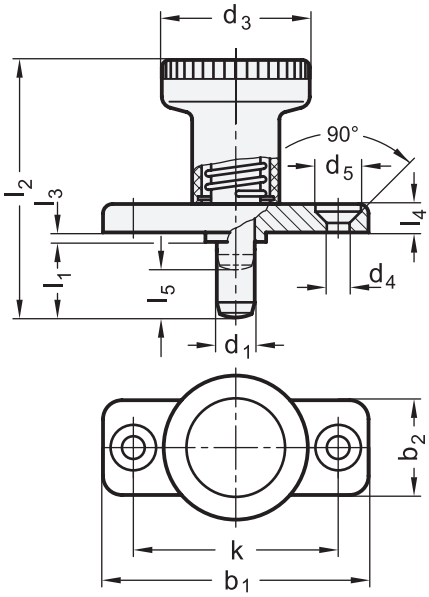
Single components Stainless Steel

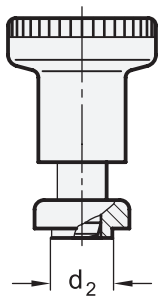
INFORMATION

Indexing plungers with Stainless Steel-Plunger GN 608.5 are distinguished for their small dimensions.
- Range of indexing plungers (see page 738)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)
- Load rating information (see page A42)





Plunger retracted
(if $l_1 = d_1$)

GN 608.5 **STAINLESS STEEL**

Description	d1 Pin -0.02/-0.05 Bore H7	l1	b1	b2	d2 -0.02/-0.1	d3	d4	l3 -0.15	l4	l5	Spring load in N ≈ initial	Spring load in N ≈ end	Axial load in N	⚖
GN 608.5-6-6	6	6	40	18	10	25	4.3	2.5	4.5	6	9	25	400	36
GN 608.5-6-14	6	14	40	18	10	25	4.3	2.5	4.5	6	9	25	400	38
GN 608.5-8-8	8	8	46	20	12	31	5.3	2.5	4.5	8	13	26	500	50
GN 608.5-8-18	8	18	46	20	12	31	5.3	2.5	4.5	8	13	26	500	59

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Indexing plungers

with rest position

SPECIFICATION

Guide
Zinc die casting
zinc plated, blue passivated

Knob
Plastic (Polyamide PA)

- black, matt
- not removable

Pin
Steel, hardened
Single components Steel / Brass



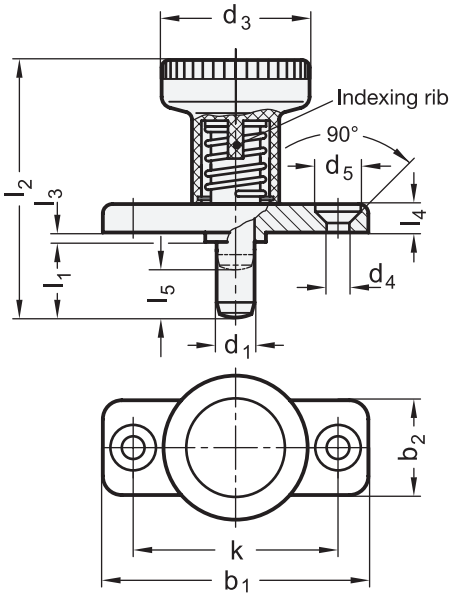
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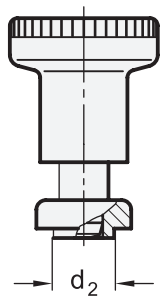
Indexing plungers GN 608.1 with rest position are used for such applications where the plunger has to stay in its retracted position. To achieve this, the knob is rotated by 90° degrees after being retracted. A notch keeps the plunger in this position.
Indexing plungers GN 608.1 are distinguished for their small dimensions. The locking tab is integrated into the knob thus giving reliable operation at all times.

- Range of indexing plungers (see page 738)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Plastic characteristics (see page A2)
- Load rating information (see page A42)





Plunger retracted
(if $l_1 = d_1$)

GN 608.1

Description	d1 Pin -0.02/-0.05 Bore H7	l1	b1	b2	d2 -0.02/-0.1	d3	d4	d5	k	l2	l3 -0.15	l4	l5	Spring load in N ≈ initial	Spring load in N ≈ end	Axial load in N	⚖
GN 608.1-6-6	6	6	40	18	10	25	4.3	8.3	30	37	2.5	4.5	6	9	25	400	36
GN 608.1-6-14	6	14	40	18	10	25	4.3	8.3	30	45	2.5	4.5	6	9	25	400	38
GN 608.1-8-8	8	8	46	20	12	31	5.3	10.4	34	44	2.5	5.5	8	13	26	500	60
GN 608.1-8-18	8	18	46	20	12	31	5.3	10.4	34	54	2.5	5.5	8	13	26	500	62

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GN 608.6

Indexing plungers with Stainless Steel-Plunger

with rest position



SPECIFICATION

Guide
Zinc die casting
zinc plated, blue passivated

Knob Plastic (Polyamide PA)

- black, matt
- not removable

Pin Stainless Steel AISI 303
chemically nickel plated

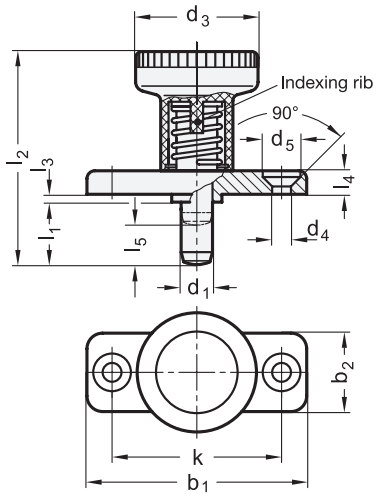
Single components Stainless Steel

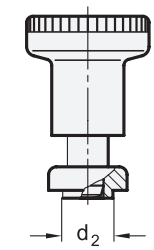
INFORMATION

Indexing plungers with Stainless Steel-Plunger GN 608.6 with rest position are used for such applications where the plunger has to stay in its retracted position. To achieve this, the knob is rotated by 90° degrees after being retracted. A notch keeps the plunger in this position.
Indexing plungers GN 608.6 are distinguished for their small dimensions. The locking tab is integrated into the knob thus giving reliable operation at all times.
- Range of indexing plungers (see page 738)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)
- Load rating information (see page A42)





Plunger retracted
(if $l_1 = d_1$)

GN 608.6 **STAINLESS STEEL**

Description	d1 Pin -0.02/-0.05 Bore H7	l1	b1	b2	d2 -0.02/-0.1	d3	d4	d5	k	l2	l3 -0.15	l4	l5	Spring load in N ≈ initial	Spring load in N ≈ end	Axial load in N	⚖
GN 608.6-6-6	6	6	40	18	10	25	4.3	8.3	30	37	2.5	4.5	6	9	25	400	30
GN 608.6-6-14	6	14	40	18	10	25	4.3	8.3	30	45	2.5	4.5	6	9	25	400	39
GN 608.6-8-8	8	8	46	20	12	31	5.3	10.4	34	44	2.5	5.5	8	13	26	500	58
GN 608.6-8-18	8	18	46	20	12	31	5.3	10.4	34	54	2.5	5.5	8	13	26	500	63

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Mini indexing plungers

Steel / Stainless Steel, Covered indexing mechanism, with and without rest position



SPECIFICATION

Types

- Type **B**: without rest position
- Type **C**: with rest position

Version in Steel ST

zinc plated, blue passivated

Version in Stainless Steel AISI 303 NI

Pin
Stainless Steel AISI 303

Spring
Stainless Steel AISI 301

Knob Plastic (Polyamide PA)

- black, matt
- red, RAL 3000 **RT**
- not removable

INFORMATION

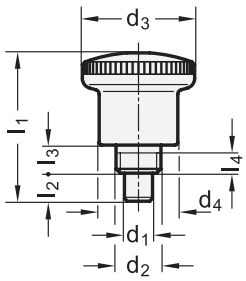
Mini indexing plungers GN 822 are distinguished for their small dimensions. They have been designed for installation in thin walled sheet metal constructions.
They are inserted into position by holding them by the serrated knob. The spanner flats on the lock nut are revealed when retracting the pin, so that the mini indexing plunger can be easily tightened by means of a fork spanner.
With Type C the knob can be turned by 30° and a notch keeps the knob in this position.
- Range of indexing plungers (see page 738)

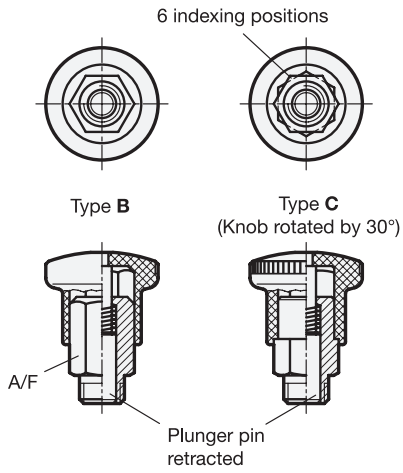
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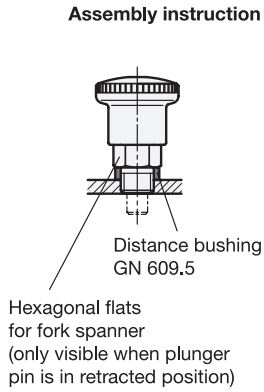
Distance bushings GN 609.5 (see page 810) are to be ordered seperately.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)
- Load rating information (see page A42)







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GN 822

Description	d1 Pin 0/-0.06 Bore +0.05/+0.1	d2	d3	d4	l1	l2 min.	l3	l4 min.	A/F	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 822-4-B-ST	4	M 8 x 0.75	21	15	26.5	5	5	3.5	10	4.5	12	14
GN 822-5-B-ST	5	M 8 x 0.75	21	15	26.5	5	5	3.5	10	4.5	12	14
GN 822-6-B-ST	6	M 10 x 1	25	18	34	7	7	4.5	12	5	18	25
GN 822-7-B-ST	7	M 10 x 1	25	18	34	7	7	4.5	12	5	18	26
GN 822-4-C-ST	4	M 8 x 0.75	21	15	26.5	5	5	3.5	10	4.5	12	13
GN 822-5-C-ST	5	M 8 x 0.75	21	15	26.5	5	5	3.5	10	4.5	12	14
GN 822-6-C-ST	6	M 10 x 1	25	18	34	7	7	4.5	12	5	18	23
GN 822-7-C-ST	7	M 10 x 1	25	18	34	7	7	4.5	12	5	18	24
GN 822-4-B-ST-RT	4	M 8 x 0.75	21	15	26.5	5	5	3.5	10	4.5	12	13
GN 822-5-B-ST-RT	5	M 8 x 0.75	21	15	26.5	5	5	3.5	10	4.5	12	14
GN 822-6-B-ST-RT	6	M 10 x 1	25	18	34	7	7	4.5	12	5	18	25
GN 822-7-B-ST-RT	7	M 10 x 1	25	18	34	7	7	4.5	12	5	18	26
GN 822-4-C-ST-RT	4	M 8 x 0.75	21	15	26.5	5	5	3.5	10	4.5	12	13
GN 822-5-C-ST-RT	5	M 8 x 0.75	21	15	26.5	5	5	3.5	10	4.5	12	14
GN 822-6-C-ST-RT	6	M 10 x 1	25	18	34	7	7	4.5	12	5	18	24
GN 822-7-C-ST-RT	7	M 10 x 1	25	18	34	7	7	4.5	12	5	18	25

GN 822-NI **STAINLESS STEEL**

Description	d1 Pin 0/-0.06 Bore +0.05/+0.1	d2	d3	d4	l1	l2 min.	l3	l4 min.	A/F	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 822-4-B-NI	4	M 8 x 0.75	21	15	26.5	5	5	3.5	10	4.5	12	13
GN 822-5-B-NI	5	M 8 x 0.75	21	15	26.5	5	5	3.5	10	4.5	12	14
GN 822-6-B-NI	6	M 10 x 1	25	18	34	7	7	4.5	12	5	18	25
GN 822-7-B-NI	7	M 10 x 1	25	18	34	7	7	4.5	12	5	18	26
GN 822-4-C-NI	4	M 8 x 0.75	21	15	26.5	5	5	3.5	10	4.5	12	14
GN 822-5-C-NI	5	M 8 x 0.75	21	15	26.5	5	5	3.5	10	4.5	12	14
GN 822-6-C-NI	6	M 10 x 1	25	18	34	7	7	4.5	12	5	18	24
GN 822-7-C-NI	7	M 10 x 1	25	18	34	7	7	4.5	12	5	18	25
GN 822-4-B-NI-RT	4	M 8 x 0.75	21	15	26.5	5	5	3.5	10	4.5	12	13
GN 822-5-B-NI-RT	5	M 8 x 0.75	21	15	26.5	5	5	3.5	10	4.5	12	14
GN 822-6-B-NI-RT	6	M 10 x 1	25	18	34	7	7	4.5	12	5	18	25
GN 822-7-B-NI-RT	7	M 10 x 1	25	18	34	7	7	4.5	12	5	18	26
GN 822-4-C-NI-RT	4	M 8 x 0.75	21	15	26.5	5	5	3.5	10	4.5	12	10
GN 822-5-C-NI-RT	5	M 8 x 0.75	21	15	26.5	5	5	3.5	10	4.5	12	20
GN 822-6-C-NI-RT	6	M 10 x 1	25	18	34	7	7	4.5	12	5	18	24
GN 822-7-C-NI-RT	7	M 10 x 1	25	18	34	7	7	4.5	12	5	18	30

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Mini indexing plungers

Steel / Stainless Steel, opening indexing mechanism, with and without rest position



SPECIFICATION

Types

- Type **B**: without rest position
- Type **C**: with rest position

Version in Steel ST

zinc plated, blue passivated

Version in Stainless Steel AISI 303 NI

Pin
Stainless Steel AISI 303

Spring
Stainless Steel AISI 301

Knob Plastic (Polyamide PA)

- black, matt
- red, RAL 3000 **RT**
- not removable

INFORMATION

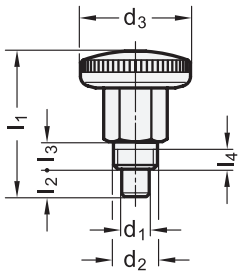
Mini indexing plungers GN 822.1 are distinguished for their small dimensions. They have been designed for installation in thin walled sheet metal constructions.
Type C with rest position is used for such applications where the plunger has to stay in its retracted position. To achieve this, the knob is rotated by 90° degrees after being retracted. A notch keeps the plunger in this position.

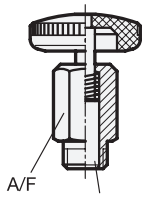
- Range of indexing plungers (see page 738)

TECHNICAL INFORMATION

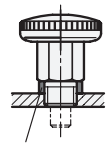
- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)
- Load rating information (see page A42)

Type **B**





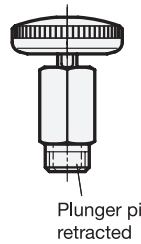
Assembly instruction



Type **C**



(Knob rotated by 90°)



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GN 822.1

Description	d1 Pin 0/-0.06 Bore +0.05/+0.1	d2	d3	l1	l2 min.	l3	l4 min.	A/F	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 822.1-4-B-ST	4	M 8 x 0.75	21	26.5	5	5	3.5	10	4.5	12	13
GN 822.1-5-B-ST	5	M 8 x 0.75	21	26.5	5	5	3.5	10	4.5	12	13
GN 822.1-6-B-ST	6	M 10 x 1	25	34	7	7	4.5	12	5	18	23
GN 822.1-7-B-ST	7	M 10 x 1	25	34	7	7	4.5	12	5	18	23
GN 822.1-4-C-ST	4	M 8 x 0.75	21	26.5	5	5	3.5	10	4.5	12	12
GN 822.1-5-C-ST	5	M 8 x 0.75	21	26.5	5	5	3.5	10	4.5	12	12
GN 822.1-6-C-ST	6	M 10 x 1	25	34	7	7	4.5	12	5	18	22
GN 822.1-7-C-ST	7	M 10 x 1	25	34	7	7	4.5	12	5	18	22
GN 822.1-4-B-ST-RT	4	M 8 x 0.75	21	26.5	5	5	3.5	10	4.5	12	13
GN 822.1-5-B-ST-RT	5	M 8 x 0.75	21	26.5	5	5	3.5	10	4.5	12	13
GN 822.1-6-B-ST-RT	6	M 10 x 1	25	34	7	7	4.5	12	5	18	23
GN 822.1-7-B-ST-RT	7	M 10 x 1	25	34	7	7	4.5	12	5	18	23
GN 822.1-4-C-ST-RT	4	M 8 x 0.75	21	26.5	5	5	3.5	10	4.5	12	12
GN 822.1-5-C-ST-RT	5	M 8 x 0.75	21	26.5	5	5	3.5	10	4.5	12	12
GN 822.1-6-C-ST-RT	6	M 10 x 1	25	34	7	7	4.5	12	5	18	22
GN 822.1-7-C-ST-RT	7	M 10 x 1	25	34	7	7	4.5	12	5	18	22

GN 822.1-NI **STAINLESS STEEL**

Description	d1 Pin 0/-0.06 Bore +0.05/+0.1	d2	d3	l1	l2 min.	l3	l4 min.	A/F	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 822.1-4-B-NI	4	M 8 x 0.75	21	26.5	5	5	3.5	10	4.5	12	13
GN 822.1-5-B-NI	5	M 8 x 0.75	21	26.5	5	5	3.5	10	4.5	12	13
GN 822.1-6-B-NI	6	M 10 x 1	25	34	7	7	4.5	12	5	18	23
GN 822.1-7-B-NI	7	M 10 x 1	25	34	7	7	4.5	12	5	18	23
GN 822.1-4-C-NI	4	M 8 x 0.75	21	26.5	5	5	3.5	10	4.5	12	12
GN 822.1-5-C-NI	5	M 8 x 0.75	21	26.5	5	5	3.5	10	4.5	12	13
GN 822.1-6-C-NI	6	M 10 x 1	25	34	7	7	4.5	12	5	18	22
GN 822.1-7-C-NI	7	M 10 x 1	25	34	7	7	4.5	12	5	18	23
GN 822.1-4-B-NI-RT	4	M 8 x 0.75	21	26.5	5	5	3.5	10	4.5	12	13
GN 822.1-5-B-NI-RT	5	M 8 x 0.75	21	26.5	5	5	3.5	10	4.5	12	13
GN 822.1-6-B-NI-RT	6	M 10 x 1	25	34	7	7	4.5	12	5	18	23
GN 822.1-7-B-NI-RT	7	M 10 x 1	25	34	7	7	4.5	12	5	18	23
GN 822.1-4-C-NI-RT	4	M 8 x 0.75	21	26.5	5	5	3.5	10	4.5	12	12
GN 822.1-5-C-NI-RT	5	M 8 x 0.75	21	26.5	5	5	3.5	10	4.5	12	13
GN 822.1-6-C-NI-RT	6	M 10 x 1	25	34	7	7	4.5	12	5	18	22
GN 822.1-7-C-NI-RT	7	M 10 x 1	25	34	7	7	4.5	12	5	18	23

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Stainless Steel-
Mini indexing plungers

with and without rest position



SPECIFICATION

Types

- Type **B**: without rest position, with plastic knob
- Type **BN**: without rest position, with Stainless Steel-Knob
- Type **C**: with rest position, with plastic knob
- Type **CN**: with rest position, with Stainless Steel-Knob

Guide / Pin
Stainless Steel AISI 303

Spring
Stainless Steel AISI 301

Version with Plastic knob

Knob Type B and C

- Plastic (Polyamide PA)
- black, matt
- not removable

Version with Stainless Steel knob

Knob Type BN and CN

- Stainless Steel AISI CF-8
- matt blasted
- not removable

INFORMATION

Mini indexing plungers GN 822.7 are distinguished for their small dimensions.
Based on the principle of the GN 822 (see page 780) mini indexing plungers, this model combines their clever type of construction with a complete series of all current sizes of bolts and threads. They provide a reasonably priced alternative to the GN 607 (see page 769) / GN 607.1 (see page 770) indexing plungers of the appropriate sizes.
To mount, first turn the mini indexing plunger in with the knurled button. Pulling the indexing pin will release the hexagon nut which can then be tightened with an open-end spanner.
The spanner flats on the lock nut are revealed when retracting the pin, so that the mini indexing plunger can be easily tightened by means of a fork spanner.
In types C and CN, the button can be turned by 30° after retracting the indexing pin, holding it in the “retraced” position using the indexing lock.
- Range of indexing plungers (see page 738)

ACCESSORY

Distance bushings GN 609.5 (see page 810) or flat hexagonal nuts GN 909.5 (see page 809) are to be ordered seperately.

TECHNICAL INFORMATION

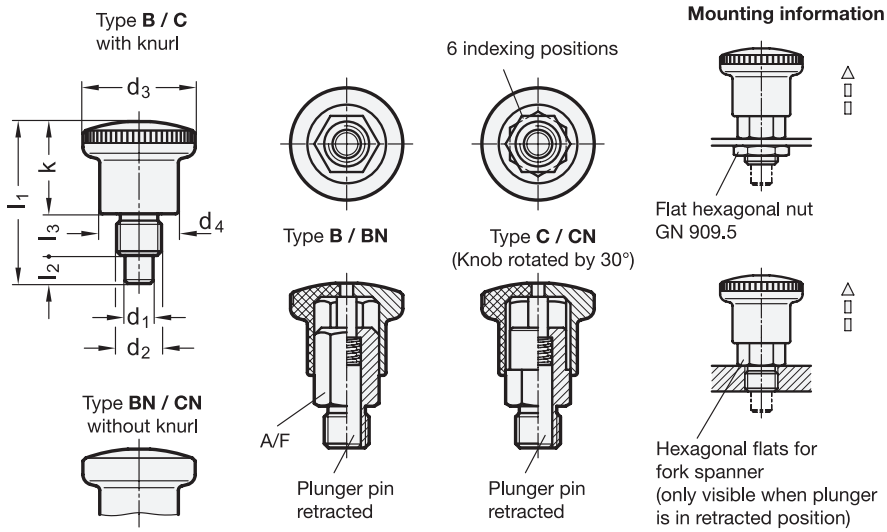
- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)
- ISO-Fundamental tolerances (see page A21)
- Load rating information (see page A42)

ON REQUEST

- with red knob

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GN 822.7 | Stainless Steel-Mini indexing plungers



* Complete with type index of the mini indexing plungers (B or C)

B without rest position

C with rest position

GN 822.7 — STAINLESS STEEL

Description	d1 Bore +0.03/+0.08 Pin h9	d2	d3	d4	l1	l2 min.	l3	k	A/F	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 822.7-4-M8-*	4	M 8	21	15	27.5	5	6	16.5	10	4	12	14
GN 822.7-4-M8x1-*	4	M 8 x 1	21	15	27.5	5	6	16.5	10	4	12	15
GN 822.7-5-M10-*	5	M 10	25	18	34	6	8	20	12	6	16	25
GN 822.7-5-M10x1-*	5	M 10 x 1	25	18	34	6	8	20	12	6	16	25
GN 822.7-6-M10-*	6	M 10	25	18	34	6	8	20	12	6	16	26
GN 822.7-6-M10x1-*	6	M 10 x 1	25	18	34	6	8	20	12	6	16	26
GN 822.7-6-M12-*	6	M 12	28	20	40.5	7	10	23.5	14	10	23	40
GN 822.7-6-M12x1,5-*	6	M 12 x 1.5	28	20	40.5	7	10	23.5	14	10	23	40
GN 822.7-7-M12-*	7	M 12	28	20	40.5	7	10	23.5	14	10	23	41
GN 822.7-7-M12x1,5-*	7	M 12 x 1.5	28	20	40.5	7	10	23.5	14	10	23	41
GN 822.7-8-M16-*	8	M 16	33	23	47.5	10	12	25.5	17	11	35	67
GN 822.7-8-M16x1,5-*	8	M 16 x 1.5	33	23	47.5	10	12	25.5	17	11	35	67
GN 822.7-10-M16-*	10	M 16	33	23	47.5	10	12	25.5	17	11	35	68
GN 822.7-10-M16x1,5-*	10	M 16 x 1.5	33	23	47.5	10	12	25.5	17	11	35	70

Weight type B

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Stainless Steel-
Mini indexing plungers

with and without rest position



SPECIFICATION

Types

- Type **B**: without rest position, with plastic knob
- Type **BN**: without rest position, with Stainless Steel knob
- Type **C**: with rest position, with plastic knob
- Type **CN**: with rest postion, with Stainless Steel knob

Guide
Stainless Steel AISI 304

Pin
Stainless Steel AISI 303

Spring
Stainless Steel AISI 301

Version with Plastic knob

Knob type B and C

- Plastic (Polyamide PA)
- black, matt
- not removable

Version with Stainless Steel knob

Knob type BN and CN

- AISI CF-8
- matt, blasted
- not removable

INFORMATION

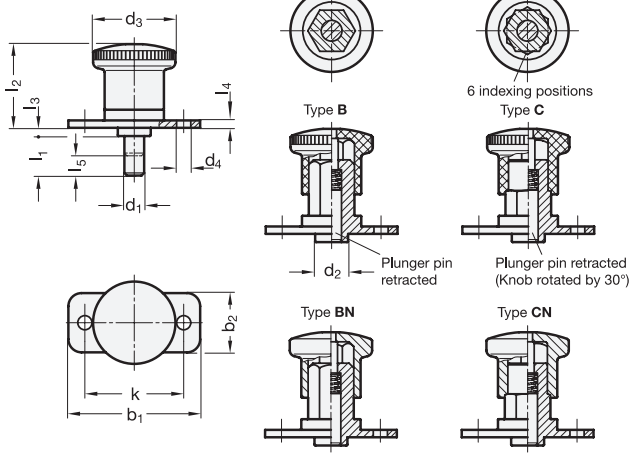
Stainless Steel-Mini indexing plungers GN 822.9 are distinguished for their small dimensions. They are mounted by countersunk screws.
The Stainless Steel-Mini indexing plungers present an affordable alternative to the GN 608.5 (see page) and GN 608.6 (see page 779) Stainless Steel-Indexing plungers.
In types C and CN, the button can be turned by 30° after retracting the indexing pin, holding it in the „retraced" position using the indexing lock.
- Range of indexing plungers (see page 738)

TECHNICAL INFORMATION

- ISO-Fundamental tolerances (see page A21)
- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)
- Load rating information (see page A42)

ON REQUEST

- with red knob



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GN 822.9-B/C — STAINLESS STEEL

Description	d1 Bore +0.03/+0.08 Pin h9	l1	b1	b2	d2	d3	d4	k	l2	l3	l4	l5	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 822.9-4-5-B	4	5	35	15	8	21	4.3	25	20.5	2	2	5	4	12	23
GN 822.9-4-10-B	4	10	35	15	8	21	4.3	25	20.5	2	2	5	4	12	23
GN 822.9-5-6-B	5	6	40	18	10	25	4.3	30	25.5	2.5	2	6	6	16	40
GN 822.9-5-12-B	5	12	40	18	10	25	4.3	30	25.5	2.5	2	6	6	16	41
GN 822.9-6-6-B	6	6	40	18	10	25	4.3	30	25.5	2.5	2	6	6	16	40
GN 822.9-6-12-B	6	12	40	18	10	25	4.3	30	25.5	2.5	2	6	6	16	42
GN 822.9-8-10-B	8	10	50	23	14	33	5.3	38	35	2.5	3	10	11	35	100
GN 822.9-8-20-B	8	20	50	23	14	33	5.3	38	35	2.5	3	10	11	35	105
GN 822.9-10-10-B	10	10	50	23	14	33	5.3	38	35	2.5	3	10	11	35	103
GN 822.9-10-20-B	10	20	50	23	14	33	5.3	38	35	2.5	3	10	11	35	109
GN 822.9-4-5-C	4	5	35	15	8	21	4.3	25	20.5	2	2	5	4	12	23
GN 822.9-4-10-C	4	10	35	15	8	21	4.3	25	20.5	2	2	5	4	12	24
GN 822.9-5-6-C	5	6	40	18	10	25	4.3	30	25.5	2.5	2	6	6	16	40
GN 822.9-5-12-C	5	12	40	18	10	25	4.3	30	25.5	2.5	2	6	6	16	41
GN 822.9-6-6-C	6	6	40	18	10	25	4.3	30	25.5	2.5	2	6	6	16	40
GN 822.9-6-12-C	6	12	40	18	10	25	4.3	30	25.5	2.5	2	6	6	16	42
GN 822.9-8-10-C	8	10	50	23	14	33	5.3	38	35	2.5	3	10	11	35	99
GN 822.9-8-20-C	8	20	50	23	14	33	5.3	38	35	2.5	3	10	11	35	103
GN 822.9-10-10-C	10	10	50	23	14	33	5.3	38	35	2.5	3	10	11	35	102
GN 822.9-10-20-C	10	20	50	23	14	33	5.3	38	35	2.5	3	10	11	35	108

GN 822.9-BN/CN — STAINLESS STEEL

Description	d1 Bore +0.03/+0.08 Pin h9	l1	b1	b2	d2	d3	d4	k	l2	l3	l4	l5	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 822.9-4-5-BN	4	5	35	15	8	21	4.3	25	20.5	2	2	5	4	12	37
GN 822.9-4-10-BN	4	10	35	15	8	21	4.3	25	20.5	2	2	5	4	12	37
GN 822.9-5-6-BN	5	6	40	18	10	25	4.3	30	25.5	2.5	2	6	6	16	64
GN 822.9-5-12-BN	5	12	40	18	10	25	4.3	30	25.5	2.5	2	6	6	16	65
GN 822.9-6-6-BN	6	6	40	18	10	25	4.3	30	25.5	2.5	2	6	6	16	65
GN 822.9-6-12-BN	6	12	40	18	10	25	4.3	30	25.5	2.5	2	6	6	16	66
GN 822.9-8-10-BN	8	10	50	23	14	33	5.3	38	35	2.5	3	10	11	35	146
GN 822.9-8-20-BN	8	20	50	23	14	33	5.3	38	35	2.5	3	10	11	35	150
GN 822.9-10-10-BN	10	10	50	23	14	33	5.3	38	35	2.5	3	10	11	35	149
GN 822.9-10-20-BN	10	20	50	23	14	33	5.3	38	35	2.5	3	10	11	35	155
GN 822.9-4-5-CN	4	5	35	15	8	21	4.3	25	20.5	2	2	5	4	12	37
GN 822.9-4-10-CN	4	10	35	15	8	21	4.3	25	20.5	2	2	5	4	12	37
GN 822.9-5-6-CN	5	6	40	18	10	25	4.3	30	25.5	2.5	2	6	6	16	64
GN 822.9-5-12-CN	5	12	40	18	10	25	4.3	30	25.5	2.5	2	6	6	16	65
GN 822.9-6-6-CN	6	6	40	18	10	25	4.3	30	25.5	2.5	2	6	6	16	47
GN 822.9-6-12-CN	6	12	40	18	10	25	4.3	30	25.5	2.5	2	6	6	16	66
GN 822.9-8-10-CN	8	10	50	23	14	33	5.3	38	35	2.5	3	10	11	35	146
GN 822.9-8-20-CN	8	20	50	23	14	33	5.3	38	35	2.5	3	10	11	35	150
GN 822.9-10-10-CN	10	10	50	23	14	33	5.3	38	35	2.5	3	10	11	35	148
GN 822.9-10-20-CN	10	20	50	23	14	33	5.3	38	35	2.5	3	10	11	35	154

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Mini indexing plungers

with and without rest position

SPECIFICATION

Types

- Type **B**: without rest position
- Type **C**: with rest position

Guide
Zinc die casting
plastic coated
black, textured finish

Pin
Stainless Steel AISI 303

Spring
Stainless Steel AISI 301

Knob
Plastic (Polyamide PA)

- black, matt
- not removable



INFORMATION

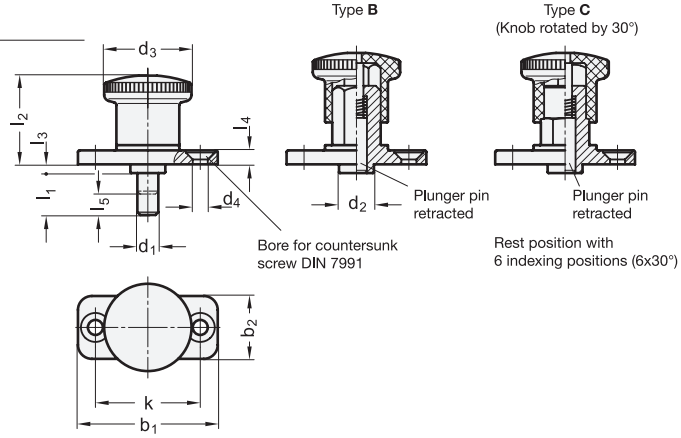
Mini indexing plungers GN 822.8 are distinguished for their small dimensions. They are mounted by countersunk screws.
The mini indexing plungers present an affordable alternative to the GN 608 (see page 776) and GN 608.1 (see page 778) indexing plungers.
In type C, the button can be turned by 30° after retracting the indexing pin, holding it in the "retraced" position using the indexing lock.
- Range of indexing plungers (see page 738)

ON REQUEST

- with red knob

TECHNICAL INFORMATION

- ISO-Fundamental tolerances (see page A21)
- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)
- Load rating information (see page A42)



*Complete with type index of the Mini indexing plunger (B or C)

B without rest position
C with rest position

GN 822.8

Description	d1 Bore +0.03/+0.08 Pin h9	l1	b1	b2	d2 -0.15	d3	d4	k	l2	l3	l4	l5	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 822.8-4-5-*	4	5	35	15	8	21	4.3	25	20.5	2	4	5	4	12	23
GN 822.8-4-10-*	4	10	35	15	8	21	4.3	25	20.5	2	4	5	4	12	23
GN 822.8-5-6-*	5	6	40	18	10	25	4.3	30	25.5	2.5	4	6	6	16	39
GN 822.8-5-12-*	5	12	40	18	10	25	4.3	30	25.5	2.5	4	6	6	16	40
GN 822.8-6-6-*	6	6	40	18	10	25	4.3	30	25.5	2.5	4	6	6	16	39
GN 822.8-6-12-*	6	12	40	18	10	25	4.3	30	25.5	2.5	4	6	6	16	41
GN 822.8-8-10-*	8	10	50	23	14	33	5.3	38	35	2.5	5	10	11	35	94
GN 822.8-8-20-*	8	20	50	23	14	33	5.3	38	35	2.5	5	10	11	35	98
GN 822.8-10-10-*	10	10	50	23	14	33	5.3	38	35	2.5	5	10	11	35	96
GN 822.8-10-20-*	10	20	50	23	14	33	5.3	38	35	2.5	5	10	11	35	102

Weight type B

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GN 412

Indexing plungers

with and without rest position

SPECIFICATION

Types

- Type **B**: without rest position
- Type **C**: with rest position

Identification no.

- No. **1**: Mounting from the front
- No. **2**: Mounting from the back

Guide
Zinc die casting
plastic coated
black, textured finish

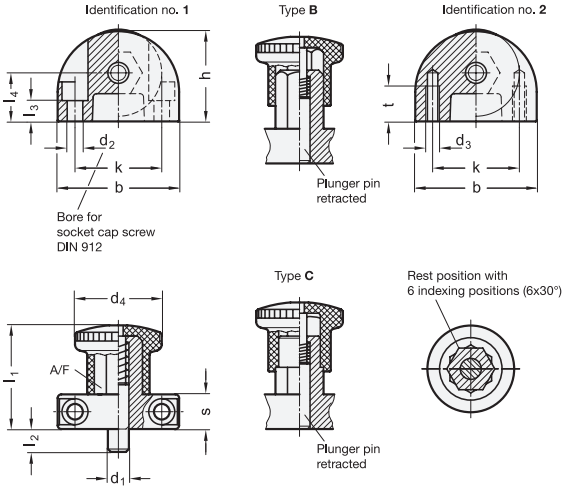
Pin
Stainless Steel AISI 303

Spring
Stainless Steel AISI 301

Knob
Plastic (Polyamide PA)

- black, matt finish
- not removable





INFORMATION

The outstanding feature of the indexing plungers GN 412 is their compact design. They are mounted either from the front with cylinder head screws or from the back through threads. In Type C, the knob can be turned by 30° after retracting the indexing pin, holding it in the "retracted" position by means of the indexing lock.
The dimensions and connection measurements match the combination with GN 412.1 (see page 814) mounting blocks in connection with positioning bushings GN 412.2 (see page 813) or GN 412.3 (see page 812).

TECHNICAL INFORMATION

- Plastic characteristics (see page A2)
- Stainless Steel characteristics (see page A26)
- Load rating information (see page A42)

GN 412

Description	d1 Pin 0/-0.06 Bore +0.05/+0.1	b	d2	d3	d4	h	k	l1	l2 min.	l3	l4	s	A/F	t	Spring load in initial N ≈	Spring load in end N ≈	⚖
GN 412-5-35-B-1	5	35	4.3	-	25	26	25	32	6	6	14	12	12	-	5	15	63
GN 412-5-35-B-2	5	35	-	M 4	25	26	25	32	6	-	14	12	12	10	5	15	71
GN 412-6-35-B-1	6	35	4.3	-	25	26	25	32	6	6	14	12	12	-	5	15	64
GN 412-6-35-B-2	6	35	-	M 4	25	26	25	32	6	-	14	12	12	10	5	15	71
GN 412-8-47-B-1	8	47	5.3	-	33	34	35	39	10	10	18	14	17	-	9	35	140
GN 412-8-47-B-2	8	47	-	M 5	33	34	35	39	10	-	18	14	17	12	9	35	152
GN 412-10-47-B-1	10	47	5.3	-	33	34	35	39	10	10	18	14	17	-	9	35	143
GN 412-10-47-B-2	10	47	-	M 5	33	34	35	39	10	-	18	14	17	12	9	35	154
GN 412-5-35-C-1	5	35	4.3	-	25	26	25	32	6	6	14	12	12	-	5	15	63
GN 412-5-35-C-2	5	35	-	M 4	25	26	25	32	6	-	14	12	12	10	5	15	70
GN 412-6-35-C-1	6	35	4.3	-	25	26	25	32	6	6	14	12	12	-	5	15	64
GN 412-6-35-C-2	6	35	-	M 4	25	26	25	32	6	-	14	12	12	10	5	15	71
GN 412-8-47-C-1	8	47	5.3	-	33	34	35	39	10	10	18	14	17	-	9	35	130
GN 412-8-47-C-2	8	47	-	M 5	33	34	35	39	10	-	18	14	17	12	9	35	152
GN 412-10-47-C-1	10	47	5.3	-	33	34	35	39	10	10	18	14	17	-	9	35	143
GN 412-10-47-C-2	10	47	-	M 5	33	34	35	39	10	-	18	14	17	12	9	35	155

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Spring latches

SPECIFICATION

Types

- Type **S**: with locking, without rest position
- Type **L1**: Locking / Rest position via counterclockwise rotation
- Type **R1**: Locking / Rest position via clockwise rotation

Guide
Zinc die casting
plastic coated, RAL 9005, textured finish

Plunger pin
Steel
zinc plated, blue passivated

Spring
Stainless Steel AISI 301

Latch lever
Plastic, Technopolymer (Polyamide PA)

- black, matte
- not removable

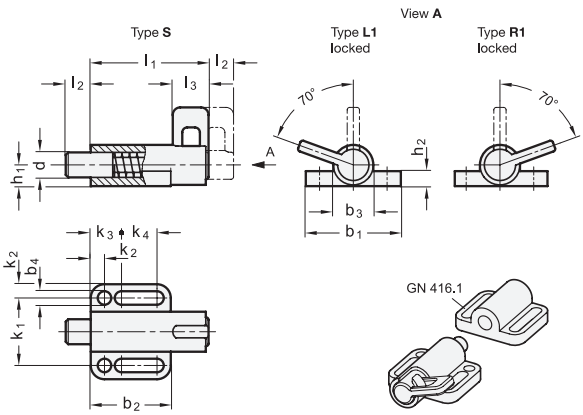


INFORMATION

The plunger of spring latches GN 416 is operated by an axial pulling of the latch lever. This kind of operation from the top side is advantageous in certain installation situations.
The pins of Type S spring latches are engaged in the housing to prevent rotation, and therefore lock in the starting position but not the retracted position. Types R1 and L1 spring latches offer a locking function in the starting as well as in the retracted position, preventing an unintentional operation. A lock notch holds the latch lever in both positions.
The adjustment range is designed in such a way that ISO 7092 washers can be used within the adjustment slot in the housing.

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)



GN 416

Description	d Pin -0.05 Bore +0.1/+0.05	b1	b2	b3	b4	h1	h2	k1	k2	k3	k4	l1	l2 min.	l3	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 416-6-38-L1	6	38	32	16	5.4	8.5	6	27	5.5	12	14.5	47	10	14	21	27	67
GN 416-8-38-L1	8	38	32	16	5.4	8.5	6	27	5.5	12	14.5	47	10	14	21	27	69
GN 416-8-46-L1	8	46	40	20	6.4	11	6	33	6.5	14.5	19	59	12	17	25	38	130
GN 416-10-38-L1	10	38	32	16	5.4	8.5	6	27	5.5	12	14.5	47	10	14	21	27	72
GN 416-10-46-L1	10	46	40	20	6.4	11	6	33	6.5	14.5	19	59	12	17	25	38	132
GN 416-12-46-L1	12	46	40	20	6.4	11	6	33	6.5	14.5	19	59	12	17	25	38	136
GN 416-6-38-S	6	38	32	16	5.4	8.5	6	27	5.5	12	14.5	47	10	14	21	27	68
GN 416-8-38-S	8	38	32	16	5.4	8.5	6	27	5.5	12	14.5	47	10	14	21	27	69
GN 416-8-46-S	8	46	40	20	6.4	11	6	33	6.5	14.5	19	59	12	17	25	38	140
GN 416-10-38-S	10	38	32	16	5.4	8.5	6	27	5.5	12	14.5	47	10	14	21	27	70
GN 416-10-46-S	10	46	40	20	6.4	11	6	33	6.5	14.5	19	59	12	17	25	38	132
GN 416-12-46-S	12	46	40	20	6.4	11	6	33	6.5	14.5	19	59	12	17	25	38	135
GN 416-6-38-R1	6	38	32	16	5.4	8.5	6	27	5.5	12	14.5	47	10	14	21	27	66
GN 416-8-38-R1	8	38	32	16	5.4	8.5	6	27	5.5	12	14.5	47	10	14	21	27	69
GN 416-8-46-R1	8	46	40	20	6.4	11	6	33	6.5	14.5	19	59	12	17	25	38	120
GN 416-10-38-R1	10	38	32	16	5.4	8.5	6	27	5.5	12	14.5	47	10	14	21	27	71
GN 416-10-46-R1	10	46	40	20	6.4	11	6	33	6.5	14.5	19	59	12	17	25	38	150
GN 416-12-46-R1	12	46	40	20	6.4	11	6	33	6.5	14.5	19	59	12	17	25	38	135

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GN 416.1

Locators

for spring latches GN 416

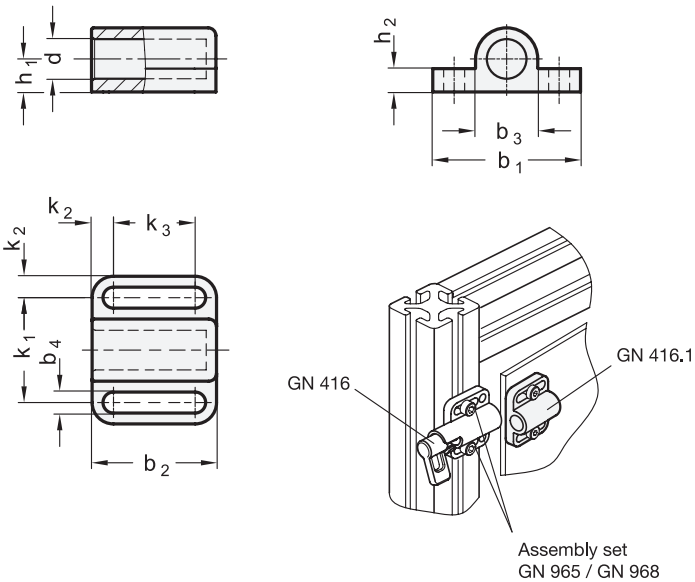
SPECIFICATION

Zinc die casting
plastic coated
black, RAL 2005, textured finish

INFORMATION

Locators GN 416.1 are matched to the spring latches GN 416 and are used to position the indexing pin.





GN 416.1

Description	d Nominal dimension	d Actual dimension +0.15/-0.05	b1	b2	b3	b4	h1	h2	k1	k2	k3	⚖
GN 416.1-6-38	6	6.2	38	28	16	5.4	8.5	6	27	5.5	17	51
GN 416.1-8-38	8	8.2	38	28	16	5.4	8.5	6	27	5.5	17	47
GN 416.1-8-46	8	8.2	46	38	20	6.4	11	6	33	6.5	25	94
GN 416.1-10-38	10	10.2	38	28	16	5.4	8.5	6	27	5.5	17	20
GN 416.1-10-46	10	10.2	46	38	20	6.4	11	6	33	6.5	25	87
GN 416.1-12-46	12	12.2	46	38	20	6.4	11	6	33	6.5	25	79

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Indexing plungers

with and without rest position



SPECIFICATION

Version without rest position

Types

- Type **A**: without rest position (lifting ring)
- Type **B**: without rest position (Knob)

Version with rest position

Type

- Type **C**: with rest position (Knob)

This information applies to both standards:
Guide
Zinc die casting
plastic coated
black, textured finish

Pin
Stainless Steel AISI 303

Spring
Stainless Steel AISI 301

Lifting ring
Stainless Steel AISI 301

Knob
Plastic (Polyamide PA)

- black, matt
- not removable

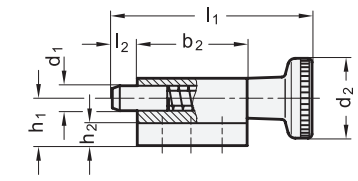
INFORMATION

The screwing range of indexing plungers GN 417 is chosen in such a way that washers ISO 7092 can be used.
Indexing plungers GN 417 type C with rest position are used in such applications where the plunger has to stay in its retracted position. To achieve this, the knob is rotated by 90° degrees after being retracted. A notch keeps the plunger in this position.
- Range of indexing plungers (see page 738)

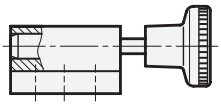
TECHNICAL INFORMATION

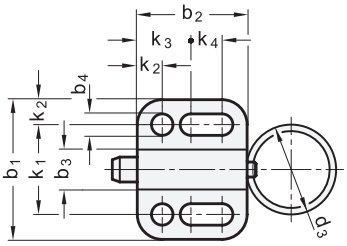
- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)
- Load rating information (see page A42)

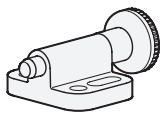
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Plunger pin retracted

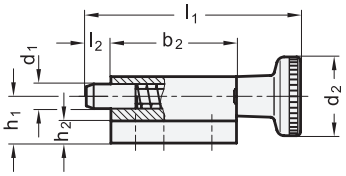




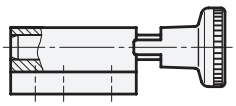


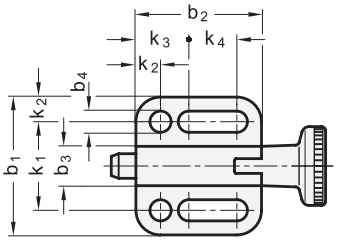
GN 417

Description	d1 Bore +0.03/+0.08 Plunger h11	d2	d3	b1	b2	b3	b4 -0.2	h1	h2	k1 ±0.05	k2	k3	k4	l1	l2 ±0.5	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 417-4-A	4	-	14	22	16.5	6	3.3	7	4	14	4	8	4.5	-	4	3	12	11
GN 417-5-A	5	-	18	28	22	8	4.3	9.5	4.5	18	5	10	7	-	5	5	24	22
GN 417-6-A	6	-	24	32	27.5	10	5.4	10.5	5	21	5.5	12	10	-	6	5	21	36
GN 417-8-A	8	-	30	34	33	12	5.4	12.5	6	23	5.5	12	15.5	-	8	6	22	58
GN 417-10-A	10	-	30	39	35	14.5	6.5	14.5	6	27	6	15	13.5	-	10	4	25	83
GN 417-4-B	4	12	-	22	16.5	6	3.3	7	4	14	4	8	4.5	30.5	4	3	12	11
GN 417-5-B	5	16	-	28	22	8	4.3	9.5	4.5	18	5	10	7	40	5	5	24	22
GN 417-6-B	6	18	-	32	27.5	10	5.4	10.5	5	21	5.5	12	10	49	6	5	21	25
GN 417-8-B	8	21	-	34	33	12	5.4	12.5	6	23	5.5	12	15.5	59	8	6	22	59
GN 417-10-B	10	25	-	39	35	14.5	6.5	14.5	6	27	6	15	13.5	67.5	10	4	25	34

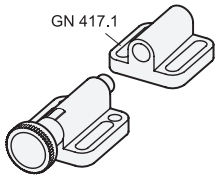


Plunger pin retracted





GN 417.1



GN 417-C

Description	d1 Bore +0.03/+0.08 Plunger h11	d2	b1	b2	b3	b4 -0.2	h1	h2	k1 ±0.05	k2	k3	k4	l1	l2 min.	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 417-4-C	4	12	22	19	6	3.3	7	4	14	4	8	7	33	4	3	12	14
GN 417-5-C	5	16	28	25.5	8	4.3	9.5	4.5	18	5	10	10.5	43.5	5	5	24	25
GN 417-6-C	6	18	32	30.5	10	5.4	10.5	5	21	5.5	12	13	52	6	5	21	41
GN 417-8-C	8	21	34	37.5	12	5.4	12.5	6	23	5.5	12	20	63.5	8	6	22	66
GN 417-10-C	10	25	39	40	14.5	6.5	14.5	6	27	6	15	18.5	72.5	10	4	25	97

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Locators

for indexing plungers GN 417

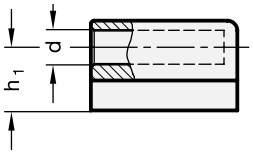
SPECIFICATION

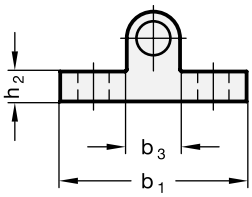
Steel
plastic coated
black, textured finish

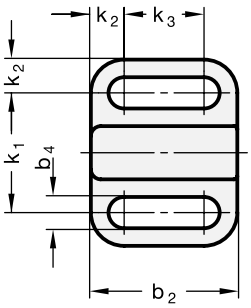
INFORMATION

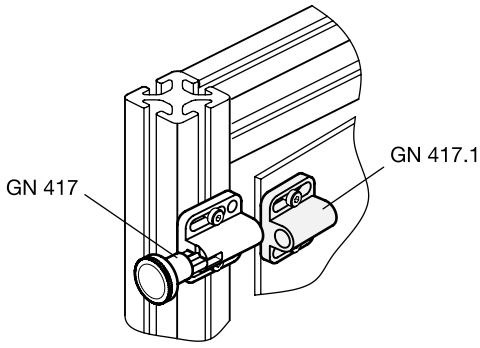
Locators GN 417.1 are matched to the indexing plungers GN 417 (see page 792) and are used to position the indexing pin.











GN 417.1

Description	d Nominal dimension	d Actual dimension +0.1	b1	b2	b3	b4	h1	h2	k1	k2	k3	⚖
GN 417.1-4	4	4.1	22	16.5	6	3.3	7	4	14	4	8.5	10
GN 417.1-5	5	5.1	28	22	8	4.3	9.5	4.5	18	5	12	20
GN 417.1-6	6	6.2	32	27.5	10	5.4	10.5	5	21	5.5	16.5	30
GN 417.1-8	8	8.2	34	33	12	5.4	12.5	6	23	5.5	22	50
GN 417.1-10	10	10.2	39	35	14.5	6.8	14.5	6	27	6	23	70

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GN 817.3

Indexing plungers

for precision locating, plunger cylindrical

SPECIFICATION

Types

- Type **B**: without rest position
- Type **C**: with rest position

Steel

- blackened
- Pin hardened and grounded

Knob Plastic (Polyamide PA)

- black, matt
- not removable

INFORMATION

Indexing plungers GN 817.3 realize a reasonable priced precision locating when guide bushings DIN 179 (see page 1008) are used .
For this purpose a guide bushing DIN 179 (see page 1008) is used as guide, whereby the dimension l3 of the plunger determines the length of the bushing .
The precise location is, therefore, not dependent on the guide pin in the plunger, but on the accuracy of the guide bushing (bore tolerance F7) and the plunger (tolerance h7). Both components are hardened and ground. It goes without saying that the bushing length also influences the accuracy of the positioning.
Type C is used for such applications where the plunger has to stay in its retracted position. To achieve this, the knob is rotated by 90° degrees after being retracted. A notch keeps the plunger in this position.
- Range of indexing plungers (see page 738)

ACCESSORY

- Guide bushings DIN 179 (see page 1008)

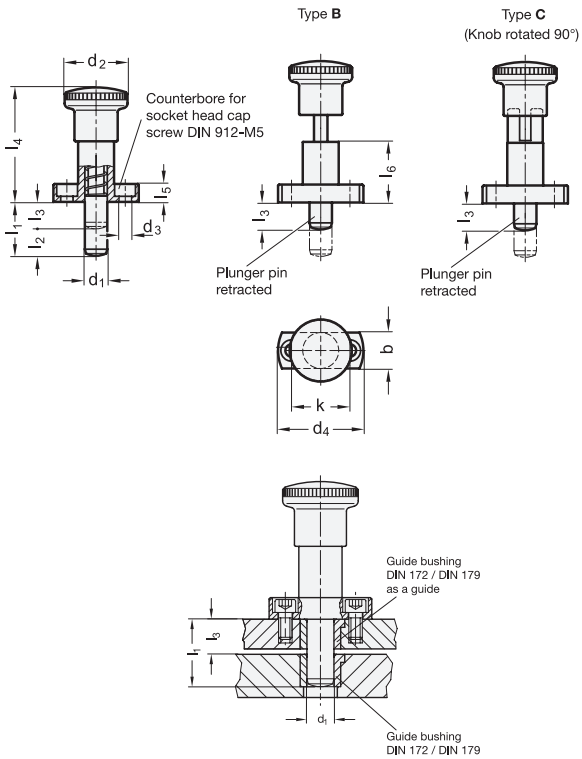
TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Plastic characteristics (see page A2)

CONSTRUCTION AND ASSEMBLY INSTRUCTIONS

Two different plunger pin lengths l1 are available for each indexing plunger diameter d1.
The length l3 must ensure that the indexing pin fully disengages, bushing length and plate thickness plus any gap can then be selected within certain margins.
For mounting bushings with tolerance n6, a hole with tolerance H7 corresponding to the external diameter is usually provided.
A selection of suitable guide bushings DIN 172 (see page 1006) and DIN 179 (see page 1008) is given.





* Complete with type index of the Indexing plungers (B or C)

B	C
without rest position	with rest position

GN 817.3

Description	d1 h7	l1	l2	l3	b	d2	d3	d4	k	l4	l5	l6	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 817.3-6-18-*	6	18	9	9	13	23	4.3	34	23	45	6	25	6	25	43
GN 817.3-6-24-*	6	24	9	15	13	23	4.3	34	23	45	6	25	6	25	45
GN 817.3-8-20-*	8	20	10	10	16	28	5.5	38	26	51	8	27	8.5	28	74
GN 817.3-8-26-*	8	26	10	16	16	28	5.5	38	26	51	8	27	8.5	28	77
GN 817.3-10-24-*	10	24	12	12	16	28	5.5	38	26	51	8	27	9.5	38	83
GN 817.3-10-32-*	10	32	12	20	16	28	5.5	38	26	51	8	27	9.5	38	100

Weight type B

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Indexing plungers

for precision locating, plunger conical

SPECIFICATION

Types

- Type **B**: without rest position
- Type **C**: with rest position

Steel

- blackened
- Pin hardened and grounded

Knob Plastic (Polyamide PA)

- black, matt
- not removable

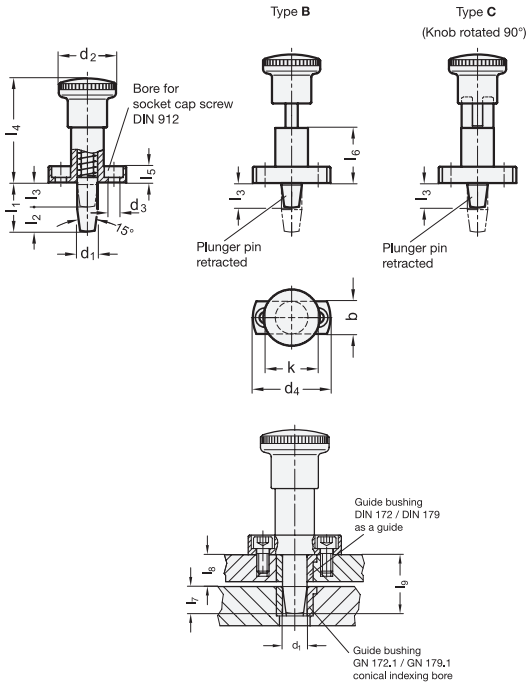
INFORMATION

Indexing plungers GN 817.5 allow highly accurate positioning, with the guidance made by the positioning bushings DIN 172 / DIN 179 with cylindrical bore. The actual indexing bore is fitted with positioning bushings GN 172.1 / GN 179.1 with conical bores.
The conical shape of the indexing pin / the indexing bore makes the positioning virtually clearance-free and therefore highly precise.
Type C is used for such applications where the plunger has to stay in its retracted position. To achieve this, the knob is rotated by 90° degrees after being retracted. A notch keeps the plunger in this position.
- Range of indexing plungers (see page 738)

CONSTRUCTION AND ASSEMBLY INSTRUCTIONS

The length l_7 is determined by the penetration depth of the indexing pin into the cone of the bushing.
The length l_8 must ensure that the indexing pin fully disengages, bushing length and plate thickness olus any gap can then be selected within certain margins.
If engaged, the pin must have a minimum remaining stroke of 0.5 mm to make sure that the conical section of the pin is located without clearance in the cone of the guide bushing.
Two different plunger pin lengths l_1 are available for each indexing plunger diameter d_1 (see product table).
For a safe remaining stroke length: $l_9 = l_1 - 0.5$ mm
For mounting bushings with tolerance n6, a hole with tolerance H7 corresponding to the external diameter is usually provided.
A selection of suitable guide bushings DIN 172 (see page 1006) and DIN 179 (see page 1008) with cylindrical bore and guide bushings GN 172.1 (see page 1010) / GN 179.1 (see page 1010) with conical bore.





*Complete with type index of the Indexing plungers (B or C)

B	C
without rest position	with rest position

GN 817.5

Description	d_1 Plunger h6	l_1	l_2	l_3	b	d_2	d_3	d_4	k	l_4	l_5	l_6	l_7	l_8 min.	l_8 max.	l_9	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 817.5-6-18-*	6	18	9	9	13	23	4.3	34	23	45	6	25	7	9	10	17.5	6	25	43
GN 817.5-6-24-*	6	24	9	15	13	23	4.3	34	23	45	6	25	7	15	16	23.5	6	25	50
GN 817.5-8-20-*	8	20	10.6	9.4	16	28	5.3	38	26	51	8	27	9	9.4	10	19.5	8.5	28	75
GN 817.5-8-26-*	8	26	10.6	15.4	16	28	5.3	38	26	51	8	27	9	15.4	16	25.5	8.5	28	80
GN 817.5-10-24-*	10	24	12.6	11.4	16	28	5.3	38	26	51	8	27	11	11.4	12	23.5	11.5	40	83
GN 817.5-10-32-*	10	32	12.6	19.4	16	28	5.3	38	26	51	8	27	11	19.4	20	31.5	11.5	40	87

Weight type B

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GN 414

Indexing plungers

Steel / Stainless Steel, with safety lock, unlocking with push-button

SPECIFICATION

Types

- Type **A**: without lock nut
- Type **AK**: with lock nut

Version in Steel

- blackened
- Pin hardened

Version in Stainless Steel AISI 303 NI

Pin chemically nickel plated

Knob
Plastic (Polyamide PA)

- black-grey, RAL 7021, matt
- temperature resistant up to 80 °C
- not removable

Push-button
Plastic (Polyacetal POM)
red, RAL 3000, matt



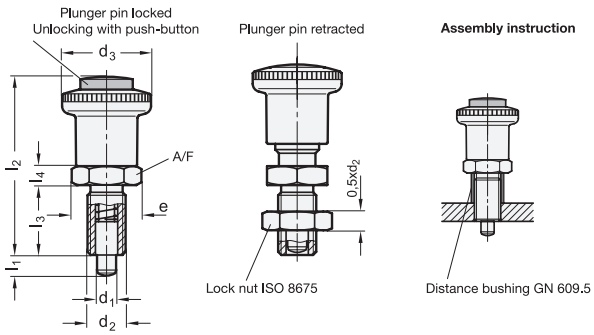
INFORMATION

Indexing plungers GN 414 with safety function are used when the inadvertent retraction of the plunger pin is to be prevented. The protruding plunger is first locked and may be unlocked for pulling only by exerting axial pressure on the red safety push-button
In every case, the safety lock engages in the front end position, i.e. automatically if the indexing pin protrudes, with the locking mechanism housed fully in the operating button and protected from malfunctions. The specified axial load bearing capacity refers to the locking force of the bolt against inadvertent operation which must not be exceeded.

- Range of indexing plungers (see page 738)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



*Complete with type index of the Indexing plungers
A AK

GN 414

Description	d1 Pin -0.02/-0.04 Bore H7	l1 min.	d2	d3	e	l2 ≈	l3	l4	A/F	Spring load in N ≈ initial	Spring load in N ≈ end	Axial load in N	⚖
GN 414-6-6-*	6	6	M 12 x 1.5	28	21.9	56	22	6	19	6.5	19	120	44
GN 414-6-9-*	6	9	M 12 x 1.5	28	21.9	56	22	6	19	6	25	120	45
GN 414-8-8-*	8	8	M 16 x 1.5	28	21.9	62	26	8	19	8.5	26	120	70
GN 414-8-12-*	8	12	M 16 x 1.5	28	21.9	62	26	8	19	8.5	28	120	72
GN 414-10-12-*	10	12	M 16 x 1.5	28	21.9	62	26	8	19	9.5	38	120	74

GN 414-NI STAINLESS STEEL

Description	d1 Pin -0.02/-0.04 Bore H7	l1 min.	d2	d3	e	l2 ≈	l3	l4	A/F	Spring load in N ≈ initial	Spring load in N ≈ end	Axial load in N	⚖
GN 414-6-6-*-NI	6	6	M 12 x 1.5	28	21.9	56	22	6	19	6.5	19	120	44
GN 414-6-9-*-NI	6	9	M 12 x 1.5	28	21.9	56	22	6	19	6	25	120	45
GN 414-8-8-*-NI	8	8	M 16 x 1.5	28	21.9	62	26	8	19	8.5	26	120	70
GN 414-8-12-*-NI	8	12	M 16 x 1.5	28	21.9	62	26	8	19	8.5	28	120	72
GN 414-10-12-*-NI	10	12	M 16 x 1.5	28	21.9	62	26	8	19	9.5	38	120	74

Weight type A

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Locking plungers

Pin in normal position protruded



SPECIFICATION

Types

- Type **A**: Operation with knob, sleeve black, without lock nut
- Type **AK**: Operation with knob, sleeve black, with lock nut
- Type **AR**: Operation with knob, sleeve red, without lock nut
- Type **ARK**: Operation with knob, sleeve red, with lock nut
- Type **B**: Operation with key, sleeve black, without lock nut
- Type **BK**: Operation with key, sleeve black, with lock nut

Threaded body
Steel zinc plated, blue passivated

Pin
Stainless Steel AISI 303

Spring
Stainless Steel AISI 301

Knob
Plastic (Polyamide PA)

- black, matt
- not removable

Sleeve
Plastic (Polyamid PA)

- black, matt or red
- not removable

INFORMATION

If not operated, the plunger of the locking plungers GN 816 protrudes. To retract, move against the spring force and hold in the end position by turning by 90°.
The shape of the cam curve secures the plunger against accidental operation.
When operating the button (Type AR/ARK), to visible **red** covering sleeve indicates the locing status: Indexing pin does **not** protrude.
For the execution with operation with key (Type B / BK) a key is required to move the plunger. In this execution, a cover sleeve provides additional security and safety from unauthorized removal of the locking plunger. The cover sleeve also provides additional protection against malfunction caused by dirt.
- Range of indexing plungers (see page 738)

ACCESSORY

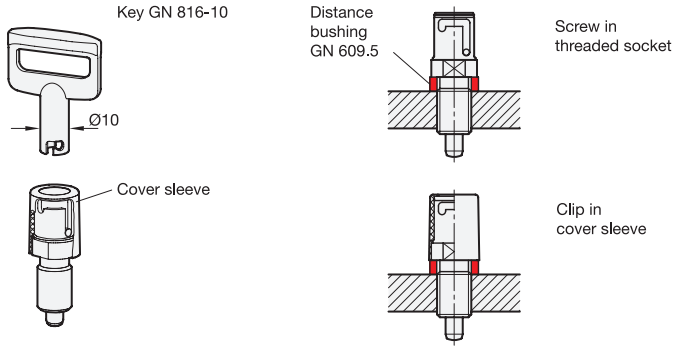
Keys **GN 816-10**
Plastic (Polyamide PA)
(Locking plungers Ø 6 and Ø 8 have the same keys)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)
- Load rating information (see page A42)

ASSEMBLY INSTRUCTIONS

Version with key (Type B / Type BK)



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Type **A / AR**

Plunger protruded

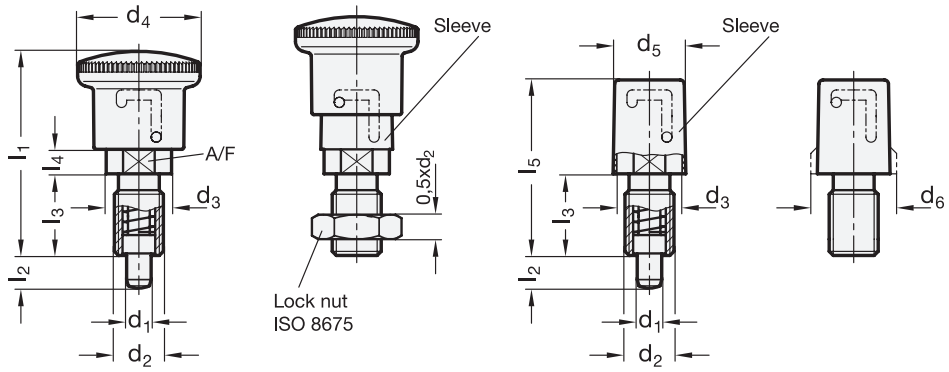
Type **AK / ARK**

Plunger retracted and locked

Type **B**

Plunger protruded

Plunger retracted and locked



GN 816

Description	d1 Pin 0/-0.05 Bore +0.15/+0.07	d2	d3	d4	d5	d6	l1 ≈	l2	l3	l4 ≈	l5	A/F	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 816-6-M12x1,5-A	6	M 12 x 1.5	16	28	-	-	50	8	20	6	-	14	13	28	50
GN 816-8-M12x1,5-A	8	M 12 x 1.5	16	28	-	-	50	8	20	6	-	14	13	28	20
GN 816-8-M16x1,5-A	8	M 16 x 1.5	18	28	-	-	52	10	22	6	-	16	14	38	60
GN 816-10-M16x1,5-A	10	M 16 x 1.5	18	28	-	-	52	10	22	6	-	16	14	38	64
GN 816-6-M12x1,5-AK	6	M 12 x 1.5	16	28	-	-	50	8	20	6	-	14	13	28	40
GN 816-8-M12x1,5-AK	8	M 12 x 1.5	16	28	-	-	50	8	20	6	-	14	13	28	29
GN 816-8-M16x1,5-AK	8	M 16 x 1.5	18	28	-	-	52	10	22	6	-	16	14	38	80
GN 816-10-M16x1,5-AK	10	M 16 x 1.5	18	28	-	-	52	10	22	6	-	16	14	38	81
GN 816-6-M12x1,5-AR	6	M 12 x 1.5	16	28	-	-	50	8	20	6	-	14	13	28	42
GN 816-8-M12x1,5-AR	8	M 12 x 1.5	16	28	-	-	50	8	20	6	-	14	13	28	20
GN 816-8-M16x1,5-AR	8	M 16 x 1.5	18	28	-	-	52	10	22	6	-	16	14	38	50
GN 816-10-M16x1,5-AR	10	M 16 x 1.5	18	28	-	-	52	10	22	6	-	16	14	38	20
GN 816-6-M12x1,5-ARK	6	M 12 x 1.5	16	28	-	-	50	8	20	6	-	14	13	28	190
GN 816-8-M12x1,5-ARK	8	M 12 x 1.5	16	28	-	-	50	8	20	6	-	14	13	28	29
GN 816-8-M16x1,5-ARK	8	M 16 x 1.5	18	28	-	-	52	10	22	6	-	16	14	38	80
GN 816-10-M16x1,5-ARK	10	M 16 x 1.5	18	28	-	-	52	10	22	6	-	16	14	38	20
GN 816-6-M12x1,5-B	6	M 12 x 1.5	16	-	-	-	-	8	20	-	43	14	13	28	30
GN 816-8-M12x1,5-B	8	M 12 x 1.5	16	-	-	-	-	8	20	-	43	14	13	28	42
GN 816-8-M16x1,5-B	8	M 16 x 1.5	18	-	17	20	-	10	22	-	48	16	14	38	50
GN 816-10-M16x1,5-B	10	M 16 x 1.5	18	-	17	20	-	10	22	-	48	16	14	38	71
GN 816-6-M12x1,5-BK	6	M 12 x 1.5	16	-	17	-	-	8	20	-	43	14	13	28	30
GN 816-8-M12x1,5-BK	8	M 12 x 1.5	16	-	17	-	-	8	20	-	43	14	13	28	42
GN 816-8-M16x1,5-BK	8	M 16 x 1.5	18	-	17	20	-	10	22	-	48	16	14	38	50
GN 816-10-M16x1,5-BK	10	M 16 x 1.5	18	-	17	20	-	10	22	-	48	16	14	38	71

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Locking plungers

Pin in normal position retracted



SPECIFICATION

Types

- Type **A**: Operation with knob, sleeve black, without lock nut
- Type **AK**: Operation with knob, sleeve black, with lock nut
- Type **AR**: Operation with knob, sleeve red, without lock nut
- Type **ARK**: Operation with knob, sleeve red, with lock nut
- Type **B**: Operation with key, sleeve black without lock nut
- Type **BK**: Operation with key, sleeve black, with lock nut

Threaded body
Steel zinc plated, blue passivated

Pin
Stainless Steel AISI 303

Spring
Stainless Steel AISI 301

Knob
Plastic (Polyamide PA)

- black, matt
- not removable

Sleeve
Plastic (Polyamid PA)

- black, matt or red
- not removable

INFORMATION

If not operated, the plunger of the locking plungers GN 816.1 protrudes. To retract, move against the spring force and hold in the end position by turning by 90°.
The shape of the cam curve secures the plunger against accidental operation.
When operating button (Type AR / ARK), the visible **red** covering sleeve indicates the locking status: Indexing pin does **not** protrude.
For the execution with operation with key (Type B / BK) a key is required to move the plunger. In this execution, a cover sleeve provides additional security and safety from unauthorized removal of the locking plunger. The cover sleeve also provides additional protection against malfunction caused by dirt.
- Range of indexing plungers (see page 738)

ACCESSORY

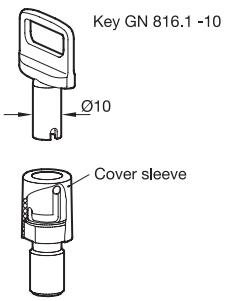
Keys **GN 816.1-10**
Plastic (Polyamide PA)
(Locking plungers Ø 6 and Ø 8 have the same keys)

TECHNICAL INFORMATION

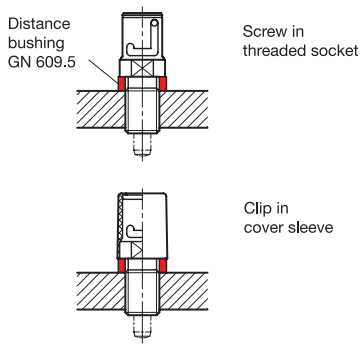
- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)
- Load rating information (see page A42)

ASSEMBLY INSTRUCTION

Version with key (Type B / Type BK)

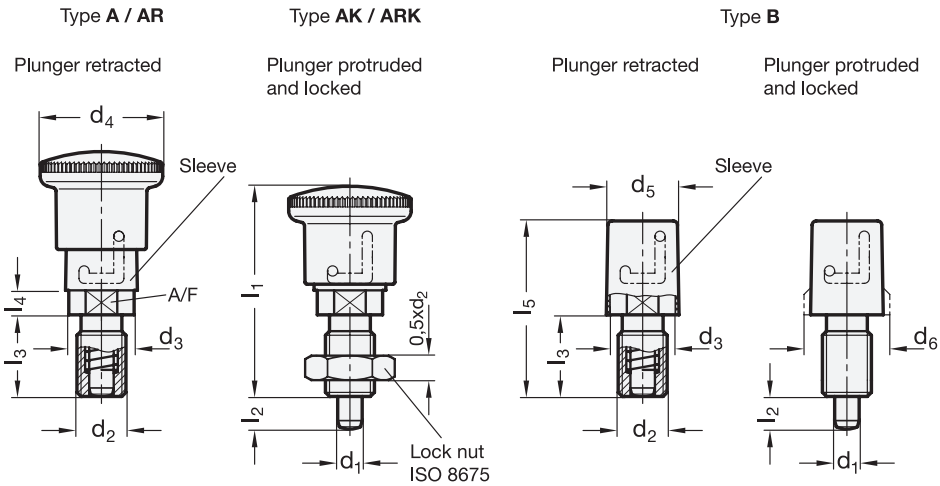


Assembly instruction



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GN 816.1 | Locking plungers



GN 816.1

Description	d1 Pin 0/-0.05 Bore +0.15/+0.07	d2	d3	d4	d5	d6	l1 ≈	l2	l3	l4 ≈	l5	A/F	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 816.1-6-M12x1,5-A	6	M 12 x 1.5	16	28	-	-	51.5	8	20	6	-	14	12	27	50
GN 816.1-8-M16x1,5-A	8	M 16 x 1.5	18	28	-	-	54.5	10	22	6	-	16	12	35	50
GN 816.1-6-M12x1,5-AK	6	M 12 x 1.5	16	28	-	-	51.5	8	20	6	-	14	12	27	55
GN 816.1-8-M16x1,5-AK	8	M 16 x 1.5	18	28	-	-	54.5	10	22	6	-	16	12	35	80
GN 816.1-6-M12x1,5-AR	6	M 12 x 1.5	16	28	-	-	51.5	8	20	6	-	14	12	27	50
GN 816.1-8-M16x1,5-AR	8	M 16 x 1.5	18	28	-	-	54.5	10	22	6	-	16	12	35	50
GN 816.1-6-M12x1,5-ARK	6	M 12 x 1.5	16	28	-	-	51.5	8	20	6	-	14	12	27	55
GN 816.1-8-M16x1,5-ARK	8	M 16 x 1.5	18	28	-	-	54.5	10	22	6	-	16	12	35	80
GN 816.1-6-M12x1,5-B	6	M 12 x 1.5	16	-	17	-	-	8	20	-	43	14	12	27	43
GN 816.1-8-M16x1,5-B	8	M 16 x 1.5	18	-	17	20	-	10	22	-	48	16	12	35	50
GN 816.1-6-M12x1,5-BK	6	M 12 x 1.5	16	-	17	-	-	8	20	-	43	14	12	27	43
GN 816.1-8-M16x1,5-BK	8	M 16 x 1.5	18	-	17	20	-	10	22	-	48	16	12	35	70

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Indexing plungers

Steel / Stainless Steel, with click-type safety lock, unlocking with push-button



SPECIFICATION

Types

- Type **A**: without lock nut
- Type **AK**: with lock nut

Version in Steel

- blackened
- Pin hardened

Version in Stainless Steel AISI 303 NI

Pin chemically nickel plated

Knob
Plastic (Polyamide PA)

- black matt finish
- not removable
- black grey, RAL 7021, matt

Push-button
Technopolymer (Polyacetal POM)
red, RAL 3000, matt

INFORMATION

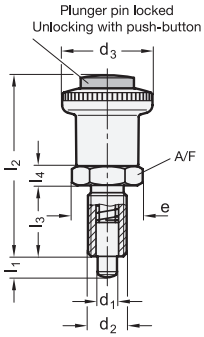
Indexing plungers GN 414.1 with click-type safety lock are used when the plunger pin is to be briefly prevented from protruding. When the pin is retracted to its end position, the button engages with a clearly audible click.
The safety lock can be unlocked only by exerting axial pressure on the red safety pushbutton, with the plunger pin then returning to its starting position by spring force.
- Range of indexing plungers (see page 738)

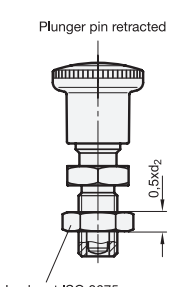
TECHNICAL INFORMATION

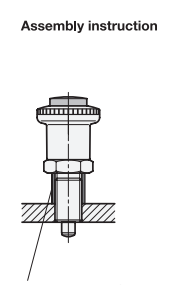
- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)

*Complete with type index of the Indexing plungers (A or AK)

A	AK
without lock nut	with lock nut







GN 414.1

Description	d1 Pin -0.02/-0.04 Bore H7	l1 min.	d2	d3	e	l2 ≈	l3	l4	A/F	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 414.1-6-6-*	6	6	M 12 x 1.5	30	21.9	53.5	22	6	19	6.5	19	47
GN 414.1-6-9-*	6	9	M 12 x 1.5	30	21.9	53.5	22	6	19	6	25	48
GN 414.1-8-8-*	8	8	M 16 x 1.5	30	21.9	59.5	26	8	19	8.5	26	74
GN 414.1-8-12-*	8	12	M 16 x 1.5	30	21.9	59.5	26	8	19	8.5	28	77
GN 414.1-10-12-*	10	12	M 16 x 1.5	30	21.9	59.5	26	8	19	9.5	38	78

GN 414.1-NI **STAINLESS STEEL**

Description	d1 Pin -0.02/-0.04 Bore H7	l1 min.	d2	d3	e	l2 ≈	l3	l4	A/F	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 414.1-6-6-*-NI	6	6	M 12 x 1.5	30	21.9	53.5	22	6	19	6.5	19	47
GN 414.1-6-9-*-NI	6	9	M 12 x 1.5	30	21.9	53.5	22	6	19	6	25	49
GN 414.1-8-8-*-NI	8	8	M 16 x 1.5	30	21.9	59.5	26	8	19	8.5	26	75
GN 414.1-8-12-*-NI	8	12	M 16 x 1.5	30	21.9	59.5	26	8	19	8.5	28	78
GN 414.1-10-12-*-NI	10	12	M 16 x 1.5	30	21.9	59.5	26	8	19	9.5	38	79

Weight type A

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GN 514

Locking plungers

with PUSH-PUSH locking mechanism



SPECIFICATION

Types

- Type **A**: without lock nut
- Type **AK**: with lock nut

Steel

- nitrided
- blackened

Knob
Plastic (Polyamide PA)
black, matt

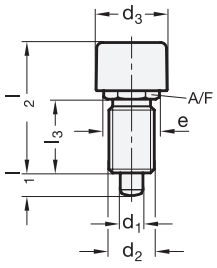
INFORMATION

The indexing pin in the locking plungers GN 514 is moved via a so-called cardioid mechanism.
This mechanism means that the indexing pin is both extended and retracted alone by **pressing** the operating button (PUSH-PUSH locking mechanism).
Please note that the indexing pin **cannot absorb any axial forces** and that it retracts virtually by spring action; the indexing pin must therefore remain free and easy to move.
- Range of indexing plungers (see page 738)

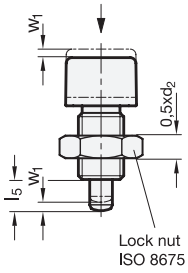
TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Plastic characteristics (see page A2)
- Load rating information (see page A42)

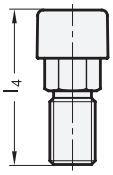
Indexing pin protrudes and is in locking position

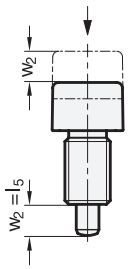


Button pushed by w_1: Indexing pin unlocked



Indexing pin retracted via pressure spring and held in position





Button pushed by w_2: Indexing pin moves back into locking position

GN 514

Description	d1 Pin -0.02/-0.04 Bore H7	d2	d3	e	l1	l2	l3	l4	l5	A/F	w1	w2	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 514-6-A	6	M 12 x 1.5	19	15	6	38	20	44.5	9	13	3	9	8.5	25	28
GN 514-8-A	8	M 16 x 1.5	25	19	8	46	26	54.5	11	17	3	11	18	44	46
GN 514-6-AK	6	M 12 x 1.5	19	15	6	38	20	44.5	9	13	3	9	8.5	25	35
GN 514-8-AK	8	M 16 x 1.5	25	19	8	46	26	54.5	11	17	3	11	18	44	79

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Spring bolts

Steel / Stainless Steel, Pin retracted in normal position



SPECIFICATION

Types

- Type **A**: with knob, without lock nut
- Type **AK**: with knob, with lock nut
- Type **D**: without knob, without lock nut
- Type **DK**: without knob, with lock nut

Identification no.

- Version **1**: Plunger without internal thread
- Version **2**: Plunger with internal thread

Guide (Threaded socket)
Steel **ST**
blackened

Guide (Threaded socket)
Stainless Steel AISI 303 **NI**

Pin
Stainless Steel

- AISI 303
- chemically nickel plated

Knob
Plastic (Polyamide PA)

- black, matt
- not removable

INFORMATION

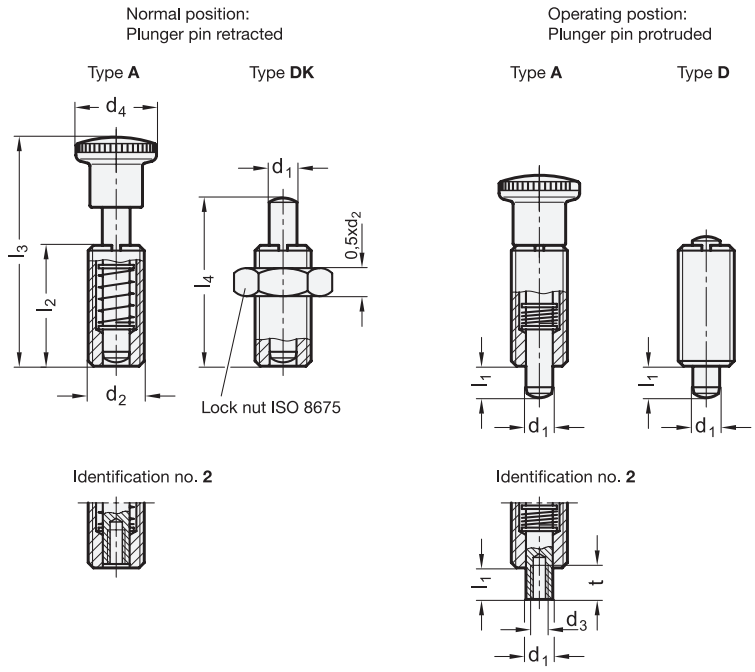
The pin of the spring bolts GN 313 does not protrude in the inoperative position.
It can be operated manually or in Type D and DK mechanically (pneumatic cylinder, cam plate, etc.) when it will protrude only as long as it is operated.
Using the internal thread at identification 2 on the pressure side, special pressure bolts or a rod arrangement can be operated, for instance.

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)
- Load rating information (see page A42)

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GN 313 | Spring bolts



*Complete with type index of the Indexing plungers (A, AK, D or DK)

A **AK** **D** **DK**

GN 313

Description	d1 Pin -0.02/-0.05 Bore H7	d2	d3	d4	l1	l2	l3 ≈	l4 ≈	t min.	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 313-5-*-1-ST	5	M 10 x 1	-	16	6	22	42	29	-	8	20	13
GN 313-6-*-1-ST	6	M12 x 1.5	-	19	7	26	49	35	-	9	28	21
GN 313-8-*-1-ST	8	M 16 x 1.5	-	23	9	34	65	48	-	12	40	48
GN 313-10-*-1-ST	10	M 20 x 1.5	-	28	11	43	78	57	-	22	50	98
GN 313-5-*-2-ST	5	M 10 x 1	M 3	16	6	22	42	29	7	8	20	13
GN 313-6-*-2-ST	6	M12 x 1.5	M 4	19	7	26	49	35	7	9	28	20
GN 313-8-*-2-ST	8	M 16 x 1.5	M 5	23	9	34	65	48	9	12	40	47
GN 313-10-*-2-ST	10	M 20 x 1.5	M 6	28	11	43	78	57	12	22	50	75

GN 313-NI **STAINLESS STEEL**

Description	d1 Pin -0.02/-0.05 Bore H7	d2	d3	d4	l1	l2	l3 ≈	l4 ≈	t min.	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 313-5-*-1-NI	5	M 10 x 1	-	16	6	22	42	29	-	7	18	13
GN 313-6-*-1-NI	6	M12 x 1.5	-	19	7	26	49	35	-	8	21	21
GN 313-8-*-1-NI	8	M 16 x 1.5	-	23	9	34	65	48	-	11	32	48
GN 313-10-*-1-NI	10	M 20 x 1.5	-	28	11	43	78	57	-	18	43	100
GN 313-5-*-2-NI	5	M 10 x 1	M 3	16	6	22	42	29	7	7	18	13
GN 313-6-*-2-NI	6	M12 x 1.5	M 4	19	7	26	49	35	7	8	21	21
GN 313-8-*-2-NI	8	M 16 x 1.5	M 5	23	9	34	65	48	9	11	32	47
GN 313-10-*-2-NI	10	M 20 x 1.5	M 6	28	11	43	78	57	12	18	43	65

Weight type A

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Clamping knobs with indexing plungers



SPECIFICATION

Knurled knob GN 7336 (see page)
Plastic (Polyamide PA)
black, matt

Cover
Plastic (Polyamide PA)
light grey, matt

Fixing thread
Steel zinc plated, blue passivated

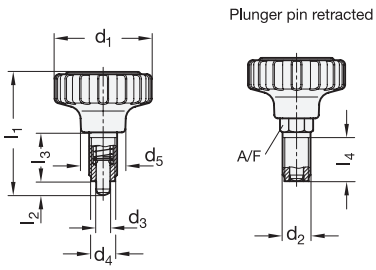
Plunger pin
Stainless Steel AISI 303

INFORMATION

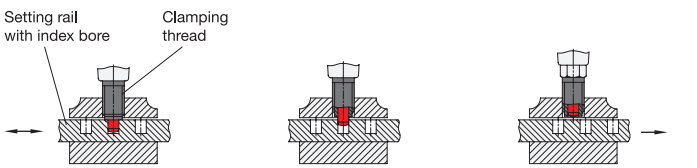
Clamping knobs with indexing plunger GN 7336.7 are used for positioning, securing and clamping adjusting elements at the same time.
The axial movement of the handle (pulling) pulls the indexing pin from the engaged position against the spring force, with the star know at the same time remaining connected with form-lock to the clamping screw via a hexagonal element, allowing both clamping and releasing.
- Range of indexing plungers (see page 738)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)
- Load rating information (see page A42)



Assembly example



GN 7336.7

Description	d1	d2	d3 Pin -0.02/-0.04 Bore G7	d4	d5	l1	l2	l3	l4 min.	A/F	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 7336.7-34-M10x1-5	34	M 10 x 1	5	8.6	15.5	45	5	19	17	10	7	17	25
GN 7336.7-42-M12x1,5-6	42	M 12 x 1.5	6	9.9	19	53	6	21	19	12	9	24	41
GN 7336.7-53-M12x1,5-6	53	M 12 x 1.5	6	9.9	22.5	59	6	21	19	12	9	24	60
GN 7336.7-53-M16x1,5-8	53	M 16 x 1.5	8	13.9	22.5	68	8	28	26	16	11	30	90

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GN 7336.8

Clamping indexing plungers

with safety function

SPECIFICATION

Knurled knob
Plastic (Polyamide PA)
black, matt

Cover
Plastic (Polyamide PA)
light grey, matt

Fixing thread
Steel zinc plated, blue passivated

Plunger pin
Steel nitrided and blackened

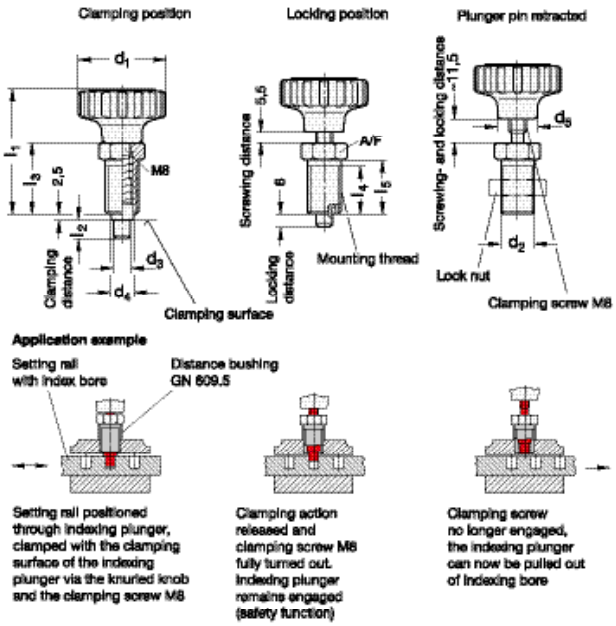


INFORMATION

Clamping indexing GN 7336.8 plungers are an advanced development of the GN 7336.7 clamping knobs with indexing plunger.
Like the latter, they are used for positioning, securing and clamping adjusting elements at the same time. This configuration ensures that the indexing pin cannot be pulled from the indexing bore by turning the knurled knob, but only be deliberately pulling the handle (safety function).
- Range of indexing plungers (see page 738)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Plastic characteristics (see page A2)
- Load rating information (see page A42)



GN 7336.8

Description	d1	d2	d3 Pin -0.02/-0.04 Bore G7	d4	d5	l1	l2	l3	l4 min.	l5	A/F	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 7336.8-42-M16x1,5-6	42	M 16 x 1.5	6	11	19	60	9	34	23	26	19	14	26	90
GN 7336.8-42-M16x1,5-8	42	M 16 x 1.5	8	11	19	60	9	34	23	26	19	14	26	96
GN 7336.8-53-M16x1,5-6	53	M 16 x 1.5	6	11	24	66	9	34	23	26	19	14	26	120
GN 7336.8-53-M16x1,5-8	53	M 16 x 1.5	8	11	24	66	9	34	23	26	19	14	26	120

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Indexing plungers

SUPER-technopolymer body

THREADED BODY
Glass-fibre reinforced polyamide based (PA) SUPER-technopolymer.

PLUNGER
Black-oxide hardened steel or AISI 303 stainless steel.
Suggested tolerance for matching hole = H7.

KNOB
Glass-fibre reinforced polyamide based (PA) technopolymer, grey-black colour, matte finish.

SPRING
AISI 302 stainless steel.

LOCKING NUT NTT
Glass-fibre reinforced polyamide based (PA) SUPER-tecnopolymer.
Available also as accessory sold separately (see table NTT).

STANDARD EXECUTIONS
- **PMT.110-A:** black-oxide steel plunger, without locking nut.
- **PMT.110-AK:** black-oxide steel plunger, with locking nut (supplied not assembled).
- **PMT.110-SST-A:** AISI 303 stainless steel plunger, without locking nut, not magnetic.
- **PMT.110-SST-AK:** AISI 303 stainless steel plunger, with locking nut (supplied not assembled), not magnetic.

FEATURES AND APPLICATIONS
- Lightness and high mechanical resistance of the product.
- Anticorrosive material: suitable even in the presence of liquid or humidity (PMT.110-SST).
- The SUPER-technopolymer threaded body of the plunger offers a low friction factor to the plunger stroke; no lubricating maintenance is required.
- Resistant to several cleaning cycles with solvents and other chemical agents, for this reason they are suitable for applications as in the pharmaceutical or food industry.

ASSEMBLY INSTRUCTIONS
Make sure that no machining residues are left on the threaded hole for the tightening of PMT.110 indexing plunger (see fig. 1). Do not make any chamfering in the hole (see fig. 2).
SUPER-technopolymer product based on ELESA technology, dimensions of the threaded body and plunger according to GN 612 standards as agreed with Otto Ganter GmbH Co. KG.
ELK knob type: ELESA original design.



ELESA Original design

Static load at breakage
Test method

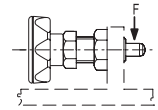


Fig.1

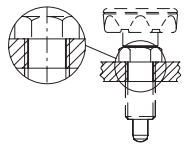
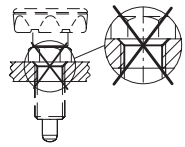
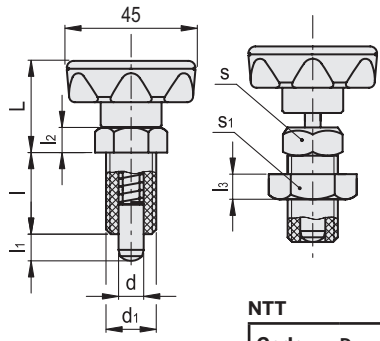


Fig.2



PMT.110-A
PMT.110-SST-A

PMT.110-AK
PMT.110-SST-AK



NTT

Code	Description
301087	NTT-M16x1,5
301089	NTT-M20x1,5

PMT.110

Code	Description	d -0.15 -0.1	d1	L	l	l1	l2	l3	s	s1	[N]*	[N]#	Max. tightening torque [Nm]	Static load at breakage F [N]	⚖
51811	PMT.110-8-M16x1.5-A	8	M16x1.5	34	26	8	8	-	19	-	11	30	18	5900	47
51821	PMT.110-8-M16x1.5-AK	8	M16x1.5	34	26	8	8	10	19	24	11	30	18	5900	51
51812	PMT.110-10-M20x1.5-A	10	M20x1.5	36	33	10	10	-	22	-	19	45	25	7700	62
51822	PMT.110-10-M20x1.5-AK	10	M20x1.5	36	33	10	10	11	22	30	19	45	25	7700	70

PMT.110-SST — STAINLESS STEEL

51831	PMT.110-SST-8-M16x1.5-A	8	M16x1.5	34	26	8	8	-	19	-	11	30	18	4400	47
51841	PMT.110-SST-8-M16x1.5-AK	8	M16x1.5	34	26	8	8	10	19	24	11	30	18	4400	51
51832	PMT.110-SST-10-M20x1.5-A	10	M20x1.5	36	33	10	10	-	22	-	19	45	25	6800	62
51842	PMT.110-SST-10-M20x1.5-AK	10	M20x1.5	36	33	10	10	11	22	30	19	45	25	6800	70

***** Spring preload

Spring maximum load

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GN 909

Flat hexagonal nuts

for indexing plungers

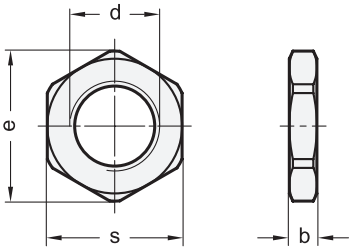
SPECIFICATION

Steel
blackened **BT**

INFORMATION

With their smaller dimensions, flat hexagonal nuts GN 909 expand the mounting options of indexing plungers and cam action indexing plungers.





GN 909

Description	d	b	e	s	⚖
GN 909-M8x1-BT	M 8 x 1	3.5	14.3	13	3
GN 909-M10x1-BT	M 10 x 1	3.5	16.6	15	3
GN 909-M12x1,5-BT	M 12 x 1.5	4	18.9	17	4
GN 909-M16x1,5-BT	M 16 x 1.5	4.5	24.5	22	8
GN 909-M20x1,5-BT	M 20 x 1.5	4.5	29.5	27	11

GN 909.5

Stainless Steel-
Flat hexagonal nuts

for indexing plungers

SPECIFICATION

Stainless Steel AISI 303

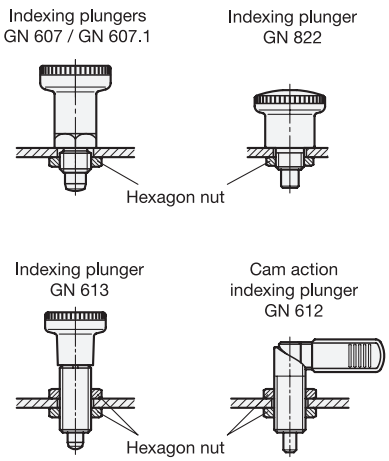
INFORMATION

With their smaller dimensions, flat hexagonal nuts GN 909.5 expand the mounting options of indexing plungers and cam action indexing plungers.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)





GN 909.5 STAINLESS STEEL

Description	d	b	e	s	⚖
GN 909.5-M8x1	M 8 x 1	3.5	14.3	13	3
GN 909.5-M10x1	M 10 x 1	3.5	16.6	15	3
GN 909.5-M12x1,5	M 12 x 1.5	4	18.9	17	4
GN 909.5-M16x1,5	M 16 x 1.5	4.5	24.5	22	8
GN 909.5-M20x1,5	M 20 x 1.5	4.5	29.5	27	11

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Stainless Steel-
Distance bushings

**for indexing plungers /
cam action indexing plungers assembly**

SPECIFICATION

Stainless Steel AISI 303

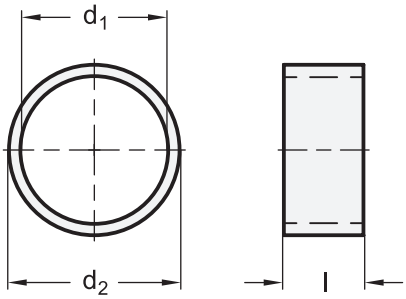
INFORMATION

Distance bushings GN 609.5 compensate for the body thread length on the indexing plungers to allow mounting through walls of varying thickness.

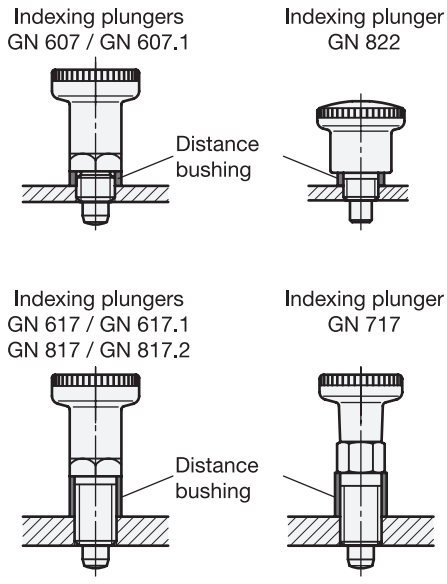
TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)





Examples of application



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GN 609.5 | Stainless Steel-Distance bushings

GN 609.5 **STAINLESS STEEL**

Description	d1 H12	d2 -0.1	l ±0.1	For thread Ø	For indexing plungers	⚖
GN 609.5-6-7-2	6	7	2	M 6	GN 717	1
GN 609.5-6-7-4	6	7	4	M 6	GN 717	1
GN 609.5-6-7-6	6	7	6	M 6	GN 717	1
GN 609.5-6-7-8	6	7	8	M 6	GN 717	1
GN 609.5-8-10-2	8	10	2	M 8	GN 717 / GN 817 / GN 817.2 / GN 822	1
GN 609.5-8-10-4	8	10	4	M 8	GN 717 / GN 817 / GN 817.2 / GN 822	1
GN 609.5-8-10-6	8	10	6	M 8	GN 717 / GN 817 / GN 817.2 / GN 822	1
GN 609.5-8-10-8	8	10	8	M 8	GN 717 / GN 817 / GN 817.2 / GN 822	2
GN 609.5-8-10-10	8	10	10	M 8	GN 717 / GN 817 / GN 817.2 / GN 822	3
GN 609.5-10-12-2	10	12	2	M 10	GN 617 |.1 |.2 / GN 717 / GN 817 |.2 / GN 822 |.1 |.6 |.7	1
GN 609.5-10-12-4	10	12	4	M 10	GN 617 |.1 |.2 / GN 717 / GN 817 |.2 / GN 822 |.1 |.6 |.7	2
GN 609.5-10-12-6	10	12	6	M 10	GN 617 |.1 |.2 / GN 717 / GN 817 |.2 / GN 822 |.1 |.6 |.7	2
GN 609.5-10-12-8	10	12	8	M 10	GN 617 |.1 |.2 / GN 717 / GN 817 |.2 / GN 822 |.1 |.6 |.7	2
GN 609.5-10-12-10	10	12	10	M 10	GN 617 |.1 |.2 / GN 717 / GN 817 |.2 / GN 822 |.1 |.6 |.7	3
GN 609.5-10-12-12	10	12	12	M 10	GN 617 |.1 |.2 / GN 717 / GN 817 |.2 / GN 822 |.1 |.6 |.7	3
GN 609.5-12-14-2	12	14	2	M 12	GN 617 |.1 |.2 / GN 717 / PMT.200 / GN 816 |.1 / GN 817 |.2 |.4|.8 / GN 514 / GN 612.8 / GN 822 |.1 |.6 |.7	1
GN 609.5-12-14-4	12	14	4	M 12	GN 617 |.1 |.2 / GN 717 / PMT.200 / GN 816 |.1 / GN 817 |.2 |.4|.8 / GN 514 / GN 612.8 / GN 822 |.1 |.6 |.7	1
GN 609.5-12-14-6	12	14	6	M 12	GN 617 |.1 |.2 / GN 717 / PMT.200 / GN 816 |.1 / GN 817 |.2 |.4|.8 / GN 514 / GN 612.8 / GN 822 |.1 |.6 |.7	2
GN 609.5-12-14-8	12	14	8	M 12	GN 617 |.1 |.2 / GN 717 / PMT.200 / GN 816 |.1 / GN 817 |.2 |.4|.8 / GN 514 / GN 612.8 / GN 822 |.1 |.6 |.7	2
GN 609.5-12-14-10	12	14	10	M 12	GN 617 |.1 |.2 / GN 717 / PMT.200 / GN 816 |.1 / GN 817 |.2 |.4|.8 / GN 514 / GN 612.8 / GN 822 |.1 |.6 |.7	2
GN 609.5-12-14-12	12	14	12	M 12	GN 617 |.1 |.2 / GN 717 / PMT.200 / GN 816 |.1 / GN 817 |.2 |.4|.8 / GN 514 / GN 612.8 / GN 822 |.1 |.6 |.7	4
GN 609.5-12-14-14	12	14	14	M 12	GN 617 |.1 |.2 / GN 717 / PMT.200 / GN 816 |.1 / GN 817 |.2 |.4|.8 / GN 514 / GN 612.8 / GN 822 |.1 |.6 |.7	4
GN 609.5-12-17-2	12	17	2	M 12	GN 414 |.1 / GN 607 |.1	2
GN 609.5-12-17-4	12	17	4	M 12	GN 414 |.1 / GN 607 |.1	3
GN 609.5-12-17-5	12	17	5	M 12	GN 414 |.1 / GN 607 |.1	4
GN 609.5-12-17-6	12	17	6	M 12	GN 414 |.1 / GN 607 |.1	6
GN 609.5-12-17-8	12	17	8	M 12	GN 414 |.1 / GN 607 |.1	7
GN 609.5-12-17-10	12	17	10	M 12	GN 414 |.1 / GN 607 |.1	8
GN 609.5-12-17-12	12	17	12	M 12	GN 414 |.1 / GN 607 |.1	10
GN 609.5-16-17-2	16	17	2	M 16	GN 514 / GN 717 / GN 816 |.1 / GN 817 |.2 |.4|.8 / GN 822 |.1 |.6 |.7|.8	1
GN 609.5-16-17-4	16	17	4	M 16	GN 514 / GN 717 / GN 816 |.1 / GN 817 |.2 |.4|.8 / GN 822 |.1 |.6 |.7|.8	1
GN 609.5-16-17-6	16	17	6	M 16	GN 514 / GN 717 / GN 816 |.1 / GN 817 |.2 |.4|.8 / GN 822 |.1 |.6 |.7|.8	1
GN 609.5-16-17-8	16	17	8	M 16	GN 514 / GN 717 / GN 816 |.1 / GN 817 |.2 |.4|.8 / GN 822 |.1 |.6 |.7|.8	1
GN 609.5-16-17-10	16	17	10	M 16	GN 514 / GN 717 / GN 816 |.1 / GN 817 |.2 |.4|.8 / GN 822 |.1 |.6 |.7|.8	2
GN 609.5-16-17-12	16	17	12	M 16	GN 514 / GN 717 / GN 816 |.1 / GN 817 |.2 |.4|.8 / GN 822 |.1 |.6 |.7|.8	2
GN 609.5-16-19-2	16	19	2	M 16	GN 414 |.1 / GN 607 |.1 / GN 612.8 / PMT.200 / GN 617 |.1 |.2 / GN 7336.8 / GN 816.1 / GN 822 |.1 |.6 |.7	1
GN 609.5-16-19-4	16	19	4	M 16	GN 414 |.1 / GN 607 |.1 / GN 612.8 / PMT.200 / GN 617 |.1 |.2 / GN 7336.8 / GN 816.1 / GN 822 |.1 |.6 |.7	2
GN 609.5-16-19-6	16	19	6	M 16	GN 414 |.1 / GN 607 |.1 / GN 612.8 / PMT.200 / GN 617 |.1 |.2 / GN 7336.8 / GN 816.1 / GN 822 |.1 |.6 |.7	4
GN 609.5-16-19-8	16	19	8	M 16	GN 414 |.1 / GN 607 |.1 / GN 612.8 / PMT.200 / GN 617 |.1 |.2 / GN 7336.8 / GN 816.1 / GN 822 |.1 |.6 |.7	5
GN 609.5-16-19-10	16	19	10	M 16	GN 414 |.1 / GN 607 |.1 / GN 612.8 / PMT.200 / GN 617 |.1 |.2 / GN 7336.8 / GN 816.1 / GN 822 |.1 |.6 |.7	6
GN 609.5-16-19-12	16	19	12	M 16	GN 414 |.1 / GN 607 |.1 / GN 612.8 / PMT.200 / GN 617 |.1 |.2 / GN 7336.8 / GN 816.1 / GN 822 |.1 |.6 |.7	7
GN 609.5-20-22-6	20	22	6	M 20	GN 612.8 / GN 617 |.1 |.2 / GN 817 |.2 |.4|.8	3
GN 609.5-20-22-8	20	22	8	M 20	GN 612.8 / GN 617 |.1 |.2 / GN 817 |.2 |.4|.8	4
GN 609.5-20-22-10	20	22	10	M 20	GN 612.8 / GN 617 |.1 |.2 / GN 817 |.2 |.4|.8	10
GN 609.5-20-22-12	20	22	12	M 20	GN 612.8 / GN 617 |.1 |.2 / GN 817 |.2 |.4|.8	6
GN 609.5-20-22-14	20	22	14	M 20	GN 612.8 / GN 617 |.1 |.2 / GN 817 |.2 |.4|.8	7
GN 609.5-20-22-16	20	22	16	M 20	GN 612.8 / GN 617 |.1 |.2 / GN 817 |.2 |.4|.8	9
GN 609.5-20-22-18	20	22	18	M 20	GN 612.8 / GN 617 |.1 |.2 / GN 817 |.2 |.4|.8	9

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Positioning bushings with ramping cone

for indexing plungers

SPECIFICATION

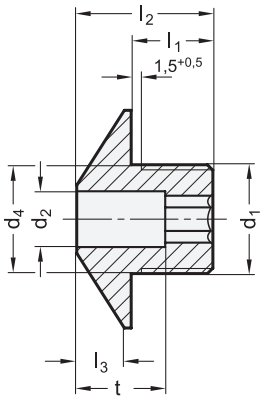
Steel

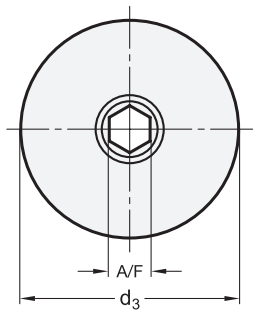
- hardened
- blackened

INFORMATION

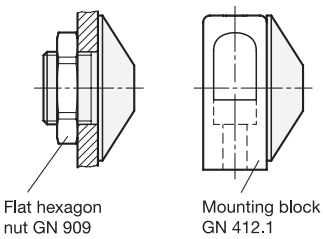
Positioning bushings with ramping cone GN 412.3 are used in connection with bolts of indxing plungers.
The threads are adapted to the mounting blocks GN 412.1 (see page 814) and GN 612.1 (see page 815).



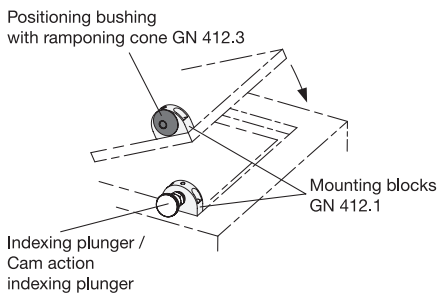




Assembly examples



Application example



GN 412.3

Description	d1	d2 +0.1	d3	d4 -0.05	l1	l2	l3	A/F	t	⚖
GN 412.3-M12x1,5-B5,2	M 12 x 1.5	B 5.2	24	12	10	16	5	4	11	16
GN 412.3-M12x1,5-B6,2	M 12 x 1.5	B 6.2	24	12	10	16	5	4	11	16
GN 412.3-M16x1,5-B8,2	M 16 x 1.5	B 8.2	32	16	12	20	7	6	13	36
GN 412.3-M16x1,5-B10,2	M 16 x 1.5	B 10.2	32	16	12	20	7	6	13	35

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GN 412.2

Positioning bushings

for indexing plungers / cam action indexing plungers

SPECIFICATION

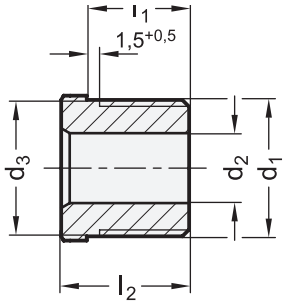
Steel

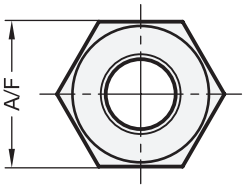
- hardened
- blackened

INFORMATION

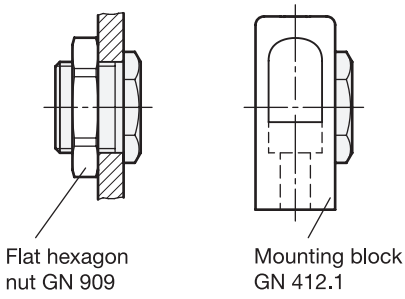
Positioning bushings GN 412.2 are used in connection with bolts of indxing plungers and cam action indexing plungers.
The threads are adapted to the mounting blocks GN 412.1 (see page 814) and GN 612.1 (see page 815).



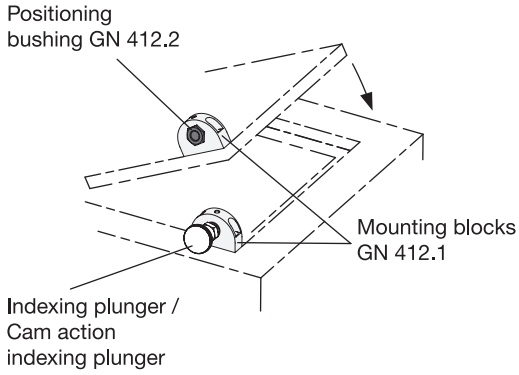




Assembly examples



Application example



GN 412.2

Description	d1	d2 +0.1	d3 -0.05	l1 -0.2	l2	A/F	⚖
GN 412.2-M12x1,5-B4,2	M 12 x 1.5	B 4.2	12	10	13	13	11
GN 412.2-M12x1,5-B5,2	M 12 x 1.5	B 5.2	12	10	13	13	11
GN 412.2-M12x1,5-B6,2	M 12 x 1.5	B 6.2	12	10	13	13	10
GN 412.2-M16x1,5-B8,2	M 16 x 1.5	B 8.2	16	12	15	17	19
GN 412.2-M16x1,5-B10,2	M 16 x 1.5	B 10.2	16	12	15	17	15
GN 412.2-M16x1,5-B12,2	M 16 x 1.5	B 12.2	16	12	15	17	10

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Mounting blocks

for indexing plungers / cam action indexing plungers

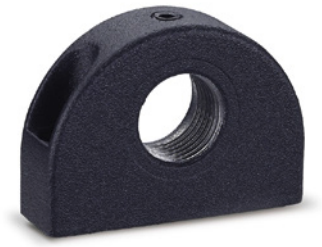
SPECIFICATION

Identification no.

- No. **1**: Mounting from the front
- No. **2**: Mounting from the back

Zinc die casting

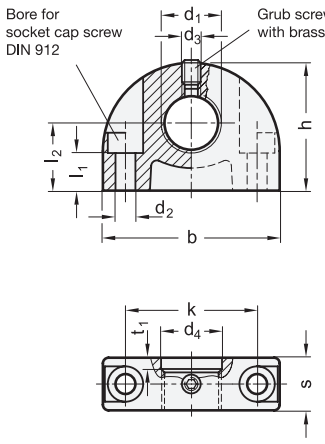
plastic coated
black, textured finish



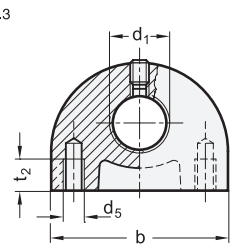
INFORMATION

Mounting blocks GN 412.1 are reasonably priced fitting aid for indexing plungers, cam action indexing plungers and for setting bolts and buffers.
To position the indexing pin of an indexing plunger or cam action indexing plunger, they can also hold positioning bushings GN 412.2 (see page 813).

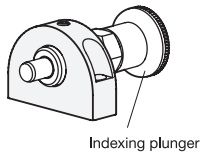
Identification no. **1**



Identification no. **2**



Application example



GN 412.1

Description	b	d1	d2	d3	d4	d5	h	k	l1	l2	s	t1	t2 min.	⚖
GN 412.1-35-M8-1	35	M 8	4.3	M 4	8.2	-	26	25	6	14	12	2	-	40
GN 412.1-35-M8x1-1	35	M 8 x 1	4.3	M 4	8.2	-	26	25	6	14	12	2	-	39
GN 412.1-35-M10-1	35	M 10	4.3	M 4	10.2	-	26	25	6	14	12	2	-	38
GN 412.1-35-M10x1-1	35	M 10 x 1	4.3	M 4	10.2	-	26	25	6	14	12	2	-	39
GN 412.1-35-M12-1	35	M 12	4.3	M 4	12.2	-	26	25	6	14	12	3	-	35
GN 412.1-35-M12x1,5-1	35	M 12 x 1.5	4.3	M 4	12.2	-	26	25	6	14	12	3	-	37
GN 412.1-47-M16-1	47	M 16	5.3	M 5	16.2	-	34	35	10	18	14	3	-	76
GN 412.1-47-M16x1,5-1	47	M 16 x 1.5	5.3	M 5	16.2	-	34	35	10	18	14	3	-	71
GN 412.1-47-M20x1,5-1	47	M 20 x 1.5	5.3	M 5	20.2	-	34	35	10	18	14	3	-	68
GN 412.1-35-M8-2	35	M 8	-	M 4	8.2	M 5	26	25	-	14	12	2	10	48
GN 412.1-35-M8x1-2	35	M 8 x 1	-	M 4	8.2	M 5	26	25	-	14	12	2	10	48
GN 412.1-35-M10-2	35	M 10	-	M 4	10.2	M 5	26	25	-	14	12	2	10	46
GN 412.1-35-M10x1-2	35	M 10 x 1	-	M 4	10.2	M 5	26	25	-	14	12	2	10	46
GN 412.1-35-M12-2	35	M 12	-	M 4	12.2	M 5	26	25	-	14	12	3	12	44
GN 412.1-35-M12x1,5-2	35	M 12 x 1.5	-	M 4	12.2	M 5	26	25	-	14	12	3	12	44
GN 412.1-47-M16-2	47	M 16	-	M 5	16.2	M 6	34	35	-	18	14	3	12	90
GN 412.1-47-M16x1,5-2	47	M 16 x 1.5	-	M 5	16.2	M 6	34	35	-	18	14	3	12	70
GN 412.1-47-M20x1,5-2	47	M 20 x 1.5	-	M 5	20.2	M 6	34	35	-	18	14	3	12	79

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GN 612.1

Mounting blocks

Steel / Stainless Steel, for indexing plungers / cam action indexing plungers



SPECIFICATION

Types

- Type **A**: fixing holes parallel to plunger
- Type **B**: fixing holes vertical to plunger

Version in Steel

- blackened
- Grub screw GN 913.3 with brass pad (see page 921)

Version in Stainless Steel AISI 303 NI

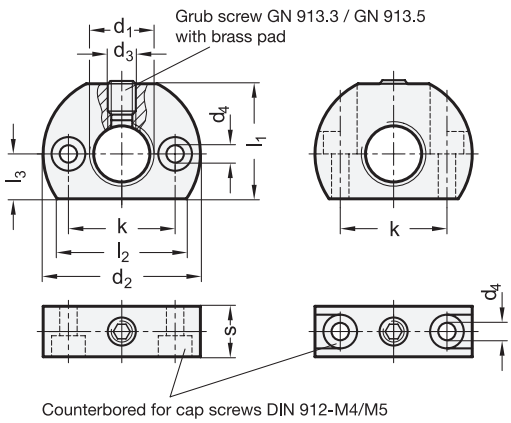
Grub screw GN 913.5 with brass pad (see page 922)

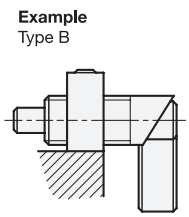
INFORMATION

Mounting blocks GN 612.1 broaden the mounting possibilities and are and added feature for the cam action indexing plungers GN 612 (see page 820) and cam action indexing plungers GN 712 (see page 823) / GN 712.1 (see page 824).
To position the indexing pin of an indexing plunger or cam action indexing plunger, they can also hold GN 412.2 (see page 813) positioning bushings.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)





GN 612.1

Description	d1	d2	d3	d4	k ±0.1	l1	l2 ≈	l3	s	⚖
GN 612.1-M12x1,5-A	M 12 x 1.5	32	M 5	4.5	21	22	26.5	9	12	44
GN 612.1-M16x1,5-A	M 16 x 1.5	46	M 8	5.5	32	33	37	13	15	122
GN 612.1-M20x1,5-A	M 20 x 1.5	46	M 8	5.5	32	33	37	13	15	95
GN 612.1-M12x1,5-B	M 12 x 1.5	32	M 5	4.5	21	22	26.5	9	12	30
GN 612.1-M16x1,5-B	M 16 x 1.5	46	M 8	5.5	32	33	37	13	15	107
GN 612.1-M20x1,5-B	M 20 x 1.5	46	M 8	5.5	32	33	37	13	15	94

GN 612.1-NI STAINLESS STEEL

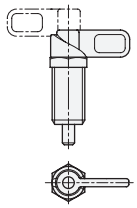
Description	d1	d2	d3	d4	k ±0.1	l1	l2 ≈	l3	s	⚖
GN 612.1-M12x1,5-A-NI	M 12 x 1.5	32	M 5	4.5	21	22	26.5	9	12	43
GN 612.1-M16x1,5-A-NI	M 16 x 1.5	46	M 8	5.5	32	33	37	13	15	121
GN 612.1-M20x1,5-A-NI	M 20 x 1.5	46	M 8	5.5	32	33	37	13	15	110
GN 612.1-M12x1,5-B-NI	M 12 x 1.5	32	M 5	4.5	21	22	26.5	9	12	37
GN 612.1-M16x1,5-B-NI	M 16 x 1.5	46	M 8	5.5	32	33	37	13	15	56
GN 612.1-M20x1,5-B-NI	M 20 x 1.5	46	M 8	5.5	32	33	37	13	15	100

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Cam action indexing plungers / Spring latches - Types

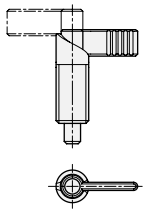
Unlocking by turning the plunger over curves

GN 612.8
see page 825
Ø 4 / 5 / 6 / 8 / 10 / 12



Features:
- Guide zinc die casting with nano®-coating
- Plunger pin steel, zinc plated
- Latch plastic
- Reasonably priced versions

GN 612
GN 612 ... NI
see page 820
Ø 4 / 5 / 6 / 8 / 10 / 12

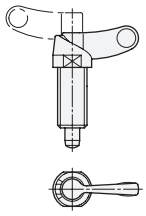


Features:
- Guide steel, blackened or Stainless Steel
- Plunger pin steel, nitrided resp. Stainless Steel
- Latch steel, blackened resp. Stainless Steel
- Latch with or without plastic cover
- High precision plunger pin guide

PMT.200
Indexing plunger
with lever
see page 822

Ø 4 / 5 / 6 / 8 / 10 / 12

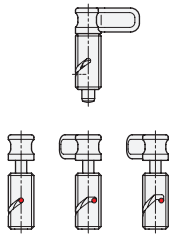
INOX STAINLESS STEEL · ELESA TECHNOPOLYMER



Features:
- SUPER-technopolymer threaded body and lever. Lightness and high mechanical strength
- Steel (hardened) or Stainless Steel plunger pin
- Anticorrosive material: suitable even in the presence of liquid or humidity
- Low friction factor to the plunger stroke; no lubricating maintenance is required
- Resistant to several cleaning cycles with solvents and other chemical agents

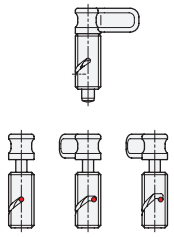
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GN 712
see page 823
Ø 6 / 8 / 10
Plunger pin in
standard position
protruded



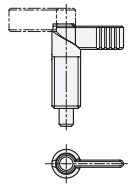
Features:
- Plunger in end positions locked, not locked or arrested and additionally locked (safety version)
- Guide steel, zinc plated
- Plunger pin Stainless Steel
- Latch plastic

GN 712.1
see page 824
Ø 6 / 8 / 10
Plunger pin in
standard position
retracted



GN 721
GN 721.5
see page 826
Ø 5 / 6 / 8 / 10 /
without locking function

INOX STAINLESS STEEL



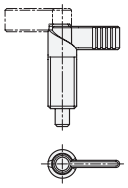
Features:
- Guide steel, blackened or Stainless Steel
- Plunger pin steel, hardened resp. Stainless Steel
- Latch steel, blackened resp. Stainless Steel
- Right- or left- hand lock
- Latch with or without plastic cover
- High precision plunger pin guide

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Cam action indexing plungers / Spring latches - Types

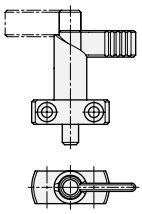
Unlocking by turning the plunger over curves

GN 721.1
GN 721.6
see page 828
Ø 4 / 5 / 6 / 8 / 10 / 12
with locking function



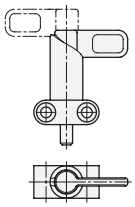
Features:
- Guide steel, blackened or Stainless Steel
- Plunger pin steel, hardened resp. Stainless steel
- Latch steel, blackened resp. Stainless Steel
- Right- or left- hand lock
- Latch with or without plastic cover
- High precision plunger pin guide

GN 612.2
see page 830
Ø 6 / 8 / 10 / 12



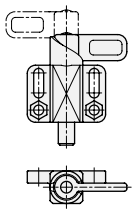
Features:
- Guide steel, blackened
- Plunger pin steel, nitrided
- Latch steel, blackened
- Latch with or without plastic cover

GN 612.9
see page 831
Ø 6 / 8 / 10 / 12



Features:
- Guide, Zinc die casting, black plastic coated
- Plunger pin steel, zinc plated
- Latch plastic
- Reasonably priced versions

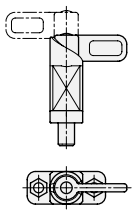
GN 722.3
see page 832
Ø 8 / 10 / 12 / 14



Features:
- Guide steel (fine casting), zinc plated or black plastic coated
- Plunger pin steel, zinc plated
- Latch steel, zinc plated
- Left or right indexing cam
- Designed for use in „steel construction“ or in „locksmith shops“ i.e. for less precise positioning

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GN 722.2
see page 834
Ø 8 / 10 / 12 / 14



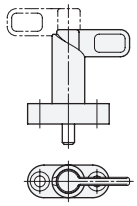
Features:
- Guide steel (fine casting), zinc plated or black plastic coated
- Plunger pin steel, zinc plated
- Latch position right-angled or paralell to fixing holes
- Designed for use in „steel construction“ or in „locksmith shops“ i.e. for less precise positioning

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Cam action indexing plungers / Spring latches - Types

Unlocking by turning the plunger over curves

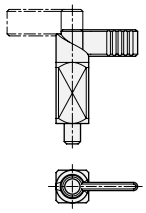
GN 612.10
see page 836
Ø 6 / 8 / 10 / 12



Features:
- Guide, zinc die casting, black plastic coated
- Plunger pin steel, zinc plated
- Latch plastic
- Reasonably priced versions

GN 612.3
GN 612.3 ... NI
see page 820
Ø 6 / 8 / 10 / 12

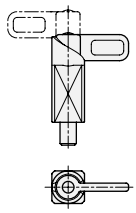
INOX STAINLESS STEEL



Features:
- Cam action indexing plunger for welding
- Guide steel, blackened or Stainless Steel
- Plunger pin steel, nitrided or Stainless Steel
- Latch with or without plastic cover

GN 722.1 ... ST
GN 722.1 ... A4
see page 838
Ø 8 / 10 / 12 / 14

INOX STAINLESS STEEL



Features:
- Cam action indexing plunger for welding
- Guide steel precison casting, blackened or Stainless Steel-precision casting
- Plunger pin steel, zinc plated or Stainless Steel
- Latch steel precison casting, blackened or Stainless Steel-precision casting
- Designed for use in „steel construction“ or in „locksmith shops“ i.e. for less precise positioning

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Cam action indexing plungers

Steel / Stainless Steel



SPECIFICATION

Types

- Type **A**: without plastic cover, without lock nut
- Type **B**: with plastic cover, without lock nut
- Type **AK**: without plastic cover, with lock nut
- Type **BK**: with plastic cover, with lock nut

Version in Steel

- blackened
- Pin nitrided

Version in Stainless Steel AISI 303 NI

Spring
Stainless Steel AISI 301

Plastic cover (Polyamide PA)
black, matt

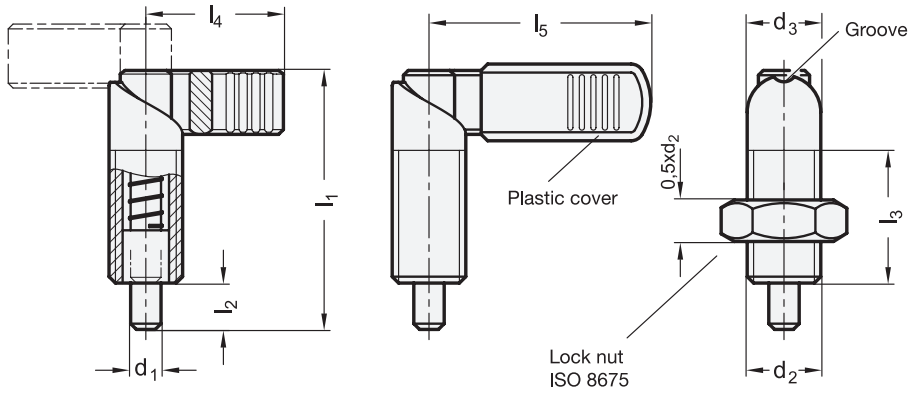
INFORMATION

Cam action indexing plungers GN 612 are used in cases where the locking pin must not protude all the time. By rotating the lock through 180° the locking pin withdraws itself. A groove is provided in either position to prevent the lock from rotating.

- Range of cam action indexing plungers (see page 816)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)
- Load rating information (see page A42)



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GN 612 | Cam action indexing plungers

*Complete with type index of the Cam action indexing plungers

A AK B BK

GN 612

Description	d1 Pin -0.02/-0.04 Bore H7	d2	d3	l1	l2	l3 +1.5	l4	l5	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 612-4-M10-*	4**	M 10	10	37.5	6	19	21	-	7	20	17
GN 612-4-M10x1-*	4**	M 10 x 1	10	37.5	6	19	21	-	7	20	17
GN 612-5-M10-*	5**	M 10	10	37.5	6	19	21	-	7	20	17
GN 612-5-M10x1-*	5**	M 10 x 1	10	37.5	6	19	21	-	7	20	18
GN 612-5-M12-*	5	M 12	12	47	8	26	26	32	8	18	28
GN 612-5-M12x1,5-*	5	M 12 x 1.5	12	47	8	26	26	32	8	18	28
GN 612-6-M10-*	6**	M 10	10	37.5	6	19	21	-	7	20	18
GN 612-6-M10x1-*	6**	M 10 x 1	10	37.5	6	19	21	-	7	20	18
GN 612-6-M12-*	6	M 12	12	47	8	26	26	32	8	18	29
GN 612-6-M12x1,5-*	6	M 12 x 1.5	12	47	8	26	26	32	8	18	30
GN 612-6-M16-*	6	M 16	16	56	10	30	32	42	11	29	57
GN 612-6-M16x1,5-*	6	M 16 x 1.5	16	56	10	30	32	42	11	29	59
GN 612-8-M12-*	8	M 12	12	47	8	26	26	32	8	18	30
GN 612-8-M12x1,5-*	8	M 12 x 1.5	12	47	8	26	26	32	8	18	29
GN 612-8-M16-*	8	M 16	16	56	10	30	32	42	11	29	59
GN 612-8-M16x1,5-*	8	M 16 x 1.5	16	56	10	30	32	42	11	29	61
GN 612-8-M20x1,5-*	8	M 20 x 1.5	20	69	12	37	37	52	21	57	111
GN 612-8-M20-*	8	M 20	20	69	12	37	37	52	21	57	115
GN 612-10-M16x1,5-*	10	M 16 x 1.5	16	56	10	30	32	42	11	29	60
GN 612-10-M16-*	10	M 16	16	56	10	30	32	42	11	29	61
GN 612-10-M20x1,5-*	10	M 20 x 1.5	20	69	12	37	37	52	21	57	114
GN 612-10-M20-*	10	M 20	20	69	12	37	37	52	21	57	121
GN 612-12-M20x1,5-*	12	M 20 x 1.5	20	69	12	37	37	52	21	57	100
GN 612-12-M20-*	12	M 20	20	69	12	37	37	52	21	57	120

GN 612-NI

STAINLESS STEEL

Description	d1 Pin -0.06/-0.08 Bore H7	d2	d3	l1	l2	l3 +1.5	l4	l5	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 612-4-M10-*-NI	4**	M 10	10	37.5	6	19	21	-	7	20	16
GN 612-4-M10x1-*-NI	4**	M 10 x 1	10	37.5	6	19	21	-	7	20	17
GN 612-5-M10-*-NI	5**	M 10	10	37.5	6	19	21	-	7	20	17
GN 612-5-M10x1-*-NI	5**	M 10 x 1	10	37.5	6	19	21	-	7	20	18
GN 612-5-M12-*-NI	5	M 12	12	47	8	26	26	32	8	18	28
GN 612-5-M12x1,5-*-NI	5	M 12 x 1.5	12	47	8	26	26	32	8	18	28
GN 612-6-M10-*-NI	6**	M 10	10	37.5	6	19	21	-	7	20	18
GN 612-6-M10x1-*-NI	6**	M 10 x 1	10	37.5	6	19	21	-	7	20	18
GN 612-6-M12-*-NI	6	M 12	12	47	8	26	26	32	8	18	29
GN 612-6-M12x1,5-*-NI	6	M 12 x 1.5	12	47	8	26	26	32	8	18	30
GN 612-6-M16-*-NI	6	M 16	16	56	10	30	32	42	11	29	57
GN 612-6-M16x1,5-*-NI	6	M 16 x 1.5	16	56	10	30	32	42	11	29	59
GN 612-8-M12-*-NI	8	M 12	12	47	8	26	26	32	8	18	30
GN 612-8-M12x1,5-*-NI	8	M 12 x 1.5	12	47	8	26	26	32	8	18	30
GN 612-8-M16-*-NI	8	M 16	16	56	10	30	32	42	11	29	58
GN 612-8-M16x1,5-*-NI	8	M 16 x 1.5	16	56	10	30	32	42	11	29	60
GN 612-8-M20x1,5-*-NI	8	M 20 x 1.5	20	69	12	36	37	52	21	57	121
GN 612-8-M20-*-NI	8	M 20	20	69	12	36	37	52	21	57	115
GN 612-10-M16x1,5-*-NI	10	M 16 x 1.5	16	56	10	30	32	42	11	29	64
GN 612-10-M16-*-NI	10	M 16	16	56	10	30	32	42	11	29	61
GN 612-10-M20x1,5-*-NI	10	M 20 x 1.5	20	69	12	36	37	52	21	57	120
GN 612-10-M20-*-NI	10	M 20	20	69	12	36	37	52	21	57	117
GN 612-12-M20x1,5-*-NI	12	M 20 x 1.5	20	69	12	36	37	52	21	57	130
GN 612-12-M20-*-NI	12	M 20	20	69	12	36	37	52	21	57	120

** These sizes are only available in Type A and Type AK.

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Indexing plungers

Rest position, SUPER-technopolymer body



THREADED BODY
Glass-fibre reinforced polyamide based (PA) SUPER-technopolymer.

PLUNGER
Black-oxide hardened steel or AISI 303 stainless steel.
Suggested tolerance H7 for matching hole.

LEVER
Self-lubricating glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

SPRING
AISI 302 stainless steel.

LOCKING NUT (NTT)
Glass-fibre reinforced polyamide based (PA) SUPER-tecnopolymer.
Available also as accessory sold separately (see table NTT).

STANDARD EXECUTIONS
- **PMT.200-A:** black-oxide steel plunger, without locking nut.
- **PMT.200-AK:** black-oxide steel plunger, with locking nut (supplied not assembled).
- **PMT.200-SST-A:** AISI 303 stainless steel plunger, without locking nut, not magnetic.
- **PMT.200-SST-AK:** AISI 303 stainless steel plunger, with locking nut (supplied not assembled), not magnetic.

FEATURES AND APPLICATIONS
- PMT.200 lever indexing plungers are used when the plunger must be retracted quickly.
- By rotating the lifting lever by 180°, the plunger stops in the retracted position in which the lever is kept by a notch.
- High lightness and high mechanical resistance of the product.
- Anticorrosive material: suitable even in the presence of liquid or humidity (PMT.200-SST).
- The SUPER-technopolymer threaded body of the plunger offers a low friction factor to the plunger stroke; no lubricating maintenance is required.

ASSEMBLY INSTRUCTIONS
Make sure that no machining residues are left on the threaded hole for the assembly of PMT.200 indexing plunger (see fig. 1). Do not make any chamfering in the hole (see fig. 2).
SUPER-technopolymer product based on ELESA technology, dimensions of the threaded body and plunger according to GN 612 standards as agreed with Otto Ganter GmbH Co. KG.

ELESA Original design

Fig.1

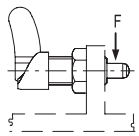
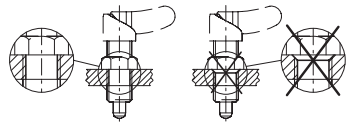
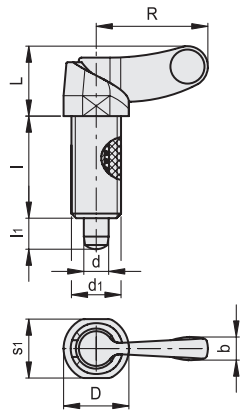


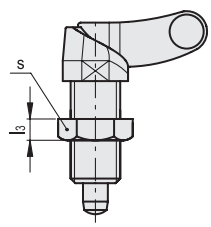
Fig.2



PMT.200-A
PMT.200-SST-A



PMT.200-AK
PMT.200-SST-AK



NTT

Code	Description
301085	NTT-M12x1,5
301087	NTT-M16x1,5

PMT.200

Code	Description	d-0.15 -0.1	d1	L	D	R	b	l	l1	l3	s	s1	[N]*	[N]#	Max. tightening torque [Nm]	Max. static load F[N]	⚖
51702	PMT.200-6-M12x1.5-A	6	M12x1.5	17	15.5	26.5	5.5	26	8	-	-	14	9	35	10	3000	20
51711	PMT.200-8-M16x1.5-A	8	M16x1.5	21	20.5	32.5	7	30	10	-	-	19	10	40	18	3000	26
51722	PMT.200-6-M12x1.5-AK	6	M12x1.5	17	15.5	26.5	5.5	26	8	8	19	14	9	35	10	3000	25
51731	PMT.200-8-M16x1.5-AK	8	M16x1.5	21	20.5	32.5	7	30	10	10	24	19	10	40	18	3000	31

PMT.200-SST **STAINLESS STEEL**

51752	PMT.200-SST-6-M12x1.5-A	6	M12x1.5	17	15.5	26.5	5.5	26	8	-	-	14	9	35	10	2000	20
51761	PMT.200-SST-8-M16x1.5-A	8	M16x1.5	21	20.5	32.5	7	30	10	-	-	19	10	40	18	2000	26
51772	PMT.200-SST-6-M12x1.5-AK	6	M12x1.5	17	15.5	26.5	5.5	26	8	8	19	14	9	35	10	2000	25
51781	PMT.200-SST-8-M16x1.5-AK	8	M16x1.5	21	20.5	32.5	7	30	10	10	24	19	10	40	18	2000	31

***** Spring preload

Spring maximum load

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Cam action indexing plungers

Pin in standard position protruded

SPECIFICATION

Types

- Type **A**: without rest position, without lock nut
- Type **AK**: without rest position, with lock nut
- Type **R**: with rest position, without lock nut
- Type **RK**: with rest position, with lock nut
- Type **S**: with safety rest position, without lock nut
- Type **SK**: with safety rest position, with lock nut

Steel
zinc plated, blue passivated

Pin
Stainless Steel AISI 303

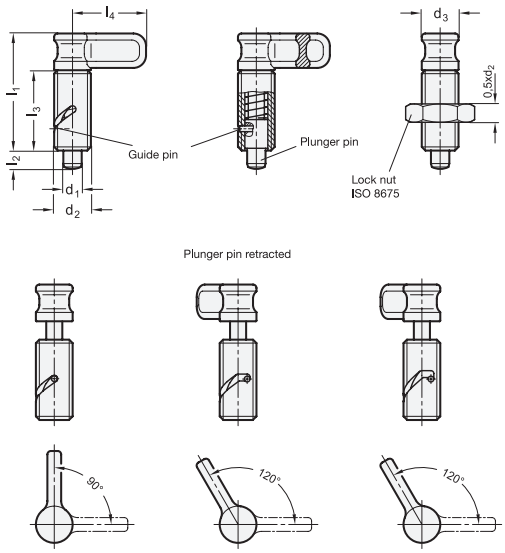
Latch
Plastic (Polyamide PA)

- black, matt
- not removable



INFORMATION

Cam action indexing plungers GN 712 are used in such applications where the plunger must not protrude continually. When turning the cam by 90° resp. 120° degrees in anti-clockwise direction, the plunger is moved through a curved opening in the body. After that, the plunger is retracted.
Depending on the type, the plunger is moved back by a spring in its original position (Type A), is held in retracted position (Type R), resp. is secured against accidental operation (Type S).
In order to move the plunger, safety version Type S requires an additional lifting of the latch.
- Range of cam action indexing plungers (see page 816)



TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)
- Load rating information (see page A42)

ON REQUEST

- Stainless Steel guide

GN 712

Description	d1 Pin -0.02/-0.05 Bore G7	d2	d3	l1 ≈	l2	l3 min.	l4	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 712-6-M16x1,5-A	6	M 16 x 1.5	16	51	8	35	32	6.5	20	50
GN 712-8-M16x1,5-A	8	M 16 x 1.5	16	51	8	35	32	6.5	20	50
GN 712-10-M16x1,5-A	10	M 16 x 1.5	16	51	8	35	32	6.5	20	55
GN 712-6-M16x1,5-AK	6	M 16 x 1.5	16	51	8	35	32	6.5	20	68
GN 712-8-M16x1,5-AK	8	M 16 x 1.5	16	51	8	35	32	6.5	20	69
GN 712-10-M16x1,5-AK	10	M 16 x 1.5	16	51	8	35	32	6.5	20	71
GN 712-6-M16x1,5-R	6	M 16 x 1.5	16	51	8	35	32	6.5	20	50
GN 712-8-M16x1,5-R	8	M 16 x 1.5	16	51	8	35	32	6.5	20	50
GN 712-10-M16x1,5-R	10	M 16 x 1.5	16	51	8	35	32	6.5	20	55
GN 712-6-M16x1,5-RK	6	M 16 x 1.5	16	51	8	35	32	6.5	20	60
GN 712-8-M16x1,5-RK	8	M 16 x 1.5	16	51	8	35	32	6.5	20	68
GN 712-10-M16x1,5-RK	10	M 16 x 1.5	16	51	8	35	32	6.5	20	70
GN 712-6-M16x1,5-S	6	M 16 x 1.5	16	51	8	35	32	6.5	20	60
GN 712-8-M16x1,5-S	8	M 16 x 1.5	16	51	8	35	32	6.5	20	61
GN 712-10-M16x1,5-S	10	M 16 x 1.5	16	51	8	35	32	6.5	20	63
GN 712-6-M16x1,5-SK	6	M 16 x 1.5	16	51	8	35	32	6.5	20	60
GN 712-8-M16x1,5-SK	8	M 16 x 1.5	16	51	8	35	32	6.5	20	71
GN 712-10-M16x1,5-SK	10	M 16 x 1.5	16	51	8	35	32	6.5	20	80

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Cam action indexing plungers

Plunger Pin in standard position retracted

SPECIFICATION

Types

- Type **A**: without rest position, without lock nut
- Type **AK**: without rest position, with lock nut
- Type **R**: with rest position, without lock nut
- Type **RK**: with rest position, with lock nut
- Type **S**: with safety rest position, without lock nut
- Type **SK**: with safety rest position, with lock nut

Steel
zinc plated, blue passivated

Pin
Stainless Steel AISI 303

Latch
Plastic Technopolymer (Polyamide PA)

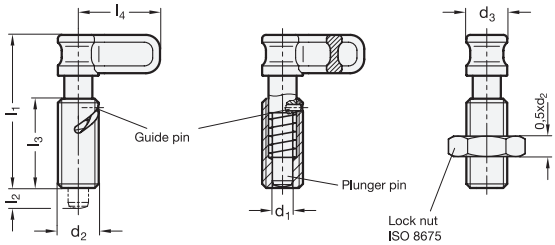
- black, matt
- not removable

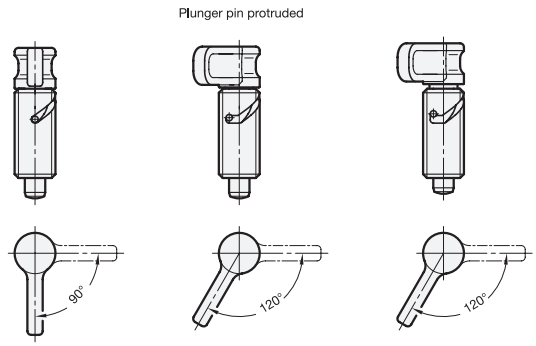


INFORMATION

Cam action indexing plungers GN 712.1 are used in such applications where the plunger must not protrude continually. When turning the cam by 90° resp. 120° degrees in anti-clockwise direction, the plunger is moved through a curved opening in the body. After that, the plunger is protruded.
Depending on the type, the plunger is moved back by a spring in its original position (Type A), is held in protruded position (Type R), resp. is secured against accidental operation (Type S). In order to move the plunger, safety version Type S requires an additional pushing of the latch.

- Range of cam action indexing plungers (see page 816)





TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)
- Load rating information (see page A42)

ON REQUEST

- Stainless Steel guide

GN 712.1

Description	d1 Pin -0.02/-0.05 Bore G7	d2	d3	l1 ≈	l2 ±0.5	l3 min.	l4	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 712.1-6-M16x1,5-A	6	M 16 x 1.5	16	60	8	35	32	7	16.5	54
GN 712.1-8-M16x1,5-A	8	M 16 x 1.5	16	60	8	35	32	7	16.5	55
GN 712.1-6-M16x1,5-AK	6	M 16 x 1,5	16	60	8	35	32	7	16.5	60
GN 712.1-8-M16x1,5-AK	8	M 16 x 1.5	16	60	8	35	32	7	16.5	60
GN 712.1-6-M16x1,5-R	6	M 16 x 1.5	16	60	8	35	32	7	16.5	54
GN 712.1-8-M16x1,5-R	8	M 16 x 1.5	16	60	8	35	32	7	16.5	60
GN 712.1-6-M16x1,5-RK	6	M 16 x 1.5	16	60	8	35	32	7	16.5	60
GN 712.1-8-M16x1,5-RK	8	M 16 x 1.5	16	60	8	35	32	7	16.5	73
GN 712.1-6-M16x1,5-S	6	M 16 x 1.5	16	60	6	35	32	7	16.5	60
GN 712.1-8-M16x1,5-S	8	M 16 x 1.5	16	60	6	35	32	7	16.5	65
GN 712.1-6-M16x1,5-SK	6	M 16 x 1.5	16	60	6	35	32	7	16.5	70
GN 712.1-8-M16x1,5-SK	8	M 16 x 1.5	16	60	6	35	32	7	16.5	75

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GN 612.8

Cam action indexing plungers

Threaded body zinc die casting,
ZNDG Pass nano®-coating

SPECIFICATION

Types

- Type **A**: without lock nut
- Type **AK**: with lock nut

Threaded body (Guide)
Zinc die casting

- corrosion-resistant, ZNDG Pass nano®-coating
- anthracite

Plunger pin
Steel
zinc plated, blue passivated

Lever
Plastic (Polyamide PA)

- black, matt
- not removable

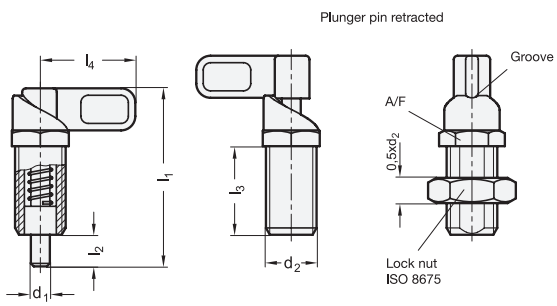


INFORMATION

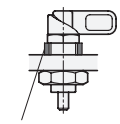
Cam action indexing plungers GN 612.8 are used in cases where the locking pin must not protrude all the time. By rotating the lock through 180° the locking pin withdraws itself. The groove allows safe positioning.
These cam action indexing plungers made of die-cast zinc are very reasonably priced design versions.
- Range of cam action indexing plungers (see page 816)

TECHNICAL INFORMATION

- Plastic characteristics (see page A2)
- Load rating information (see page A42)



Assembly instruction



Distance bushing GN 609.5

GN 612.8

Description	d1 Pin-0.05 Bore +0.1/+0.05	d2	l1	l2	l3	l4	A/F	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 612.8-4-M12x1,5-A	4	M 12 x 1.5	48	8	25	25	13	8	22	49
GN 612.8-5-M12x1,5-A	5	M 12 x 1.5	48	8	25	25	13	8	22	51
GN 612.8-6-M12x1,5-A	6	M 12 x 1.5	48	8	25	25	13	8	22	23
GN 612.8-6-M16x1,5-A	6	M 16 x 1.5	56.5	10	28	30	18	11	30	45
GN 612.8-8-M16x1,5-A	8	M 16 x 1.5	56.5	10	28	30	18	11	30	47
GN 612.8-8-M20x1,5-A	8	M 20 x 1.5	69.5	12	36	37	22	20	56	94
GN 612.8-10-M16x1,5-A	10	M 16 x 1.5	56.5	10	28	30	18	11	30	49
GN 612.8-10-M20x1,5-A	10	M 20 x 1.5	69.5	12	36	37	22	20	56	92
GN 612.8-12-M20x1,5-A	12	M 20 x 1.5	69.5	12	36	37	22	20	56	100
GN 612.8-4-M12x1,5-AK	4	M 12 x 1.5	48	8	25	25	13	8	22	29
GN 612.8-5-M12x1,5-AK	5	M 12 x 1.5	48	8	25	25	13	8	22	60
GN 612.8-6-M12x1,5-AK	6	M 12 x 1.5	48	8	25	25	13	8	22	31
GN 612.8-6-M16x1,5-AK	6	M 16 x 1.5	56.5	10	28	30	18	11	30	60
GN 612.8-8-M16x1,5-AK	8	M 16 x 1.5	56.5	10	28	30	18	11	30	59
GN 612.8-8-M20x1,5-AK	8	M 20 x 1.5	69.5	12	36	37	22	20	56	130
GN 612.8-10-M16x1,5-AK	10	M 16 x 1.5	56.5	10	28	30	18	11	30	65
GN 612.8-10-M20x1,5-AK	10	M 20 x 1.5	69.5	12	36	37	22	20	56	128
GN 612.8-12-M20x1,5-AK	12	M 20 x 1.5	69.5	12	36	37	22	20	56	130

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Cam action indexing plungers

with 180° limit stop, without locking function



SPECIFICATION

Types

- Type **RA**: Right-hand lock
- Type **RB**: Right-hand lock, with plastic cover
- Type **RAK**: Right-hand lock, with lock nut
- Type **RBK**: Right-hand lock, with plastic cover, with lock nut
- Type **LA**: Left-hand lock
- Type **LB**: Left-hand lock, with plastic cover
- Type **LAK**: Left-hand lock, with lock nut
- Type **LBK**: Left-hand lock, with plastic cover, with lock nut

Steel

- blackened
- Pin nitrided

Spring
Stainless Steel AISI 301

Plastic cover
Technopolymer (Polyamdie PA)
black, matte

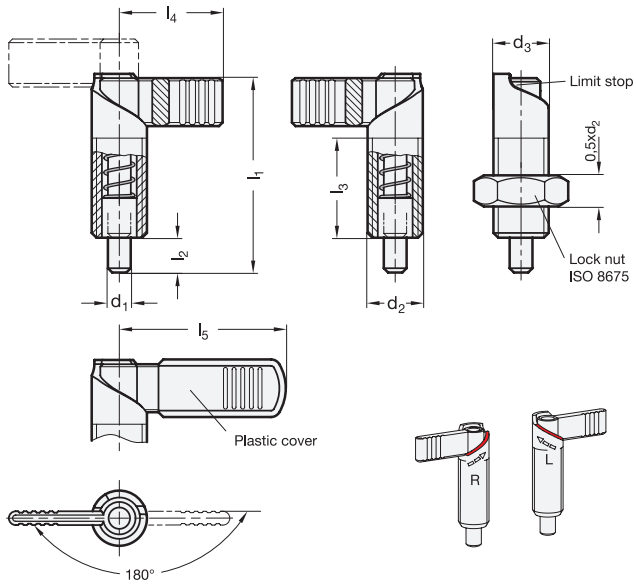
INFORMATION

For GN 721 cam action indexing plungers the indexing plunger pin is withdrawn by turning the lock by 180°.
When the cam action indexing plungers are positioned symmetrically, the left or right handed types allow for a practical, i.e. equal, direction setting of the lock.

- Range of cam action indexing plungers (see page 816)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)
- Load rating information (see page A42)



*Complete with type index of the Cam action indexing plungers

RA RB RAK RBK LA LB LAK LBK

GN 721

Description	d1 Pin -0.02/-0.04 Bore H7	d2	d3	l1	l2	l3 +1.5	l4	l5	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 721-5-M10x1-*	5**	M10x1	10	37.5	6	19	21	-	7	20	18
GN 721-6-M12x1,5-*	6	M12x1.5	12	47	8	26	26	32	8	18	30
GN 721-8-M16x1,5-*	8	M16x1.5	16	56	10	30	32	42	11	29	64
GN 721-10-M20x1,5-*	10	M20x1.5	20	69	12	37	37	52	21	57	129

** This size is only available in types LA, LAK, RA and RAK.

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GN 721.5

Stainless Steel-Cam action indexing plungers

with 180° limit stop, without locking function



SPECIFICATION

Types

- Type **RA**: Right-hand lock
- Type **RB**: Right-hand lock, with plastic cover
- Type **RAK**: Right-hand lock, with lock nut
- Type **RBK**: Right-hand lock, with plastic cover, with lock nut
- Type **LA**: Left-hand lock
- Type **LB**: Left-hand lock, with plastic cover
- Type **LAK**: Left-hand lock, with lock nut
- Type **LBK**: Left-hand lock, with plastic cover, with lock nut

Stainless Steel AISI 303

Spring
Stainless Steel AISI 301

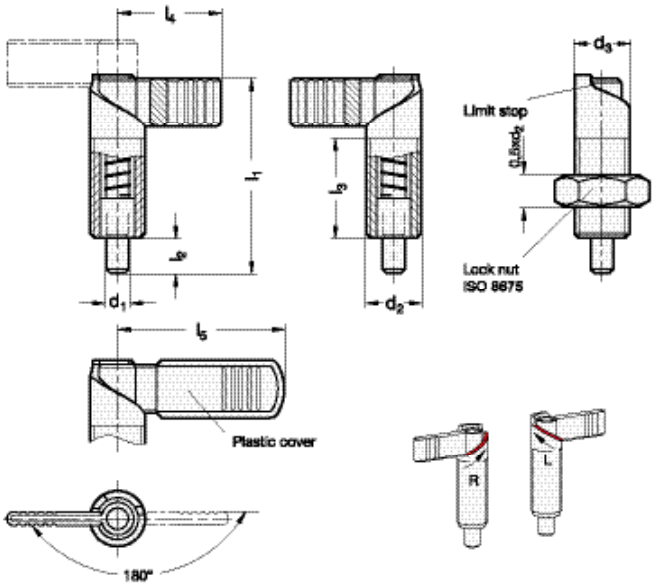
Plastic cover
Technopolymer (Polyamdie PA)
black, matte

INFORMATION

For GN 721.5 Stainless Steel-Cam action indexing plungers the indexing plunger pin is withdrawn by turning the lock by 180°.
For opposing cam action indexing plungers the left or right-handed types allow practical use, that is the same setting of the lock.
- Range of cam action indexing plungers (see page 816)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)
- Load rating information (see page A42)



*Complete with type index of the Cam action indexing plungers
RA RB RAK RBK LA LB LAK LBK

GN 721.5 **STAINLESS STEEL**

Description	d1 Pin -0.06/-0.08 Bore H7	d2	d3	l1	l2	l3 +1.5	l4	l5	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 721.5-5-M10x1-*	5**	M10x1	10	37.5	6	19	21	-	7	20	90
GN 721.5-6-M12x1,5-*	6	M12x1.5	12	47	8	26	26	32	8	18	110
GN 721.5-8-M16x1,5-*	8	M16x1.5	16	56	10	30	32	42	11	29	120
GN 721.5-10-M20x1,5-*	10	M20x1.5	20	69	12	37	37	52	21	57	130

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Cam action indexing plungers

with 180° limit stop, with locking function



SPECIFICATION

Types

- Type **RA**: Right-hand lock
- Type **RB**: Right-hand lock, with plastic cover
- Type **RAK**: Right-hand lock, with lock nut
- Type **RBK**: Right-hand lock, with plastic cover, with lock nut
- Type **LA**: Left-hand lock
- Type **LB**: Left-hand lock, with plastic cover
- Type **LAK**: Left-hand lock, with lock nut
- Type **LBK**: Left-hand lock, with plastic cover, with lock nut

Steel

- blackened
- Plunger nitrided

Spring
Stainless Steel AISI 301

Plastic cover
Technopolymer (Polyamdie PA)
black, matte

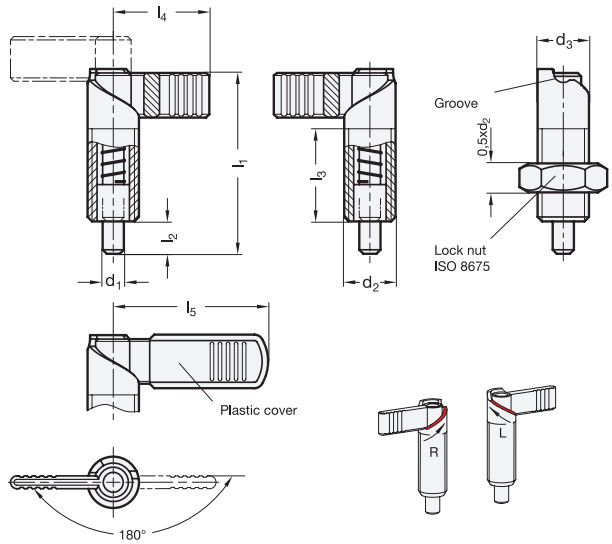
INFORMATION

The groove on GN 721.1 cam action indexing plungers ensures that the locking pin remains in its withdrawn position.
When the cam action indexing plungers are positioned symmetrically, the left or right handed types allow for a practical, i.e. equal, direction setting of the lock.

- Range of cam action indexing plungers (see page 816)

TECHNICAL INFORMATION

- ISO-Fundamental tolerances (see page A21)
- Load rating information (see page A42)



*Complete with type index of the Cam action indexing plungers
RA RB RAK RBK LA LB LAK LBK

GN 721.1

Description	d1 Pin -0.02/-0.04 Bore H7	d2	d3	l1	l2	l3 +1.5	l4	l5	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 721.1-5-M10x1-*	5**	M10x1	10	37.5	6	19	21	-	7	20	18
GN 721.1-6-M12x1,5-*	6	M12x1.5	12	47	8	26	26	32	9	21	31
GN 721.1-8-M16x1,5-*	8	M16x1.5	16	56	10	30	32	42	12	32	66
GN 721.1-10-M20x1,5-*	10	M20x1.5	20	69	12	37	37	52	21	58	129

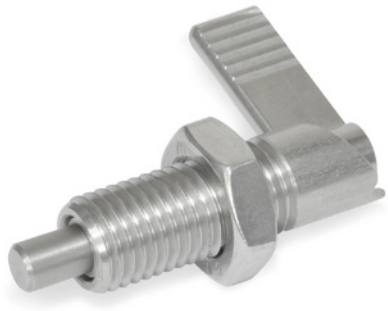
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GN 721.6

Stainless Steel-Cam action indexing plungers

with 180° limit stop, with locking function



SPECIFICATION

Types

- Type **RA**: Right-hand lock
- Type **RB**: Right-hand lock, with plastic cover
- Type **RAK**: Right-hand lock, with lock nut
- Type **RBK**: Right-hand lock, with plastic cover, with lock nut
- Type **LA**: Left-hand lock
- Type **LB**: Left-hand lock, with plastic cover
- Type **LAK**: Left-hand lock, with lock nut
- Type **LBK**: Left-hand lock, with plastic cover, with lock nut

Stainless Steel AISI 303

Spring
Stainless Steel AISI 301

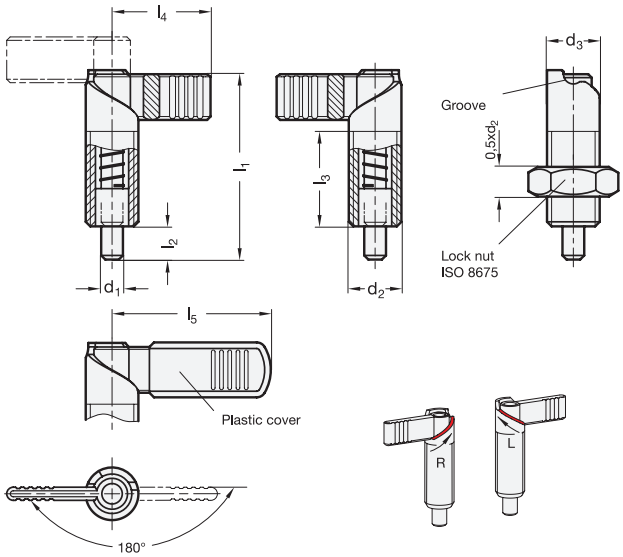
Plastic cover
Technopolymer (Polyamdie PA)
black, matte

INFORMATION

For GN 721.6 Stainless Steel-Cam action indexing plungers the indexing plunger pin is withdrawn by turning the lock by 180°.
For opposing cam action indexing plungers the left or right-handed types allow practical use, that is the same setting of the lock.
- Range of cam action indexing plungers (see page 816)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)
- Load rating information (see page A42)



*Complete with type index of the Cam action indexing plungers

RA **RB** **RAK** **RBK** **LA** **LB** **LAK** **LBK**

GN 721.6 **STAINLESS STEEL**

Description	d1 Pin -0.06/-0.08 Bore H7	d2	d3	l1	l2	l3 +1.5	l4	l5	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 721.6-5-M10x1-*	5**	M10x1	10	37.5	6	19	21	-	7	20	18
GN 721.6-6-M12x1,5-*	6	M12x1.5	12	47	8	26	26	32	8	18	31
GN 721.6-8-M16x1,5-*	8	M16x1.5	16	56	10	30	32	42	11	29	65
GN 721.6-10-M20x1,5-*	10	M20x1.5	20	69	12	37	37	52	21	57	130

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Cam action indexing plungers

Guide steel, blackened

SPECIFICATION

Types

- Type **A**: without plastic cover
- Type **B**: with plastic cover

Steel

- blackened
- Pin nitrided

Plastic cover (Polyamide PA)
black, matt

INFORMATION

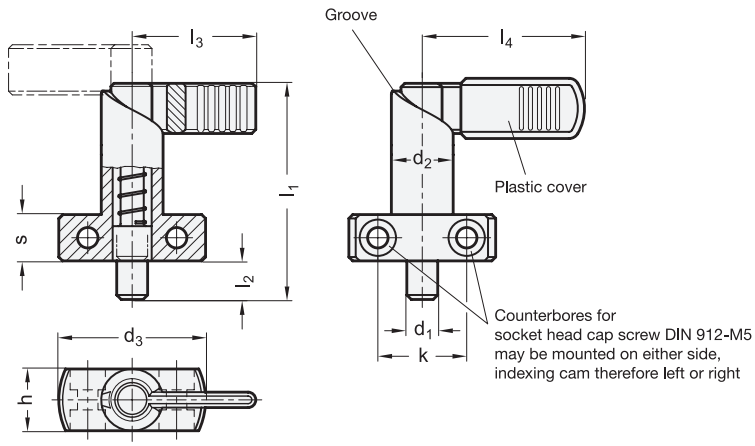
Cam action indexing plungers GN 612.2 are used in cases where the locking pin must not protude all the time. By rotating the lock through 180° the locking pin withdraws itself. A groove keeps the plunger in this position.

- Range of cam action indexing plungers (see page 816)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Plastic characteristics (see page A2)
- Load rating information (see page A42)





GN 612.2

Description	d1 Pin 0/-0.05 Bore H7	d2	d3	h	k	l1	l2	l3	l4	s	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 612.2-6-16-A	6	16	35	16	20	56	10	32	-	12	12	32	62
GN 612.2-8-16-A	8	16	35	16	20	56	10	32	-	12	12	32	84
GN 612.2-8-20-A	8	20	40	20	22	69	12	37	-	15	21	58	167
GN 612.2-10-16-A	10	16	35	16	20	56	10	32	-	12	12	32	86
GN 612.2-10-20-A	10	20	40	20	22	69	12	37	-	15	21	58	169
GN 612.2-12-20-A	12	20	40	20	22	69	12	37	-	15	21	58	170
GN 612.2-6-16-B	6	16	35	16	20	56	10	-	42	12	12	32	85
GN 612.2-8-16-B	8	16	35	16	20	56	10	-	42	12	12	32	86
GN 612.2-8-20-B	8	20	40	20	22	69	12	-	52	15	21	58	170
GN 612.2-10-16-B	10	16	35	16	20	56	10	-	42	12	12	32	90
GN 612.2-10-20-B	10	20	40	20	22	69	12	-	52	15	21	58	173
GN 612.2-12-20-B	12	20	40	20	22	69	12	-	52	15	21	58	180

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GN 612.9

Cam action indexing plungers

with flange / Guide zinc die casting

SPECIFICATION

Guide
Zinc die casting
plastic coated
black, RAL 9005, textured finish **SW**

Plunger pin
Steel
zinc plated, blue passivated

Lever
Plastic (Polyamide PA)

- black, matt
- not removable

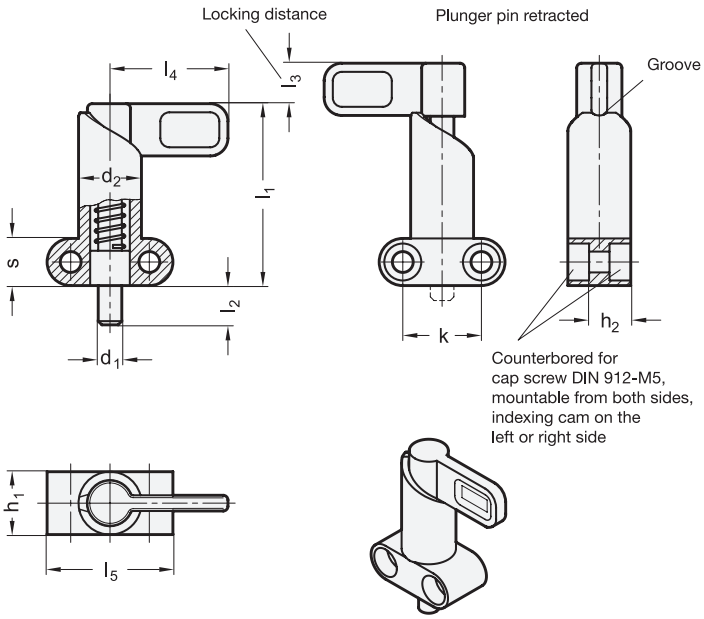


INFORMATION

Cam action indexing plungers GN 612.9 are used in cases where the plunger must not protrude all the time. By rotating the lever through 180° the plunger withdraws itself. The groove allows safe positioning.
- Range of cam action indexing plungers (see page 816)

TECHNICAL INFORMATION

- Plastic characteristics (see page A2)



GN 612.9

Description	d1 Pin-0.05 Bore +0.1/+0.05	l2	d2	h1	h2	k	l1 ≈	l3	l4	l5	s	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 612.9-6-10-16-SW	6	10	16	16	10.5	20	46	10	30	32	12	12	32	57
GN 612.9-6-16-16-SW	6	16	16	16	10.5	20	46	10	30	32	12	12	32	60
GN 612.9-8-10-16-SW	8	10	16	16	10.5	20	46	10	30	32	12	12	32	58
GN 612.9-8-16-16-SW	8	16	16	16	10.5	20	46	10	30	32	12	12	32	60
GN 612.9-8-12-20-SW	8	12	20	20	14.5	22	57	12	37	37	15	21	58	120
GN 612.9-8-18-20-SW	8	18	20	20	14.5	22	57	12	37	37	15	21	58	120
GN 612.9-10-10-16-SW	10	10	16	16	10.5	20	46	10	30	32	12	12	32	61
GN 612.9-10-16-16-SW	10	16	16	16	10.5	20	46	10	30	32	12	12	32	120
GN 612.9-10-12-20-SW	10	12	20	20	14.5	22	57	12	37	37	15	21	58	122
GN 612.9-10-18-20-SW	10	18	20	20	14.5	22	57	12	37	37	15	21	58	120
GN 612.9-12-12-20-SW	12	12	20	20	14.5	22	57	12	37	37	15	21	58	127
GN 612.9-12-18-20-SW	12	18	20	20	14.5	22	57	12	37	37	15	21	58	130

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Spring latches

with flange for surface mounting



SPECIFICATION

Types

- Type **L**: left indexing cam
- Type **R**: right indexing cam

Version in Steel

Guide
Steel precision cast

zinc plated, blue passivated **ZB**

zinc plated and plastic coated
black, textured finish **SW**

Latch / Pin
Steel, zinc plated, blue passivated

Spring
Stainless Steel AISI 301

Version in Stainless Steel

Guide / Latch
Stainless Steel precision casting **A4**
weldable, AISI 316

Pin
Stainless Steel AISI 316

Spring
Stainless Steel AISI 316Ti

INFORMATION

Spring latches GN 722.3 are used when the indexing pin is temporarily not allowed to protrude. The indexing pin retracts by turning the latch by 180°. A lock notch will hold the latch in both positions.
Spring latches GN 722.3 are designed for use in **steel construction** or in **locksmith shops** where less precise positioning / locking is normally required. The dimensional tolerances are therefore chosen to ensure that functional safety is guaranteed under dirt exposure and that cost-effetive production methods are used.

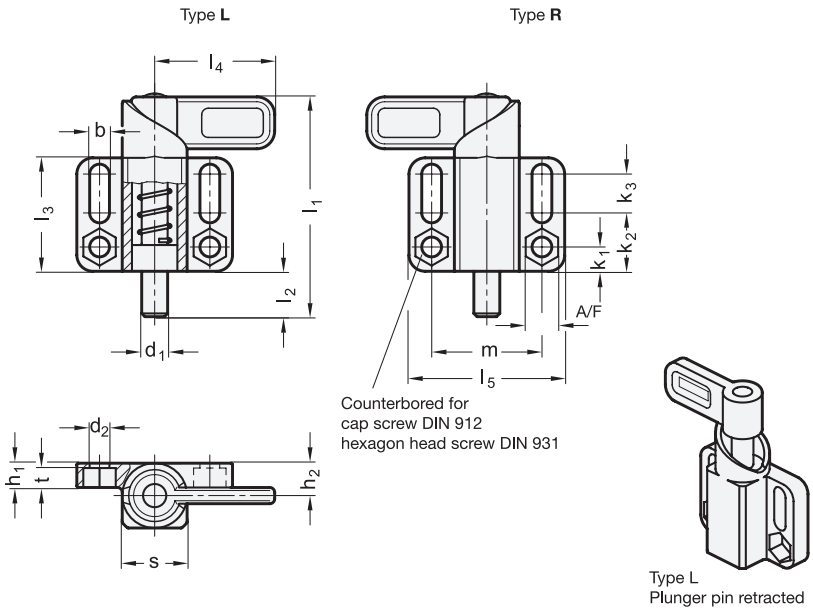
- Range of cam action indexing plungers (see page 816)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)
- Load rating information (see page A42)

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GN 722.3 | Spring latches



GN 722.3

Description	d Pin -0.05/-0.25 Bore +0.1/+0.3	s	d2 +0.2	h1	h2	k1	k2	k3	l1 ≈	l2	l3	l4	l5	m	A/F	t	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 722.3-8-20-R-SW	8	20	6.1	7.5	10	7.5	18	12	68	14	35	37	48	34	10	6.1	16	55	179
GN 722.3-8-20-R-ZB	8	20	6.1	7.5	10	7.5	18	12	68	14	35	37	48	34	10	6.1	16	55	179
GN 722.3-10-20-R-SW	10	20	6.1	7.5	10	7.5	18	12	68	14	35	37	48	34	10	6.1	16	55	180
GN 722.3-10-20-R-ZB	10	20	6.1	7.5	10	7.5	18	12	68	14	35	37	48	34	10	6.1	16	55	181
GN 722.3-12-20-R-SW	12	20	6.1	7.5	10	7.5	18	12	68	14	35	37	48	34	10	6.1	16	55	186
GN 722.3-12-20-R-ZB	12	20	6.1	7.5	10	7.5	18	12	68	14	35	37	48	34	10	6.1	16	55	184
GN 722.3-14-20-R-SW	14	20	6.1	7.5	10	7.5	18	12	68	14	35	37	48	34	10	6.1	16	55	190
GN 722.3-14-20-R-ZB	14	20	6.1	7.5	10	7.5	18	12	68	14	35	37	48	34	10	6.1	16	55	191
GN 722.3-8-20-L-SW	8	20	6.1	7.5	10	7.5	18	12	68	14	35	37	48	34	10	6.1	16	55	178
GN 722.3-8-20-L-ZB	8	20	6.1	7.5	10	7.5	18	12	68	14	35	37	48	34	10	6.1	16	55	176
GN 722.3-10-20-L-SW	10	20	6.1	7.5	10	7.5	18	12	68	14	35	37	48	34	10	6.1	16	55	180
GN 722.3-10-20-L-ZB	10	20	6.1	7.5	10	7.5	18	12	68	14	35	37	48	34	10	6.1	16	55	180
GN 722.3-12-20-L-SW	12	20	6.1	7.5	10	7.5	18	12	68	14	35	37	48	34	10	6.1	16	55	180
GN 722.3-12-20-L-ZB	12	20	6.1	7.5	10	7.5	18	12	68	14	35	37	48	34	10	6.1	16	55	183
GN 722.3-14-20-L-SW	14	20	6.1	7.5	10	7.5	18	12	68	14	35	37	48	34	10	6.1	16	55	180
GN 722.3-14-20-L-ZB	14	20	6.1	7.5	10	7.5	18	12	68	14	35	37	48	34	10	6.1	16	55	186

GN 722.3-A4 **STAINLESS STEEL**

Description	d Pin -0.05/-0.25 Bore +0.1/+0.3	s	d2 +0.2	h1	h2	k1	k2	k3	l1 ≈	l2	l3	l4	l5	m	A/F	t	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 722.3-8-20-R-A4	8	20	6.1	7.5	10	7.5	18	12	68	14	35	37	48	34	10	6.1	16	45	179
GN 722.3-10-20-R-A4	10	20	6.1	7.5	10	7.5	18	12	68	14	35	37	48	34	10	6.1	16	45	182
GN 722.3-12-20-R-A4	12	20	6.1	7.5	10	7.5	18	12	68	14	35	37	48	34	10	6.1	16	45	181
GN 722.3-14-20-R-A4	14	20	6.1	7.5	10	7.5	18	12	68	14	35	37	48	34	10	6.1	16	45	181
GN 722.3-8-20-L-A4	8	20	6.1	7.5	10	7.5	18	12	68	14	35	37	48	34	10	6.1	16	45	180
GN 722.3-10-20-L-A4	10	20	6.1	7.5	10	7.5	18	12	68	14	35	37	48	34	10	6.1	16	45	180
GN 722.3-12-20-L-A4	12	20	6.1	7.5	10	7.5	18	12	68	14	35	37	48	34	10	6.1	16	45	181
GN 722.3-14-20-L-A4	14	20	6.1	7.5	10	7.5	18	12	68	14	35	37	48	34	10	6.1	16	45	181

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Spring latches

with flange for surface mounting



SPECIFICATION

Types

- Type **A**: Latch position right-angled to fixing holes
- Type **B**: Latch position parallel to fixing holes

Version in Steel

Guide
Steel precision cast

zinc plated, blue passivated **ZB**

zinc plated and plastic coated
black, textured finish **SW**

Latch / Pin
zinc plated, blue passivated

Spring
Stainless Steel AISI 301

Version in Stainless Steel

Guide / Latch
Stainless Steel precision casting **A4**
weldable, AISI 316

Pin
Stainless Steel AISI 316

Spring
Stainless Steel AISI 316Ti

INFORMATION

Spring latches GN 722.2 are used when the indexing pin is temporarily not allowed to protrude. The indexing pin retracts by turning the latch by 180°. A lock notch will hold the latch in both positions.
Spring latches GN 722.2 are designed for use in **steel construction** or in **locksmith shops** where less precise positioning / locking is normally required. The dimensional tolerances are therefore chosen to ensure that functional safety is guaranteed under dirt exposure and that cost-effetive production methods are used.

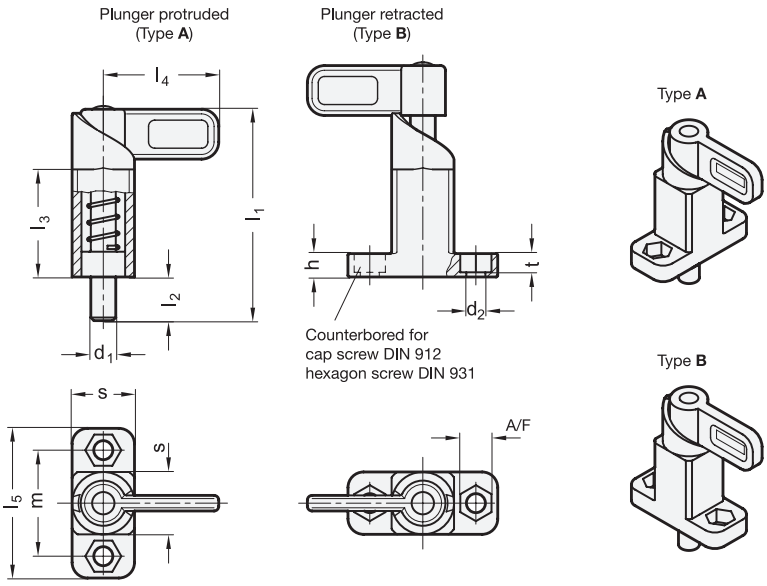
- Range of cam action indexing plungers (see page 816)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)
- Load rating information (see page A42)

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GN 722.2 | Spring latches



GN 722.2

Description	d Pin -0.05/-0.25 Bore +0.1/+0.3	s	d2 +0.2	h	l1 ≈	l2	l3	l4	l5	m	A/F	t	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 722.2-8-20-A-SW	8	20	6.1	7.5	68	14	35	37	48	34	10	6.1	16	55	160
GN 722.2-8-20-A-ZB	8	20	6.1	7.5	68	14	35	37	48	34	10	6.1	16	55	162
GN 722.2-10-20-A-SW	10	20	6.1	7.5	68	14	35	37	48	34	10	6.1	16	55	168
GN 722.2-10-20-A-ZB	10	20	6.1	7.5	68	14	35	37	48	34	10	6.1	16	55	170
GN 722.2-12-20-A-SW	12	20	6.1	7.5	68	14	35	37	48	34	10	6.1	16	55	172
GN 722.2-12-20-A-ZB	12	20	6.1	7.5	68	14	35	37	48	34	10	6.1	16	55	171
GN 722.2-14-20-A-SW	14	20	6.1	7.5	68	14	35	37	48	34	10	6.1	16	55	175
GN 722.2-14-20-A-ZB	14	20	6.1	7.5	68	14	35	37	48	34	10	6.1	16	55	176
GN 722.2-8-20-B-SW	8	20	6.1	7.5	68	14	35	37	48	34	10	6.1	16	55	160
GN 722.2-8-20-B-ZB	8	20	6.1	7.5	68	14	35	37	48	34	10	6.1	16	55	160
GN 722.2-10-20-B-SW	10	20	6.1	7.5	68	14	35	37	48	34	10	6.1	16	55	170
GN 722.2-10-20-B-ZB	10	20	6.1	7.5	68	14	35	37	48	34	10	6.1	16	55	170
GN 722.2-12-20-B-SW	12	20	6.1	7.5	68	14	35	37	48	34	10	6.1	16	55	170
GN 722.2-12-20-B-ZB	12	20	6.1	7.5	68	14	35	37	48	34	10	6.1	16	55	170
GN 722.2-14-20-B-SW	14	20	6.1	7.5	68	14	35	37	48	34	10	6.1	16	55	175
GN 722.2-14-20-B-ZB	14	20	6.1	7.5	68	14	35	37	48	34	10	6.1	16	55	175

GN 722.2-A4 **STAINLESS STEEL**

Description	d Pin -0.05/-0.25 Bore +0.1/+0.3	s	d2 +0.2	h	l1 ≈	l2	l3	l4	l5	m	A/F	t	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 722.2-8-20-A-A4	8	20	6.1	7.5	68	14	35	37	48	34	10	6.1	16	45	166
GN 722.2-10-20-A-A4	10	20	6.1	7.5	68	14	35	37	48	34	10	6.1	16	45	169
GN 722.2-12-20-A-A4	12	20	6.1	7.5	68	14	35	37	48	34	10	6.1	16	45	174
GN 722.2-14-20-A-A4	14	20	6.1	7.5	68	14	35	37	48	34	10	6.1	16	45	180
GN 722.2-8-20-B-A4	8	20	6.1	7.5	68	14	35	37	48	34	10	6.1	16	45	166
GN 722.2-10-20-B-A4	10	20	6.1	7.5	68	14	35	37	48	34	10	6.1	16	45	170
GN 722.2-12-20-B-A4	12	20	6.1	7.5	68	14	35	37	48	34	10	6.1	16	45	176
GN 722.2-14-20-B-A4	14	20	6.1	7.5	68	14	35	37	48	34	10	6.1	16	45	180

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Cam action indexing plungers

**with flange for surface mounting,
Guide zinc die casting**

SPECIFICATION

Guide
Zinc die casting
plastic coated
black, RAL 9005, textured finish **SW**

Pin
Steel
zinc plated, blue passivated

Lever
Plastic (Polyamide PA)

- black, matt
- not removable

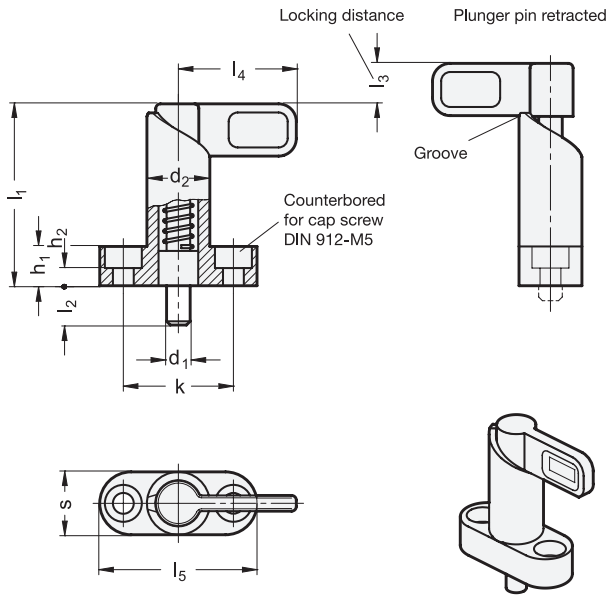


INFORMATION

Cam action indexing plungers GN 612.10 are used in cases where the plunger must not protrude all the time. By rotating the lever through 180° the plunger withdraws itself. The groove allows safe positioning.
- Range of cam action indexing plungers (see page 816)

TECHNICAL INFORMATION

- Plastic characteristics (see page A2)



GN 612.10

Description	d1 Pin-0.05 Bore +0.1/+0.05	l2	d2	h1	h2	k	l1 ≈	l3	l4	l5	s	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 612.10-6-10-16-SW	6	10	16	10	4.5	28	46	10	30	40	16	12	32	53
GN 612.10-6-16-16-SW	6	16	16	10	4.5	28	46	10	30	40	16	12	32	67
GN 612.10-8-10-16-SW	8	10	16	10	4.5	28	46	10	30	40	16	12	32	68
GN 612.10-8-16-16-SW	8	16	16	10	4.5	28	46	10	30	40	16	12	32	50
GN 612.10-8-12-20-SW	8	12	20	10	4.5	32	57	12	37	45	20	21	58	20
GN 612.10-8-18-20-SW	8	18	20	10	4.5	32	57	12	37	45	20	21	58	120
GN 612.10-10-10-16-SW	10	10	16	10	4.5	28	46	10	30	40	16	12	32	70
GN 612.10-10-16-16-SW	10	16	16	10	4.5	28	46	10	30	40	16	12	32	74
GN 612.10-10-12-20-SW	10	12	20	10	4.5	32	57	12	37	45	20	21	58	126
GN 612.10-10-18-20-SW	10	18	20	10	4.5	32	57	12	37	45	20	21	58	130
GN 612.10-12-12-20-SW	12	12	20	10	4.5	32	57	12	37	45	20	21	58	130
GN 612.10-12-18-20-SW	12	18	20	10	4.5	32	57	12	37	45	20	21	58	135

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GN 612.3

Cam action indexing plungers

Steel / Stainless Steel, for welding

SPECIFICATION

Types

- Type **A**: without plastic cover
- Type **B**: with plastic cover

Version in Steel

- Guide blackened, weldable
- Pin nitrided

Version Stainless Steel NI

- Guide, weldable AISI 304
- Pin AISI 303

Spring
Stainless Steel AISI 301

Plastic cover (Polyamide PA)
black, matt



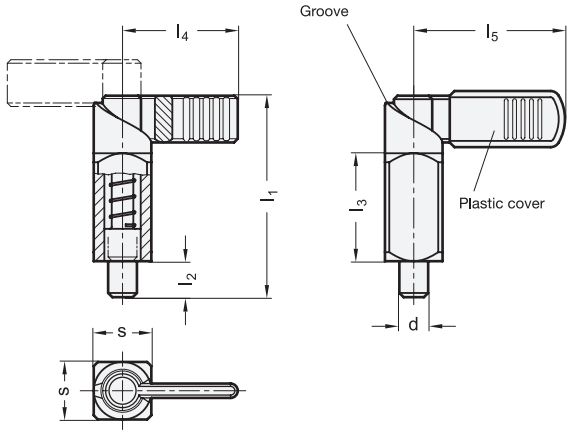
INFORMATION

Cam action indexing plungers GN 612.3 are used in cases where the locking pin must not protrude all the time. By rotating the lock through 180° the locking pin withdraws itself. A groove keeps the plunger in this position.
The square body can therefore be welded in any required position. In order to prevent a change in the spring load by the transferred heat we recommend spot welding the plunger body.

- Range of cam action indexing plungers (see page 816)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)
- Load rating information (see page A42)



*Complete with type index of the Cam action indexing plungers (A or B)

A without plastic cover

B with plastic cover

GN 612.3

Description	d Pin -0.02/-0.04 Bore +0.14/+0.1	s	l1	l2	l3	l4	l5	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 612.3-6-16-*	6	16	56	10	30	32	42	12	32	76
GN 612.3-8-16-*	8	16	56	10	30	32	42	12	32	79
GN 612.3-8-20-*	8	20	69	12	38	37	52	21	58	151
GN 612.3-10-16-*	10	16	56	10	30	32	42	12	32	80
GN 612.3-10-20-*	10	20	69	12	38	37	52	21	58	153
GN 612.3-12-20-*	12	20	69	12	38	37	52	21	58	158

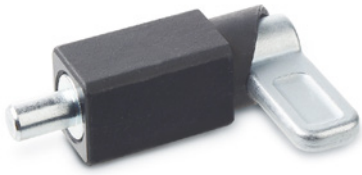
GN 612.3-NI **STAINLESS STEEL**

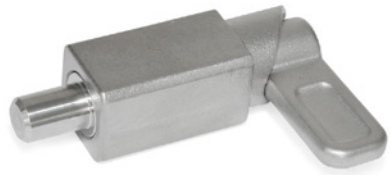
Description	d Pin -0.02/-0.04 Bore +0.14/+0.1	s	l1	l2	l3	l4	l5	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 612.3-6-16-*-NI	6	16	56	10	30	32	42	12	32	76
GN 612.3-8-16-*-NI	8	16	56	10	30	32	42	12	32	76
GN 612.3-8-20-*-NI	8	20	69	12	38	37	52	21	58	151
GN 612.3-10-16-*-NI	10	16	56	10	30	32	42	12	32	76
GN 612.3-10-20-*-NI	10	20	69	12	38	37	52	21	58	153
GN 612.3-12-20-*-NI	12	20	69	12	38	37	52	21	58	158

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Spring latches

for welding





SPECIFICATION

Version in Steel

Guide
Steel precision casting **ST**
blackened, weldable

Latch
Steel precision casting
zinc plated, blue passivated

Pin
Steel, zinc plated, blue passivated

Spring
Stainless Steel AISI 301

Version in Stainless Steel

Guide / Latch
Stainless Steel precision casting **A4**
weldable, AISI 316

Pin
Stainless Steel AISI 316

Spring
Stainless Steel AISI 316Ti

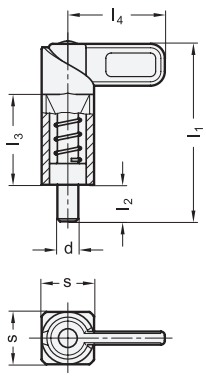
INFORMATION

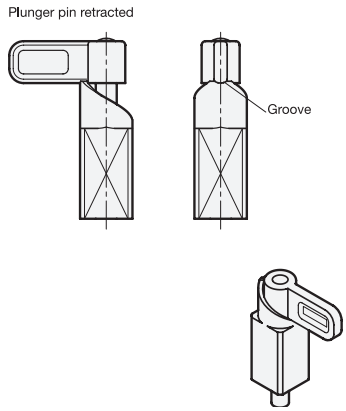
Spring latches GN 722.1 are used when the indexing pin is temporarily not allowed to protrude. The indexing pin retracts by turning the latch by 180°. A lock notch will hold the latch in both positions.
The square bar allows the latch to be welded in any desired position. To prevent excessive heating up and the resulting change in the spring properties, fixing with welding spots is recommended.
Spring latches GN 722.1 are designed for use in **steel construction** or in **locksmith** shops where less precise positioning / locking is normally required. The dimensional tolerances are therefore chosen to ensure that functional safety is guaranteed under dirt exposure and that cost-effetive production methods are used.

- Range of cam action indexing plungers (see page 816)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)
- Load rating information (see page A42)





GN 722.1

Description	d Pin -0.05/-0.25 Bore +0.1/+0.3	s	l1 ≈	l2	l3	l4	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 722.1-8-20-ST	8	20	68	14	35	37	16	55	141
GN 722.1-10-20-ST	10	20	68	14	35	37	16	55	144
GN 722.1-12-20-ST	12	20	68	14	35	37	16	55	148
GN 722.1-14-20-ST	14	20	68	14	35	37	16	55	153

GN 722.1-A4 **STAINLESS STEEL**

Description	d Pin -0.05/-0.25 Bore +0.1/+0.3	s	l1 ≈	l2	l3	l4	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 722.1-8-20-A4	8	20	68	14	35	37	16	45	150
GN 722.1-10-20-A4	10	20	68	14	35	37	16	45	153
GN 722.1-12-20-A4	12	20	68	14	35	37	16	45	158
GN 722.1-14-20-A4	14	20	68	14	35	37	16	45	169

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GN 615

Spring plungers

Steel / Stainless Steel, with ball / with slot

SPECIFICATION

Types

- Type **K**: Steel, standard spring load
- Type **KS**: Steel, high spring load
- Type **KN**: Stainless Steel, standard spring load
- Type **KSN**: Stainless Steel, high spring load

Type K / KS

- Housing Steel, blackened
- Ball Steel, 1.3505, hardened

Type KN / KSN

- Housing Stainless Steel AISI 303
- Ball Stainless Steel AISI 420C, hardened

Spring
Stainless Steel AISI 631

Marking of Type KS / KSN:
Housing with 2 longitudinal markings

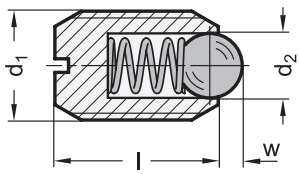


INFORMATION

Spring plungers GN 615 are used as detents as well as for push-on and push-off applications and ejecetors.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



GN 615-K/KS

Description	d1	d2	l ±0.1	w	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 615-M3-K	M 3	1.5	7	0.4	3	4.5	1
GN 615-M4-K	M 4	2.5	9	0.8	6	14.5	1
GN 615-M5-K	M 5	3	12	0.9	8	14	1
GN 615-M6-K	M 6	3.5	14	1	11	18	2
GN 615-M8-K	M 8	4.5	16	1.5	18	31	4
GN 615-M10-K	M 10	6	19	2	24	45	7
GN 615-M12-K	M 12	8	22	2.5	26	49	10
GN 615-M16-K	M 16	10	24	3.5	41	86	24
GN 615-M20-K	M 20	12	30	4.5	56	111	43
GN 615-M24-K	M 24	15	34	5.5	81	151	70
GN 615-M5-KS	M 5	3	12	0.9	15	22	1
GN 615-M6-KS	M 6	3.5	14	1	19	28	2
GN 615-M8-KS	M 8	4.5	16	1.5	36	62	4
GN 615-M10-KS	M 10	6	19	2	57	104	7
GN 615-M12-KS	M 12	8	22	2.5	61	110	10
GN 615-M16-KS	M 16	10	24	3.5	68	142	22
GN 615-M20-KS	M 20	12	30	4.5	84	166	43
GN 615-M24-KS	M 24	15	34	5.5	127	237	70

GN 615-KN/KSN **STAINLESS STEEL**

Description	d1	d2	l ±0.1	w	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 615-M3-KN	M 3	1.5	7	0.4	3	4.5	1
GN 615-M4-KN	M 4	2.5	9	0.8	6	14.5	2
GN 615-M5-KN	M 5	3	12	0.9	8	14	1
GN 615-M6-KN	M 6	3.5	14	1	11	18	2
GN 615-M8-KN	M 8	4.5	16	1.5	18	31	4
GN 615-M10-KN	M 10	6	19	2	24	45	6
GN 615-M12-KN	M 12	8	22	2.5	26	49	10
GN 615-M16-KN	M 16	10	24	3.5	41	86	23
GN 615-M20-KN	M 20	12	30	4.5	56	111	43
GN 615-M24-KN	M 24	15	34	5.5	81	151	70
GN 615-M5-KSN	M 5	3	12	0.9	15	22	1
GN 615-M6-KSN	M 6	3.5	14	1	19	28	2
GN 615-M8-KSN	M 8	4.5	16	1.5	36	62	4
GN 615-M10-KSN	M 10	6	19	2	57	104	7
GN 615-M12-KSN	M 12	8	22	2.5	61	110	10
GN 615-M16-KSN	M 16	10	24	3.5	68	142	22
GN 615-M20-KSN	M 20	12	30	4.5	84	166	43
GN 615-M24-KSN	M 24	15	34	5.5	127	237	70

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Spring plungers

Steel / Stainless Steel, with ball / with internal hexagon



SPECIFICATION

Types

- Type **K**: Steel, standard spring load
- Type **KS**: Steel, high spring load
- Type **KN**: Stainless Steel, standard spring load
- Type **KSN**: Stainless Steel, high spring load

Type K / KS

- Steel, blackened
- Ball, hardened

Type KN / KSN

- Stainless Steel AISI 303 / AISI 420C
- Ball hardened

Marking of Type KS / KSN:
Housing with 2 longitudinal markings
- Thread lockings (optional)
- Polyamide patch **PFB**

Type K/KS M 3 ... M16
Type K*/KS* M20 ... M24
Type KN/KSN M3 ... M6
Type KN*/KSN* M20 ... M24
- Micro encapsulation* **MVK**

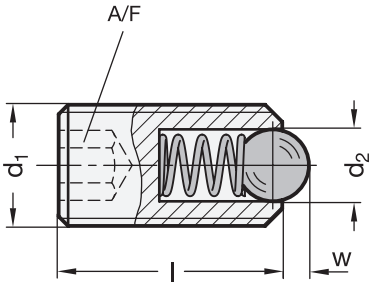
* not availble from stock, requires a minimum order quantity

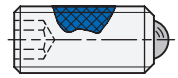
INFORMATION

The **PFB** patch is a **jamming** thread locking (Polyamide patch). The coating for Type K or KN (standard spring load) is indicated blue, for Type KS or KSN (high spring load) green. For this Type of thread locking a relatively high torque is required. Therefore this version with internal hexagon is more preferable than the version with slot GN 615 (see page 839).
MVK (Micro encapsulation) is a **gluing** thread locking (indicated red).

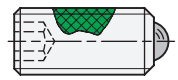
TECHNICAL INFORMATION

- More information to thread locking MVK (see page A24)
- More information to thread locking PFB (see page A24)

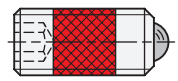




Thread locking **PFB**
Polyamide patch
for type **K** and **KN**



Thread locking **PFB**
Polyamide patch
for type **KS** and **KSN**



Thread locking **MVK**
Micro encapsulation precote
(for all types)

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GN 615.3-K/KS

Description	d1	d2	l ±0.1	w	A/F	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 615.3-M3-K	M 3	1.5	8	0.4	1.5	3	4.5	1
GN 615.3-M4-K	M 4	2.5	12	0.8	2	8.5	14	1
GN 615.3-M5-K	M 5	3	14	0.9	2.5	8	14	1
GN 615.3-M6-K	M 6	3.5	15	1	3	11	18	2
GN 615.3-M8-K	M 8	4.5	18	1.5	4	18	31	4
GN 615.3-M10-K	M 10	6	23	2	5	24	45	8
GN 615.3-M12-K	M 12	8	26	2.5	6	26	49	13
GN 615.3-M16-K	M 16	10	33	3.5	8	41	86	31
GN 615.3-M20-K	M 20	12	43	4.5	10	56	111	65
GN 615.3-M24-K	M 24	15	48	5.5	12	81	151	103
GN 615.3-M5-KS	M 5	3	14	0.9	2.5	15	22	1
GN 615.3-M6-KS	M 6	3.5	15	1	3	19	28	2
GN 615.3-M8-KS	M 8	4.5	18	1.5	4	36	62	4
GN 615.3-M10-KS	M 10	6	23	2	5	57	104	8
GN 615.3-M12-KS	M 12	8	26	2.5	6	61	110	13
GN 615.3-M16-KS	M 16	10	33	3.5	8	68	142	32
GN 615.3-M20-KS	M 20	12	43	4.5	10	84	166	65
GN 615.3-M24-KS	M 24	15	48	5.5	12	127	237	105
GN 615.3-M3-K-MVK	M 3*	1.5	8	0.4	1.5	3	4.5	1
GN 615.3-M4-K-MVK	M 4*	2.5	12	0.8	2	8.5	14	1
GN 615.3-M5-K-MVK	M 5*	3	14	0.9	2.5	8	14	1
GN 615.3-M6-K-MVK	M 6*	3.5	15	1	3	11	18	1
GN 615.3-M8-K-MVK	M 8*	4.5	18	1.5	4	18	31	4
GN 615.3-M10-K-MVK	M 10*	6	23	2	5	24	45	8
GN 615.3-M12-K-MVK	M 12*	8	26	2.5	6	26	49	13
GN 615.3-M16-K-MVK	M 16*	10	33	3.5	8	41	86	26
GN 615.3-M20-K-MVK	M 20*	12	43	4.5	10	56	111	65
GN 615.3-M24-K-MVK	M 24*	15	48	5.5	12	81	151	103
GN 615.3-M5-KS-MVK	M 5*	3	14	0.9	2.5	15	22	1
GN 615.3-M6-KS-MVK	M 6*	3.5	15	1	3	19	28	2
GN 615.3-M8-KS-MVK	M 8*	4.5	18	1.5	4	36	62	4
GN 615.3-M10-KS-MVK	M 10*	6	23	2	5	57	104	8
GN 615.3-M12-KS-MVK	M 12*	8	26	2.5	6	61	110	13
GN 615.3-M16-KS-MVK	M 16*	10	33	3.5	8	68	142	32
GN 615.3-M20-KS-MVK	M 20*	12	43	4.5	10	84	166	65
GN 615.3-M24-KS-MVK	M 24*	15	48	5.5	12	127	237	103
GN 615.3-M3-K-PFB	M 3	1.5	8	0.4	1.5	3	4.5	1
GN 615.3-M4-K-PFB	M 4	2.5	12	0.8	2	8.5	14	1
GN 615.3-M5-K-PFB	M 5	3	14	0.9	2.5	8	14	1
GN 615.3-M6-K-PFB	M 6	3.5	15	1	3	11	18	2
GN 615.3-M8-K-PFB	M 8	4.5	18	1.5	4	18	31	4
GN 615.3-M10-K-PFB	M 10	6	23	2	5	24	45	8
GN 615.3-M12-K-PFB	M 12	8	26	2.5	6	26	49	13
GN 615.3-M16-K-PFB	M 16	10	33	3.5	8	41	86	30
GN 615.3-M20-K-PFB	M 20*	12	43	4.5	10	56	111	65
GN 615.3-M24-K-PFB	M 24*	15	48	5.5	12	81	151	103
GN 615.3-M5-KS-PFB	M 5	3	14	0.9	2.5	15	22	1
GN 615.3-M6-KS-PFB	M 6	3.5	15	1	3	19	28	2
GN 615.3-M8-KS-PFB	M 8	4.5	18	1.5	4	36	62	4
GN 615.3-M10-KS-PFB	M 10	6	23	2	5	57	104	8
GN 615.3-M12-KS-PFB	M 12	8	26	2.5	6	61	110	13
GN 615.3-M16-KS-PFB	M 16	10	33	3.5	8	68	142	32
GN 615.3-M20-KS-PFB	M 20*	12	43	4.5	10	84	166	65
GN 615.3-M24-KS-PFB	M 24*	15	48	5.5	12	127	237	103

* not availble from stock, requires a minimum order quantity

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GN 615.3-KN/KSN **STAINLESS STEEL**

Description	d1	d2	l ±0.1	w	A/F	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 615.3-M3-KN	M 3	1.5	8	0.4	1.5	3	4.5	1
GN 615.3-M4-KN	M 4	2.5	12	0.8	2	8.5	14	1
GN 615.3-M5-KN	M 5	3	14	0.9	2.5	8	14	1
GN 615.3-M6-KN	M 6	3.5	15	1	3	11	18	2
GN 615.3-M8-KN	M 8	4.5	18	1.5	4	18	31	4
GN 615.3-M10-KN	M 10	6	23	2	5	24	45	8
GN 615.3-M12-KN	M 12	8	26	2.5	6	26	49	13
GN 615.3-M16-KN	M 16	10	33	3.5	8	41	86	32
GN 615.3-M20-KN	M 20	12	43	4.5	10	56	111	65
GN 615.3-M24-KN	M 24	15	48	5.5	12	81	151	100
GN 615.3-M5-KSN	M 5	3	14	0.9	2.5	15	22	1
GN 615.3-M6-KSN	M 6	3.5	15	1	3	19	28	2
GN 615.3-M8-KSN	M 8	4.5	18	1.5	4	36	62	4
GN 615.3-M10-KSN	M 10	6	23	2	5	57	104	8
GN 615.3-M12-KSN	M 12	8	26	2.5	6	61	110	13
GN 615.3-M16-KSN	M 16	10	33	3.5	8	68	142	32
GN 615.3-M20-KSN	M 20	12	43	4.5	10	84	166	65
GN 615.3-M24-KSN	M 24	15	48	5.5	12	127	237	100
GN 615.3-M5-KN-MVK	M 5*	3	14	0.9	2.5	8	14	2
GN 615.3-M6-KN-MVK	M 6*	3.5	15	1	3	11	18	2
GN 615.3-M8-KN-MVK	M 8*	4.5	18	1.5	4	18	31	4
GN 615.3-M10-KN-MVK	M 10*	6	23	2	5	24	45	8
GN 615.3-M12-KN-MVK	M 12*	8	26	2.5	6	26	49	13
GN 615.3-M16-KN-MVK	M 16*	10	33	3.5	8	41	86	32
GN 615.3-M20-KN-MVK	M 20*	12	43	4.5	10	56	111	65
GN 615.3-M24-KN-MVK	M 24*	15	48	5.5	12	81	151	103
GN 615.3-M5-KSN-MVK	M 5*	3	14	0.9	2.5	15	22	1
GN 615.3-M6-KSN-MVK	M 6*	3.5	15	1	3	19	28	2
GN 615.3-M8-KSN-MVK	M 8*	4.5	18	1.5	4	36	62	4
GN 615.3-M10-KSN-MVK	M 10*	6	23	2	5	57	104	8
GN 615.3-M12-KSN-MVK	M 12*	8	26	2.5	6	61	110	13
GN 615.3-M16-KSN-MVK	M 16*	10	33	3.5	8	68	142	32
GN 615.3-M20-KSN-MVK	M 20*	12	43	4.5	10	84	166	65
GN 615.3-M24-KSN-MVK	M 24*	15	48	5.5	12	127	237	103
GN 615.3-M3-KN-PFB	M 3	1.5	8	0.4	1.5	3	4.5	2
GN 615.3-M4-KN-PFB	M 4	2.5	12	0.8	2	8.5	14	5
GN 615.3-M5-KN-PFB	M 5	3	14	0.9	2.5	8	14	1
GN 615.3-M6-KN-PFB	M 6	3.5	15	1	3	11	18	2
GN 615.3-M8-KN-PFB	M 8	4.5	18	1.5	4	18	31	4
GN 615.3-M10-KN-PFB	M 10	6	23	2	5	24	45	8
GN 615.3-M12-KN-PFB	M 12	8	26	2.5	6	26	49	13
GN 615.3-M16-KN-PFB	M 16	10	33	3.5	8	41	86	32
GN 615.3-M20-KN-PFB	M 20*	12	43	4.5	10	56	111	65
GN 615.3-M24-KN-PFB	M 24*	15	48	5.5	12	81	151	103
GN 615.3-M5-KSN-PFB	M 5	3	14	0.9	2.5	15	22	1
GN 615.3-M6-KSN-PFB	M 6	3.5	15	1	3	19	28	2
GN 615.3-M8-KSN-PFB	M 8	4.5	18	1.5	4	36	62	4
GN 615.3-M10-KSN-PFB	M 10	6	23	2	5	57	104	8
GN 615.3-M12-KSN-PFB	M 12	8	26	2.5	6	61	110	13
GN 615.3-M16-KSN-PFB	M 16	10	33	3.5	8	68	142	32
GN 615.3-M20-KSN-PFB	M 20*	12	43	4.5	10	84	166	65
GN 615.3-M24-KSN-PFB	M 24*	15	48	5.5	12	127	237	100

* not availble from stock, requires a minimum order quantity

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GN 615.4

Spring plungers

Steel / Stainless Steel, with bolt / with internal hexagon

SPECIFICATION

Types

- Type **B**: Steel, standard spring load
- Type **BN**: Stainless Steel, standard spring load
- Type **BS**: Steel, high spring load
- Type **BSN**: Stainless Steel, high spring load

Type B / BS:

- Steel, blackened
- Bolt hardened

Type BN / BSN

- Housing Stainless Steel AISI 303
- Bolt Stainless Steel AISI 420C, hardened

Marking of Type BS / BSN:
Housing with 2 longitudinal markings

Spring
Stainless Steel AISI 631

INFORMATION

Spring plungers GN 615.4 are used as detents as well as for push-on and push-off applications and ejectors.

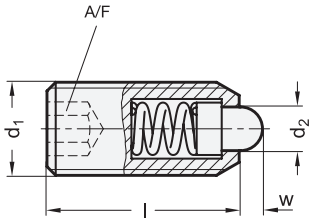
ON REQUEST

- with thread locking PFB / MVK

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)





GN 615.4-B/BS

Description	d1	d2 -0.1	l ±0.1	w	A/F	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 615.4-M4-B	M 4	1.8	12	1.5 +0.3/ -0.4	2	4.5	12.5	1
GN 615.4-M5-B	M 5	2.4	14	2	2.5	5	13	1
GN 615.4-M6-B	M 6	2.7	15	2	3	6	17	2
GN 615.4-M8-B	M 8	3.8	18	2	4	16	33	4
GN 615.4-M10-B	M 10	4.5	23	2.5	5	19	42	9
GN 615.4-M12-B	M 12	6.2	26	3.5	6	22	57	13
GN 615.4-M16-B	M 16	8.5	33	4.5 ±0.3	8	38	78	32
GN 615.4-M20-B	M 20	10	43	6.5	10	39	81	67
GN 615.4-M24-B	M 24	13	48	8	12	72	155	106
GN 615.4-M6-BS	M 6	2.7	15	2	3	11	25	2
GN 615.4-M8-BS	M 8	3.8	18	2	4	23	59	4
GN 615.4-M10-BS	M 10	4.5	23	2.5	5	20	54	9
GN 615.4-M12-BS	M 12	6.2	26	3.5	6	38	96	13
GN 615.4-M16-BS	M 16	8.5	33	4.5 ±0.3	8	50	100	32
GN 615.4-M20-BS	M 20	10	43	6.5	10	52	133	67
GN 615.4-M24-BS	M 24	13	48	8	12	91	223	100

GN 615.4-BN/BSN **STAINLESS STEEL**

Description	d1	d2 -0.1	l ±0.1	w	A/F	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 615.4-M4-BN	M 4	1.8	12	1.5 +0.3/ -0.4	2	4.5	12.5	1
GN 615.4-M5-BN	M 5	2.4	14	2	2.5	5	13	1
GN 615.4-M6-BN	M 6	2.7	15	2	3	6	17	2
GN 615.4-M8-BN	M 8	3.8	18	2	4	16	33	4
GN 615.4-M10-BN	M 10	4.5	23	2.5	5	19	42	9
GN 615.4-M12-BN	M 12	6.2	26	3.5	6	22	57	9
GN 615.4-M16-BN	M 16	8.5	33	4.5 ±0.3	8	38	78	32
GN 615.4-M20-BN	M 20	10	43	6.5	10	39	81	67
GN 615.4-M24-BN	M 24	13	48	8	12	72	155	104
GN 615.4-M6-BSN	M 6	2.7	15	2	3	11	25	2
GN 615.4-M8-BSN	M 8	3.8	18	2	4	23	59	4
GN 615.4-M10-BSN	M 10	4.5	23	2.5	5	20	54	9
GN 615.4-M12-BSN	M 12	6.2	26	3.5	6	38	96	13
GN 615.4-M16-BSN	M 16	8.5	33	4.5 ±0.3	8	50	100	32
GN 615.4-M20-BSN	M 20	10	43	6.5	10	52	133	68
GN 615.4-M24-BSN	M 24	13	48	8	12	91	223	105

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Spring plungers

Steel / Stainless Steel, with bolt / with slot

SPECIFICATION

Types

- Type **B**: Steel, standard spring load
- Type **BN**: Stainless Steel, standard spring load
- Type **BS**: Steel, high spring load
- Type **BSN**: Stainless Steel, high spring load

Type B / BS

- Steel, blackened
- Bolt, hardened

Type BN / BSN

- Housing Stainless Steel AISI 303
- Ball Stainless Steel AISI 420C, hardened

Spring
Stainless Steel AISI 631

Marking of Type BS / BSN
Housing with 2 longitudinal markings

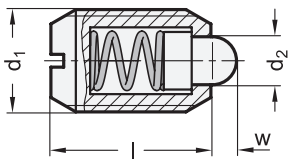
INFORMATION

Spring plungers GN 615.1 are used as detents as well as for push-on and push-off applications and ejectors.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)





GN 615.1-B/BS

Description	d1	d2 -0.1	l ±0.1	w	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 615.1-M4-B	M 4	1.8	9	1.5 +0.3/ -0.4	4.5	12.5	1
GN 615.1-M5-B	M 5	2.4	12	2	5	13	1
GN 615.1-M6-B	M 6	2.7	14	2	6	17	2
GN 615.1-M8-B	M 8	3.8	16	2	16	33	4
GN 615.1-M10-B	M 10	4.5	19	2.5	19	42	7
GN 615.1-M12-B	M 12	6	22	3.5	22	57	10
GN 615.1-M16-B	M 16	8.5	24	4.5 ±0.3	38	78	22
GN 615.1-M20-B	M 20	10	30	6.5	39	81	43
GN 615.1-M24-B	M 24	13	34	8	72	155	70
GN 615.1-M6-BS	M 6	2.7	14	2	11	25	2
GN 615.1-M8-BS	M 8	3.8	16	2	23	59	4
GN 615.1-M10-BS	M 10	4.5	19	2.5	20	54	7
GN 615.1-M12-BS	M 12	6	22	3.5	38	96	10
GN 615.1-M16-BS	M 16	8.5	24	4.5 ±0.3	50	100	24
GN 615.1-M20-BS	M 20	10	30	6.5	52	133	40
GN 615.1-M24-BS	M 24	13	34	8	91	223	70

GN 615.1-BN/BSN **STAINLESS STEEL**

Description	d1	d2 -0.1	l ±0.1	w	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 615.1-M4-BN	M 4	1.8	9	1.5 +0.3/ -0.4	4.5	12.5	1
GN 615.1-M5-BN	M 5	2.4	12	2	5	13	1
GN 615.1-M6-BN	M 6	2.7	14	2	6	17	2
GN 615.1-M8-BN	M 8	3.8	16	2	16	33	4
GN 615.1-M10-BN	M 10	4.5	19	2.5	19	42	7
GN 615.1-M12-BN	M 12	6	22	3.5	22	57	10
GN 615.1-M16-BN	M 16	8.5	24	4.5 ±0.3	38	78	24
GN 615.1-M20-BN	M 20	10	30	6.5	39	81	40
GN 615.1-M24-BN	M 24	13	34	8	72	155	70
GN 615.1-M6-BSN	M 6	2.7	14	2	11	25	2
GN 615.1-M8-BSN	M 8	3.8	16	2	23	59	4
GN 615.1-M10-BSN	M 10	4.5	19	2.5	20	54	7
GN 615.1-M12-BSN	M 12	6	22	3.5	38	96	10
GN 615.1-M16-BSN	M 16	8.5	24	4.5 ±0.3	50	100	23
GN 615.1-M20-BSN	M 20	10	30	6.5	52	133	43
GN 615.1-M24-BSN	M 24	13	34	8	91	223	70

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GN 815

Spring plungers

Steel / Stainless Steel, with ball / with collar

SPECIFICATION

Version in Steel ST

- Housing blackened
- Ball hardened

Version in Stainless Steel NI

- Housing AISI 303
- Ball AISI 420C hardened

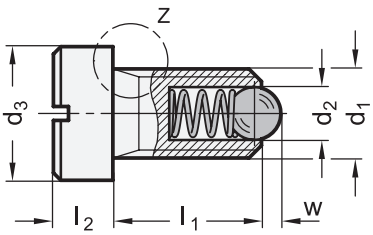
INFORMATION

Spring plungers GN 815 are used as detents as well as for push-on and push-off applications and ejecetors.
The collar gives a defined installation position.

TECHNICAL INFORMATION

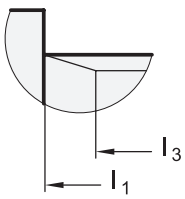
- Stainless Steel characteristics (see page A26)



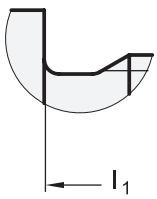


Detail Z; End of thread:

M4 / M5



M6 ... M12



GN 815

Description	d1	d2	d3	l1	l2	l3	w	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 815-M4-ST	M 4	2.5	6	6.5	3	5	0.8	8	14	1
GN 815-M5-ST	M 5	3	8	8.5	4	6.7	0.9	8	14	5
GN 815-M6-ST	M 6	3.5	10	9	5	-	1	11	18	5
GN 815-M8-ST	M 8	4.5	13	11	5.5	-	1.5	18	31	10
GN 815-M10-ST	M 10	6	16	14	6	-	2	24	45	15
GN 815-M12-ST	M 12	8	18	15	7	-	2.5	26	49	25

GN 815-NI **STAINLESS STEEL**

Description	d1	d2	d3	l1	l2	l3	w	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 815-M4-NI	M 4	2.5	6	6.5	3	5	0.8	8	14	2
GN 815-M5-NI	M 5	3	8	8.5	4	6.7	0.9	8	14	5
GN 815-M6-NI	M 6	3.5	10	9	5	-	1	11	18	5
GN 815-M8-NI	M 8	4.5	13	11	5.5	-	1.5	18	31	8
GN 815-M10-NI	M 10	6	16	14	6	-	2	24	45	15
GN 815-M12-NI	M 12	8	18	15	7	-	2.5	26	49	20

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GN 615.2

Plastic-Spring plungers

with ball, with slot

SPECIFICATION

Housing
Plastic (Polyacetal POM)
temperature resistant up to 50 °C

Ball

- Stainless Steel AISI 420C **NI**, hardened
- Plastic (Polyacetal POM) **P**

Spring
Stainless Steel AISI 631
(all versions)

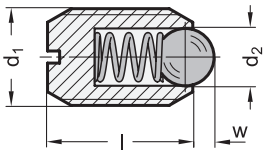
INFORMATION

Plastic-Spring plungers GN 615.2 are used as detents as well as for push-on and push-off applications and ejectors.
These spring plungers are all stainless versions.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)





GN 615.2 — **STAINLESS STEEL**

Description	d1	d2	l	w	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 615.2-M6-P	M 6	3.5	14	0.9	12	17	1
GN 615.2-M8-P	M 8	5	16	1.5	20	35	1
GN 615.2-M10-P	M 10	6	19	1.9	25	45	2
GN 615.2-M6-NI	M 6	3.5	14	0.9	12	17	1
GN 615.2-M8-NI	M 8	5	16	1.5	20	35	1
GN 615.2-M10-NI	M 10	6	19	1.9	25	45	3

GN 614.2

Spring plunger

Press on type, ball double ended

SPECIFICATION

Housing
Brass

Ball
Stainless Steel AISI 420C
hardened

Spring
Stainless Steel AISI 631

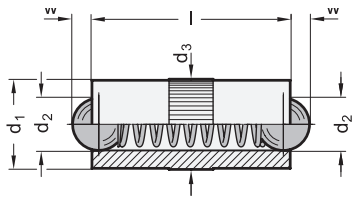
INFORMATION

Spring plungers GN 614.2 are a result of a further development of spring plungers type GN 614 (see page 847) for special applications. A tolerance H8 is recommended for the locating bore of d1.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)





GN 614.2

Description	d1	d2	d3 +0.05	l	w	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 614.2-2,5	2.5	2	2.52	5.3	0.65	1.3	2.5	1
GN 614.2-3	3	2.5	3.02	7.3	0.8	2	4.5	1
GN 614.2-4	4	3	4.03	9	0.9	2.5	7.5	1
GN 614.2-5	5	4	5.03	10.8	1.2	3.5	8	1
GN 614.2-6	6	5	6.03	12.6	1.6	3.5	10.5	2
GN 614.2-7	7	6	7.03	14	2	4	12	3
GN 614.2-8	8	6.5	8.03	18	2.1	6	15	5

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GN 614

Spring plungers

Stainless Steel / Brass / Plastic, Press on type, with ball

SPECIFICATION

Housing and Ball Stainless Steel NI

- AISI 305 / 420C
- Housing sheet-metal
- Ball hardened

Housing Brass MS

- turned
- Ball Stainless Steel AISI 420C, hardened

Housing Plastic (Polyacetal POM) KU

- temperature resistant up to 50 °C
- Ball Stainless Steel AISI 420C, hardened

Housing and Ball Plastic (Polyacetal POM) KD
temperature resistant up to 50 °C

Spring
Stainless Steel AISI 631

INFORMATION

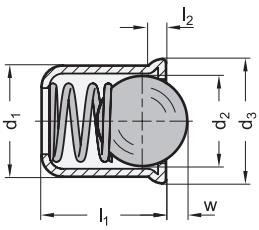
Spring plungers GN 614 are used as detents as well as for push-on and push-off applications and ejectors.
A tolerance of H7 for the location hole of d_1 is recommended.
Due to different production methods, the dimensions l_2 and l_3 are different.

TECHNICAL INFORMATION

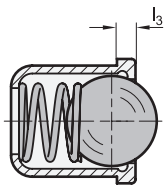
- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)



Type **NI**



Type **MS / KU / KD**



GN 614-NI STAINLESS STEEL

Description	d1 +0.1	d2	d3	l1 ≈	l2 ≈	w	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 614-3-NI	3	2.4	3.5	4	0.75	0.7	1.8	3.5	1
GN 614-4-NI	4	3	4.6	5	0.9	1	2.5	6	1
GN 614-5-NI	5	4	5.6	6	0.9	1.4	3	6.5	1
GN 614-6-NI	6	5	6.5	7	1	1.8	5.5	11.5	1
GN 614-8-NI	8	6.5	8.5	9	1.1	2.4	7	12.5	2
GN 614-10-NI	10	8.5	11	13	1.5	3.3	8.5	18.5	4
GN 614-12-NI	12	10	13	16	2.3	4	12	26.5	8

GN 614-MS

Description	d1 +0.1	d2	d3	l1 ≈	l3 ±0.1	w	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 614-3-MS	3	2.4	3.5	4	0.6	0.6	1.8	3.5	2
GN 614-4-MS	4	3	4.6	5	1	0.8	2.5	6	1
GN 614-5-MS	5	4	5.6	6	1	1	3	6.5	1
GN 614-6-MS	6	5	6.5	7	1	1.6	5.5	11.5	1
GN 614-8-MS	8	6.5	8.5	9	1	1.9	7	12.5	3

GN 614-KU

Description	d1 +0.1	d2	d3	l1 ≈	l3 ±0.1	w	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 614-3-KU	3	2	3.5	4	0.6	0.6	1.7	3.6	1
GN 614-4-KU	4	3	4.6	5	1	0.8	2.5	6.5	1
GN 614-5-KU	5	4	5.6	6	1	1	4.5	9	1
GN 614-6-KU	6	5	6.5	7	1	1.6	6.5	13	1
GN 614-8-KU	8	6.5	8.5	9	1	1.9	8	18	2
GN 614-10-KU	10	8	11	13.5	1.5	2.4	12	23	3
GN 614-12-KU	12	10	13	16	1.5	3.3	13	25	6

GN 614-KD

Description	d1 +0.1	d2	d3	l1 ≈	l3 ±0.1	w	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 614-4-KD	4	3	4.6	5	1	0.8	2.5	6.5	1
GN 614-5-KD	5	4	5.6	6	1	1	4.5	9	1
GN 614-6-KD	6	5	6.5	7	1	1.6	6.5	13	1
GN 614-8-KD	8	6.5	8.5	9	1	1.9	8	18	1
GN 614-10-KD	10	8	11	13.5	1.5	2.4	12	23	1
GN 614-12-KD	12	10	13	16	1.5	3.3	13	25	2

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Holder for spring plungers / Side thrust pins

SPECIFICATION

Types

- Type **LKU**: Fixing from the left, with spring plunger
- Type **RKU**: Fixing from the right, with spring plunger
- Type **BKU**: Fixing from both sides, with spring plunger
- Type **L**: Fixing from the left, without spring plunger
- Type **R**: Fixing from the right, without spring plunger
- Type **B**: Fixing from both sides, without spring plunger

Zinc die casting
nickel plated

Spring plungers GN 614-KU (see page 847)

Housing
Plastic (Polyacetal POM)
temperature resistant up to 50 °C

Ball Stainless Steel AISI 420C, hardened

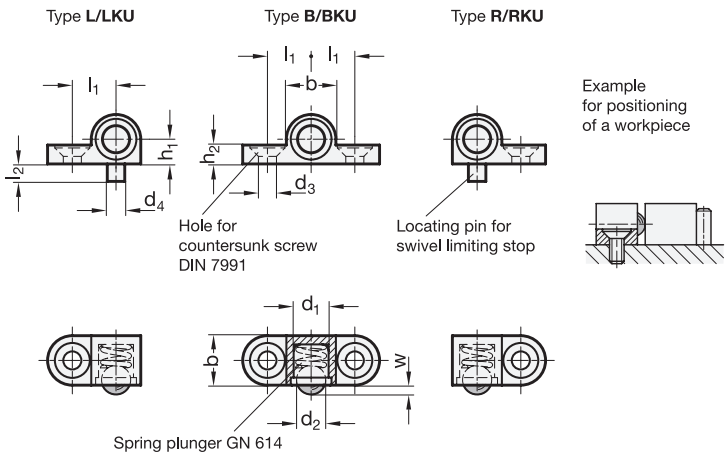


INFORMATION

Holder for spring plungers / Side thrust pins GN 614.1 are used for arresting and as press-on or press-off elements. The easy attachment using one or two countersunk screws also allows its use where a location borehole with the tolerance field H7 for the spring plunger would not be possible from its size and manufacturability.
Side thrust pins GN 614.1 consist of a holder for spring plungers and a Stainless Steel-Spring plunger GN 614 of type KU (see page 847).
For types R, L and B, only a „empty" holder for spring plungers (without spring plungers) are supplied which can then be used together with all other design variants of GN 614-6 and GN 614-8 of the types KD, MS and NI.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



*Complete with type index of the Holder for spring plungers

LKU	RKU	BKU	L	R	B

GN 614.1

Description	d1	d2	d3	d4 -0.05	b	h1 ±0.05	h2	l1 ±0.05	l2	w -0.1	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 614.1-6-*	6	5	3.2 | M 3	3	8.5	4.25	3.2	7.5	3	1.6	6.5	13	4
GN 614.1-8-*	8	6.5	4.3 | M 4	4	10.5	5.25	4.2	9.5	4	1.9	8	18	7

Weight type LKU

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GN 614.5

Spring plungers

press on type, with ball

SPECIFICATION

Housing
Plastic (Polyacetal POM) **KU**
temperature resistant up to 50 °C

Ball
Stainless Steel

- AISI 420C
- hardened

Housing and ball
Plastic (Polyacetal POM) **KD**
temperature resistant up to 50 °C

Spring
Stainless Steel AISI 631

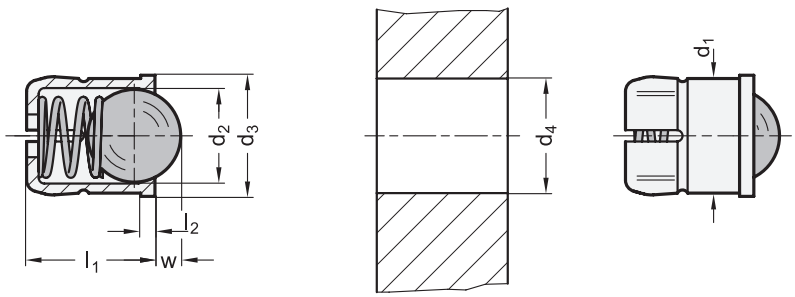


INFORMATION

Spring plungers GN 614.5 are used as detents as well as for push-on and push-off applications and ejectors.
The geometric shape of the plastic housing generates a self-clamping function which compensates drill hole tolerances of as much as 0.2 mm. It also allows the hand-tightened assembly and makes overhead installation easier.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)



GN 614.5-KD — **STAINLESS STEEL**

Description	d1 +0.1	d2	d3	d4 +0.2	l1 ±0.2	l2	w	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 614.5-4-KD	4	3	4.6	4	5	1	0.8	3	6.5	1
GN 614.5-5-KD	5	4	5.6	5	6	1	1	6	9.4	1
GN 614.5-6-KD	6	5	6.5	6	7	1	1.6	6.2	12.6	1
GN 614.5-8-KD	8	6.5	8.5	8	9	1	1.9	10	20.4	1
GN 614.5-10-KD	10	8	11	10	13.5	1.5	2.4	11.9	22.3	2

GN 614.5-KU — **STAINLESS STEEL**

Description	d1 +0.1	d2	d3	d4 +0.2	l1 ±0.2	l2	w	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 614.5-4-KU	4	3	4.6	4	5	1	0.8	3	6.5	1
GN 614.5-5-KU	5	4	5.6	5	6	1	1	6	9.4	1
GN 614.5-6-KU	6	5	6.5	6	7	1	1.6	6.2	12.6	1
GN 614.5-8-KU	8	6.5	8.5	8	9	1	1.9	10	20.4	2
GN 614.5-10-KU	10	8	11	10	13.5	1.5	2.4	11.9	22.3	3

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Spring loaded shells

SPECIFICATION

Types

- Type **H**: Semi-spherical, Steel
- Type **HN**: Semi-spherical, Stainless Steel
- Type **K**: Pointed nose

Housing

- Type H / K: Steel, nickel plated
- Type HN: Stainless Steel AISI 305

Spring
Stainless Steel AISI 301

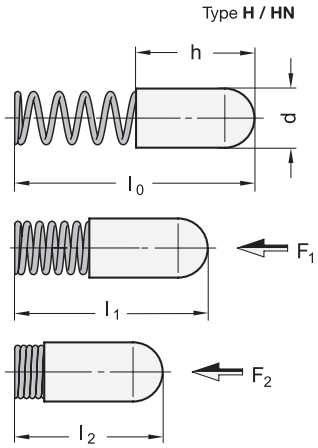
INFORMATION

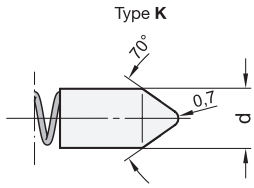
Spring loaded sheels GN 610 have beend designed for applications where in a confined space relatively long strokes are required. In such cases the depth of the mounting hole is determined by the preload required.

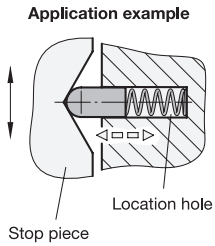
TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)









GN 610 — **STAINLESS STEEL**

Description	d ±0.05	l0	h	l1	F1 Spring load in N ≈	l2	F2 Spring load in N ≈	⚖
GN 610-2,2-16-H	2.2	16	7.8	12	2.2	10.5	3	1
GN 610-2,6-8-H	2.6	8	3.8	6.5	1.1	5.2	2	1
GN 610-3-12-H	3	12	6	9	6.2	8.7	6.8	1
GN 610-3-16-H	3	16	8.5	13	4.8	10.7	8.4	1
GN 610-3,4-12-H	3.4	12	6	9	5	7.8	7	1
GN 610-3,4-15-H	3.4	15	7.3	12	5.9	8.2	13.3	1
GN 610-4-14-H	4	14	8	12	5	9	12.3	1
GN 610-5-16-H	5	16	8	13	8	10.4	15	1
GN 610-2,2-16-K	2.2	16	7.8	12	2.2	12.5	3	1
GN 610-3-11-K	3	11	5	9	1.6	6.7	3.4	1
GN 610-3-16-K	3	16	8.5	13	4.8	10.7	8.4	1
GN 610-3-16-HN	3	16	8	13	4.8	10.6	8.6	1
GN 610-3,6-18-HN	3.6	18	9	15	6.7	11.5	14.5	1
GN 610-4-16-HN	4	16	7.5	13	8	11.4	12.3	1

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GN 249

Ball buttons

for spring plungers

SPECIFICATION

Steel
hardened and ground

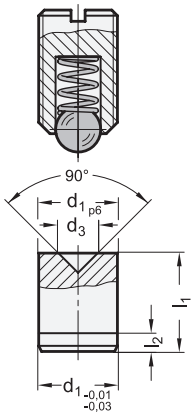
INFORMATION

Ball buttons GN 249 are mainly used with spring plungers when a nonwearing and exact positioning is needed.
These ball buttons are especially recommended for use with spring plungers with high spring loads.

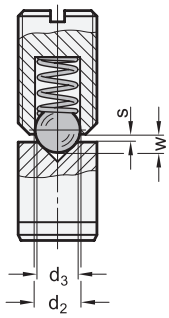
TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)





$$s = w - \left(\frac{d_2 + d_3}{2} - \frac{\sqrt{2}}{2} d_2\right)$$



GN 249

Description	d_1 p6	d_2	d_3	l_1 ±0.05	l_2	w	s For GN 614	s For GN 615, GN 615.2 GN 615.3	s For GN 615.1	s For GN 616	⚖
GN 249-4	4	*	1.5	5	2	*	-	M 4=0.6	M 4=1.1	M 4=1.1	1
GN 249-5	5	*	2	6	2	*	Ø 4=0.4	M 5=0.4	M 5=1.5	M 5=1.8	1
GN 249-6	6	*	2	8	2	*	Ø 5=0.8	M 6=0.6	M 6=1.6	M 6=2.1	2
GN 249-8	8	*	3	10	2	*	Ø 6=1.1	M 8=0.9	M 8=1.3	M 8=2.2	4
GN 249-10	10	*	4	12	3	*	Ø 8=1.2	M 10=1.2	M 10=1.4	M 10=1.8	7
GN 249-12	12	*	6	14	3	*	Ø 10=1.9	M 12=1.2	M 12=1.7	M 12=2.2	12
GN 249-16	16	*	8	18	3	*	Ø 12=1.9	M 16=1.6	M 16=2.3	M 16=2.5	20

* see spring plunger

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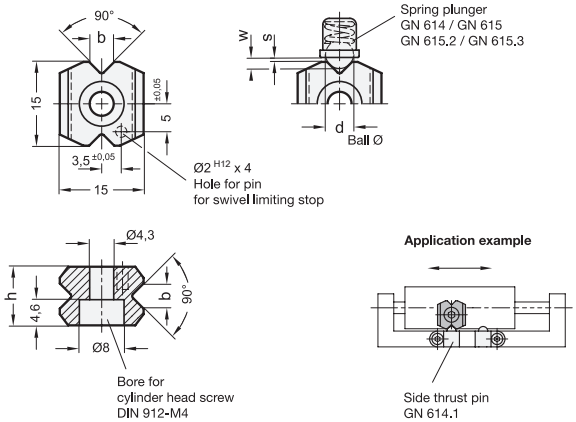
GN 250

Indent blocks
for spring plungers

SPECIFICATION
Sintered Steel
- case hardened
- blank

INFORMATION
Indent blocks GN 250 are used together with spring plungers for detent or positioning of sliders, flaps and similar applications.





GN 250

Description	h	b ±0.1	Size	d	w	s min.	⚖
GN 250-8,5	8.5	3.4	M 8 *	5	1.6	0.9	10
GN 250-10,5	10.5	4.5	M10 *	6.5	1.9	1	11
GN 250-8,5	8.5	3.4	M 8 **	4.5	1.5	0.8	10
GN 250-10,5	10.5	4.5	M 10 **	6	2	1	11

* for GN 614 | ** for GN 615 / GN 615.2 / GN 615.3

GN 614.3

Stainless Steel-Spring plunger
with ball / without thread

SPECIFICATION
Housing
Stainless Steel AISI 303 **NI**

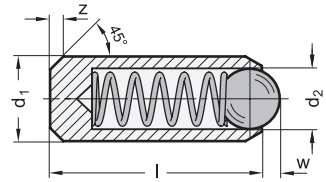
Ball
Stainless Steel AISI 420C
hardened

Spring
Stainless Steel AISI 631

INFORMATION
Spring plungers GN 614.3 are installed axially through the depth of the bore whereby the dimension "z" of the chamfer has to be taken into consideration.
Due to the thin wall of the shell press fitting is not recommended.

TECHNICAL INFORMATION
- Stainless Steel characteristics (see page A26)





GN 614.3 **STAINLESS STEEL**

Description	d1 ±0.04	d2	l	w	z	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 614.3-3-NI	3	2	7	0.65	0.15	4.5	7.5	1
GN 614.3-3,5-NI	3.5	2.5	9	0.8	0.15	6	14.5	1
GN 614.3-4-NI	4	3	11	0.9	0.25	8	14	1
GN 614.3-4,5-NI	4.5	3.2	12	0.95	0.25	9.5	16.5	1
GN 614.3-5-NI	5	3.5	13	1	0.25	11	18	2
GN 614.3-5,5-NI	5.5	4	14	1.2	0.3	15.5	25	2
GN 614.3-6-NI	6	4.5	15	1.5	0.3	18	31	2

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GN 614.4

Spring plungers

Press on type / with bolt

SPECIFICATION

Housing
Stainless Steel AISI 305

Bolt

Stainless Steel AISI 303 **NI**

Plastic **KU**
Polyacetal POM, white
temperature resistant up to +50 °C

Spring
Stainless Steel AISI 631

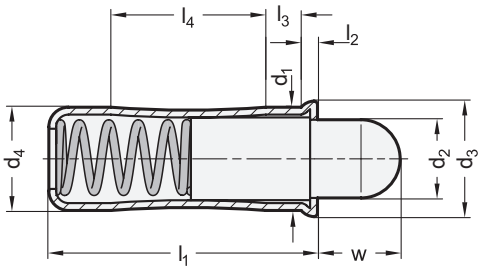
INFORMATION

Spring plungers GN 614.4 are used for locking, as pressing and back-off pins, but also as impact dampers.
A tolerance of H7 for the location hole of d_1 is recommended.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)





GN 614.4-KU

Description	d_1 +0.1	d_2	d_3	d_4 ±0.0.5	l_1	l_2 ≈	l_3 ≈	l_4 ≈	w	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 614.4-4-KU	4	2.8	4.6	4	10.7	0.9	1.8	5.6	2.7	3	8.2	1
GN 614.4-5-KU	5	3.8	5.6	5	12	0.9	2.1	6	4	3.3	9	1
GN 614.4-6-KU	6	4.8	6.5	6	15	1	2.3	8.2	5.5	6.1	12	1
GN 614.4-8-KU	8	6.2	8.5	8	18	1.1	2.9	9.5	6.5	10.7	17	3
GN 614.4-10-KU	10	8	11	10	26	1.5	3.5	15	8	16.2	29	3

GN 614.4-NI **STAINLESS STEEL**

Description	d_1 +0.1	d_2	d_3	d_4 ±0.0.5	l_1	l_2 ≈	l_3 ≈	l_4 ≈	w	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 614.4-4-NI	4	2.8	4.6	4	10.7	0.9	1.8	5.6	2.7	3	8.2	1
GN 614.4-5-NI	5	3.8	5.6	5	12	0.9	2.1	6	4	3.3	9	1
GN 614.4-6-NI	6	4.8	6.5	6	15	1	2.3	8.2	5.5	6.1	12	2
GN 614.4-8-NI	8	6.2	8.5	8	18	1.1	2.9	9.5	6.5	10.7	17	4
GN 614.4-10-NI	10	8	11	10	26	1.5	3.5	15	8	16.2	29	9

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GN 616

INOX STAINLESS STEEL RoHS

Spring plungers

Steel / Stainless Steel, with bolt / with internal hexagon



SPECIFICATION

Version in Steel

Types

- Type **S**: Bolt Steel, standard spring load
- Type **SS**: Bolt Steel, high spring load
- Type **K**: Bolt Plastic, standard spring load

Housing

Steel, blackened

Type S / SS
Bolt Steel, hardened

Type K
Bolt Plastic (Polyacetal POM)
temperature resistant up to 50 °C

Spring
Stainless Steel AISI 631

Marking of Type SS
Housing with 2 longitudinal markings

Version in Stainless Steel

Types

- Type **SN**: Bolt Stainless Steel, standard spring load
- Type **KN**: Bolt Plastic, standard spring load

Housing
Stainless Steel AISI 303

Type SN
Bolt Stainless Steel AISI 303

Type KN
Bolt Plastic (Polyacetal POM)
temperature resistant up to 50 °C

Spring
Stainless Steel AISI 631

INFORMATION

Spring plungers GN 616 are used as detents as well as for push-on and push-off applications and ejecetors.
The slot on the plunger side is provieded for blind hole applications.
A special screw driver GN 616.5 is available.

ACCESSORY

- Screw drivers GN 616.5 (Code no. see table)

ON REQUEST

- with thread locking PFB / MVK

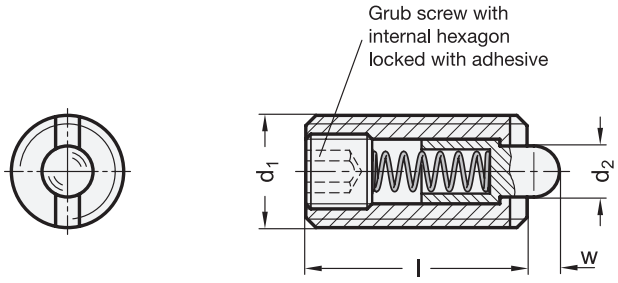
TECHNICAL INFORMATION

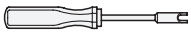
- Stainless Steel characteristics (see page A26)

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GN 616

Spring plungers





GN 616

Description	d1	d2	l ±0.2	A/F	w +0.3/0.1	Spring load in N ≈ initial	Spring load in N ≈ end	Code no. for screw driver	⚖
GN 616-M3-S	M 3	1	12	0.7	1	2	4	GN 616.5-M3	1
GN 616-M4-S	M 4	1.5	15	1.3	1.5	4.5	16	GN 616.5-M4	1
GN 616-M5-S	M 5	2.4	18	1.5	2.3	6	19	GN 616.5-M5	2
GN 616-M6-S	M 6	2.7	20	2	2.5	6	19	GN 616.5-M6	3
GN 616-M8-S	M 8	3.5	22	2.5	3	10	39	GN 616.5-M8	6
GN 616-M10-S	M 10	4	22	3	3	10	39	GN 616.5-M10	9
GN 616-M12-S	M 12	6	28	4	4	12	53	GN 616.5-M12	16
GN 616-M16-S	M 16	7.5	32	5	5	45	100	GN 616.5-M16	35
GN 616-M20-S	M 20	10	40	6	7	52	125	GN 616.5-M20	65
GN 616-M24-S	M 24	12	52	8	10	70	170	GN 611.5-M24	131
GN 616-M8-SS	M 8	3.5	22	2.5	3	20	75	GN 616.5-M8	6
GN 616-M10-SS	M 10	4	22	3	3	20	75	GN 616.5-M10	9
GN 616-M12-SS	M 12	6	28	4	4	54	120	GN 616.5-M12	16
GN 616-M16-SS	M 16	7.5	32	5	5	64	160	GN 616.5-M16	30
GN 616-M20-SS	M 20	10	40	6	7	75	195	GN 616.5-M20	65
GN 616-M24-SS	M 24	12	52	8	10	75	245	GN 611.5-M24	120
GN 616-M4-K	M 4	1.5	15	1.3	1.5	4.5	16	GN 616.5-M4	1
GN 616-M5-K	M 5	2.4	18	1.5	2.3	6	19	GN 616.5-M5	2
GN 616-M6-K	M 6	2.7	20	2	2.5	6	19	GN 616.5-M6	2
GN 616-M8-K	M 8	3.5	22	2.5	3	10	39	GN 616.5-M8	5
GN 616-M10-K	M 10	4	22	3	3	10	39	GN 616.5-M10	10
GN 616-M12-K	M 12	6	28	4	4	12	53	GN 616.5-M12	14
GN 616-M16-K	M 16	7.5	32	5	5	45	100	GN 616.5-M16	31

GN 616-SN/KN **STAINLESS STEEL**

Description	d1	d2	l ±0.2	A/F	w +0.3/0.1	Spring load in N ≈ initial	Spring load in N ≈ end	Code no. for screw driver	⚖
GN 616-M4-SN	M 4	1.5	15	1.3	1.5	4.5	16	GN 616.5-M4	1
GN 616-M5-SN	M 5	2.4	18	1.5	2.3	6	19	GN 616.5-M5	2
GN 616-M6-SN	M 6	2.7	20	2	2.5	6	19	GN 616.5-M6	3
GN 616-M8-SN	M 8	3.5	22	2.5	3	10	39	GN 616.5-M8	6
GN 616-M10-SN	M 10	4	22	3	3	10	39	GN 616.5-M10	9
GN 616-M12-SN	M 12	6	28	4	4	12	53	GN 616.5-M12	16
GN 616-M16-SN	M 16	7.5	32	5	5	45	100	GN 616.5-M16	35
GN 616-M20-SN	M 20	10	40	6	7	52	125	GN 616.5-M20	67
GN 616-M4-KN	M 4	1.5	15	1.3	1.5	4.5	16	GN 616.5-M4	1
GN 616-M5-KN	M 5	2.4	18	1.5	2.3	6	19	GN 616.5-M5	2
GN 616-M6-KN	M 6	2.7	20	2	2.5	6	19	GN 616.5-M6	3
GN 616-M8-KN	M 8	3.5	22	2.5	3	10	39	GN 616.5-M8	5
GN 616-M10-KN	M 10	4	22	3	3	10	39	GN 616.5-M10	9
GN 616-M12-KN	M 12	6	28	4	4	12	53	GN 616.5-M12	16
GN 616-M16-KN	M 16	7.5	32	5	5	45	100	GN 616.5-M16	32

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Spring plungers

with bolt / long version

SPECIFICATION

Types

- Type **L**: standard spring load
- Type **LS**: high spring load

Steel
blackened

Bolt
case hardened

Marking of Type LS:
Housing with 2 longitudinal markings

INFORMATION

Spring plungers GN 611 are used as ejectors, push-on and push-off operations in the sheet metal industry, as well as cushioners.
The slot on the plunger side is provided for blind hole application.
A special screw driver GN 611.5 is available (see table).

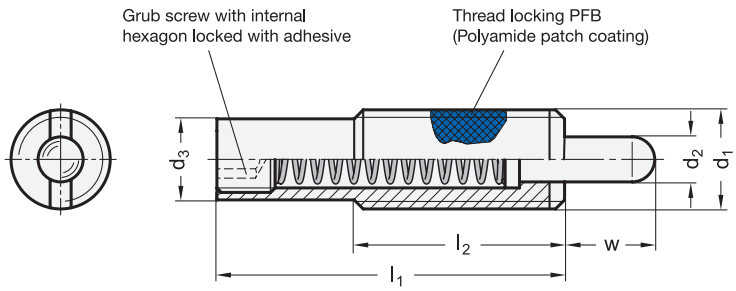
TECHNICAL INFORMATION

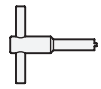
- More information to thread locking PFB (see page A24)

ACCESSORY

- Screw drivers GN 611.5 (Code no. see table)







GN 611

Description	d1	w	d2	d3	l1	l2	A/F	Spring load in N ≈ initial	Spring load in N ≈ end	Code no. for screw driver	⚖
GN 611-M10-8-L	M 10	8	4	7.8	35	25	3	6	16	GN 611.5-M10	13
GN 611-M12-10-L	M 12	10	5.5	9.5	43	35	4	4	18	GN 611.5-M12	22
GN 611-M16-10-L	M 16	10	8	13.4	48	35	6	7	24	GN 611.5-M16	42
GN 611-M16-15-L	M 16	15	8	13.4	58	35	6	9	33	GN 611.5-M16	54
GN 611-M16-20-L	M 16	20	8	13.4	58	35	6	4	23	GN 611.5-M16	66
GN 611-M16-25-L	M 16	25	8	13.4	98	35	6	13	41	GN 611.5-M16	78
GN 611-M16-30-L	M 16	30	8	13.4	98	35	6	13	47	GN 611.5-M16	80
GN 611-M16-40-L	M 16	40	8	13.4	148	35	6	13	63	GN 611.5-M16	115
GN 611-M16-50-L	M 16	50	8	13.4	148	35	6	7	43	GN 611.5-M16	127
GN 611-M12-10-LS	M 12	10	5.5	9.5	43	35	4	7	46	GN 611.5-M12	23
GN 611-M16-10-LS	M 16	10	8	13.4	48	35	6	10	43	GN 611.5-M16	42
GN 611-M16-15-LS	M 16	15	8	13.4	58	35	6	10	57	GN 611.5-M16	50
GN 611-M16-20-LS	M 16	20	8	13.4	83	35	6	18	72	GN 611.5-M16	71
GN 611-M16-25-LS	M 16	25	8	13.4	98	35	6	20	70	GN 611.5-M16	78
GN 611-M16-30-LS	M 16	30	8	13.4	98	35	6	20	80	GN 611.5-M16	83
GN 611-M16-40-LS	M 16	40	8	13.4	148	35	6	21	113	GN 611.5-M16	123
GN 611-M16-50-LS	M 16	50	8	13.4	148	35	6	13	75	GN 611.5-M16	127

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GN 615.7

Spring plungers

with limit switch

SPECIFICATION

Types

- Type **S**: normally open
- Type **O**: normally closed

Screw
Steel, nickel plated

Ball
Steel, hardened

Hexagonal nuts
Steel, nickel plated

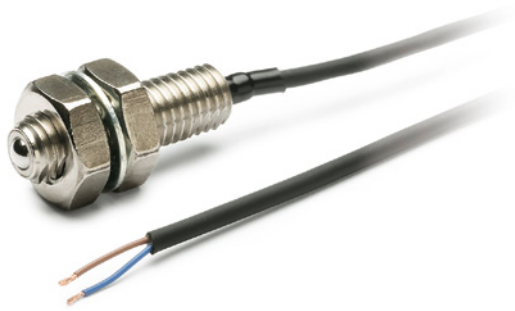
Limit switch

- Voltage: 5 ... 24 V DC
- Switching load recom.: 5-10 mA
- Switching load max.: 20 mA DC
- Life expectancy: 3 million operations
- Temperature range: -10 °C ... +80 °C

Supply cable PVC:

- Ø 3; 2 phase, ≈ 2 meters long
- max. tensile load 20 N
- grey, for Type S (normally open)
- black, for Type O (normally closed)

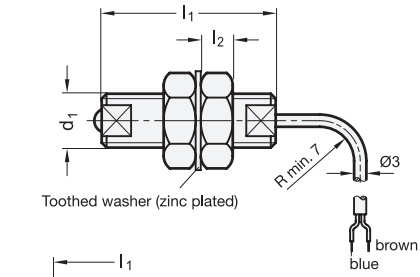
Protection class IP 40

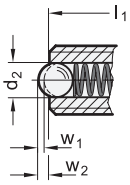


INFORMATION

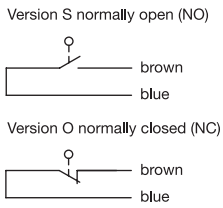
Spring plungers GN 615.7 are used for end stops as wells as contacts Simultaneously an electrical control signal can be released from the built-in limit switch.

- IP Protection classes (see page A23)









GN 615.7

Description	d1	d2	l1	s	l2	A/F	w1 ±0.1 Switching stroke	w2 ±0.1 Compression	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 615.7-M6-O	M 6	3	33	5	3.5	10	0.3	0.8	6	13	40
GN 615.7-M8-O	M 8	4	36	7	5	13	0.5	1	8	16	53
GN 615.7-M10-O	M 10	5	40	8	6	17	0.7	1.2	10	20	60
GN 615.7-M6-S	M 6	3	33	5	3.5	10	0.3	0.8	6	13	40
GN 615.7-M8-S	M 8	4	36	7	5	13	0.5	1	8	16	53
GN 615.7-M10-S	M 10	5	40	8	6	17	0.7	1.2	10	20	60

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Spring elements

SPECIFICATION

Types

- Type **I**: Female thread
- Type **K**: Pointed nose
- Type **H**: Semi-spherical, Steel
- Type **P**: Prism (120°)

Identification No.

- Version **1**: standard spring load
- Version **2**: high spring load

Steel

Threaded sleeve
zinc plated, blue passivated

Spring bolt
case hardened, blackened

Identification

standard spring load:
Crescent shaped ring
phosphated (anthracite)

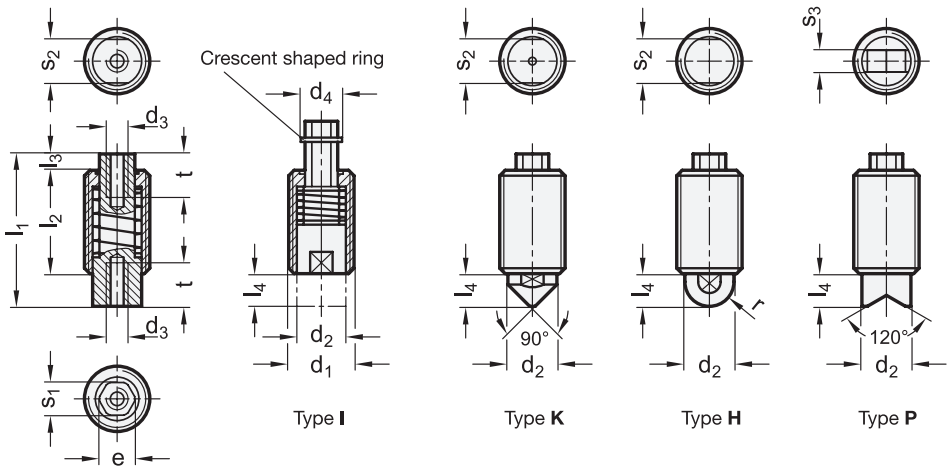
high spring load:
Crescent shaped ring
zinc plated, blue passivated



INFORMATION

Spring elements GN 513 are universal pressure elements used as detents, positioners or for clamping with spring pressure. The spring loaded nose can be used for a push-on or push-off operation. In addition the spring loaded nose cannot rotate.
At the pulling end the female thread will accept a pulling rod or an operating knob.
Type I with a female thread at the pushing end can be fitted with a special plunger nose.
The spring element can be screwed into a thread at the hexagon on the pulling end or the spanner flats at the pushing end of the plunger.

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GN 513

Description	d1	d2	d3	d4	e	l1	l2	l3	l4	r	s1	s2	s3	t min.	Spring load in N ≈ initial	Spring load in N ≈ end	⚖
GN 513-M12x1,5-I-1	M 12 x 1.5	9	M 4	7.6	6.5	28	19	3	6	-	6	8	-	8	16	35	10
GN 513-M16x1,5-I-1	M 16 x 1.5	12	M 5	8.8	7.8	38	27	3	8	-	7	10	-	10	25	71	31
GN 513-M20x1,5-I-1	M 20 x 1.5	14.5	M 6	11.4	10	47	33	4	10	-	9	12	-	12	40	130	65
GN 513-M12x1,5-P-1	M 12 x 1.5	9	M 4	7.6	6.5	28	19	3	6	-	6	-	4	8	16	35	12
GN 513-M16x1,5-P-1	M 16 x 1.5	12	M 5	8.8	7.8	38	27	3	8	-	7	-	6	10	25	71	30
GN 513-M20x1,5-P-1	M 20 x 1.5	14.5	M 6	11.4	10	47	33	4	10	-	9	-	8	12	40	130	64
GN 513-M12x1,5-K-1	M 12 x 1.5	9	M 4	7.6	6.5	28	19	3	6	-	6	8	-	8	16	35	13
GN 513-M16x1,5-K-1	M 16 x 1.5	12	M 5	8.8	7.8	38	27	3	8	-	7	10	-	10	25	71	30
GN 513-M20x1,5-K-1	M 20 x 1,5	14.5	M 6	11.4	10	47	33	4	10	-	9	12	-	12	40	130	65
GN 513-M12x1,5-H-1	M 12 x 1.5	9	M 4	7.6	6.5	28	19	3	6	4.5	6	8	-	-	16	35	15
GN 513-M16x1,5-H-1	M 16 x 1.5	12	M 5	8.8	7.8	38	27	3	8	6	7	10	-	-	25	71	30
GN 513-M20x1,5-H-1	M 20 x 1.5	14.5	M 6	11.4	10	47	33	4	10	7.2	9	12	-	-	40	130	66
GN 513-M12x1,5-I-2	M 12 x 1.5	9	M 4	7.6	6.5	28	19	3	6	-	6	8	-	8	18	56	12
GN 513-M16x1,5-I-2	M 16 x 1.5	12	M 5	8.8	7.8	38	27	3	8	-	7	10	-	10	45	125	31
GN 513-M20x1,5-I-2	M 20 x 1.5	14.5	M 6	11.4	10	47	33	4	10	-	9	12	-	12	66	200	66
GN 513-M12x1,5-P-2	M 12 x 1.5	9	M 4	7.6	6.5	28	19	3	6	-	6	-	4	8	18	56	12
GN 513-M16x1,5-P-2	M 16 x 1.5	12	M 5	8.8	7.8	38	27	3	8	-	7	-	6	10	45	125	30
GN 513-M20x1,5-P-2	M 20 x 1.5	14.5	M 6	11.4	10	47	33	4	10	-	9	-	8	12	66	200	65
GN 513-M12x1,5-K-2	M 12 x 1.5	9	M 4	7.6	6.5	28	19	3	6	-	6	8	-	8	18	56	12
GN 513-M16x1,5-K-2	M 16 x 1.5	12	M 5	8.8	7.8	38	27	3	8	-	7	10	-	10	45	125	30
GN 513-M20x1,5-K-2	M 20 x 1,5	14.5	M 6	11.4	10	47	33	4	10	-	9	12	-	12	66	200	64
GN 513-M12x1,5-H-2	M 12 x 1.5	9	M 4	7.6	6.5	28	19	3	6	4.5	6	8	-	-	18	56	10
GN 513-M16x1,5-H-2	M 16 x 1.5	12	M 5	8.8	7.8	38	27	3	8	6	7	10	-	-	45	125	32
GN 513-M20x1,5-H-2	M 20 x 1.5	14.5	M 6	11.4	10	47	33	4	10	7.2	9	12	-	-	66	200	67

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Side thrust pins

Press on type

SPECIFICATION

Types

- Type **SA**: thrust pin Steel, without seal
- Type **KA**: thrust pin Plastic, without seal
- Type **SB**: thrust pin Steel, with seal
- Type **KB**: thrust pin Plastic, with seal

Housing Aluminium
blank

Type SA / SB
thrust pin Steel, hardened
zinc plated, blue passivated

Type KA / KB
thrust pin Plastic Polyacetal (POM)

Thrust spring coding
Force, low thrust: grey
medium thrust: black
high thrust: silver

Seal rubber
NBR (Perbunan)

INFORMATION

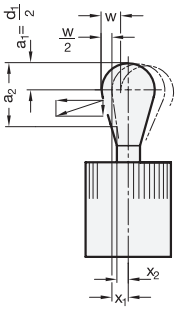
Spring loaded side thrust pins GN 715 are versatile and practical elements for holding, positioning and clamping of workpieces.
They eliminate costly alternatives, are space saving and easy to install. The knurled body requires only a hole tolerance of H8.
For easy mounting a suitable tool GN 715.1-... is available (see table).

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Plastic characteristics (see page A2)
- Elastomer characteristics (see page A32)

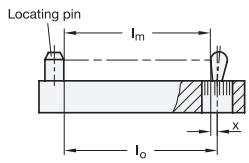
TECHNICAL AND ASSEMBLY INSTRUCTIONS

w = Movement of pin
F = Side thrust in N
initial thrust = F_0
end thrust = 1.1 x F_0
a_2-a_1 = Clamping range for workpiece
x = distance centre line – thrust point at w_2
x_1 for highest thrust point (a_1)
x_2 for lowest thrust point (a_2)
l_0 = Distance end stop – bore of thrust bush
$l_0 = l_m + x$
l_m = Average length of workpiece $l_{max.} + l_{min.}/2$
For contact points (workpiece height) between a_1 and a_2 a value for x has to be used lying between x_1 and x_2 (interpolation).

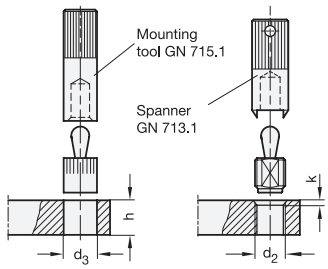




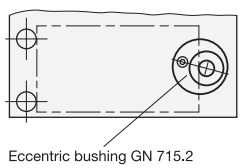
By observing the above values the full movement of the side thrust pin will be available to cover the tolerance of the workpiece.



For inserting the side thrust pins the use of a mounting tool GN 715.1 or spanner GN 713.1 is recommended.



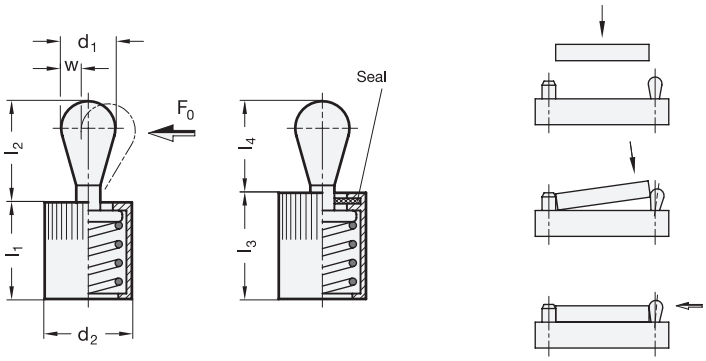
Eccentric bushes GN 715.2 (see page 867) are tooling accessory for GN 714 (see page 862) / GN 715. They enable a precise optimum setting of side thrust pins. This allows an adjustment to l_0 to accommodate for instance a larger tolerance range on a workpiece.

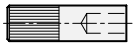


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GN 715

Side thrust pins





GN 715

Description	d1	Side thrust F0 in N	a1	a2	d2	d3 H8	h min.	l1 -1	l2	l3 -1	l4	w	x1	x2	Code no. for mounting tool	⚖
GN 715-3-10-KA	3	10	1.5	3.5	6	6	7	7	4	7	4	0.9	1	0.75	GN 715.1-3	1
GN 715-5-20-KA	5	20	2.5	5.7	10	10	12	11	6.7	11.5	6	1.6	1.7	1.3	GN 715.1-5.6	1
GN 715-6-40-KA	6	40	3	7.7	10	10	12	11	10.7	11.5	10	1.8	1.9	1.4	GN 715.1-5.6	1
GN 715-8-50-KA	8	50	4	8.9	12	12	14	13	13.9	14	13	2.6	2.7	2.1	GN 715.1-8	3
GN 715-10-100-KA	10	100	5	10.7	16	16	18	17	16.7	18	16	3.2	3.4	2.7	GN 715.1-10	6
GN 715-3-10-KB	3	10	1.5	3.5	6	6	7	7	4	7	4	0.9	1	0.75	GN 715.1-3	1
GN 715-5-20-KB	5	20	2.5	5.7	10	10	12	11	6.7	11.5	6	1.6	1.7	1.3	GN 715.1-5.6	1
GN 715-6-40-KB	6	40	3	7.7	10	10	12	11	10.7	11.5	10	1.8	1.9	1.4	GN 715.1-5.6	2
GN 715-8-50-KB	8	50	4	8.9	12	12	14	13	13.9	14	13	2.6	2.7	2.1	GN 715.1-8	3
GN 715-10-100-KB	10	100	5	10.7	16	16	18	17	16.7	18	16	3.2	3.4	2.7	GN 715.1-10	7
GN 715-3-10-SA	3	10	1.5	3.5	6	6	7	7	4	7	4	0.9	1	0.75	GN 715.1-3	1
GN 715-3-20-SA	3	20	1.5	3.5	6	6	12	11	6.7	11.5	6	1.6	1.7	1.3	GN 715.1-3	1
GN 715-3-40-SA	3	40	1.5	3.5	6	6	12	11	10.7	11.5	10	1.8	1.9	1.4	GN 715.1-3	1
GN 715-5-20-SA	5	20	2.5	5.7	10	10	14	13	13.9	14	13	2.6	2.7	2.1	GN 715.1-5.6	3
GN 715-5-50-SA	5	50	2.5	5.7	10	10	18	17	16.7	18	16	3.2	3.4	2.7	GN 715.1-5.6	3
GN 715-5-100-SA	5	100	2.5	5.7	10	10	7	7	4	7	4	0.9	1	0.75	GN 715.1-5.6	3
GN 715-6-40-SA	6	40	3	7.7	10	10	12	11	6.7	11.5	6	1.6	1.7	1.3	GN 715.1-5.6	3
GN 715-6-75-SA	6	75	3	7.7	10	10	12	11	10.7	11.5	10	1.8	1.9	1.4	GN 715.1-5.6	4
GN 715-6-150-SA	6	150	3	7.7	10	10	14	13	13.9	14	13	2.6	2.7	2.1	GN 715.1-5.6	4
GN 715-8-50-SA	8	50	4	8.9	12	12	18	17	16.7	18	16	3.2	3.4	2.7	GN 715.1-8	7
GN 715-8-100-SA	8	100	4	8.9	12	12	7	7	4	7	4	0.9	1	0.75	GN 715.1-8	7
GN 715-8-200-SA	8	200	4	8.9	12	12	12	11	6.7	11.5	6	1.6	1.7	1.3	GN 715.1-8	7
GN 715-10-100-SA	10	100	5	10.7	16	16	12	11	10.7	11.5	10	1.8	1.9	1.4	GN 715.1-10	15
GN 715-10-200-SA	10	200	5	10.7	16	16	14	13	13.9	14	13	2.6	2.7	2.1	GN 715.1-10	15
GN 715-10-300-SA	10	300	5	10.7	16	16	18	17	16.7	18	16	3.2	3.4	2.7	GN 715.1-10	16
GN 715-3-10-SB	3	10	1.5	3.5	6	6	7	7	4	7	4	0.9	1	0.75	GN 715.1-3	1
GN 715-3-20-SB	3	20	1.5	3.5	6	6	12	11	6.7	11.5	6	1.6	1.7	1.3	GN 715.1-3	1
GN 715-3-40-SB	3	40	1.5	3.5	6	6	12	11	10.7	11.5	10	1.8	1.9	1.4	GN 715.1-3	1
GN 715-5-20-SB	5	20	2.5	5.7	10	10	14	13	13.9	14	13	2.6	2.7	2.1	GN 715.1-5.6	3
GN 715-5-50-SB	5	50	2.5	5.7	10	10	18	17	16.7	18	16	3.2	3.4	2.7	GN 715.1-5.6	3
GN 715-5-100-SB	5	100	2.5	5.7	10	10	7	7	4	7	4	0.9	1	0.75	GN 715.1-5.6	3
GN 715-6-40-SB	6	40	3	7.7	10	10	12	11	6.7	11.5	6	1.6	1.7	1.3	GN 715.1-5.6	3
GN 715-6-75-SB	6	75	3	7.7	10	10	12	11	10.7	11.5	10	1.8	1.9	1.4	GN 715.1-5.6	4
GN 715-6-150-SB	6	150	3	7.7	10	10	14	13	13.9	14	13	2.6	2.7	2.1	GN 715.1-5.6	4
GN 715-8-50-SB	8	50	4	8.9	12	12	18	17	16.7	18	16	3.2	3.4	2.7	GN 715.1-8	7
GN 715-8-100-SB	8	100	4	8.9	12	12	7	7	4	7	4	0.9	1	0.75	GN 715.1-8	7
GN 715-8-200-SB	8	200	4	8.9	12	12	12	11	6.7	11.5	6	1.6	1.7	1.3	GN 715.1-8	7
GN 715-10-100-SB	10	100	5	10.7	16	16	12	11	10.7	11.5	10	1.8	1.9	1.4	GN 715.1-10	15
GN 715-10-200-SB	10	200	5	10.7	16	16	14	13	13.9	14	13	2.6	2.7	2.1	GN 715.1-10	14
GN 715-10-300-SB	10	300	5	10.7	16	16	18	17	16.7	18	16	3.2	3.4	2.7	GN 715.1-10	16

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Side thrust pins

without pressure pin, press on type

SPECIFICATION

Housing Aluminium
blank

Thrust plate with female thread
hardened, blackened

Thrust spring coding
Force, low thrust: grey
medium thrust: lack
high thrust: silver

Seal rubber
NBR (Perbunan)

INFORMATION

Side thrust pins GN 714 are the result of further development of GN 715 (see page 860). It is left to the customer to design his own pressure pin which can be screwed into the thrust plate.
This design extends the field of applications for side thrust pins offering identical advantages i.e. they eliminate costly alternatives, are space saving and are simple to install. The knurled body requires bore to H8 tolerance only.
For easy mounting a suitable tool GN 715.1 is available (see table).

ACCESSORY

- Mounting tools GN 715.1 (Code no. see table)

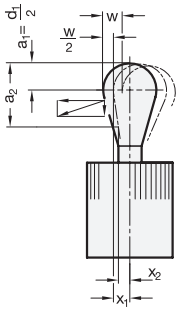
TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Elastomer characteristics (see page A32)

TECHNICAL AND ASSEMBLY INSTRUCTIONS

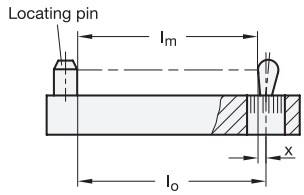
w = Movement of pin
F = Side thrust in N
initial thrust = F_0
end thrust = 1.1 x F_0
a_2-a_1 = Clamping range for workpiece
x = Distance centre line – thrust point at w_2
x_1 for highest thrust point (a_1)
x_2 for lowest thrust point (a_2)
l_0 = Distance end stop – bore of thrust bushing
$l_0 = l_m + x$
l_m = Average length of workpiece $l_{max.} + l_{min.}/2$
For contact points (workpiece height) between a_1 and a_2 a value for x has to be used lying between x_1 and x_2 (interpolation).

By observing the above values the full movement of the side thrust pin will be available to cover the tolerance of the workpiece.

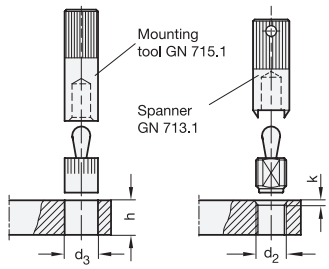




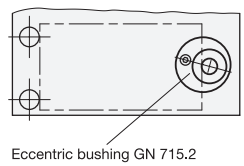
By observing the above values the full movement of the side thrust pin will be available to cover the tolerance of the workpiece.



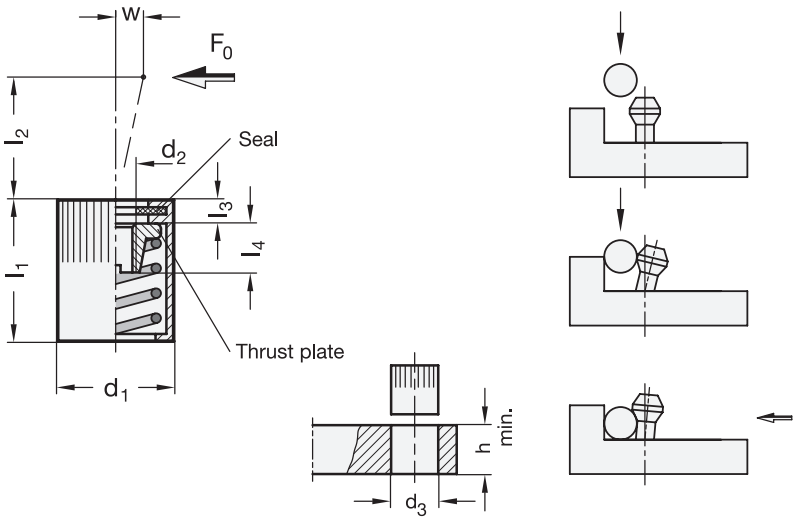
For inserting the side thrust pins the use of a mounting tool GN 715.1 or spanner GN 713.1 is recommended.

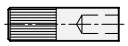


Eccentric bushes GN 715.2 (see page 867) are tooling accessory for GN 714 (see page 862) / GN 715 (see page 860). They enable a precise optimum setting of side thrust pins. This allows an adjustment to l_0 to accommodate for instance a larger tolerance range on a workpiece.



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GN 714

Description	d1	Side thrust F0 in N ≈ at l2	d2	d3 H8	h min.	l1 -1	l2	l3	l4	w	Code no.	⚖
GN 714-10-20	10	20	M 4	10	12	12	4	1.5	4.5	1.6	GN 715.1-5.6	2
GN 714-10-40	10	40	M 4	10	12	12	7.5	1.5	4.5	1.6	GN 715.1-5.6	2
GN 714-10-50	10	50	M 4	10	12	12	4	1.5	4.5	1.6	GN 715.1-5.6	2
GN 714-10-75	10	75	M 4	10	12	12	7.5	1.5	4.5	1.6	GN 715.1-5.6	2
GN 714-10-100	10	100	M 4	10	12	12	4	1.5	4.5	1.6	GN 715.1-5.6	2
GN 714-10-150	10	150	M 4	10	12	12	7.5	1.5	4.5	1.6	GN 715.1-5.6	2
GN 714-16-100	16	100	M 6	16	18	18	11.5	2	7.5	3.2	GN 715.1-10	9
GN 714-16-200	16	200	M 6	16	18	18	11.5	2	7.5	3.2	GN 715.1-10	9
GN 714-16-300	16	300	M 6	16	18	18	11.5	2	7.5	3.2	GN 715.1-10	10

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Side thrust pins

with thread

SPECIFICATION

Types

- Type **SB**: thrust pin Steel, with seal
- Type **SA***: thrust pin Steel, without seal

* not available from stock, requires a minimum order quantity

Housing Steel
zinc plated, blue passivated

Thrust pin Steel, hardened
zinc plated, blue passivated

Thrust spring coding
Force low thrust: grey
medium thrust: black
high thrust: silver

Seal rubber
NBR (Perbunan)

INFORMATION

Spring loaded side thrust pins GN 713 are versatile and practical elements for holding, positioning and clamping workpieces.
They eliminate costly alternatives, are space saving and simple to install. The protruding height of the thrust pin can be adjusted with the threaded body.
For easy mounting a suitable tool GN 713.1-is available (see table).

ACCESSORY

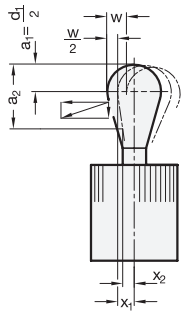
- Mounting tools GN 713.1 (Code no. see table)

TECHNICAL INFORMATION

- Elastomer characteristics (see page A32)

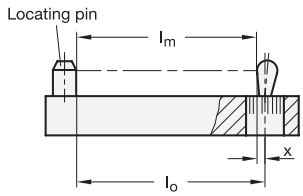
TECHNICAL AND ASSEMBLY INSTRUCTIONS

w = Movement of pin
F = Side thrust in N
initial thrust = F_0
end thrust = 1.1 x F_0
a_2-a_1 = Clamping range for workpiece
x = Distance centre line – thrust point at w_2
x_1 for highest thrust point (a_1)
x_2 for lowest thrust point (a_2)
l_0 = Distance end stop – bore of thrust bush
$l_0 = l_m + x$
l_m = Average length of workpiece $l_{max.} + l_{min.}/2$
For contact points (workpiece height) between a_1 and a_2 a value for x has to be used lying between x_1 and x_2 (interpolation).

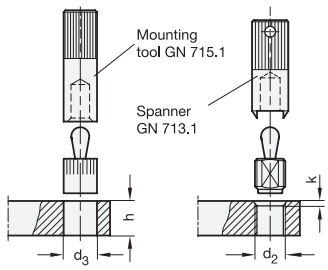




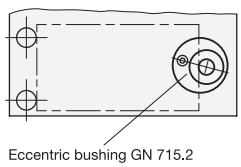
By observing the above values the full movement of the side thrust pin will be available to cover the tolerance of the workpiece.



For inserting the side thrust pins the use of a mounting tool GN 715.1 or spanner GN 713.1 is recommended.



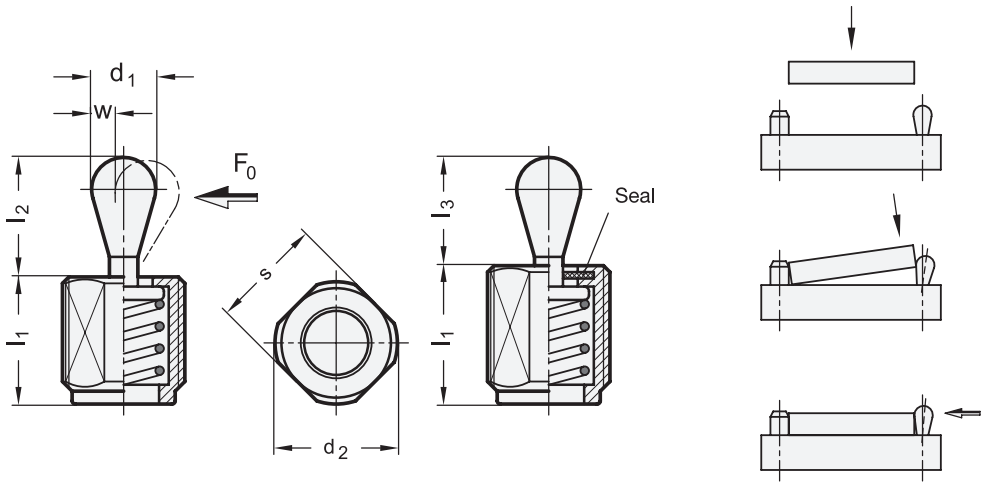
Eccentric bushes GN 715.2 (see page 867) are tooling accessory for GN 714 (see page 862) / GN 715 (see page 860). They enable a precise optimum setting of side thrust pins. This allows an adjustment to l_0 to accommodate for instance a larger tolerance range on a workpiece.



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GN 713

Side thrust pins



*Complete with type index of the Side thrust pins (SB or SA)

SB **SA**



GN 713

Description	d1	Side thrust F0 in N ≈ at l2	l1 -1.5	d2	a1	a2	k	l2	l3	s	w	x1	x2	Code no. for mounting tool	⚖
GN 713-5-20-11,5-*	5	20	11.5	M 12	2.5	5.7	1.5x45°	6.7	6	10	1.6	1.7	1.3	GN 713.1-5.6	4
GN 713-5-20-19-*	5	20	19	M 12	2.5	5.7	1.5x45°	6.7	6	10	1.6	1.7	1.3	GN 713.1-5.6	6
GN 713-5-20-26,5-*	5	20	26.5**	M 12	2.5	5.7	1.5x45°	6.7	6	10	1.6	1.7	1.3	GN 713.1-5.6	8
GN 713-5-50-11,5-*	5	50	11.5	M 12	2.5	5.7	1.5x45°	6.7	6	10	1.6	1.7	1.3	GN 713.1-5.6	4
GN 713-5-50-19-*	5	50	19	M 12	2.5	5.7	1.5x45°	6.7	6	10	1.6	1.7	1.3	GN 713.1-5.6	6
GN 713-5-50-26,5-*	5	50	26.5**	M 12	2.5	5.7	1.5x45°	6.7	6	10	1.6	1.7	1.3	GN 713.1-5.6	8
GN 713-5-100-11,5-*	5	100	11.5	M 12	2.5	5.7	1.5x45°	6.7	6	10	1.6	1.7	1.3	GN 713.1-5.6	4
GN 713-5-100-19-*	5	100	19	M 12	2.5	5.7	1.5x45°	6.7	6	10	1.6	1.7	1.3	GN 713.1-5.6	7
GN 713-5-100-26,5-*	5	100	26.5**	M 12	2.5	5.7	1.5x45°	6.7	6	10	1.6	1.7	1.3	GN 713.1-5.6	9
GN 713-6-40-11,5-*	6	40	11.5	M 12	3	7.7	1.5x45°	10,7	10	10	1.8	1.9	1.4	GN 713.1-5.6	5
GN 713-6-40-19-*	6	40	19	M 12	3	7.7	1.5x45°	10,7	10	10	1.8	1.9	1.4	GN 713.1-5.6	7
GN 713-6-40-26,5-*	6	40	26.5**	M 12	3	7.7	1.5x45°	10,7	10	10	1.8	1.9	1.4	GN 713.1-5.6	8
GN 713-6-75-11,5-*	6	75	11.5	M 12	3	7.7	1.5x45°	10,7	10	10	1.8	1.9	1.4	GN 713.1-5.6	5
GN 713-6-75-19-*	6	75	19	M 12	3	7.7	1.5x45°	10,7	10	10	1.8	1.9	1.4	GN 713.1-5.6	7
GN 713-6-75-26,5-*	6	75	26.5**	M 12	3	7.7	1.5x45°	10,7	10	10	1.8	1.9	1.4	GN 713.1-5.6	9
GN 713-6-150-11,5-*	6	150	11.5	M 12	3	7.7	1.5x45°	10,7	10	10	1.8	1.9	1.4	GN 713.1-5.6	7
GN 713-6-150-19-*	6	150	19	M 12	3	7.7	1.5x45°	10,7	10	10	1.8	1.9	1.4	GN 713.1-5.6	8
GN 713-6-150-26,5-*	6	150	26.5**	M 12	3	7.7	1.5x45°	10,7	10	10	1.8	1.9	1.4	GN 713.1-5.6	10
GN 713-10-100-18-*	10	100	18	M 18 x 1.5	5	10.7	2x45°	16.7	16	16	3.2	3.4	2.7	GN 713.1-10	19
GN 713-10-100-31,5-*	10	100	31.5	M 18 x 1.5	5	10.7	2x45°	16.7	16	16	3.2	3.4	2.7	GN 713.1-10	28
GN 713-10-100-45-*	10	100	45**	M 18 x 1.5	5	10.7	2x45°	16.7	16	16	3.2	3.4	2.7	GN 713.1-10	36
GN 713-10-200-18-*	10	200	18	M 18 x 1.5	5	10.7	2x45°	16.7	16	16	3.2	3.4	2.7	GN 713.1-10	20
GN 713-10-200-31,5-*	10	200	31.5	M 18 x 1.5	5	10.7	2x45°	16.7	16	16	3.2	3.4	2.7	GN 713.1-10	29
GN 713-10-200-45-*	10	200	45**	M 18 x 1.5	5	10.7	2x45°	16.7	16	16	3.2	3.4	2.7	GN 713.1-10	40
GN 713-10-300-18-*	10	300	18	M 18 x 1.5	5	10.7	2x45°	16.7	16	16	3.2	3.4	2.7	GN 713.1-10	21
GN 713-10-300-31,5-*	10	300	31.5	M 18 x 1.5	5	10.7	2x45°	16.7	16	16	3.2	3.4	2.7	GN 713.1-10	30
GN 713-10-300-45-*	10	300	45**	M 18 x 1.5	5	10.7	2x45°	16.7	16	16	3.2	3.4	2.7	GN 713.1-10	38

** not available from stock, requires a minimum order quantity

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Side thrust pins

Press on type

SPECIFICATION

Types

- Type **ENI**: one-sided, ball Stainless Steel
- Type **EKU**: one-sided, ball Plastic
- Type **EST**: one-sided, ball Steel
- Type **BST**: both-sided, ball Steel

Housing Steel, blackened

Sleeve (for Ball)

- Type ENI / EKU: Plastic
- Type EST / BST: Steel, blackened

Ball

- Type ENI: Stainless Steel
- Type EKU: Plastic
- Type EST / BST: Steel

Spring

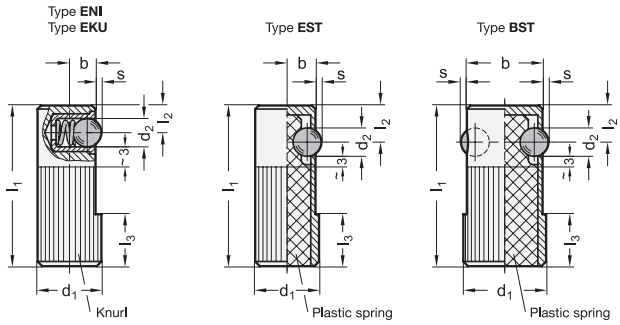
- Type ENI / EKU: Stainless Steel
- Type EST / BST: elastic plastic

temperature resistant up to 80 °C



INFORMATION

Side thrust pins GN 716 are designed for holding, positioning and locating a workpiece.
They have to pressed into the housing by a least the dimensions l_3, so as to ensure a positive hold.



GN 716

Description	d_1	d_2	b	l_1	l_2	l_3	s	Spring load in N ≈ initial	Spring load in N ≈ end	Locating bore H8	⚖
GN 716-8-ENI	8	3	3.2	25	3.6	6	0.9	2.5	6.5	8	9
GN 716-10-ENI	10	4	4	30	4.2	7	1	4.5	9	10	17
GN 716-12-ENI	12	5	5	35	4.8	9	1.5	6.5	13	12	29
GN 716-14-ENI	14	6.5	5.4	40	5.8	10	1.8	8	18	14	43
GN 716-8-EKU	8	3	3.2	25	3.6	6	0.9	2.5	6.5	8	9
GN 716-10-EKU	10	4	4	30	4.2	7	1	4.5	9	10	17
GN 716-12-EKU	12	5	5	35	4.8	9	1.5	6.5	13	12	29
GN 716-14-EKU	14	6.5	5.4	40	5.8	10	1.8	8	18	14	43
GN 716-10-EST	10	5.5	4.5	30	7	8	1	50	160	10	9
GN 716-12-EST	12	6.5	5.5	35	8	9	1.5	60	270	12	13
GN 716-14-EST	14	8	6.5	40	9	10	2	100	380	14	19
GN 716-16-BST	16	5.5	15	35	7	11	1.5	36	190	16	20
GN 716-18-BST	18	6.5	17	40	8	12	1.8	38	270	18	27
GN 716-22-BST	22	8	21	45	9	15	2.5	40	410	22	43

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GN 715.2

Eccentric bushes

for side thrust pins GN 714 / GN 715

SPECIFICATION

Steel
blackened

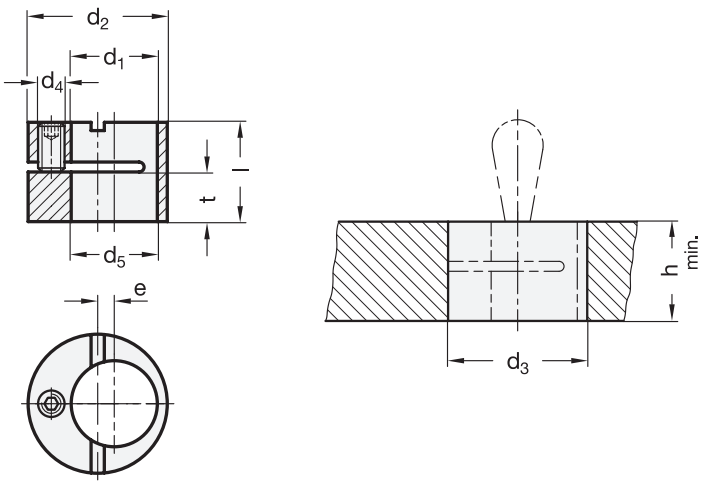
INFORMATION

Eccentric bushes GN 715.2 allows side thrust pins GN 715 (see page 860) / GN 714 (see page 862) to be adjusted. These bushes allow the side thrust pin to be precisely adjused to suit the requirements for clamping of a component.

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)





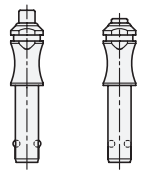
GN 715.2

Description	d1	d2 h9	d3 H7	d4	d5 +0.1	e	h min.	l -0.2	t	For side thrust pin-Ø	⚖
GN 715.2-6	6	12	12	M 4	6.2	2	10	9.9	4.4	3	5
GN 715.2-10	10	16	16	M 4	10.2	2	12	11.9	5.4	5 | 6	9
GN 715.2-12	12	18	18	M 4	12.2	2	14	13.9	6.6	8	13
GN 715.2-16	16	25	25	M 6	16.2	3	18	17.9	7.9	10	35

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Locking pins with axial lock - Types

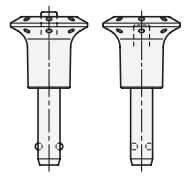
GN 113.3
GN 113.4
see page 870
Ø 5 / 6 / 8 / 10 / 12 / 16 / 20
with tightened gripping tray



Function:
- The locking element consists of 2 balls, which are "retracted" by press of a button and brought back into the (form-locking) lock function by a spring.

Features:
- GN 113.3: Stainless Steel AISI 303
- GN 113.4: Stainless Steel AISI 630, precipitation-hardened

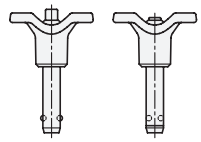
GN 113.5
GN 113.6
see page 874
Ø 5 / 6 / 8 / 10 / 12 / 16
with plastic knob



Function:
- The locking element consists of 2 balls, which are "retracted" by press of a button and brought back into the (form-locking) lock function by a spring.

Features:
- GN 113.5: Stainless Steel AISI 303
- GN 113.6: Stainless Steel AISI 630, precipitation-hardened

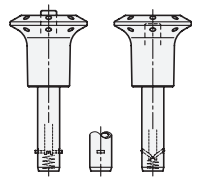
GN 113.7
GN 113.8
see page 878
Ø 5 / 6 / 8 / 10 / 12 / 16
with plastic-T-handle



Function:
- The locking element consists of 2 balls, which are "retracted" by press of a button and brought back into the (form-locking) lock function by a spring.

Features:
- GN 113.7: Stainless Steel AISI 303
- GN 113.8: Stainless Steel AISI 630, precipitation-hardened

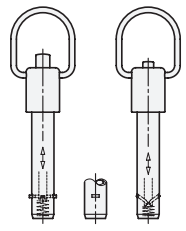
GN 114.2
GN 114.3
GN 114.6
see page 882
Ø 6 / 8 / 10 / 12 / 16 / 20
with knob



Function:
- The locking element consists of rectangular locking pawls, which are "retracted" by press of a button a brought back into the lock function by a spring (DBP).

Features:
- GN 114.2
  - Pin steel, zinc plated
  - Knob, push-button, slide plastic
- GN 114.3
  - Pin Stainless Steel AISI 303
  - Knob, push-button, slide plastic
- GN 114.6
  - Pin Stainless Steel AISI 303
  - Knob, push-button, slide Stainless Steel

GN 214.2
GN 214.3
GN 214.6
see page 888
Ø 6 / 8 / 10 / 12 / 16 / 20
with lifting ring
(Stainless Steel AISI 301)



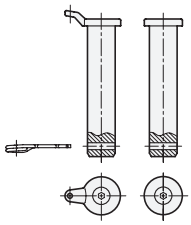
Function:
- The locking element consists of rectangular locking pawls, which are "retracted" by press of a button a brought back into the lock function by a spring (DBP).

Features:
- GN 214.2
  - Pin steel, zinc plated
  - Push-button, slide plastic
- GN 214.3
  - Pin Stainless Steel AISI 303
  - Push-button, slide plastic
- GN 214.6
  - Pin Stainless Steel AISI 303
  - Push-button, slide Stainless Steel AISI 303

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Locking pins with axial lock - Types

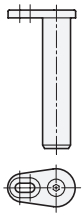
GN 2342
see page 898
Type B / E
Ø 8 / 10 / 12 / 16 / 20



Function:
- With type B and E Stainless Steel-Assembly pins, axial positioning is performed with a collar oer eyelet washer.
- Axial securing is by means of a transverse hole (id. no. 2) in which a spring cotter pin is inserted.
- Assembly pins with eyelet washers (type E), including the matching spring cotter pin, can additionally be secured against loss with a retaining cable.

Features:
- Pin Stainless Steel AISI 304

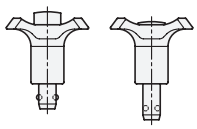
GN 2342
see page 898
Type L
Ø 6 / 8 / 10 / 12



Function:
- With type L Stainless Steel-Assembly pins, axial positioning is by means of a fastening tab.
- Fastened with a countersunk screw, the fastening tab holds the assembly pin in the hole so that is it secured against rotation and does not have any play.

Features:
- Pin Stainless Steel AISI 304

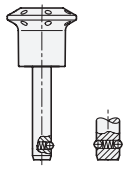
GN 113.1
see page 894
Ø 6 / 8 / 10 / 12



Function:
- The ball lock pins are used for quick fixing of thin-walled parts e.g. sheets.
- By depressing the spring-loaded push button the pin advances and at the same time frees the two balls.

Features:
- Pin Stainless Steel AISI 303
- Handle plastic

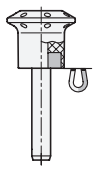
GN 124.2
see page 895
Ø 6 / 8 / 10 / 12



Function:
- The locking element consists of one or two guide balls that are held in the locking position using a thrust spring. The bolts can be quickly and easily inserted and removed from the locating hole.

Features:
- Pin Stainless Steel AISI 303
- Knob plastic

GN 124.1
see page 896
Ø 6 / 8 / 10 / 12



Function:
- Combined with magnetic componets. the magnet fitted at the bottom of the knob holds the locking pins in the axial direction.
- Good surfaces and perpendicular drilling heads help in achieving extremely good axial retaining forces.

Features:
- Pin Stainless Steel AISI 303
- Knob plastic
- Retaining magnet neodymium, iron, boron

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Stainless Steel-Ball lock pins

AISI 303, with hollow for grip



SPECIFICATION

Stainless Steel AISI 303

Balls
Stainless Steel AISI 420C

Spring
Stainless Steel AISI 631

temperature resistant up to 250 °C

INFORMATION

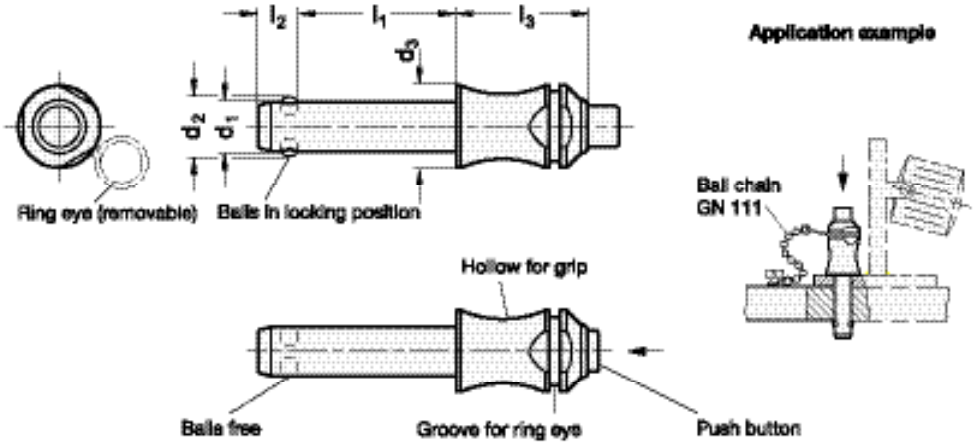
Stainless Steel-Ball lock pins GN 113.3 are used for quick fixing, connecting and locking of various parts and workpieces. A typical application is locating pins which have often to be removed and installed again.
By pressing the spring loaded push button both balls are unlocked and by releasing it the balls are locked again.
Ball lock pins GN 113.3 are renowned for their compactness. The eye ring is enclosed unmounted.
The load values given in the above table at shear stress are theoretically obtained and indicative only. They are non-binding recommended values and rule out any liability. They constitute no general warranty of quality and condition. The user must determine from case to case whether a product is suitable for the intended use.
- Range of lock pins (see page 868)

ACCESSORY

- Ball chains GN 111 (see page 904)
- Stainless Steel-Ball chains GN 111.5 (see page 905)
- Retaining cables GN 111.2 (see page 906)
- Spiral retaining cables GN 111.4 (see page 908)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)



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GN 113.3 | Stainless Steel-Ball lock pins

GN 113.3 **STAINLESS STEEL**

Description	d_1 -0.04/-0.08	l_1 +0.6	d_2	d_3	l_2 ±1	l_3+0.2	Locating bore H11	Load in kN ≈ Double sided shearing resistance according DIN 50141 (Breaking strength)	⚖
GN 113.3-5-10	5	10	5.5	10	6	22	5	14	17
GN 113.3-5-15	5	15	5.5	10	6	22	5	14	17
GN 113.3-5-20	5	20	5.5	10	6	22	5	14	20
GN 113.3-5-25	5	25	5.5	10	6	22	5	14	20
GN 113.3-5-30	5	30	5.5	10	6	22	5	14	20
GN 113.3-6-10	6	10	7	10	7	22	6	21	12
GN 113.3-6-15	6	15	7	10	7	22	6	21	15
GN 113.3-6-20	6	20	7	10	7	22	6	21	15
GN 113.3-6-25	6	25	7	10	7	22	6	21	17
GN 113.3-6-30	6	30	7	10	7	22	6	21	17
GN 113.3-6-35	6	35	7	10	7	22	6	21	20
GN 113.3-6-40	6	40	7	10	7	22	6	21	30
GN 113.3-6-45	6	45	7	10	7	22	6	21	36
GN 113.3-6-50	6	50	7	10	7	22	6	21	41
GN 113.3-8-20	8	20	9.5	14	8.2	27	8	38	35
GN 113.3-8-25	8	25	9.5	14	8.2	27	8	38	37
GN 113.3-8-30	8	30	9.5	14	8.2	27	8	38	38
GN 113.3-8-35	8	35	9.5	14	8.2	27	8	38	40
GN 113.3-8-40	8	40	9.5	14	8.2	27	8	38	42
GN 113.3-8-45	8	45	9.5	14	8.2	27	8	38	44
GN 113.3-8-50	8	50	9.5	14	8.2	27	8	38	46
GN 113.3-10-20	10	20	12	14	9.6	27	10	60	41
GN 113.3-10-25	10	25	12	14	9.6	27	10	60	44
GN 113.3-10-30	10	30	12	14	9.6	27	10	60	45
GN 113.3-10-35	10	35	12	14	9.6	27	10	60	46
GN 113.3-10-40	10	40	12	14	9.6	27	10	60	40
GN 113.3-10-45	10	45	12	14	9.6	27	10	60	50
GN 113.3-10-50	10	50	12	14	9.6	27	10	60	50
GN 113.3-10-60	10	60	12	14	9.6	27	10	60	65
GN 113.3-12-25	12	25	14.5	20	10.6	32	12	87	86
GN 113.3-12-30	12	30	14.5	20	10.6	32	12	87	90
GN 113.3-12-35	12	35	14.5	20	10.6	32	12	87	94
GN 113.3-12-40	12	40	14.5	20	10.6	32	12	87	98
GN 113.3-12-45	12	45	14.5	20	10.6	32	12	87	103
GN 113.3-12-50	12	50	14.5	20	10.6	32	12	87	107
GN 113.3-12-60	12	60	14.5	20	10.6	32	12	87	115
GN 113.3-12-70	12	70	14.5	20	10.6	32	12	87	124
GN 113.3-12-80	12	80	14.5	20	10.6	32	12	87	133
GN 113.3-16-30	16	30	19	20	14	32	16	155	120
GN 113.3-16-35	16	35	19	20	14	32	16	155	128
GN 113.3-16-40	16	40	19	20	14	32	16	155	130
GN 113.3-16-45	16	45	19	20	14	32	16	155	142
GN 113.3-16-50	16	50	19	20	14	32	16	155	150
GN 113.3-16-60	16	60	19	20	14	32	16	155	160
GN 113.3-16-70	16	70	19	20	14	32	16	155	180
GN 113.3-16-80	16	80	19	20	14	32	16	155	200
GN 113.3-20-60	20	60	25	28	20.5	39	20	244	323
GN 113.3-20-80	20	80	25	28	20.5	39	20	244	350
GN 113.3-20-100	20	100	25	28	20.5	39	20	244	420
GN 113.3-20-120	20	120	25	28	20.5	39	20	244	460

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Stainless Steel-Ball lock pins

AISI 630, with hollow for grip



SPECIFICATION

Stainless Steel AISI 630

- precipitation-hardened
- hard coated

Balls
Stainless Steel AISI 420C

Spring
Stainless Steel AISI 631

temperature resistant up to 250 °C

INFORMATION

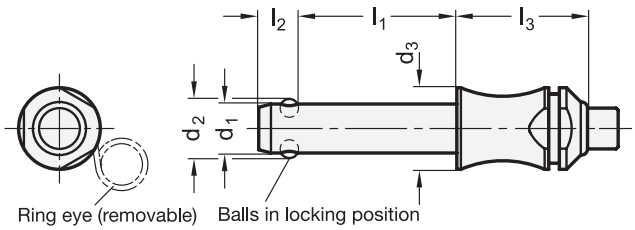
Stainless Steel-Ball lock pins GN 113.4 are used for quick fixing, connecting and locking of various parts and workpieces. A typical application is locating pins which have often to be removed and installed again.
By pressing the spring loaded push button both balls are unlocked and by releasing it the balls are locked again.
Ball lock pins GN 113.4 are renowned for their compactness. The eye ring is enclosed unmounted.
The load values given in the above table at shear stress are theoretically obtained and indicative only. They are non-binding recommended values and rule out any liability. They constitute no general warranty of quality and condition. The user must determine from case to case whether a product is suitable for the intended use.
- Range of locking pins (see page 868)

ACCESSORY

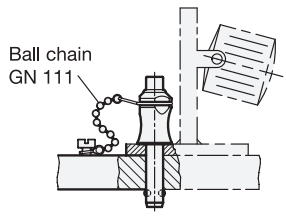
- Ball chains GN 111 (see page 904)
- Stainless Steel-Ball chains GN 111.5 (see page 905)
- Retaining cables GN 111.2 (see page 906)
- Spiral retaining cables GN 111.4 (see page 908)

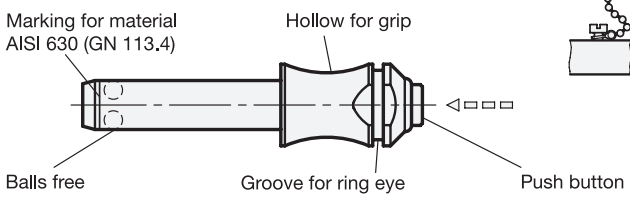
TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)



Application example





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GN 113.4 | Stainless Steel-Ball lock pins

GN 113.4 **STAINLESS STEEL**

Description	d_1 -0.04/-0.08	l_1 +0.6	d_2	d_3	l_2 ±1	l_3+0.2	Locating bore H11	Load in kN ≈ Double sided shearing resistance according DIN 50141 (Breaking strength)	⚖
GN 113.4-5-10	5	10	5.5	10	6	22	5	24	11
GN 113.4-5-15	5	15	5.5	10	6	22	5	24	20
GN 113.4-5-20	5	20	5.5	10	6	22	5	24	20
GN 113.4-5-25	5	25	5.5	10	6	22	5	24	20
GN 113.4-5-30	5	30	5.5	10	6	22	5	24	20
GN 113.4-6-10	6	10	7	10	7	22	6	35	12
GN 113.4-6-15	6	15	7	10	7	22	6	35	12
GN 113.4-6-20	6	20	7	10	7	22	6	35	15
GN 113.4-6-25	6	25	7	10	7	22	6	35	16
GN 113.4-6-30	6	30	7	10	7	22	6	35	16
GN 113.4-6-35	6	35	7	10	7	22	6	35	20
GN 113.4-6-40	6	40	7	10	7	22	6	35	20
GN 113.4-6-45	6	45	7	10	7	22	6	35	35
GN 113.4-6-50	6	50	7	10	7	22	6	35	35
GN 113.4-8-20	8	20	9.5	14	8.2	27	8	63	35
GN 113.4-8-25	8	25	9.5	14	8.2	27	8	63	35
GN 113.4-8-30	8	30	9.5	14	8.2	27	8	63	35
GN 113.4-8-35	8	35	9.5	14	8.2	27	8	63	40
GN 113.4-8-40	8	40	9.5	14	8.2	27	8	63	40
GN 113.4-8-45	8	45	9.5	14	8.2	27	8	63	40
GN 113.4-8-50	8	50	9.5	14	8.2	27	8	63	40
GN 113.4-10-20	10	20	12	14	9.6	27	10	100	40
GN 113.4-10-25	10	25	12	14	9.6	27	10	100	40
GN 113.4-10-30	10	30	12	14	9.6	27	10	100	40
GN 113.4-10-35	10	35	12	14	9.6	27	10	100	50
GN 113.4-10-40	10	40	12	14	9.6	27	10	100	50
GN 113.4-10-45	10	45	12	14	9.6	27	10	100	50
GN 113.4-10-50	10	50	12	14	9.6	27	10	100	60
GN 113.4-10-60	10	60	12	14	9.6	27	10	100	60
GN 113.4-12-25	12	25	14.5	20	10.6	32	12	144	80
GN 113.4-12-30	12	30	14.5	20	10.6	32	12	144	88
GN 113.4-12-35	12	35	14.5	20	10.6	32	12	144	90
GN 113.4-12-40	12	40	14.5	20	10.6	32	12	144	90
GN 113.4-12-45	12	45	14.5	20	10.6	32	12	144	110
GN 113.4-12-50	12	50	14.5	20	10.6	32	12	144	110
GN 113.4-12-60	12	60	14.5	20	10.6	32	12	144	120
GN 113.4-12-70	12	70	14.5	20	10.6	32	12	144	120
GN 113.4-12-80	12	80	14.5	20	10.6	32	12	144	140
GN 113.4-16-30	16	30	19	20	14	32	16	257	120
GN 113.4-16-35	16	35	19	20	14	32	16	257	120
GN 113.4-16-40	16	40	19	20	14	32	16	257	134
GN 113.4-16-45	16	45	19	20	14	32	16	257	140
GN 113.4-16-50	16	50	19	20	14	32	16	257	160
GN 113.4-16-60	16	60	19	20	14	32	16	257	160
GN 113.4-16-70	16	70	19	20	14	32	16	257	179
GN 113.4-16-80	16	80	19	20	14	32	16	257	200
GN 113.4-20-60	20	60	25	28	20.5	39	20	403	319
GN 113.4-20-80	20	80	25	28	20.5	39	20	403	400
GN 113.4-20-100	20	100	25	28	20.5	39	20	403	420
GN 113.4-20-120	20	120	25	28	20.5	39	20	403	440

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Stainless Steel-Ball lock pins

AISI 303, with plastic-knob



SPECIFICATION

Pin Stainless Steel AISI 303

Knob
Plastic (Polyamide PA)

- black-grey / red
- temperature resistant up to 80 °C

Balls
Stainless Steel AISI 420C

Spring
German Material No. 1.4565

INFORMATION

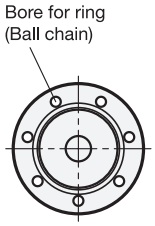
Stainless Steel-Ball lock pins GN 113.5 are used for quick fixing, connecting and locking of various parts and workpieces. A typical application is locating pins which have often to be removed and installed again.
By pressing the spring loaded push button both balls are unlocked and by releasing it, the balls are locked again.
The load values given in the above table at shear stress are theoretically obtained and indicative only. They are non-binding recommended values and rule out any liability. They constitute no general warranty of quality and condition. The user must determine from case to case whether a product is suitable for the intended use.
- Range of lock pins (see page 868)

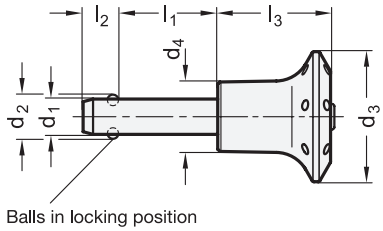
ACCESSORY

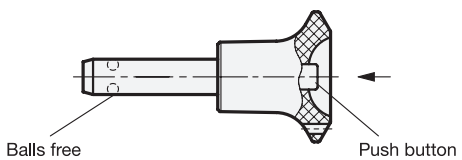
- Ball chains GN 111 (see page 904)
- Stainless Steel-Ball chains GN 111.5 (see page 905)
- Retaining cables GN 111.2 (see page 906)
- Spiral retaining cables GN 111.4 (see page 908)

TECHNICAL INFORMATION

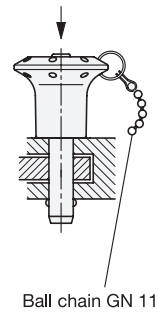
- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)







Application example



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GN 113.5 | Stainless Steel-Ball lock pins

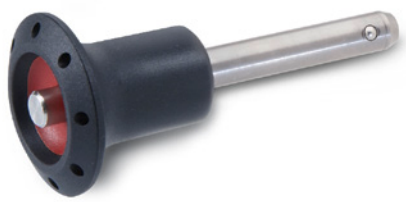
GN 113.5 **STAINLESS STEEL**

Description	d1 -0.04/-0.08	l1 +0.6	d2	d3	d4	l2 ±0.1	l3 -0.2	Locating bore H11	Load in kN ≈ Double sided shearing resistance according DIN 50141 (Breaking strength)	⚖
GN 113.5-5-10	5	10	5.5	30	16	6	26	5	14	17
GN 113.5-5-15	5	15	5.5	30	16	6	26	5	14	18
GN 113.5-5-20	5	20	5.5	30	16	6	26	5	14	19
GN 113.5-5-25	5	25	5.5	30	16	6	26	5	14	20
GN 113.5-5-30	5	30	5.5	30	16	6	26	5	14	20
GN 113.5-6-10	6	10	7	30	16	7.1	26	6	21	19
GN 113.5-6-15	6	15	7	30	16	7.1	26	6	21	19
GN 113.5-6-20	6	20	7	30	16	7.1	26	6	21	20
GN 113.5-6-25	6	25	7	30	16	7.1	26	6	21	21
GN 113.5-6-30	6	30	7	30	16	7.1	26	6	21	23
GN 113.5-6-35	6	35	7	30	16	7.1	26	6	21	25
GN 113.5-6-40	6	40	7	30	16	7.1	26	6	21	25
GN 113.5-6-45	6	45	7	30	16	7.1	26	6	21	26
GN 113.5-6-50	6	50	7	30	16	7.1	26	6	21	27
GN 113.5-8-20	8	20	9.5	35	19	8.2	32.5	8	38	42
GN 113.5-8-25	8	25	9.5	35	19	8.2	32.5	8	38	44
GN 113.5-8-30	8	30	9.5	35	19	8.2	32.5	8	38	46
GN 113.5-8-35	8	35	9.5	35	19	8.2	32.5	8	38	48
GN 113.5-8-40	8	40	9.5	35	19	8.2	32.5	8	38	51
GN 113.5-8-45	8	45	9.5	35	19	8.2	32.5	8	38	52
GN 113.5-8-50	8	50	9.5	35	19	8.2	32.5	8	38	54
GN 113.5-10-20	10	20	12	35	19	9.6	32.5	10	60	49
GN 113.5-10-25	10	25	12	35	19	9.6	32.5	10	60	52
GN 113.5-10-30	10	30	12	35	19	9.6	32.5	10	60	55
GN 113.5-10-35	10	35	12	35	19	9.6	32.5	10	60	58
GN 113.5-10-40	10	40	12	35	19	9.6	32.5	10	60	62
GN 113.5-10-45	10	45	12	35	19	9.6	32.5	10	60	64
GN 113.5-10-50	10	50	12	35	19	9.6	32.5	10	60	68
GN 113.5-10-60	10	60	12	35	19	9.6	32.5	10	60	73
GN 113.5-12-25	12	25	14.5	42	25	10.6	39	12	87	100
GN 113.5-12-30	12	30	14.5	42	25	10.6	39	12	87	104
GN 113.5-12-35	12	35	14.5	42	25	10.6	39	12	87	108
GN 113.5-12-40	12	40	14.5	42	25	10.6	39	12	87	113
GN 113.5-12-45	12	45	14.5	42	25	10.6	39	12	87	117
GN 113.5-12-50	12	50	14.5	42	25	10.6	39	12	87	121
GN 113.5-12-60	12	60	14.5	42	25	10.6	39	12	87	129
GN 113.5-12-70	12	70	14.5	42	25	10.6	39	12	87	138
GN 113.5-12-80	12	80	14.5	42	25	10.6	39	12	87	148
GN 113.5-16-30	16	30	19	42	25	14	39	16	155	136
GN 113.5-16-35	16	35	19	42	25	14	39	16	155	143
GN 113.5-16-40	16	40	19	42	25	14	39	16	155	151
GN 113.5-16-45	16	45	19	42	25	14	39	16	155	158
GN 113.5-16-50	16	50	19	42	25	14	39	16	155	167
GN 113.5-16-60	16	60	19	42	25	14	39	16	155	183
GN 113.5-16-70	16	70	19	42	25	14	39	16	155	198
GN 113.5-16-80	16	80	19	42	25	14	39	16	155	213

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Stainless Steel-Ball lock pins

AISI 630, with plastic-knob



SPECIFICATION

Pin Stainless Steel AISI 630
precipitation-hardened

Knob
Plastic (Polyamide PA)

- black-grey / red
- temperature resistant up to 80 °C

Balls
Stainless Steel AISI 420C

Spring
German Material No. 1.4565

INFORMATION

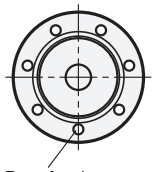
Stainless Steel-Ball lock pins GN 113.6 are used for quick fixing, connecting and locking of various parts and workpieces. A typical application is locating pins which have often to be removed and installed again.
By pressing the spring loaded push button both balls are unlocked and by releasing it, the balls are locked again.
The load values given in the above table at shear stress are theoretically obtained and indicative only. They are non-binding recommended values and rule out any liability. They constitute no general warranty of quality and condition. The user must determine from case to case whether a product is suitable for the intended use.
- Range of lock pins (see page 868)

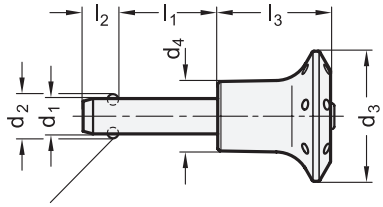
ACCESSORY

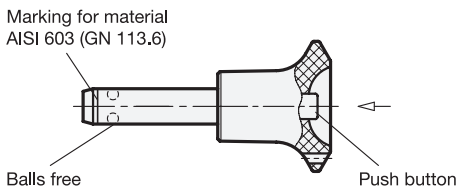
- Ball chains GN 111 (see page 904)
- Stainless Steel-Ball chains GN 111.5 (see page 905)
- Retaining cables GN 111.2 (see page 906)
- Spiral retaining cables GN 111.4 (see page 908)

TECHNICAL INFORMATION

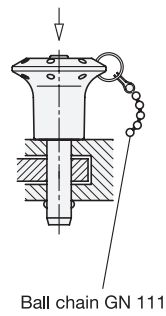
- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)







Application example



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GN 113.6 | Stainless Steel-Ball lock pins

GN 113.6 **STAINLESS STEEL**

Description	d_1 -0.04/-0.08	l_1 +0.6	d_2	d_3	d_4	l_2 ±0.1	l_3 -0.2	Locating bore H11	Load in kN ≈ Double sided shearing resistance according DIN 50141 (Breaking strength)	⚖
GN 113.6-5-10	5	10	5.5	30	16	6	26	5	24	17
GN 113.6-5-15	5	15	5.5	30	16	6	26	5	24	18
GN 113.6-5-20	5	20	5.5	30	16	6	26	5	24	19
GN 113.6-5-25	5	25	5.5	30	16	6	26	5	24	20
GN 113.6-5-30	5	30	5.5	30	16	6	26	5	24	20
GN 113.6-6-10	6	10	7	30	16	7.1	26	6	35	19
GN 113.6-6-15	6	15	7	30	16	7.1	26	6	35	20
GN 113.6-6-20	6	20	7	30	16	7.1	26	6	35	21
GN 113.6-6-25	6	25	7	30	16	7.1	26	6	35	21
GN 113.6-6-30	6	30	7	30	16	7.1	26	6	35	22
GN 113.6-6-35	6	35	7	30	16	7.1	26	6	35	23
GN 113.6-6-40	6	40	7	30	16	7.1	26	6	35	24
GN 113.6-6-45	6	45	7	30	16	7.1	26	6	35	26
GN 113.6-6-50	6	50	7	30	16	7.1	26	6	35	26
GN 113.6-8-20	8	20	9.5	35	19	8.2	32.5	8	63	42
GN 113.6-8-25	8	25	9.5	35	19	8.2	32.5	8	63	44
GN 113.6-8-30	8	30	9.5	35	19	8.2	32.5	8	63	46
GN 113.6-8-35	8	35	9.5	35	19	8.2	32.5	8	63	48
GN 113.6-8-40	8	40	9.5	35	19	8.2	32.5	8	63	50
GN 113.6-8-45	8	45	9.5	35	19	8.2	32.5	8	63	52
GN 113.6-8-50	8	50	9.5	35	19	8.2	32.5	8	63	54
GN 113.6-10-20	10	20	12	35	19	9.6	32.5	10	100	49
GN 113.6-10-25	10	25	12	35	19	9.6	32.5	10	100	52
GN 113.6-10-30	10	30	12	35	19	9.6	32.5	10	100	55
GN 113.6-10-35	10	35	12	35	19	9.6	32.5	10	100	58
GN 113.6-10-40	10	40	12	35	19	9.6	32.5	10	100	60
GN 113.6-10-45	10	45	12	35	19	9.6	32.5	10	100	63
GN 113.6-10-50	10	50	12	35	19	9.6	32.5	10	100	67
GN 113.6-10-60	10	60	12	35	19	9.6	32.5	10	100	72
GN 113.6-12-25	12	25	14.5	42	25	10.6	39	12	144	98
GN 113.6-12-30	12	30	14.5	42	25	10.6	39	12	144	103
GN 113.6-12-35	12	35	14.5	42	25	10.6	39	12	144	107
GN 113.6-12-40	12	40	14.5	42	25	10.6	39	12	144	112
GN 113.6-12-45	12	45	14.5	42	25	10.6	39	12	144	115
GN 113.6-12-50	12	50	14.5	42	25	10.6	39	12	144	120
GN 113.6-12-60	12	60	14.5	42	25	10.6	39	12	144	129
GN 113.6-12-70	12	70	14.5	42	25	10.6	39	12	144	137
GN 113.6-12-80	12	80	14.5	42	25	10.6	39	12	144	145
GN 113.6-16-30	16	30	19	42	25	14	39	16	257	135
GN 113.6-16-35	16	35	19	42	25	14	39	16	257	143
GN 113.6-16-40	16	40	19	42	25	14	39	16	257	149
GN 113.6-16-45	16	45	19	42	25	14	39	16	257	157
GN 113.6-16-50	16	50	19	42	25	14	39	16	257	166
GN 113.6-16-60	16	60	19	42	25	14	39	16	257	180
GN 113.6-16-70	16	70	19	42	25	14	39	16	257	196
GN 113.6-16-80	16	80	19	42	25	14	39	16	257	211

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Stainless Steel-Ball lock pins

AISI 303, with plastic T-Handle



SPECIFICATION

Pin Stainless Steel AISI 303

T-Handle
Plastic (Polyamide PA)

- black
- temperature resistant up to 80 °C

Balls
Stainless Steel AISI 420C

Spring
Stainless Steel
German Material No. 14565

INFORMATION

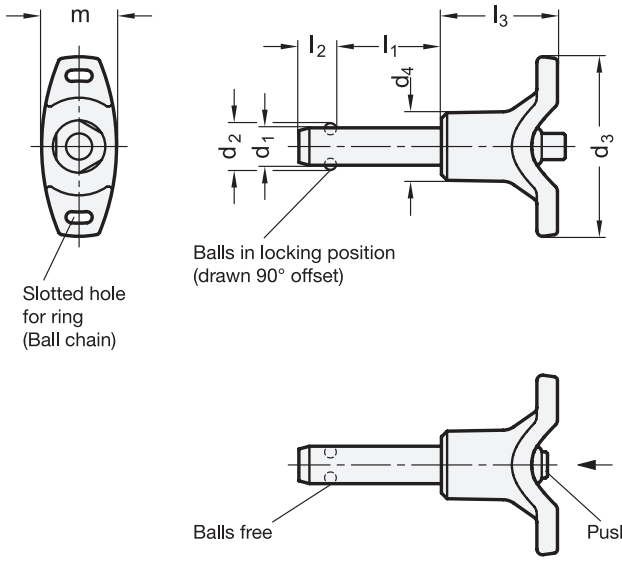
Stainless Steel-Ball lock pins GN 113.7 are used for quick fixing, connecting and locking of various parts and workpieces. A typical application is locating pins which have often to be removed and installed again.
By pressing the spring loaded push button both balls are unlocked and by releasing it, the balls are locked again.
The load values given in the above table at shar stress are theoretically obtained and indicative only. They are non-binding recommended values and rule out of any liability. They consstitute no general warranty of quality and condition. The user must determine from case to case whether a product ist suitable for the intended use.
- Range of lock pins (see page 868)

ACCESSORY

- Ball chains GN 111 (see page 904)
- Stainless Steel-Ball chains GN 111.5 (see page 905)
- Retaining cables GN 111.2 (see page 906)
- Spiral retaining cables GN 111.4 (see page 908)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)



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GN 113.7 | Stainless Steel-Ball lock pins

GN 113.7 **STAINLESS STEEL**

Description	d1 -0.04/-0.08	l1 +0.6	d2	d3	d4	l2 ±0.1	l3	m	Locating bore H11	Load in kN ≈ Double sided shearing resistance according DIN 50141 (Breaking strength)	⚖
GN 113.7-5-10	5	10	5.5	40	13.5	6	25	15.5	5	14	15
GN 113.7-5-15	5	15	5.5	40	13.5	6	25	15.5	5	14	16
GN 113.7-5-20	5	20	5.5	40	13.5	6	25	15.5	5	14	15
GN 113.7-5-25	5	25	5.5	40	13.5	6	25	15.5	5	14	17
GN 113.7-5-30	5	30	5.5	40	13.5	6	25	15.5	5	14	18
GN 113.7-6-10	6	10	7	40	13.5	7.1	25	15.5	6	21	16
GN 113.7-6-15	6	15	7	40	13.5	7.1	25	15.5	6	21	17
GN 113.7-6-20	6	20	7	40	13.5	7.1	25	15.5	6	21	18
GN 113.7-6-25	6	25	7	40	13.5	7.1	25	15.5	6	21	19
GN 113.7-6-30	6	30	7	40	13.5	7.1	25	15.5	6	21	20
GN 113.7-6-35	6	35	7	40	13.5	7.1	25	15.5	6	21	21
GN 113.7-6-40	6	40	7	40	13.5	7.1	25	15.5	6	21	22
GN 113.7-6-45	6	45	7	40	13.5	7.1	25	15.5	6	21	23
GN 113.7-6-50	6	50	7	40	13.5	7.1	25	15.5	6	21	24
GN 113.7-8-20	8	20	9.5	48	18	8.2	31	20.5	8	38	40
GN 113.7-8-25	8	25	9.5	48	18	8.2	31	20.5	8	38	42
GN 113.7-8-30	8	30	9.5	48	18	8.2	31	20.5	8	38	44
GN 113.7-8-35	8	35	9.5	48	18	8.2	31	20.5	8	38	46
GN 113.7-8-40	8	40	9.5	48	18	8.2	31	20.5	8	38	46
GN 113.7-8-45	8	45	9.5	48	18	8.2	31	20.5	8	38	50
GN 113.7-8-50	8	50	9.5	48	18	8.2	31	20.5	8	38	51
GN 113.7-10-20	10	20	12	48	18	9.6	31	20.5	10	60	47
GN 113.7-10-25	10	25	12	48	18	9.6	31	20.5	10	60	50
GN 113.7-10-30	10	30	12	48	18	9.6	31	20.5	10	60	53
GN 113.7-10-35	10	35	12	48	18	9.6	31	20.5	10	60	56
GN 113.7-10-40	10	40	12	48	18	9.6	31	20.5	10	60	59
GN 113.7-10-45	10	45	12	48	18	9.6	31	20.5	10	60	62
GN 113.7-10-50	10	50	12	48	18	9.6	31	20.5	10	60	65
GN 113.7-10-60	10	60	12	48	18	9.6	31	20.5	10	60	71
GN 113.7-12-25	12	25	14.5	58	24	10.6	36.5	27.5	12	87	94
GN 113.7-12-30	12	30	14.5	58	24	10.6	36.5	27.5	12	87	100
GN 113.7-12-35	12	35	14.5	58	24	10.6	36.5	27.5	12	87	104
GN 113.7-12-40	12	40	14.5	58	24	10.6	36.5	27.5	12	87	109
GN 113.7-12-45	12	45	14.5	58	24	10.6	36.5	27.5	12	87	113
GN 113.7-12-50	12	50	14.5	58	24	10.6	36.5	27.5	12	87	117
GN 113.7-12-60	12	60	14.5	58	24	10.6	36.5	27.5	12	87	125
GN 113.7-12-70	12	70	14.5	58	24	10.6	36.5	27.5	12	87	134
GN 113.7-12-80	12	80	14.5	58	24	10.6	36.5	27.5	12	87	142
GN 113.7-16-30	16	30	19	58	24	14	36.5	27.5	16	155	132
GN 113.7-16-35	16	35	19	58	24	14	36.5	27.5	16	155	140
GN 113.7-16-40	16	40	19	58	24	14	36.5	27.5	16	155	148
GN 113.7-16-45	16	45	19	58	24	14	36.5	27.5	16	155	155
GN 113.7-16-50	16	50	19	58	24	14	36.5	27.5	16	155	163
GN 113.7-16-60	16	60	19	58	24	14	36.5	27.5	16	155	187
GN 113.7-16-70	16	70	19	58	24	14	36.5	27.5	16	155	194
GN 113.7-16-80	16	80	19	58	24	14	36.5	27.5	16	155	209

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Stainless Steel-Ball lock pins

AISI 630, with plastic T-Handle



SPECIFICATION

Pin Stainless Steel AISI 630

- precipitation-hardened
- hard coated

T-Handle
Plastic (Polyamide PA)

- black
- temperature resistant up to 80 °C

Balls
Stainless Steel AISI 420C

Spring
Stainless Steel
German Material No. 14565

INFORMATION

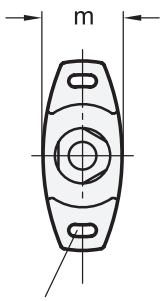
Stainless Steel-Ball lock pins GN 113.8 are used for quick fixing, connecting and locking of various parts and workpieces. A typical application is locating pins which have often to be removed and installed again.
By pressing the spring loaded push button both balls are unlocked and by releasing it, the balls are locked again.
Ball lock pins GN 113.8 have an extreme load capacity, the pin is made of heavy duty, hardened and highly abrasion-resistant stainless steel. The load values given in the above table at shar stress are theoretically obtained and indicative only. They are non-binding recommended values and rule out of any liability. They consstitute no general warranty of quality and condition. The user must determine from case to case whether a product ist suitable for the intended use.
- Range of lock pins (see page 868)

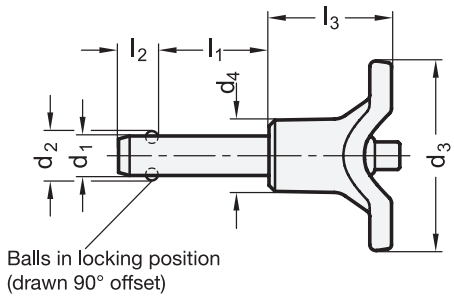
ACCESSORY

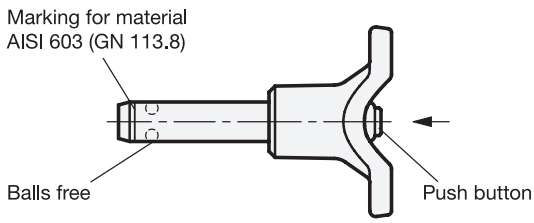
- Ball chains GN 111 (see page 904)
- Stainless Steel-Ball chains GN 111.5 (see page 905)
- Retaining cables GN 111.2 (see page 906)
- Spiral retaining cables GN 111.4 (see page 908)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)
- ISO-Fundamental Tolerances (see page A21)







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GN 113.8 | Stainless Steel-Ball lock pins

GN 113.8 **STAINLESS STEEL**

Description	d1 -0.04/-0.08	l1 +0.6	d2	d3	d4	l2 ±0.1	l3	m	Locating bore H11	Load in kN ≈ Double sided shearing resistance according DIN 50141 (Breaking strength)	⚖
GN 113.8-5-10	5	10	5.5	40	13.5	6	25	15.5	5	24	15
GN 113.8-5-15	5	15	5.5	40	13.5	6	25	15.5	5	24	15
GN 113.8-5-20	5	20	5.5	40	13.5	6	25	15.5	5	24	16
GN 113.8-5-25	5	25	5.5	40	13.5	6	25	15.5	5	24	17
GN 113.8-5-30	5	30	5.5	40	13.5	6	25	15.5	5	24	18
GN 113.8-6-10	6	10	7	40	13.5	7.1	25	15.5	6	35	14
GN 113.8-6-15	6	15	7	40	13.5	7.1	25	15.5	6	35	16
GN 113.8-6-20	6	20	7	40	13.5	7.1	25	15.5	6	35	18
GN 113.8-6-25	6	25	7	40	13.5	7.1	25	15.5	6	35	19
GN 113.8-6-30	6	30	7	40	13.5	7.1	25	15.5	6	35	20
GN 113.8-6-35	6	35	7	40	13.5	7.1	25	15.5	6	35	21
GN 113.8-6-40	6	40	7	40	13.5	7.1	25	15.5	6	35	22
GN 113.8-6-45	6	45	7	40	13.5	7.1	25	15.5	6	35	23
GN 113.8-6-50	6	50	7	40	13.5	7.1	25	15.5	6	35	24
GN 113.8-8-20	8	20	9.5	48	18	8.2	31	20.5	8	63	40
GN 113.8-8-25	8	25	9.5	48	18	8.2	31	20.5	8	63	40
GN 113.8-8-30	8	30	9.5	48	18	8.2	31	20.5	8	63	43
GN 113.8-8-35	8	35	9.5	48	18	8.2	31	20.5	8	63	45
GN 113.8-8-40	8	40	9.5	48	18	8.2	31	20.5	8	63	47
GN 113.8-8-45	8	45	9.5	48	18	8.2	31	20.5	8	63	50
GN 113.8-8-50	8	50	9.5	48	18	8.2	31	20.5	8	63	50
GN 113.8-10-20	10	20	12	48	18	9.6	31	20.5	10	100	66
GN 113.8-10-25	10	25	12	48	18	9.6	31	20.5	10	100	66
GN 113.8-10-30	10	30	12	48	18	9.6	31	20.5	10	100	70
GN 113.8-10-35	10	35	12	48	18	9.6	31	20.5	10	100	72
GN 113.8-10-40	10	40	12	48	18	9.6	31	20.5	10	100	72
GN 113.8-10-45	10	45	12	48	18	9.6	31	20.5	10	100	73
GN 113.8-10-50	10	50	12	48	18	9.6	31	20.5	10	100	75
GN 113.8-10-60	10	60	12	48	18	9.6	31	20.5	10	100	75
GN 113.8-12-25	12	25	14.5	58	24	10.6	36.5	27.5	12	144	90
GN 113.8-12-30	12	30	14.5	58	24	10.6	36.5	27.5	12	144	90
GN 113.8-12-35	12	35	14.5	58	24	10.6	36.5	27.5	12	144	92
GN 113.8-12-40	12	40	14.5	58	24	10.6	36.5	27.5	12	144	110
GN 113.8-12-45	12	45	14.5	58	24	10.6	36.5	27.5	12	144	120
GN 113.8-12-50	12	50	14.5	58	24	10.6	36.5	27.5	12	144	125
GN 113.8-12-60	12	60	14.5	58	24	10.6	36.5	27.5	12	144	126
GN 113.8-12-70	12	70	14.5	58	24	10.6	36.5	27.5	12	144	134
GN 113.8-12-80	12	80	14.5	58	24	10.6	36.5	27.5	12	144	140
GN 113.8-16-30	16	30	19	58	24	14	36.5	27.5	16	257	156
GN 113.8-16-35	16	35	19	58	24	14	36.5	27.5	16	257	158
GN 113.8-16-40	16	40	19	58	24	14	36.5	27.5	16	257	160
GN 113.8-16-45	16	45	19	58	24	14	36.5	27.5	16	257	162
GN 113.8-16-50	16	50	19	58	24	14	36.5	27.5	16	257	164
GN 113.8-16-60	16	60	19	58	24	14	36.5	27.5	16	257	166
GN 113.8-16-70	16	70	19	58	24	14	36.5	27.5	16	257	168
GN 113.8-16-80	16	80	19	58	24	14	36.5	27.5	16	257	170

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Locking pins

with axial lock (Pawl)



SPECIFICATION

Pin
Steel
zinc plated, blue passivated

Pawl
Stainless Steel AISI 304 (sheet metal)

Knob
Plastic (Polyamide PA)

- black-grey
- temperature resistant up to 80 °C

Push button / Slide
Plastic

- Push button: red
- temperature resistant up to 80 °C

Spring
Stainless Steel AISI 301

INFORMATION

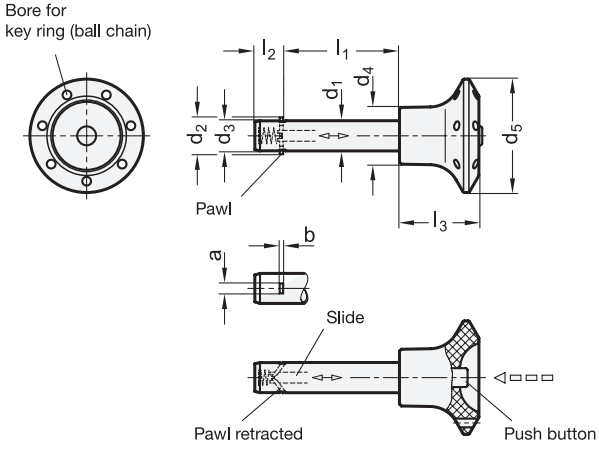
Locking pins with axial lock GN 114.2 are used for quick fixing, connecting and locking of various jig and fixture systems. A typical application is location pins which have to be often removed and replaced again.
The rectangular pawls made of Stainless Steel sheet metal keep the locking pin in an axial position in the bore. It can be retracted by pressing the button, once released it returns the pressure spring into its locking position.
The load values given in the above table at shear stress are theoretically obtained and indicative only. They are non-binding recommended values and rule our any liability. They constitute no general warranty of quality and condition. The user must determine from case to case whether a product is suitable for the intended use.
- Range of lock pins (see page 868)

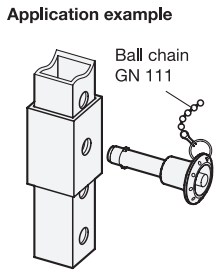
ACCESSORY

- Ball chains GN 111 (see page 904)
- Stainless Steel-Ball chains GN 111.5 (see page 905)
- Retaining cables GN 111.2 (see page 906)
- Spiral retaining cables GN 111.4 (see page 908)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)





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GN 114.2

Description	d1 -0.1	l1 +0.4	a	b	d2	d3	d4	d5	l2	l3	Load in kN ≈ (Double sided shear force) see information	⚖
GN 114.2-6-10	6	10	2.3	0.5	7.5 +0.5	5.9	15	30	7	21	14	12
GN 114.2-6-12	6	12	2.3	0.5	7.5 +0.5	5.9	15	30	7	21	14	12
GN 114.2-6-16	6	16	2.3	0.5	7.5 +0.5	5.9	15	30	7	21	14	12
GN 114.2-6-20	6	20	2.3	0.5	7.5 +0.5	5.9	15	30	7	21	14	13
GN 114.2-6-25	6	25	2.3	0.5	7.5 +0.5	5.9	15	30	7	21	14	14
GN 114.2-6-30	6	30	2.3	0.5	7.5 +0.5	5.9	15	30	7	21	14	15
GN 114.2-6-35	6	35	2.3	0.5	7.5 +0.5	5.9	15	30	7	21	14	16
GN 114.2-6-40	6	40	2.3	0.5	7.5 +0.5	5.9	15	30	7	21	14	16
GN 114.2-6-45	6	45	2.3	0.5	7.5 +0.5	5.9	15	30	7	21	14	17
GN 114.2-6-50	6	50	2.3	0.5	7.5 +0.5	5.9	15	30	7	21	14	18
GN 114.2-8-16	8	16	2.8	0.6	10 +0.5	7.9	15	30	8.4	21	28	16
GN 114.2-8-20	8	20	2.8	0.6	10 +0.5	7.9	15	30	8.4	21	28	17
GN 114.2-8-25	8	25	2.8	0.6	10 +0.5	7.9	15	30	8.4	21	28	20
GN 114.2-8-30	8	30	2.8	0.6	10 +0.5	7.9	15	30	8.4	21	28	21
GN 114.2-8-35	8	35	2.8	0.6	10 +0.5	7.9	15	30	8.4	21	28	22
GN 114.2-8-40	8	40	2.8	0.6	10 +0.5	7.9	15	30	8.4	21	28	24
GN 114.2-8-45	8	45	2.8	0.6	10 +0.5	7.9	15	30	8.4	21	28	26
GN 114.2-8-50	8	50	2.8	0.6	10 +0.5	7.9	15	30	8.4	21	28	28
GN 114.2-10-20	10	20	3.3	1	12 +1	9.9	18	34	9.8	26	38	27
GN 114.2-10-25	10	25	3.3	1	12 +1	9.9	18	34	9.8	26	38	30
GN 114.2-10-30	10	30	3.3	1	12 +1	9.9	18	34	9.8	26	38	31
GN 114.2-10-35	10	35	3.3	1	12 +1	9.9	18	34	9.8	26	38	33
GN 114.2-10-40	10	40	3.3	1	12 +1	9.9	18	34	9.8	26	38	35
GN 114.2-10-45	10	45	3.3	1	12 +1	9.9	18	34	9.8	26	38	39
GN 114.2-10-50	10	50	3.3	1	12 +1	9.9	18	34	9.8	26	38	40
GN 114.2-10-60	10	60	3.3	1	12 +1	9.9	18	34	9.8	26	38	46
GN 114.2-12-25	12	25	3.8	1	14 +1	11.9	18	34	11.3	26	61	39
GN 114.2-12-30	12	30	3.8	1	14 +1	11.9	18	34	11.3	26	61	43
GN 114.2-12-35	12	35	3.8	1	14 +1	11.9	18	34	11.3	26	61	45
GN 114.2-12-40	12	40	3.8	1	14 +1	11.9	18	34	11.3	26	61	50
GN 114.2-12-45	12	45	3.8	1	14 +1	11.9	18	34	11.3	26	61	53
GN 114.2-12-50	12	50	3.8	1	14 +1	11.9	18	34	11.3	26	61	60
GN 114.2-12-60	12	60	3.8	1	14 +1	11.9	18	34	11.3	26	61	63
GN 114.2-12-70	12	70	3.8	1	14 +1	11.9	18	34	11.3	26	61	72
GN 114.2-12-80	12	80	3.8	1	14 +1	11.9	18	34	11.3	26	61	77
GN 114.2-16-30	16	30	4.8	1.2	19 +1	15.9	22	40	14.2	32	113	79
GN 114.2-16-35	16	35	4.8	1.2	19 +1	15.9	22	40	14.2	32	113	85
GN 114.2-16-40	16	40	4.8	1.2	19 +1	15.9	22	40	14.2	32	113	92
GN 114.2-16-45	16	45	4.8	1.2	19 +1	15.9	22	40	14.2	32	113	99
GN 114.2-16-50	16	50	4.8	1.2	19 +1	15.9	22	40	14.2	32	113	107
GN 114.2-16-60	16	60	4.8	1.2	19 +1	15.9	22	40	14.2	32	113	119
GN 114.2-16-70	16	70	4.8	1.2	19 +1	15.9	22	40	14.2	32	113	133
GN 114.2-16-80	16	80	4.8	1.2	19 +1	15.9	22	40	14.2	32	113	146
GN 114.2-20-30	20	30	4.8	1.2	23 +1	19.8	25	40	14.8	33	187	118
GN 114.2-20-35	20	35	4.8	1.2	23 +1	19.8	25	40	14.8	33	187	129
GN 114.2-20-40	20	40	4.8	1.2	23 +1	19.8	25	40	14.8	33	187	139
GN 114.2-20-45	20	45	4.8	1.2	23 +1	19.8	25	40	14.8	33	187	151
GN 114.2-20-50	20	50	4.8	1.2	23 +1	19.8	25	40	14.8	33	187	162
GN 114.2-20-60	20	60	4.8	1.2	23 +1	19.8	25	40	14.8	33	187	184
GN 114.2-20-70	20	70	4.8	1.2	23 +1	19.8	25	40	14.8	33	187	207
GN 114.2-20-80	20	80	4.8	1.2	23 +1	19.8	25	40	14.8	33	187	229

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Stainless Steel-Locking pins

Plastic knob, with axial lock (Pawl)



SPECIFICATION

Knob / Push button / Slide

- Plastic
- temperature resistant up to 80 °C
- Knob: black-grey
- Push button: red

Pin
Stainless Steel AISI 303

Pawl
Stainless Steel AISI 304 (sheet metal)

Spring
Stainless Steel AISI 301

INFORMATION

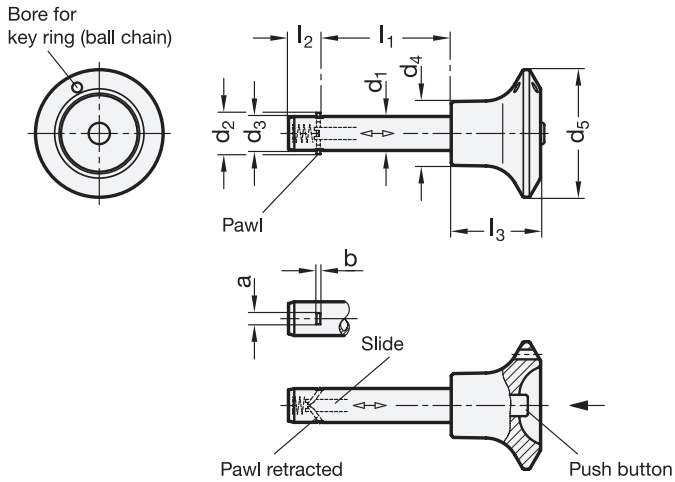
Stainless Steel-Pins with axial lock GN 114.3 are used for quick fixing, connecting and locking of various jig and fixture systems. A typical application is location pins which have to be often removed and re-placed again.
The rectangular pawls made of Stainless Steel sheet metal keep the locking pin in an axial position in the bore. It can be retracted by pressing the button, once released it returns the pressure spring into its locking position.
The load values given in the above table at shear stress are theoretically obtained and indicative only. They are non-binding recommended values and rule out any liability. They constitute no general warranty of quality and condition. The user must determine from case to case whether a product is suitable for the intended use.
- Range of lock pins (see page 868)

ACCESSORY

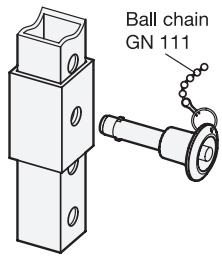
- Ball chains GN 111 (see page 904)
- Stainless Steel-Ball chains GN 111.5 (see page 905)
- Retaining cables GN 111.2 (see page 906)
- Spiral retaining cables GN 111.4 (see page 908)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)



Application example



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GN 114.3 | Stainless Steel-Locking pins

GN 114.3 **STAINLESS STEEL**

Description	d1 -0.1	l1 +0.4	a	b	d2	d3	d4	d5	l2	l3	Load in kN ≈ (Double sided shear force) see information	⚖
GN 114.3-6-10	6	10	2.3	0.5	7.5 +0.5	5.9	15	30	7	21	17	12
GN 114.3-6-12	6	12	2.3	0.5	7.5 +0.5	5.9	15	30	7	21	17	12
GN 114.3-6-16	6	16	2.3	0.5	7.5 +0.5	5.9	15	30	7	21	17	13
GN 114.3-6-20	6	20	2.3	0.5	7.5 +0.5	5.9	15	30	7	21	17	13
GN 114.3-6-25	6	25	2.3	0.5	7.5 +0.5	5.9	15	30	7	21	17	14
GN 114.3-6-30	6	30	2.3	0.5	7.5 +0.5	5.9	15	30	7	21	17	14
GN 114.3-6-35	6	35	2.3	0.5	7.5 +0.5	5.9	15	30	7	21	17	16
GN 114.3-6-40	6	40	2.3	0.5	7.5 +0.5	5.9	15	30	7	21	17	16
GN 114.3-6-45	6	45	2.3	0.5	7.5 +0.5	5.9	15	30	7	21	17	17
GN 114.3-6-50	6	50	2.3	0.5	7.5 +0.5	5.9	15	30	7	21	17	18
GN 114.3-8-16	8	16	2.8	0.6	10 +0.5	7.9	15	30	8.4	21	35	16
GN 114.3-8-20	8	20	2.8	0.6	10 +0.5	7.9	15	30	8.4	21	35	18
GN 114.3-8-25	8	25	2.8	0.6	10 +0.5	7.9	15	30	8.4	21	35	19
GN 114.3-8-30	8	30	2.8	0.6	10 +0.5	7.9	15	30	8.4	21	35	20
GN 114.3-8-35	8	35	2.8	0.6	10 +0.5	7.9	15	30	8.4	21	35	20
GN 114.3-8-40	8	40	2.8	0.6	10 +0.5	7.9	15	30	8.4	21	35	24
GN 114.3-8-45	8	45	2.8	0.6	10 +0.5	7.9	15	30	8.4	21	35	26
GN 114.3-8-50	8	50	2.8	0.6	10 +0.5	7.9	15	30	8.4	21	35	27
GN 114.3-10-20	10	20	3.3	1	12 +1	9.9	18	34	9.8	26	47	27
GN 114.3-10-25	10	25	3.3	1	12 +1	9.9	18	34	9.8	26	47	29
GN 114.3-10-30	10	30	3.3	1	12 +1	9.9	18	34	9.8	26	47	31
GN 114.3-10-35	10	35	3.3	1	12 +1	9.9	18	34	9.8	26	47	35
GN 114.3-10-40	10	40	3.3	1	12 +1	9.9	18	34	9.8	26	47	36
GN 114.3-10-45	10	45	3.3	1	12 +1	9.9	18	34	9.8	26	47	39
GN 114.3-10-50	10	50	3.3	1	12 +1	9.9	18	34	9.8	26	47	41
GN 114.3-10-60	10	60	3.3	1	12 +1	9.9	18	34	9.8	26	47	45
GN 114.3-12-25	12	25	3.8	1	14 +1	11.9	18	34	11.3	26	75	38
GN 114.3-12-30	12	30	3.8	1	14 +1	11.9	18	34	11.3	26	75	42
GN 114.3-12-35	12	35	3.8	1	14 +1	11.9	18	34	11.3	26	75	45
GN 114.3-12-40	12	40	3.8	1	14 +1	11.9	18	34	11.3	26	75	49
GN 114.3-12-45	12	45	3.8	1	14 +1	11.9	18	34	11.3	26	75	53
GN 114.3-12-50	12	50	3.8	1	14 +1	11.9	18	34	11.3	26	75	57
GN 114.3-12-60	12	60	3.8	1	14 +1	11.9	18	34	11.3	26	75	63
GN 114.3-12-70	12	70	3.8	1	14 +1	11.9	18	34	11.3	26	75	69
GN 114.3-12-80	12	80	3.8	1	14 +1	11.9	18	34	11.3	26	75	80
GN 114.3-16-30	16	30	4.8	1.2	19 +1	15.9	22	40	14.2	32	138	70
GN 114.3-16-35	16	35	4.8	1.2	19 +1	15.9	22	40	14.2	32	138	85
GN 114.3-16-40	16	40	4.8	1.2	19 +1	15.9	22	40	14.2	32	138	92
GN 114.3-16-45	16	45	4.8	1.2	19 +1	15.9	22	40	14.2	32	138	99
GN 114.3-16-50	16	50	4.8	1.2	19 +1	15.9	22	40	14.2	32	138	106
GN 114.3-16-60	16	60	4.8	1.2	19 +1	15.9	22	40	14.2	32	138	119
GN 114.3-16-70	16	70	4.8	1.2	19 +1	15.9	22	40	14.2	32	138	132
GN 114.3-16-80	16	80	4.8	1.2	19 +1	15.9	22	40	14.2	32	138	145
GN 114.3-20-30	20	30	4.8	1.2	23 +1	19.8	25	40	14.8	33	228	117
GN 114.3-20-35	20	35	4.8	1.2	23 +1	19.8	25	40	14.8	33	228	128
GN 114.3-20-40	20	40	4.8	1.2	23 +1	19.8	25	40	14.8	33	228	139
GN 114.3-20-45	20	45	4.8	1.2	23 +1	19.8	25	40	14.8	33	228	151
GN 114.3-20-50	20	50	4.8	1.2	23 +1	19.8	25	40	14.8	33	228	162
GN 114.3-20-60	20	60	4.8	1.2	23 +1	19.8	25	40	14.8	33	228	185
GN 114.3-20-70	20	70	4.8	1.2	23 +1	19.8	25	40	14.8	33	228	206
GN 114.3-20-80	20	80	4.8	1.2	23 +1	19.8	25	40	14.8	33	228	229

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Stainless Steel-Locking pins

Stainless Steel knob, with axial lock (Pawl)



SPECIFICATION

Knob / Push button / Slide
Stainless Steel AISI 303

Pin
Stainless Steel AISI 303

Pawl
Stainless Steel AISI 304 (sheet metal)

Spring
Stainless Steel AISI 301

INFORMATION

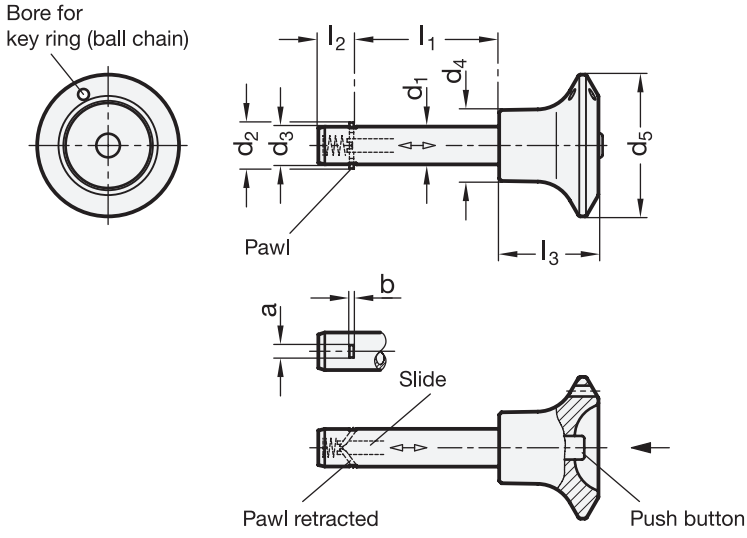
Stainless Steel-Locking pins with axial lock GN 114.6 are used for quick fixing, connecting and locking of various jig and fixture systems. A typical application is location pins which have to be often removed and replaced again.
The rectangular pawls made of Stainless Steel sheet metal keep the locking pin in an axial position in the bore. It can be retracted by pressing the button, once released it returns the pressure spring into its locking position.
The load values given in the above table at shear stress are theoretically obtained and indicative only. They are non-binding recommended values and rule out any liability. They constitute no general warranty of quality and condition. The user must determine from case to case whether a product is suitable for the intended use.
- Range of lock pins (see page 868)

ACCESSORY

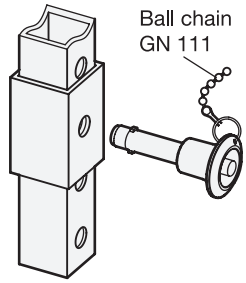
- Ball chains GN 111 (see page 904)
- Stainless Steel-Ball chains GN 111.5 (see page 905)
- Retaining cables GN 111.2 (see page 906)
- Spiral retaining cables GN 111.4 (see page 908)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)



Application example



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GN 114.6 | Stainless Steel-Locking pins

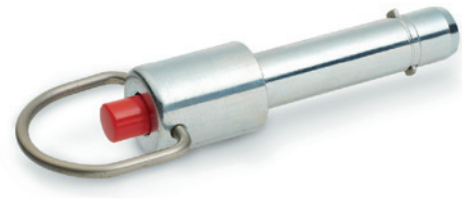
GN 114.6 **STAINLESS STEEL**

Description	d1 -0.1	l1 +0.4	a	b	d2	d3	d4	d5	l2	l3	Load in kN ≈ (Double sided shear force) see information	⚖
GN 114.6-6-16	6	16	2.3	0.5	7.5 +0.5	5.9	12	25	7	20	17	33
GN 114.6-6-20	6	20	2.3	0.5	7.5 +0.5	5.9	12	25	7	20	17	34
GN 114.6-6-25	6	25	2.3	0.5	7.5 +0.5	5.9	12	25	7	20	17	35
GN 114.6-6-30	6	30	2.3	0.5	7.5 +0.5	5.9	12	25	7	20	17	36
GN 114.6-6-35	6	35	2.3	0.5	7.5 +0.5	5.9	12	25	7	20	17	37
GN 114.6-6-40	6	40	2.3	0.5	7.5 +0.5	5.9	12	25	7	20	17	38
GN 114.6-6-45	6	45	2.3	0.5	7.5 +0.5	5.9	12	25	7	20	17	40
GN 114.6-6-50	6	50	2.3	0.5	7.5 +0.5	5.9	12	25	7	20	17	40
GN 114.6-8-16	8	16	2.8	0.6	10 +0.5	7.9	15	30	8.4	21	35	53
GN 114.6-8-20	8	20	2.8	0.6	10 +0.5	7.9	15	30	8.4	21	35	55
GN 114.6-8-25	8	25	2.8	0.6	10 +0.5	7.9	15	30	8.4	21	35	57
GN 114.6-8-30	8	30	2.8	0.6	10 +0.5	7.9	15	30	8.4	21	35	59
GN 114.6-8-35	8	35	2.8	0.6	10 +0.5	7.9	15	30	8.4	21	35	60
GN 114.6-8-40	8	40	2.8	0.6	10 +0.5	7.9	15	30	8.4	21	35	62
GN 114.6-8-45	8	45	2.8	0.6	10 +0.5	7.9	15	30	8.4	21	35	65
GN 114.6-8-50	8	50	2.8	0.6	10 +0.5	7.9	15	30	8.4	21	35	66
GN 114.6-10-20	10	20	3.3	1	12 +1	9.9	18	34	9.8	26	47	87
GN 114.6-10-25	10	25	3.3	1	12 +1	9.9	18	34	9.8	26	47	90
GN 114.6-10-30	10	30	3.3	1	12 +1	9.9	18	34	9.8	26	47	93
GN 114.6-10-35	10	35	3.3	1	12 +1	9.9	18	34	9.8	26	47	56
GN 114.6-10-40	10	40	3.3	1	12 +1	9.9	18	34	9.8	26	47	99
GN 114.6-10-45	10	45	3.3	1	12 +1	9.9	18	34	9.8	26	47	103
GN 114.6-10-50	10	50	3.3	1	12 +1	9.9	18	34	9.8	26	47	106
GN 114.6-10-60	10	60	3.3	1	12 +1	9.9	18	34	9.8	26	47	111
GN 114.6-12-25	12	25	3.8	1	14 +1	11.9	18	34	11.3	26	75	99
GN 114.6-12-30	12	30	3.8	1	14 +1	11.9	18	34	11.3	26	75	104
GN 114.6-12-35	12	35	3.8	1	14 +1	11.9	18	34	11.3	26	75	109
GN 114.6-12-40	12	40	3.8	1	14 +1	11.9	18	34	11.3	26	75	113
GN 114.6-12-45	12	45	3.8	1	14 +1	11.9	18	34	11.3	26	75	117
GN 114.6-12-50	12	50	3.8	1	14 +1	11.9	18	34	11.3	26	75	121
GN 114.6-12-60	12	60	3.8	1	14 +1	11.9	18	34	11.3	26	75	124
GN 114.6-12-70	12	70	3.8	1	14 +1	11.9	18	34	11.3	26	75	139
GN 114.6-12-80	12	80	3.8	1	14 +1	11.9	18	34	11.3	26	75	146
GN 114.6-16-30	16	30	4.8	1.2	19 +1	15.9	22	40	14.2	32	138	181
GN 114.6-16-35	16	35	4.8	1.2	19 +1	15.9	22	40	14.2	32	138	188
GN 114.6-16-40	16	40	4.8	1.2	19 +1	15.9	22	40	14.2	32	138	196
GN 114.6-16-45	16	45	4.8	1.2	19 +1	15.9	22	40	14.2	32	138	203
GN 114.6-16-50	16	50	4.8	1.2	19 +1	15.9	22	40	14.2	32	138	212
GN 114.6-16-60	16	60	4.8	1.2	19 +1	15.9	22	40	14.2	32	138	226
GN 114.6-16-70	16	70	4.8	1.2	19 +1	15.9	22	40	14.2	32	138	243
GN 114.6-16-80	16	80	4.8	1.2	19 +1	15.9	22	40	14.2	32	138	258
GN 114.6-20-30	20	30	4.8	1.2	23 +1	19.8	25	40	14.8	33	228	219
GN 114.6-20-35	20	35	4.8	1.2	23 +1	19.8	25	40	14.8	33	228	229
GN 114.6-20-40	20	40	4.8	1.2	23 +1	19.8	25	40	14.8	33	228	241
GN 114.6-20-45	20	45	4.8	1.2	23 +1	19.8	25	40	14.8	33	228	256
GN 114.6-20-50	20	50	4.8	1.2	23 +1	19.8	25	40	14.8	33	228	266
GN 114.6-20-60	20	60	4.8	1.2	23 +1	19.8	25	40	14.8	33	228	293
GN 114.6-20-70	20	70	4.8	1.2	23 +1	19.8	25	40	14.8	33	228	314
GN 114.6-20-80	20	80	4.8	1.2	23 +1	19.8	25	40	14.8	33	228	330

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Locking pins

with axial lock (Pawl)



SPECIFICATION

Pin
Steel
zinc plated, blue passivated

Pawl
Stainless Steel sheet metal AISI 304

Lifting ring
Stainless Steel AISI 301

Push button / Slide
Plastic

- temperature resistant up to 80 °C
- Push button red

Spring
Stainless Steel AISI 301

INFORMATION

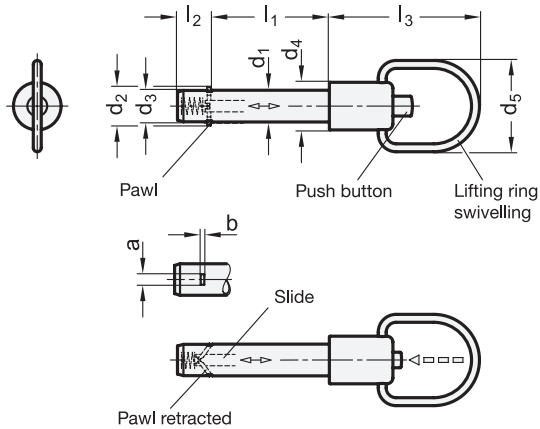
Locking pins with axial lock GN 214.2 are used for quick fixing, connecting and locking of various jig and fixture systems. A typical application is location pins which have to be often removed and replaced again.
The rectangular pawls made of Stainless Steel sheet metal keep the locking pin in an axial position in the bore. It can be retracted by pressing the button, once released it returns the pressure spring into its locking position.
The version with swivelling lifting ring is ideal for the use in confined spaces.
The load values given in the above table at shear stress are theoretically obtained and indicative only. They are non-binding recommended values and rule our any liability. They constitute no general warranty of quality and condition. The user must determine from case to case whether a product is suitable for the intended use.
- Range of locking pins (see page 868)

ACCESSORY

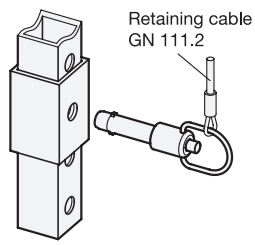
- Ball chains GN 111 (see page 904)
- Stainless Steel-Ball chains GN 111.5 (see page 905)
- Retaining cables GN 111.2 (see page 906)
- Spiral retaining cables GN 111.4 (see page 908)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)



Application example



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GN 214.2

Description	d1 -0.1	l1 +0.4	a	b	d2	d3	d4	d5	l2	l3	Load in kN ≈ (Double sided shear force) see information	⚖
GN 214.2-6-10	6	10	2.3	0.5	7.5 +0.5	5.9	12	23	7	38	14	18
GN 214.2-6-12	6	12	2.3	0.5	7.5 +0.5	5.9	12	23	7	38	14	18
GN 214.2-6-16	6	16	2.3	0.5	7.5 +0.5	5.9	12	23	7	38	14	18
GN 214.2-6-20	6	20	2.3	0.5	7.5 +0.5	5.9	12	23	7	38	14	19
GN 214.2-6-25	6	25	2.3	0.5	7.5 +0.5	5.9	12	23	7	38	14	20
GN 214.2-6-30	6	30	2.3	0.5	7.5 +0.5	5.9	12	23	7	38	14	21
GN 214.2-6-35	6	35	2.3	0.5	7.5 +0.5	5.9	12	23	7	38	14	22
GN 214.2-6-40	6	40	2.3	0.5	7.5 +0.5	5.9	12	23	7	38	14	23
GN 214.2-6-45	6	45	2.3	0.5	7.5 +0.5	5.9	12	23	7	38	14	23
GN 214.2-6-50	6	50	2.3	0.5	7.5 +0.5	5.9	12	23	7	38	14	24
GN 214.2-8-16	8	16	2.8	0.6	10 +0.5	7.9	12	23	8.4	38	28	21
GN 214.2-8-20	8	20	2.8	0.6	10 +0.5	7.9	12	23	8.4	38	28	22
GN 214.2-8-25	8	25	2.8	0.6	10 +0.5	7.9	12	23	8.4	38	28	24
GN 214.2-8-30	8	30	2.8	0.6	10 +0.5	7.9	12	23	8.4	38	28	25
GN 214.2-8-35	8	35	2.8	0.6	10 +0.5	7.9	12	23	8.4	38	28	27
GN 214.2-8-40	8	40	2.8	0.6	10 +0.5	7.9	12	23	8.4	38	28	27
GN 214.2-8-45	8	45	2.8	0.6	10 +0.5	7.9	12	23	8.4	38	28	29
GN 214.2-8-50	8	50	2.8	0.6	10 +0.5	7.9	12	23	8.4	38	28	32
GN 214.2-10-20	10	20	3.3	1	12 +1	9.9	16	28	9.8	42	38	41
GN 214.2-10-25	10	25	3.3	1	12 +1	9.9	16	28	9.8	42	38	43
GN 214.2-10-30	10	30	3.3	1	12 +1	9.9	16	28	9.8	42	38	45
GN 214.2-10-35	10	35	3.3	1	12 +1	9.9	16	28	9.8	42	38	47
GN 214.2-10-40	10	40	3.3	1	12 +1	9.9	16	28	9.8	42	38	50
GN 214.2-10-45	10	45	3.3	1	12 +1	9.9	16	28	9.8	42	38	52
GN 214.2-10-50	10	50	3.3	1	12 +1	9.9	16	28	9.8	42	38	54
GN 214.2-10-60	10	60	3.3	1	12 +1	9.9	16	28	9.8	42	38	59
GN 214.2-12-25	12	25	3.8	1	14 +1	11.9	16	28	11.3	42	61	52
GN 214.2-12-30	12	30	3.8	1	14 +1	11.9	16	28	11.3	42	61	56
GN 214.2-12-35	12	35	3.8	1	14 +1	11.9	16	28	11.3	42	61	60
GN 214.2-12-40	12	40	3.8	1	14 +1	11.9	16	28	11.3	42	61	63
GN 214.2-12-45	12	45	3.8	1	14 +1	11.9	16	28	11.3	42	61	67
GN 214.2-12-50	12	50	3.8	1	14 +1	11.9	16	28	11.3	42	61	71
GN 214.2-12-60	12	60	3.8	1	14 +1	11.9	16	28	11.3	42	61	77
GN 214.2-12-70	12	70	3.8	1	14 +1	11.9	16	28	11.3	42	61	85
GN 214.2-12-80	12	80	3.8	1	14 +1	11.9	16	28	11.3	42	61	93
GN 214.2-16-30	16	30	4.8	1.2	19 +1	15.9	20	32	14.2	46.5	113	102
GN 214.2-16-35	16	35	4.8	1.2	19 +1	15.9	20	32	14.2	46.5	113	109
GN 214.2-16-40	16	40	4.8	1.2	19 +1	15.9	20	32	14.2	46.5	113	115
GN 214.2-16-45	16	45	4.8	1.2	19 +1	15.9	20	32	14.2	46.5	113	121
GN 214.2-16-50	16	50	4.8	1.2	19 +1	15.9	20	32	14.2	46.5	113	128
GN 214.2-16-60	16	60	4.8	1.2	19 +1	15.9	20	32	14.2	46.5	113	142
GN 214.2-16-70	16	70	4.8	1.2	19 +1	15.9	20	32	14.2	46.5	113	156
GN 214.2-16-80	16	80	4.8	1.2	19 +1	15.9	20	32	14.2	46.5	113	169

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Stainless Steel-Locking pins

Plastic slide, with axial lock (Pawl)



SPECIFICATION

Pin
Stainless Steel AISI 303

Slide / Push button
Plastic
temperature resistant up to 80 °C
red

Pawl
Stainless Steel sheet metal AISI 304

Lifting ring
Stainless Steel AISI 301

Spring
Stainless Steel AISI 301

INFORMATION

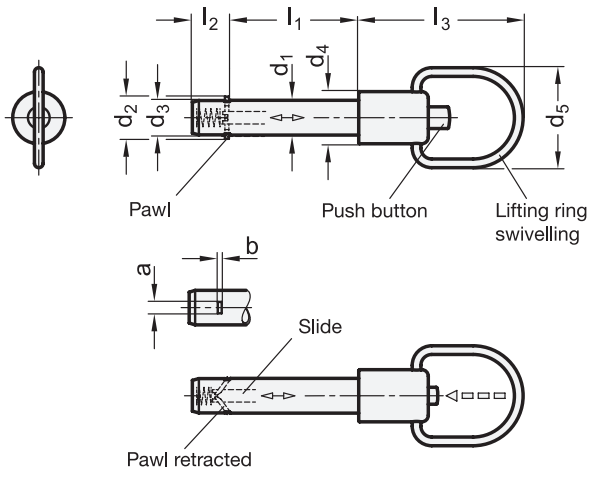
Stainless Steel-Locking pins with axial lock GN 214.3 are used for quick fixing, connecting and locking of various jig and fixture systems. A typical application is location pins which have to be often removed and re-placed again.
The rectangular pawls made of Stainless Steel sheet metal keep the locking pin in an axial position in the bore. It can be retracted by pressing the button, once released it returns the pressure spring into its locking position.
The version with swivelling lifting ring is ideal for the use in confined spaces.
The load values given in the above table at shear stress are theoretically obtained and indicative only. They are non-binding recommended values and rule our any liability. They constitute no general warranty of quality and condition. The user must determine from case to case whether a product is suitable for the intended use.
- Range of locking pins (see page 868)

ACCESSORY

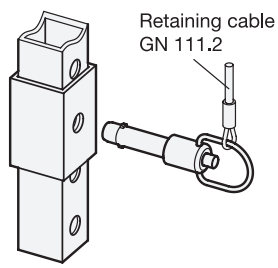
- Ball chains GN 111 (see page 904)
- Stainless Steel-Ball chains GN 111.5 (see page 905)
- Retaining cables GN 111.2 (see page 906)
- Spiral retaining cables GN 111.4 (see page 908)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)



Application example



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GN 214.3 | Stainless Steel-Locking pins

GN 214.3 **STAINLESS STEEL**

Description	d1 -0.1	l1 +0.4	a	b	d2	d3	d4	d5	l2	l3	Load in kN ≈ (Double sided shear force) see information	⚖
GN 214.3-6-10	6	10	2.3	0.5	7.5 +0.5	5.9	12	23	7	38	17	18
GN 214.3-6-12	6	12	2.3	0.5	7.5 +0.5	5.9	12	23	7	38	17	18
GN 214.3-6-16	6	16	2.3	0.5	7.5 +0.5	5.9	12	23	7	38	17	18
GN 214.3-6-20	6	20	2.3	0.5	7.5 +0.5	5.9	12	23	7	38	17	19
GN 214.3-6-25	6	25	2.3	0.5	7.5 +0.5	5.9	12	23	7	38	17	20
GN 214.3-6-30	6	30	2.3	0.5	7.5 +0.5	5.9	12	23	7	38	17	21
GN 214.3-6-35	6	35	2.3	0.5	7.5 +0.5	5.9	12	23	7	38	17	21
GN 214.3-6-40	6	40	2.3	0.5	7.5 +0.5	5.9	12	23	7	38	17	22
GN 214.3-6-45	6	45	2.3	0.5	7.5 +0.5	5.9	12	23	7	38	17	23
GN 214.3-6-50	6	50	2.3	0.5	7.5 +0.5	5.9	12	23	7	38	17	24
GN 214.3-8-16	8	16	2.8	0.6	10 +0.5	7.9	12	23	8.4	38	35	21
GN 214.3-8-20	8	20	2.8	0.6	10 +0.5	7.9	12	23	8.4	38	35	22
GN 214.3-8-25	8	25	2.8	0.6	10 +0.5	7.9	12	23	8.4	38	35	24
GN 214.3-8-30	8	30	2.8	0.6	10 +0.5	7.9	12	23	8.4	38	35	25
GN 214.3-8-35	8	35	2.8	0.6	10 +0.5	7.9	12	23	8.4	38	35	27
GN 214.3-8-40	8	40	2.8	0.6	10 +0.5	7.9	12	23	8.4	38	35	29
GN 214.3-8-45	8	45	2.8	0.6	10 +0.5	7.9	12	23	8.4	38	35	31
GN 214.3-8-50	8	50	2.8	0.6	10 +0.5	7.9	12	23	8.4	38	35	32
GN 214.3-10-20	10	20	3.3	1	12 +1	9.9	16	28	9.8	42	47	39
GN 214.3-10-25	10	25	3.3	1	12 +1	9.9	16	28	9.8	42	47	42
GN 214.3-10-30	10	30	3.3	1	12 +1	9.9	16	28	9.8	42	47	45
GN 214.3-10-35	10	35	3.3	1	12 +1	9.9	16	28	9.8	42	47	47
GN 214.3-10-40	10	40	3.3	1	12 +1	9.9	16	28	9.8	42	47	50
GN 214.3-10-45	10	45	3.3	1	12 +1	9.9	16	28	9.8	42	47	52
GN 214.3-10-50	10	50	3.3	1	12 +1	9.9	16	28	9.8	42	47	54
GN 214.3-10-60	10	60	3.3	1	12 +1	9.9	16	28	9.8	42	47	59
GN 214.3-12-25	12	25	3.8	1	14 +1	11.9	16	28	11.3	42	75	53
GN 214.3-12-30	12	30	3.8	1	14 +1	11.9	16	28	11.3	42	75	55
GN 214.3-12-35	12	35	3.8	1	14 +1	11.9	16	28	11.3	42	75	59
GN 214.3-12-40	12	40	3.8	1	14 +1	11.9	16	28	11.3	42	75	62
GN 214.3-12-45	12	45	3.8	1	14 +1	11.9	16	28	11.3	42	75	67
GN 214.3-12-50	12	50	3.8	1	14 +1	11.9	16	28	11.3	42	75	70
GN 214.3-12-60	12	60	3.8	1	14 +1	11.9	16	28	11.3	42	75	77
GN 214.3-12-70	12	70	3.8	1	14 +1	11.9	16	28	11.3	42	75	84
GN 214.3-12-80	12	80	3.8	1	14 +1	11.9	16	28	11.3	42	75	91
GN 214.3-16-30	16	30	4.8	1.2	19 +1	15.9	20	32	14.2	46.5	138	102
GN 214.3-16-35	16	35	4.8	1.2	19 +1	15.9	20	32	14.2	46.5	138	109
GN 214.3-16-40	16	40	4.8	1.2	19 +1	15.9	20	32	14.2	46.5	138	116
GN 214.3-16-45	16	45	4.8	1.2	19 +1	15.9	20	32	14.2	46.5	138	122
GN 214.3-16-50	16	50	4.8	1.2	19 +1	15.9	20	32	14.2	46.5	138	129
GN 214.3-16-60	16	60	4.8	1.2	19 +1	15.9	20	32	14.2	46.5	138	143
GN 214.3-16-70	16	70	4.8	1.2	19 +1	15.9	20	32	14.2	46.5	138	155
GN 214.3-16-80	16	80	4.8	1.2	19 +1	15.9	20	32	14.2	46.5	138	168

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Stainless Steel-Locking pins

Stainless Steel-Slide, with axial lock (Pawl)



SPECIFICATION

Pin
Stainless Steel AISI 303

Slide / Push button
Stainless Steel AISI 303

Pawl
Stainless Steel sheet metal AISI 304

Lifting ring
Stainless Steel AISI 301

Spring
Stainless Steel AISI 301

INFORMATION

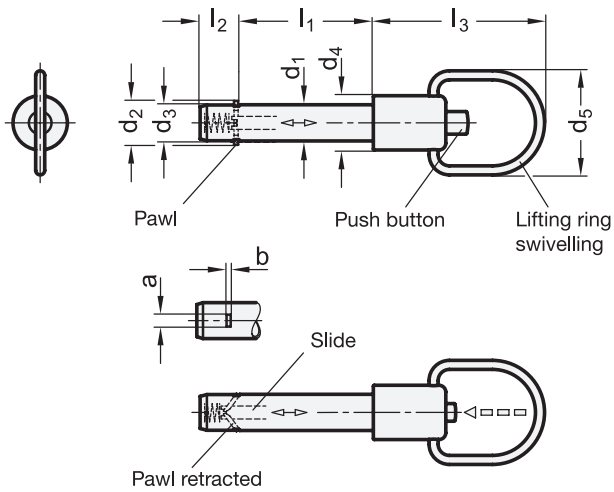
Stainless Steel-Locking pins with axial lock GN 214.6 are used for quick fixing, connecting and locking of various jig and fixture systems. A typical application is location pins which have to be often removed and re-placed again.
The rectangular pawls made of Stainless Steel sheet metal keep the locking pin in an axial position in the bore. It can be retracted by pressing the button, once released it returns the pressure spring into its locking position.
The version with swivelling lifting ring is ideal for the use in confined spaces.
The load values given in the above table at shear stress are theoretically obtained and indicative only. They are non-binding recommended values and rule our any liability. They constitute no general warranty of quality and condition. The user must determine from case to case whether a product is suitable for the intended use.
- Range of locking pins (see page 868)

ACCESSORY

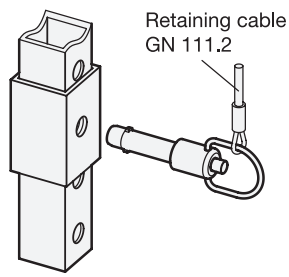
- Ball chains GN 111 (see page 904)
- Stainless Steel-Ball chains GN 111.5 (see page 905)
- Retaining cables GN 111.2 (see page 906)
- Spiral retaining cables GN 111.4 (see page 908)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



Application example



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GN 214.6 | Stainless Steel-Locking pins

GN 214.6 **STAINLESS STEEL**

Description	d_1 -0.1	l_1 +0.4	a	b	d_2	d_3	d_4	d_5	l_2	l_3	Load in kN ≈ (Double sided shear force) see information	⚖
GN 214.6-6-16	6	16	2.3	0.5	7.5 +0.5	5.9	12	23	7	38	17	20
GN 214.6-6-20	6	20	2.3	0.5	7.5 +0.5	5.9	12	23	7	38	17	21
GN 214.6-6-25	6	25	2.3	0.5	7.5 +0.5	5.9	12	23	7	38	17	22
GN 214.6-6-30	6	30	2.3	0.5	7.5 +0.5	5.9	12	23	7	38	17	23
GN 214.6-6-35	6	35	2.3	0.5	7.5 +0.5	5.9	12	23	7	38	17	24
GN 214.6-6-40	6	40	2.3	0.5	7.5 +0.5	5.9	12	23	7	38	17	25
GN 214.6-6-45	6	45	2.3	0.5	7.5 +0.5	5.9	12	23	7	38	17	26
GN 214.6-6-50	6	50	2.3	0.5	7.5 +0.5	5.9	12	23	7	38	17	27
GN 214.6-8-16	8	16	2.8	0.6	10 +0.5	7.9	12	23	8.4	38	35	23
GN 214.6-8-20	8	20	2.8	0.6	10 +0.5	7.9	12	23	8.4	38	35	25
GN 214.6-8-25	8	25	2.8	0.6	10 +0.5	7.9	12	23	8.4	38	35	27
GN 214.6-8-30	8	30	2.8	0.6	10 +0.5	7.9	12	23	8.4	38	35	29
GN 214.6-8-35	8	35	2.8	0.6	10 +0.5	7.9	12	23	8.4	38	35	30
GN 214.6-8-40	8	40	2.8	0.6	10 +0.5	7.9	12	23	8.4	38	35	32
GN 214.6-8-45	8	45	2.8	0.6	10 +0.5	7.9	12	23	8.4	38	35	34
GN 214.6-8-50	8	50	2.8	0.6	10 +0.5	7.9	12	23	8.4	38	35	36
GN 214.6-10-20	10	20	3.3	1	12 +1	9.9	16	28	9.8	42	47	49
GN 214.6-10-25	10	25	3.3	1	12 +1	9.9	16	28	9.8	42	47	52
GN 214.6-10-30	10	30	3.3	1	12 +1	9.9	16	28	9.8	42	47	55
GN 214.6-10-35	10	35	3.3	1	12 +1	9.9	16	28	9.8	42	47	58
GN 214.6-10-40	10	40	3.3	1	12 +1	9.9	16	28	9.8	42	47	60
GN 214.6-10-45	10	45	3.3	1	12 +1	9.9	16	28	9.8	42	47	63
GN 214.6-10-50	10	50	3.3	1	12 +1	9.9	16	28	9.8	42	47	66
GN 214.6-10-60	10	60	3.3	1	12 +1	9.9	16	28	9.8	42	47	74
GN 214.6-12-25	12	25	3.8	1	14 +1	11.9	16	28	11.3	42	75	61
GN 214.6-12-30	12	30	3.8	1	14 +1	11.9	16	28	11.3	42	75	65
GN 214.6-12-35	12	35	3.8	1	14 +1	11.9	16	28	11.3	42	75	69
GN 214.6-12-40	12	40	3.8	1	14 +1	11.9	16	28	11.3	42	75	73
GN 214.6-12-45	12	45	3.8	1	14 +1	11.9	16	28	11.3	42	75	78
GN 214.6-12-50	12	50	3.8	1	14 +1	11.9	16	28	11.3	42	75	82
GN 214.6-12-60	12	60	3.8	1	14 +1	11.9	16	28	11.3	42	75	90
GN 214.6-12-70	12	70	3.8	1	14 +1	11.9	16	28	11.3	42	75	99
GN 214.6-12-80	12	80	3.8	1	14 +1	11.9	16	28	11.3	42	75	107
GN 214.6-16-30	16	30	4.8	1.2	19 +1	15.9	20	32	14.2	46.5	138	119
GN 214.6-16-35	16	35	4.8	1.2	19 +1	15.9	20	32	14.2	46.5	138	128
GN 214.6-16-40	16	40	4.8	1.2	19 +1	15.9	20	32	14.2	46.5	138	135
GN 214.6-16-45	16	45	4.8	1.2	19 +1	15.9	20	32	14.2	46.5	138	142
GN 214.6-16-50	16	50	4.8	1.2	19 +1	15.9	20	32	14.2	46.5	138	150
GN 214.6-16-60	16	60	4.8	1.2	19 +1	15.9	20	32	14.2	46.5	138	165
GN 214.6-16-70	16	70	4.8	1.2	19 +1	15.9	20	32	14.2	46.5	138	183
GN 214.6-16-80	16	80	4.8	1.2	19 +1	15.9	20	32	14.2	46.5	138	197

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Stainless Steel-Ball lock pins

with clamping length compensation

SPECIFICATION

Pin
Stainless Steel AISI 303

Handle
Plastic (Polyamide PA)

- black-grey / red
- temperature resistant up to 80 °C

Balls
Stainless Steel AISI 420C

Spring
Stainless Steel AISI 631



INFORMATION

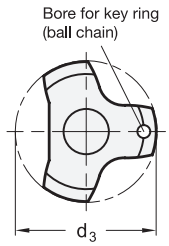
Stainless Steel-Ball lock pins GN 113.1 are used for rapid clamping and, at the same time, play-free clamping of thin components in particular where frequent clamping and releasing is required. A typical application is the alignment and clamping of sheet metal during a welding process.
By depressing the spring-loaded push button the pin advances by the length l_2 and at the same time frees the two balls.
- Range of locking pins (see page 868)

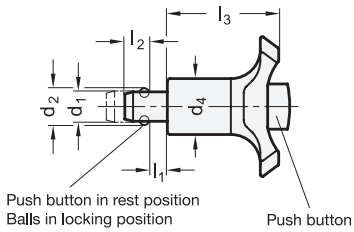
ACCESSORY

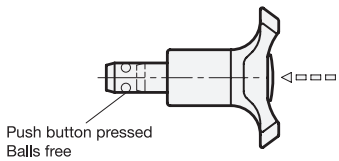
- Ball chains GN 111 (see page 904)
- Stainless Steel-Ball chains GN 111.5 (see page 905)
- Retaining cables GN 111.2 (see page 906)
- Spiral retaining cables GN 111.4 (see page 908)

TECHNICAL INFORMATION

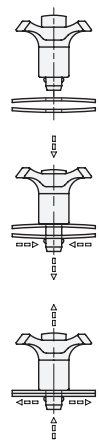
- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)







Application example



GN 113.1 **STAINLESS STEEL**

Description	d1 -0.04/-0.08	l1 max.	l1 min.	d2	d3	d4	l2	l3	Locating bore H11	Clamping force max. in N ≈	⚖
GN 113.1-6-0	6	5	0	7	38	17.5	5	30	6	16	16
GN 113.1-6-5	6	10	5	7	38	17.5	5	30	6	18	23
GN 113.1-8-0	8	5	0	9.5	38	17.5	6.5	30	8	16	19
GN 113.1-8-5	8	10	5	9.5	38	17.5	6.5	30	8	18	20
GN 113.1-10-0	10	5	0	12	47	23	8.7	36	10	21	38
GN 113.1-10-5	10	10	5	12	47	23	8.7	36	10	23	39
GN 113.1-12-0	12	5	0	14	47	23	9.4	36	12	21	42
GN 113.1-12-5	12	10	5	14	47	23	9.4	36	12	23	44

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GN 124.2

Stainless Steel-Locking pins

with axial lock (Ball retainer)

SPECIFICATION

Pin
Stainless Steel AISI 303

Knob
Plastic Technopolymer (Polyamide PA)

- black-grey
- temperature resistant up to 80 °C

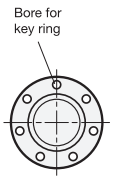
Ball
Stainless Steel AISI 420C

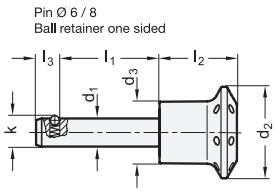
Spring
Stainless Steel AISI 631

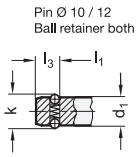


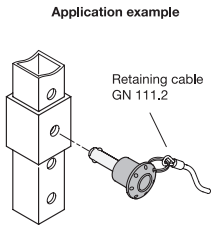
INFORMATION

GN 124.2 Stainless Steel-Locking pins are used for quick fixing, connecting and locking of various jig and fixture systems.
The locking balls are held in position by a pressure spring and are therefore not rigidly locked. The bolts can be quickly and easily inserted and removed from the locating hole.
The rated shear stresses of the bolt cross-section are theoretical guide values only and do not constitute any warranty. They constitute no general warranty of quality and condition. The user must determine from case to case whether a product is suitable for the intended use.
This standard replaces the previous Stainless Steel-Locking pins GN 124.
- Range of locking pins (see page 868)









ACCESSORY

- Stainless Steel-Ball chains GN 111.5 (see page 905)
- Retaining cables GN 111.2 (see page 906)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)

GN 124.2 **STAINLESS STEEL**

Description	d1 -0.04/-0.08	l1	d2	d3	k	l2	l3	Locating bore	Axial holding force in N ≈	Load in kN ≈ (Double sided shear force) according DIN 50141	⚖
GN 124.2-6-10	6	10	26	17.5	6.5	22	5	6	8	22	13
GN 124.2-6-15	6	15	26	17.5	6.5	22	5	6	8	22	15
GN 124.2-6-20	6	20	26	17.5	6.5	22	5	6	8	22	16
GN 124.2-6-25	6	25	26	17.5	6.5	22	5	6	8	22	16
GN 124.2-6-30	6	30	26	17.5	6.5	22	5	6	8	22	19
GN 124.2-6-50	6	50	26	17.5	6.5	22	5	6	8	22	19
GN 124.2-8-15	8	15	26	17.5	8.7	22	6.3	8	15	40	19
GN 124.2-8-20	8	20	26	17.5	8.7	22	6.3	8	15	40	19
GN 124.2-8-25	8	25	26	17.5	8.7	22	6.3	8	15	40	20
GN 124.2-8-30	8	30	26	17.5	8.7	22	6.3	8	15	40	25
GN 124.2-8-50	8	50	26	17.5	8.7	22	6.3	8	15	40	33
GN 124.2-10-15	10	15	34	23	12	28.5	8.7	10	30	62	39
GN 124.2-10-20	10	20	34	23	12	28.5	8.7	10	30	62	42
GN 124.2-10-25	10	25	34	23	12	28.5	8.7	10	30	62	45
GN 124.2-10-30	10	30	34	23	12	28.5	8.7	10	30	62	48
GN 124.2-10-50	10	50	34	23	12	28.5	8.7	10	30	62	59
GN 124.2-12-20	12	20	34	23	14.5	28.5	9.5	12	32	90	51
GN 124.2-12-30	12	30	34	23	14.5	28.5	9.5	12	32	90	59
GN 124.2-12-40	12	40	34	23	14.5	28.5	9.5	12	32	90	68
GN 124.2-12-50	12	50	34	23	14.5	28.5	9.5	12	32	90	75

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Stainless Steel-Locking pins

with axial lock (magnetic)



SPECIFICATION

Pin
Stainless Steel AISI 303

Knob
Plastic Technopolymer (Polyamide PA)

- black-grey
- temperature resistant up to 80 °C

Retaining magnet
Neodymium, iron, boron

INFORMATION

GN 124.1 Stainless Steel-Locking pins are used for quickly fixing, connecting and locking various parts and workpieces made of magnetic materials.
A neodymium magnet is recessed into the underside of the bolt and axially retains the bolt in its inserted procession. High-quality surfaces with perpendicular locating holes promote magnetic flux to produce excellent axial retention.
The rated shear stresses of the bolt cross-section are theoretical guide values only and do not constitute any warranty. They constitute no general warranty of quality and condition. The user must determine from case to case whether a product is suitable for the intended use.
- Range of locking pins (see page 868)

ACCESSORY

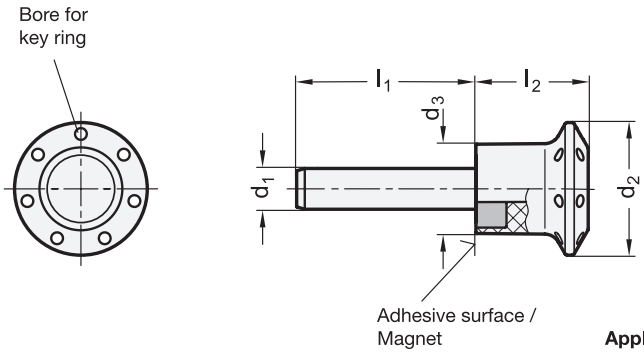
- Ball chains GN 111 (see page 904)
- Stainless Steel-Ball chains GN 111.5 (see page 905)
- Retaining cables GN 111.2 (see page 906)
- Spiral retaining cables GN 111.4 (see page 908)

TECHNICAL INFORMATION

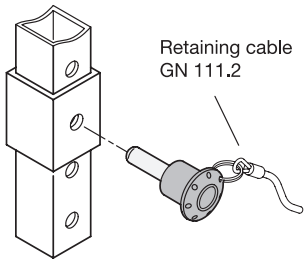
- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)

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GN 124.1 | Stainless Steel-Locking pins



Application example



GN 124.1 **STAINLESS STEEL**

Description	d1 -0.04/-0.08	l1	d2	d3	l2	Locating bore	Axial holding force in N ≈	Load in kN ≈ (Double sided shear force) according DIN 50141	⚖
GN 124.1-6-12	6	12	26	17.5	22	6	65	22	13
GN 124.1-6-17	6	17	26	17.5	22	6	65	22	19
GN 124.1-6-22	6	22	26	17.5	22	6	65	22	20
GN 124.1-6-27	6	27	26	17.5	22	6	65	22	21
GN 124.1-6-32	6	32	26	17.5	22	6	65	22	22
GN 124.1-6-42	6	42	26	17.5	22	6	65	22	24
GN 124.1-6-52	6	52	26	17.5	22	6	65	22	27
GN 124.1-8-17	8	17	26	17.5	22	8	45	40	24
GN 124.1-8-22	8	22	26	17.5	22	8	45	40	24
GN 124.1-8-27	8	27	26	17.5	22	8	45	40	25
GN 124.1-8-32	8	32	26	17.5	22	8	45	40	27
GN 124.1-8-42	8	42	26	17.5	22	8	45	40	31
GN 124.1-8-52	8	52	26	17.5	22	8	45	40	35
GN 124.1-8-62	8	62	26	17.5	22	8	45	40	38
GN 124.1-10-18	10	18	34	23	28.5	10	95	62	43
GN 124.1-10-23	10	23	34	23	28.5	10	95	62	46
GN 124.1-10-28	10	28	34	23	28.5	10	95	62	49
GN 124.1-10-33	10	33	34	23	28.5	10	95	62	52
GN 124.1-10-43	10	43	34	23	28.5	10	95	62	58
GN 124.1-10-53	10	53	34	23	28.5	10	95	62	64
GN 124.1-10-63	10	63	34	23	28.5	10	95	62	71
GN 124.1-12-23	12	23	34	23	28.5	12	75	90	52
GN 124.1-12-33	12	33	34	23	28.5	12	75	90	61
GN 124.1-12-43	12	43	34	23	28.5	12	75	90	70
GN 124.1-12-53	12	53	34	23	28.5	12	75	90	78
GN 124.1-12-63	12	63	34	23	28.5	12	75	90	87
GN 124.1-12-83	12	83	34	23	28.5	12	75	90	104

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Stainless Steel-Assembly pins

SPECIFICATION

Types

- Type **B**: with plain washer
- Type **E**: with washer with eyelet, suitable for key rings
- Type **L**: with washer, with mounting shackle (only identification no.1)

Identification no.

- No. **1**: without cross hole
- No. **2**: with cross hole for spring cotter pin GN 1024 (see page 909)

Assembly pin
Stainless Steel AISI 304 **NI**

Washer
Stainless Steel

- Type B: turned AISI 304
- Type E: metal injection molded AISI 316 LHC
- Type L: sintered AISI 316 LHC

Countersunk screw DIN 7991
Stainless Steel AISI 304
not removable



INFORMATION

GN 2342 Stainless Steel-Assembly pins are characterized by their use in diverse applications.
Depending on the requirement there are three washer types to choose from, which place the assembly pin in an axial position in its insertion direction. With the washer with eyelet (Type E) the assembly pin and a corresponding GN 1024 (see page 909) spring cotter pin can be secured to prevent loss using a retaining cable or ball chain. The washer with mounting shackle (Type L) simultaneously acts as loss protection and anti-rotation protection. Assembly pins according to identification no. 2 are secured against falling out via a transverse drill hole which is aligned to the GN 1024 (see page 909).

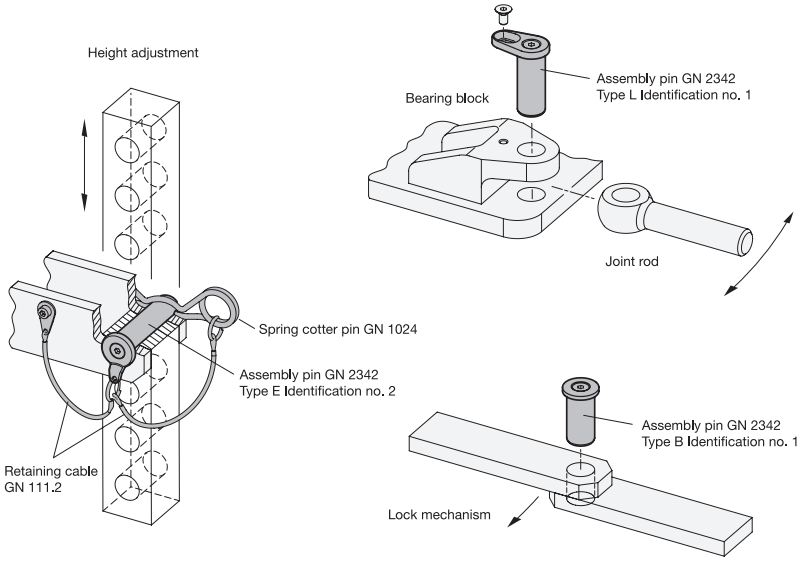
ACCESSORY

- Spring cotter pins GN 1024 (see page 909)
- Ball chains GN 111 (see page 904)
- Retaining cables GN 111.2 (see page 906)
- Key rings GN 111.3 (see page 903)

TECHNICAL INFORMATION

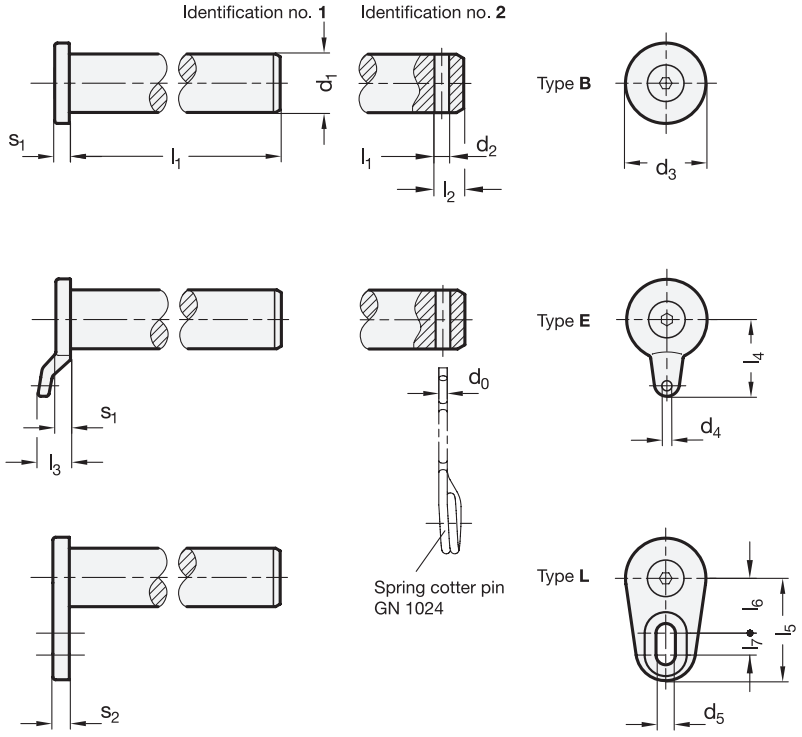
- Stainless Steel characteristics (see page A26)

APPLICATION EXAMPLE



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GN 2342 | Stainless Steel-Assembly pins



*Complete with type index of the Stainless Steel-Assembly Pins (B, E or L)

B E L**

GN 2342 STAINLESS STEEL

Description	d1 h9	l1	d2	d3	d4	d5	l2	l3	l4	l5	l6	l7	s1	s2	Suitable spring cotter pins for Identification no. 2	⚖
GN 2342-NI-8-16-*-1	8	16	2.5	12	2.5	4.3	5.5	7	13.5	18	10	2	3	4	-	10
GN 2342-NI-8-16-*-2	8**	16	2.5	12	2.5	-	5.5	7	13.5	-	-	-	3	4	GN 1024-NI-2-D	12
GN 2342-NI-8-20-*-1	8	20	2.5	12	2.5	4.3	5.5	7	13.5	18	10	2	3	4	-	11
GN 2342-NI-8-20-*-2	8**	20	2.5	12	2.5	-	5.5	7	13.5	-	-	-	3	4	GN 1024-NI-2-D	13
GN 2342-NI-8-24-*-1	8	24	2.5	12	2.5	4.3	5.5	7	13.5	18	10	2	3	4	-	13
GN 2342-NI-8-24-*-2	8**	24	2.5	12	2.5	-	5.5	7	13.5	-	-	-	3	4	GN 1024-NI-2-D	15
GN 2342-NI-8-28-*-1	8	28	2.5	12	2.5	4.3	5.5	7	13.5	18	10	2	3	4	-	14
GN 2342-NI-8-28-*-2	8**	28	2.5	12	2.5	-	5.5	7	13.5	-	-	-	3	4	GN 1024-NI-2-D	16
GN 2342-NI-8-30-*-1	8	30	2.5	12	2.5	4.3	5.5	7	13.5	18	10	2	3	4	-	15
GN 2342-NI-8-30-*-2	8**	30	2.5	12	2.5	-	5.5	7	13.5	-	-	-	3	4	GN 1024-NI-2-D	17
GN 2342-NI-8-32-*-1	8	32	2.5	12	2.5	4.3	5.5	7	13.5	18	10	2	3	4	-	16
GN 2342-NI-8-32-*-2	8**	32	2.5	12	2.5	-	5.5	7	13.5	-	-	-	3	4	GN 1024-NI-2-D	18
GN 2342-NI-8-35-*-1	8	35	2.5	12	2.5	4.3	5.5	7	13.5	18	10	2	3	4	-	17
GN 2342-NI-8-35-*-2	8**	35	2.5	12	2.5	-	5.5	7	13.5	-	-	-	3	4	GN 1024-NI-2-D	19
GN 2342-NI-8-40-*-1	8	40	2.5	12	2.5	4.3	5.5	7	13.5	18	10	2	3	4	-	19
GN 2342-NI-8-40-*-2	8**	40	2.5	12	2.5	-	5.5	7	13.5	-	-	-	3	4	GN 1024-NI-2-D	21
GN 2342-NI-8-45-*-1	8	45	2.5	12	2.5	4.3	5.5	7	13.5	18	10	2	3	4	-	21
GN 2342-NI-8-45-*-2	8**	45	2.5	12	2.5	-	5.5	7	13.5	-	-	-	3	4	GN 1024-NI-2-D	23
GN 2342-NI-8-50-*-1	8	50	2.5	12	2.5	4.3	5.5	7	13.5	18	10	2	3	4	-	23
GN 2342-NI-8-50-*-2	8**	50	2.5	12	2.5	-	5.5	7	13.5	-	-	-	3	4	GN 1024-NI-2-D	25
GN 2342-NI-8-55-*-1	8	55	2.5	12	2.5	4.3	5.5	7	13.5	18	10	2	3	4	-	25
GN 2342-NI-8-55-*-2	8**	55	2.5	12	2.5	-	5.5	7	13.5	-	-	-	3	4	GN 1024-NI-2-D	27
GN 2342-NI-8-60-*-1	8	60	2.5	12	2.5	4.3	5.5	7	13.5	18	10	2	3	4	-	27
GN 2342-NI-8-60-*-2	8**	60	2.5	12	2.5	-	5.5	7	13.5	-	-	-	3	4	GN 1024-NI-2-D	29

** This type (L) is only available in Identification no. 1

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GN 2342 | Stainless Steel-Assembly pins

*Complete with type index of the Stainless Steel-Assembly Pins (B, E or L)

B E L**

GN 2342 — **STAINLESS STEEL**

Description	d1 h9	l1	d2	d3	d4	d5	l2	l3	l4	l5	l6	l7	s1	s2	Suitable spring cotter pins for Identification no. 2	⚖
GN 2342-NI-10-20-*-1	10	20	2.5	15	2.5	4.3	6	7	15	21	11	4	3	4	-	17
GN 2342-NI-10-20-*-2	10**	20	2.5	15	2.5	-	6	7	15	-	-	-	3	4	GN 1024-NI-2-E / ...-D	21
GN 2342-NI-10-24-*-1	10	24	2.5	15	2.5	4.3	6	7	15	21	11	4	3	4	-	19
GN 2342-NI-10-24-*-2	10**	24	2.5	15	2.5	-	6	7	15	-	-	-	3	4	GN 1024-NI-2-E / ...-D	23
GN 2342-NI-10-30-*-1	10	30	2.5	15	2.5	4.3	6	7	15	21	11	4	3	4	-	23
GN 2342-NI-10-30-*-2	10**	30	2.5	15	2.5	-	6	7	15	-	-	-	3	4	GN 1024-NI-2-E / ...-D	27
GN 2342-NI-10-35-*-1	10	35	2.5	15	2.5	4.3	6	7	15	21	11	4	3	4	-	26
GN 2342-NI-10-35-*-2	10**	35	2.5	15	2.5	-	6	7	15	-	-	-	3	4	GN 1024-NI-2-E / ...-D	30
GN 2342-NI-10-40-*-1	10	40	2.5	15	2.5	4.3	6	7	15	21	11	4	3	4	-	29
GN 2342-NI-10-40-*-2	10**	40	2.5	15	2.5	-	6	7	15	-	-	-	3	4	GN 1024-NI-2-E / ...-D	33
GN 2342-NI-10-45-*-1	10	45	2.5	15	2.5	4.3	6	7	15	21	11	4	3	4	-	32
GN 2342-NI-10-45-*-2	10**	45	2.5	15	2.5	-	6	7	15	-	-	-	3	4	GN 1024-NI-2-E / ...-D	36
GN 2342-NI-10-50-*-1	10	50	2.5	15	2.5	4.3	6	7	15	21	11	4	3	4	-	36
GN 2342-NI-10-50-*-2	10**	50	2.5	15	2.5	-	6	7	15	-	-	-	3	4	GN 1024-NI-2-E / ...-D	39
GN 2342-NI-10-55-*-1	10	55	2.5	15	2.5	4.3	6	7	15	21	11	4	3	4	-	39
GN 2342-NI-10-55-*-2	10**	55	2.5	15	2.5	-	6	7	15	-	-	-	3	4	GN 1024-NI-2-E / ...-D	42
GN 2342-NI-10-60-*-1	10	60	2.5	15	2.5	4.3	6	7	15	21	11	4	3	4	-	42
GN 2342-NI-10-60-*-2	10**	60	2.5	15	2.5	-	6	7	15	-	-	-	3	4	GN 1024-NI-2-E / ...-D	44
GN 2342-NI-10-65-*-1	10	65	2.5	15	2.5	4.3	6	7	15	21	11	4	3	4	-	45
GN 2342-NI-10-65-*-2	10**	65	2.5	15	2.5	-	6	7	15	-	-	-	3	4	GN 1024-NI-2-E / ...-D	48
GN 2342-NI-10-70-*-1	10	70	2.5	15	2.5	4.3	6	7	15	21	11	4	3	4	-	48
GN 2342-NI-10-70-*-2	10**	70	2.5	15	2.5	-	6	7	15	-	-	-	3	4	GN 1024-NI-2-E / ...-D	51
GN 2342-NI-10-80-*-1	10	80	2.5	15	2.5	4.3	6	7	15	21	11	4	3	4	-	54
GN 2342-NI-10-80-*-2	10**	80	2.5	15	2.5	-	6	7	15	-	-	-	3	4	GN 1024-NI-2-E / ...-D	58
GN 2342-NI-12-20-*-1	12	20	2.5	17	3	5.3	7	9	18.5	23	12	4	4	4.5	-	25
GN 2342-NI-12-20-*-2	12**	20	2.5	17	3	-	7	9	18.5	-	-	-	4	4.5	GN 1024-NI-2-E / ...-D	30
GN 2342-NI-12-24-*-1	12	24	2.5	17	3	5.3	7	9	18.5	23	12	4	4	4.5	-	29
GN 2342-NI-12-24-*-2	12**	24	2.5	17	3	-	7	9	18.5	-	-	-	4	4.5	GN 1024-NI-2-E / ...-D	34
GN 2342-NI-12-30-*-1	12	30	2.5	17	3	5.3	7	9	18.5	23	12	4	4	4.5	-	34
GN 2342-NI-12-30-*-2	12**	30	2.5	17	3	-	7	9	18.5	-	-	-	4	4.5	GN 1024-NI-2-E / ...-D	39
GN 2342-NI-12-35-*-1	12	35	2.5	17	3	5.3	7	9	18.5	23	12	4	4	4.5	-	45
GN 2342-NI-12-35-*-2	12**	35	2.5	17	3	-	7	9	18.5	-	-	-	4	4.5	GN 1024-NI-2-E / ...-D	46
GN 2342-NI-12-40-*-1	12	40	2.5	17	3	5.3	7	9	18.5	23	12	4	4	4.5	-	42
GN 2342-NI-12-40-*-2	12**	40	2.5	17	3	-	7	9	18.5	-	-	-	4	4.5	GN 1024-NI-2-E / ...-D	48
GN 2342-NI-12-45-*-1	12	45	2.5	17	3	5.3	7	9	18.5	23	12	4	4	4.5	-	47
GN 2342-NI-12-45-*-2	12**	45	2.5	17	3	-	7	9	18.5	-	-	-	4	4.5	GN 1024-NI-2-E / ...-D	53
GN 2342-NI-12-50-*-1	12	50	2.5	17	3	5.3	7	9	18.5	23	12	4	4	4.5	-	51
GN 2342-NI-12-50-*-2	12**	50	2.5	17	3	-	7	9	18.5	-	-	-	4	4.5	GN 1024-NI-2-E / ...-D	57
GN 2342-NI-12-55-*-1	12	55	2.5	17	3	5.3	7	9	18.5	23	12	4	4	4.5	-	56
GN 2342-NI-12-55-*-2	12**	55	2.5	17	3	-	7	9	18.5	-	-	-	4	4.5	GN 1024-NI-2-E / ...-D	61
GN 2342-NI-12-60-*-1	12	60	2.5	17	3	5.3	7	9	18.5	23	12	4	4	4.5	-	61
GN 2342-NI-12-60-*-2	12**	60	2.5	17	3	-	7	9	18.5	-	-	-	4	4.5	GN 1024-NI-2-E / ...-D	66
GN 2342-NI-12-65-*-1	12	65	2.5	17	3	5.3	7	9	18.5	23	12	4	4	4.5	-	65
GN 2342-NI-12-65-*-2	12**	65	2.5	17	3	-	7	9	18.5	-	-	-	4	4.5	GN 1024-NI-2-E / ...-D	70
GN 2342-NI-12-70-*-1	12	70	2.5	17	3	5.3	7	9	18.5	23	12	4	4	4.5	-	70
GN 2342-NI-12-70-*-2	12**	70	2.5	17	3	-	7	9	18.5	-	-	-	4	4.5	GN 1024-NI-2-E / ...-D	75

** This type (L) is only available in Identification no. 1

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GN 2342 | Stainless Steel-Assembly pins

*Complete with type index of the Stainless Steel-Assembly Pins (B, E or L)
B E L**

GN 2342 STAINLESS STEEL

Description	d1 h9	l1	d2	d3	d4	d5	l2	l3	l4	l5	l6	l7	s1	s2	Suitable spring cotter pins for Identification no. 2	⚖
GN 2342-NI-12-80-*-1	12	80	2.5	17	3	5.3	7	9	18.5	23	12	4	4	4.5	-	78
GN 2342-NI-12-80-*-2	12**	80	2.5	17	3	-	7	9	18.5	-	-	-	4	4.5	GN 1024-NI-2-E / ...-D	84
GN 2342-NI-16-32-*-1	16	32	3.5	22	3	5.3	8	9	21	28	15	6	4	4.5	-	62
GN 2342-NI-16-32-*-2	16**	32	3.5	22	3	-	8	9	21	-	-	-	4	4.5	GN 1024-NI-3-E / ...-D	73
GN 2342-NI-16-35-*-1	16	35	3.5	22	3	5.3	8	9	21	28	15	6	4	4.5	-	67
GN 2342-NI-16-35-*-2	16**	35	3.5	22	3	-	8	9	21	-	-	-	4	4.5	GN 1024-NI-3-E / ...-D	77
GN 2342-NI-16-40-*-1	16	40	3.5	22	3	5.3	8	9	21	28	15	6	4	4.5	-	74
GN 2342-NI-16-40-*-2	16**	40	3.5	22	3	-	8	9	21	-	-	-	4	4.5	GN 1024-NI-3-E / ...-D	85
GN 2342-NI-16-45-*-1	16	45	3.5	22	3	5.3	8	9	21	28	15	6	4	4.5	-	82
GN 2342-NI-16-45-*-2	16**	45	3.5	22	3	-	8	9	21	-	-	-	4	4.5	GN 1024-NI-3-E / ...-D	93
GN 2342-NI-16-50-*-1	16	50	3.5	22	3	5.3	8	9	21	28	15	6	4	4.5	-	90
GN 2342-NI-16-50-*-2	16**	50	3.5	22	3	-	8	9	21	-	-	-	4	4.5	GN 1024-NI-3-E / ...-D	101
GN 2342-NI-16-55-*-1	16	55	3.5	22	3	5.3	8	9	21	28	15	6	4	4.5	-	98
GN 2342-NI-16-55-*-2	16**	55	3.5	22	3	-	8	9	21	-	-	-	4	4.5	GN 1024-NI-3-E / ...-D	109
GN 2342-NI-16-60-*-1	16	60	3.5	22	3	5.3	8	9	21	28	15	6	4	4.5	-	106
GN 2342-NI-16-60-*-2	16**	60	3.5	22	3	-	8	9	21	-	-	-	4	4.5	GN 1024-NI-3-E / ...-D	117
GN 2342-NI-16-65-*-1	16	65	3.5	22	3	5.3	8	9	21	28	15	6	4	4.5	-	114
GN 2342-NI-16-65-*-2	16**	65	3.5	22	3	-	8	9	21	-	-	-	4	4.5	GN 1024-NI-3-E / ...-D	125
GN 2342-NI-16-70-*-1	16	70	3.5	22	3	5.3	8	9	21	28	15	6	4	4.5	-	122
GN 2342-NI-16-70-*-2	16**	70	3.5	22	3	-	8	9	21	-	-	-	4	4.5	GN 1024-NI-3-E / ...-D	133
GN 2342-NI-16-80-*-1	16	80	3.5	22	3	5.3	8	9	21	28	15	6	4	4.5	-	138
GN 2342-NI-16-80-*-2	16**	80	3.5	22	3	-	8	9	21	-	-	-	4	4.5	GN 1024-NI-3-E / ...-D	149
GN 2342-NI-16-90-*-1	16	90	3.5	22	3	5.3	8	9	21	28	15	6	4	4.5	-	154
GN 2342-NI-16-90-*-2	16**	90	3.5	22	3	-	8	9	21	-	-	-	4	4.5	GN 1024-NI-3-E / ...-D	164
GN 2342-NI-16-100-*-1	16	100	3.5	22	3	5.3	8	9	21	28	15	6	4	4.5	-	170
GN 2342-NI-16-100-*-2	16**	100	3.5	22	3	-	8	9	21	-	-	-	4	4.5	GN 1024-NI-3-E / ...-D	180
GN 2342-NI-20-40-*-1	20	40	4.5	26	3.5	6.4	10.5	9	24	31	17	6	4	5	-	115
GN 2342-NI-20-40-*-2	20**	40	4.5	26	3.5	-	10.5	9	24	-	-	-	4	5	GN 1024-NI-4-E / ...-D	136
GN 2342-NI-20-45-*-1	20	45	4.5	26	3.5	6.4	10.5	9	24	31	17	6	4	5	-	126
GN 2342-NI-20-45-*-2	20**	45	4.5	26	3.5	-	10.5	9	24	-	-	-	4	5	GN 1024-NI-4-E / ...-D	158
GN 2342-NI-20-50-*-1	20	50	4.5	26	3.5	6.4	10.5	9	24	31	17	6	4	5	-	138
GN 2342-NI-20-50-*-2	20**	50	4.5	26	3.5	-	10.5	9	24	-	-	-	4	5	GN 1024-NI-4-E / ...-D	161
GN 2342-NI-20-55-*-1	20	55	4.5	26	3.5	6.4	10.5	9	24	31	17	6	4	5	-	150
GN 2342-NI-20-55-*-2	20**	55	4.5	26	3.5	-	10.5	9	24	-	-	-	4	5	GN 1024-NI-4-E / ...-D	173
GN 2342-NI-20-60-*-1	20	60	4.5	26	3.5	6.4	10.5	9	24	31	17	6	4	5	-	163
GN 2342-NI-20-60-*-2	20**	60	4.5	26	3.5	-	10.5	9	24	-	-	-	4	5	GN 1024-NI-4-E / ...-D	186
GN 2342-NI-20-65-*-1	20	65	4.5	26	3.5	6.4	10.5	9	24	31	17	6	4	5	-	175
GN 2342-NI-20-65-*-2	20**	65	4.5	26	3.5	-	10.5	9	24	-	-	-	4	5	GN 1024-NI-4-E / ...-D	198
GN 2342-NI-20-70-*-1	20	70	4.5	26	3.5	6.4	10.5	9	24	31	17	6	4	5	-	188
GN 2342-NI-20-70-*-2	20**	70	4.5	26	3.5	-	10.5	9	24	-	-	-	4	5	GN 1024-NI-4-E / ...-D	211
GN 2342-NI-20-80-*-1	20	80	4.5	26	3.5	6.4	10.5	9	24	31	17	6	4	5	-	212
GN 2342-NI-20-80-*-2	20**	80	4.5	26	3.5	-	10.5	9	24	-	-	-	4	5	GN 1024-NI-4-E / ...-D	235
GN 2342-NI-20-90-*-1	20	90	4.5	26	3.5	6.4	10.5	9	24	31	17	6	4	5	-	237
GN 2342-NI-20-90-*-2	20**	90	4.5	26	3.5	-	10.5	9	24	-	-	-	4	5	GN 1024-NI-4-E / ...-D	260
GN 2342-NI-20-100-*-1	20	100	4.5	26	3.5	6.4	10.5	9	24	31	17	6	4	5	-	262
GN 2342-NI-20-100-*-2	20**	100	4.5	26	3.5	-	10.5	9	24	-	-	-	4	5	GN 1024-NI-4-E / ...-D	287

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Stainless Steel-Retaining washers

SPECIFICATION

Types

- Type **E**: with eyelet
- Type **L**: with mounting shackle

Stainless Steel **NI**

- Type E: metal injection, molded, AISI 316 LHC, ground
- Type L: sintered AISI 316 LHC, ground

INFORMATION

GN 2344 Stainless Steel-Retaining washers are universally usable standard parts.
Type E is suitable for use in connection with retaining cables and ball chains to mount other standard or securing parts in order to prevent loss.
Type L is suitable, for example, for mounting bolts or axes, which can thereby simultaneously be secured in an axial and also in a radial position.

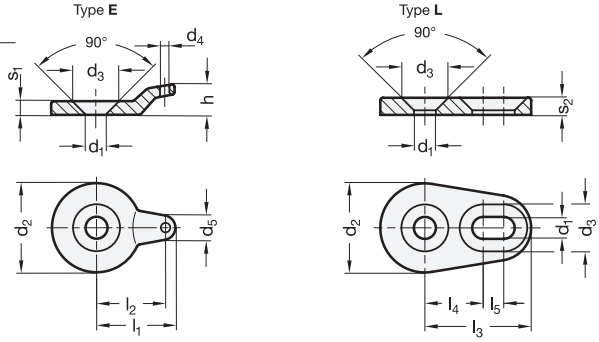
ACCESSORY

- Ball chains GN 111 (see page 904)
- Stainless Steel-Ball chains GN 111.5 (see page 905)
- Retaining cables GN 111.2 (see page 906)
- Spiral retaining cables GN 111.4 (see page 908)
- Key rings GN 111.3 (see page 903)

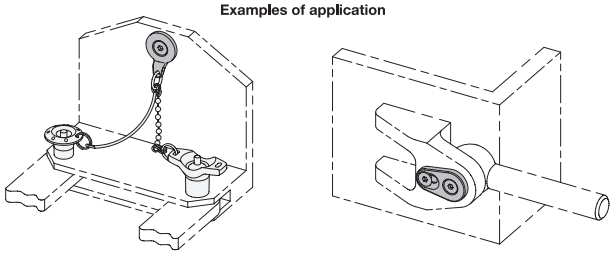
TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)





Examples of application



GN 2344 **STAINLESS STEEL**

Description	d1	d2	d3	d4	d5	h	l1	l2	l3	l4	l5	s1	s2	Suitable key rings for type E	⚖
GN 2344-NI-4,3-12-E	4.3	12	9.2	2.5	6	7	13.5	10.8	-	-	-	3	-	Ø14	2
GN 2344-NI-4,3-15-E	4.3	15	9.2	2.5	6.3	7	15	12.3	-	-	-	3	-	Ø14	4
GN 2344-NI-5,3-17-E	5.3	17	11.5	3	7.2	7	18.5	15	-	-	-	4	-	Ø14 | Ø18	7
GN 2344-NI-5,3-22-E	5.3	22	11.5	3	7.5	9	21	17.5	-	-	-	4	-	Ø14 | Ø18	12
GN 2344-NI-6,4-26-E	6.4	26	13.7	3.5	8.1	9	24	20.3	-	-	-	4	-	Ø14 | Ø18 | Ø24	15
GN 2344-NI-4,3-12-L	4.3	12	9.2	-	-	-	-	-	18	10	2	-	4	-	5
GN 2344-NI-4,3-15-L	4.3	15	9.2	-	-	-	-	-	21	11	4	-	4	-	7
GN 2344-NI-5,3-17-L	5.3	17	11.5	-	-	-	-	-	23	12	4	-	4.5	-	10
GN 2344-NI-5,3-22-L	5.3	22	11.5	-	-	-	-	-	28	15	6	-	4.5	-	16
GN 2344-NI-6,4-26-L	6.4	26	13.7	-	-	-	-	-	31	17	6	-	5	-	25

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GN 111.3

Key rings

SPECIFICATION

Stainless Steel

Suitable for ball lock pins and locking pins (see pages 870):

* GN 113.1, GN 113.3, GN 113.4, GN 113.7, GN 113.8, GN 214.2, GN 214.3, GN 214.6 for pins Ø 5, Ø 6, Ø 8

and

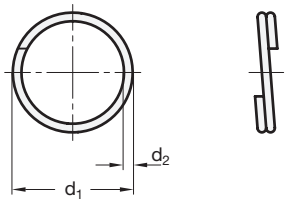
* GN 113.5, GN 113.6, GN 114.2, GN 114.3, GN 114.6, GN 124.1, GN 124.2 for all pins

** GN 113.1, GN 113.3, GN 113.4, GN 113.7, GN 113.8, GN 214.2, GN 214.3, GN 214.6 for pins Ø 10, Ø 12, Ø 16, Ø 20

INFORMATION

For ball chains GN 111, Stainless Steel-Ball chaines GN 111.5 (see page 905) retaining cables GN 111.2 (see page 906) and spiral retaining cables GN 111.4 (see page 908) there are single key rings available.
Some sizes can be used as loss protection for ball lock pins and locking pins e.g. in combination with a retaining cable.
Furthermore, key rings have uses in many other areas.





GN 111.3 STAINLESS STEEL

Description	d1	d2	⚖
GN 111.3-14	14*	1	1
GN 111.3-18	18**	1.3	1
GN 111.3-24	24	1.5	1
GN 111.3-30	30	1.8	4

GN 111.6

Stainless Steel-Retaining rings

SPECIFICATION

Stainless Steel AISI 301

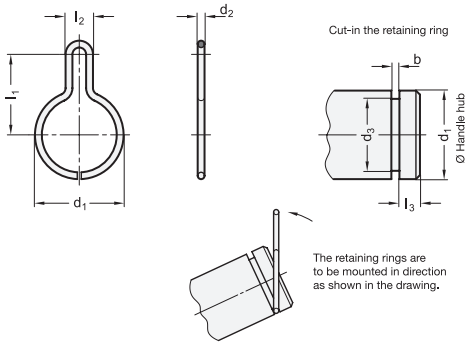
INFORMATION

Retaining rings GN 111.6 are normally used together with ball chains or retaining cables.
One typical application involves making e.g. knurled screws captive, for instance.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)





GN 111.6 STAINLESS STEEL

Description	d1	d2	d3 -0.1	b +0.2	l1	l2	l3 +0.3	⚖
GN 111.6-12	12	1.4	9.1	1.7	16	5.6	2.5	1
GN 111.6-14	14	1.5	10.9	1.8	17	6	3.2	1
GN 111.6-15	15	1.5	11.9	1.8	17	6	3.2	1
GN 111.6-16	16	1.5	12.9	1.8	17	6	3.2	1
GN 111.6-17	17	1.6	13.7	1.9	19	6.4	3.9	1
GN 111.6-18	18	1.6	14.7	1.9	19	6.4	3.9	1
GN 111.6-19	19	1.6	15.7	1.9	19	6.4	3.9	1
GN 111.6-20	20	1.6	16.7	1.9	19	6.4	3.9	1
GN 111.6-21	21	1.7	17.5	2	20	6.8	5.1	1
GN 111.6-22	22	1.7	18.5	2	20	6.8	5.1	1
GN 111.6-23	23	1.7	19.5	2	20	6.8	5.1	2
GN 111.6-24	24	1.7	20.5	2	20	6.8	5.1	2
GN 111.6-26	26	1.8	22.3	2.1	21	7.2	5.4	2

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Ball chains

with two key rings

SPECIFICATION

Ball chain
Brass, nickel plated

Key ring
Stainless Steel AISI 301

Suitable for ball lock pins and pins with axial lock (see pages 870):

* GN 113.1, GN 113.3, GN 113.4, GN 113.7, GN 113.8, GN 214.2, GN 214.3, GN 214.6 for pins Ø 5, Ø 6, Ø 8

and

* GN 113.5, GN 113.6, GN 114.2, GN 114.3, GN 114.6, GN 124.1, GN 124.2 for all pins

** GN 113.1, GN 113.3, GN 113.4, GN 113.7, GN 113.8, GN 214.2, GN 214.3, GN 214.6 for pins Ø 10, Ø 12, Ø 16, Ø 20

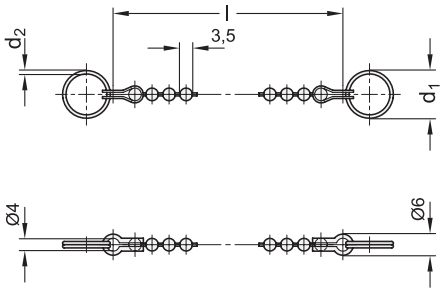


INFORMATION

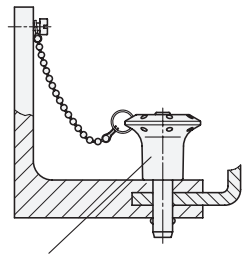
Ball chains GN 111 are mainly used in connection with ball lock pins and pins with axial lock.
The key rings are supplied unmounted. Both rings have the same Ø d_1.
The load values given in the above table at shear stress are theoretically obtained and indicative only.
They are non-binding recommended values and rule out any liability.

ACCESSORY

- Single key rings are supplied with code no. GN 111.3-d_1 (see page 903)



Application example



Locking pins
Ball lock pins

GN 111

Description	l ±3	d1	d2	Static load in N ≈ with key ring	Static load in N ≈ without key ring	⚖
GN 111-200-14	200	14*	1	50	180	7
GN 111-200-18	200	18**	1.3	90	180	9
GN 111-200-24	200	24	1.5	100	180	9
GN 111-200-30	200	30	1.8	120	180	9
GN 111-320-14	320	14*	1	50	180	10
GN 111-320-18	320	18**	1.3	90	180	11
GN 111-320-24	320	24	1.5	100	180	13
GN 111-320-30	320	30	1.8	120	180	15
GN 111-500-14	500	14*	1	50	180	14
GN 111-500-18	500	18**	1.3	90	180	15
GN 111-500-24	500	24	1.5	100	180	15
GN 111-500-30	500	30	1.8	120	180	20
GN 111-1000-14	1000	14*	1	50	180	28
GN 111-1000-18	1000	18**	1.3	90	180	30
GN 111-1000-24	1000	24	1.5	100	180	30
GN 111-1000-30	1000	30	1.8	120	180	32

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GN 111.5

Stainless Steel-Ball chains

with two key rings

SPECIFICATION

Ball chain
Stainless Steel AISI 304

Key ring
Stainless Steel AISI 301

Suitable for ball lock pins and pins with axial lock (see pages 870):

* GN 113.1, GN 113.3, GN 113.4, GN 113.7, GN 113.8, GN 214.2, GN 214.3, GN 214.6 for pins Ø 5, Ø 6, Ø 8

and

* GN 113.5, GN 113.6, GN 114.2, GN 114.3, GN 114.6, GN 124.1, GN 124.2 for all pins

** GN 113.1, GN 113.3, GN 113.4, GN 113.7, GN 113.8, GN 214.2, GN 214.3, GN 214.6 for pins Ø 10, Ø 12, Ø 16, Ø 20



INFORMATION

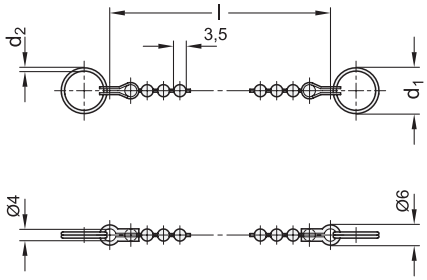
Ball chains GN 111.5 are mainly used in connection with ball lock pins and pins with axial lock.
The key rings are supplied unmounted. Both rings have the same Ø d_1.
The load values given in the above table at shear stress are theoretically obtained and indicative only.
They are non-binding recommended values and rule out any liability.

TECHNICAL INFORMATION

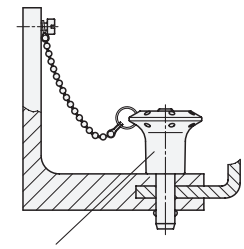
- Stainless Steel characteristics (see page A26)

ACCESSORY

- Single key rings are supplied with code no. GN 111.3-d_1 (see page 903)



Application example



Locking pins
Ball lock pins

GN 111.5 **STAINLESS STEEL**

Description	l ±3	d1	d2	Static load in N ≈ with key ring	Static load in N ≈ without key ring	⚖
GN 111.5-200-14	200	14*	1	50	180	5
GN 111.5-200-18	200	18**	1.3	90	180	10
GN 111.5-200-24	200	24	1.5	100	180	16
GN 111.5-200-30	200	30	1.8	120	180	20
GN 111.5-320-14	320	14*	1	50	180	10
GN 111.5-320-18	320	18**	1.3	90	180	15
GN 111.5-320-24	320	24	1.5	100	180	21
GN 111.5-320-30	320	30	1.8	120	180	25
GN 111.5-500-14	500	14*	1	50	180	10
GN 111.5-500-18	500	18**	1.3	90	180	16
GN 111.5-500-24	500	24	1.5	100	180	18
GN 111.5-500-30	500	30	1.8	120	180	20
GN 111.5-1000-14	1000	14*	1	50	180	18
GN 111.5-1000-18	1000	18**	1.3	90	180	30
GN 111.5-1000-24	1000	24	1.5	100	180	35
GN 111.5-1000-30	1000	30	1.8	120	180	50

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Stainless Steel-Retaining cables

with 2 mounting tabs



SPECIFICATION

Types

- Type **A**: with 2 key rings
- Type **B**: with tab and key ring
- Type **C**: with 2 tabs
- Type **D**: without tab and without key ring

Retaining cable
Stainless Steel A2
coated with clear plastic (PVC)

Tab
Stainless Steel AISI 304

Key ring
Stainless Steel AISI 301

Suitable for ball lock pins and locking pins with axial lock (see pages 870):

* GN 113.1, GN 113.3, GN 113.4, GN 113.7, GN 113.8, GN 214.2, GN 214.3, GN 214.6 for pins Ø 5, Ø 6, Ø 8

and

* GN 113.5, GN 113.6, GN 114.2, GN 114.3, GN 114.6, GN 124.1, GN 124.2 for all pins

** GN 113.1, GN 113.3, GN 113.4, GN 113.7, GN 113.8, GN 214.2, GN 214.3, GN 214.6 for pins Ø 10, Ø 12, Ø 16, Ø 20

INFORMATION

The key rings are supplied fixed to the retaining cable. In Type A, both rings have the same diameter d_1.
The details on static loads are guide values given without warranty.
Type A and B are suitable for ball lock pins and pins with axial lock:

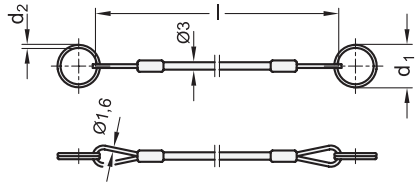
TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)

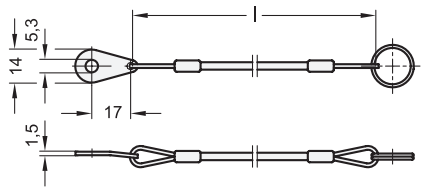
ACCESSORY

- Single key rings are supplied with code no. GN 111.3-d_1 (see page 903)

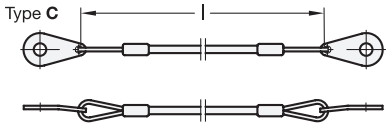
Type **A**



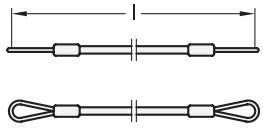
Type **B**



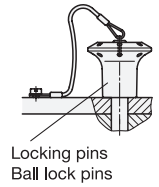
Type **C**



Type **D**



Application example



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GN 111.2 | Stainless Steel-Retaining cables

GN 111.2 **STAINLESS STEEL**

Description	l	d1	d2	Static load in N ≈ with key ring	Static load in N ≈ without key ring	Static load in N ≈	⚖
GN 111.2-150-14-A	150	14 *	1	50	1800	-	5
GN 111.2-150-18-A	150	18 **	1.3	90	1800	-	7
GN 111.2-150-24-A	150	24	1.5	100	1800	-	8
GN 111.2-150-30-A	150	30	1.8	120	1800	-	12
GN 111.2-200-14-A	200	14 *	1	50	1800	-	6
GN 111.2-200-18-A	200	18 **	1.3	90	1800	-	8
GN 111.2-200-24-A	200	24	1.5	100	1800	-	9
GN 111.2-200-30-A	200	30	1.8	120	1800	-	13
GN 111.2-320-14-A	320	14 *	1	50	1800	-	9
GN 111.2-320-18-A	320	18 **	1.3	90	1800	-	10
GN 111.2-320-24-A	320	24	1.5	100	1800	-	11
GN 111.2-320-30-A	320	30	1.8	120	1800	-	15
GN 111.2-500-14-A	500	14 *	1	50	1800	-	12
GN 111.2-500-18-A	500	18 **	1.3	90	1800	-	14
GN 111.2-500-24-A	500	24	1.5	100	1800	-	15
GN 111.2-500-30-A	500	30	1.8	120	1800	-	20
GN 111.2-150-14-B	150	14 *	1	50	1800	-	7
GN 111.2-150-18-B	150	18 **	1.3	90	1800	-	7
GN 111.2-150-24-B	150	24	1.5	100	1800	-	7
GN 111.2-150-30-B	150	30	1.8	120	1800	-	10
GN 111.2-200-14-B	200	14 *	1	50	1800	-	7
GN 111.2-200-18-B	200	18 **	1.3	90	1800	-	8
GN 111.2-200-24-B	200	24	1.5	100	1800	-	11
GN 111.2-200-30-B	200	30	1.8	120	1800	-	15
GN 111.2-320-14-B	320	14 *	1	50	1800	-	10
GN 111.2-320-18-B	320	18 **	1.3	90	1800	-	11
GN 111.2-320-24-B	320	24	1.5	100	1800	-	12
GN 111.2-320-30-B	320	30	1.8	120	1800	-	16
GN 111.2-500-14-B	500	14 *	1	50	1800	-	13
GN 111.2-500-18-B	500	18 **	1.3	90	1800	-	15
GN 111.2-500-24-B	500	24	1.5	100	1800	-	18
GN 111.2-500-30-B	500	30	1.8	120	1800	-	21
GN 111.2-150-C	150	-	-	-	-	1800	10
GN 111.2-200-C	200	-	-	-	-	1800	10
GN 111.2-320-C	320	-	-	-	-	1800	12
GN 111.2-500-C	500	-	-	-	-	1800	12
GN 111.2-150-D	150	-	-	-	-	1800	4
GN 111.2-200-D	200	-	-	-	-	1800	5
GN 111.2-320-D	320	-	-	-	-	1800	7
GN 111.2-500-D	500	-	-	-	-	1800	10

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Spiral retaining cables

with two key rings

SPECIFICATION

Spriral retaining cable
Plastic (Polyuretan PUR)
black

Fixing loop
Copper, tin-plated

Key rings
Stainless Steel

Suitable for ball lock pins and pins with axial lock (see pages 870) :

* GN 113.1, GN 113.3, GN 113.4, GN 113.7, GN 113.8, GN 214.2, GN 214.3, GN 214.6 for pins Ø 5, Ø 6, Ø 8

and

* GN 113.5, GN 113.6, GN 114.2, GN 114.3, GN 114.6, GN 124.1, GN 124.2 for all pins

** 113.1, GN 113.3, GN 113.4, GN 113.7, GN 113.8, GN 214.2, GN 214.3, GN 214.6 for pins Ø 10, Ø 12, Ø 16, Ø 20

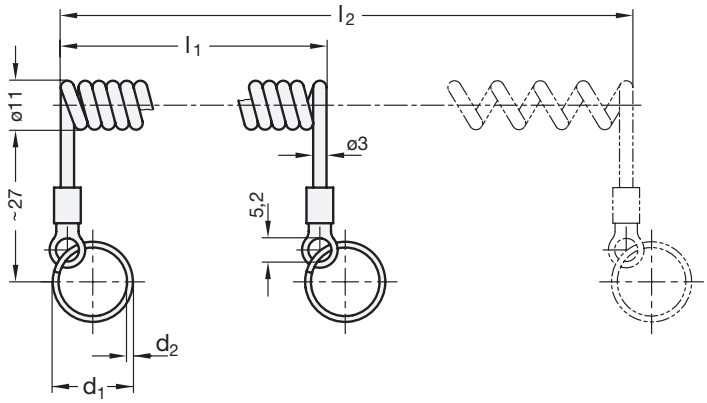
INFORMATION

Spiral retaining cables GN 111.4 are used in connection with low weight elements e. g. ball lock pins and pins with axial lock.
They are distinguished for a large "useable length".
The key rings are supplied unmounted. Both rings have the same Ø d_1.

ACCESSORY

- Single key rings are supplied with code no. GN 111.3-d_1 (see page 903)





GN 111.4

Description	l_1 ±3	d_1	l_2 max. ≈	d_2	Static load in N ≈ with key ring	Static load in N ≈ without key ring	⚖
GN 111.4-50-14	50	14*	250	1	50	60	10
GN 111.4-50-18	50	18**	250	1.3	60	60	10
GN 111.4-50-24	50	24	250	1.5	60	60	25
GN 111.4-100-14	100	14*	500	1	50	60	11
GN 111.4-100-18	100	18**	500	1.3	60	60	17
GN 111.4-100-24	100	24	500	1.5	60	60	12
GN 111.4-200-14	200	14*	1000	1	50	60	17
GN 111.4-200-18	200	18**	1000	1.3	60	60	17
GN 111.4-200-24	200	24	1000	1.5	60	60	18

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GN 1024

Spring cotter pins

Steel / Stainless Steel

SPECIFICATION

Types

- Type **E**: with single winding
- Type **D**: with double winding

Version in Steel ST
zinc plated, blue passivated

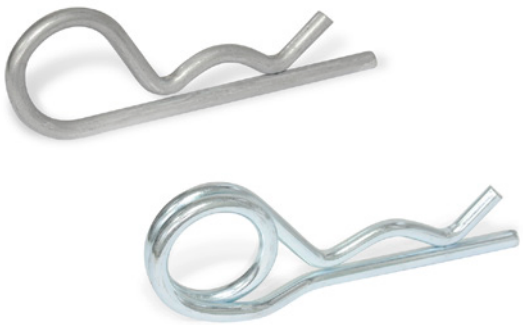
Version in Stainless Steel NI
AISI 303

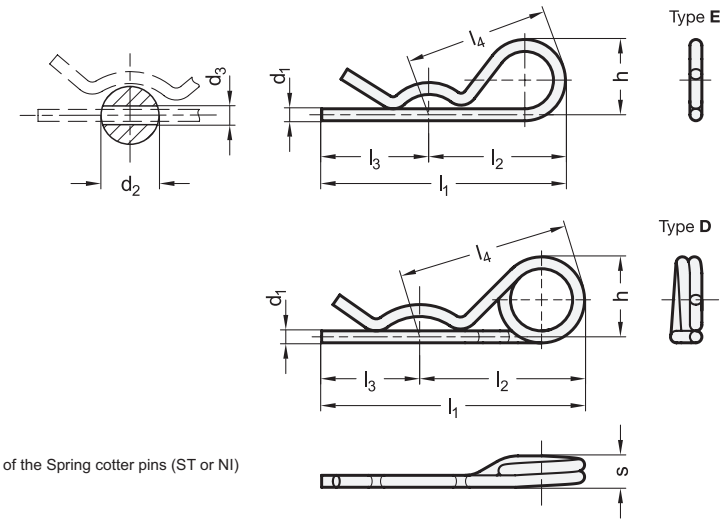
INFORMATION

Spring cotter pins GN 1024 are used for the axial fixing of bolts and axes and as distortion guard, e.g. for crown nuts DIN 935.
Owing to their double winding, spring cotter pins of Type D have a flatter spring characteristic and are therefore easier to install. Also, a retaining rope incldng a key ring can be attached to the double winding to safeguard the spring cotter pins against loss.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)





*Complete with material index of the Spring cotter pins (ST or NI)

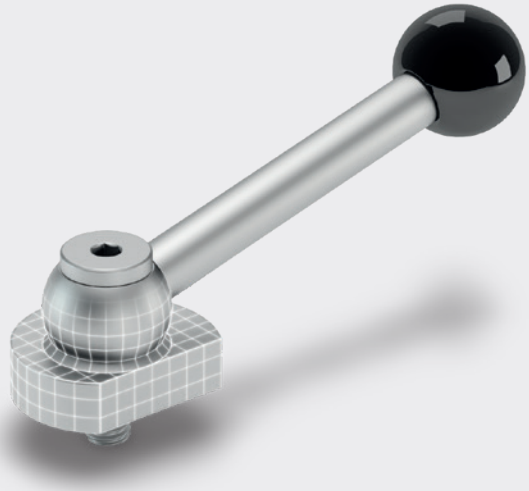
ST	NI
Steel	Stainless Steel

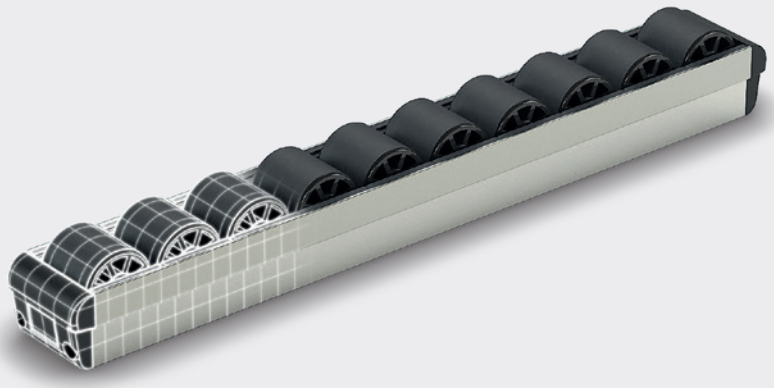
GN 1024 — **STAINLESS STEEL**

Description	d1	d2	d3	h	l1	l2	l3	l4	s	Load in N ≈ Mounting	Load in N ≈ Dismantling	Load in N ≈ for bolt Ø	⚖
GN 1024-*-1,5-E	1.5	7 ... 12	2	9	45	25	20	25	-	9	8	8	1
GN 1024-*-2-E	2	9 ... 14	2.5	13	57	32	25	34	-	14	9	12	3
GN 1024-*-3-E	3	10 ... 16	3.5	23	72	42	30	44	-	55	40	16	9
GN 1024-*-4-E	4	16 ... 20	4.5	27	74	44	30	48	-	210	170	20	17
GN 1024-*-5-E	5	20 ... 28	5.5	32	102	57	45	61	-	280	210	25	34
GN 1024-*-6-E	6	28 ... 40	6.5	42	126	73	53	77	-	240	150	30	60
GN 1024-*-2-D	2	8 ... 14	2.5	14	56	31	25	33	5.5	10	9	12	4
GN 1024-*-3-D	3	14 ... 20	3.5	22	73	43	30	47	8	35	28	16	12
GN 1024-*-4-D	4	17 ... 24	4.5	32	94	58	36	62	10.5	50	35	20	29
GN 1024-*-5-D	5	18 ... 30	5.5	35	110	70	40	73	13.5	100	95	25	53
GN 1024-*-6-D	6	24 ... 36	6.5	41	142	85	57	90	16	190	125	30	93
GN 1024-*-7-D	7**	26 ... 40	7.5	42	152	92	60	96	19	350	210	40	135

** only available in steel

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DESIGNED
FOR ENGINEERING

9 Machine elements



Screws

Thrust pads

Rings

Washers

Nuts

Positioning elements

Vibration-damping elements

Cam locking levers

Transfer units

Lifting accessories

DIN 6332

RoHS

Grub screws

with thrust point

SPECIFICATION

Types

- Type **SK**: with internal hexagon, pad hardened
- Type **SKN**: with internal hexagon, not hardened

Steel
Tensile strength class 5.8

Type SK

- Thrust point hardened
- blackened

Type SKN

- Thurst point unhardened
- blackened
- zinc plated, blue passivated **ZB**

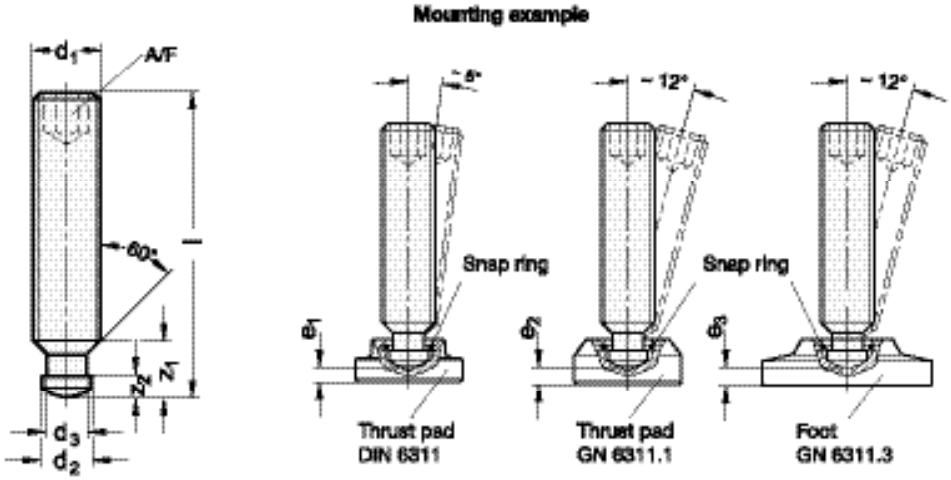


INFORMATION

The thrust point of these screws DIN 6332 is designed to be used with or without the thrust pad for clamping.
The snap ring resp. spring is a simple and quick method to connect the thrust pad to the grub screw.
Through the combination of grub screws DIN 6332 with various handles or knobs, simple clamping screws can be created.

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Strength values of screws (see page A20)



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DIN 6332 | Grub screws

*Complete with type index of the Grub screws

SK SKN

DIN 6332

Description	d1	l	d2 h11	d3	e1 ≈	e2 ≈ Type A	e2 ≈ Type P	e3 ≈	A/F	z1 ≈	z2 ≈	⚖
DIN 6332-M6-30-*	M 6	30	4.5	4	2.1	-	-	-	3	6	2.5	4
DIN 6332-M6-35-*	M 6	35	4.5	4	2.1	-	-	-	3	6	2.5	4
DIN 6332-M6-40-*	M 6	40	4.5	4	2.1	-	-	-	3	6	2.5	6
DIN 6332-M6-45-*	M 6	45	4.5	4	2.1	-	-	-	3	6	2.5	8
DIN 6332-M6-50-*	M 6	50	4.5	4	2.1	-	-	-	3	6	2.5	9
DIN 6332-M8-35-*	M 8	35	6	5.4	3	2.3	5.3	-	4	7.5	3	8
DIN 6332-M8-40-*	M 8	40	6	5.4	3	2.3	5.3	-	4	7.5	3	11
DIN 6332-M8-45-*	M 8	45	6	5.4	3	2.3	5.3	-	4	7.5	3	13
DIN 6332-M8-50-*	M 8	50	6	5.4	3	2.3	5.3	-	4	7.5	3	14
DIN 6332-M8-60-*	M 8	60	6	5.4	3	2.3	5.3	-	4	7.5	3	17
DIN 6332-M8-70-*	M 8	70	6	5.4	3	2.3	5.3	-	4	7.5	3	21
DIN 6332-M10-45-*	M 10	45	8	7.2	3.6	2.6	5.6	-	5	9	4.5	19
DIN 6332-M10-50-*	M 10	50	8	7.2	3.6	2.6	5.6	-	5	9	4.5	23
DIN 6332-M10-55-*	M 10	55	8	7.2	3.6	2.6	5.6	-	5	9	4.5	24
DIN 6332-M10-60-*	M 10	60	8	7.2	3.6	2.6	5.6	-	5	9	4.5	28
DIN 6332-M10-65-*	M 10	65	8	7.2	3.6	2.6	5.6	-	5	9	4.5	30
DIN 6332-M10-80-*	M 10	80	8	7.2	3.6	2.6	5.6	-	5	9	4.5	36
DIN 6332-M12-50-*	M 12	50	8	7.2	4.6	2.9	6.9	3.7	6	10	4.5	28
DIN 6332-M12-60-*	M 12	60	8	7.2	4.6	2.9	6.9	3.7	6	10	4.5	35
DIN 6332-M12-65-*	M 12	65	8	7.2	4.6	2.9	6.9	3.7	6	10	4.5	42
DIN 6332-M12-70-*	M 12	70	8	7.2	4.6	2.9	6.9	3.7	6	10	4.5	44
DIN 6332-M12-80-*	M 12	80	8	7.2	4.6	2.9	6.9	3.7	6	10	4.5	50
DIN 6332-M12-100-*	M 12	100	8	7.2	4.6	2.9	6.9	3.7	6	10	4.5	66
DIN 6332-M16-65-*	M 16	65	12	11	5.4	4.5	9.5	4	8	12	5	65
DIN 6332-M16-70-*	M 16	70	12	11	5.4	4.5	9.5	4	8	12	5	83
DIN 6332-M16-75-*	M 16	75	12	11	5.4	4.5	9.5	4	8	12	5	90
DIN 6332-M16-80-*	M 16	80	12	11	5.4	4.5	9.5	4	8	12	5	92
DIN 6332-M16-100-*	M 16	100	12	11	5.4	4.5	9.5	4	8	12	5	110
DIN 6332-M16-125-*	M 16	125	12	11	5.4	4.5	9.5	4	8	12	5	150
DIN 6332-M20-80-*	M 20	80	15.5	14.4	5.5	-	-	4.3	10	14	5.5	139
DIN 6332-M20-90-*	M 20	90	15.5	14.4	5.5	-	-	4.3	10	14	5.5	150
DIN 6332-M20-100-*	M 20	100	15.5	14.4	5.5	-	-	4.3	10	14	5.5	189
DIN 6332-M20-125-*	M 20	125	15.5	14.4	5.5	-	-	4.3	10	14	5.5	239
DIN 6332-M20-150-*	M 20	150	15.5	14.4	5.5	-	-	4.3	10	14	5.5	280

DIN 6332-ZB

Description	d1	l	d2 h11	d3	e1 ≈	e2 ≈ Type A	e2 ≈ Type P	e3 ≈	A/F	z1 ≈	z2 ≈	⚖
DIN 6332-M10-45-SKN-ZB	M 10	45	8	7.2	3.6	2.6	5.6	-	5	9	4.5	19
DIN 6332-M10-55-SKN-ZB	M 10	55	8	7.2	3.6	2.6	5.6	-	5	9	4.5	20
DIN 6332-M10-65-SKN-ZB	M 10	65	8	7.2	3.6	2.6	5.6	-	5	9	4.5	29
DIN 6332-M10-80-SKN-ZB	M 10	80	8	7.2	3.6	2.6	5.6	-	5	9	4.5	37
DIN 6332-M12-50-SKN-ZB	M 12	50	8	7.2	4.6	2.9	6.9	3.7	6	10	4.5	30
DIN 6332-M12-60-SKN-ZB	M 12	60	8	7.2	4.6	2.9	6.9	3.7	6	10	4.5	36
DIN 6332-M12-70-SKN-ZB	M 12	70	8	7.2	4.6	2.9	6.9	3.7	6	10	4.5	42
DIN 6332-M12-80-SKN-ZB	M 12	80	8	7.2	4.6	2.9	6.9	3.7	6	10	4.5	50
DIN 6332-M12-100-SKN-ZB	M 12	100	8	7.2	4.6	2.9	6.9	3.7	6	10	4.5	65
DIN 6332-M16-65-SKN-ZB	M 16	65	12	11	5.4	4.5	9.5	4	8	12	5	72
DIN 6332-M16-70-SKN-ZB	M 16	70	12	11	5.4	4.5	9.5	4	8	12	5	79
DIN 6332-M16-80-SKN-ZB	M 16	80	12	11	5.4	4.5	9.5	4	8	12	5	97
DIN 6332-M16-125-SKN-ZB	M 16	125	12	11	5.4	4.5	9.5	4	8	12	5	145
DIN 6332-M20-90-SKN-ZB	M 20	90	15.5	14.4	5.5	-	-	4.3	10	14	5.5	163
DIN 6332-M20-100-SKN-ZB	M 20	100	15.5	14.4	5.5	-	-	4.3	10	14	5.5	183
DIN 6332-M20-125-SKN-ZB	M 20	125	15.5	14.4	5.5	-	-	4.3	10	14	5.5	234
DIN 6332-M20-150-SKN-ZB	M 20	150	15.5	14.4	5.5	-	-	4.3	10	14	5.5	285

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GN 632.1

RoHS

Grub screws

with ball point for Thrust pads GN 631 / GN 631.5

SPECIFICATION

Steel

- Tensile strength class 5.8
- blackened

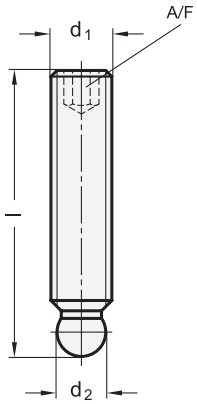
INFORMATION

Grub screws GN 632.1 with ball point are as a rule used with thrust pads GN 631 (see page 940) / GN 631.5 (see page 941).
The ball-Ø d_2 is smaller than the thread core-Ø, which allows fitting over the ball end.
The combination of grub screws GN 632.1 and thrust pads GN 631 / GN 631.5 with gripping elements easily makes clamping screws of many different types.

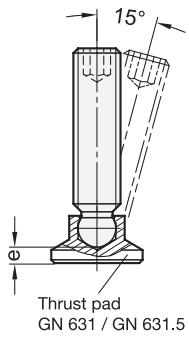
TECHNICAL INFORMATION

- Strength values of screws (see page A20)





Mounting example



GN 632.1

Description	d1	l	d2	A/F	Thrust pad GN 631 / GN 631.5 d1 - e	⚖
GN 632.1-M6-30	M 6	30	4.5 ±0.025	3	15 - 3.6 | 18 - 5.2 | 21 - 6 | 25 - 6.5 | 32 - 7	5
GN 632.1-M6-40	M 6	40	4.5 ±0.025	3	15 - 3.6 | 18 - 5.2 | 21 - 6 | 25 - 6.5 | 32 - 7	8
GN 632.1-M6-50	M 6	50	4.5 ±0.025	3	15 - 3.6 | 18 - 5.2 | 21 - 6 | 25 - 6.5 | 32 - 7	8
GN 632.1-M8-25	M 8	25	6.1 +0.05	4	15 - 2.5 | 18 - 4.2 | 21 - 5 | 25 - 5.5 | 32 - 6 | 40 - 8	7
GN 632.1-M8-40	M 8	40	6.1 +0.05	4	15 - 2.5 | 18 - 4.2 | 21 - 5 | 25 - 5.5 | 32 - 6 | 40 - 8	12
GN 632.1-M8-50	M 8	50	6.1 +0.05	4	15 - 2.5 | 18 - 4.2 | 21 - 5 | 25 - 5.5 | 32 - 6 | 40 - 8	15
GN 632.1-M8-63	M 8	63	6.1 +0.05	4	15 - 2.5 | 18 - 4.2 | 21 - 5 | 25 - 5.5 | 32 - 6 | 40 - 8	19
GN 632.1-M10-40	M 10	40	7.8 +0.05	5	18 - 3.8 | 21 - 4.3 | 25 - 4.6 | 32 - 5 | 40 - 7	16
GN 632.1-M10-50	M 10	50	7.8 +0.05	5	18 - 3.8 | 21 - 4.3 | 25 - 4.6 | 32 - 5 | 40 - 7	22
GN 632.1-M10-63	M 10	63	7.8 +0.05	5	18 - 3.8 | 21 - 4.3 | 25 - 4.6 | 32 - 5 | 40 - 7	29
GN 632.1-M10-80	M 10	80	7.8 +0.05	5	18 - 3.8 | 21 - 4.3 | 25 - 4.6 | 32 - 5 | 40 - 7	37
GN 632.1-M12-40	M 12	40	9.4 +0.05	6	21 - 3.4 | 25 - 3.6 | 32 - 4.2 | 40 - 6.2	20
GN 632.1-M12-63	M 12	63	9.4 +0.05	6	21 - 3.4 | 25 - 3.6 | 32 - 4.2 | 40 - 6.2	41
GN 632.1-M12-80	M 12	80	9.4 +0.05	6	21 - 3.4 | 25 - 3.6 | 32 - 4.2 | 40 - 6.2	53
GN 632.1-M12-100	M 12	100	9.4 +0.05	6	21 - 3.4 | 25 - 3.6 | 32 - 4.2 | 40 - 6.2	68

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GN 632.5

Stainless Steel-Grub screws

with ball point for Thrust pads GN 631 / GN 631.5

SPECIFICATION

Stainless Steel AISI 303

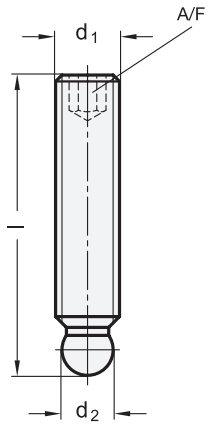
INFORMATION

Grub screws GN 632.5 with ball point are as a rule used with thrust pads GN 631 (see page 940) / GN 631.5 (see page 941).
The ball-Ø d_2 is smaller than the thread core-Ø, which allows fitting over the ball end.
The combination of grub screws GN 632.5 and thrust pads GN 631 / GN 631.5 with gripping elements easily makes clamping screws of many different types.

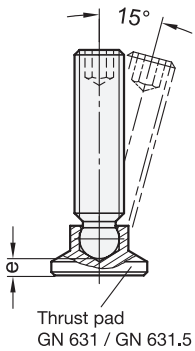


TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)
- Strength values of screws (see page A20)



Mounting example



GN 632.5 — **STAINLESS STEEL**

Description	d1	l	d2	A/F	Thrust pad GN 631 / GN 631.5 d1 - e	⚖
GN 632.5-M6-30	M 6	30	4.5 ±0.025	3	15 - 3.6 | 18 - 5.2 | 21 - 6 | 25 - 6.5 | 32 - 7	5
GN 632.5-M6-40	M 6	40	4.5 ±0.025	3	15 - 3.6 | 18 - 5.2 | 21 - 6 | 25 - 6.5 | 32 - 7	8
GN 632.5-M6-50	M 6	50	4.5 ±0.025	3	15 - 3.6 | 18 - 5.2 | 21 - 6 | 25 - 6.5 | 32 - 7	10
GN 632.5-M8-25	M 8	25	6.1 +0.05	4	15 - 2.5 | 18 - 4.2 | 21 - 5 | 25 - 5.5 | 32 - 6 | 40 - 8	6
GN 632.5-M8-40	M 8	40	6.1 +0.05	4	15 - 2.5 | 18 - 4.2 | 21 - 5 | 25 - 5.5 | 32 - 6 | 40 - 8	8
GN 632.5-M8-50	M 8	50	6.1 +0.05	4	15 - 2.5 | 18 - 4.2 | 21 - 5 | 25 - 5.5 | 32 - 6 | 40 - 8	14
GN 632.5-M8-63	M 8	63	6.1 +0.05	4	15 - 2.5 | 18 - 4.2 | 21 - 5 | 25 - 5.5 | 32 - 6 | 40 - 8	15
GN 632.5-M10-40	M 10	40	7.8 +0.05	5	18 - 3.8 | 21 - 4.3 | 25 - 4.6 | 32 - 5 | 40 - 7	17
GN 632.5-M10-50	M 10	50	7.8 +0.05	5	18 - 3.8 | 21 - 4.3 | 25 - 4.6 | 32 - 5 | 40 - 7	21
GN 632.5-M10-63	M 10	63	7.8 +0.05	5	18 - 3.8 | 21 - 4.3 | 25 - 4.6 | 32 - 5 | 40 - 7	35
GN 632.5-M10-80	M 10	80	7.8 +0.05	5	18 - 3,8 | 21 - 4.3 | 25 - 4.6 | 32 - 5 | 40 - 7	44
GN 632.5-M12-40	M 12	40	9.4 +0.05	6	21 - 3.4 | 25 - 3.6 | 32 - 4.2 | 40 - 6.2	20
GN 632.5-M12-63	M 12	63	9.4 +0.05	6	21 - 3.4 | 25 - 3.6 | 32 - 4.2 | 40 - 6.2	40
GN 632.5-M12-80	M 12	80	9.4 +0.05	6	21 - 3.4 | 25 - 3.6 | 32 - 4.2 | 40 - 6.2	48
GN 632.5-M12-100	M 12	100	9.4 +0.05	6	21 - 3.4 | 25 - 3.6 | 32 - 4.2 | 40 - 6.2	60

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Shoulder screws

Steel / Stainless Steel, with collar



SPECIFICATION

Version in Steel

- Tensile strength class 12.9
- blackened
- Adapter dimensions d_1 ground

Version in Stainless Steel NI

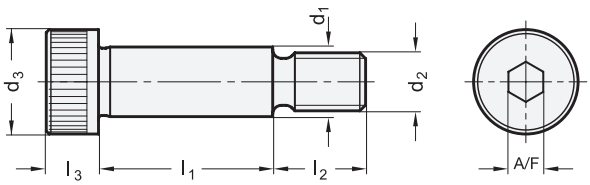
- AISI 304 (A2)
- Adapter dimension d_1 ground

INFORMATION

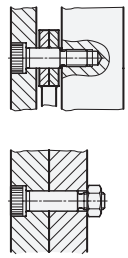
Shoulder screws ISO 7379 are cost-saving construction elements for a wide variety of different uses.
The maximum tightening torque must not be defined by strength class 12.9, it is instead limited by the relatively small bearing points (shoulders) and by the recesses at the transition point from d_1 to d_2 and d_3.
Standard deviation:
- no information about the concentricity 2 IT 13 and IT 10 2
- the official ISO standard sheet has the following dimensions for d_1 - d_2: 6.5-M5 / 13-M10 / 25-M20
- the dimensions 4-M3 and M4-M5 are not included in the official ISO standard sheet

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)
- ISO-Fundamental Tolerances (see page A21)
- Strength values of screws (see page A20)



Examples of application



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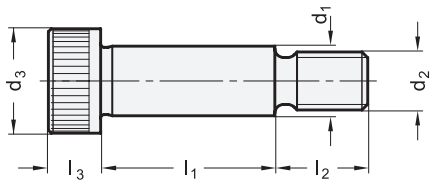
ISO 7379

Description	d1 f9	d2	l1 +0.25	d3	l2	l3	A/F	⚖
ISO 7379-4-M3-4	4	M 3	4	7	7	3	2	1
ISO 7379-4-M3-5	4	M 3	5	7	7	3	2	2
ISO 7379-4-M3-6	4	M 3	6	7	7	3	2	2
ISO 7379-4-M3-8	4	M 3	8	7	7	3	2	2
ISO 7379-4-M3-10	4	M 3	10	7	7	3	2	2
ISO 7379-4-M3-12	4	M 3	12	7	7	3	2	3
ISO 7379-4-M3-16	4	M 3	16	7	7	3	2	3
ISO 7379-4-M3-20	4	M 3	20	7	7	3	2	3
ISO 7379-4-M3-25	4	M 3	25	7	7	3	2	4
ISO 7379-4-M3-30	4	M 3	30	7	7	3	2	4
ISO 7379-5-M4-5	5	M 4	5	9	8	4	2.5	3
ISO 7379-5-M4-6	5	M 4	6	9	8	4	2.5	3
ISO 7379-5-M4-8	5	M 4	8	9	8	4	2.5	4
ISO 7379-5-M4-10	5	M 4	10	9	8	4	2.5	4
ISO 7379-5-M4-12	5	M 4	12	9	8	4	2.5	4
ISO 7379-5-M4-16	5	M 4	16	9	8	4	2.5	5
ISO 7379-5-M4-20	5	M 4	20	9	8	4	2.5	5
ISO 7379-5-M4-25	5	M 4	25	9	8	4	2.5	7
ISO 7379-5-M4-30	5	M 4	30	9	8	4	2.5	7
ISO 7379-5-M4-40	5	M 4	40	9	8	4	2.5	10
ISO 7379-6-M5-10	6	M 5	10	10	9.5	4.5	3	5
ISO 7379-6-M5-12	6	M 5	12	10	9.5	4.5	3	6
ISO 7379-6-M5-16	6	M 5	16	10	9.5	4.5	3	10
ISO 7379-6-M5-20	6	M 5	20	10	9.5	4.5	3	10
ISO 7379-6-M5-25	6	M 5	25	10	9.5	4.5	3	11
ISO 7379-6-M5-30	6	M 5	30	10	9.5	4.5	3	11
ISO 7379-6-M5-35	6	M 5	35	10	9.5	4.5	3	12
ISO 7379-6-M5-40	6	M 5	40	10	9.5	4.5	3	15
ISO 7379-6-M5-45	6	M 5	45	10	9.5	4.5	3	16
ISO 7379-6-M5-50	6	M 5	50	10	9.5	4.5	3	17
ISO 7379-6-M5-55	6	M 5	55	10	9.5	4.5	3	18
ISO 7379-6-M5-60	6	M 5	60	10	9.5	4.5	3	18
ISO 7379-6-M5-65	6	M 5	65	10	9.5	4.5	3	18
ISO 7379-6-M5-70	6	M 5	70	10	9.5	4.5	3	19
ISO 7379-6-M5-80	6	M 5	80	10	9.5	4.5	3	21
ISO 7379-8-M6-16	8	M 6	16	13	10	5.5	4	14
ISO 7379-8-M6-20	8	M 6	20	13	10	5.5	4	15
ISO 7379-8-M6-25	8	M 6	25	13	10	5.5	4	16
ISO 7379-8-M6-30	8	M 6	30	13	10	5.5	4	18
ISO 7379-8-M6-35	8	M 6	35	13	10	5.5	4	19
ISO 7379-8-M6-40	8	M 6	40	13	10	5.5	4	21
ISO 7379-8-M6-45	8	M 6	45	13	10	5.5	4	25
ISO 7379-8-M6-50	8	M 6	50	13	10	5.5	4	26
ISO 7379-8-M6-55	8	M 6	55	13	10	5.5	4	28
ISO 7379-8-M6-60	8	M 6	60	13	10	5.5	4	30
ISO 7379-8-M6-65	8	M 6	65	13	10	5.5	4	32
ISO 7379-8-M6-70	8	M 6	70	13	10	5.5	4	34
ISO 7379-8-M6-80	8	M 6	80	13	10	5.5	4	38
ISO 7379-8-M6-90	8	M 6	90	13	10	5.5	4	42
ISO 7379-8-M6-100	8	M 6	100	13	10	5.5	4	47
ISO 7379-10-M8-16	10	M 8	16	16	13	7	5	23
ISO 7379-10-M8-20	10	M 8	20	16	13	7	5	25
ISO 7379-10-M8-25	10	M 8	25	16	13	7	5	29
ISO 7379-10-M8-30	10	M 8	30	16	13	7	5	31
ISO 7379-10-M8-35	10	M 8	35	16	13	7	5	33
ISO 7379-10-M8-40	10	M 8	40	16	13	7	5	41
ISO 7379-10-M8-45	10	M 8	45	16	13	7	5	43

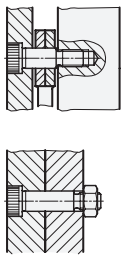
ISO 7379

Description	d1 f9	d2	l1 +0.25	d3	l2	l3	A/F	⚖
ISO 7379-10-M8-50	10	M 8	50	16	13	7	5	45
ISO 7379-10-M8-55	10	M 8	55	16	13	7	5	47
ISO 7379-10-M8-60	10	M 8	60	16	13	7	5	50
ISO 7379-10-M8-65	10	M 8	65	16	13	7	5	53
ISO 7379-10-M8-70	10	M 8	70	16	13	7	5	56
ISO 7379-10-M8-80	10	M 8	80	16	13	7	5	62
ISO 7379-10-M8-90	10	M 8	90	16	13	7	5	68
ISO 7379-10-M8-100	10	M 8	100	16	13	7	5	75
ISO 7379-12-M10-16	12	M 10	16	18	16	9	6	35
ISO 7379-12-M10-20	12	M 10	20	18	16	9	6	39
ISO 7379-12-M10-25	12	M 10	25	18	16	9	6	43
ISO 7379-12-M10-30	12	M 10	30	18	16	9	6	47
ISO 7379-12-M10-35	12	M 10	35	18	16	9	6	51
ISO 7379-12-M10-40	12	M 10	40	18	16	9	6	56
ISO 7379-12-M10-45	12	M 10	45	18	16	9	6	60
ISO 7379-12-M10-50	12	M 10	50	18	16	9	6	65
ISO 7379-12-M10-55	12	M 10	55	18	16	9	6	71
ISO 7379-12-M10-60	12	M 10	60	18	16	9	6	76
ISO 7379-12-M10-65	12	M 10	65	18	16	9	6	75
ISO 7379-12-M10-70	12	M 10	70	18	16	9	6	83
ISO 7379-12-M10-80	12	M 10	80	18	16	9	6	91
ISO 7379-12-M10-90	12	M 10	90	18	16	9	6	96
ISO 7379-12-M10-100	12	M 10	100	18	16	9	6	100
ISO 7379-16-M12-25	16	M 12	25	24	18	11	8	85
ISO 7379-16-M12-30	16	M 12	30	24	18	11	8	93
ISO 7379-16-M12-35	16	M 12	35	24	18	11	8	100
ISO 7379-16-M12-40	16	M 12	40	24	18	11	8	108
ISO 7379-16-M12-45	16	M 12	45	24	18	11	8	116
ISO 7379-16-M12-50	16	M 12	50	24	18	11	8	123
ISO 7379-16-M12-55	16	M 12	55	24	18	11	8	131
ISO 7379-16-M12-60	16	M 12	60	24	18	11	8	140
ISO 7379-16-M12-65	16	M 12	65	24	18	11	8	148
ISO 7379-16-M12-70	16	M 12	70	24	18	11	8	155
ISO 7379-16-M12-80	16	M 12	80	24	18	11	8	170
ISO 7379-16-M12-90	16	M 12	90	24	18	11	8	186
ISO 7379-16-M12-100	16	M 12	100	24	18	11	8	200
ISO 7379-20-M16-30	20	M 16	30	30	22	14	10	169
ISO 7379-20-M16-35	20	M 16	35	30	22	14	10	180
ISO 7379-20-M16-40	20	M 16	40	30	22	14	10	190
ISO 7379-20-M16-45	20	M 16	45	30	22	14	10	205
ISO 7379-20-M16-50	20	M 16	50	30	22	14	10	220
ISO 7379-20-M16-55	20	M 16	55	30	22	14	10	230
ISO 7379-20-M16-60	20	M 16	60	30	22	14	10	234
ISO 7379-20-M16-65	20	M 16	65	30	22	14	10	260
ISO 7379-20-M16-70	20	M 16	70	30	22	14	10	266
ISO 7379-20-M16-80	20	M 16	80	30	22	14	10	293
ISO 7379-20-M16-90	20	M 16	90	30	22	14	10	315
ISO 7379-20-M16-100	20	M 16	100	30	22	14	10	340
ISO 7379-24-M20-50	24	M 20	50	36	27	16	12	340
ISO 7379-24-M20-55	24	M 20	55	36	27	16	12	360
ISO 7379-24-M20-60	24	M 20	60	36	27	16	12	370
ISO 7379-24-M20-65	24	M 20	65	36	27	16	12	400
ISO 7379-24-M20-70	24	M 20	70	36	27	16	12	410
ISO 7379-24-M20-80	24	M 20	80	36	27	16	12	450
ISO 7379-24-M20-90	24	M 20	90	36	27	16	12	480
ISO 7379-24-M20-100	24	M 20	100	36	27	16	12	520

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Examples of application



ISO 7379-NI — **STAINLESS STEEL**

Description	d1 f9	d2	l1 +0.25	d3	l2	l3	A/F	⚖
ISO 7379-4-M3-4-NI	4	M 3	4	7	7	3	2	1
ISO 7379-4-M3-5-NI	4	M 3	5	7	7	3	2	2
ISO 7379-4-M3-6-NI	4	M 3	6	7	7	3	2	2
ISO 7379-4-M3-8-NI	4	M 3	8	7	7	3	2	2
ISO 7379-4-M3-10-NI	4	M 3	10	7	7	3	2	2
ISO 7379-4-M3-12-NI	4	M 3	12	7	7	3	2	2
ISO 7379-4-M3-16-NI	4	M 3	16	7	7	3	2	3
ISO 7379-5-M4-5-NI	5	M 4	5	9	8	4	2.5	3
ISO 7379-5-M4-6-NI	5	M 4	6	9	8	4	2.5	3
ISO 7379-5-M4-8-NI	5	M 4	8	9	8	4	2.5	4
ISO 7379-5-M4-10-NI	5	M 4	10	9	8	4	2.5	4
ISO 7379-5-M4-12-NI	5	M 4	12	9	8	4	2.5	4
ISO 7379-5-M4-16-NI	5	M 4	16	9	8	4	2.5	5
ISO 7379-5-M4-20-NI	5	M 4	20	9	8	4	2.5	5
ISO 7379-5-M4-25-NI	5	M 4	25	9	8	4	2.5	6
ISO 7379-5-M4-30-NI	5	M 4	30	9	8	4	2.5	7
ISO 7379-6-M5-10-NI	6	M 5	10	10	9.5	4.5	3	6
ISO 7379-6-M5-12-NI	6	M 5	12	10	9.5	4.5	3	6
ISO 7379-6-M5-16-NI	6	M 5	16	10	9.5	4.5	3	7
ISO 7379-6-M5-20-NI	6	M 5	20	10	9.5	4.5	3	8
ISO 7379-6-M5-25-NI	6	M 5	25	10	9.5	4.5	3	10
ISO 7379-6-M5-30-NI	6	M 5	30	10	9.5	4.5	3	10
ISO 7379-6-M5-40-NI	6	M 5	40	10	9.5	4.5	3	12
ISO 7379-6-M5-50-NI	6	M 5	50	10	9.5	4.5	3	14
ISO 7379-6-M5-60-NI	6	M 5	60	10	9.5	4.5	3	14
ISO 7379-8-M6-16-NI	8	M 6	16	13	11	5.5	4	8
ISO 7379-8-M6-20-NI	8	M 6	20	13	11	5.5	4	12
ISO 7379-8-M6-25-NI	8	M 6	25	13	11	5.5	4	16
ISO 7379-8-M6-30-NI	8	M 6	30	13	11	5.5	4	18
ISO 7379-8-M6-40-NI	8	M 6	40	13	11	5.5	4	21
ISO 7379-8-M6-50-NI	8	M 6	50	13	11	5.5	4	26
ISO 7379-8-M6-60-NI	8	M 6	60	13	11	5.5	4	27

ISO 7379-NI — **STAINLESS STEEL**

Description	d1 f9	d2	l1 +0.25	d3	l2	l3	A/F	⚖
ISO 7379-10-M8-16-NI	10	M 8	16	16	13	7	5	23
ISO 7379-10-M8-20-NI	10	M 8	20	16	13	7	5	25
ISO 7379-10-M8-25-NI	10	M 8	25	16	13	7	5	29
ISO 7379-10-M8-30-NI	10	M 8	30	16	13	7	5	32
ISO 7379-10-M8-40-NI	10	M 8	40	16	13	7	5	41
ISO 7379-10-M8-50-NI	10	M 8	50	16	13	7	5	45
ISO 7379-10-M8-60-NI	10	M 8	60	16	13	7	5	50
ISO 7379-10-M8-70-NI	10	M 8	70	16	13	7	5	56
ISO 7379-10-M8-80-NI	10	M 8	80	16	13	7	5	62
ISO 7379-10-M8-90-NI	10	M 8	90	16	13	7	5	68
ISO 7379-10-M8-100-NI	10	M 8	100	16	13	7	5	75
ISO 7379-12-M10-16-NI	12	M 10	16	18	16	9	6	35
ISO 7379-12-M10-20-NI	12	M 10	20	18	16	9	6	39
ISO 7379-12-M10-25-NI	12	M 10	25	18	16	9	6	43
ISO 7379-12-M10-30-NI	12	M 10	30	18	16	9	6	47
ISO 7379-12-M10-40-NI	12	M 10	40	18	16	9	6	56
ISO 7379-12-M10-50-NI	12	M 10	50	18	16	9	6	65
ISO 7379-12-M10-60-NI	12	M 10	60	18	16	9	6	76
ISO 7379-12-M10-70-NI	12	M 10	70	18	16	9	6	86
ISO 7379-12-M10-80-NI	12	M 10	80	18	16	9	6	91
ISO 7379-12-M10-90-NI	12	M 10	90	18	16	9	6	96
ISO 7379-12-M10-100-NI	12	M 10	100	18	16	9	6	100
ISO 7379-16-M12-30-NI	16	M 12	30	24	18	11	8	93
ISO 7379-16-M12-40-NI	16	M 12	40	24	18	11	8	110
ISO 7379-16-M12-50-NI	16	M 12	50	24	18	11	8	123
ISO 7379-16-M12-60-NI	16	M 12	60	24	18	11	8	136
ISO 7379-16-M12-70-NI	16	M 12	70	24	18	11	8	155
ISO 7379-16-M12-80-NI	16	M 12	80	24	18	11	8	170
ISO 7379-16-M12-90-NI	16	M 12	90	24	18	11	8	186
ISO 7379-16-M12-100-NI	16	M 12	100	24	18	11	8	200

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GN 732.1

Cylinder head shoulder bolts

SPECIFICATION

Steel **ST**

- Tensile strength class 5.8
- blackened
- case hardened (all round depth 0.2 to 0.4 mm)

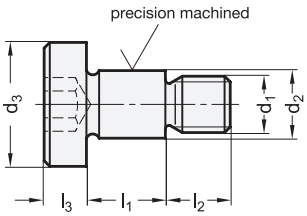
INFORMATION

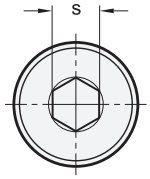
The dimensions d_2 / l_1 of the cylinder head shoulder bolts GN 732.1 permit a use as bearing pin for swing bolts DIN 444 (see page 935), swing nuts GN 444.2 (see page 936) and hub with eccentrical cam GN 919 (see page 1055).

TECHNICAL INFORMATION

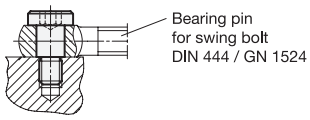
- Strength values of screws (see page A20)







Application example



GN 732.1

Description	d1	d2	l1 +0.20/+0.13	d3	l2	l3	s	⚖
GN 732.1-M5-6-5-ST	M 5	6 -0.03/-0.05	5	12	7	3	3	4
GN 732.1-M5-6-6-ST	M 5	6 -0.03/-0.05	6	12	7	3	3	4
GN 732.1-M5-6-7-ST	M 5	6 -0.03/-0.05	7	12	7	3	3	5
GN 732.1-M5-6-8-ST	M 5	6 -0.03/-0.05	8	12	7	3	3	5
GN 732.1-M6-8-5-ST	M 6	8 -0.05/-0.08	5	14	8	4	4	8
GN 732.1-M6-8-6-ST	M 6	8 -0.05/-0.08	6	14	8	4	4	9
GN 732.1-M6-8-8-ST	M 6	8 -0.05/-0.08	8	14	8	4	4	9
GN 732.1-M6-8-9-ST	M 6	8 -0.05/-0.08	9	14	8	4	4	9
GN 732.1-M6-8-10-ST	M 6	8 -0.05/-0.08	10	14	8	4	4	10
GN 732.1-M6-8-12-ST	M 6	8 -0.05/-0.08	12	14	8	4	4	10
GN 732.1-M6-8-13-ST	M 6	8 -0.05/-0.08	13	14	8	4	4	11
GN 732.1-M8-10-8-ST	M 8	10 -0.05/-0.08	8	16	11	5	5	15
GN 732.1-M8-10-10-ST	M 8	10 -0.05/-0.08	10	16	11	5	5	17
GN 732.1-M8-10-12-ST	M 8	10 -0.05/-0.08	12	16	11	5	5	18
GN 732.1-M8-10-14-ST	M 8	10 -0.05/-0.08	14	16	11	5	5	18
GN 732.1-M8-10-15-ST	M 8	10 -0.05/-0.08	15	16	11	5	5	19
GN 732.1-M10-12-12-ST	M 10	12 -0.05/-0.08	12	19	13	6	6	29
GN 732.1-M10-12-14-ST	M 10	12 -0.05/-0.08	14	19	13	6	6	30
GN 732.1-M10-12-16-ST	M 10	12 -0.05/-0.08	16	19	13	6	6	33
GN 732.1-M10-12-17-ST	M 10	12 -0.05/-0.08	17	19	13	6	6	33
GN 732.1-M12-14-14-ST	M 12	14 -0.05/-0.08	14	22	16	8	8	49
GN 732.1-M12-14-16-ST	M 12	14 -0.05/-0.08	16	22	16	8	8	51
GN 732.1-M12-14-18-ST	M 12	14 -0.05/-0.08	18	22	16	8	8	53

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Grub screws

with hardened pivot

SPECIFICATION

Types

- Type **A**: Semi-spherical pivot
- Type **B**: Pointed pivot

Steel

- Tensile strength class 5.8
- blackened

Thrust pivot
hardened

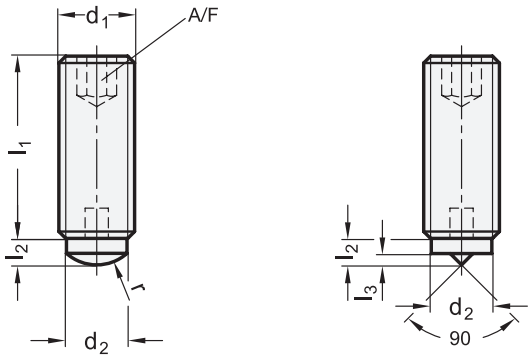
INFORMATION

Grub screws GN 913.2 with hardened spherical pivot (Type A) are used in such cases where point contact is required. They are a lower cost alternative to ball point screws GN 605 (see page 928).
Grub screws GN 913.2 with hardened pointed pivot (Type B) offer an alternative form of finish.

TECHNICAL INFORMATION

- Strength values of screws (see page A20)





*Complete with type index of the Grub screws

A	B
Semi-spherical pad	Pointed pad

GN 913.2

Description	d1	l1	d2	l2	l3	r	A/F	⚖
GN 913.2-M5-8-*	M 5	8	3	1	0.5	2.5	2.5	1
GN 913.2-M5-12-*	M 5	12	3	1	0.5	2.5	2.5	1
GN 913.2-M5-16-*	M 5	16	3	1	0.5	2.5	2.5	1
GN 913.2-M5-20-*	M 5	20	3	1	0.5	2.5	2.5	2
GN 913.2-M6-12-*	M 6	12	4	1.8	0.8	3	3	2
GN 913.2-M6-16-*	M 6	16	4	1.8	0.8	3	3	3
GN 913.2-M6-20-*	M 6	20	4	1.8	0.8	3	3	3
GN 913.2-M6-25-*	M 6	25	4	1.8	0.8	3	3	4
GN 913.2-M8-12-*	M 8	12	6	2.5	1	5	4	3
GN 913.2-M8-16-*	M 8	16	6	2.5	1	5	4	5
GN 913.2-M8-20-*	M 8	20	6	2.5	1	5	4	6
GN 913.2-M8-25-*	M 8	25	6	2.5	1	5	4	7
GN 913.2-M8-32-*	M 8	32	6	2.5	1	5	4	9
GN 913.2-M10-16-*	M 10	16	8	3.5	1.5	6	5	7
GN 913.2-M10-20-*	M 10	20	8	3.5	1.5	6	5	9
GN 913.2-M10-25-*	M 10	25	8	3.5	1.5	6	5	11
GN 913.2-M10-32-*	M 10	32	8	3.5	1.5	6	5	15
GN 913.2-M10-40-*	M 10	40	8	3.5	1.5	6	5	18

Weight type A

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GN 913.3

Grub screws

with brass / plastic pivot

SPECIFICATION

Screw Steel

- Tensile strength class 5.8
- blackened

Thrust pivot

- Brass **MS**
- Plastic (Polyacetal POM) **KU**

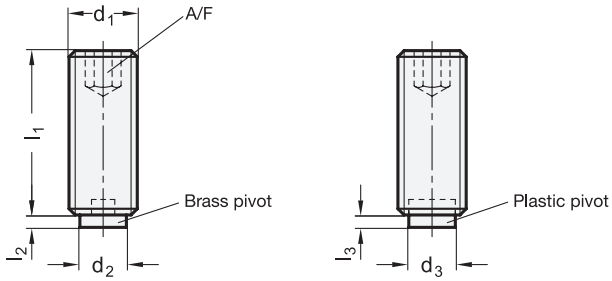
INFORMATION

Grub screws GN 913.3 with pads in brass or plastic are used in applications, where marks and damage on the workpiece are unacceptable.

TECHNICAL INFORMATION

- Plastic characteristics (see page A2)
- Strength values of screws (see page A20)





*Complete with type index of the Grub screws

MS	KU
Brass	Plastic

GN 913.3

Description	d1	l1	d2	d3	l2	l3	A/F	⚖
GN 913.3-M4-4-*	M 4	4**	2.5	-	0.5	-	2	1
GN 913.3-M4-5-*	M 4	5**	2.5	-	0.5	-	2	1
GN 913.3-M4-6-*	M 4	6	2.5	2	0.5	1	2	1
GN 913.3-M4-8-*	M 4	8	2.5	2	0.5	1	2	1
GN 913.3-M4-10-*	M 4	10	2.5	2	0.5	1	2	1
GN 913.3-M4-12-*	M 4	12	2.5	2	0.5	1	2	1
GN 913.3-M4-16-*	M 4	16	2.5	2	0.5	1	2	1
GN 913.3-M4-20-*	M 4	20	2.5	2	0.5	1	2	1
GN 913.3-M5-5-*	M 5	5**	3	-	0.5	-	2.5	1
GN 913.3-M5-6-*	M 5	6**	3	-	0.5	-	2.5	1
GN 913.3-M5-8-*	M 5	8	3	3	0.5	1	2.5	1
GN 913.3-M5-10-*	M 5	10	3	3	0.5	1	2.5	1
GN 913.3-M5-12-*	M 5	12	3	3	0.5	1	2.5	1
GN 913.3-M5-16-*	M 5	16	3	3	0.5	1	2.5	2
GN 913.3-M5-20-*	M 5	20	3	3	0.5	1	2.5	2
GN 913.3-M5-25-*	M 5	25	3	3	0.5	1	2.5	3
GN 913.3-M6-6-*	M 6	6	4	3.5	1	1.3	3	1
GN 913.3-M6-8-*	M 6	8	4	3.5	1	1.3	3	1
GN 913.3-M6-10-*	M 6	10	4	3.5	1	1.3	3	1
GN 913.3-M6-12-*	M 6	12	4	3.5	1	1.3	3	2
GN 913.3-M6-16-*	M 6	16	4	3.5	1	1.3	3	2
GN 913.3-M6-20-*	M 6	20	4	3.5	1	1.3	3	3
GN 913.3-M6-25-*	M 6	25	4	3.5	1	1.3	3	4
GN 913.3-M6-32-*	M 6	32	4	3.5	1	1.3	3	5
GN 913.3-M6-40-*	M 6	40	4	3.5	1	1.3	3	6
GN 913.3-M6-50-*	M 6	50	4	3.5	1	1.3	3	8

GN 913.3

Description	d1	l1	d2	d3	l2	l3	A/F	⚖
GN 913.3-M8-8-*	M 8	8	6	5	1.5	1.6	4	2
GN 913.3-M8-10-*	M 8	10**	6	-	1.5	-	4	2
GN 913.3-M8-12-*	M 8	12	6	5	1.5	1.6	4	3
GN 913.3-M8-16-*	M 8	16	6	5	1.5	1.6	4	5
GN 913.3-M8-20-*	M 8	20	6	5	1.5	1.6	4	6
GN 913.3-M8-25-*	M 8	25	6	5	1.5	1.6	4	7
GN 913.3-M8-32-*	M 8	32	6	5	1.5	1.6	4	10
GN 913.3-M8-40-*	M 8	40	6	5	1.5	1.6	4	12
GN 913.3-M8-50-*	M 8	50	6	5	1.5	1.6	4	15
GN 913.3-M8-63-*	M 8	63	6	5	1.5	1.6	4	19
GN 913.3-M10-16-*	M 10	16	8	6.5	2	1.9	5	7
GN 913.3-M10-20-*	M 10	20	8	6.5	2	1.9	5	9
GN 913.3-M10-25-*	M 10	25	8	6.5	2	1.9	5	11
GN 913.3-M10-32-*	M 10	32	8	6.5	2	1.9	5	15
GN 913.3-M10-40-*	M 10	40	8	6.5	2	1.9	5	18
GN 913.3-M10-50-*	M 10	50	8	6.5	2	1.9	5	23
GN 913.3-M10-63-*	M 10	63	8	6.5	2	1.9	5	30
GN 913.3-M10-80-*	M 10	80	8	6.5	2	1.9	5	38
GN 913.3-M12-20-*	M 12	20	10	8	2	2.1	6	12
GN 913.3-M12-25-*	M 12	25	10	8	2	2.1	6	16
GN 913.3-M12-32-*	M 12	32	10	8	2	2.1	6	21
GN 913.3-M12-40-*	M 12	40	10	8	2	2.1	6	27
GN 913.3-M12-50-*	M 12	50	10	8	2	2.1	6	34
GN 913.3-M12-63-*	M 12	63	10	8	2	2.1	6	43
GN 913.3-M12-80-*	M 12	80	10	8	2	2.1	6	56
GN 913.3-M12-100-*	M 12	100	10	8	2	2.1	6	70

** These lengths are only available with brass pivot.

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Stainless Steel-Grub screws

with brass / plastic pivot

SPECIFICATION

Screw
Stainless Steel AISI 303

Thrust pivot

- Brass **MS**
- Plastic (Polyacetal POM) **KU**

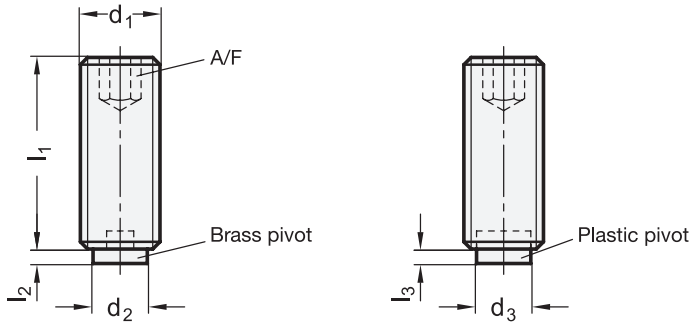
INFORMATION

Stainless Steel-Grub screws GN 913.5 with pivots in brass or plastic are used in applications, where marks and damage on the workpiece are unacceptable.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)





*Complete with type index of the Grub screws

MS	KU
Brass	Plastic

GN 913.5 — STAINLESS STEEL

Description	d1	l1	d2	d3	l2	l3	A/F	⚖
GN 913.5-M3-3-*	M 3	3	1.9	1.5	0.5	0.8	1.5	1
GN 913.5-M3-4-*	M 3	4	1.9	1.5	0.5	0.8	1.5	1
GN 913.5-M3-5-*	M 3	5	1.9	1.5	0.5	0.8	1.5	1
GN 913.5-M3-6-*	M 3	6	1.9	1.5	0.5	0.8	1.5	1
GN 913.5-M3-8-*	M 3	8	1.9	1.5	0.5	0.8	1.5	1
GN 913.5-M3-10-*	M 3	10	1.9	1.5	0.5	0.8	1.5	1
GN 913.5-M4-4-*	M 4	4	2.5	2	0.5	1.2	1.5	1
GN 913.5-M4-5-*	M 4	5	2.5	2	0.5	1	1.5	1
GN 913.5-M4-6-*	M 4	6	2.5	2	0.5	1	2	1
GN 913.5-M4-8-*	M 4	8	2.5	2	0.5	1	2	1
GN 913.5-M4-10-*	M 4	10	2.5	2	0.5	1	2	1
GN 913.5-M4-12-*	M 4	12	2.5	2	0.5	1	2	1
GN 913.5-M4-16-*	M 4	16	2.5	2	0.5	1	2	1
GN 913.5-M5-5-*	M 5	5	3	3	0.5	1	2	1
GN 913.5-M5-6-*	M 5	6	3	3	0.5	1	2	1
GN 913.5-M5-8-*	M 5	8	3	3	0.5	1	2.5	1
GN 913.5-M5-10-*	M 5	10	3	3	0.5	1	2.5	1
GN 913.5-M5-12-*	M 5	12	3	3	0.5	1	2.5	1
GN 913.5-M5-16-*	M 5	16	3	3	0.5	1	2.5	2
GN 913.5-M5-20-*	M 5	20	3	3	0.5	1	2.5	2
GN 913.5-M6-6-*	M 6	6	4	3.5	1	1.3	3	1
GN 913.5-M6-8-*	M 6	8	4	3.5	1	1.3	3	1
GN 913.5-M6-10-*	M 6	10	4	3.5	1	1.3	3	1
GN 913.5-M6-12-*	M 6	12	4	3.5	1	1.3	3	2

GN 913.5 — STAINLESS STEEL

Description	d1	l1	d2	d3	l2	l3	A/F	⚖
GN 913.5-M6-16-*	M 6	16	4	3.5	1	1.3	3	2
GN 913.5-M6-20-*	M 6	20	4	3.5	1	1.3	3	3
GN 913.5-M6-25-*	M 6	25	4	3.5	1	1.3	3	4
GN 913.5-M6-32-*	M 6	32	4	3.5	1	1.3	3	5
GN 913.5-M8-8-*	M 8	8	6	5	1.5	1.6	4	1
GN 913.5-M8-10-*	M 8	10	6	5	1.5	1.6	4	1
GN 913.5-M8-12-*	M 8	12	6	5	1.5	1.6	4	2
GN 913.5-M8-16-*	M 8	16	6	5	1.5	1.6	4	4
GN 913.5-M8-20-*	M 8	20	6	5	1.5	1.6	4	5
GN 913.5-M8-25-*	M 8	25	6	5	1.5	1.6	4	7
GN 913.5-M8-32-*	M 8	32	6	5	1.5	1.6	4	6
GN 913.5-M8-40-*	M 8	40	6	5	1.5	1.6	4	9
GN 913.5-M10-16-*	M 10	16	8	6.5	2	1.9	5	5
GN 913.5-M10-20-*	M 10	20	8	6.5	2	1.9	5	8
GN 913.5-M10-25-*	M 10	25	8	6.5	2	1.9	5	10
GN 913.5-M10-32-*	M 10	32	8	6.5	2	1.9	5	15
GN 913.5-M10-40-*	M 10	40	8	6.5	2	1.9	5	17
GN 913.5-M10-50-*	M 10	50	8	6.5	2	1.9	5	22
GN 913.5-M12-20-*	M 12	20	10	8	2	2.1	6	9
GN 913.5-M12-25-*	M 12	25	10	8	2	2.1	6	13
GN 913.5-M12-32-*	M 12	32	10	8	2	2.1	6	18
GN 913.5-M12-40-*	M 12	40	10	8	2	2.1	6	24
GN 913.5-M12-50-*	M 12	50	10	8	2	2.1	6	30
GN 913.5-M12-63-*	M 12	63	10	8	2	2.1	6	40

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GN 806

Protective caps

SPECIFICATION

Types

- Type **A**: Protective cap without screw / threaded bushing
- Type **B**: Protective cap with threaded bushing

Protective cap
Rubber (CR)

- Hardness 85±5 Shore A
- black

Threaded bushing
Steel
zinc plated, blue passivated

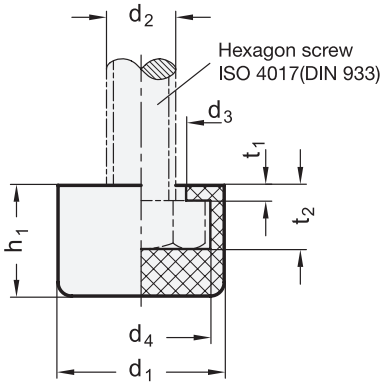
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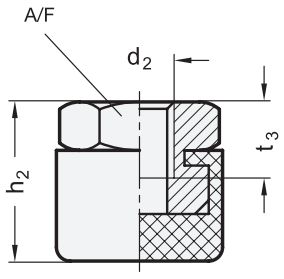
Protective caps GN 806 can be used with hexagon screws ISO 4017 or together with threaded pins type B as thrust pins with soft clamping head surface, or as soft end stop bolts.
A typical application is in conjunction with toggle clamps.

TECHNICAL INFORMATION

- Elastomer characteristics (see page A32)







GN 806

Description	d1	d2	d3	d4	h1	h2	A/F	t1	t2	t3 min.	⚖
GN 806-11-A	11*	M 4	5.5	8.2	6.5	-	-	1	4	-	1
GN 806-12-A	12	M 5	7	9.3	8	-	-	1.5	5.3	-	1
GN 806-15-A	15	M 6	8.5	11.5	10	-	-	2	6	-	2
GN 806-19-A	19	M 8	11	15	13	-	-	2	7.5	-	3
GN 806-24-A	24	M 10	13	20	16	-	-	2.2	9.2	-	6
GN 806-26-A	26	M 12	16	22	19	-	-	2.5	10.5	-	9
GN 806-12-B	12	M 5	7	9.3	8	11	10	1.5	5.3	6	4
GN 806-15-B	15	M 6	8.5	11.5	10	14	12	2	6	7	7
GN 806-19-B	19	M 8	11	15	13	18	16	2	7.5	8.5	16
GN 806-24-B	24	M 10	13	20	16	23.5	21	2.2	9.2	10	38
GN 806-26-B	26	M 12	16	22	19	26	22	2.5	10.5	12	43

* Protective caps d_1 = 11 are not available in Type B (with a threaded bush)

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Setting bolts

SPECIFICATION

Types

- Type **AK**: Locating surface with rounded end, hardened
- Type **BK**: Locating surface with Polyurethan disc

Screw
Steel, tensile strength class 5.8

Type AK
blackened
Locating surface, hardened (HRC 45)

Type BK
nickel plated
Polyurethan disc, 90 Shore

Hexagon nut
Steel zinc plated, blue passivated



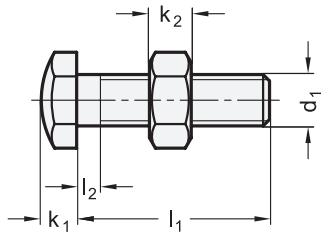
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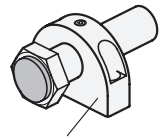
Setting bolts GN 251 are produced with a hardened and rounded head which can be used as support or setting bolt as an end stop. The version with Polyurethan disc (Type BK) functions as damping element or protection for sensitive surfaces.

TECHNICAL INFORMATION

- Strength values of screws (see page A20)

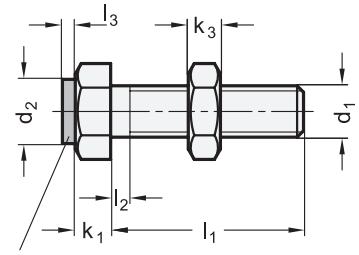
Type **AK**





Mounting block GN 412.1

Type **BK**



PU disc

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GN 251-AK

Description	d1	l1	e	k1	k2	l2 max.	s	⚖
GN 251-M3-10-AK	M 3	10	6.4	2	2.4	1.5	5.5	1
GN 251-M3-15-AK	M 3	15	6.4	2	2.4	1.5	5.5	1
GN 251-M3-20-AK	M 3	20	6.4	2	2.4	1.5	5.5	2
GN 251-M3-25-AK	M 3	25	6.4	2	2.4	1.5	5.5	2
GN 251-M3-30-AK	M 3	30	6.4	2	2.4	1.5	5.5	2
GN 251-M4-10-AK	M 4	10	8.1	2.8	3.2	2.1	7	2
GN 251-M4-15-AK	M 4	15	8.1	2.8	3.2	2.1	7	3
GN 251-M4-20-AK	M 4	20	8.1	2.8	3.2	2.1	7	3
GN 251-M4-25-AK	M 4	25	8.1	2.8	3.2	2.1	7	3
GN 251-M4-30-AK	M 4	30	8.1	2.8	3.2	2.1	7	4
GN 251-M4-35-AK	M 4	35	8.1	2.8	3.2	2.1	7	4
GN 251-M4-40-AK	M 4	40	8.1	2.8	3.2	2.1	7	4
GN 251-M5-10-AK	M 5	10	9.2	3.5	4	2.4	8	4
GN 251-M5-15-AK	M 5	15	9.2	3.5	4	2.4	8	4
GN 251-M5-20-AK	M 5	20	9.2	3.5	4	2.4	8	5
GN 251-M5-25-AK	M 5	25	9.2	3.5	4	2.4	8	5
GN 251-M5-30-AK	M 5	30	9.2	3.5	4	2.4	8	6
GN 251-M5-35-AK	M 5	35	9.2	3.5	4	2.4	8	6
GN 251-M5-40-AK	M 5	40	9.2	3.5	4	2.4	8	7
GN 251-M5-50-AK	M 5	50	9.2	3.5	4	2.4	8	8
GN 251-M6-15-AK	M 6	15	11.5	4	5	3	10	7
GN 251-M6-20-AK	M 6	20	11.5	4	5	3	10	8
GN 251-M6-25-AK	M 6	25	11.5	4	5	3	10	9
GN 251-M6-30-AK	M 6	30	11.5	4	5	3	10	10
GN 251-M6-35-AK	M 6	35	11.5	4	5	3	10	11
GN 251-M6-40-AK	M 6	40	11.5	4	5	3	10	12
GN 251-M6-50-AK	M 6	50	11.5	4	5	3	10	14
GN 251-M8-15-AK	M 8	15	15	5.5	6.5	3.7	13	15
GN 251-M8-20-AK	M 8	20	15	5.5	6.5	3.7	13	16
GN 251-M8-25-AK	M 8	25	15	5.5	6.5	3.7	13	18
GN 251-M8-30-AK	M 8	30	15	5.5	6.5	3.7	13	19
GN 251-M8-35-AK	M 8	35	15	5.5	6.5	3.7	13	20
GN 251-M8-40-AK	M 8	40	15	5.5	6.5	3.7	13	23
GN 251-M8-50-AK	M 8	50	15	5.5	6.5	3.7	13	27
GN 251-M8-60-AK	M 8	60	15	5.5	6.5	3.7	13	28
GN 251-M8-70-AK	M 8	70	15	5.5	6.5	3.7	13	32
GN 251-M8-80-AK	M 8	80	15	5.5	6.5	3.7	13	35
GN 251-M10-30-AK	M 10	30	19.6	7	8	4.5	17	36
GN 251-M10-35-AK	M 10	35	19.6	7	8	4.5	17	36
GN 251-M10-40-AK	M 10	40	19.6	7	8	4.5	17	36
GN 251-M10-50-AK	M 10	50	19.6	7	8	4.5	17	48
GN 251-M10-60-AK	M 10	60	19.6	7	8	4.5	17	54
GN 251-M10-70-AK	M 10	70	19.6	7	8	4.5	17	61
GN 251-M10-80-AK	M 10	80	19.6	7	8	4.5	17	61
GN 251-M12-30-AK	M 12	30	21.9	8	10	5.2	19	53
GN 251-M12-35-AK	M 12	35	21.9	8	10	5.2	19	56
GN 251-M12-40-AK	M 12	40	21.9	8	10	5.2	19	60
GN 251-M12-50-AK	M 12	50	21.9	8	10	5.2	19	67
GN 251-M12-60-AK	M 12	60	21.9	8	10	5.2	19	78
GN 251-M12-70-AK	M 12	70	21.9	8	10	5.2	19	87
GN 251-M12-80-AK	M 12	80	21.9	8	10	5.2	19	89
GN 251-M16-50-AK	M 16	50	27.7	10	13	6	24	127
GN 251-M16-60-AK	M 16	60	27.7	10	13	6	24	142
GN 251-M16-70-AK	M 16	70	27.7	10	13	6	24	158
GN 251-M16-80-AK	M 16	80	27.7	10	13	6	24	174

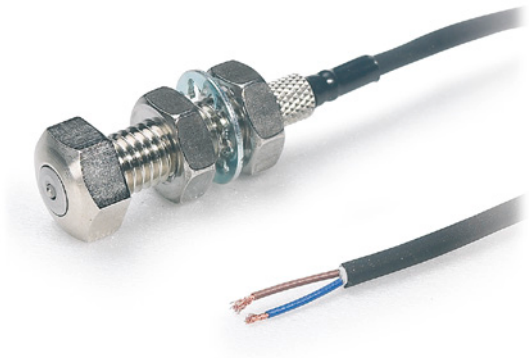
GN 251-BK

Description	d1	l1	d2	e	k1	k3	l2 max.	l3	s	⚖
GN 251-M4-15-BK	M 4	15	5	8.1	2.8	2.4	2.1	1.5	7	2
GN 251-M4-20-BK	M 4	20	5	8.1	2.8	2.4	2.1	1.5	7	3
GN 251-M4-25-BK	M 4	25	5	8.1	2.8	2.4	2.1	1.5	7	3
GN 251-M4-30-BK	M 4	30	5	8.1	2.8	2.4	2.1	1.5	7	3
GN 251-M4-35-BK	M 4	35	5	8.1	2.8	2.4	2.1	1.5	7	4
GN 251-M4-40-BK	M 4	40	5	8.1	2.8	2.4	2.1	1.5	7	4
GN 251-M5-15-BK	M 5	15	6	9.2	3.5	3.2	2.4	1.5	8	4
GN 251-M5-20-BK	M 5	20	6	9.2	3.5	3.2	2.4	1.5	8	4
GN 251-M5-25-BK	M 5	25	6	9.2	3.5	3.2	2.4	1.5	8	5
GN 251-M5-30-BK	M 5	30	6	9.2	3.5	3.2	2.4	1.5	8	6
GN 251-M5-35-BK	M 5	35	6	9.2	3.5	3.2	2.4	1.5	8	6
GN 251-M5-40-BK	M 5	40	6	9.2	3.5	3.2	2.4	1.5	8	7
GN 251-M6-20-BK	M 6	20	8	11.5	4	3.6	3	2	10	7
GN 251-M6-25-BK	M 6	25	8	11.5	4	3.6	3	2	10	8
GN 251-M6-30-BK	M 6	30	8	11.5	4	3.6	3	2	10	9
GN 251-M6-35-BK	M 6	35	8	11.5	4	3.6	3	2	10	10
GN 251-M6-40-BK	M 6	40	8	11.5	4	3.6	3	2	10	10
GN 251-M6-45-BK	M 6	45	8	11.5	4	3.6	3	2	10	11
GN 251-M6-50-BK	M 6	50	8	11.5	4	3.6	3	2	10	12
GN 251-M8-20-BK	M 8	20	10	15	5.5	5	3.7	2	13	15
GN 251-M8-25-BK	M 8	25	10	15	5.5	5	3.7	2	13	16
GN 251-M8-30-BK	M 8	30	10	15	5.5	5	3.7	2	13	18
GN 251-M8-35-BK	M 8	35	10	15	5.5	5	3.7	2	13	20
GN 251-M8-40-BK	M 8	40	10	15	5.5	5	3.7	2	13	21
GN 251-M8-45-BK	M 8	45	10	15	5.5	5	3.7	2	13	23
GN 251-M8-50-BK	M 8	50	10	15	5.5	5	3.7	2	13	24
GN 251-M10-20-BK	M 10	20	13	19.6	7	6	4.5	2	17	29
GN 251-M10-25-BK	M 10	25	13	19.6	7	6	4.5	2	17	31
GN 251-M10-30-BK	M 10	30	13	19.6	7	6	4.5	2	17	34
GN 251-M10-35-BK	M 10	35	13	19.6	7	6	4.5	2	17	36
GN 251-M10-40-BK	M 10	40	13	19.6	7	6	4.5	2	17	39
GN 251-M10-45-BK	M 10	45	13	19.6	7	6	4.5	2	17	41
GN 251-M10-50-BK	M 10	50	13	19.6	7	6	4.5	2	17	43

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Setting bolts

with limit switch



SPECIFICATION

Types

- Type **S**: Normally open
- Type **O**: Normally closed

Bolt Steel

- Tensile strength class 5.8
- Hexagon head hardened to HRC 45
- nickel plated

Hexagon nuts Steel
nickel plated

End limit switch

- Voltage: 5 ... 24 V DC
- Switching load recom.: 5-10 mA
- Switching load: 20 mA DC max.
- Life expectancy: 3 mio. operations
- Temperature range: -10 °C ... +80 °C
- Load: ~1 N

Supply cable PVC:

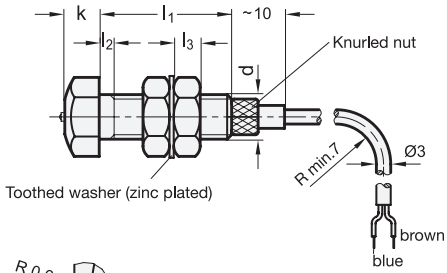
- Ø 3 ; 2-phase, ~ 2 meters long
- max. tensile load 30 N
- grey for Type S (normally open)
- black for Type O (normally closed)

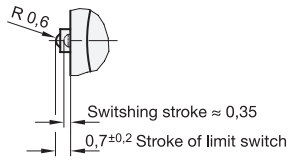
INFORMATION

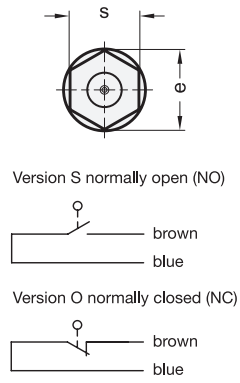
Setting bolts GN 251.2 are supplied with a hardened round head which serves as a firm end stop.
In general these bolts are installed with a locknut.
When the workpiece contacts the bolt head an electrical signal is transmitted by means of the limit switch.
By means of the knurled nut, the limit switch can be installed resp. taken out without having the need to loosen the setting bolt.
Operating instructions showing more important technical information are included with every setting bolt.

TECHNICAL INFORMATION

- Strength values of screws (see page A20)
- IP Protection classes (see page A32)







GN 251.2

Description	d	l1	e	k	l2 max.	l3	s	⚖
GN 251.2-M6-21-O	M 6	21	11.5	4	3	3.6	10	50
GN 251.2-M8-25-O	M 8	25	15	7	4	5	13	71
GN 251.2-M10-25-O	M 10	25	19.6	7	4	6	17	80
GN 251.2-M6-21-S	M 6	21	11.5	4	3	3.6	10	44
GN 251.2-M8-25-S	M 8	25	15	7	4	5	13	60
GN 251.2-M10-25-S	M 10	25	19.6	7	4	6	17	80

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GN 933.5

Stainless Steel-
Hexagon head screws
with brass / plastic / spherical pivot

SPECIFICATION

Types

- Type **MS**: Brass pivot
- Type **KU**: Plastic pivot (Polyacetal POM)
- Type **ZK**: Spherical pivot

Hexagon head screw
Stainless Steel AISI 304 (A2)

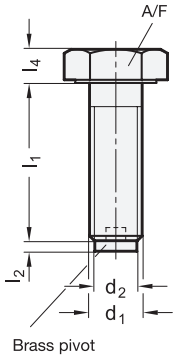


INFORMATION

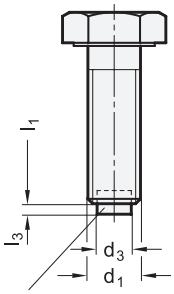
Stainless Steel-Hexagon head screws GN 933.5 with brass or plastic pivots are used when pressure dents or damage to the clamping surface must be avoided.
Stainless Steel-Hexagon head screws GN 933.5, type ZK, feature a spherical pivot whose diameter d_4 is smaller than the core diameter d_1 of the thread. This makes them suitable for holding thrust pads GN 631 (see page 940) / GN 631.5 (see page 941) which must be ordered separately.

TECHNICAL INFORMATION

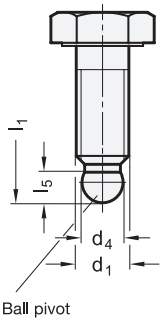
- Plastic characteristics (see page A2)
- Stainless Steel characteristics (see page A26)



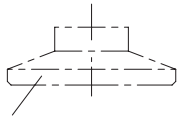
Brass pivot



Plastic pivot



Ball pivot


Thrust pad
GN 631 / GN 631.5

*Complete with type index of the Hexagon head screw

MS	KU	ZK
Brass pivot	Plastic pivot	Spherical pivot

GN 933.5 **STAINLESS STEEL**

Description	d1	l1	d2	d3	d4	l2	l3	l4 ≈	l5 ≈	A/F	⚖
GN 933.5-M6-16-*	M 6	16	4	3.5	-	1	1.3	4	-	10	5
GN 933.5-M6-20-*	M 6	20	4	3.5	4.5 ±0.03	1	1.3	4	5.1	10	6
GN 933.5-M6-25-*	M 6	25	4	3.5	4.5 ±0.03	1	1.3	4	5.1	10	6
GN 933.5-M6-30-*	M 6	30	4	3.5	4.5 ±0.03	1	1.3	4	5.1	10	7
GN 933.5-M6-35-*	M 6	35	4	3.5	4.5 ±0.03	1	1.3	4	5.1	10	8
GN 933.5-M8-20-*	M 8	20	6	5	-	1.5	1.6	5.3	-	13	11
GN 933.5-M8-25-*	M 8	25	6	5	6.1 ±0.05	1.5	1.6	5.3	6.2	13	13
GN 933.5-M8-30-*	M 8	30	6	5	6.1 ±0.05	1.5	1.6	5.3	6.2	13	14
GN 933.5-M8-35-*	M 8	35	6	5	6.1 ±0.05	1.5	1.6	5.3	6.2	13	16
GN 933.5-M8-45-*	M 8	45	6	5	6.1 ±0.05	1.5	1.6	5.3	6.2	13	19
GN 933.5-M10-25-*	M 10	25	8	6.5	-	2	1.9	6.4	-	17	23
GN 933.5-M10-30-*	M 10	30	8	6.5	7.8 ±0.05	2	1.9	6.4	7.3	17	25
GN 933.5-M10-35-*	M 10	35	8	6.5	7.8 ±0.05	2	1.9	6.4	7.3	17	28
GN 933.5-M10-45-*	M 10	45	8	6.5	7.8 ±0.05	2	1.9	6.4	7.3	17	32
GN 933.5-M10-55-*	M 10	55	8	6.5	7.8 ±0.05	2	1.9	6.4	7.3	17	37

Weight type MS

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Ball point screws

Steel / Stainless Steel

SPECIFICATION

Version in Steel

Types

- Type **A**: full ball
- Type **B**: flat ball
- Type **V**: flat ball, with swivel limiting stop
- Type **VR**: flat ball, with swivel limiting stop, corrugated

Steel

- Tensile strength class 10.9
- blackened

Ball

- hardened
- blank

Version in Stainless Steel

Types

- Type **AN**: full ball
- Type **BN**: flat ball
- Type **VN**: flat ball, with swivel limiting stop
- Type **VRN**: flat ball, with swivel limiting stop, corrugated

Screw
Stainless Steel AISI 304

Ball
Steel AISI 440C
hardened



INFORMATION

Ball point screws GN 605 with full ball (Type A / Type AN) are used in applications where a ball point contact is required.
The flat faced moving ball (Type B/ Type BN) allows a clamping or supporting of non parallel surfaces.
The ball of Type V/VN/VR/VRN can be swivelled to a maximum of 9° to ensure that clamping is always maintained on the flat section of the ball.

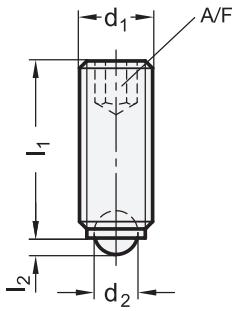
ON REQUEST

- Ball point screws with (full) plastic ball (Type AK)

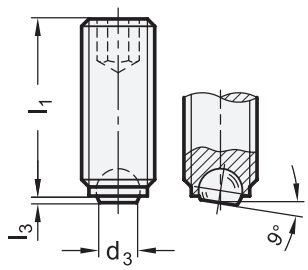
TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)
- Strength values of screws (see page A20)

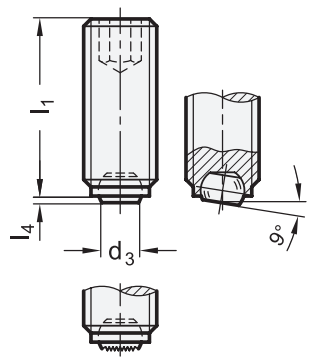
Type **A / AN**



Type **B / BN**



Type **V / VN**
Type **VR / VRN**



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GN 605-A/B

Description	d1	l1	d2	d3	l2 ≈	l3 ≈	A/F	Static load in N	⚖
GN 605-M4-6-A	M 4	6	2.5	-	0.8	-	2	3500	1
GN 605-M4-10-A	M 4	10	2.5	-	0.8	-	2	3500	1
GN 605-M4-16-A	M 4	16	2.5	-	0.8	-	2	3500	1
GN 605-M5-8-A	M 5	8	3	-	1.0	-	2.5	5000	1
GN 605-M5-12-A	M 5	12	3	-	1.0	-	2.5	5000	1
GN 605-M5-20-A	M 5	20	3	-	1.0	-	2.5	5000	2
GN 605-M6-10-A	M 6	10	4	-	1.3	-	3	9000	2
GN 605-M6-16-A	M 6	16	4	-	1.3	-	3	9000	3
GN 605-M6-20-A	M 6	20	4	-	1.3	-	3	9000	3
GN 605-M6-25-A	M 6	25	4	-	1.3	-	3	9000	4
GN 605-M8-10-A	M 8	10	5.5	-	1.8	-	4	15000	3
GN 605-M8-12-A	M 8	12	5.5	-	1.8	-	4	15000	3
GN 605-M8-20-A	M 8	20	5.5	-	1.8	-	4	15000	5
GN 605-M8-25-A	M 8	25	5.5	-	1.8	-	4	15000	8
GN 605-M8-30-A	M 8	30	5.5	-	1.8	-	4	15000	9
GN 605-M10-12-A	M 10	12	7	-	2.3	-	5	24000	5
GN 605-M10-16-A	M 10	16	7	-	2.3	-	5	24000	7
GN 605-M10-20-A	M 10	20	7	-	2.3	-	5	24000	9
GN 605-M10-25-A	M 10	25	7	-	2.3	-	5	24000	11
GN 605-M10-35-A	M 10	35	7	-	2.3	-	5	24000	16
GN 605-M12-16-A	M 12	16	8.5	-	2.8	-	6	30000	10
GN 605-M12-20-A	M 12	20	8.5	-	2.8	-	6	30000	10
GN 605-M12-30-A	M 12	30	8.5	-	2.8	-	6	30000	15
GN 605-M12-40-A	M 12	40	8.5	-	2.8	-	6	30000	24
GN 605-M16-20-A	M 16	20	12	-	4.3	-	8	73000	22
GN 605-M16-25-A	M 16	25	12	-	4.3	-	8	73000	28
GN 605-M16-35-A	M 16	35	12	-	4.3	-	8	73000	41
GN 605-M16-50-A	M 16	50	12	-	4.3	-	8	73000	59
GN 605-M4-6-B	M 4	6	-	2	-	0.3	2	3500	1
GN 605-M4-10-B	M 4	10	-	2	-	0.3	2	3500	1
GN 605-M4-16-B	M 4	16	-	2	-	0.3	2	3500	2
GN 605-M5-8-B	M 5	8	-	2.5	-	0.4	2.5	5000	7
GN 605-M5-12-B	M 5	12	-	2.5	-	0.4	2.5	5000	1
GN 605-M5-20-B	M 5	20	-	2.5	-	0.4	2.5	5000	2
GN 605-M6-10-B	M 6	10	-	3.2	-	0.6	3	9000	2
GN 605-M6-16-B	M 6	16	-	3.2	-	0.6	3	9000	2
GN 605-M6-20-B	M 6	20	-	3.2	-	0.6	3	9000	3
GN 605-M6-25-B	M 6	25	-	3.2	-	0.6	3	9000	4
GN 605-M8-10-B	M 8	10	-	4.5	-	0.8	4	15000	3
GN 605-M8-12-B	M 8	12	-	4.5	-	0.8	4	15000	3
GN 605-M8-20-B	M 8	20	-	4.5	-	0.8	4	15000	5
GN 605-M8-25-B	M 8	25	-	4.5	-	0.8	4	15000	6
GN 605-M8-30-B	M 8	30	-	4.5	-	0.8	4	15000	9
GN 605-M10-12-B	M 10	12	-	6	-	0.8	5	24000	5
GN 605-M10-16-B	M 10	16	-	6	-	0.8	5	24000	7
GN 605-M10-20-B	M 10	20	-	6	-	0.8	5	24000	9
GN 605-M10-25-B	M 10	25	-	6	-	0.8	5	24000	11
GN 605-M10-35-B	M 10	35	-	6	-	0.8	5	24000	16
GN 605-M12-16-B	M 12	16	-	7.2	-	1	6	30000	10
GN 605-M12-20-B	M 12	20	-	7.2	-	1	6	30000	13
GN 605-M12-30-B	M 12	30	-	7.2	-	1	6	30000	20
GN 605-M12-40-B	M 12	40	-	7.2	-	1	6	30000	28
GN 605-M16-20-B	M 16	20	-	10.7	-	1.3	8	73000	22
GN 605-M16-25-B	M 16	25	-	10.7	-	1.3	8	73000	28
GN 605-M16-35-B	M 16	35	-	10.7	-	1.3	8	73000	41
GN 605-M16-50-B	M 16	50	-	10.7	-	1.3	8	73000	48

GN 605-V/VR

Description	d1	l1	d3	l4 ≈	A/F	⚖
GN 605-M6-10-V	M 6	10	3.2	0.45	3	1
GN 605-M6-16-V	M 6	16	3.2	0.45	3	2
GN 605-M6-20-V	M 6	20	3.2	0.45	3	3
GN 605-M6-25-V	M 6	25	3.2	0.45	3	4
GN 605-M8-10-V	M 8	10	4.5	0.5	4	2
GN 605-M8-12-V	M 8	12	4.5	0.5	4	3
GN 605-M8-20-V	M 8	20	4.5	0.5	4	5
GN 605-M8-25-V	M 8	25	4.5	0.5	4	7
GN 605-M8-30-V	M 8	30	4.5	0.5	4	8
GN 605-M10-12-V	M 10	12	6	0.6	5	4
GN 605-M10-16-V	M 10	16	6	0.6	5	6
GN 605-M10-20-V	M 10	20	6	0.6	5	8
GN 605-M10-25-V	M 10	25	6	0.6	5	10
GN 605-M10-35-V	M 10	35	6	0.6	5	15
GN 605-M12-16-V	M 12	16	7.2	0.75	6	8
GN 605-M12-20-V	M 12	20	7.2	0.75	6	11
GN 605-M12-30-V	M 12	30	7.2	0.75	6	18
GN 605-M12-40-V	M 12	40	7.2	0.75	6	25
GN 605-M16-20-V	M 16	20	10.7	1.0	8	20
GN 605-M16-25-V	M 16	25	10.7	1.0	8	27
GN 605-M16-35-V	M 16	35	10.7	1.0	8	40
GN 605-M16-50-V	M 16	50	10.7	1.0	8	59
GN 605-M6-10-VR	M 6	10	3.2	0.45	3	1
GN 605-M6-16-VR	M 6	16	3.2	0.45	3	2
GN 605-M6-20-VR	M 6	20	3.2	0.45	3	3
GN 605-M6-25-VR	M 6	25	3.2	0.45	3	4
GN 605-M8-10-VR	M 8	10	4.5	0.5	4	2
GN 605-M8-12-VR	M 8	12	4.5	0.5	4	3
GN 605-M8-20-VR	M 8	20	4.5	0.5	4	5
GN 605-M8-25-VR	M 8	25	4.5	0.5	4	7
GN 605-M8-30-VR	M 8	30	4.5	0.5	4	8
GN 605-M10-12-VR	M 10	12	6	0.6	5	4
GN 605-M10-16-VR	M 10	16	6	0.6	5	6
GN 605-M10-20-VR	M 10	20	6	0.6	5	8
GN 605-M10-25-VR	M 10	25	6	0.6	5	10
GN 605-M10-35-VR	M 10	35	6	0.6	5	15
GN 605-M12-16-VR	M 12	16	7.2	0.75	6	8
GN 605-M12-20-VR	M 12	20	7.2	0.75	6	11
GN 605-M12-30-VR	M 12	30	7.2	0.75	6	19
GN 605-M12-40-VR	M 12	40	7.2	0.75	6	25
GN 605-M16-20-VR	M 16	20	10.7	1.0	8	20
GN 605-M16-25-VR	M 16	25	10.7	1.0	8	27
GN 605-M16-35-VR	M 16	35	10.7	1.0	8	40
GN 605-M16-50-VR	M 16	50	10.7	1.0	8	59

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GN 605-AN/BN

STAINLESS STEEL

Description	d1	l1	d2	d3	l2 ≈	l3 ≈	A/F	Static load in N	⚖
GN 605-M4-6-AN	M 4	6	2.5	-	0.8	-	2	2040	1
GN 605-M4-10-AN	M 4	10	2.5	-	0.8	-	2	2040	1
GN 605-M4-16-AN	M 4	16	2.5	-	0.8	-	2	2040	1
GN 605-M5-8-AN	M 5	8	3	-	1.0	-	2.5	3000	1
GN 605-M5-12-AN	M 5	12	3	-	1.0	-	2.5	3000	1
GN 605-M5-20-AN	M 5	20	3	-	1.0	-	2.5	3000	2
GN 605-M6-10-AN	M 6	10	4	-	1.3	-	3	4500	2
GN 605-M6-16-AN	M 6	16	4	-	1.3	-	3	4500	3
GN 605-M6-20-AN	M 6	20	4	-	1.3	-	3	4500	3
GN 605-M6-25-AN	M 6	25	4	-	1.3	-	3	4500	4
GN 605-M8-10-AN	M 8	10	5.5	-	1.8	-	4	9000	3
GN 605-M8-12-AN	M 8	12	5.5	-	1.8	-	4	9000	3
GN 605-M8-20-AN	M 8	20	5.5	-	1.8	-	4	9000	6
GN 605-M8-25-AN	M 8	25	5.5	-	1.8	-	4	9000	6
GN 605-M8-30-AN	M 8	30	5.5	-	1.8	-	4	9000	6
GN 605-M10-12-AN	M 10	12	7	-	2.3	-	5	14400	5
GN 605-M10-16-AN	M 10	16	7	-	2.3	-	5	14400	7
GN 605-M10-20-AN	M 10	20	7	-	2.3	-	5	14400	9
GN 605-M10-25-AN	M 10	25	7	-	2.3	-	5	14400	11
GN 605-M10-35-AN	M 10	35	7	-	2.3	-	5	14400	16
GN 605-M12-16-AN	M 12	16	8.5	-	2.8	-	6	18000	10
GN 605-M12-20-AN	M 12	20	8.5	-	2.8	-	6	18000	13
GN 605-M12-30-AN	M 12	30	8.5	-	2.8	-	6	18000	20
GN 605-M12-40-AN	M 12	40	8.5	-	2.8	-	6	18000	25
GN 605-M16-20-AN	M 16	20	12	-	4.3	-	8	43800	22
GN 605-M16-25-AN	M 16	25	12	-	4.3	-	8	43800	28
GN 605-M16-35-AN	M 16	35	12	-	4.3	-	8	43800	41
GN 605-M16-50-AN	M 16	50	12	-	4.3	-	8	43800	48
GN 605-M4-6-BN	M 4	6	2.5	2	0.8	0.3	2	2040	38
GN 605-M4-10-BN	M 4	10	2.5	2	0.8	0.3	2	2040	1
GN 605-M4-16-BN	M 4	16	2.5	2	0.8	0.3	2	2040	1
GN 605-M5-8-BN	M 5	8	3	2.5	1.0	0.4	2.5	3000	2
GN 605-M5-12-BN	M 5	12	3	2.5	1.0	0.4	2.5	3000	2
GN 605-M5-20-BN	M 5	20	3	2.5	1.0	0.4	2.5	3000	2
GN 605-M6-10-BN	M 6	10	4	3.2	1.3	0.6	3	4500	1
GN 605-M6-16-BN	M 6	16	4	3.2	1.3	0.6	3	4500	2
GN 605-M6-20-BN	M 6	20	4	3.2	1.3	0.6	3	4500	3
GN 605-M6-25-BN	M 6	25	4	3.2	1.3	0.6	3	4500	4
GN 605-M8-10-BN	M 8	10	5.5	4.5	1.8	0.8	4	9000	2
GN 605-M8-12-BN	M 8	12	5.5	4.5	1.8	0.8	4	9000	3
GN 605-M8-20-BN	M 8	20	5.5	4.5	1.8	0.8	4	9000	5
GN 605-M8-25-BN	M 8	25	5.5	4.5	1.8	0.8	4	9000	7
GN 605-M8-30-BN	M 8	30	5.5	4.5	1.8	0.8	4	9000	8
GN 605-M10-12-BN	M 10	12	7	6	2.3	0.8	5	14400	4
GN 605-M10-16-BN	M 10	16	7	6	2.3	0.8	5	14400	6
GN 605-M10-20-BN	M 10	20	7	6	2.3	0.8	5	14400	8
GN 605-M10-25-BN	M 10	25	7	6	2.3	0.8	5	14400	10
GN 605-M10-35-BN	M 10	35	7	6	2.3	0.8	5	14400	15
GN 605-M12-16-BN	M 12	16	8.5	7.2	2.8	1.0	6	18000	8
GN 605-M12-20-BN	M 12	20	8.5	7.2	2.8	1.0	6	18000	11
GN 605-M12-30-BN	M 12	30	8.5	7.2	2.8	1.0	6	18000	19
GN 605-M12-40-BN	M 12	40	8.5	7.2	2.8	1.0	6	18000	25
GN 605-M16-20-BN	M 16	20	12	10.7	4.3	1.3	8	43800	20
GN 605-M16-25-BN	M 16	25	12	10.7	4.3	1.3	8	43800	27
GN 605-M16-35-BN	M 16	35	12	10.7	4.3	1.3	8	43800	40
GN 605-M16-50-BN	M 16	50	12	10.7	4.3	1.3	8	43800	59

GN 605-VN/NRN

STAINLESS STEEL

Description	d1	l1	d2	d3	l4 ≈	A/F	⚖
GN 605-M6-10-VN	M 6	10	4	3.2	0.45	3	1
GN 605-M6-16-VN	M 6	16	4	3.2	0.45	3	2
GN 605-M6-20-VN	M 6	20	4	3.2	0.45	3	3
GN 605-M6-25-VN	M 6	25	4	3.2	0.45	3	4
GN 605-M8-10-VN	M 8	10	5.5	4.5	0.5	4	2
GN 605-M8-12-VN	M 8	12	5.5	4.5	0.5	4	3
GN 605-M8-20-VN	M 8	20	5.5	4.5	0.5	4	5
GN 605-M8-25-VN	M 8	25	5.5	4.5	0.5	4	7
GN 605-M8-30-VN	M 8	30	5.5	4.5	0.5	4	8
GN 605-M10-12-VN	M 10	12	7	6	0.6	5	4
GN 605-M10-16-VN	M 10	16	7	6	0.6	5	6
GN 605-M10-20-VN	M 10	20	7	6	0.6	5	8
GN 605-M10-25-VN	M 10	25	7	6	0.6	5	10
GN 605-M10-35-VN	M 10	35	7	6	0.6	5	15
GN 605-M12-16-VN	M 12	16	8.5	7.2	0.75	6	8
GN 605-M12-20-VN	M 12	20	8.5	7.2	0.75	6	11
GN 605-M12-30-VN	M 12	30	8.5	7.2	0.75	6	19
GN 605-M12-40-VN	M 12	40	8.5	7.2	0.75	6	25
GN 605-M16-20-VN	M 16	20	12	10.7	1.0	8	20
GN 605-M16-25-VN	M 16	25	12	10.7	1.0	8	27
GN 605-M16-35-VN	M 16	35	12	10.7	1.0	8	40
GN 605-M16-50-VN	M 16	50	12	10.7	1.0	8	59
GN 605-M6-10-VRN	M 6	10	4	3.2	0.45	3	1
GN 605-M6-16-VRN	M 6	16	4	3.2	0.45	3	2
GN 605-M6-20-VRN	M 6	20	4	3.2	0.45	3	3
GN 605-M6-25-VRN	M 6	25	4	3.2	0.45	3	4
GN 605-M8-10-VRN	M 8	10	5.5	4.5	0.5	4	2
GN 605-M8-12-VRN	M 8	12	5.5	4.5	0.5	4	3
GN 605-M8-20-VRN	M 8	20	5.5	4.5	0.5	4	5
GN 605-M8-25-VRN	M 8	25	5.5	4.5	0.5	4	7
GN 605-M8-30-VRN	M 8	30	5.5	4.5	0.5	4	8
GN 605-M10-12-VRN	M 10	12	7	6	0.6	5	4
GN 605-M10-16-VRN	M 10	16	7	6	0.6	5	6
GN 605-M10-20-VRN	M 10	20	7	6	0.6	5	8
GN 605-M10-25-VRN	M 10	25	7	6	0.6	5	10
GN 605-M10-35-VRN	M 10	35	7	6	0.6	5	15
GN 605-M12-16-VRN	M 12	16	8.5	7.2	0.75	6	8
GN 605-M12-20-VRN	M 12	20	8.5	7.2	0.75	6	11
GN 605-M12-30-VRN	M 12	30	8.5	7.2	0.75	6	19
GN 605-M12-40-VRN	M 12	40	8.5	7.2	0.75	6	25
GN 605-M16-20-VRN	M 16	20	12	10.7	1.0	8	20
GN 605-M16-25-VRN	M 16	25	12	10.7	1.0	8	27
GN 605-M16-35-VRN	M 16	35	12	10.7	1.0	8	40
GN 605-M16-50-VRN	M 16	50	12	10.7	1.0	8	59

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Ball point screws

Steel / Stainless Steel



SPECIFICATION

Version in Steel

Types

- Type **A**: full ball
- Type **B**: flat ball
- Type **V**: flat ball, with swivel limiting stop
- Type **VR**: flat ball, with swivel limiting stop, corrugated

Steel

- Tensile strength class 12.9
- blackened

Ball

- hardened
- blank

Version in Stainless Steel

Types

- Type **AN**: full ball
- Type **BN**: flat ball
- Type **VN**: flat ball, with swivel limiting stop
- Type **VRN**: flat ball, with swivel limiting stop, corrugated

Screw
Stainless Steel AISI 304

Ball
Stainless Steel AISI 440C
hardened

INFORMATION

Ball point screws GN 606 with full ball (Type A / Type AN) are used in applications where a ball point contact is required.
The flat faced moving ball (Type B / Type BN) allows a clamping or supporting of non parallel surfaces.
The ball of Type V/VN/VR/VRN can be swivelled to a maximum of 9° to ensure that clamping is always maintained on the flat section of the ball.

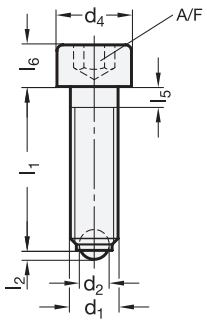
ON REQUEST

- Ball point screws with (full) plastic ball (Type AK)

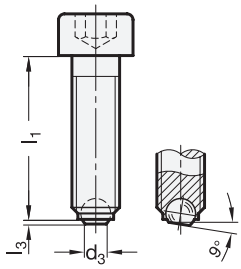
TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)
- Strength values of screws (see page A20)

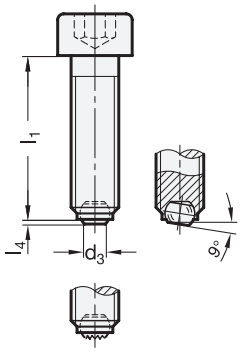
Type **A / AN**



Type **B / BN**



Type **V / VN**
Type **VR / VRN**



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GN 606-A/B

Description	d1	l1	d2	d3	d4	l2 ≈	l3 ≈	l5	l6	A/F	Static load in N	⚖
GN 606-M4-10-A	M 4	10	2.5	-	7	0.8	-	2.1	4	3	3500	2
GN 606-M4-12-A	M 4	12	2.5	-	7	0.8	-	2.1	4	3	3500	2
GN 606-M4-16-A	M 4	16	2.5	-	7	0.8	-	2.1	4	3	3500	2
GN 606-M4-20-A	M 4	20	2.5	-	7	0.8	-	2.1	4	3	3500	2
GN 606-M4-25-A	M 4	25	2.5	-	7	0.8	-	2.1	4	3	3500	3
GN 606-M5-12-A	M 5	12	3	-	8.5	1.0	-	2.4	5	4	5000	3
GN 606-M5-16-A	M 5	16	3	-	8.5	1.0	-	2.4	5	4	5000	3
GN 606-M5-20-A	M 5	20	3	-	8.5	1.0	-	2.4	5	4	5000	4
GN 606-M5-25-A	M 5	25	3	-	8.5	1.0	-	2.4	5	4	5000	4
GN 606-M5-30-A	M 5	30	3	-	8.5	1.0	-	2.4	5	4	5000	5
GN 606-M6-16-A	M 6	16	4	-	10	1.3	-	3	6	5	9000	6
GN 606-M6-20-A	M 6	20	4	-	10	1.3	-	3	6	5	9000	7
GN 606-M6-25-A	M 6	25	4	-	10	1.3	-	3	6	5	9000	8
GN 606-M6-30-A	M 6	30	4	-	10	1.3	-	3	6	5	9000	9
GN 606-M6-40-A	M 6	40	4	-	10	1.3	-	3	6	5	9000	11
GN 606-M8-20-A	M 8	20	5.5	-	13	1.8	-	3.5	8	6	15000	14
GN 606-M8-30-A	M 8	30	5.5	-	13	1.8	-	3.5	8	6	15000	15
GN 606-M8-35-A	M 8	35	5.5	-	13	1.8	-	3.5	8	6	15000	19
GN 606-M8-40-A	M 8	40	5.5	-	13	1.8	-	3.5	8	6	15000	19
GN 606-M8-50-A	M 8	50	5.5	-	13	1.8	-	3.5	8	6	15000	25
GN 606-M10-25-A	M 10	25	7	-	16	2.3	-	4.5	10	8	24000	26
GN 606-M10-30-A	M 10	30	7	-	16	2.3	-	4.5	10	8	24000	26
GN 606-M10-40-A	M 10	40	7	-	16	2.3	-	4.5	10	8	24000	34
GN 606-M10-50-A	M 10	50	7	-	16	2.3	-	4.5	10	8	24000	37
GN 606-M10-60-A	M 10	60	7	-	16	2.3	-	4.5	10	8	24000	45
GN 606-M12-30-A	M 12	30	8.5	-	18	2.8	-	5	12	10	30000	36
GN 606-M12-50-A	M 12	50	8.5	-	18	2.8	-	5	12	10	30000	56
GN 606-M12-80-A	M 12	80	8.5	-	18	2.8	-	5	12	10	30000	74
GN 606-M16-40-A	M 16	40	12	-	24	4.3	-	6	16	14	73000	91
GN 606-M16-60-A	M 16	60	12	-	24	4.3	-	6	16	14	73000	122
GN 606-M16-80-A	M 16	80	12	-	24	4.3	-	6	16	14	73000	154
GN 606-M4-10-B	M 4	10	-	2	7	-	0.2	2.1	4	3	3500	2
GN 606-M4-12-B	M 4	12	-	2	7	-	0.2	2.1	4	3	3500	2
GN 606-M4-16-B	M 4	16	-	2	7	-	0.2	2.1	4	3	3500	2
GN 606-M4-20-B	M 4	20	-	2	7	-	0.2	2.1	4	3	3500	2
GN 606-M4-25-B	M 4	25	-	2	7	-	0.2	2.1	4	3	3500	3
GN 606-M5-12-B	M 5	12	-	2.5	8.5	-	0.4	2.4	5	4	5000	3
GN 606-M5-16-B	M 5	16	-	2.5	8.5	-	0.4	2.4	5	4	5000	3
GN 606-M5-20-B	M 5	20	-	2.5	8.5	-	0.4	2.4	5	4	5000	4
GN 606-M5-25-B	M 5	25	-	2.5	8.5	-	0.4	2.4	5	4	5000	4
GN 606-M5-30-B	M 5	30	-	2.5	8.5	-	0.4	2.4	5	4	5000	5
GN 606-M6-16-B	M 6	16	-	3.2	10	-	0.6	3	6	5	9000	2
GN 606-M6-20-B	M 6	20	-	3.2	10	-	0.6	3	6	5	9000	2
GN 606-M6-25-B	M 6	25	-	3.2	10	-	0.6	3	6	5	9000	8
GN 606-M6-30-B	M 6	30	-	3.2	10	-	0.6	3	6	5	9000	9
GN 606-M6-40-B	M 6	40	-	3.2	10	-	0.6	3	6	5	9000	11
GN 606-M8-20-B	M 8	20	-	4.5	13	-	0.8	3.5	8	6	15000	11
GN 606-M8-30-B	M 8	30	-	4.5	13	-	0.8	3.5	8	6	15000	11
GN 606-M8-35-B	M 8	35	-	4.5	13	-	0.8	3.5	8	6	15000	19
GN 606-M8-40-B	M 8	40	-	4.5	13	-	0.8	3.5	8	6	15000	19
GN 606-M8-50-B	M 8	50	-	4.5	13	-	0.8	3.5	8	6	15000	25
GN 606-M10-25-B	M 10	25	-	6	16	-	0.8	4.5	10	8	24000	26
GN 606-M10-30-B	M 10	30	-	6	16	-	0.8	4.5	10	8	24000	30
GN 606-M10-40-B	M 10	40	-	6	16	-	0.8	4.5	10	8	24000	34
GN 606-M10-50-B	M 10	50	-	6	16	-	0.8	4.5	10	8	24000	36
GN 606-M10-60-B	M 10	60	-	6	16	-	0.8	4.5	10	8	24000	47

GN 606-A/B

Description	d1	l1	d2	d3	d4	l2 ≈	l3 ≈	l5	l6	A/F	Static load in N	⚖
GN 606-M12-30-B	M 12	30	-	7.2	18	-	1	5	12	10	30000	40
GN 606-M12-50-B	M 12	50	-	7.2	18	-	1	5	12	10	30000	56
GN 606-M12-80-B	M 12	80	-	7.2	18	-	1	5	12	10	30000	70
GN 606-M16-40-B	M 16	40	-	10.7	24	-	1.3	6	16	14	73000	91
GN 606-M16-60-B	M 16	60	-	10.7	24	-	1.3	6	16	14	73000	122
GN 606-M16-80-B	M 16	80	-	10.7	24	-	1.3	6	16	14	73000	154

GN 606-V/VR

Description	d1	l1	d3	d4	l4 ≈	l5	l6	A/F	⚖
GN 606-M6-16-V	M 6	16	3.2	10	0.45	3	6	5	6
GN 606-M6-20-V	M 6	20	3.2	10	0.45	3	6	5	7
GN 606-M6-25-V	M 6	25	3.2	10	0.45	3	6	5	8
GN 606-M6-30-V	M 6	30	3.2	10	0.45	3	6	5	9
GN 606-M6-40-V	M 6	40	3.2	10	0.45	3	6	5	11
GN 606-M8-20-V	M 8	20	4.5	13	0.5	3.5	8	6	13
GN 606-M8-30-V	M 8	30	4.5	13	0.5	3.5	8	6	15
GN 606-M8-35-V	M 8	35	4.5	13	0.5	3.5	8	6	17
GN 606-M8-40-V	M 8	40	4.5	13	0.5	3.5	8	6	19
GN 606-M8-50-V	M 8	50	4.5	13	0.5	3.5	8	6	23
GN 606-M10-25-V	M 10	25	6	16	0.6	4.5	10	8	25
GN 606-M10-30-V	M 10	30	6	16	0.6	4.5	10	8	26
GN 606-M10-40-V	M 10	40	6	16	0.6	4.5	10	8	31
GN 606-M10-50-V	M 10	50	6	16	0.6	4.5	10	8	38
GN 606-M10-60-V	M 10	60	6	16	0.6	4.5	10	8	44
GN 606-M12-30-V	M 12	30	7.2	18	0.75	5	12	10	38
GN 606-M12-50-V	M 12	50	7.2	18	0.75	5	12	10	54
GN 606-M12-80-V	M 12	80	7.2	18	0.75	5	12	10	80
GN 606-M16-40-V	M 16	40	10.7	24	1.0	6	16	14	92
GN 606-M16-60-V	M 16	60	10.7	24	1.0	6	16	14	123
GN 606-M16-80-V	M 16	80	10.7	24	1.0	6	16	14	151
GN 606-M6-16-VR	M 6	16	3.2	10	0.45	3	6	5	6
GN 606-M6-20-VR	M 6	20	3.2	10	0.45	3	6	5	7
GN 606-M6-25-VR	M 6	25	3.2	10	0.45	3	6	5	8
GN 606-M6-30-VR	M 6	30	3.2	10	0.45	3	6	5	9
GN 606-M6-40-VR	M 6	40	3.2	10	0.45	3	6	5	11
GN 606-M8-20-VR	M 8	20	4.5	13	0.5	3.5	8	6	13
GN 606-M8-30-VR	M 8	30	4.5	13	0.5	3.5	8	6	15
GN 606-M8-35-VR	M 8	35	4.5	13	0.5	3.5	8	6	17
GN 606-M8-40-VR	M 8	40	4.5	13	0.5	3.5	8	6	19
GN 606-M8-50-VR	M 8	50	4.5	13	0.5	3.5	8	6	23
GN 606-M10-25-VR	M 10	25	6	16	0.6	4.5	10	8	25
GN 606-M10-30-VR	M 10	30	6	16	0.6	4.5	10	8	26
GN 606-M10-40-VR	M 10	40	6	16	0.6	4.5	10	8	31
GN 606-M10-50-VR	M 10	50	6	16	0.6	4.5	10	8	37
GN 606-M10-60-VR	M 10	60	6	16	0.6	4.5	10	8	44
GN 606-M12-30-VR	M 12	30	7.2	18	0.75	5	12	10	38
GN 606-M12-50-VR	M 12	50	7.2	18	0.75	5	12	10	54
GN 606-M12-80-VR	M 12	80	7.2	18	0.75	5	12	10	80
GN 606-M16-40-VR	M 16	40	10.7	24	1.0	6	16	14	92
GN 606-M16-60-VR	M 16	60	10.7	24	1.0	6	16	14	123
GN 606-M16-80-VR	M 16	80	10.7	24	1.0	6	16	14	151

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GN 606 | Ball point screws

GN 606-AN/BN

STAINLESS STEEL

Description	d1	l1	d2	d3	d4	l2 ≈	l3 ≈	l5	l6	A/F	Static load in N	⚖
GN 606-M4-10-AN	M 4	10	2.5	-	7	0.8	-	2.1	4	3	2040	2
GN 606-M4-12-AN	M 4	12	2.5	-	7	0.8	-	2.1	4	3	2040	2
GN 606-M4-16-AN	M 4	16	2.5	-	7	0.8	-	2.1	4	3	2040	2
GN 606-M4-20-AN	M 4	20	2.5	-	7	0.8	-	2.1	4	3	2040	2
GN 606-M4-25-AN	M 4	25	2.5	-	7	0.8	-	2.1	4	3	2040	3
GN 606-M5-12-AN	M 5	12	3	-	8.5	1.0	-	2.4	5	4	3000	3
GN 606-M5-16-AN	M 5	16	3	-	8.5	1.0	-	2.4	5	4	3000	3
GN 606-M5-20-AN	M 5	20	3	-	8.5	1.0	-	2.4	5	4	3000	4
GN 606-M5-25-AN	M 5	25	3	-	8.5	1.0	-	2.4	5	4	3000	4
GN 606-M5-30-AN	M 5	30	3	-	8.5	1.0	-	2.4	5	4	3000	5
GN 606-M6-16-AN	M 6	16	4	-	10	1.3	-	3	6	5	4500	6
GN 606-M6-20-AN	M 6	20	4	-	10	1.3	-	3	6	5	4500	7
GN 606-M6-25-AN	M 6	25	4	-	10	1.3	-	3	6	5	4500	8
GN 606-M6-30-AN	M 6	30	4	-	10	1.3	-	3	6	5	4500	9
GN 606-M6-40-AN	M 6	40	4	-	10	1.3	-	3	6	5	4500	11
GN 606-M8-20-AN	M 8	20	5.5	-	13	1.8	-	3.5	8	6	9000	14
GN 606-M8-30-AN	M 8	30	5.5	-	13	1.8	-	3.5	8	6	9000	16
GN 606-M8-35-AN	M 8	35	5.5	-	13	1.8	-	3.5	8	6	9000	19
GN 606-M8-40-AN	M 8	40	5.5	-	13	1.8	-	3.5	8	6	9000	19
GN 606-M8-50-AN	M 8	50	5.5	-	13	1.8	-	3.5	8	6	9000	25
GN 606-M10-25-AN	M 10	25	7	-	16	1.8	-	4.5	10	8	14400	26
GN 606-M10-30-AN	M 10	30	7	-	16	2.3	-	4.5	10	8	14400	27
GN 606-M10-40-AN	M 10	40	7	-	16	2.3	-	4.5	10	8	14400	34
GN 606-M10-50-AN	M 10	50	7	-	16	2.3	-	4.5	10	8	14400	40
GN 606-M10-60-AN	M 10	60	7	-	16	2.3	-	4.5	10	8	14400	47
GN 606-M12-30-AN	M 12	30	8.5	-	18	2.8	-	5	12	10	18000	40
GN 606-M12-50-AN	M 12	50	8.5	-	18	2.8	-	5	12	10	18000	56
GN 606-M12-80-AN	M 12	80	8.5	-	18	2.8	-	5	12	10	18000	83
GN 606-M16-40-AN	M 16	40	12	-	24	4.3	-	6	16	14	43800	91
GN 606-M16-60-AN	M 16	60	12	-	24	4.3	-	6	16	14	43800	122
GN 606-M16-80-AN	M 16	80	12	-	24	4.3	-	6	16	14	43800	154
GN 606-M4-10-BN	M 4	10	-	2	7	-	0.2	2.1	4	3	2040	2
GN 606-M4-12-BN	M 4	12	-	2	7	-	0.2	2.1	4	3	2040	2
GN 606-M4-16-BN	M 4	16	-	2	7	-	0.2	2.1	4	3	2040	2
GN 606-M4-20-BN	M 4	20	-	2	7	-	0.2	2.1	4	3	2040	2
GN 606-M4-25-BN	M 4	25	-	2	7	-	0.2	2.1	4	3	2040	3
GN 606-M5-12-BN	M 5	12	-	2.5	8.5	-	0.4	2.4	5	4	3000	3
GN 606-M5-16-BN	M 5	16	-	2.5	8.5	-	0.4	2.4	5	4	3000	3
GN 606-M5-20-BN	M 5	20	-	2.5	8.5	-	0.4	2.4	5	4	3000	4
GN 606-M5-25-BN	M 5	25	-	2.5	8.5	-	0.4	2.4	5	4	3000	4
GN 606-M5-30-BN	M 5	30	-	2.5	8.5	-	0.4	2.4	5	4	3000	5
GN 606-M6-16-BN	M 6	16	-	3.2	10	-	0.6	3	6	5	4500	6
GN 606-M6-20-BN	M 6	20	-	3.2	10	-	0.6	3	6	5	4500	7
GN 606-M6-25-BN	M 6	25	-	3.2	10	-	0.6	3	6	5	4500	8
GN 606-M6-30-BN	M 6	30	-	3.2	10	-	0.6	3	6	5	4500	9
GN 606-M6-40-BN	M 6	40	-	3.2	10	-	0.6	3	6	5	4500	11
GN 606-M8-20-BN	M 8	20	-	4.5	13	-	0.8	3.5	8	6	9000	10
GN 606-M8-30-BN	M 8	30	-	4.5	13	-	0.8	3.5	8	6	9000	15
GN 606-M8-35-BN	M 8	35	-	4.5	13	-	0.8	3.5	8	6	9000	17
GN 606-M8-40-BN	M 8	40	-	4.5	13	-	0.8	3.5	8	6	9000	18
GN 606-M8-50-BN	M 8	50	-	4.5	13	-	0.8	3.5	8	6	9000	23
GN 606-M10-25-BN	M 10	25	-	6	16	-	0.8	4.5	10	8	14400	25
GN 606-M10-30-BN	M 10	30	-	6	16	-	0.8	4.5	10	8	14400	28
GN 606-M10-40-BN	M 10	40	-	6	16	-	0.8	4.5	10	8	14400	31
GN 606-M10-50-BN	M 10	50	-	6	16	-	0.8	4.5	10	8	14400	37
GN 606-M10-60-BN	M 10	60	-	6	16	-	0.8	4.5	10	8	14400	44

GN 606-AN/BN

STAINLESS STEEL

Description	d1	l1	d2	d3	d4	l2 ≈	l3 ≈	l5	l6	A/F	Static load in N	⚖
GN 606-M12-30-BN	M 12	30	-	7.2	18	-	-	5	12	10	18000	38
GN 606-M12-50-BN	M 12	50	-	7.2	18	-	-	5	12	10	18000	54
GN 606-M12-80-BN	M 12	80	-	7.2	18	-	-	5	12	10	18000	80
GN 606-M16-40-BN	M 16	40	-	10.7	24	-	-	6	16	14	43800	92
GN 606-M16-60-BN	M 16	60	-	10.7	24	-	-	6	16	14	43800	123
GN 606-M16-80-BN	M 16	80	-	10.7	24	-	-	6	16	14	43800	151

GN 606-VN/VRN

STAINLESS STEEL

Description	d1	l1	d3	d4	l4 ≈	l5	l6	A/F	⚖
GN 606-M6-16-VN	M 6	16	3.2	10	0.45	3	6	5	6
GN 606-M6-20-VN	M 6	20	3.2	10	0.45	3	6	5	7
GN 606-M6-25-VN	M 6	25	3.2	10	0.45	3	6	5	8
GN 606-M6-30-VN	M 6	30	3.2	10	0.45	3	6	5	9
GN 606-M6-40-VN	M 6	40	3.2	10	0.45	3	6	5	11
GN 606-M8-20-VN	M 8	20	4.5	13	0.5	3.5	8	6	13
GN 606-M8-30-VN	M 8	30	4.5	13	0.5	3.5	8	6	15
GN 606-M8-35-VN	M 8	35	4.5	13	0.5	3.5	8	6	17
GN 606-M8-40-VN	M 8	40	4.5	13	0.5	3.5	8	6	19
GN 606-M8-50-VN	M 8	50	4.5	13	0.5	3.5	8	6	23
GN 606-M10-25-VN	M 10	25	6	16	0.6	4.5	10	8	25
GN 606-M10-30-VN	M 10	30	6	16	0.6	4.5	10	8	27
GN 606-M10-40-VN	M 10	40	6	16	0.6	4.5	10	8	31
GN 606-M10-50-VN	M 10	50	6	16	0.6	4.5	10	8	37
GN 606-M10-60-VN	M 10	60	6	16	0.6	4.5	10	8	44
GN 606-M12-30-VN	M 12	30	7.2	18	0.75	5	12	10	38
GN 606-M12-50-VN	M 12	50	7.2	18	0.75	5	12	10	54
GN 606-M12-80-VN	M 12	80	7.2	18	0.75	5	12	10	80
GN 606-M16-40-VN	M 16	40	10.7	24	1.0	6	16	14	92
GN 606-M16-60-VN	M 16	60	10.7	24	1.0	6	16	14	123
GN 606-M16-80-VN	M 16	80	10.7	24	1.0	6	16	14	153
GN 606-M6-16-VRN	M 6	16	3.2	10	0.45	3	6	5	6
GN 606-M6-20-VRN	M 6	20	3.2	10	0.45	3	6	5	7
GN 606-M6-25-VRN	M 6	25	3.2	10	0.45	3	6	5	8
GN 606-M6-30-VRN	M 6	30	3.2	10	0.45	3	6	5	9
GN 606-M6-40-VRN	M 6	40	3.2	10	0.45	3	6	5	11
GN 606-M8-20-VRN	M 8	20	4.2	13	0.5	3.5	8	6	13
GN 606-M8-30-VRN	M 8	30	4.2	13	0.5	3.5	8	6	15
GN 606-M8-35-VRN	M 8	35	4.2	13	0.5	3.5	8	6	17
GN 606-M8-40-VRN	M 8	40	4.2	13	0.5	3.5	8	6	20
GN 606-M8-50-VRN	M 8	50	4.2	13	0.5	3.5	8	6	23
GN 606-M10-25-VRN	M 10	25	5.7	16	0.6	4.5	10	8	25
GN 606-M10-30-VRN	M 10	30	5.7	16	0.6	4.5	10	8	29
GN 606-M10-40-VRN	M 10	40	5.7	16	0.6	4.5	10	8	31
GN 606-M10-50-VRN	M 10	50	5.7	16	0.6	4.5	10	8	40
GN 606-M10-60-VRN	M 10	60	5.7	16	0.6	4.5	10	8	44
GN 606-M12-30-VRN	M 12	30	7.2	18	0.75	5	12	10	38
GN 606-M12-50-VRN	M 12	50	7.2	18	0.75	5	12	10	54
GN 606-M12-80-VRN	M 12	80	7.2	18	0.75	5	12	10	80
GN 606-M16-40-VRN	M 16	40	10.7	24	1.0	6	16	14	92
GN 606-M16-60-VRN	M 16	60	10.7	24	1.0	6	16	14	123
GN 606-M16-80-VRN	M 16	80	10.7	24	1.0	6	16	14	151

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Swing bolts

Steel / Stainless Steel, with long threaded bolt

SPECIFICATION

Version in Steel

- Tensile strength class 5.8
- turned
- blackened

Version in Stainless Steel NI

- AISI 303
- turned
- matt shot-blasted

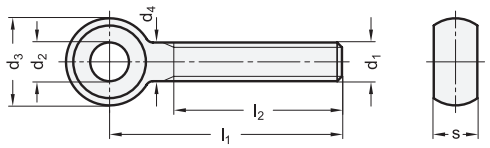
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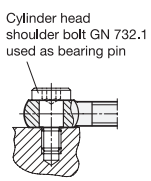
Swing bolts GN 1524 offer a longer threaded bolt contrary to DIN 444 (see page 935).
For stocking purpose cylinder head shoulder bolts GN 732 (see page 919) can be used for the sizes M8, M10 and M12.

TECHNICAL INFORMATION

- ISO-Fundamental Tolerance (see page A21)
- Stainless Steel characteristics (see page A26)
- Strength values of screws (see page A20)







GN 1524

Description	d1	l1	l2	d2 E8	d3 -0.4	s -0.2	d4	⚖
GN 1524-M6-50	M 6	50	40	6	12	8	6	10
GN 1524-M6-60	M 6	60	40	6	12	8	6	15
GN 1524-M6-70	M 6	70	40	6	12	8	6	15
GN 1524-M6-80	M 6	80	40	6	12	8	6	20
GN 1524-M8-50	M 8	50	40	8	16	10	8	25
GN 1524-M8-60	M 8	60	45	8	16	10	8	25
GN 1524-M8-70	M 8	70	45	8	16	10	8	30
GN 1524-M8-80	M 8	80	45	8	16	10	8	35
GN 1524-M8-100	M 8	100	45	8	16	10	8	35
GN 1524-M10-50	M 10	50	38	10	20	12	10	35
GN 1524-M10-60	M 10	60	46	10	20	12	10	40
GN 1524-M10-70	M 10	70	50	10	20	12	10	45
GN 1524-M10-80	M 10	80	50	10	20	12	10	55
GN 1524-M10-100	M 10	100	50	10	20	12	10	66
GN 1524-M10-120	M 10	120	50	10	20	12	10	75
GN 1524-M12-50	M 12	50	35	12	25	14	12	60
GN 1524-M12-60	M 12	60	42	12	25	14	12	70
GN 1524-M12-70	M 12	70	52	12	25	14	12	75
GN 1524-M12-80	M 12	80	60	12	25	14	12	85
GN 1524-M12-100	M 12	100	60	12	25	14	12	100
GN 1524-M12-120	M 12	120	60	12	25	14	12	115
GN 1524-M12-130	M 12	130	60	12	25	14	12	125
GN 1524-M16-70	M 16	70	49	16	32	18	16	140
GN 1524-M16-80	M 16	80	59	16	32	18	16	158
GN 1524-M16-100	M 16	100	77	16	32	18	16	180
GN 1524-M16-120	M 16	120	80	16	32	18	16	210
GN 1524-M16-140	M 16	140	80	16	32	18	16	245
GN 1524-M16-160	M 16	160	80	16	32	18	16	275
GN 1524-M20-100	M 20	100	75	20	40	22	20	300
GN 1524-M20-120	M 20	120	95	20	40	22	20	346
GN 1524-M20-140	M 20	140	100	20	40	22	20	390
GN 1524-M20-160	M 20	160	100	20	40	22	20	438
GN 1524-M24-160	M 24	160	120	25	50	28	24	685
GN 1524-M24-240	M 24	240	120	25	50	28	24	965

GN 1524-NI

STAINLESS STEEL

Description	d1	l1	l2	d2 E8	d3 -0.4	s -0.2	d4	⚖
GN 1524-M6-50-NI	M 6	50	40	6	12	8	6	10
GN 1524-M6-60-NI	M 6	60	40	6	12	8	6	15
GN 1524-M6-70-NI	M 6	70	40	6	12	8	6	15
GN 1524-M6-80-NI	M 6	80	40	6	12	8	6	20
GN 1524-M8-50-NI	M 8	50	40	8	16	10	8	25
GN 1524-M8-60-NI	M 8	60	45	8	16	10	8	25
GN 1524-M8-70-NI	M 8	70	45	8	16	10	8	30
GN 1524-M8-80-NI	M 8	80	45	8	16	10	8	35
GN 1524-M8-100-NI	M 8	100	45	8	16	10	8	40
GN 1524-M10-50-NI	M 10	50	38	10	20	12	10	35
GN 1524-M10-60-NI	M 10	60	46	10	20	12	10	40
GN 1524-M10-70-NI	M 10	70	50	10	20	12	10	45
GN 1524-M10-80-NI	M 10	80	50	10	20	12	10	55
GN 1524-M10-100-NI	M 10	100	50	10	20	12	10	66
GN 1524-M10-120-NI	M 10	120	50	10	20	12	10	75
GN 1524-M12-50-NI	M 12	50	35	12	25	14	12	60
GN 1524-M12-60-NI	M 12	60	42	12	25	14	12	70
GN 1524-M12-70-NI	M 12	70	52	12	25	14	12	75
GN 1524-M12-80-NI	M 12	80	60	12	25	14	12	85
GN 1524-M12-100-NI	M 12	100	60	12	25	14	12	100
GN 1524-M12-120-NI	M 12	120	60	12	25	14	12	115
GN 1524-M12-130-NI	M 12	130	60	12	25	14	12	127
GN 1524-M16-70-NI	M 16	70	49	16	32	18	16	140
GN 1524-M16-80-NI	M 16	80	59	16	32	18	16	155
GN 1524-M16-100-NI	M 16	100	77	16	32	18	16	180
GN 1524-M16-120-NI	M 16	120	80	16	32	18	16	210
GN 1524-M16-140-NI	M 16	140	80	16	32	18	16	245
GN 1524-M16-160-NI	M 16	160	80	16	32	18	16	275
GN 1524-M20-100-NI	M 20	100	75	20	40	22	20	300
GN 1524-M20-120-NI	M 20	120	95	20	40	22	20	346
GN 1524-M20-140-NI	M 20	140	100	20	40	22	20	390
GN 1524-M20-160-NI	M 20	160	100	20	40	22	20	438

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DIN 444

Swing bolts

Steel / Stainless Steel

SPECIFICATION

Version in Steel

- Tensile strength class 5.8
- turned, thread rolled
- blackened

Version in Stainless Steel AISI 303 NI

- turned, thread rolled
- matt shot-blasted

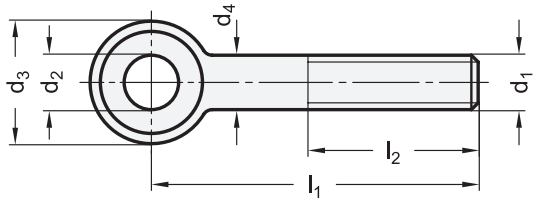
INFORMATION

Precision type swing bolts DIN 444 are mainly used for jigs and fixtures.
For stocking purposes cylinder head shoulder bolts GN 732.1 (see page 919) can be used for the sizes M 6, M 8, M 10 and M 12.

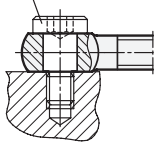
TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)
- Strength values of screws (see page A20)





Cylinder head shoulder bolt GN 732.1 used as bearing pin



DIN 444

Description	d1	l1	l2	d2 H7	d3 -0.3	s -0.15	d4	⚖
DIN 444-M5-50	M 5	50	32	5	12	6	5	9
DIN 444-M5-75	M 5	75	32	5	12	6	5	14
DIN 444-M6-50	M 6	50	32	6	14	7	6	14
DIN 444-M6-75	M 6	75	32	6	14	7	6	19
DIN 444-M8-50	M 8	50	32	8	18	9	8	26
DIN 444-M8-75	M 8	75	32	8	18	9	8	36
DIN 444-M10-50	M 10	50	40	10	20	12	10	38
DIN 444-M10-75	M 10	75	40	10	20	12	10	53
DIN 444-M10-100	M 10	100	40	10	20	12	10	68
DIN 444-M12-75	M 12	75	40	12	25	14	12	85
DIN 444-M12-100	M 12	100	40	12	25	14	12	106
DIN 444-M12-130	M 12	130	40	12	25	14	12	110
DIN 444-M16-75	M 16	75	50	16	32	17	16	146
DIN 444-M16-100	M 16	100	50	16	32	17	16	183
DIN 444-M16-130	M 16	130	50	16	32	17	16	220
DIN 444-M20-100	M 20	100	63	18	40	22	20	305
DIN 444-M20-130	M 20	130	63	18	40	22	20	366
DIN 444-M20-160	M 20	160	63	18	40	22	20	438

DIN 444-NI STAINLESS STEEL

Description	d1	l1	l2	d2 H7	d3 -0.3	s -0.15	d4	⚖
DIN 444-M5-50-NI	M 5	50	32	5	12	6	5	9
DIN 444-M5-75-NI	M 5	75	32	5	12	6	5	10
DIN 444-M6-50-NI	M 6	50	32	6	14	7	6	14
DIN 444-M6-75-NI	M 6	75	32	6	14	7	6	19
DIN 444-M8-50-NI	M 8	50	32	8	18	9	8	26
DIN 444-M8-75-NI	M 8	75	32	8	18	9	8	36
DIN 444-M10-50-NI	M 10	50	40	10	20	12	10	38
DIN 444-M10-75-NI	M 10	75	40	10	20	12	10	53
DIN 444-M10-100-NI	M 10	100	40	10	20	12	10	60
DIN 444-M12-75-NI	M 12	75	40	12	25	14	12	83
DIN 444-M12-100-NI	M 12	100	40	12	25	14	12	105
DIN 444-M12-130-NI	M 12	130	40	12	25	14	12	132
DIN 444-M16-75-NI	M 16	75	50	16	32	17	16	146
DIN 444-M16-100-NI	M 16	100	50	16	32	17	16	183
DIN 444-M16-130-NI	M 16	130	50	16	32	17	16	220
DIN 444-M20-100-NI	M 20	100	63	18	40	22	20	322
DIN 444-M20-130-NI	M 20	130	63	18	40	22	20	400
DIN 444-M20-160-NI	M 20	160	63	18	40	22	20	470

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RoHS

Swing nuts

SPECIFICATION

Steel

- Tensile strength class 5.8
- blackened

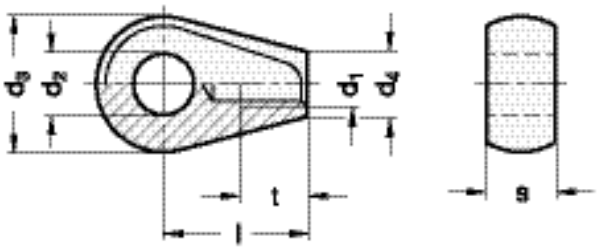
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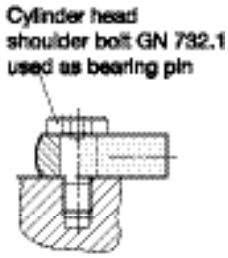
In combination with grub screws i.e. DIN 913 or DIN 6379 (see page 937) and swing nuts GN 444.2 can be used together as swing bolts in varying lengths.
In addition, used with a cap screw DIN 912, a swivelling clamping screw can be produced.
Dimensions d_2 ,d_3 and s are identical to DIN 444 (see page 935).
For stocking purposes cylinder head shoulder bolts GN 732.1 (see page 919) can be used for the sizes M8, M10 and M12.

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Strength values of nuts (see page A20)







GN 444.2

Description	d_1	d_2 H7	d_3 -0.3	d_4	l	s -0.15	t min.	⚖
GN 444.2-M6-8	M 6	8	18	8.5	19	9	9	18
GN 444.2-M8-10	M 8	10	20	11	24	12	11	30
GN 444.2-M10-12	M 10	12	25	13.5	28	14	14	52
GN 444.2-M12-16	M 12	16	32	16	34	17	16	101

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DIN 6379

Studs

for T-Nuts

SPECIFICATION

Heat-treatable Steel

- M 6 ... M12: Tensile strength class 10.9
- M 14 ... M24: Tensile strength class 8.8
- blackened

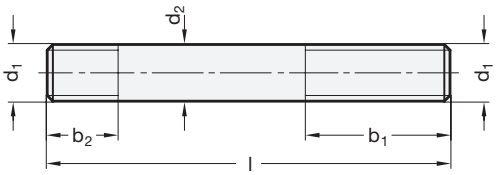
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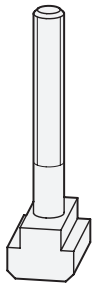
Studs DIN 6379 are mainly used in DIN 508 (see page 977), DIN 6330 (see page 988) and washers DIN 6340 (see page 972) to form a complete clamp unit.

TECHNICAL INFORMATION

- Strength values of screws (see page A20)







DIN 6379

Description	d1	l - b1	b2	d2	⚖
DIN 6379-M6-50	M 6	50-30	9	5.3	11
DIN 6379-M6-80	M 6	80-50	9	5.3	18
DIN 6379-M8-40	M 8	40-20	11	7.1	10
DIN 6379-M8-63	M 8	63-40	11	7.1	20
DIN 6379-M8-100	M 8	100-63	11	7.1	31
DIN 6379-M10-50	M 10	50-25	13	9	20
DIN 6379-M10-80	M 10	80-50	13	9	40
DIN 6379-M10-125	M 10	125-75	13	9	65
DIN 6379-M10-200	M 10	200-125	13	9	100
DIN 6379-M12-50	M 12	50-25	15	10.7	35
DIN 6379-M12-80	M 12	80-50	15	10.7	60
DIN 6379-M12-125	M 12	125-75	15	10.7	90
DIN 6379-M12-200	M 12	200-125	15	10.7	140
DIN 6379-M14-63	M 14	63-32	17	12.6	60
DIN 6379-M14-100	M 14	100-63	17	12.6	95
DIN 6379-M14-160	M 14	160-100	17	12.6	150
DIN 6379-M14-250	M 14	250-160	17	12.6	240
DIN 6379-M16-63	M 16	63-32	19	14.6	85
DIN 6379-M16-100	M 16	100-63	19	14.6	125
DIN 6379-M16-160	M 16	160-100	19	14.6	210
DIN 6379-M16-250	M 16	250-160	19	14.6	325
DIN 6379-M20-80	M 20	80-32	27	18.2	160
DIN 6379-M20-125	M 20	125-70	27	18.2	255
DIN 6379-M20-200	M 20	200-125	27	18.2	410
DIN 6379-M20-315	M 20	315-190	27	18.2	640
DIN 6379-M24-100	M 24	100-50	35	21.9	290
DIN 6379-M24-160	M 24	160-100	35	21.9	470
DIN 6379-M24-250	M 24	250-160	35	21.9	730
DIN 6379-M24-400	M 24	400-250	35	21.9	1160

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Thrust pads

for Grub screws DIN 6332, for Tommy screws DIN 6304 / DIN 6306



SPECIFICATION

Type

Type **S**: with snap ring

Steel
case hardened

Snap ring
Spring steel wire

INFORMATION

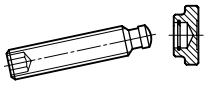
Thrust pads DIN 6311 are utilized to transmit clamping forces. They lean to uneven and unparallel surfaces and eliminate the transmission of any screw turning movement to the workpiece.

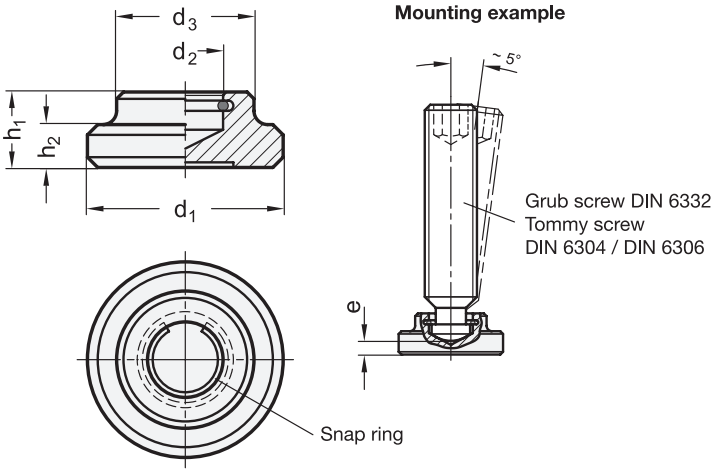
TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)

HINTS FOR INSTALLATION

The thrust pad has to be held at an angle allowing the circlip to drop to the bottom of its groove with the split end downwards. The thrust pin is then offered up top the split end of the circlip at the lowest possbile angle and pressed home.





DIN 6311

Description	d1	d2 H12	d3	e ≈	h1	h2	Grub screw DIN 6332	⚖
DIN 6311-12-S	12	4.6	10	2.2	7	2.5	M 6	4
DIN 6311-16-S	16	6.1	12	3	9	4	M 8	9
DIN 6311-20-S	20	8.1	15	3.6	11	5	M 10 | M 12	15
DIN 6311-25-S	25	8.1	18	4.5	13	6	M 10 | M 12	33
DIN 6311-32-S	32	12.1	22	5.3	15	7	M 16	59
DIN 6311-40-S	40	15.6	28	5.6	16	9	M 20	105

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GN 6311.1

Thrust pads

for grub screws DIN 6332, tommy screws DIN 6304 / DIN 6306

SPECIFICATION

Types

- Type **A**: Thrust pad surface plain, without plastic cap
- Type **P** : Thrust pad surface with prism, without plastic cap
- Type **K**: Thrust pad surface plain, with plastic cap

Steel
blackened

Snap ring
Spring steel wire

Plastic cap (Polyacetal POM)

- natural colour
- temperature resistant up to 100 °C

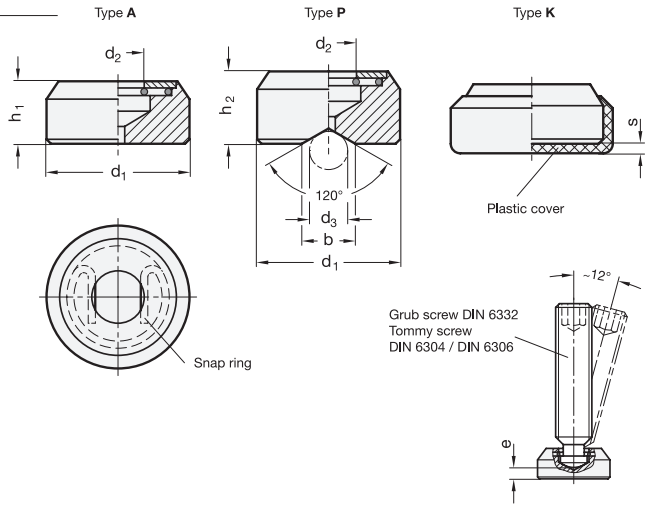


INFORMATION

Thrust pads GN 6311.1 are used in conjunction with grub screws fitted with thrust point (grub screws DIN 6332 (see page 912), tommy screws DIN 6304 (see page 407) and DIN 6306 (see page 409) to transmit clamping force. They align themselves on uneven and non-parallel surfaces and thus prevent the rotating force being transmitted to the workpiece.
The plastic cap prevents damage to delicate workpieces.
The unique shape of the non-removable retaining ring permits easy insertion and removal of grub screws into or from the thrust pad.
Thrust pads GN 6311.1 can be used in conjunction with DIN 6332 (see page 912) grub screws as levelling pad.

TECHNICAL INFORMATION

- Plastic characteristics (see page A2)



GN 6311.1

Description	d1	b	d2 +0.2	d3 min.	d3 max.	e ≈	h1	h2	s	Grub screw DIN 6332	⚖
GN 6311.1-16-A	16	10	6.3	7.5	20	2.2	8	-	1.5	M 8	11
GN 6311.1-20-A	20	12	9.2	7.5	24	2.6	10	-	1.5	M 10 | M 12	18
GN 6311.1-25-A	25	16	9.2	7.5	32	2.9	11	-	1.5	M 10 | M 12	34
GN 6311.1-32-A	32	22	12.5	7.5	44	4.5	14	-	1.5	M 16	70
GN 6311.1-16-P	16	10	6.3	7.5	20	5.3	-	11	1.5	M 8	13
GN 6311.1-20-P	20	12	9.2	7.5	24	5.6	-	13	1.5	M 10 | M 12	24
GN 6311.1-25-P	25	16	9.2	7.5	32	6.9	-	15	1.5	M 10 | M 12	43
GN 6311.1-32-P	32	22	12.5	7.5	44	9.2	-	18	1.5	M 16	80
GN 6311.1-16-K	16	10	6.3	7.5	20	-	8	-	1.5	M 8	12
GN 6311.1-20-K	20	12	9.2	7.5	24	-	10	-	1.5	M 10 | M 12	22
GN 6311.1-25-K	25	16	9.2	7.5	32	-	11	-	1.5	M 10 | M 12	35
GN 6311.1-32-K	32	22	12.5	7.5	44	-	14	-	1.5	M 16	74

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GN 631

RoHS

Thrust pads

for Grub screws GN 632.1 / GN 632.5

SPECIFICATION

Plastic
Technopolymer (Polyacetal POM)

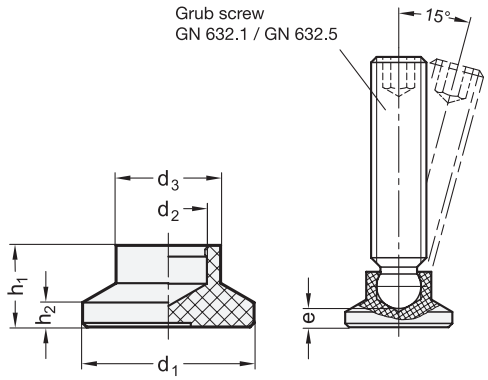
- temperature resistant up to 80 °C
- black, matt

INFORMATION

Thrust pads GN 631 with ball point grub screw GN 632.1 (see page 914) / GN 632.5 (see page 915) are ideal to transmit clamping forces. They lean to uneven and unparallel surfaces. They are easy to press-on to the ball point of the grub screw by hand.



Mounting example



GN 631

Description	d1	d2	d3	e ≈	h1	h2	Grub screw GN 632.1/ GN 632.5	⚖
GN 631-15-4,5	15	4.5	8.6	3.6	7.6	2.5	M 6	2
GN 631-15-6,1	15	6.1	8.6	2.5	7.6	2.5	M 8	2
GN 631-18-4,5	18	4.5	10.8	5.2	9.2	2.5	M 6	3
GN 631-18-6,1	18	6.1	10.8	4,2	9.2	2.5	M 8	3
GN 631-18-7,8	18	7.8	10.8	3.8	9.2	2.5	M 10	3
GN 631-21-4,5	21	4.5	12.8	6	10	3	M 6	4
GN 631-21-6,1	21	6.1	12.8	5	10	3	M 8	4
GN 631-21-7,8	21	7.8	12.8	4.3	10	3	M 10	4
GN 631-21-9,4	21	9.4	12.8	3.4	10	3	M 12	4
GN 631-25-4,5	25	4.5	13	6.5	10.5	3	M 6	4
GN 631-25-6,1	25	6.1	13	5.5	10.5	3	M 8	4
GN 631-25-7,8	25	7.8	13	4.6	10.5	3	M 10	4
GN 631-25-9,4	25	9.4	13	3.6	10.5	3	M 12	4
GN 631-32-4,5	32	4.5	14	7	11	3	M 6	6
GN 631-32-6,1	32	6.1	14	6	11	3	M 8	6
GN 631-32-7,8	32	7.8	14	5	11	3	M 10	6
GN 631-32-9,4	32	9.4	14	4.2	11	3	M 12	6
GN 631-40-6,1	40	6.1	16	8	13	4	M 8	11
GN 631-40-7,8	40	7.8	16	7	13	4	M 10	11
GN 631-40-9,4	40	9.4	16	6.2	13	4	M 12	11

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GN 631.5

Stainless Steel-Thrust pads

for Grub screws GN 632.5

SPECIFICATION

Stainless Steel AISI 303

O-Ring rubber FPM (Vition ®)
temperature resistant up to 200 °C

INFORMATION

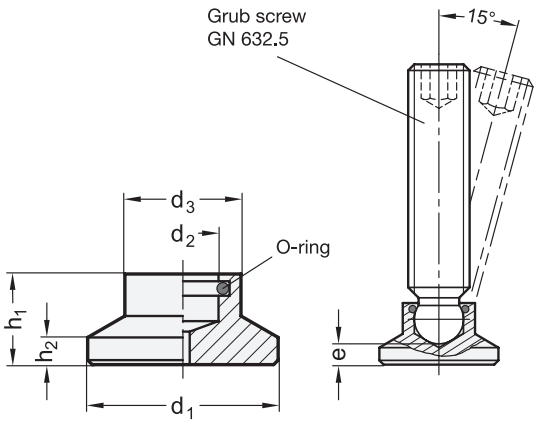
Thrust pads GN 631.5 with ball point grub screw GN 632.5 (see page 915) are ideal to transmit clamping forces. They lean to uneven and unparallel surfaces. They are easy to press-on to the ball point of the grub screw by hand.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



Mounting example



GN 631.5 **STAINLESS STEEL**

Description	d1	d2	d3	e ≈	h1	h2	Grub screw GN 632.5	⚖
GN 631.5-21-4,5	21	4.5	12.8	6	10	3	M 6	17
GN 631.5-21-6,1	21	6.1	12,8	5	10	3	M 8	17
GN 631.5-21-7,8	21	7.8	12,8	4.3	10	3	M 10	16
GN 631.5-21-9,4	21	9.4	12.8	3.4	10	3	M 12	14
GN 631.5-25-4,5	25	4,5	13	6.5	10.5	3	M 6	23
GN 631.5-25-6,1	25	6.1	13	5.5	10.5	3	M 8	21
GN 631.5-25-7,8	25	7.8	13	4.6	10.5	3	M 10	21
GN 631.5-25-9,4	25	9.4	13	3.6	10.5	3	M 12	21
GN 631.5-32-4,5	32	4.5	14	7	11	3	M 6	35
GN 631.5-32-6,1	32	6.1	14	6	11	3	M 8	35
GN 631.5-32-7,8	32	7.8	14	5	11	3	M 10	34
GN 631.5-32-9,4	32	9.4	14	4.2	11	3	M 12	33
GN 631.5-40-6,1	40	6.1	16	8	13	4	M 8	68
GN 631.5-40-7,8	40	7.8	16	7	13	4	M 10	68
GN 631.5-40-9,4	40	9.4	16	6.2	13	4	M 12	66

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GN 346

Ball joint thrust pads

SPECIFICATION

Steel

- Tensile strength class 5.8
- zinc plated, blue passivated

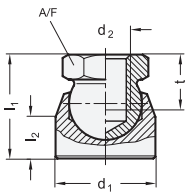
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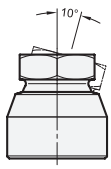
Ball joint thrust pads GN 346 are in general used for transfer of clamping forces. They adjust themselves to uneven or non-parallel surfaces and clamp without twisting the clamped parts.
The values were arrived at by a series of tests whereby a limited number of ball joint pads were subjected for a limited time to a vertical static load to the pads.
At the values given in the table a permanent deformation of the ball is almost impossible.
Ball joint thrust pads GN 346 can also be used as levelling feet with a small foot diameter.

TECHNICAL INFORMATION

- Strength values of nuts (see page A20)







GN 346

Description	d1	d2	l1 ≈	l2	t min.	A/F	Static load in kN	⚖
GN 346-16-M8	16	M 8	19	7	9	12	5	20
GN 346-20-M10	20	M 10	22	8	11	15	7.5	35
GN 346-24-M12	24	M 12	25	10	12	17	10	50
GN 346-30-M16	30	M 16	34	13	16	24	15	115

GN 347

Hexagon nuts with ball socket

SPECIFICATION

Steel

- Tensile strength class 10
- blackened

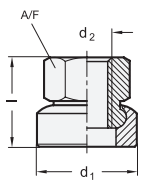
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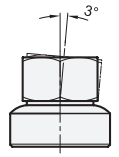
Hexagon nuts with ball socket GN 347 are capable od clamping slanting surfaces up to 3° without disturbing / twisting the clamped surface.

TECHNICAL INFORMATION

- Strength values of nuts (see page A20)









GN 347

Description	d1	d2	l ≈	A/F	⚖
GN 347-17-M8	17	M 8	14	13	13
GN 347-21-M10	21	M 10	17.5	16	25
GN 347-24-M12	24	M 12	21.5	18	38
GN 347-30-M16	30	M 16	28	24	76
GN 347-36-M20	36	M 20	35	30	141
GN 347-44-M24	44	M 24	42.5	36	262

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GN 709.1

Clamping pads

with threaded stud

SPECIFICATION

Types

- Type **B**: Smooth contact face
- Type **R**: Serrated contact face

Steel

- tempered
- phosphated

Ball
Steel

- hardened
- blank



INFORMATION

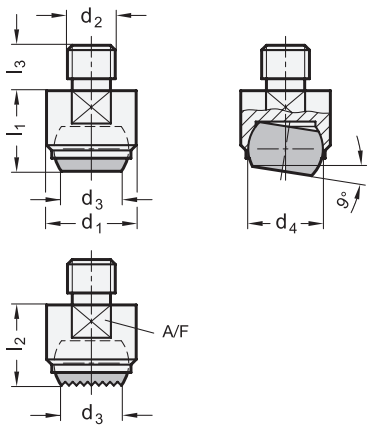
Clamping pads GN 709.1 are used as mobile supports or as spring plungers for clamping workpieces. They can also be used as a back stop.
The ball is limited to an angular movement of 9° only.

TECHNICAL INFORMATION

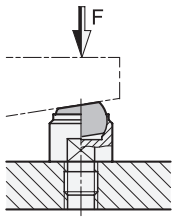
- ISO-Fundamental Tolerances (see page A21)

ON REQUEST

- Serrated hard metal ball



Application example when used as a workpiece support



GN 709.1

Description	d1	d2	d3	d4	l1 ±0.02	l2 ±0.1	l3	A/F	Static load max. in kN	⚖
GN 709.1-13-M6-B	13	M 6	7.2	10	13	-	8	11	10	13
GN 709.1-13-M8-B	13	M 8	7.2	10	13	-	8	11	10	13
GN 709.1-20-M8-B	20	M 8	10.5	16	18	-	10	17	25	39
GN 709.1-20-M10-B	20	M 10	10.5	16	18	-	10	17	25	41
GN 709.1-20-M12-B	20	M 12	10.5	16	18	-	12	17	25	51
GN 709.1-30-M16-B	30	M 16	20	25	27	-	16	27	90	151
GN 709.1-50-M20-B	50	M 20	34.5	40	35	-	20	41	165	521
GN 709.1-13-M6-R	13	M 6	7.2	10	-	13	8	11	10	13
GN 709.1-13-M8-R	13	M 8	7.2	10	-	13	8	11	10	14
GN 709.1-20-M8-R	20	M 8	10.5	16	-	18	10	17	25	39
GN 709.1-20-M10-R	20	M 10	10.5	16	-	18	10	17	25	41
GN 709.1-20-M12-R	20	M 12	10.5	16	-	18	12	17	25	41
GN 709.1-30-M16-R	30	M 16	20	25	-	27	16	27	90	151
GN 709.1-50-M20-R	50	M 20	34.5	40	-	35	20	41	165	521

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Clamping pads

with female thread

SPECIFICATION

Types

- Type **B**: Smooth contact face
- Type **R**: Serrated contact face

Steel

- tempered
- phosphated

Ball
Steel

- hardened
- blank

INFORMATION

Clamping pads GN 709.2 are used as monile supports or as spring plungers for clamping workpieces. They can also be used as a back stop.
The ball is limited to an angular movement of 9° only.

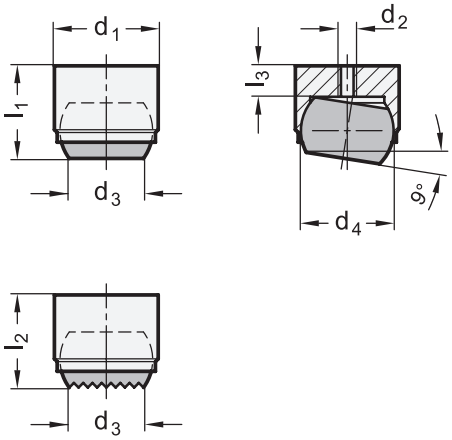
TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)

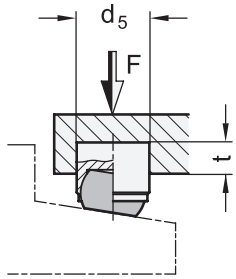
ON REQUEST

- Serrated hard metal ball





Application example when used as spring plunger



GN 709.2

Description	d1 n6	d2	d3	d4	d5 H7	l1 ±0.02	l2 ±0.1	l3 max.	t min. For max. static load	Static load max. in kN	⚖
GN 709.2-12-B	12	M 3	7.2	10	12	11	-	3.2	6	10	9
GN 709.2-18-B	18	M 4	10.5	16	18	17	-	4	8	25	31
GN 709.2-28-B	28	M 5	20	25	28	25	-	5.5	13	90	81
GN 709.2-12-R	12	M 3	7.2	10	12	-	11	3.2	6	10	11
GN 709.2-18-R	18	M 4	10.5	16	18	-	17	4	8	25	31
GN 709.2-28-R	28	M 5	20	25	28	-	25	5.5	13	90	81

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GN 709.3

Clamping pads

adjustable

SPECIFICATION

Types

- Type **B**: Smooth contact face
- Type **R**: Serrated contact face

Steel

- tempered
- phosphated

Ball
Steel

- hardened
- blank

Hexagon nut
ISO 4035 (DIN 439)
Steel, blackened

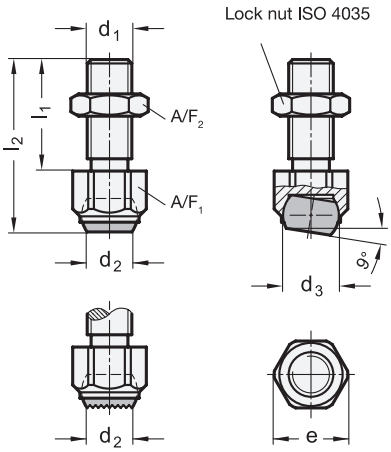


INFORMATION

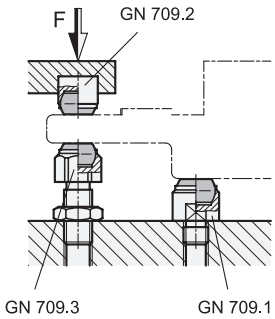
Clamping pads GN 709.3 are used as mobile supports or as spring plungers for clamping workpieces. They can also be used as a back stop.
The ball is limited to an angular movement of 9° only.

ON REQUEST

- Serrated hard metal ball



Application example of different clamping pads



GN 709.3

Description	A/F 1	d1	d2	d3	e	l1	l2	A/F 2	Static load max. in kN	⚖
GN 709.3-13-M8-B	13	M 8	5.8	8.5	14.5	25	36.6	13	8	21
GN 709.3-17-M10-B	17	M 10	8.6	12	19	30	45.7	17	8	55
GN 709.3-17-M12-B	17	M 12	8.6	12	19	35	50.7	19	15	55
GN 709.3-24-M16-B	24	M 16	10.5	16	27	40	60.7	24	25	115
GN 709.3-30-M20-B	30	M 20	20	25	33	50	77.3	30	90	230
GN 709.3-36-M24-B	36	M 24	20	25	40	70	100	36	90	435
GN 709.3-13-M8-R	13	M 8	5.8	8.5	14.5	25	36.6	13	8	25
GN 709.3-17-M10-R	17	M 10	8.6	12	19	30	45.7	17	8	55
GN 709.3-17-M12-R	17	M 12	8.6	12	19	35	50.7	19	15	55
GN 709.3-24-M16-R	24	M 16	10.5	16	27	40	60.7	24	25	115
GN 709.3-30-M20-R	30	M 20	20	25	33	50	77.3	30	90	230
GN 709.3-36-M24-R	36	M 24	20	25	40	70	100	36	90	435

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GN 709.15

Stainless Steel-Clamping pads
with threaded stud

SPECIFICATION

Type
- Type **B**: Smooth contact face

Stainless Steel AISI 431
tempered

Ball
Stainless Steel AISI 420C
nickel plated

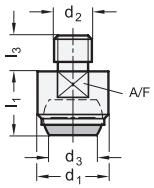
INFORMATION

Clamping pads GN 709.15 are used as monile supports or as spring plungers for clamping workpieces. They can also be used as a back stop.
The ball is limited to an angular movement of 9° only.

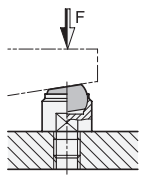
TECHNICAL INFORMATION
- Stainless Steel characteristics (see page A26)

ON REQUEST
- Serrated hard metal ball





Application example when used as a workpiece support



GN 709.15 — **STAINLESS STEEL**

Description	d1	d2	d3	d4	l1 ±0.02	l3	A/F	Static load max. in kN	⚖
GN 709.15-13-M6-B	13	M 6	7.2	10	13	8	11	10	14
GN 709.15-13-M8-B	13	M 8	7.2	10	13	8	11	10	14
GN 709.15-20-M8-B	20	M 8	10.5	16	18	10	17	25	39
GN 709.15-20-M10-B	20	M 10	10.5	16	18	10	17	25	41
GN 709.15-20-M12-B	20	M 12	10.5	16	18	12	17	25	44
GN 709.15-30-M16-B	30	M 16	20	25	27	16	27	90	151
GN 709.15-50-M20-B	50	M 20	34.5	40	35	20	41	165	280

GN 709.25

Stainless Steel-Clamping pads
with female thread

SPECIFICATION

Type
- Type **B**: Smooth contact face

Stainless Steel AISI 431
tempered

Ball
Stainless Steel AISI 420C
nickel plated

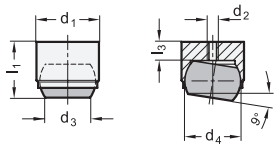
INFORMATION

Clamping pads GN 709.25 are used as monile supports or as spring plungers for clamping workpieces. They can also be used as a back stop.
The ball is limited to an angular movement of 9° only.

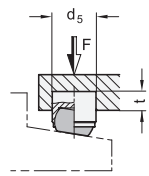
TECHNICAL INFORMATION
- Stainless Steel characteristics (see page A26)

ON REQUEST
- Serrated hard metal ball





Application example when used as spring plunger



GN 709.25 — **STAINLESS STEEL**

Description	d1 n6	d2	d3	d4	d5 H7	l1 ±0.02	l3 max.	t min. For max. static load	Static load max. in kN	⚖
GN 709.25-12-B	12	M 3	7.2	10	12	11	3.2	6	10	9
GN 709.25-18-B	18	M 4	10.5	16	18	17	4	8	25	29
GN 709.25-28-B	28	M 5	20	25	28	25	5.5	13	90	108

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GN 709.35

Stainless Steel-Clamping pads

adjustable

SPECIFICATION

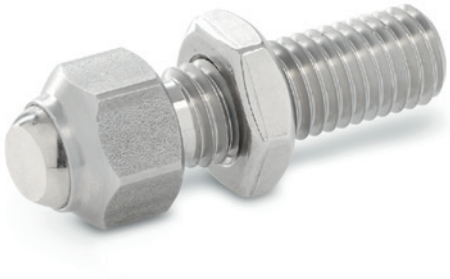
Type

- Type **B**: Smooth contact face

Stainless Steel AISI 431
tempered

Ball
Stainless Steel AISI 420C
nickel plated

Hexagon nut
ISO 4035 (DIN 439)
Stainless Steel



INFORMATION

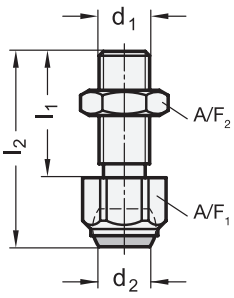
Clamping pads GN 709.35 are used as mobile supports or as spring plungers for clamping workpieces. They can also be used as a back stop.
The ball is limited to an angular movement of 9° only.

TECHNICAL INFORMATION

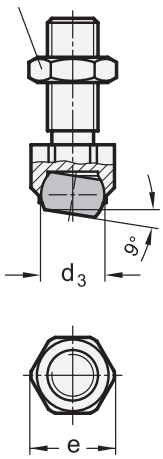
- Stainless Steel characteristics (see page A26)

ON REQUEST

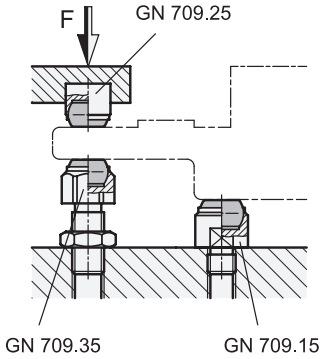
- Serrated hard metal ball



Lock nut ISO 4035



Application example of different clamping pads



GN 709.35 — **STAINLESS STEEL**

Description	A/F 1	d1	d2	d3	e	l1	l2	A/F 2	Static load max. in kN	⚖
GN 709.35-13-M8-B	13	M 8	5.8	8.5	14.5	25	36.6	13	8	20
GN 709.35-17-M10-B	17	M 10	8.6	12	19	30	45.7	17	8	44
GN 709.35-17-M12-B	17	M 12	8.6	12	19	35	50.7	19	15	56
GN 709.35-24-M16-B	24	M 16	10.5	16	27	40	60.7	24	25	128
GN 709.35-30-M20-B	30	M 20	20	25	33	50	77.3	30	90	271

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Clamping pads

adjustable

SPECIFICATION

Types

- Type **B**: Ball steel, smooth contact face
- Type **R**: Ball steel, serrated contact face
- Type **K**: Ball plastic, smooth contact face

Steel

- tempered
- Tensile strength class 10.9

Ball

Type B and R:
Steel hardened (54+2 HRC)
Type K:
Plastic (Polyacetal POM)

O-Ring
Rubber NBR (Perbunan)

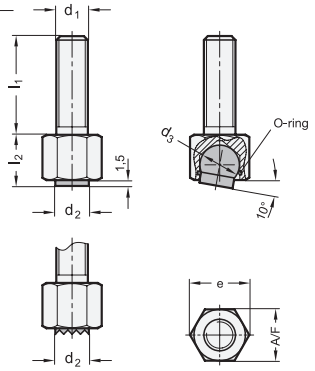


INFORMATION

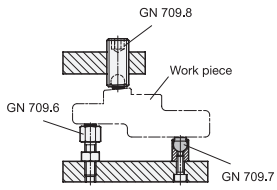
Clamping pads GN 709.6 are also used in jig and fixture construction, for example for clamping workpieces, as movable bearing surface or as stop. The swivel-mounted ball compensates uneven and non-parallel contact surfaces by as much as 10°. It is also secured against further twisting.
The O-ring holds the ball in position and prevents dirt from penetrating, resulting in a long service life and constant mobility.

TECHNICAL INFORMATION

- Strength values of screws (see page A20)
- Plastic characteristics (see page A2)
- Elastomer characteristics (see pagevA32)



Application example of different clamping pads with O-ring



GN 709.6

Description	d1	l1	d2	d3	l2	A/F	e	Static load max. in kN	⚖
GN 709.6-M6-12-B	M 6	12	6	7	9.5	10	11.5	12	8
GN 709.6-M6-25-B	M 6	25	6	7	9.5	10	11.5	12	10
GN 709.6-M6-40-B	M 6	40	6	7	9.5	10	11.5	12	12
GN 709.6-M8-12-B	M 8	12	8.5	10	13	13	15	20	16
GN 709.6-M8-25-B	M 8	25	8.5	10	13	13	15	20	20
GN 709.6-M8-40-B	M 8	40	8.5	10	13	13	15	20	26
GN 709.6-M6-12-K	M 6	12	6	7	9.5	10	11.5	2	6
GN 709.6-M6-25-K	M 6	25	6	7	9.5	10	11.5	2	8
GN 709.6-M6-40-K	M 6	40	6	7	9.5	10	11.5	2	12
GN 709.6-M8-12-K	M 8	12	8.5	10	13	13	15	4	13
GN 709.6-M8-25-K	M 8	25	8.5	10	13	13	15	4	16
GN 709.6-M8-40-K	M 8	40	8.5	10	13	13	15	4	21
GN 709.6-M6-12-R	M 6	12	6	7	9.5	10	11.5	6	7
GN 709.6-M6-25-R	M 6	25	6	7	9.5	10	11.5	6	9
GN 709.6-M6-40-R	M 6	40	6	7	9.5	10	11.5	6	12
GN 709.6-M8-12-R	M 8	12	8.5	10	13	13	15	9	16
GN 709.6-M8-25-R	M 8	25	8.5	10	13	13	15	9	20
GN 709.6-M8-40-R	M 8	40	8.5	10	13	13	15	9	24

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Clamping pads

with female thread

SPECIFICATION

Types

- Type **B**: Ball steel, smooth contact face
- Type **R**: Ball steel, serrated contact face
- Type **K**: Ball plastic, smooth contact face

Steel

- tempered
- Tensile strength class 10.9

Ball

Type B and R:
Steel hardened (54+2 HRC)
Type K:
Plastic (Polyacetal POM)

O-Ring
Rubber NBR (Perbunan)

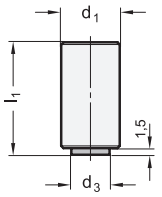


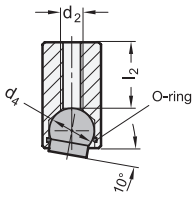
INFORMATION

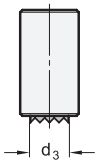
Clamping pads GN 709.7 are also used in jig and fixture construction, for example for clamping workpieces, as movable bearing surface or as stop. The swivel-mounted ball compensates uneven and non-parallel contact surfaces by as much as 10°. It is also secured against further twisting.
The O-ring holds the ball in position and prevents dirt from penetrating, resulting in a long service life and constant mobility.

TECHNICAL INFORMATION

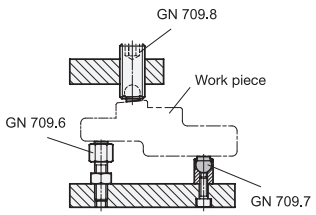
- Strength values of screws (see page A20)
- Plastic characteristics (see page A2)
- Elastomer characteristics (see page A32)







Application example of different clamping pads with O-ring



GN 709.7

Description	d1 h9	l1 ±0.13	d2	d3	d4	l2	Static load max. in kN	⚖
GN 709.7-10-12-B	10	12	M 4	6	7	5.6	12	7
GN 709.7-10-25-B	10	25	M 4	6	7	18.6	12	14
GN 709.7-13-16-B	13	16	M 5	8.5	10	7.2	20	15
GN 709.7-13-25-B	13	25	M 5	8.5	10	16.2	20	24
GN 709.7-10-12-K	10	12	M 4	6	7	5.6	2	5
GN 709.7-10-25-K	10	25	M 4	6	7	18.6	2	12
GN 709.7-13-16-K	13	16	M 5	8.5	10	7.2	4	12
GN 709.7-13-25-K	13	25	M 5	8.5	10	16.2	4	20
GN 709.7-10-12-R	10	12	M 4	6	7	5.6	6	7
GN 709.7-10-25-R	10	25	M 4	6	7	18.6	6	14
GN 709.7-13-16-R	13	16	M 5	8.5	10	7.2	9	15
GN 709.7-13-25-R	13	25	M 5	8.5	10	16.2	9	23

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Clamping pads

adjustable

SPECIFICATION

Types

- Type **B**: Ball steel, smooth contact face
- Type **R**: Ball steel, serrated contact face
- Type **K**: Ball plastic, smooth contact face

Steel

- tempered
- Tensile strength class 10.9

Ball

Type B and R:
Steel hardened (54+2 HRC)
Type K:
Plastic (Polyacetal POM)

O-Ring
Rubber NBR (Perbunan)

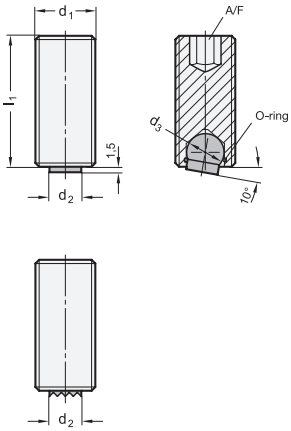


INFORMATION

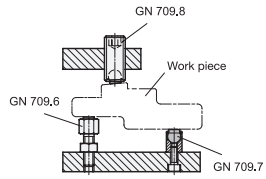
Clamping pads GN 709.8 are also used in jig and fixture construction, for example for clamping workpieces, as movable bearing surface or as stop. The swivel-mounted ball compensates uneven and non-parallel contact surfaces by as much as 10°. It is also secured against further twisting.
The O-ring holds the ball in position and prevents dirt from penetrating, resulting in a long service life and constant mobility.

TECHNICAL INFORMATION

- Strength values of screws (see page A20)
- Plastic characteristics (see page A2)
- Elastomer characteristics (see page A32)



Application example of different clamping pads with O-ring



GN 709.8

Description	d1	l1 ±0.13	d2	d3	A/F	Static load max. in kN	⚖
GN 709.8-M12-25-B	M 12	25	6	7	6	12	15
GN 709.8-M12-35-B	M 12	35	6	7	6	12	22
GN 709.8-M12-50-B	M 12	50	6	7	6	12	32
GN 709.8-M16-25-B	M 16	25	8.5	10	8	20	27
GN 709.8-M16-35-B	M 16	35	8.5	10	8	20	40
GN 709.8-M16-50-B	M 16	50	8.5	10	8	20	60
GN 709.8-M12-25-K	M 12	25	6	7	6	2	13
GN 709.8-M12-35-K	M 12	35	6	7	6	2	20
GN 709.8-M12-50-K	M 12	50	6	7	6	2	31
GN 709.8-M16-25-K	M 16	25	8.5	10	8	4	23
GN 709.8-M16-35-K	M 16	35	8.5	10	8	4	36
GN 709.8-M16-50-K	M 16	50	8.5	10	8	4	56
GN 709.8-M12-25-R	M 12	25	6	7	6	6	15
GN 709.8-M12-35-R	M 12	35	6	7	6	6	22
GN 709.8-M12-50-R	M 12	50	6	7	6	6	32
GN 709.8-M16-25-R	M 16	25	8.5	10	8	9	26
GN 709.8-M16-35-R	M 16	35	8.5	10	8	9	36
GN 709.8-M16-50-R	M 16	50	8.5	10	8	9	59

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Dismountable split set collars

Clamping assembly, technopolymer

MATERIAL
Glass-fibre reinforced polyamide based (PA) technopolymer.

SCREWS AND NUTS
Two cylindrical head screws with hexagon socket and AISI 316 stainless steel nuts supplied assembled with the two semi-split set collars.

FEATURES AND APPLICATIONS
- Suitable for assembly on idle shafts as end stops, for fixing end limit switches, pulleys, supporting pins or other components.
- They avoid damage to the surfaces of the shaft.
- Lightness and high mechanical resistance.
- Anticorrosive material: possibility of use even in the presence of liquids.
- Resistant to several cleaning cycles with solvents and other chemical agents, for this reason they can be used for applications in the pharmaceutical or food industry.

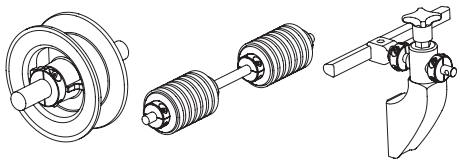
TECHNICAL DATA
Assembly on h7 ÷ h11 tolerance round shafts.

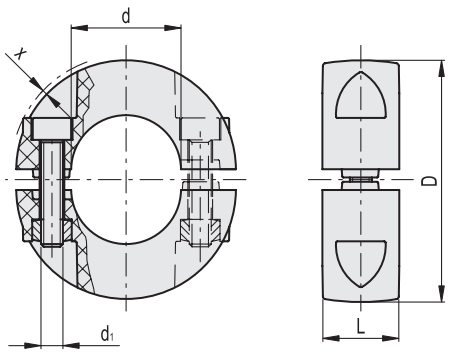
SPECIAL EXECUTIONS ON REQUEST
Dismountable split set collars with keyway DIN 6885/1 P9 tollerance (see page A16).



ELESA Original design

Application examples





Code	Description	D	L	d	d_1	x	Max. tightening torque [Nm]	⚖
319901	ANPS-12	35	13	12	M4	1	2	17
319911	ANPS-14	35	13	14	M4	1	2	16
319921	ANPS-16	35	13	16	M4	1	2	15
319931	ANPS-18	40	14	18	M4	0.75	2	20
319941	ANPS-20	40	14	20	M4	0.75	2	19
319945	ANPS-22	50	14	22	M5	2.40	3	33
319951	ANPS-25	50	14	25	M5	2.40	3	31
319961	ANPS-30	50	14	30	M5	2.40	3	29
319971	ANPS-35	65	14	35	M5	0.15	3	44
319981	ANPS-40	65	14	40	M5	0.15	3	39

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Set collars

Steel / Stainless Steel

SPECIFICATION

Types

- Type **A**: Grub screw with slot ISO 7434 (DIN 553)
- Type **E**: Grub screw with internal hexagon DIN 914

Version in Steel
blackened (Standard)

Version in zinc plated
Steel
zinc plated, blue passivated **ZB**

Version in Stainless Steel
AISI 303 **NI**

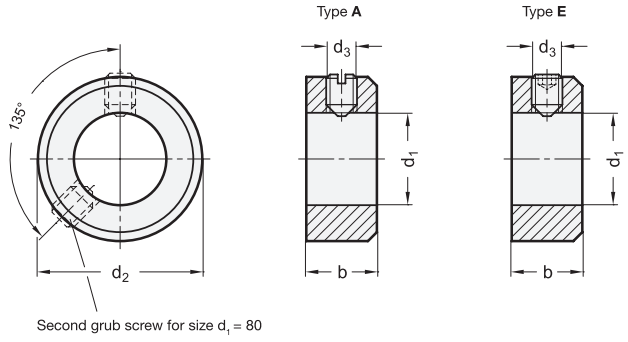


INFORMATION

Set collars GN 705 essentially comply with the designs of DIN 705 which has been re-issued in April 2007.
The official standard sheet also lists the sizes d_1 = 2 / 2.5 / 3 / 3.5 / 4 / 4.5 / 85 / 90 / 100 / 110 / 120 / 125 / 125 / 140 / 150 / 160 / 180 and 200, although it does not show a whole series of the intermediate sizes listed in the above table.
Also, the official standard sheet still lists the Types B and C for fixing the set collars with transverse pin, but not Type E.

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)



* Complete with type index of the Set collars

A	E
with slot	with internal hexagon

GN 705-ST

Description	d_1 H8	d_2	d_3	b js14	⚖
GN 705-5-*	5	10	M3x4	6	3
GN 705-6-*	6	12	M4x5	8	5
GN 705-7-*	7	12	M4x5	8	5
GN 705-8-*	8	16	M4x6	8	10
GN 705-9-*	9	18	M5x8	10	14
GN 705-10-*	10	20	M5x8	10	18
GN 705-11-*	11	20	M5x8	10	16
GN 705-12-*	12	22	M6x8	12	26
GN 705-13-*	13	22	M6x8	12	26
GN 705-14-*	14	25	M6x8	12	32
GN 705-15-*	15	25	M6x8	12	34
GN 705-16-*	16	28	M6x8	12	38
GN 705-18-*	18	32	M6x8	14	50
GN 705-20-*	20	32	M6x8	14	52
GN 705-22-*	22	36	M6x10	14	69
GN 705-24-*	24	40	M8x12	16	90
GN 705-25-*	25	40	M8x10	16	93
GN 705-26-*	26	40	M8x10	16	100
GN 705-28-*	28	45	M8x12	16	122

GN 705-ST

Description	d_1 H8	d_2	d_3	b js14	⚖
GN 705-30-*	30	45	M8x10	16	136
GN 705-32-*	32	50	M8x12	16	142
GN 705-34-*	34	50	M8x12	16	152
GN 705-35-*	35	56	M8x12	16	166
GN 705-36-*	36	56	M8x12	16	180
GN 705-38-*	38	56	M8x12	16	187
GN 705-40-*	40	63	M10x16	18	220
GN 705-42-*	42	63	M10x16	18	244
GN 705-45-*	45	70	M10x16	18	261
GN 705-48-*	48	70	M10x16	18	287
GN 705-50-*	50	80	M10x16	18	317
GN 705-52-*	52	80	M10x16	18	408
GN 705-55-*	55	80	M10x16	18	429
GN 705-60-*	60	90	M10x16	20	552
GN 705-65-*	65	100	M10x20	20	607
GN 705-70-*	70	100	M10x20	20	687
GN 705-75-*	75	110	M12x20	22	768
GN 705-80-*	80	110	M12x20	22	858

Weight type A

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GN 705

Set collars

GN 705-ZB

Description	d1 H8	d2	d3	b js14	⚖
GN 705-5-E-ZB	5	10	M3x4	6	3
GN 705-6-E-ZB	6	12	M4x5	8	4
GN 705-7-E-ZB	7	12	M4x5	8	5
GN 705-8-E-ZB	8	16	M4x6	8	10
GN 705-9-E-ZB	9	18	M5x8	10	16
GN 705-10-E-ZB	10	20	M5x8	10	18
GN 705-11-E-ZB	11	20	M5x8	10	18
GN 705-12-E-ZB	12	22	M6x8	12	22
GN 705-13-E-ZB	13	22	M6x8	12	24
GN 705-14-E-ZB	14	25	M6x8	12	30
GN 705-15-E-ZB	15	25	M6x8	12	32
GN 705-16-E-ZB	16	28	M6x8	12	37
GN 705-18-E-ZB	18	32	M6x8	14	50
GN 705-20-E-ZB	20	32	M6x8	14	52
GN 705-22-E-ZB	22	36	M6x10	14	69
GN 705-24-E-ZB	24	40	M8x12	16	80
GN 705-25-E-ZB	25	40	M8x10	16	91
GN 705-26-E-ZB	26	40	M8x10	16	96
GN 705-28-E-ZB	28	45	M8x12	16	111
GN 705-30-E-ZB	30	45	M8x10	16	122
GN 705-32-E-ZB	32	50	M8x12	16	142
GN 705-35-E-ZB	35	56	M8x12	16	187
GN 705-40-E-ZB	40	63	M10x16	18	254
GN 705-45-E-ZB	45	70	M10x16	18	317
GN 705-50-E-ZB	50	80	M10x16	18	400
GN 705-60-E-ZB	60	90	M10x16	20	552
GN 705-70-E-ZB	70	100	M10x20	20	607
GN 705-80-E-ZB	80	110	M12x20	22	768

GN 705-NI

STAINLESS STEEL

Description	d1 H8	d2	d3	b js14	⚖
GN 705-5-E-NI	5	10	M3x4	6	3
GN 705-6-E-NI	6	12	M4x5	8	3
GN 705-7-E-NI	7	12	M4x5	8	4
GN 705-8-E-NI	8	16	M4x6	8	10
GN 705-9-E-NI	9	18	M5x8	10	15
GN 705-10-E-NI	10	20	M5x8	10	17
GN 705-11-E-NI	11	20	M5x8	10	18
GN 705-12-E-NI	12	22	M6x8	12	23
GN 705-13-E-NI	13	22	M6x8	12	25
GN 705-14-E-NI	14	25	M6x8	12	28
GN 705-15-E-NI	15	25	M6x8	12	31
GN 705-16-E-NI	16	28	M6x8	12	38
GN 705-18-E-NI	18	32	M6x8	14	53
GN 705-20-E-NI	20	32	M6x8	14	59
GN 705-22-E-NI	22	36	M6x10	14	69
GN 705-24-E-NI	24	40	M8x12	16	88
GN 705-25-E-NI	25	40	M8x10	16	93
GN 705-26-E-NI	26	40	M8x10	16	99
GN 705-28-E-NI	28	45	M8x12	16	100
GN 705-30-E-NI	30	45	M8x10	16	109
GN 705-32-E-NI	32	50	M8x12	16	142
GN 705-34-E-NI	34	50	M8x12	16	150
GN 705-35-E-NI	35	56	M8x12	16	160
GN 705-36-E-NI	36	56	M8x12	16	187
GN 705-38-E-NI	38	56	M8x12	16	200
GN 705-40-E-NI	40	63	M10x16	18	258
GN 705-42-E-NI	42	63	M10x16	18	220
GN 705-45-E-NI	45	70	M10x16	18	300
GN 705-48-E-NI	48	70	M10x16	18	380
GN 705-50-E-NI	50	80	M10x16	18	425

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Semi-split set collars

Steel / Stainless Steel / Aluminium



SPECIFICATION

Version in Steel ST

Sintered Steel (Distaloy AB)
black oxidised with vapor

Socket head cap screw DIN 912
Steel, blank

Version in Stainless Steel

Sintered Steel AISI 316 LHC **NI**
Socekt head cap screw DIN 912-A2

Turned version AISI 316 **A4**
weldable
Socket head cap screw DIN 912-A4

Version in Aluminium AL

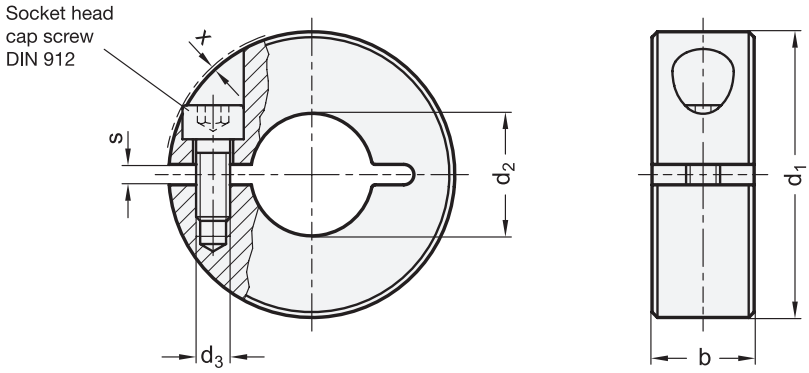
- ground
- Socket head cap screw DIN 912-A2

INFORMATION

Semi-split set collars GN 706.2 can safely and simply be assembled i.e. with high clamping force without damaging the surface of the shaft.
For size d_1 = 20 to 36 d_3 is a through hole; starting from d_1 = 42 d_3 is a threaded blind bore.
These set collars not only serve as an end stop, but they can also be used for fixing or triggering other components such as end limit switches.

TECHNICAL INFORMATION

- ISO-Fundamental tolerances (see page A21)
- Stainless Steel characteristics (see page A26)



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GN 706.2 | Semi-split set collars

*Complete with material index of the Split set collars (AL, ST or NI)

AL Aluminum
ST Steel
NI Stainless Steel

GN 706.2 — **STAINLESS STEEL**

Description	d1	d2 H10 Recommended shaft tolerance h11	b ±0.2	d3	s	x ≈ Max. protrusion of cap thread	⚖
GN 706.2-20-B6-*	20	B 6	9	M 3	2.1	1.2	18
GN 706.2-22-B8-*	22	B 8	9	M 3	2.1	1	20
GN 706.2-26-B10-*	26	B 10	11	M 4	2.1	1.6	32
GN 706.2-30-B12-*	30	B 12	11	M 4	2.1	0.7	40
GN 706.2-32-B14-*	32	B 14	11	M 4	2.1	0.7	41
GN 706.2-36-B15-*	36	B 15	13	M 5	2.1	1.4	68
GN 706.2-36-B16-*	36	B 16	13	M 5	2.1	1.4	70
GN 706.2-42-B18-*	42	B 18	15	M 5	3	0.6	103
GN 706.2-42-B20-*	42	B 20	15	M 5	3	0.6	109
GN 706.2-48-B22-*	48	B 22	15	M 5	3	0	126
GN 706.2-48-B25-*	48	B 25	15	M 5	3	0	139
GN 706.2-55-B28-*	55	B 28	15	M 6	3	0.5	163
GN 706.2-55-B30-*	55	B 30	15	M 6	3	0.5	171
GN 706.2-60-B32-*	60	B 32	15	M 6	4	0.4	178
GN 706.2-60-B35-*	60	B 35	15	M 6	4	0.4	190
GN 706.2-65-B40-*	65	B 40	15	M 6	4	0.5	196

Weight type AL

GN 706.2-A4 — **STAINLESS STEEL**

Description	d1	d2 E8 Recommended shaft tolerance h11	b ±0.2	d3	s	x ≈ Max. protrusion of cap thread	⚖
GN 706.2-36-B16-A4	36	B 16	13	M 5	1.6	1.4	78
GN 706.2-42-B20-A4	42	B 20	15	M 5	1.6	0.6	119
GN 706.2-48-B25-A4	48	B 25	15	M 5	1.6	0	147
GN 706.2-55-B30-A4	55	B 30	15	M 6	1.6	0.5	185
GN 706.2-60-B35-A4	60	B 35	15	M 6	1.6	0.4	207

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Split set collars

Steel / Stainless Steel / Aluminium



SPECIFICATION

Version in Steel ST

Sintered Steel (Distaloy AB)
black oxidised with vapor

Socket head cap screw DIN 912
Steel, blank

Version in Stainless Steel

Sindered Steel AISI 316 LHC **NI**
Socket head cap screw DIN 912-A2

Turned version AISI 316 **A4**
weldable
Socket head cap screw DIN 912-A4

Version in Aluminium AL

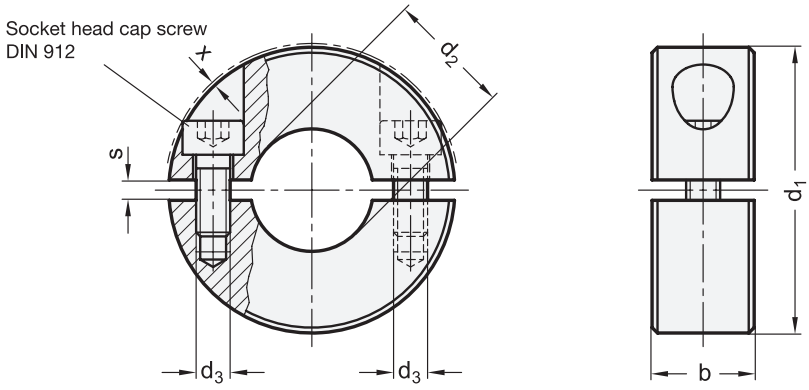
- ground
- Socket head cap screw DIN 912-A2

INFORMATION

Split set collars GN 707.2 are used when the latter cannot be slipped over a shaft.
For size d_1 = 20 to 36 d_3 is a through hole; starting from d_1 = 42 d_3 is a threaded blind bore.
These set collars not only serve as an end stop, but they can also be used for fixing or triggering other components such as end limit switches.

TECHNICAL INFORMATION

- ISO-Fundamental tolerances (see page A21)
- Stainless Steel characteristics (see page A26)



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GN 707.2 | Split set collars

*Complete with material index of the Split set collars (AL, ST or NI)

AL Aluminum
ST Steel
NI Stainless Steel

GN 707.2 — **STAINLESS STEEL**

Description	d1	d2 H10 Recommended shaft tolerance h11	b ±0.2	d3	s	x ≈ Max. protrusion of cap thread	⚖
GN 707.2-20-B6-*	20	B 6	9	M 3	2.1	1.2	16
GN 707.2-22-B8-*	22	B 8	9	M 3	2.1	1	18
GN 707.2-26-B10-*	26	B 10	11	M 4	2.1	1.6	30
GN 707.2-30-B12-*	30	B 12	11	M 4	2.1	0.7	39
GN 707.2-32-B14-*	32	B 14	11	M 4	2.1	0.7	43
GN 707.2-36-B15-*	36	B 15	13	M 5	2.1	1.4	65
GN 707.2-36-B16-*	36	B 16	13	M 5	2.1	1.4	66
GN 707.2-42-B18-*	42	B 18	15	M 5	3	0.6	98
GN 707.2-42-B20-*	42	B 20	15	M 5	3	0.6	104
GN 707.2-48-B22-*	48	B 22	15	M 5	3	0	122
GN 707.2-48-B25-*	48	B 25	15	M 5	3	0	134
GN 707.2-55-B28-*	55	B 28	15	M 6	3	0.5	153
GN 707.2-55-B30-*	55	B 30	15	M 6	3	0.5	165
GN 707.2-60-B32-*	60	B 32	15	M 6	4	0.4	170
GN 707.2-60-B35-*	60	B 35	15	M 6	4	0.4	187
GN 707.2-65-B40-*	65	B 40	15	M 6	4	0.5	189

Weight type AL

GN 707.2-A4 — **STAINLESS STEEL**

Description	d1	d2 E8 Recommended shaft tolerance h11	b ±0.2	d3	s	x ≈ Max. protrusion of cap thread	⚖
GN 707.2-36-B16-A4	36	B 16	13	M 5	1.6	1.4	78
GN 707.2-42-B20-A4	42	B 20	15	M 5	1.6	0.6	110
GN 707.2-48-B25-A4	48	B 25	15	M 5	1.6	0	140
GN 707.2-55-B30-A4	55	B 30	15	M 6	1.6	0.4	170
GN 707.2-60-B35-A4	60	B 35	15	M 6	1.6	0.4	220

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Threaded set collars

Steel / Stainless Steel

SPECIFICATION

Version in Steel

Steel **ST**

Sintered Steel (Distaloy AB)
black oxidised with vapor

Socket head cap screw DIN 912
Steel, blank

Version in Stainless Steel

Stainless Steel (Sintered Steel) **NI**

AISI 316L
Socked head cap screw DIN 912
Stainless Steel AISI 304

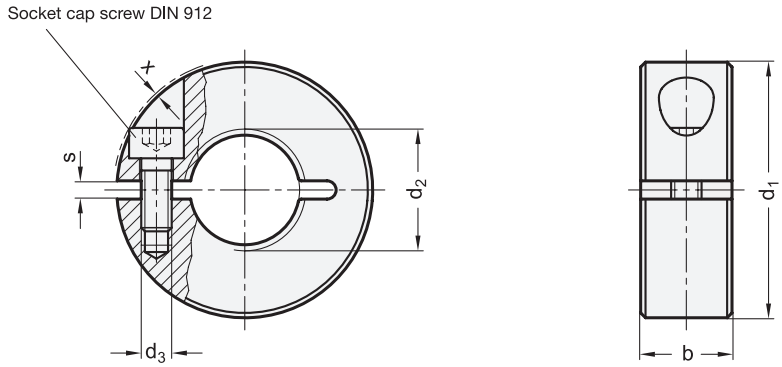


INFORMATION

Threaded set collars GN 706.3 can be used in connection with bolt thread tolerance 6g. After clamping, the thread of the semi-split set collar may no longer be tolerance-stable (6H).
The thread d_3 for sizes d_1 = 20 to 36 is designed as a through hole, from size d_1 = 42 it is designed as blind hole.

TECHNICAL INFORMATION

- Metric ISO thread (see page A19)
- Stainless Steel characteristics (see page A26)



*Complete with material index of the Threaded set collars (ST or NI)

ST	NI
Steel	Stainless Steel

GN 706.3 — **STAINLESS STEEL**

Description	d_1	d_2 6H	b	d_3	s	x ≈ Max. protrusion of cap thread	⚖
GN 706.3-20-M8-*	20	M 8	9	M 3	2.1	1	15
GN 706.3-20-M8x1-*	20	M 8 x 1	9	M 3	2.1	1	16
GN 706.3-22-M10-*	22	M 10	9	M 3	2.1	0.8	14
GN 706.3-22-M10x1-*	22	M 10 x 1	9	M 3	2.1	0.8	18
GN 706.3-26-M12-*	26	M 12	11	M 4	2.1	1.6	31
GN 706.3-26-M12x1,5-*	26	M 12 x 1.5	11	M 4	2.1	1.6	31
GN 706.3-32-M16-*	32	M 16	11	M 4	2.1	0.7	42
GN 706.3-32-M16x1,5-*	32	M 16 x 1.5	11	M 4	2.1	0.7	43
GN 706.3-42-M20-*	42	M 20	15	M 5	3	0.6	106
GN 706.3-42-M20x1,5-*	42	M 20 x 1.5	15	M 5	3	0.6	105
GN 706.3-48-M24x1,5-*	48	M 24 x 1.5	15	M 5	3	0	134
GN 706.3-55-M30x1,5-*	55	M 30 x 1.5	15	M 6	3	0.4	165

Weight ST

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GN 706.4

Semi-split set collars

Steel / Stainless Steel / Aluminium, with adjustable hand lever



SPECIFICATION

Version in Steel

Steel **ST**

Sintered Steel (Distaloy AB)
black oxidised with vapor

Version in Stainless Steel

Stainless Steel (Sintered Steel) **NI**
AISI 316L

Version in Aluminium

Aluminium **AL**
ground

Adjustable hand levers

Zinc die casting
plastic coated
black, RAL 9005, textured finish

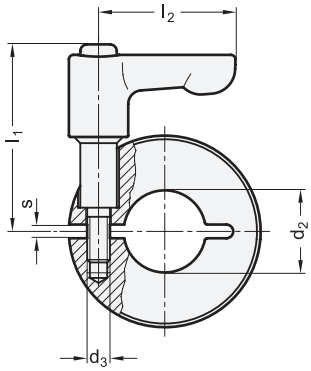
Screw insert and retaining screw
Stainless Steel AISI 303

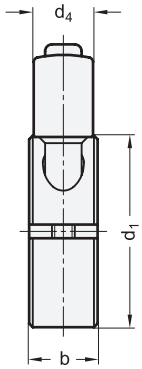
INFORMATION

Semi-split set collars GN 706.4 can safely and simply be assembled i.e. with high clamping force without damaging the surface of the shaft.
For size d_1 = 32 and 36, d_3 is a through hole; starting from d_1 = 42 d_3 is a threaded blind bore.
These set collars not only serve as an end stop, but they can also be used for fixing or triggering other components such as end limit switches.

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)





*Complete with material index of the Semi-split set collars (AL, ST or NI)

AL	ST	NI
Aluminum	Steel	Stainless Steel

GN 706.4 — **STAINLESS STEEL**

Description	d1	d2 H10 Recommended shaft tolerance h11	b ±0.2	d3	d4	l1	l2	s	⚖
GN 706.4-32-B14-*	32	B 14	11	M 4	13	37	30	2.1	70
GN 706.4-36-B15-*	36	B 15	13	M 5	13	38.5	30	2.1	112
GN 706.4-36-B16-*	36	B 16	13	M 5	13	38.5	30	2.1	100
GN 706.4-42-B18-*	42	B 18	15	M 5	13	41	30	3	120
GN 706.4-42-B20-*	42	B 20	15	M 5	13	41	30	3	145
GN 706.4-48-B22-*	48	B 22	15	M 5	13	43	45	3	180
GN 706.4-48-B25-*	48	B 25	15	M 5	13	43	45	3	167
GN 706.4-55-B28-*	55	B 28	15	M 6	13	45	45	3	200
GN 706.4-55-B30-*	55	B 30	15	M 6	13	45	45	3	200
GN 706.4-60-B32-*	60	B 32	15	M 6	13	46.5	45	4	240
GN 706.4-60-B35-*	60	B 35	15	M 6	13	46.5	45	4	220
GN 706.4-65-B40-*	65	B 40	15	M 6	13	47.5	45	4	240

Weight ST

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Clamping elements

for adjustable spindles

SPECIFICATION

Types

- Type **H**: Clamping screw with adjustable handle
- Type **S**: Clamping screw with internal hexagon

Aluminium
anodized black **ELS**

Wedge
Brass

Adjustable hand levers

- black, RAL 9005, textured finish
- with setting screw, Stainless Steel AISI 303

Setting screw with internal hexagon
Stainless Steel AISI 303

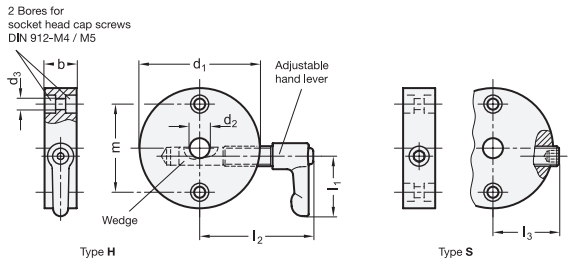
INFORMATION

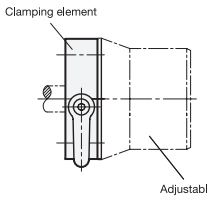
Clamping elements GN 826 are normally used in connection with control knobs and smaller handwheels.
Spindles can so be clamped gently and easily and without much construction and installation effort. The clamping wedge stiffens the spindle, e.g., to prevent maladjustments caused by vibrations or to secure the spindle after adjustment.
This clamping element can also be used to store the spindle.
The clamping element may be mounted such that the clamping lever / the clamping screw is positioned either on the left or the right hand side.
Indicator arrows which can be attached to the circumference of the clamping element are found under GN 711.1. (see page 640)

TECHNICAL INFORMATION

- ISO-Fundamental tolerances (see page A21)
- Stainless Steel characteristics (see page A26)







GN 826

Description	d1	d2 H7	d3	b	m	l1	l2 max.	l3 max.	⚖
GN 826-40-B8-H-ELS	40	B 8	4.3	16	28	30	50	-	80
GN 826-40-B10-H-ELS	40	B 10	4.3	16	28	30	50	-	79
GN 826-50-B8-H-ELS	50	B 8	5.3	16	36	30	56	-	110
GN 826-50-B10-H-ELS	50	B 10	5.3	16	36	30	56	-	110
GN 826-50-B12-H-ELS	50	B 12	5.3	16	36	30	56	-	109
GN 826-60-B10-H-ELS	60	B 10	5.3	16	44	30	61	-	148
GN 826-60-B12-H-ELS	60	B 12	5.3	16	44	30	61	-	147
GN 826-40-B8-S-ELS	40	B 8	4.3	16	28	-	-	27	54
GN 826-40-B10-S-ELS	40	B 10	4.3	16	28	-	-	27	54
GN 826-50-B8-S-ELS	50	B 8	5.3	16	36	-	-	32	84
GN 826-50-B10-S-ELS	50	B 10	5.3	16	36	-	-	32	84
GN 826-50-B12-S-ELS	50	B 12	5.3	16	36	-	-	32	83
GN 826-60-B10-S-ELS	60	B 10	5.3	16	44	-	-	36	122
GN 826-60-B12-S-ELS	60	B 12	5.3	16	44	-	-	36	122

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GN 704

Quick release set collars

SPECIFICATION

Ring
Aluminium
black anodized

Lever
Aluminium
yellow anodized

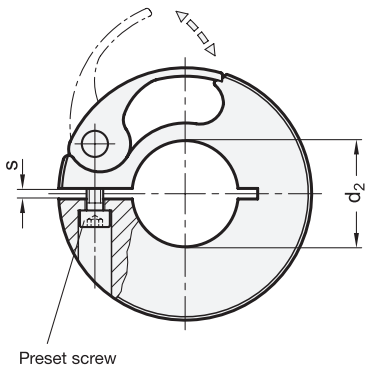


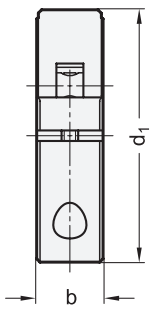
INFORMATION

The force lock with the shaft is made in the GN 704 quick release set collars via an eccentric lever which allows the collars to be adjusted easily and quickly without tools. The aluminium design delivers low inertia values.
The specified tightening torque of the screw is a recommended value with which the collar clamped to a shaft (with closed eccentric lever) is capable of reaching the specified axial load capacity. The details on axial load capacity are non-binding guidance values and do not constitute a warranty of characteristics.
Keeping the friction surface of the eccentric lever slightly greased will help to prolong the useful service life.

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)





GN 704

Description	d1	d2 Recommended shaft tolerance h8	b	s	Tightening torque of the screw in Nm ≈	Axial load in N ≈	⚖
GN 704-38-B6	38	B 6	10	1.5	0.5	130	27
GN 704-38-B8	38	B 8	10	1.5	0.5	130	25
GN 704-38-B10	38	B 10	10	1.5	0.5	150	25
GN 704-38-B12	38	B 12	10	1.5	0.5	160	25
GN 704-38-B14	38	B 14	10	1.5	0.5	180	24
GN 704-38-B15	38	B 15	10	1.5	0.5	220	22
GN 704-38-B16	38	B 16	10	1.5	0.5	260	23
GN 704-50-B20	50	B 20	13	1.5	0.7	310	54
GN 704-50-B25	50	B 25	13	1.5	0.7	400	49
GN 704-50-B28	50	B 28	13	1.5	0.7	430	43
GN 704-50-B30	50	B 30	13	1.5	0.7	450	41
GN 704-75-B32	75	B 32	15	1.5	1.5	460	126
GN 704-75-B35	75	B 35	15	1.5	1.5	480	119
GN 704-75-B38	75	B 38	15	1.5	1.5	530	113

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Spherical washers

Steel / Stainless Steel



SPECIFICATION

Version in Steel

Types

- Type **C**: male
- Type **D**: female $d_4 = d_3$
- Type **G**: female $d_4 > d_3$

Type **C** / **D**
case hardening steel

case hardened
all round depth 0.2 to 0.4 mm
hardness (550+ 100) HV 10

Type **G**
Heat-treatable Steel
tempered
hardness (350 + 80) HV 30

Version in Stainless Steel

Types

- Type **C**: male
- Type **D**: female $d_4 = d_3$

Stainless Steel AISI 303 **NI**
not hardened

Stainless Steel AISI 316 **A4**
not hardened

INFORMATION

Spherical washers DIN 6319 are used for clamping on non-parallel surfaces.
Female washers Type G are mainly used on elongated holes.
When utilizing hexagon nuts with spherical seating DIN 6330 (see page 988) the male washer is redundant.

ON REQUEST (STEEL VERSION)

- Not hardened spherical washers.

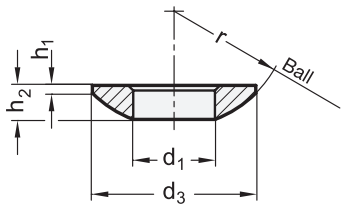
TECHNICAL INFORMATION

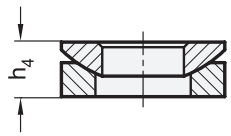
- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)

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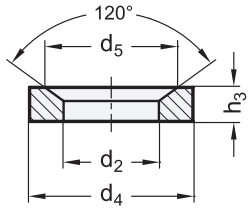
DIN 6319 | Spherical washers

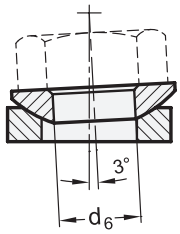
Type **C**





Type **D / G**





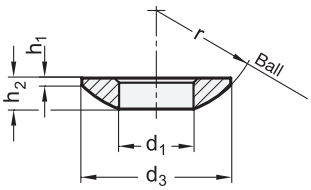
DIN 6319

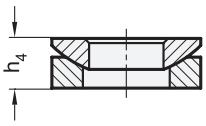
Description	d1 H13	d2 H13	d3	d4	d5	d6	h1	h2	h3	h4	r	Transferable static bolt force in kN max.	⚖
DIN 6319-6,4-C	6.4	-	12	-	-	M 6	0.7	2.3	-	-	9	9	1
DIN 6319-8,4-C	8.4	-	17	-	-	M 8	0.6	3.2	-	-	12	17	2
DIN 6319-10,5-C	10.5	-	21	-	-	M 10	0.8	4	-	-	15	26	5
DIN 6319-13-C	13	-	24	-	-	M 12	1.1	4.6	-	-	17	38	7
DIN 6319-15-C	15	-	28	-	-	M 14	1.2	5	-	-	22	53	12
DIN 6319-17-C	17	-	30	-	-	M 16	1.3	5.3	-	-	22	73	13
DIN 6319-21-C	21	-	36	-	-	M 20	2	6.3	-	-	27	117	30
DIN 6319-25-C	25	-	44	-	-	M 24	2.4	8.2	-	-	32	168	45
DIN 6319-31-C	31	-	56	-	-	M 30	3.6	11.2	-	-	41	269	100
DIN 6319-37-C	37	-	68	-	-	M 36	4.6	14	-	-	50	394	190
DIN 6319-43-C	43	-	78	-	-	M 42	6.5	17	-	-	58	542	305
DIN 6319-50-C	50	-	92	-	-	M 48	8	21	-	-	67	714	540
DIN 6319-7,1-D	-	7.1	-	12	11	M 6	-	-	2.8	4.2	9	9	2
DIN 6319-9,6-D	-	9.6	-	17	14.5	M 8	-	-	3.5	5.6	12	17	4
DIN 6319-12-D	-	12	-	21	18.5	M 10	-	-	4.2	6.5	15	26	7
DIN 6319-14,2-D	-	14.2	-	24	20	M 12	-	-	5	8	17	38	10
DIN 6319-16,5-D	-	16.5	-	28	24.8	M 14	-	-	5.6	8.5	22	53	15
DIN 6319-19-D	-	19	-	30	26	M 16	-	-	6.2	9.6	22	73	18
DIN 6319-23,2-D	-	23.2	-	36	31	M 20	-	-	7.5	11.7	27	117	30
DIN 6319-28-D	-	28	-	44	37	M 24	-	-	9.5	15.2	32	168	61
DIN 6319-35-D	-	35	-	56	49	M 30	-	-	12	19.2	41	269	120
DIN 6319-42-D	-	42	-	68	60	M 36	-	-	15	23.5	50	394	230
DIN 6319-49-D	-	49	-	78	70	M 42	-	-	18	29	58	542	360
DIN 6319-56-D	-	56	-	92	82	M 48	-	-	22	35.5	67	714	640
DIN 6319-7,1-G	-	7.1	-	17	11	M 6	-	-	4	-	9	9	6
DIN 6319-9,6-G	-	9.6	-	24	14.5	M 8	-	-	5	-	12	17	14
DIN 6319-12-G	-	12	-	30	18.5	M 10	-	-	5	-	15	26	20
DIN 6319-14,2-G	-	14.2	-	36	20	M 12	-	-	6	-	17	38	38
DIN 6319-19-G	-	19	-	44	26	M 16	-	-	7	-	22	73	50
DIN 6319-23,2-G	-	23.2	-	50	31	M 20	-	-	8	-	27	117	92
DIN 6319-28-G	-	28	-	60	37	M 24	-	-	10	-	32	168	165
DIN 6319-35-G	-	35	-	68	49	M 30	-	-	12	-	41	269	235

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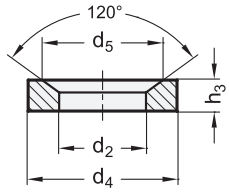
DIN 6319 | Spherical washers

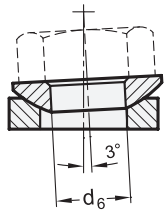
Type **C**





Type **D / G**





DIN 6319-NI — **STAINLESS STEEL**

Description	d1 H13	d2 H13	d3	d4	d5	d6	h1	h2	h3	h4	r	⚖
DIN 6319-6,4-C-NI	6.4	-	12	-	-	M 6	0.7	2.3	-	-	9	1
DIN 6319-8,4-C-NI	8.4	-	17	-	-	M 8	0.6	3.2	-	-	12	3
DIN 6319-10,5-C-NI	10.5	-	21	-	-	M 10	0.8	4	-	-	15	6
DIN 6319-13-C-NI	13	-	24	-	-	M 12	1.1	4.6	-	-	17	8
DIN 6319-17-C-NI	17	-	30	-	-	M 16	1.3	5.3	-	-	22	13
DIN 6319-21-C-NI	21	-	36	-	-	M 20	2	6.3	-	-	27	22
DIN 6319-25-C-NI	25	-	44	-	-	M 24	2.4	8.2	-	-	32	43
DIN 6319-31-C-NI	31	-	56	-	-	M 30	3.6	11.2	-	-	41	110
DIN 6319-37-C-NI	37	-	68	-	-	M 36	4.6	14	-	-	50	190
DIN 6319-43-C-NI	43	-	78	-	-	M 42	6.5	17	-	-	58	305
DIN 6319-50-C-NI	50	-	92	-	-	M 48	8	21	-	-	67	540
DIN 6319-7,1-D-NI	-	7.1	-	12	11	M 6	-	-	2.8	4.2	9	1
DIN 6319-9,6-D-NI	-	9.6	-	17	14.5	M 8	-	-	3.5	5.6	12	4
DIN 6319-12-D-NI	-	12	-	21	18.5	M 10	-	-	4.2	6.5	15	6
DIN 6319-14,2-D-NI	-	14.2	-	24	20	M 12	-	-	5	8	17	10
DIN 6319-19-D-NI	-	19	-	30	26	M 16	-	-	6.2	9.6	22	18
DIN 6319-23,2-D-NI	-	23.2	-	36	31	M 20	-	-	7.5	11.7	27	32
DIN 6319-28-D-NI	-	28	-	44	37	M 24	-	-	9.5	15.2	32	61
DIN 6319-35-D-NI	-	35	-	56	49	M 30	-	-	12	19.2	41	110
DIN 6319-42-D-NI	-	42	-	68	60	M 36	-	-	15	23.5	50	230
DIN 6319-49-D-NI	-	49	-	78	70	M 42	-	-	18	29	58	360
DIN 6319-56-D-NI	-	56	-	92	82	M 48	-	-	22	35.5	67	640

DIN 6319-A4 — **STAINLESS STEEL**

Description	d1 H13	d2 H13	d3	d4	d5	d6	h1	h2	h3	h4	r	⚖
DIN 6319-6,4-C-A4	6.4	-	12	-	-	M 6	0.7	2.3	-	-	9	3
DIN 6319-8,4-C-A4	8.4	-	17	-	-	M 8	0.6	3.2	-	-	12	2
DIN 6319-10,5-C-A4	10.5	-	21	-	-	M 10	0.8	4	-	-	15	7
DIN 6319-13-C-A4	13	-	24	-	-	M 12	1.1	4.6	-	-	17	7
DIN 6319-17-C-A4	17	-	30	-	-	M 16	1.3	5.3	-	-	22	13
DIN 6319-21-C-A4	21	-	36	-	-	M 20	2	6.3	-	-	27	22
DIN 6319-25-C-A4	25	-	44	-	-	M 24	2.4	8.2	-	-	32	43
DIN 6319-31-C-A4	31	-	56	-	-	M 30	3.6	11.2	-	-	41	110
DIN 6319-7,1-D-A4	-	7.1	-	12	11	M 6	-	-	2.8	4.2	9	2
DIN 6319-9,6-D-A4	-	9.6	-	17	14.5	M 8	-	-	3.5	5.6	12	4
DIN 6319-12-D-A4	-	12	-	21	18,5	M 10	-	-	4.2	6.5	15	7
DIN 6319-14,2-D-A4	-	14.2	-	24	20	M 12	-	-	5	8	17	10
DIN 6319-19-D-A4	-	19	-	30	26	M 16	-	-	6.2	9.6	22	18
DIN 6319-23,2-D-A4	-	23.2	-	36	31	M 20	-	-	7.5	11.7	27	31
DIN 6319-28-D-A4	-	28	-	44	37	M 24	-	-	9.5	15.2	32	61
DIN 6319-35-D-A4	-	35	-	56	49	M 30	-	-	12	19.2	41	120

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GN 6319.1

Spherical washers

Steel / Stainless Steel, combined



SPECIFICATION

Version in Steel
Steel **ST**
Case hardening steel
case hardened
all round depth 0.2 to 0.4 mm
hardness (550 + 100) HV 10

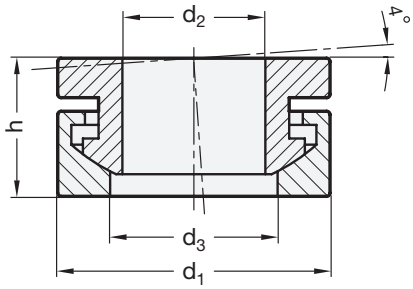
Version in Stainless Steel
Stainless Steel AISI 303 **NI**

INFORMATION

Spherical washers combinations GN 6319.1 provide an "undetachable" connection for male and female spherical washers DIN 6319 (see page 962).
They simply storage and allow fast and efficient installation.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



GN 6319.1

Description	d1	d2	d3	h	For screw	Static load F in kN	⚖
GN 6319.1-13-ST	13	6.4	7.4	7	M 6	9	4
GN 6319.1-17-ST	17	8.4	9.7	8.5	M 8	17	9
GN 6319.1-21-ST	21	10.5	12	10.5	M 10	26	17
GN 6319.1-25-ST	25	13	14.8	13	M 12	38	28
GN 6319.1-32-ST	32	17	19.7	17	M 16	73	62
GN 6319.1-40-ST	40	21	24.6	20.3	M 20	117	114

GN 6319.1-NI STAINLESS STEEL

Description	d1	d2	d3	h	For screw	Static load F in kN	⚖
GN 6319.1-13-NI	13	6.4	7.4	7	M 6	6	4
GN 6319.1-17-NI	17	8.4	9.7	8.5	M 8	12	9
GN 6319.1-21-NI	21	10.5	12	10.5	M 10	16	18
GN 6319.1-25-NI	25	13	14.8	13	M 12	24	20
GN 6319.1-32-NI	32	17	19.7	17	M 16	45	60
GN 6319.1-40-NI	40	21	24.6	20.3	M 20	71	110

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Spherical levelling washers

Steel / Stainless Steel

SPECIFICATION

Version in Steel
Steel, 1.7225 (42 CrMo 4 V) **ST**
zinc plated, blue passivated

Version in Stainless Steel
Stainless Steel AISI 303 **NI**

INFORMATION

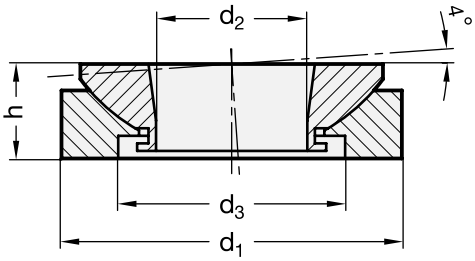
Spherical levelling washers GN 350.3 have been designed to match the levelling sets GN 350 (see page 1014), GN 350.1 (see page 1016), GN 350.2 (see page 1018), GN 350.5 (see page 1020).
The two spherical washers are used together „undetachably".
The load bearing capacity of these spherical washers is relatively high. This is not only due to the material quality but also to the matched sphere of the concave „pan".
Furthermore it is recommended using high-strength washers for bridging d_2.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)







GN 350.3

Description	d_1 -1	d_2	d_3	h	For threaded bolt up to max.	Static load in kN	⚖
GN 350.3-25-ST	25	8.5	15	8	M 8	40	22
GN 350.3-32-ST	32	13	20	10	M 10	65	44
GN 350.3-45-ST	45	20	30	12.5	M 16	120	90
GN 350.3-58-ST	58	29	38	16	M 24	210	215
GN 350.3-70-ST	70	36	48	20	M 30	330	362
GN 350.3-80-ST	80	44	61	20	M 36	495	425
GN 350.3-105-ST	105	58	78	25	M 48	920	930

GN 350.3-NI **STAINLESS STEEL**

Description	d_1 -1	d_2	d_3	h	For threaded bolt up to max.	Static load in kN	⚖
GN 350.3-25-NI	25	8.5	15	8	M 8	27.1	20
GN 350.3-32-NI	32	13	20	10	M 10	43.4	45
GN 350.3-45-NI	45	20	30	12.5	M 16	84	105
GN 350.3-58-NI	58	29	38	16	M 24	148	215
GN 350.3-70-NI	70	36	48	20	M 30	225	372
GN 350.3-80-NI	80	44	61	20	M 36	323	427
GN 350.3-105-NI	105	58	78	25	M 48	546	940

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GN 6341

Washers

Steel / Stainless Steel

SPECIFICATION

Types

- Type **A**: with cylindrical bore
- Type **B**: with bore for countersunk screw

Version in Steel
Steel **ST**

- turned
- blackened **BT**
- zinc plated, blue passivated **ZB**

Version in Stainless Steel
Stainless Steel AISI 303 **NI**

- turned
- matt shot-blasted **MT**

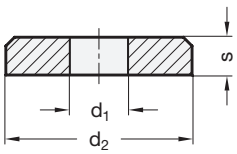


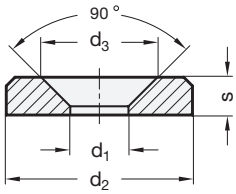
INFORMATION

Washers GN 6341 are used mainly in mechanical machine and jig construction when DIN 125, DIN 9021 and DIN 6340 washers no longer meet requirements.
In particular, Type B for countersunk screws is ideal for solid screw connections with a low construction height.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)





*Complete with type index of the Washers
BT **ZB**

GN 6341

Description	d1 +0.5/+0.2	d2	d3	s	⚖
GN 6341-ST-4-10-A-*	4	10	-	2.5	1
GN 6341-ST-4-13-A-*	4	13	-	2.5	2
GN 6341-ST-5-13-A-*	5	13	-	3	3
GN 6341-ST-5-16-A-*	5	16	-	3	3
GN 6341-ST-6-15-A-*	6	15	-	4	4
GN 6341-ST-6-20-A-*	6	20	-	4	8
GN 6341-ST-8-20-A-*	8	20	-	5	9
GN 6341-ST-8-26-A-*	8	26	-	5	18
GN 6341-ST-10-25-A-*	10	25	-	6.5	20
GN 6341-ST-10-32-A-*	10	32	-	6.5	40
GN 6341-ST-12-30-A-*	12	30	-	7.5	34
GN 6341-ST-12-40-A-*	12	40	-	7.5	65
GN 6341-ST-4-10-B-*	4	10	8.4	2.5	1
GN 6341-ST-4-13-B-*	4	13	8.4	2.5	2
GN 6341-ST-5-13-B-*	5	13	10.5	3	2
GN 6341-ST-5-16-B-*	5	16	10.5	3	3
GN 6341-ST-6-15-B-*	6	15	12.6	4	3
GN 6341-ST-6-20-B-*	6	20	12.6	4	8
GN 6341-ST-8-20-B-*	8	20	16.8	5	8
GN 6341-ST-8-26-B-*	8	26	16.8	5	16
GN 6341-ST-10-25-B-*	10	25	21	6.5	15
GN 6341-ST-10-32-B-*	10	32	21	6.5	30
GN 6341-ST-12-30-B-*	12	30	25.2	7.5	25
GN 6341-ST-12-40-B-*	12	40	25.2	7.5	57

GN 6341-NI **STAINLESS STEEL**

Description	d1 +0.5/+0.2	d2	d3	s	⚖
GN 6341-NI-4-10-A-MT	4	10	-	2.5	1
GN 6341-NI-4-13-A-MT	4	13	-	2.5	2
GN 6341-NI-5-13-A-MT	5	13	-	3	2
GN 6341-NI-5-16-A-MT	5	16	-	3	4
GN 6341-NI-6-15-A-MT	6	15	-	4	4
GN 6341-NI-6-20-A-MT	6	20	-	4	8
GN 6341-NI-8-20-A-MT	8	20	-	5	10
GN 6341-NI-8-26-A-MT	8	26	-	5	18
GN 6341-NI-10-25-A-MT	10	25	-	6.5	20
GN 6341-NI-10-32-A-MT	10	32	-	6.5	36
GN 6341-NI-12-30-A-MT	12	30	-	7.5	33
GN 6341-NI-12-40-A-MT	12	40	-	7.5	65
GN 6341-NI-4-10-B-MT	4	10	8.4	2.5	1
GN 6341-NI-4-13-B-MT	4	13	8.4	2.5	2
GN 6341-NI-5-13-B-MT	5	13	10.5	3	2
GN 6341-NI-5-16-B-MT	5	16	10.5	3	4
GN 6341-NI-6-15-B-MT	6	15	12.6	4	4
GN 6341-NI-6-20-B-MT	6	20	12.6	4	8
GN 6341-NI-8-20-B-MT	8	20	16.8	5	5
GN 6341-NI-8-26-B-MT	8	26	16.8	5	16
GN 6341-NI-10-25-B-MT	10	25	21	6.5	20
GN 6341-NI-10-32-B-MT	10	32	21	6.5	31
GN 6341-NI-12-30-B-MT	12	30	25.2	7.5	25
GN 6341-NI-12-40-B-MT	12	40	25.2	7.5	60

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Heavy duty washers

Low type, High type

SPECIFICATION

Steel, 1.7227 (42 CrMoS 4 V)

tempered to tensile strength
Rm = 1220 ... 1400 N/mm²
fine turned and slide ground

blackened **BT**

GEOMET 500-treated **GO**

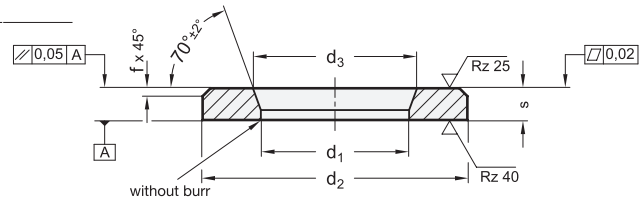


INFORMATION

The influence of a washer on the quality of the screwed connection is very often underestimated. With washers GN 6339, high quality preloaded screwed connections can be established.
A high static clamping force can be reached avoiding loss of tension. At a specified preloaded clamping force it is often possible to use thinner bolts. This can result in a better ratio between clamping distance and bolt diameter to minimise the danger of failure.
The case hardened smooth bolt head/screw contact face leads to a lower and more constant friction co-efficient even when continuous clamping and releasing operations are required.
Washers GN 6339 are only suitable for machine construction bolts of classes 8.8 / 10.9 / 12.9, and not for steel bolts DIN 6914.

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)



*Complete with finish index of the Heavy duty washer

BT	GO
Blackened	Geomet 500-treaded

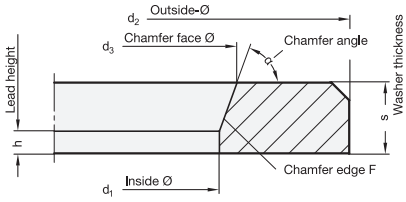
GN 6339

Description	d1 H13	d2 h13 Low type	d2 h13 High type	s Low type	s High type	d3 H13	f Low type	f High type	For threaded bolts	⚖
GN 6339-6,3-12-2,5-*	6.3	12	-	2.5	-	7	0.6	-	M 6	2
GN 6339-6,3-17-3-*	6.3	-	17	-	3	7	-	1	M 6	2
GN 6339-8,4-16-2,5-*	8.4	16	-	2.5	-	9.5	0.75	-	M 8	2
GN 6339-8,4-21-4-*	8.4	-	21	-	4	9.5	-	1.5	M 8	8
GN 6339-10,4-20-3-*	10.4	20	-	3	-	11.5	0.75	-	M 10	5
GN 6339-10,4-25-4-*	10.4	-	25	-	4	11.5	-	1.5	M 10	12
GN 6339-12,5-24-3,5-*	12.5	24	-	3.5	-	14	1	-	M 12	19
GN 6339-12,5-30-6-*	12.5	-	30	-	6	14	-	2	M 12	26
GN 6339-14,5-28-3,5-*	14.5	28	-	3.5	-	16	1	-	M 14	12
GN 6339-14,5-36-6-*	14.5	-	36	-	6	16	-	2	M 14	38
GN 6339-16,5-30-4-*	16.5	30	-	4	-	18	1	-	M 16	15
GN 6339-16,5-40-6-*	16.5	-	40	-	6	18	-	2	M 16	47
GN 6339-18,5-34-5-*	18.5	34	-	5	-	21	1.5	-	M 18	23
GN 6339-18,5-44-8-*	18.5	-	44	-	8	21	-	2.5	M 18	74
GN 6339-20,5-37-5-*	20.5	37	-	5	-	23	1.5	-	M 20	78
GN 6339-20,5-44-8-*	20.5	-	44	-	8	23	-	2.5	M 20	71
GN 6339-22,5-40-5-*	22.5	40	-	5	-	25	1.5	-	M 22	82
GN 6339-22,5-50-8-*	22.5	-	50	-	8	25	-	2.5	M 22	93
GN 6339-24,5-44-5-*	24.5	44	-	5	-	27	1.5	-	M 24	99
GN 6339-24,5-50-10-*	24.5	-	50	-	10	27	-	3.5	M 24	100
GN 6339-28-50-6-*	28	50	-	6	-	31	1.5	-	M 27	150
GN 6339-28-60-10-*	28	-	60	-	10	31	-	3.5	M 27	161
GN 6339-31-56-6-*	31	56	-	6	-	34	1.5	-	M 30	190
GN 6339-31-68-10-*	31	-	68	-	10	34	-	3.5	M 30	212
GN 6339-37-66-7-*	37	66	-	7	-	40	2	-	M 36	122

Weight type BT

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TECHNICAL INFORMATION



Outside diameter d_2

The outside diameter d_2 of the lower type refers to washers DIN 125 / ISO 7089, and the higher type to washers DIN 7349.

Chamfer face diameter d_3

This dimension is, together with the chamfer angle α 70° and the inside diameter d_1, the most important dimension of these heavy duty washers. Diameter d_3 is actually, even in the lower tolerance range, larger than the max. contact under head diameter on a bolt. This will ensure that the chamfer of d_3 of the hardened washer will not be pressed into the underhead radius causing an indentation on the bolt which would damage the bolt.

Inside diameter d_1

The inside diameter d_1 is kept as small as possible ensuring that the bolt is inserted centrically into the washer. The choice of a matching pair of bolt and washer with least radial clearance is important in order to avoid a mismatch between chamfer diameter d_3 and the max. contact area diameter of the bolt head.

Chamfer angle α = 70° ± 2°

This relatively large angle is necessary when using hexagon headed bolts, which usually have a tapered transfer from shank to head (the so-called trumpet) to avoid fouling of the washer.

Chamfer edge F

The extended chamfer side F as seen from d_3 creates with d_1 an edge the so-called trumpet of the transfer from shank to head of the bolt, so that the smallest radial clearance prevails. Even with the smallest angle of 680 and the lower dimension of d_3 and d_1 the radial clearance of all bolts to DIN EN is still sufficient.

Lead height h

This is the height of the cylindrical part of the internal diameter d_1, h should be as high as possible in relation to the pitch of the thread of the bolt.

Washer thickness s

Washers GN 6339 are higher when compared with DIN washers (exception: DIN 7439 which is equal to the high type).A larger thickness leads to a stronger washer. As a result, bearing in mind the chamfer d_3, a minimum height is established which ensures that the bolt thread will not be damaged when the bolt is tightened.

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GN 183

C-Washers

SPECIFICATION

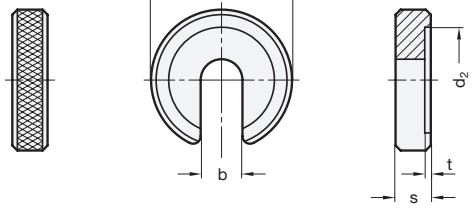
Steel

- Case hardened
- blackened

INFORMATION

C-Washers GN 183 maybe installed without the removal of the nut from the stud.
In terms of dimensions they are almost identical to DIN 6372 C-Washers.





GN 183

Description	d1	b	d2	s	t	For threaded bolt	⚖
GN 183-22-6,2	22	6.2	16	6	0.8	M 6	13
GN 183-28-8,3	28	8.3	21	7	1	M 8	23
GN 183-34-10,4	34	10.4	25	8	1.2	M 10	38
GN 183-40-12,5	40	12.5	30	9	1.8	M 12	57
GN 183-56-16,5	56	16.5	37	12	1.8	M 16	161

DIN 6371

Captive C-Washers

SPECIFICATION

Steel

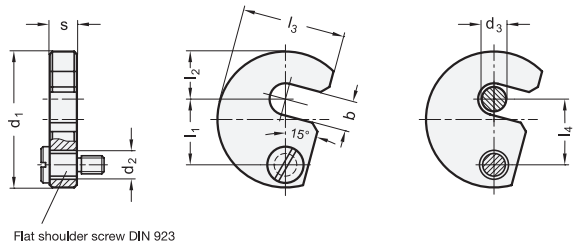
- tempered
- blackened

Flat shoulder screw DIN 923
blackened

INFORMATION

Captive C-Washers DIN 6371 transfer the clamping force of screw or nut to the workpiece. After releasing the thread they can be swung away from the clamping point. They are hinged and thus can never be mislaid.
Flat shoulder screws DIN 923 are included.





DIN 6371

Description	d1	b	d2	d3	l1	l2	l3	l4	s -0.5	Screw DIN 923	⚖
DIN 6371-38-7,5	38	7.5	9	6	19.6	11	29	19	9.8	M 6 x 10	64
DIN 6371-43-9,5	43	9.5	9	8	21.6	14	32.5	21	9.8	M 6 x 10	80
DIN 6371-48-11,5	48	11,5	9	10	23.6	17	36.5	23	9.8	M 6 x 10	99
DIN 6371-61-13,5	61	13.5	11	12	29.6	22	45	29	11.8	M 8 x 12	189
DIN 6371-68-17,5	68	17.5	11	16	33.6	25	50	33	11.8	M 8 x 12	226
DIN 6371-74-21,5	74	21.5	11	20	36.6	28	55	36	11.8	M 8 x 12	262
DIN 6371-82-25,5	82	25.5	11	24	40.6	32	62	40	15.8	M 8 x 16	423
DIN 6371-97-32	97	32	11	30	49	39	73	48	15.8	M 8 x 16	560

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GN 184

Countersunk washers

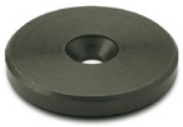
SPECIFICATION

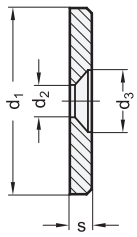
Steel

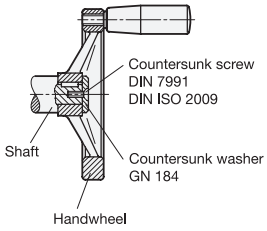
- turned
- blackened

INFORMATION

Countersunk washers GN 184 are retained to the face of the shaft end with a countersunk head screw DIN ISO 2009 or DIN 7991 forming a clean-look end cap.
A typical application is the retention of handwheels with hub keyed to the shaft.







GN 184

Description	d1	d2	d3	s	For countersunk screws DIN 7991 DIN ISO 2009	⚖
GN 184-16	16	4.3	8	3	M 4	4
GN 184-20	20	4.3	8	3	M 4	6
GN 184-22	22	5.3	10	3.5	M 5	9
GN 184-25	25	5.3	10	3.5	M 5	12
GN 184-28	28	5.3	10	3.5	M 5	15
GN 184-32	32	6.4	12	4	M 6	21
GN 184-36	36	6.4	12	4	M 6	29
GN 184-40	40	6.4	12	5	M 6	46
GN 184-45	45	6.4	12	6	M 6	71
GN 184-52	52	6.4	12	6	M 6	90

GN 184.5

Stainless Steel-Countersunk washers

SPECIFICATION

Stainless Steel AISI 303

- turned
- matt shot-blasted

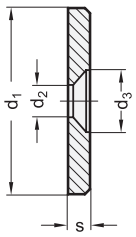
INFORMATION

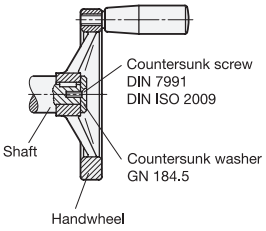
Stainless Steel-Countersunk washers GN 184.5 are retained to the face of the shaft end with a countersunk head screw DIN ISO 2009 or DIN 7991 forming a clean-look end cap.
A typical application is the retention of handwheels with hub keyed to the shaft.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)







GN 184.5 STAINLESS STEEL

Description	d1	d2	d3	s	For countersunk screws DIN 7991 DIN ISO 2009	⚖
GN 184.5-16	16	4.3	8	3	M 4	4
GN 184.5-20	20	4.3	8	3	M 4	6
GN 184.5-22	22	5.3	10	3.5	M 5	9
GN 184.5-25	25	5.3	10	3.5	M 5	12
GN 184.5-28	28	5.3	10	3.5	M 5	15
GN 184.5-32	32	6.4	12	4	M 6	22
GN 184.5-36	36	6.4	12	4	M 6	32
GN 184.5-40	40	6.4	12	5	M 6	46
GN 184.5-45	45	6.4	12	6	M 6	70
GN 184.5-52	52	6.4	12	6	M 6	94

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GN 185

INOX STAINLESS STEEL · RoHS

Stainless Steel-Bezel discs

SPECIFICATION

Stainless Steel AISI 303 **NI**
- matt shot-blasted

Plastic disc (Polyamide PA)
white

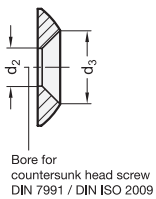
INFORMATION

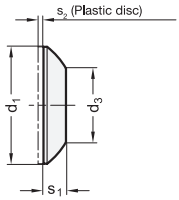
Stainless Steel-Bezel discs GN 185 are used for shrouding screw joints when a visually nice finish is required.
The purpose of the plastic discs supplied as a standard item on delivery is merely to avoid damage to improved surfaces.

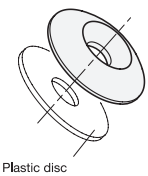
TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)









GN 185 — **STAINLESS STEEL**

Description	d1	d2	d3	s1	s2	For countersunk screws DIN 7991 DIN ISO 2009	⚖
GN 185-18-NI	18	4.3	8.5	3	0.8	M 4	3
GN 185-20-NI	20	5.3	10.5	3.5	1	M 5	5
GN 185-22-NI	22	6.4	12.6	4	1	M 6	7
GN 185-26-NI	26	8.4	16.8	5	1	M 8	11

DIN 6340

RoHS

Washers

SPECIFICATION

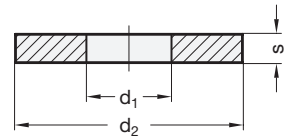
Heat-treatable Steel

- tempered hardness (350 + 80) HV 30
- phosphate-threated
- blanked not deburred

INFORMATION

Washers DIN 6340 are mainly used for elongated holes.





DIN 6340

Description	d1	d2	s	For threaded bolts	⚖
DIN 6340-6,4	6.4	17	3	M 6	5
DIN 6340-8,4	8.4	23	4	M 8	10
DIN 6340-10,5	10.5	28	4	M 10	15
DIN 6340-13	13	35	5	M 12	30
DIN 6340-15	15	40	5	M 14	42
DIN 6340-17	17	45	6	M 16	50
DIN 6340-21	21	50	6	M 20	60
DIN 6340-25	25	60	8	M 24	135
DIN 6340-31	31	68	10	M 30	230

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GN 338

Discs with cover cap (Component feet)

SPECIFICATION

Types

- Type **KS**: with cover cap, gliding
- Type **KR**: with cover cap, non-gliding

Steel
zinc plated, blue passivated

Cover caps:

Cover cap, gliding **KS**
Polyacetal (POM)
white (natural colour) RAL 9001

Cover cap, non-gliding **KR**
Elastomer (TPE)
78 shore, black

INFORMATION

Discs with cover caps GN 338 are suitable for use as gliding or non gliding feet on machinery.
Removal of the cover can be done by inserting a screwdriver in the gap on the edge.

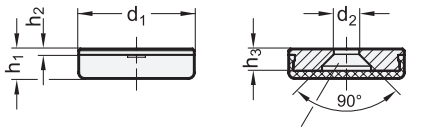
ON REQUEST

- Cover cap in other colours (Standard white, natural colour)

TECHNICAL INFORMATION

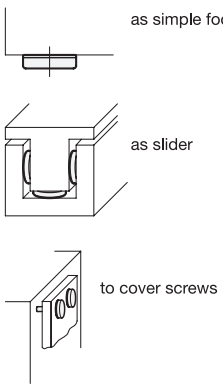
- Plastic characteristics - Polyacetal (POM) (see page A2)
- Plastic characteristics - Elastomer (TPE) (see page A2)





Bore for
countersunk head screw
DIN 7991 / DIN ISO 2009
Sheet metal screws
Wooden screws

Examples of application



GN 338

Description	d1	d2	h1	h2	h3	⚖
GN 338-16-KS	16	3.2	5	1	3.7	5
GN 338-20-KS	20	4.3	5	1	3.7	10
GN 338-25-KS	25	4.3	5.7	1	4	13
GN 338-32-KS	32	5.3	6.7	1	5	28
GN 338-16-KR	16	3.2	5	1	3.7	4
GN 338-20-KR	20	4.3	5	1	3.7	7
GN 338-25-KR	25	4.3	5.7	1	4	10
GN 338-32-KR	32	5.3	6.7	1	5	24

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Washers

Steel / Stainless Steel, with axial friction bearing

SPECIFICATION

Version in Steel
Steel **ST**
blackened

Version in Stainless Steel
Stainless Steel **NI**
AISI 303

Sliding disk

- Plastic (Polyamide 46)
- glasfibre reinforced
- temperature resistant up to 120 °C
- slightly greased (PTFE-mounting grease)

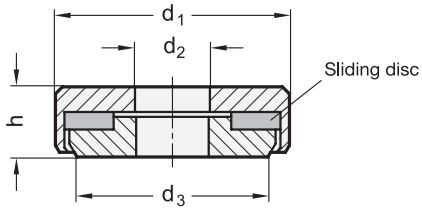


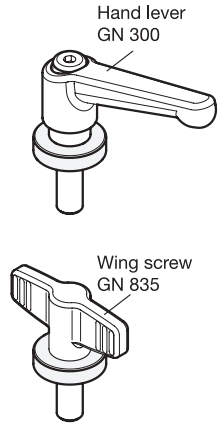
INFORMATION

Used in connection with clamping screws, e. g. star knob screws, washers with axial friction bearing GN 6342 offer the following advantages:
- almost **double** the clamping force owing to lower area friction
- fixed contact surface acting gentrly on the element to be clamped

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)





GN 6342

Description	d1	d2 +0.2/+0.4	d3	h	For screws with thread	Static load in kN	⚖
GN 6342-ST-20-6	20	6	16	6	M 6	20	10
GN 6342-ST-26-8	26	8	22	7	M 8	38	21
GN 6342-ST-28-10	28	10	24	8	M 10	40	28
GN 6342-ST-32-12	32	12	28	9	M 12	55	41

GN 6342-NI **STAINLESS STEEL**

Description	d1	d2 +0.2/+0.4	d3	h	For screws with thread	Static load in kN	⚖
GN 6342-NI-20-6	20	6	16	6	M 6	20	12
GN 6342-NI-26-8	26	8	22	7	M 8	38	22
GN 6342-NI-28-10	28	10	24	8	M 10	40	29
GN 6342-NI-32-12	32	12	28	9	M 12	55	41

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Torque amplifier collar

Technopolymer

BEARING CASE MATERIAL

Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

STANDARD EXECUTIONS

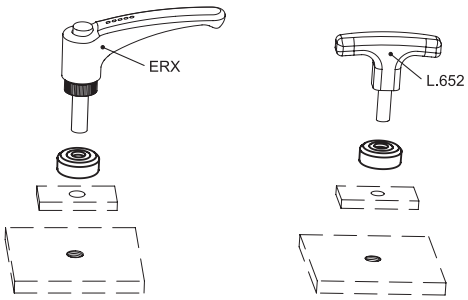
- **CMC**: AISI 52100 steel axial bearing, zinc-plated steel washers.
- **CMC-SST**:AISI 440 C stainless steel axial bearing, AISI 303 stainless steel washers.

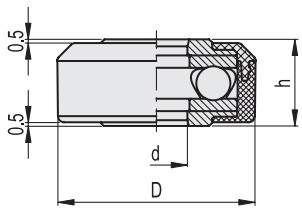
FEATURES AND APPLICATIONS

Used in combination with clamping levers ERX., ERW., MRX., ERF., clamping knobs type VCT.SOFT or handles type L.652, CMC torque amplifier collars double the clamping force applied at equal torque due to the presence of a bearing acting to reduce friction.



ELESA Original design





CMC

Code	Description	D	h	d	⚖
32401	CMC.32-8	32	14	8	38
32402	CMC.32-10	32	14	10	37
32403	CMC.32-12	32	14	12	36

CMC-SST STAINLESS STEEL

Code	Description	D	h	d	⚖
32411	CMC.32-SST-8	32	14	8	38
32412	CMC.32-SST-10	32	14	10	37
32413	CMC.32-SST-12	32	14	12	36

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GN 6343

Washers / Levelling disks

SPECIFICATION

Stainless Steel **NI**

- AISI 304
- turned, blank

INFORMATION

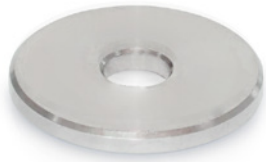
Washers / Levelling disks GN 6343 are used mainly in mechanical engineering and jigmaking is required for levelling.

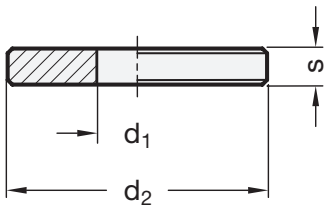
ON REQUEST

- other dimensions
- chemically blackened surface

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)





GN 6343 — **STAINLESS STEEL**

Description	d1 +0.1/+0.3	d2 -0.2	s ±0.1	⚖
GN 6343-NI-4-8-1	4	8	1	3
GN 6343-NI-4-8-2	4	8	2	6
GN 6343-NI-4-12-1	4	12	1	8
GN 6343-NI-4-12-2	4	12	2	16
GN 6343-NI-4-12-3	4	12	3	24
GN 6343-NI-5-10-1	5	10	1	5
GN 6343-NI-5-10-2	5	10	2	10
GN 6343-NI-5-10-3	5	10	3	14
GN 6343-NI-5-15-2	5	15	2	30
GN 6343-NI-5-15-3	5	15	3	37
GN 6343-NI-6-12-1	6	12	1	7
GN 6343-NI-6-12-2	6	12	2	14
GN 6343-NI-6-12-3	6	12	3	22
GN 6343-NI-6-20-2	6	20	2	30
GN 6343-NI-6-20-3	6	20	3	60
GN 6343-NI-6-20-5	6	20	5	80
GN 6343-NI-8-16-2	8	16	2	2
GN 6343-NI-8-16-3	8	16	3	4
GN 6343-NI-8-16-5	8	16	5	6

GN 6343 — **STAINLESS STEEL**

Description	d1 +0.1/+0.3	d2 -0.2	s ±0.1	⚖
GN 6343-NI-8-25-2	8	25	2	6
GN 6343-NI-8-25-3	8	25	3	10
GN 6343-NI-8-25-5	8	25	5	17
GN 6343-NI-10-20-2	10	20	2	4
GN 6343-NI-10-20-3	10	20	3	6
GN 6343-NI-10-20-5	10	20	5	10
GN 6343-NI-10-30-3	10	30	3	15
GN 6343-NI-10-30-5	10	30	5	30
GN 6343-NI-12-20-2	12	20	2	3
GN 6343-NI-12-20-3	12	20	3	4
GN 6343-NI-12-20-5	12	20	5	8
GN 6343-NI-12-30-3	12	30	3	14
GN 6343-NI-12-30-5	12	30	5	23
GN 6343-NI-16-20-2	16	20	2	18
GN 6343-NI-16-20-3	16	20	3	27
GN 6343-NI-16-20-5	16	20	5	45
GN 6343-NI-16-30-3	16	30	3	120
GN 6343-NI-16-30-5	16	30	5	200

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DIN 508

T-Nuts

Steel / Stainless Steel

SPECIFICATION

Version in Steel
Heat-treatable Steel

Tensile strength class **8**
blank

Tensile strength class **10**
blackened

Version in Stainless Steel
Stainless Steel AISI 303 / AISI 316Ti **NI**

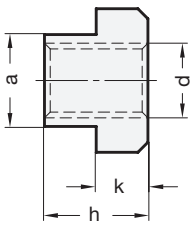


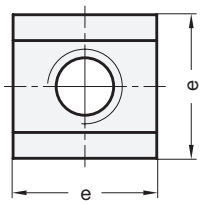
INFORMATION

Beyond the scope of the official standard sheet DIN 508, there is also a choice of additional sizes a = 16, 20 and 24 and a selection of various thread sizes d.
T-Nuts DIN 508 untapped with the tensile strength class 8 (blank) are also available. When ordering the latter the thread size is omitted in part number.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)
- Strength values of nuts (see page A20)





DIN 508-NI — STAINLESS STEEL

Description	a -0.3/-0.5	d	e -0.5	h	k -0.5	T-Slot width DIN 650	⚖
DIN 508-8-NI	8	-	13	10	6	8	10
DIN 508-10-NI	10	-	15	12	6	10	15
DIN 508-12-NI	12	-	18	14	7	12	26
DIN 508-14-NI	14	-	22	16	8	14	46
DIN 508-16-NI	16	-	25	18	9	16	66
DIN 508-18-NI	18	-	28	20	10	18	95
DIN 508-8-M6-NI	8	M 6	13	10	6	8	9
DIN 508-10-M8-NI	10	M 8	15	12	6	10	12
DIN 508-12-M10-NI	12	M 10	18	14	7	12	20
DIN 508-14-M12-NI	14	M 12	22	16	8	14	34
DIN 508-16-M14-NI	16	M 14	25	18	9	16	49
DIN 508-18-M16-NI	18	M 16	28	20	10	18	69

DIN 508

Description	a -0.3/-0.5	d	e	h	k	T-Slot width DIN 650	⚖
DIN 508-5-8	5	-	9 -0.5	6.5	3 -0.3	5	3
DIN 508-6-8	6	-	10 -0.5	8	4 -0.5	6	4
DIN 508-8-8	8	-	13 -0.5	10	6 -0.5	8	10
DIN 508-10-8	10	-	15 -0.5	12	6 -0.5	10	10
DIN 508-12-8	12	-	18 -0.5	14	7 -0.5	12	26
DIN 508-14-8	14	-	22 -0.5	16	8 -0.5	14	46
DIN 508-16-8	16	-	25 -0.5	18	9 -0.5	16	66

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DIN 508 | T-Nuts

DIN 508

Description	a -0.3/-0.5	d	e	h	k	T-Slot width DIN 650	⚖
DIN 508-18-8	18	-	28 -0.5	20	10 -0.5	18	90
DIN 508-20-8	20	-	32 -0.5	24	12 -0.5	20	148
DIN 508-22-8	22	-	35 -0.5	28	14 -0.5	22	200
DIN 508-24-8	24	-	40 -0.5	32	16 -0.5	24	258
DIN 508-28-8	28	-	44 -1	36	18 -1	28	420
DIN 508-5-M4-8	5	M 4	9 -0.5	6.5	3 -0.3	5	2
DIN 508-5-M4-10	5	M 4	9 -0.5	6.5	3 -0.3	5	2
DIN 508-6-M5-8	6	M 5	10 -0.5	8	4 -0.5	6	4
DIN 508-6-M5-10	6	M 5	10 -0.5	8	4 -0.5	6	4
DIN 508-8-M6-8	8	M 6	13 -0.5	10	6 -0.5	8	8
DIN 508-8-M6-10	8	M 6	13 -0.5	10	6 -0.5	8	8
DIN 508-10-M6-8	10	M 6	15 -0.5	12	6 -0.5	10	10
DIN 508-10-M6-10	10	M 6	15 -0.5	12	6 -0.5	10	10
DIN 508-10-M8-8	10	M 8	15 -0.5	12	6 -0.5	10	12
DIN 508-10-M8-10	10	M 8	15 -0.5	12	6 -0.5	10	12
DIN 508-12-M8-8	12	M 8	18 -0.5	14	7 -0.5	12	23
DIN 508-12-M8-10	12	M 8	18 -0.5	14	7 -0.5	12	23
DIN 508-12-M10-8	12	M 10	18 -0.5	14	7 -0.5	12	20
DIN 508-12-M10-10	12	M 10	18 -0.5	14	7 -0.5	12	20
DIN 508-14-M10-8	14	M 10	22 -0.5	16	8 -0.5	14	38
DIN 508-14-M10-10	14	M 10	22 -0.5	16	8 -0.5	14	38
DIN 508-14-M12-8	14	M 12	22 -0.5	16	8 -0.5	14	34
DIN 508-14-M12-10	14	M 12	22 -0.5	16	8 -0.5	14	34
DIN 508-16-M10-8	16	M 10	25 -0.5	18	9 -0.5	16	58
DIN 508-16-M10-10	16	M 10	25 -0.5	18	9 -0.5	16	58
DIN 508-16-M12-8	16	M 12	25 -0.5	18	9 -0.5	16	55
DIN 508-16-M12-10	16	M 12	25 -0.5	18	9 -0.5	16	55
DIN 508-16-M14-8	16	M 14	25 -0.5	18	9 -0.5	16	51
DIN 508-16-M14-10	16	M 14	25 -0.5	18	9 -0.5	16	51
DIN 508-18-M12-8	18	M 12	28 -0.5	20	10 -0.5	18	60
DIN 508-18-M12-10	18	M 12	28 -0.5	20	10 -0.5	18	60
DIN 508-18-M14-8	18	M 14	28 -0.5	20	10 -0.5	18	74
DIN 508-18-M14-10	18	M 14	28 -0.5	20	10 -0.5	18	74
DIN 508-18-M16-8	18	M 16	28 -0.5	20	10 -0.5	18	62
DIN 508-18-M16-10	18	M 16	28 -0.5	20	10 -0.5	18	62
DIN 508-20-M12-8	20	M 12	32 -0.5	24	12 -0.5	20	131
DIN 508-20-M12-10	20	M 12	32 -0.5	24	12 -0.5	20	131
DIN 508-20-M16-8	20	M 16	32 -0.5	24	12 -0.5	20	116
DIN 508-20-M16-10	20	M 16	32 -0.5	24	12 -0.5	20	116
DIN 508-20-M18-8	20	M 18	32 -0.5	24	12 -0.5	20	110
DIN 508-20-M18-10	20	M 18	32 -0.5	24	12 -0.5	20	110
DIN 508-22-M16-8	22	M 16	35 -0.5	28	14 -0.5	22	160
DIN 508-22-M16-10	22	M 16	35 -0.5	28	14 -0.5	22	170
DIN 508-22-M20-8	22	M 20	35 -0.5	28	14 -0.5	22	149
DIN 508-22-M20-10	22	M 20	35 -0.5	28	14 -0.5	22	149
DIN 508-24-M20-8	24	M 20	40 -0.5	32	16 -0.5	24	236
DIN 508-24-M20-10	24	M 20	40 -0.5	32	16 -0.5	24	236
DIN 508-24-M22-8	24	M 22	40 -0.5	32	16 -0.5	24	230
DIN 508-24-M22-10	24	M 22	40 -0.5	32	16 -0.5	24	230
DIN 508-28-M20-8	28	M 20	44 -1	36	18 -1	28	347
DIN 508-28-M20-10	28	M 20	44 -1	36	18 -1	28	347
DIN 508-28-M24-8	28	M 24	44 -1	36	18 -1	28	314
DIN 508-28-M24-10	28	M 24	44 -1	36	18 -1	28	314

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GN 505

T-Nuts

Accessory for profle systems

SPECIFICATION

Types

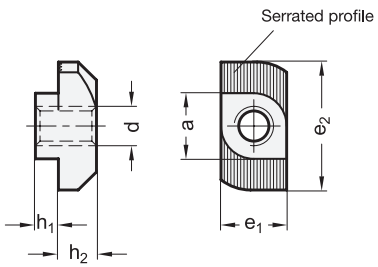
- Type **MB**: with increased torque
- Type **OB**: without increased torque

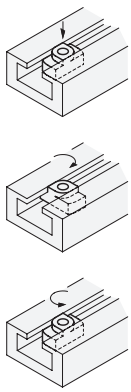
Steel
zinc plated, blue passivated

INFORMATION

T-Slots GN 505 can be inserted vertically into a T-Slot like rhombus T-Nuts GN 508.1 (see page 985).
When tightening the clamping bolt, the nut will be forced into a crosswise position by the applied torque and firmly anchored in the T-slot.
This action is achieved by using T-nut type MB which is intentionally fitted with an overtight fit requiring a higher torque.
To remove the bolt and T-nut a 90° anticlockwise turn is sufficient to withdraw the two components with the clamped workpiece.
The clamping face of the T-nut is serrated to ensure that a possible plating coat in the T-slot is penetrated to establish a good electrical contact.







GN 505

Description	a -0.1/-0.5	d	e1 -0.1/-0.5	e2 ±0.5	h1	h2 -0.4	⚖
GN 505-8-M4-MB	8	M 4	8	16	1.6 -0.4	5	4
GN 505-8-M5-MB	8	M 5	8	16	1.6 -0.4	5	4
GN 505-8-M6-MB	8	M 6	8	16	1.6 -0.4	5	4
GN 505-10-M4-MB	10	M 4	10	19	3.5 -1	5.8	8
GN 505-10-M5-MB	10	M 5	10	19	3.5 -1	5.8	7
GN 505-10-M6-MB	10	M 6	10	19	3.5 -1	5.8	7
GN 505-10-M8-MB	10	M 8	10	19	3.5 -1	5.8	5
GN 505-8-M4-OB	8	M 4	8	16	1.6 -0.4	5	4
GN 505-8-M5-OB	8	M 5	8	16	1.6 -0.4	5	4
GN 505-8-M6-OB	8	M 6	8	16	1.6 -0.4	5	3
GN 505-10-M4-OB	10	M 4	10	19	3.5 -1	5.8	6
GN 505-10-M5-OB	10	M 5	10	19	3.5 -1	5.8	6
GN 505-10-M6-OB	10	M 6	10	19	3.5 -1	5.8	6
GN 505-10-M8-OB	10	M 8	10	19	3.5 -1	5.8	6

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T-Slot bolts

Accessory for profile systems

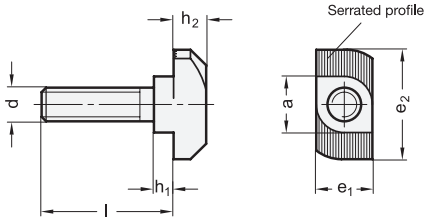
SPECIFICATION

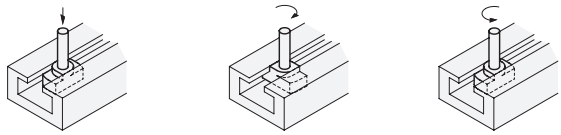
Steel
zinc plated, blue passivated

INFORMATION

T-Slot bolts GN 505.4 can be inserted vertically into the slot. During tightening, the bolt is forced into the crosswise position and thus anchored in the slot. Conversely, the bolt is turned back during loosening and can then be removed.
The clamping face of the bolt is serrated to ensure that the eloxal coating is broken up to establish a good electrical contact.







GN 505.4

Description	a -0.1/-0.6	d	l	h1	h2	e1	e2	⚖
GN 505.4-8-M6-20-1,6	8	M 6	20	1.6 -0.6	5 ±1.0	7.9 -0.5	16 +0.5/-1.0	7
GN 505.4-8-M6-25-1,6	8	M 6	25	1.6 -0.6	5 ±1.0	7.9 -0.5	16 +0.5/-1.0	8
GN 505.4-8-M6-30-1,6	8	M 6	30	1.6 -0.6	5 ±1.0	7.9 -0.5	16 +0.5/-1.0	9
GN 505.4-8-M6-40-1,6	8	M 6	40	1.6 -0.6	5 ±1.0	7.9 -0.5	16 +0.5/-1.0	10
GN 505.4-8-M6-60-1,6	8	M 6	60	1.6 -0.6	5 ±1.0	7.9 -0.5	16 +0.5/-1.0	15
GN 505.4-8-M6-20-3,5	8	M 6	20	3.5 -1.0	5 ±1.0	7.9 -0.5	16 +0.5/-1.0	8
GN 505.4-8-M6-25-3,5	8	M 6	25	3.5 -1.0	5 ±1.0	7.9 -0.5	16 +0.5/-1.0	9
GN 505.4-8-M6-30-3,5	8	M 6	30	3.5 -1.0	5 ±1.0	7.9 -0.5	16 +0.5/-1.0	6
GN 505.4-8-M6-40-3,5	8	M 6	40	3.5 -1.0	5 ±1.0	7.9 -0.5	16 +0.5/-1.0	11
GN 505.4-8-M6-60-3,5	8	M 6	60	3.5 -1.0	5 ±1.0	7.9 -0.5	16 +0.5/-1.0	14
GN 505.4-8-M8-20-1,6	8	M 8	20	1.6 -0.6	5 ±1.0	7.9 -0.5	16 +0.5/-1.0	10
GN 505.4-8-M8-25-1,6	8	M 8	25	1.6 -0.6	5 ±1.0	7.9 -0.5	16 +0.5/-1.0	11
GN 505.4-8-M8-30-1,6	8	M 8	30	1.6 -0.6	5 ±1.0	7.9 -0.5	16 +0.5/-1.0	13
GN 505.4-8-M8-20-3,5	8	M 8	20	3.5 -1.0	5 ±1.0	7.9 -0.5	16 +0.5/-1.0	10
GN 505.4-8-M8-25-3,5	8	M 8	25	3.5 -1.0	5 ±1.0	7.9 -0.5	16 +0.5/-1.0	11
GN 505.4-8-M8-30-3,5	8	M 8	30	3.5 -1.0	5 ±1.0	7.9 -0.5	16 +0.5/-1.0	13
GN 505.4-10-M6-20-1,6	10	M 6	20	1.6 -0.6	6.5 -1.5	10 0/-2.5	19 +0.5/-2.0	10
GN 505.4-10-M6-25-1,6	10	M 6	25	1.6 -0.6	6.5 -1.5	10 0/-2.5	19 +0.5/-2.0	10
GN 505.4-10-M6-30-1,6	10	M 6	30	1.6 -0.6	6.5 -1.5	10 0/-2.5	19 +0.5/-2.0	12
GN 505.4-10-M6-40-1,6	10	M 6	40	1.6 -0.6	6.5 -1.5	10 0/-2.5	19 +0.5/-2.0	14
GN 505.4-10-M6-60-1,6	10	M 6	60	1.6 -0.6	6.5 -1.5	10 0/-2.5	19 +0.5/-2.0	16
GN 505.4-10-M6-20-3,5	10	M 6	20	3.5 -1.0	6.5 -1.5	10 0/-2.5	19 +0.5/-2.0	11
GN 505.4-10-M6-25-3,5	10	M 6	25	3.5 -1.0	6.5 -1.5	10 0/-2.5	19 +0.5/-2.0	12
GN 505.4-10-M6-30-3,5	10	M 6	30	3.5 -1.0	6.5 -1.5	10 0/-2.5	19 +0.5/-2.0	12
GN 505.4-10-M6-40-3,5	10	M 6	40	3.5 -1.0	6.5 -1.5	10 0/-2.5	19 +0.5/-2.0	14
GN 505.4-10-M6-60-3,5	10	M 6	60	3.5 -1.0	6.5 -1.5	10 0/-2.5	19 +0.5/-2.0	18
GN 505.4-10-M8-20-1,6	10	M 8	20	1.6 -0.6	6.5 -1.5	10 0/-2.5	19 +0.5/-2.0	11
GN 505.4-10-M8-25-1,6	10	M 8	25	1.6 -0.6	6.5 -1.5	10 0/-2.5	19 +0.5/-2.0	13
GN 505.4-10-M8-30-1,6	10	M 8	30	1.6 -0.6	6.5 -1.5	10 0/-2.5	19 +0.5/-2.0	15
GN 505.4-10-M8-40-1,6	10	M 8	40	1.6 -0.6	6.5 -1.5	10 0/-2.5	19 +0.5/-2.0	15
GN 505.4-10-M8-60-1,6	10	M 8	60	1.6 -0.6	6.5 -1.5	10 0/-2.5	19 +0.5/-2.0	15
GN 505.4-10-M8-20-3,5	10	M 8	20	3.5 -1.0	6.5 -1.5	10 0/-2.5	19 +0.5/-2.0	13
GN 505.4-10-M8-25-3,5	10	M 8	25	3.5 -1.0	6.5 -1.5	10 0/-2.5	19 +0.5/-2.0	15
GN 505.4-10-M8-30-3,5	10	M 8	30	3.5 -1.0	6.5 -1.5	10 0/-2.5	19 +0.5/-2.0	16
GN 505.4-10-M8-40-3,5	10	M 8	40	3.5 -1.0	6.5 -1.5	10 0/-2.5	19 +0.5/-2.0	19
GN 505.4-10-M8-60-3,5	10	M 8	60	3.5 -1.0	6.5 -1.5	10 0/-2.5	19 +0.5/-2.0	26

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GN 505.5

Stainless Steel-T-Slot bolts

Accessory for profile systems

SPECIFICATION

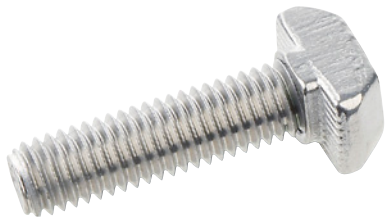
Stainless Steel AISI 304

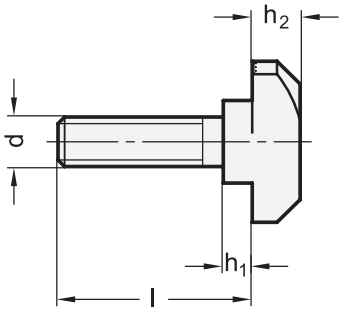
INFORMATION

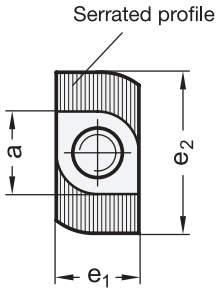
T-Slot bolts GN 505.5 can be inserted vertically into the slot. During tightening, the bolt is forced into the crosswise position and thus anchored in the slot. Conversely, the bolt is turned back during loosening and can then be removed.
The clamping face of the bolt is serrated to ensure that the eloxal coating is broken up to establish a good electrical contact.

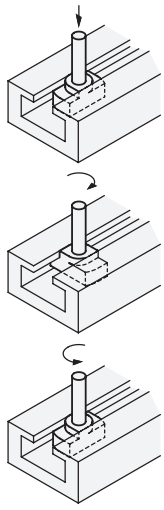
TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)









GN 505.5 — **STAINLESS STEEL**

Description	a -0.1/-0.6	d	l	h1	h2	e1	e2	⚖
GN 505.5-8-M6-20-1,6	8	M 6	20	1.6 -0.6	5 ±1.0	7.9 -0.5	16 +0.5/-1.0	8
GN 505.5-8-M6-25-1,6	8	M 6	25	1.6 -0.6	5 ±1.0	7.9 -0.5	16 +0.5/-1.0	5
GN 505.5-8-M6-30-1,6	8	M 6	30	1.6 -0.6	5 ±1.0	7.9 -0.5	16 +0.5/-1.0	10
GN 505.5-8-M6-40-1,6	8	M 6	40	1.6 -0.6	5 ±1.0	7.9 -0.5	16 +0.5/-1.0	10
GN 505.5-8-M6-60-1,6	8	M 6	60	1.6 -0.6	5 ±1.0	7.9 -0.5	16 +0.5/-1.0	15
GN 505.5-10-M6-20-3,5	10	M 6	20	3.5 -1.0	6.5 -1.5	10 0/-2.5	19 +0.5/-2.0	10
GN 505.5-10-M6-25-3,5	10	M 6	25	3.5 -1.0	6.5 -1.5	10 0/-2.5	19 +0.5/-2.0	10
GN 505.5-10-M6-30-3,5	10	M 6	30	3.5 -1.0	6.5 -1.5	10 0/-2.5	19 +0.5/-2.0	15
GN 505.5-10-M6-40-3,5	10	M 6	40	3.5 -1.0	6.5 -1.5	10 0/-2.5	19 +0.5/-2.0	17
GN 505.5-10-M6-60-3,5	10	M 6	60	3.5 -1.0	6.5 -1.5	10 0/-2.5	19 +0.5/-2.0	18
GN 505.5-10-M8-20-3,5	10	M 8	20	3.5 -1.0	6.5 -1.5	10 0/-2.5	19 +0.5/-2.0	10
GN 505.5-10-M8-25-3,5	10	M 8	25	3.5 -1.0	6.5 -1.5	10 0/-2.5	19 +0.5/-2.0	15

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T-Nuts

Accessory for profile systems, with guide step

SPECIFICATION

Steel
zinc plated, blue passivated

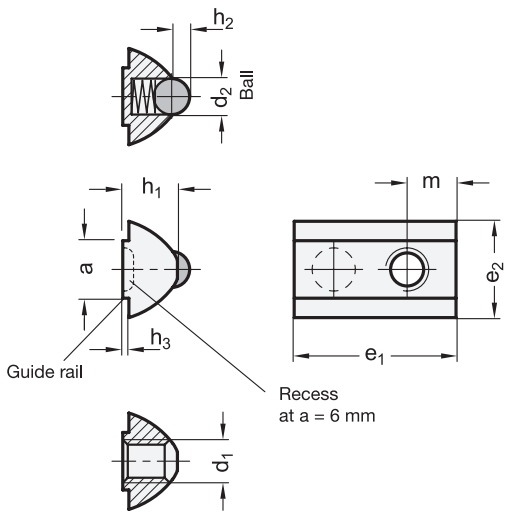
Ball
Stainless Steel

Spring
Stainless Steel

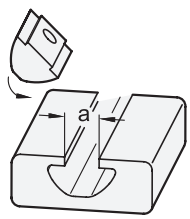
INFORMATION

T-Nuts GN 506 can be turned into position, i.e. they can be inserted at any point along the slot.
The guide step positions the nut parallel and centered in relation to the slot, a configuration which eases the sliding movement and prevents the assembly from twisting during tightening.
The spring element (ball / pressure spring) prevents the nut from accidentally sliding inside the slot, which is particularly advantageous when the profile rail is mounted perpendicularly.





T-nuts to swivel in



GN 506

Description	a	d1	d2	e1	e2	h1	h2	h3	m	For slot width a	⚖
GN 506-5-M3	5	M 3	3	12	7.7	4.5	0.7	0.6	4	5	2
GN 506-5-M4	5	M 4	3	12	7.7	4.5	0.7	0.6	4	5	2
GN 506-5-M5	5	M 5	3	12	7.7	4.5	0.7	0.6	4	5	2
GN 506-6-M3	6	M 3	3.5	17	10.5	6.8	0.5	0.8	5	6	6
GN 506-6-M4	6	M 4	3.5	17	10.5	6.8	0.5	0.8	5	6	5
GN 506-6-M5	6	M 5	3.5	17	10.5	6.8	0.5	0.8	5	6	5
GN 506-6-M6	6	M 6	3.5	17	10.5	6.8	0.5	0.8	5	6	5
GN 506-8-M4	8	M 4	5	22	13.4	7.6	1.7	0.85	6.8	8	11
GN 506-8-M5	8	M 5	5	22	13.4	7.6	1.7	0.85	6.8	8	10
GN 506-8-M6	8	M 6	5	22	13.4	7.6	1.7	0.85	6.8	8	10
GN 506-8-M8	8	M 8	5	22	13.4	7.6	1.7	0.85	6.8	8	9

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GN 506.1

T-Nuts

Steel / Stainless Steel, accessory for profile systems, without guide step

SPECIFICATION

Version in Steel
Steel
zinc plated, blue passivated

Version in Stainless Steel
Stainless steel **NI**

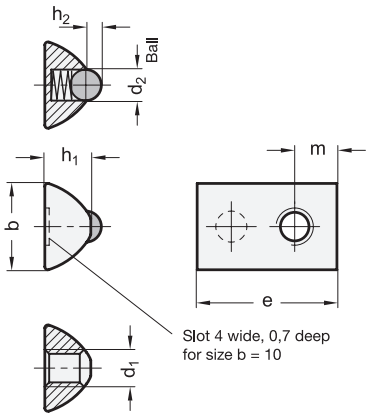
Ball
Stainless Steel

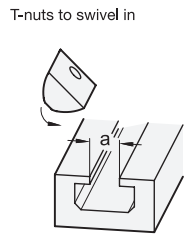
Spring
Stainless Steel



INFORMATION

T-Nuts GN 506.1 can be turned into position, i.e. they can be inserted at any point along the slot.
The spring loaded ball will prevent an unwanted movement of the nut in the slot which can easily occur on a bed with the T-slots in a vertical position.
As an example Nuts GN 506.1 can be used to fit hinges to commercially available extrusion rails.





GN 506.1

Description	b	d1	d2	e +0.5	h1	h2	m	For slot width a	⚖
GN 506.1-8-M3	8 -0.1	M 3	3	12	4.25	0.7	4	5	2
GN 506.1-8-M4	8 -0.1	M 4	3	12	4.25	0.7	4	5	2
GN 506.1-8-M5	8 -0.1	M 5	3	12	4.25	0.7	4	5	2
GN 506.1-10-M3	10 +0.3	M 3	4	17.5	6.25	1.15	5	6	5
GN 506.1-10-M4	10 +0.3	M 4	4	17.5	6.25	1.15	5	6	5
GN 506.1-10-M5	10 +0.3	M 5	4	17.5	6.25	1.15	5	6	5
GN 506.1-10-M6	10 +0.3	M 6	4	17.5	6.25	1.15	5	6	4
GN 506.1-14-M4	14 -0.2	M 4	5	22.5	7.4	1.7	6.8	8	11
GN 506.1-14-M5	14 -0.2	M 5	5	22.5	7.4	1.7	6.8	8	11
GN 506.1-14-M6	14 -0.2	M 6	5	22.5	7.4	1.7	6.8	8	10
GN 506.1-14-M8	14 -0.2	M 8	5	22.5	7.4	1.7	6.8	8	10

GN 506.1-NI **STAINLESS STEEL**

Description	b	d1	d2	e +0.5	h1	h2	m	For slot width a	⚖
GN 506.1-14-M4-NI	14 -0.2	M 4	5	22.5	7.4	1.7	6.8	8	11
GN 506.1-14-M5-NI	14 -0.2	M 5	5	22.5	7.4	1.7	6.8	8	11
GN 506.1-14-M6-NI	14 -0.2	M 6	5	22.5	7.4	1.7	6.8	8	10
GN 506.1-14-M8-NI	14 -0.2	M 8	5	22.5	7.4	1.7	6.8	8	10

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T-Nuts

Accessory for profile systems, with spring steel sheet

SPECIFICATION

Steel
zinc plated, blue passivated

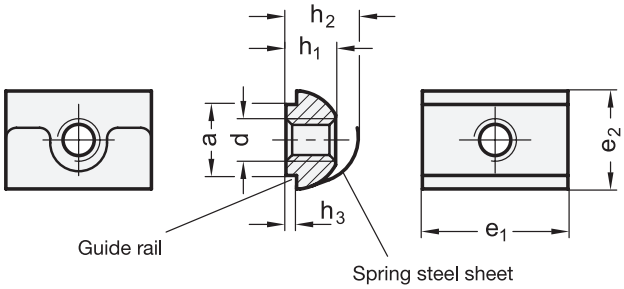
Spring steel sheet
Stainless Steel AISI 301

- spot-welded

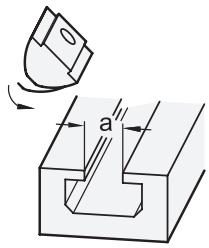
INFORMATION

T-Nuts GN 506.2 can be turned into position, i.e. they can be inserted at any point along the slot.
The spring washer prevents the nut from inadvertently being displaced inside the slot, which is particularly advantageous if the profile rail is arranged vertically. The outstanding feature of this design is that different slot heights can be bridged.
As an example, T-Nuts GN 506.2 can be used to fit hinges to commercially available extrusion rails.





T-nuts to swivel in



GN 506.2

Description	a	d	e1	e2	h1	h2	h3 -0.1	For slot width a	⚖
GN 506.2-8-M4	8 +0.1/-0.1	M 4	16	11.5	5.8	8.5	1	8	6
GN 506.2-8-M5	8 +0.1/-0.1	M 5	16	11.5	5.8	8.5	1	8	6
GN 506.2-8-M6	8 +0.1/-0.1	M 6	16	11.5	5.8	8.5	1	8	6
GN 506.2-8-M8	8 +0.1/-0.1	M 8	16	11.5	5.8	8.5	1	8	5
GN 506.2-10-M5	10 -0.1/-0.3	M 5	20.5	13.8	5.2	10.2	1.5	10	8
GN 506.2-10-M6	10 -0.1/-0.3	M 6	20.5	13.8	5.2	10.2	1.5	10	8
GN 506.2-10-M8	10 -0.1/-0.3	M 8	20.5	13.8	5.2	10.2	1.5	10	7

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GN 507

T-Nuts

Accessory for profile systems

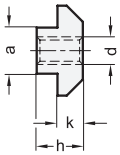
SPECIFICATION

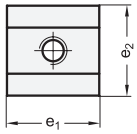
Steel
zinc plated, blue passivated

INFORMATION

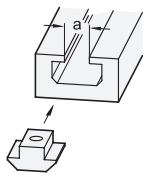
T-Nuts GN 507 have been specially designed for use on extrusion rails.
They are inserted from either end of the T-Slot.

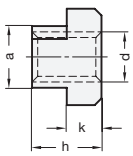


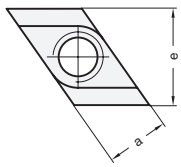


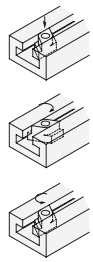


T-nuts to slide in









GN 507

Description	a -0.1/-0.3	d	e1	e2	h	k +0.1	⚖
GN 507-8-M4	8	M 4	16	16	6	4.2	13
GN 507-8-M5	8	M 5	16	16	6	4.2	9
GN 507-8-M6	8	M 6	16	16	6	4.2	8
GN 507-8-M8	8	M 8	16	16	6	4.2	7
GN 507-10-M4	10	M 4	20	19.5	10.5	5.5	19
GN 507-10-M5	10	M 5	20	19.5	10.5	5.5	18
GN 507-10-M6	10	M 6	20	19.5	10.5	5.5	15
GN 507-10-M8	10	M 8	20	19.5	10.5	5.5	13

GN 508.1

Rhombus T-Nuts

SPECIFICATION

Heat-treatable Steel

- Tensile strength class 10
- blackened

INFORMATION

Rhombus T-Nuts GN 508.1 can be inserted vertically into the T-Slot.

TECHNICAL INFORMATION

- Strength values of nuts (see page A20)



GN 508.1

Description	a -0.3/ -0.5	d	e -0.5	h	k -0.5	T-Slot width DIN 650	⚖
GN 508.1-8-M6	8	M 6	13	10	6	8	5
GN 508.1-10-M8	10	M 8	15	12	6	10	9
GN 508.1-12-M10	12	M 10	18	14	7	12	13
GN 508.1-14-M12	14	M 12	22	16	8	14	23
GN 508.1-16-M14	16	M 14	25	18	9	16	32
GN 508.1-18-M16	18	M 16	28	20	10	18	44
GN 508.1-22-M20	22	M 20	35	28	14	22	97

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T-Slot bolts

SPECIFICATION

Heat-treatable Steel

- Tensile strength class 8.8
- forged
- blackened

Slot flats milled

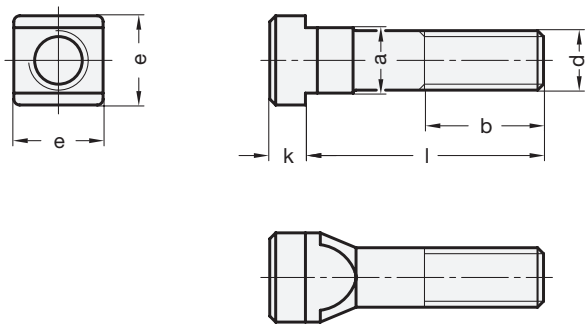
INFORMATION

The official standard sheet of screws for T-Nuts DIN 787 also lists the sizes 5, 36, 42, 48 and 54.

TECHNICAL INFORMATION

- Strength values of screws (see page A20)





DIN 787

Description	a -0.3/-0.5	d	l-b	e	k	T-Slot width DIN 650	⚖
DIN 787-6-M6-25	6	M 6	25 - 15	10 -0.5	4 -0.5	6	8
DIN 787-6-M6-40	6	M 6	40 - 28	10 -0.5	4 -0.5	6	11
DIN 787-6-M6-63	6	M 6	63 - 40	10 -0.5	4 -0.5	6	20
DIN 787-8-M8-32	8	M 8	32 - 22	13 -0.5	6 -0.5	8	17
DIN 787-8-M8-50	8	M 8	50 - 35	13 -0.5	6 -0.5	8	24
DIN 787-10-M10-40	10	M 10	40 - 30	15 -0.5	6 -0.5	10	32
DIN 787-10-M10-63	10	M 10	63 - 45	15 -0.5	6 -0.5	10	50
DIN 787-10-M10-100	10	M 10	100 - 60	15 -0.5	6 -0.5	10	67
DIN 787-12-M12-50	12	M 12	50 - 35	18 -0.5	7 -0.5	12	60
DIN 787-12-M12-80	12	M 12	80 - 55	18 -0.5	7 -0.5	12	87
DIN 787-12-M12-125	12	M 12	125 - 75	18 -0.5	7 -0.5	12	120
DIN 787-14-M12-50	14	M 12	50 - 35	22 -0.5	8 -0.5	14	75
DIN 787-14-M12-80	14	M 12	80 - 55	22 -0.5	8 -0.5	14	90
DIN 787-14-M12-125	14	M 12	125 - 75	22 -0.5	8 -0.5	14	135
DIN 787-14-M12-200	14	M 12	200 - 120	22 -0.5	8 -0.5	14	195
DIN 787-18-M16-63	18	M 16	63 - 45	28 -0.5	10 -0.5	18	160
DIN 787-18-M16-100	18	M 16	100 - 63	28 -0.5	10 -0.5	18	220
DIN 787-18-M16-160	18	M 16	160 - 100	28 -0.5	10 -0.5	18	300
DIN 787-18-M16-250	18	M 16	250 - 150	28 -0.5	10 -0.5	18	410
DIN 787-22-M20-80	22	M 20	80 - 55	35 -0.5	14 -0.5	22	340
DIN 787-22-M20-125	22	M 20	125 - 85	35 -0.5	14 -0.5	22	440
DIN 787-22-M20-200	22	M 20	200 - 125	35 -0.5	14 -0.5	22	610
DIN 787-28-M24-100	28	M 24	100 - 70	44 -1	18 -1	28	600
DIN 787-28-M24-160	28	M 24	160 - 110	44 -1	18 -1	28	850
DIN 787-28-M24-250	28	M 24	250 - 150	44 -1	18 -1	28	1020

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GN 230

Shallow T-Nuts

SPECIFICATION

Steel

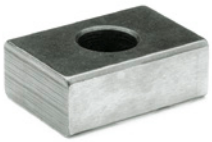
- case hardened
- blackened

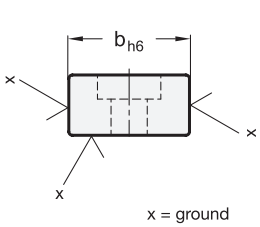
INFORMATION

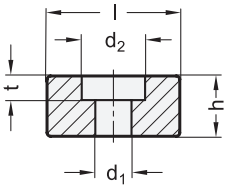
Shallow T-nuts GN 230 are used for aligning and positioning of jigs and fixtures on machining tables with T-slots DIN 650.
For this purpose they are inserted into the aligning slots of the jig or fixture.

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)







GN 230

Description	b h6	d1	d2	h	l	t	For screws DIN 84 DIN 912	⚖
GN 230-10	10	4.5	8	8	20	4.3	M4 x 10	10
GN 230-12	12	5.5	10	8	20	5.3	M5x12	11
GN 230-14	14	6.6	11	10	22	6.3	M6x16	19
GN 230-16	16	6.6	11	10	22	6.3	M6x16	20
GN 230-18	18	6.6	11	10	22	6.3	M6x16	25
GN 230-20	20	6.6	11	10	22	6.3	M6x16	28
GN 230-22	22	6.6	11	12	32	6.3	M6x16	59

GN 508.2

T-Nuts

with slip proof

SPECIFICATION

Heat-treatable Steel

Tensile strength class **8**
zinc plated, blue passivated

Tensile strength class **10**
blackened

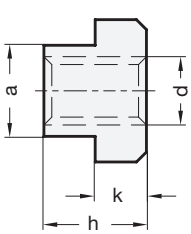
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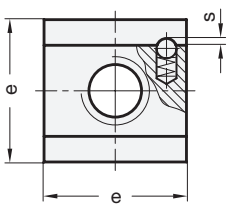
T-nuts GN 508.2 are dimensionally indetical to DIN 508 (see page 977).
They are, however, fitted on the side with a spring loaded ball. This will prevent an unwanted movement of the nut, especially in a vertically mounted T-slot bed.

TECHNICAL INFORMATION

- Strength values of nuts (see page A20)







GN 508.2

Description	a -0.3/ -0.5	d	e	h	k	s	T-Slot width DIN 650	⚖
GN 508.2-10-M8-8	10	M 8	15	12	6	0.65	10	14
GN 508.2-10-M8-10	10	M 8	15	12	6	0.65	10	14
GN 508.2-12-M10-8	12	M 10	18	14	7	0.65	12	22
GN 508.2-12-M10-10	12	M 10	18	14	7	0.65	12	22
GN 508.2-14-M12-8	14	M 12	22	16	8	1	14	34
GN 508.2-14-M12-10	14	M 12	22	16	8	1	14	34
GN 508.2-18-M16-8	18	M 16	28	20	10	1	18	68
GN 508.2-18-M16-10	18	M 16	28	20	10	1	18	68
GN 508.2-22-M20-8	22	M 20	35	28	14	1.6	22	155
GN 508.2-22-M20-10	22	M 20	35	28	14	1.6	22	155

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Hexagon nuts

Steel / Stainless Steel, with spherical seating



SPECIFICATION

Type
- Type **B**: with one-sided spherical seating

Version in Steel
Steel

- Tensile strength class 10
- blackened

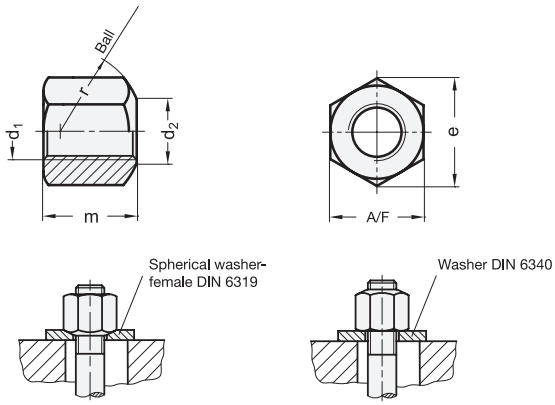
Version in Stainless Steel
Stainless Steel AISI 303 **NI**

INFORMATION

Hexagon nuts DIN 6330 are used on clamping, applications which require frequent clamping and unclamping (m = 1.5 x d_1).
The spherical seating together with female washers DIN 6319 (see page 962) allows excessive positional inaccuracies to be equalized.

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)
- Strength values of nuts (see page A20)



DIN 6330

Description	d_1	d_2 H14	e min.	m	A/F	r	⚖
DIN 6330-M8-B	M 8	9	14.4	12	13	11	9
DIN 6330-M10-B	M 10	11.5	17.8	15	16	15	20
DIN 6330-M12-B	M 12	14	20	18	18	17	28
DIN 6330-M14-B	M 14	16	24.6	21	22	20	45
DIN 6330-M16-B	M 16	18	26.8	24	24	22	53
DIN 6330-M20-B	M 20	22	33.5	30	30	27	110
DIN 6330-M24-B	M 24	26	40	36	36	32	195
DIN 6330-M30-B	M 30	32	51.3	45	46	41	401
DIN 6330-M36-B	M 36	38	61.3	54	55	50	715

DIN 6330-NI STAINLESS STEEL

Description	d_1	d_2 H14	e min.	m	A/F	r	⚖
DIN 6330-M8-B-NI	M 8	9	14.4	12	13	11	9
DIN 6330-M10-B-NI	M 10	11.5	17.8	15	16	15	9
DIN 6330-M12-B-NI	M 12	14	20	18	18	17	29
DIN 6330-M14-B-NI	M 14	16	24.6	21	22	20	32
DIN 6330-M16-B-NI	M 16	18	26.8	24	24	22	57
DIN 6330-M20-B-NI	M 20	22	33.5	30	30	27	114

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DIN 6331

Hexagon nuts

with collar

SPECIFICATION

Steel

- Tensile strength class 10
- blackened

INFORMATION

Hexagon nuts DIN 6331 are used on clamping applications which require frequent clamping and unclamping (m = 1.5 x d_1).
The collar of the nut eliminates the need for washers.
The official standard sheet specifies the additional sizes M 27, M 42 and M 48. But M 14 is not forseen on the official standard sheet.

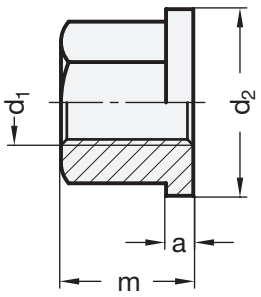
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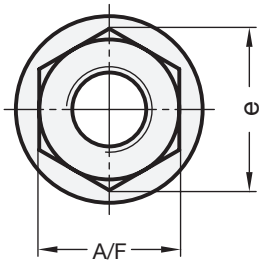
Size M10 with A/F = 17

TECHNICAL INFORMATION

- Strength values of nuts (see page A20)







DIN 6331

Description	d1	d2	a	e min.	m	A/F	⚖
DIN 6331-M6	M 6	14	3	11.5	9	10	9
DIN 6331-M8	M 8	18	3.5	14.4	12	13	13
DIN 6331-M10	M 10	22	4	17.8	15	16	20
DIN 6331-M12	M 12	25	4	20	18	18	32
DIN 6331-M14	M 14	28	4	24.6	21	22	51
DIN 6331-M16	M 16	31	5	26.8	24	24	71
DIN 6331-M20	M 20	37	6	33.5	30	30	115
DIN 6331-M24	M 24	45	6	40	36	36	220
DIN 6331-M30	M 30	58	8	51.3	45	46	410
DIN 6331-M36	M 36	68	10	61.3	54	55	810

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Slotted locknuts

Steel / Stainless Steel

SPECIFICATION

Types

- Type **W**: Steel, not hardened
- Type **WNI**: Stainless Steel, not hardened
- Type **H**: Steel, hardened

Type W
Steel

- Tensile strength class 5
- not hardened
- blackened

Type WNI
Stainless Steel AISI 303

- not hardened

Type H
Steel

- Tensile strength class 5
- hardened HRC 60 ± 2 (thread not hardened)
- Mating surface ground or fine turned





INFORMATION

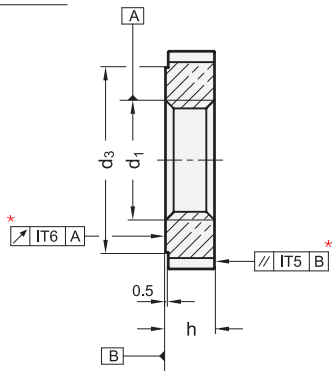
On slotted locknuts DIN 1804 the ground surface d_3 stands proud and should be used as a mating surface.
The sizes M45x1.5 to M60x1.5 have 6 slots.
The official DIN standard sheets specifies additional sizes (up to M 200 x 3).

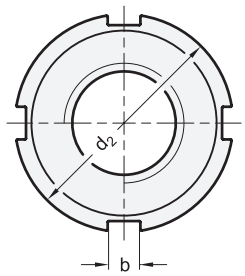
TECHNICAL INFORMATION

- ISO-Fundamental tolerances (see page A21)
- Stainless Steel characteristics (see page A26)

ACCESSORY

- C-Spanner DIN 1810 (Code no. see table) (see page 994)





DIN 1804-WNI — **STAINLESS STEEL**

Description	d1	d2 h11	d3	b	h h14	Code no. for C-Spanner	⚖
DIN 1804-M16x1,5-WNI	M16x1.5	32	27	5	7	DIN 1810-A30-32	30
DIN 1804-M20x1,5-WNI	M20x1.5	36	30	6	8	DIN 1810-A34-36	45
DIN 1804-M24x1,5-WNI	M24x1.5	42	36	6	9	DIN 1810-A40-42	60
DIN 1804-M28x1,5-WNI	M28x1.5	50	43	7	10	DIN 1810-A45-50	98
DIN 1804-M30x1,5-WNI	M30x1.5	50	43	7	10	DIN 1810-A45-50	92
DIN 1804-M35x1,5-WNI	M35x1.5	55	48	7	11	DIN 1810-A52-55	115
DIN 1804-M40x1,5-WNI	M40x1.5	62	54	8	12	DIN 1810-A58-62	156
DIN 1804-M45x1,5-WNI	M45x1.5	68	60	8	12	DIN 1810-A68-75	176
DIN 1804-M50x1,5-WNI	M50x1.5	75	67	8	13	DIN 1810-A68-75	235
DIN 1804-M55x1,5-WNI	M55x1.5	80	70	10	13	DIN 1810-A80-90	242
DIN 1804-M60x1,5-WNI	M60x1.5	90	80	10	13	DIN 1810-A80-90	340

* Position tolerances apply to type H

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DIN 1804 | Slotted locknuts

DIN 1804

Description	d1	d2 h11	d3	b	h h14	Code no. for C-Spanner	⚖
DIN 1804-M8x1-H	M8x1	20	16	4	5	DIN 1810-A16-20	10
DIN 1804-M10x1-H	M10x1	25	20	5	6	DIN 1810-A25-28	17
DIN 1804-M12x1,5-H	M12x1.5	28	23	5	6	DIN 1810-A25-28	20
DIN 1804-M14x1,5-H	M14x1.5	30	25	5	7	DIN 1810-A30-32	28
DIN 1804-M16x1,5-H	M16x1.5	32	27	5	7	DIN 1810-A30-32	30
DIN 1804-M18x1,5-H	M18x1.5	34	28	6	8	DIN 1810-A34-36	30
DIN 1804-M20x1,5-H	M20x1.5	36	30	6	8	DIN 1810-A34-36	40
DIN 1804-M22x1,5-H	M22x1.5	40	34	6	9	DIN 1810-A40-42	56
DIN 1804-M24x1,5-H	M24x1.5	42	36	6	9	DIN 1810-A40-42	60
DIN 1804-M26x1,5-H	M26x1.5	45	38	7	10	DIN 1810-A45-50	75
DIN 1804-M28x1,5-H	M28x1.5	50	43	7	10	DIN 1810-A45-50	90
DIN 1804-M30x1,5-H	M30x1.5	50	43	7	10	DIN 1810-A45-50	95
DIN 1804-M32x1,5-H	M32x1.5	52	45	7	11	DIN 1810-A52-55	100
DIN 1804-M35x1,5-H	M35x1.5	55	48	7	11	DIN 1810-A52-55	113
DIN 1804-M38x1,5-H	M38x1.5	58	50	8	11	DIN 1810-A58-62	120
DIN 1804-M40x1,5-H	M40x1.5	62	54	8	12	DIN 1810-A58-62	140
DIN 1804-M42x1,5-H	M42x1.5	62	54	8	12	DIN 1810-A58-62	155
DIN 1804-M45x1,5-H	M45x1.5	68	60	8	12	DIN 1810-A68-75	175
DIN 1804-M48x1,5-H	M48x1.5	75	67	8	13	DIN 1810-A68-75	195
DIN 1804-M50x1,5-H	M50x1.5	75	67	8	13	DIN 1810-A68-75	230
DIN 1804-M52x1,5-H	M52x1.5	80	70	10	13	DIN 1810-A80-90	240
DIN 1804-M55x1,5-H	M55x1.5	80	70	10	13	DIN 1810-A80-90	260
DIN 1804-M58x1,5-H	M58x1.5	90	80	10	13	DIN 1810-A80-90	320
DIN 1804-M60x1,5-H	M60x1.5	90	80	10	13	DIN 1810-A80-90	345
DIN 1804-M8x1-W	M8x1	20	16	4	5	DIN 1810-A16-20	16
DIN 1804-M10x1-W	M10x1	25	20	5	6	DIN 1810-A25-28	16
DIN 1804-M12x1,5-W	M12x1.5	28	23	5	6	DIN 1810-A25-28	20
DIN 1804-M14x1,5-W	M14x1.5	30	25	5	7	DIN 1810-A30-32	28
DIN 1804-M16x1,5-W	M16x1.5	32	27	5	7	DIN 1810-A30-32	35
DIN 1804-M18x1,5-W	M18x1.5	34	28	6	8	DIN 1810-A34-36	38
DIN 1804-M20x1,5-W	M20x1.5	36	30	6	8	DIN 1810-A34-36	45
DIN 1804-M22x1,5-W	M22x1.5	40	34	6	9	DIN 1810-A40-42	50
DIN 1804-M24x1,5-W	M24x1.5	42	36	6	9	DIN 1810-A40-42	60
DIN 1804-M26x1,5-W	M26x1.5	45	38	7	10	DIN 1810-A45-50	75
DIN 1804-M28x1,5-W	M28x1.5	50	43	7	10	DIN 1810-A45-50	90
DIN 1804-M30x1,5-W	M30x1.5	50	43	7	10	DIN 1810-A45-50	95
DIN 1804-M32x1,5-W	M32x1.5	52	45	7	11	DIN 1810-A52-55	103
DIN 1804-M35x1,5-W	M35x1.5	55	48	7	11	DIN 1810-A52-55	110
DIN 1804-M38x1,5-W	M38x1.5	58	50	8	11	DIN 1810-A58-62	120
DIN 1804-M40x1,5-W	M40x1.5	62	54	8	12	DIN 1810-A58-62	140
DIN 1804-M42x1,5-W	M42x1.5	62	54	8	12	DIN 1810-A58-62	155
DIN 1804-M45x1,5-W	M45x1.5	68	60	8	12	DIN 1810-A68-75	175
DIN 1804-M48x1,5-W	M48x1.5	75	67	8	13	DIN 1810-A68-75	200
DIN 1804-M50x1,5-W	M50x1.5	75	67	8	13	DIN 1810-A68-75	220
DIN 1804-M52x1,5-W	M52x1.5	80	70	10	13	DIN 1810-A80-90	240
DIN 1804-M55x1,5-W	M55x1.5	80	70	10	13	DIN 1810-A80-90	260
DIN 1804-M58x1,5-W	M58x1.5	90	80	10	13	DIN 1810-A80-90	330
DIN 1804-M60x1,5-W	M60x1.5	90	80	10	13	DIN 1810-A80-90	345

* Position tolerances apply to type H

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Slotted locknuts

self-locking, with polyamide insert

SPECIFICATION

Steel

- Tensile strength class 5
- zinc plated, blue passivated

INFORMATION

Slotted locknuts GN 1804.1 are self-locking owing to their polymaide insert. They can therefore also be used as a setting nut and may be used more than once.
The thread series coresponds to roller bearing slotted locknuts DIN 981.

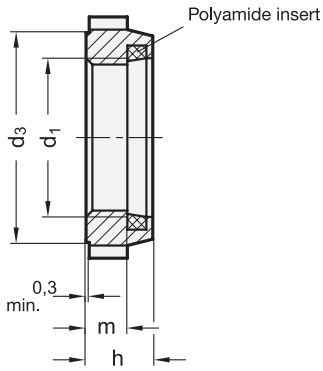
TECHNICAL INFORMATION

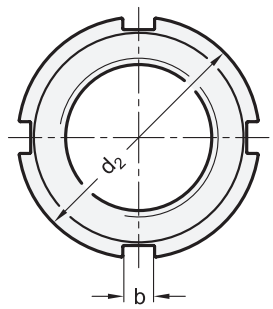
- Metric ISO fine thread (see page A19)
- Plastic characteristics (see page A2)

ACCESSORY

- C-Spanner DIN 1810 (Code no. see table) (see page 994)







GN 1804.1

Description	d1 6H	d2	d3	b	h	m	Number of slots	Code no. for C-Spanner	⚖
GN 1804.1-M10x0,75	M 10 x 0.75	18	15	3	7.5	4.5	4	DIN 1810-A16-20	6
GN 1804.1-M12x1	M 12 x 1	21	18	3	7.5	4.5	4	DIN 1810-A16-20	9
GN 1804.1-M15x1	M 15 x 1	24	21	4	8.5	5.5	4	DIN 1810-A25-28	12
GN 1804.1-M17x1	M 17 x 1	28	24	4	8.5	5.5	4	DIN 1810-A25-28	17
GN 1804.1-M20x1	M 20 x 1	32	27	4	9.5	6.5	4	DIN 1810-A30-32	22
GN 1804.1-M25x1,5	M 25 x 1.5	38	33	5	10.5	6.5	4	DIN 1810-A40-42	33
GN 1804.1-M30x1,5	M 30 x 1.5	44	38	5	11	6.5	4	DIN 1810-A45-50	46
GN 1804.1-M35x1,5	M 35 x 1.5	50	44	5	11	7	4	DIN 1810-A45-50	60
GN 1804.1-M40x1,5	M 40 x 1.5	56	50	6	12	8.2	4	DIN 1810-A58-62	74
GN 1804.1-M45x1,5	M 45 x 1.5	62	55	6	12	8.2	4	DIN 1810-A58-62	79
GN 1804.1-M50x1,5	M 50 x 1.5	68	61	6	13	8.5	4	DIN 1810-A68-75	109
GN 1804.1-M55x2	M 55 x 2	75	68	7	13.5	8.5	6	DIN 1810-A68-75	141
GN 1804.1-M60x2	M 60 x 2	80	73	7	13.5	8.5	6	DIN 1810-A80-90	149

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GN 1804.2

Slotted locknuts

with thread locking

SPECIFICATION

Nut
Steel **ST**

- Tensile strength class 5.8
- blackened

Set screw
Steel, blackened

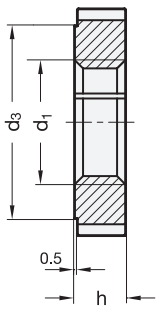


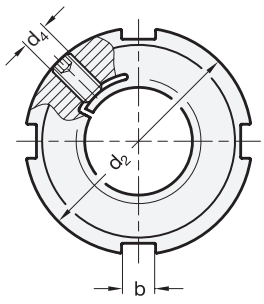
INFORMATION

GN 1804.2 slotted locknuts with thread locking can be secured against twisting by twisting off the threaded shaft via a d_4 set screw. The thread flanks of the nut ensure damage-free securing and can be used as often as needed.
The d_3 offset plane surface is intended as an axial contact surface.

ACCESSORY

- C-Spanner DIN 1810 (Code no. see table) (see page 994)





GN 1804.2

Description	d1	d2	d3	d4	b	h	Code no. for C-Spanner	⚖
GN 1804.2-M12x1,5-ST	M12x1.5	28	23	M4	5	6	DIN 1810-A25-28	20
GN 1804.2-M14x1,5-ST	M14x1.5	30	25	M4	5	7	DIN 1810-A30-32	26
GN 1804.2-M16x1,5-ST	M16x1.5	32	27	M5	5	7	DIN 1810-A30-32	29
GN 1804.2-M18x1,5-ST	M18x1.5	34	28	M5	6	8	DIN 1810-A34-36	35
GN 1804.2-M20x1,5-ST	M20x1.5	36	30	M5	6	8	DIN 1810-A34-36	38
GN 1804.2-M22x1,5-ST	M22x1.5	40	34	M5	6	9	DIN 1810-A40-42	55
GN 1804.2-M24x1,5-ST	M24x1.5	42	36	M5	6	9	DIN 1810-A40-42	58
GN 1804.2-M30x1,5-ST	M30x1.5	50	43	M5	7	10	DIN 1810-A45-50	58
GN 1804.2-M35x1,5-ST	M35x1.5	55	48	M6	7	11	DIN 1810-A52-55	111
GN 1804.2-M40x1,5-ST	M40x1.5	62	54	M8	8	12	DIN 1810-A58-62	150

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RoHS

C-Spanner

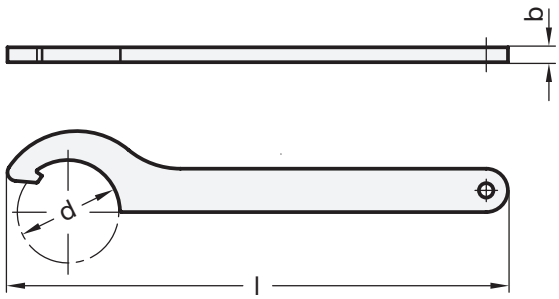
SPECIFICATION

Steel
blackened

INFORMATION

- Levelling sets GN 350 (see page 1014)
- Levelling sets GN 350.1 (see page 1016)
- Levelling sets GN 350.2 (see page 1018)
- Slotted locknuts DIN 1804 (see page 990)
- Slotted locknuts GN 1804.1 (see page 992)





DIN 1810

Description	d min.	d max.	l	b	⚖
DIN 1810-A16-20	A 16	20	110	3	23
DIN 1810-A25-28	A 25	28	136	4	46
DIN 1810-A30-32	A 30	32	136	4	49
DIN 1810-A34-36	A 34	36	170	5	92
DIN 1810-A40-42	A 40	42	170	5	100
DIN 1810-A45-50	A 45	50	206	6	161
DIN 1810-A52-55	A 52	55	206	6	162
DIN 1810-A58-62	A 58	62	240	7	258
DIN 1810-A68-75	A 68	75	240	7	261
DIN 1810-A80-90	A 80	90	280	8	426

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DIN 6885

Feather keys

Steel / Stainless Steel

SPECIFICATION

Type
- Type **A**: front rounded, long version

Version in Steel
Steel C45+C
blank

Version in Stainless Steel
Stainless Steel AISI 316Ti **NI**

INFORMATION

Feather keys DIN 6885 are only in packing units of 50 pieces for each size and length available.
Stainless Steel-Feather keys DIN 6885 are only in packing units of 10 pieces for each size and length available.

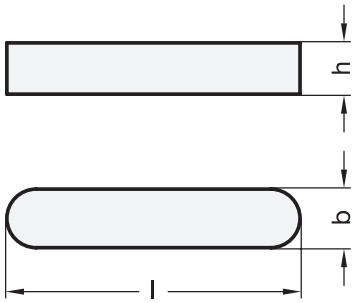
ON REQUEST

- b = 14, 16, 18, 20

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Keyway type in the bore and the shaft (see page A16)
- Stainless Steel characteristics (see page A26)





DIN 6885

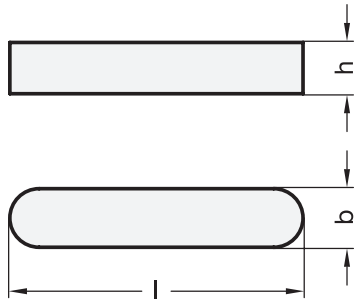
Description	b h9	h	l	For shaft-Ø from...to	⚖
DIN 6885-2-2-6-A	2	2	6	6...8	1
DIN 6885-2-2-8-A	2	2	8	6...8	1
DIN 6885-2-2-10-A	2	2	10	6...8	1
DIN 6885-2-2-12-A	2	2	12	6...8	1
DIN 6885-2-2-14-A	2	2	14	6...8	1
DIN 6885-2-2-16-A	2	2	16	6...8	1
DIN 6885-2-2-18-A	2	2	18	6...8	1
DIN 6885-2-2-20-A	2	2	20	6...8	1
DIN 6885-3-3-6-A	3	3	6	8...10	1
DIN 6885-3-3-8-A	3	3	8	8...10	1
DIN 6885-3-3-10-A	3	3	10	8...10	1
DIN 6885-3-3-12-A	3	3	12	8...10	1
DIN 6885-3-3-14-A	3	3	14	8...10	1
DIN 6885-3-3-16-A	3	3	16	8...10	1
DIN 6885-3-3-18-A	3	3	18	8...10	1
DIN 6885-3-3-20-A	3	3	20	8...10	1
DIN 6885-3-3-22-A	3	3	22	8...10	2
DIN 6885-3-3-25-A	3	3	25	8...10	2
DIN 6885-3-3-28-A	3	3	28	8...10	2

DIN 6885

Description	b h9	h	l	For shaft-Ø from...to	⚖
DIN 6885-3-3-30-A	3	3	30	8...10	2
DIN 6885-3-3-32-A	3	3	32	8...10	2
DIN 6885-3-3-35-A	3	3	35	8...10	2
DIN 6885-3-3-36-A	3	3	36	8...10	3
DIN 6885-4-4-6-A	4	4	6	10...12	3
DIN 6885-4-4-8-A	4	4	8	10...12	3
DIN 6885-4-4-10-A	4	4	10	10...12	3
DIN 6885-4-4-12-A	4	4	12	10...12	3
DIN 6885-4-4-14-A	4	4	14	10...12	3
DIN 6885-4-4-16-A	4	4	16	10...12	3
DIN 6885-4-4-18-A	4	4	18	10...12	3
DIN 6885-4-4-20-A	4	4	20	10...12	3
DIN 6885-4-4-22-A	4	4	22	10...12	3
DIN 6885-4-4-25-A	4	4	25	10...12	3
DIN 6885-4-4-28-A	4	4	28	10...12	4
DIN 6885-4-4-32-A	4	4	32	10...12	4
DIN 6885-4-4-36-A	4	4	36	10...12	5
DIN 6885-4-4-40-A	4	4	40	10...12	5
DIN 6885-4-4-45-A	4	4	45	10...12	6

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DIN 6885 | Feather keys



DIN 6885

Description	b h9	h	l	For shaft-Ø from...to	⚖
DIN 6885-5-5-8-A	5	5	8	12...17	2
DIN 6885-5-5-10-A	5	5	10	12...17	2
DIN 6885-5-5-12-A	5	5	12	12...17	2
DIN 6885-5-5-14-A	5	5	14	12...17	2
DIN 6885-5-5-16-A	5	5	16	12...17	3
DIN 6885-5-5-18-A	5	5	18	12...17	4
DIN 6885-5-5-20-A	5	5	20	12...17	4
DIN 6885-5-5-22-A	5	5	22	12...17	4
DIN 6885-5-5-25-A	5	5	25	12...17	5
DIN 6885-5-5-28-A	5	5	28	12...17	5
DIN 6885-5-5-32-A	5	5	32	12...17	6
DIN 6885-5-5-36-A	5	5	36	12...17	7
DIN 6885-5-5-40-A	5	5	40	12...17	7
DIN 6885-5-5-45-A	5	5	45	12...17	8
DIN 6885-5-5-50-A	5	5	50	12...17	9
DIN 6885-6-6-12-A	6	6	12	17...22	3
DIN 6885-6-6-14-A	6	6	14	17...22	3
DIN 6885-6-6-16-A	6	6	16	17...22	4
DIN 6885-6-6-18-A	6	6	18	17...22	5
DIN 6885-6-6-20-A	6	6	20	17...22	5
DIN 6885-6-6-22-A	6	6	22	17...22	6
DIN 6885-6-6-25-A	6	6	25	17...22	6
DIN 6885-6-6-28-A	6	6	28	17...22	7
DIN 6885-6-6-32-A	6	6	32	17...22	8
DIN 6885-6-6-36-A	6	6	36	17...22	10
DIN 6885-6-6-40-A	6	6	40	17...22	10
DIN 6885-6-6-45-A	6	6	45	17...22	13
DIN 6885-6-6-50-A	6	6	50	17...22	14
DIN 6885-6-6-56-A	6	6	56	17...22	15
DIN 6885-6-6-63-A	6	6	63	17...22	17
DIN 6885-8-7-12-A	8	7	12	22...30	4
DIN 6885-8-7-14-A	8	7	14	22...30	6
DIN 6885-8-7-16-A	8	7	16	22...30	6
DIN 6885-8-7-18-A	8	7	18	22...30	7
DIN 6885-8-7-20-A	8	7	20	22...30	8
DIN 6885-8-7-22-A	8	7	22	22...30	9
DIN 6885-8-7-25-A	8	7	25	22...30	10
DIN 6885-8-7-28-A	8	7	28	22...30	11
DIN 6885-8-7-32-A	8	7	32	22...30	13
DIN 6885-8-7-36-A	8	7	36	22...30	15
DIN 6885-8-7-40-A	8	7	40	22...30	18

DIN 6885

Description	b h9	h	l	For shaft-Ø from...to	⚖
DIN 6885-8-7-45-A	8	7	45	22...30	18
DIN 6885-8-7-50-A	8	7	50	22...30	21
DIN 6885-8-7-56-A	8	7	56	22...30	23
DIN 6885-8-7-63-A	8	7	63	22...30	27
DIN 6885-8-7-70-A	8	7	70	22...30	29
DIN 6885-8-7-80-A	8	7	80	22...30	34
DIN 6885-8-7-90-A	8	7	90	22...30	38
DIN 6885-10-8-16-A	10	8	16	30...38	10
DIN 6885-10-8-18-A	10	8	18	30...38	11
DIN 6885-10-8-20-A	10	8	20	30...38	13
DIN 6885-10-8-22-A	10	8	22	30...38	14
DIN 6885-10-8-25-A	10	8	25	30...38	16
DIN 6885-10-8-28-A	10	8	28	30...38	16
DIN 6885-10-8-32-A	10	8	32	30...38	18
DIN 6885-10-8-36-A	10	8	36	30...38	21
DIN 6885-10-8-40-A	10	8	40	30...38	23
DIN 6885-10-8-45-A	10	8	45	30...38	28
DIN 6885-10-8-50-A	10	8	50	30...38	29
DIN 6885-10-8-56-A	10	8	56	30...38	33
DIN 6885-10-8-63-A	10	8	63	30...38	37
DIN 6885-10-8-70-A	10	8	70	30...38	42
DIN 6885-10-8-80-A	10	8	80	30...38	50
DIN 6885-10-8-90-A	10	8	90	30...38	54
DIN 6885-10-8-100-A	10	8	100	30...38	61
DIN 6885-10-8-110-A	10	8	110	30...38	67
DIN 6885-12-8-20-A	12	8	20	38...44	15
DIN 6885-12-8-25-A	12	8	25	38...44	16
DIN 6885-12-8-28-A	12	8	28	38...44	19
DIN 6885-12-8-32-A	12	8	32	38...44	21
DIN 6885-12-8-36-A	12	8	36	38...44	27
DIN 6885-12-8-40-A	12	8	40	38...44	27
DIN 6885-12-8-45-A	12	8	45	38...44	31
DIN 6885-12-8-50-A	12	8	50	38...44	35
DIN 6885-12-8-56-A	12	8	56	38...44	39
DIN 6885-12-8-63-A	12	8	63	38...44	45
DIN 6885-12-8-70-A	12	8	70	38...44	50
DIN 6885-12-8-80-A	12	8	80	38...44	60
DIN 6885-12-8-90-A	12	8	90	38...44	68
DIN 6885-12-8-100-A	12	8	100	38...44	75
DIN 6885-12-8-125-A	12	8	125	38...44	94

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DIN 6885-NI STAINLESS STEEL

Description	b h9	h	l	For shaft-Ø from...to	⚖
DIN 6885-3-3-6-A-NI	3	3	6	8...10	1
DIN 6885-3-3-8-A-NI	3	3	8	8...10	1
DIN 6885-3-3-10-A-NI	3	3	10	8...10	1
DIN 6885-3-3-12-A-NI	3	3	12	8...10	1
DIN 6885-3-3-14-A-NI	3	3	14	8...10	1
DIN 6885-3-3-16-A-NI	3	3	16	8...10	1
DIN 6885-3-3-18-A-NI	3	3	18	8...10	1
DIN 6885-3-3-20-A-NI	3	3	20	8...10	1
DIN 6885-4-4-10-A-NI	4	4	10	10...12	1
DIN 6885-4-4-12-A-NI	4	4	12	10...12	2
DIN 6885-4-4-14-A-NI	4	4	14	10...12	2
DIN 6885-4-4-16-A-NI	4	4	16	10...12	2
DIN 6885-4-4-18-A-NI	4	4	18	10...12	2
DIN 6885-4-4-20-A-NI	4	4	20	10...12	3
DIN 6885-4-4-22-A-NI	4	4	22	10...12	4
DIN 6885-4-4-25-A-NI	4	4	25	10...12	4
DIN 6885-4-4-28-A-NI	4	4	28	10...12	4
DIN 6885-4-4-32-A-NI	4	4	32	10...12	4
DIN 6885-5-5-10-A-NI	5	5	10	12...17	2
DIN 6885-5-5-12-A-NI	5	5	12	12...17	2
DIN 6885-5-5-14-A-NI	5	5	14	12...17	2
DIN 6885-5-5-16-A-NI	5	5	16	12...17	3
DIN 6885-5-5-18-A-NI	5	5	18	12...17	4
DIN 6885-5-5-20-A-NI	5	5	20	12...17	4
DIN 6885-5-5-22-A-NI	5	5	22	12...17	4
DIN 6885-5-5-25-A-NI	5	5	25	12...17	5
DIN 6885-5-5-28-A-NI	5	5	28	12...17	6
DIN 6885-5-5-32-A-NI	5	5	32	12...17	6
DIN 6885-5-5-36-A-NI	5	5	36	12...17	7
DIN 6885-5-5-40-A-NI	5	5	40	12...17	8
DIN 6885-5-5-45-A-NI	5	5	45	12...17	9
DIN 6885-5-5-50-A-NI	5	5	50	12...17	10
DIN 6885-6-6-14-A-NI	6	6	14	17...22	4
DIN 6885-6-6-16-A-NI	6	6	16	17...22	5
DIN 6885-6-6-18-A-NI	6	6	18	17...22	5
DIN 6885-6-6-20-A-NI	6	6	20	17...22	6
DIN 6885-6-6-22-A-NI	6	6	22	17...22	6
DIN 6885-6-6-25-A-NI	6	6	25	17...22	7
DIN 6885-6-6-28-A-NI	6	6	28	17...22	8
DIN 6885-6-6-32-A-NI	6	6	32	17...22	9
DIN 6885-6-6-36-A-NI	6	6	36	17...22	10
DIN 6885-6-6-40-A-NI	6	6	40	17...22	11
DIN 6885-6-6-45-A-NI	6	6	45	17...22	12
DIN 6885-6-6-50-A-NI	6	6	50	17...22	14

DIN 6885-NI STAINLESS STEEL

Description	b h9	h	l	For shaft-Ø from...to	⚖
DIN 6885-6-6-56-A-NI	6	6	56	17...22	16
DIN 6885-6-6-63-A-NI	6	6	63	17...22	18
DIN 6885-8-7-16-A-NI	8	7	16	22...30	7
DIN 6885-8-7-18-A-NI	8	7	18	22...30	8
DIN 6885-8-7-20-A-NI	8	7	20	22...30	9
DIN 6885-8-7-22-A-NI	8	7	22	22...30	10
DIN 6885-8-7-24-A-NI	8	7	24	22...30	11
DIN 6885-8-7-25-A-NI	8	7	25	22...30	11
DIN 6885-8-7-28-A-NI	8	7	28	22...30	12
DIN 6885-8-7-32-A-NI	8	7	32	22...30	14
DIN 6885-8-7-36-A-NI	8	7	36	22...30	16
DIN 6885-8-7-40-A-NI	8	7	40	22...30	18
DIN 6885-8-7-45-A-NI	8	7	45	22...30	20
DIN 6885-8-7-50-A-NI	8	7	50	22...30	22
DIN 6885-8-7-56-A-NI	8	7	56	22...30	25
DIN 6885-8-7-63-A-NI	8	7	63	22...30	28
DIN 6885-10-8-20-A-NI	10	8	20	30...38	13
DIN 6885-10-8-22-A-NI	10	8	22	30...38	14
DIN 6885-10-8-25-A-NI	10	8	25	30...38	16
DIN 6885-10-8-28-A-NI	10	8	28	30...38	18
DIN 6885-10-8-32-A-NI	10	8	32	30...38	20
DIN 6885-10-8-36-A-NI	10	8	36	30...38	23
DIN 6885-10-8-40-A-NI	10	8	40	30...38	25
DIN 6885-10-8-45-A-NI	10	8	45	30...38	28
DIN 6885-10-8-50-A-NI	10	8	50	30...38	31
DIN 6885-10-8-56-A-NI	10	8	56	30...38	35
DIN 6885-10-8-63-A-NI	10	8	63	30...38	40
DIN 6885-10-8-70-A-NI	10	8	70	30...38	44
DIN 6885-10-8-80-A-NI	10	8	80	30...38	50
DIN 6885-10-8-90-A-NI	10	8	90	30...38	57
DIN 6885-12-8-25-A-NI	12*	8	25	38...44	18
DIN 6885-12-8-28-A-NI	12*	8	28	38...44	21
DIN 6885-12-8-32-A-NI	12*	8	32	38...44	24
DIN 6885-12-8-36-A-NI	12*	8	36	38...44	27
DIN 6885-12-8-40-A-NI	12*	8	40	38...44	20
DIN 6885-12-8-45-A-NI	12*	8	45	38...44	34
DIN 6885-12-8-50-A-NI	12*	8	50	38...44	38
DIN 6885-12-8-56-A-NI	12*	8	56	38...44	42
DIN 6885-12-8-63-A-NI	12*	8	63	38...44	48
DIN 6885-12-8-70-A-NI	12*	8	70	38...44	53
DIN 6885-12-8-80-A-NI	12*	8	80	38...44	60
DIN 6885-12-8-90-A-NI	12*	8	90	38...44	68
DIN 6885-12-8-100-A-NI	12*	8	100	38...44	75

* not available from stock, requires a minimum order quantity

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Assembly sets for profile systems 30 / 40

for slot width 6 / 8, assembly with T-Nuts GN 506

SPECIFICATION

Types

- Type **A**: with cylinder head screw DIN 912
- Type **B**: with countersunk screw DIN 7991
- Type **C**: with lens screw ISO 7380
- Type **D**: with cylinder head screw DIN 7984

T-Nuts GN 506 (see page 982)
Steel

- zinc plated, blue passivated
- Ball / Spring Stainless Steel

Cylinder heads screws DIN 912
Countersunk screws DIN 7991
Lens screws ISO 7380
Cylinder head screws DIN 7984

Steel zinc plated, blue passivated

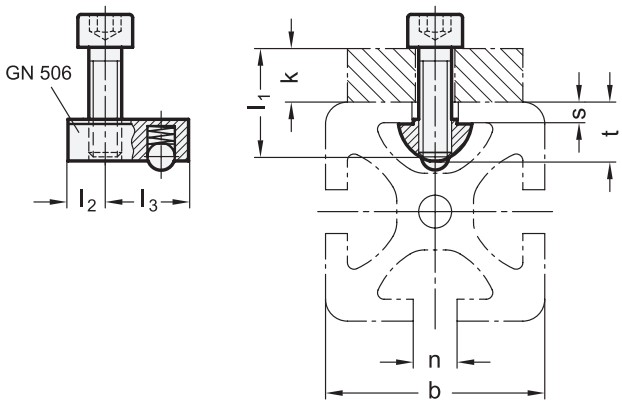


INFORMATION

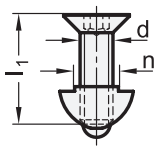
Assembly sets GN 965 allow different standard element to be attached to the most common profile systems. Each set includes one T-nut GN 506 (see page 982) and one screw.

- Explanation (see page A44)
- Overview to appropriate standards of the assembly sets GN 965 (see page A45)

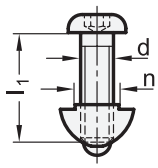
Type **A**



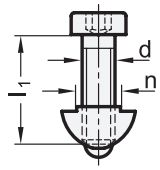
Type **B**



Type **C**



Type **D**



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GN 965

Description	b	n	d	l1	k ≈	l2	l3	s ≈	t ≈	⚖
GN 965-6-M4-10-A	30	6	M 4	10	... 4	5	12	2.9	8.9	10
GN 965-6-M4-12-A	30	6	M 4	12	1 ... 6	5	12	2.9	8.9	12
GN 965-6-M4-16-A	30	6	M 4	16	5 ... 10	5	12	2.9	8.9	12
GN 965-6-M5-10-A	30	6	M 5	10	... 3	5	12	2.9	8.9	6
GN 965-6-M5-12-A	30	6	M 5	12	1 ... 5	5	12	2.9	8.9	6
GN 965-6-M5-14-A	30	6	M 5	14	3 ... 7	5	12	2.9	8.9	8
GN 965-6-M5-16-A	30	6	M 5	16	5 ... 9	5	12	2.9	8.9	9
GN 965-6-M5-18-A	30	6	M 5	18	7 ... 11	5	12	2.9	8.9	9
GN 965-6-M5-22-A	30	6	M 5	22	11 ... 15	5	12	2.9	8.9	10
GN 965-6-M6-12-A	30	6	M 6	12	1 ... 4	5	12	2.9	8.9	9
GN 965-6-M6-14-A	30	6	M 6	14	3 ... 6	5	12	2.9	8.9	9
GN 965-6-M6-16-A	30	6	M 6	16	5 ... 8	5	12	2.9	8.9	10
GN 965-6-M6-20-A	30	6	M 6	20	9 ... 12	5	12	2.9	8.9	10
GN 965-6-M6-25-A	30	6	M 6	25	14 ... 17	5	12	2.9	8.9	10
GN 965-8-M4-12-A	40	8	M 4	12	... 5	7	15	4.6	11.4	10
GN 965-8-M4-14-A	40	8	M 4	14	1 ... 7	7	15	4.6	11.4	10
GN 965-8-M4-20-A	40	8	M 4	20	7 ... 13	7	15	4.6	11.4	13
GN 965-8-M5-12-A	40	8	M 5	12	... 4	7	15	4.6	11.4	13
GN 965-8-M5-14-A	40	8	M 5	14	1 ... 6	7	15	4.6	11.4	14
GN 965-8-M5-16-A	40	8	M 5	16	3 ... 8	7	15	4.6	11.4	14
GN 965-8-M5-18-A	40	8	M 5	18	5 ... 10	7	15	4.6	11.4	14
GN 965-8-M5-20-A	40	8	M 5	20	7 ... 12	7	15	4.6	11.4	15
GN 965-8-M5-22-A	40	8	M 5	22	9 ... 14	7	15	4.6	11.4	15
GN 965-8-M5-25-A	40	8	M 5	25	12 ... 17	7	15	4.6	11.4	15
GN 965-8-M6-14-A	40	8	M 6	14	1 ... 5	7	15	4.6	11.4	10
GN 965-8-M6-16-A	40	8	M 6	16	3 ... 7	7	15	4.6	11.4	10
GN 965-8-M6-18-A	40	8	M 6	18	5 ... 9	7	15	4.6	11.4	10
GN 965-8-M6-22-A	40	8	M 6	22	9 ... 13	7	15	4.6	11.4	14
GN 965-8-M6-28-A	40	8	M 6	28	15 ... 19	7	15	4.6	11.4	20
GN 965-8-M8-14-A	40	8	M 8	14	1 ... 4	7	15	4.6	11.4	20
GN 965-8-M8-16-A	40	8	M 8	16	3 ... 6	7	15	4.6	11.4	20
GN 965-8-M8-18-A	40	8	M 8	18	5 ... 8	7	15	4.6	11.4	21
GN 965-8-M8-20-A	40	8	M 8	20	7 ... 10	7	15	4.6	11.4	22
GN 965-8-M8-28-A	40	8	M 8	28	15 ... 18	7	15	4.6	11.4	24
GN 965-6-M4-10-B	30	6	M 4	10	... 4	5	12	2.9	8.9	14
GN 965-6-M5-12-B	30	6	M 5	12	1 ... 5	5	12	2.9	8.9	16
GN 965-6-M6-12-B	30	6	M 6	12	1 ... 4	5	12	2.9	8.9	18
GN 965-6-M6-14-B	30	6	M 6	14	3 ... 6	5	12	2.9	8.9	19
GN 965-6-M6-16-B	30	6	M 6	16	5 ... 8	5	12	2.9	8.9	20
GN 965-6-M6-18-B	30	6	M 6	18	7 ... 10	5	12	2.9	8.9	20
GN 965-8-M5-14-B	40	8	M 5	14	1 ... 6	7	15	4.6	11.4	13
GN 965-8-M6-14-B	40	8	M 6	14	1 ... 5	7	15	4.6	11.4	13
GN 965-8-M6-16-B	40	8	M 6	16	3 ... 7	7	15	4.6	11.4	13
GN 965-8-M6-18-B	40	8	M 6	18	5 ... 9	7	15	4.6	11.4	13
GN 965-8-M6-20-B	40	8	M 6	20	7 ... 11	7	15	4.6	11.4	13
GN 965-8-M8-16-B	40	8	M 8	16	3 ... 6	7	15	4.6	11.4	18
GN 965-6-M6-14-C	30	6	M 6	14	3 ... 6	5	12	2.9	8.9	20
GN 965-8-M6-16-C	40	8	M 6	16	3 ... 7	7	15	4.6	11.4	14
GN 965-8-M6-22-C	40	8	M 6	22	9 ... 13	7	15	4.6	11.4	20
GN 965-8-M8-16-C	40	8	M 8	16	3 ... 6	7	15	4.6	11.4	17
GN 965-8-M8-18-C	40	8	M 8	18	5 ... 8	7	15	4.6	11.4	18
GN 965-6-M6-10-D	30	6	M 6	10	... 3	5	12	2.9	8.9	8
GN 965-8-M6-14-D	40	8	M 6	14	1 ... 5	7	15	4.6	11.4	10

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Angle pieces / Shackles

for profile systems



SPECIFICATION

Types

- Type **F**: Shackle
- Type **L**: Angle

Identification no.

- No. **1** with bore for countersunk screws DIN 7991
- No. **2** with bore without countersunk

Sheet metal

zinc plated, blue passivated **ZB**

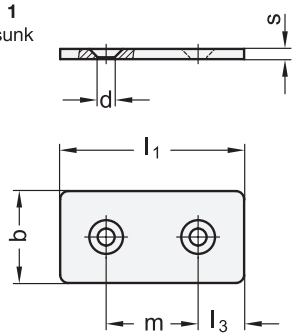
plastic coated
black, RAL 9005, textured finish **SW**
silver, RAL 9006, textured finish **SR**

INFORMATION

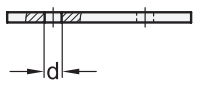
Angle pieces and shackles GN 967 are preferably used in connection with profile section systems. Square connections or connections with same contact area can so be realised in the smallest of spaces and with a high degree of stability.
Over and above the profile system configurations, the angle pieces and shackles can also be used for a wide variety of different fixing and retaining tasks, for instance in the design of jigs and fixtures.
In the version with identification no. 2 the drill holes are designed without countersunk hole to allow fixing with cylinder head screws, nuts or rivets.

Type **F**

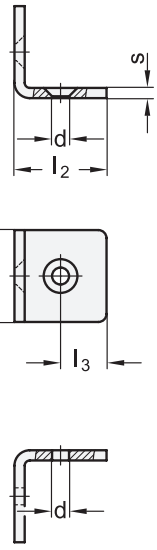
Identification no. **1**
without countersunk



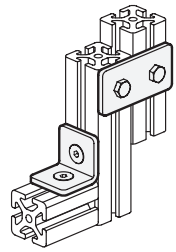
Identification no. **2**
without countersunk

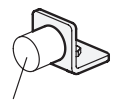


Type **L**



Examples of application





Buffer
GN 352

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GN 967

Description	b	l1	l2	l3	m	d	s	⚖
GN 967-20-40-F-1-SR	20	40	-	10	20	5.2	3	16
GN 967-20-40-F-1-SW	20	40	-	10	20	5.2	3	16
GN 967-20-40-F-1-ZB	20	40	-	10	20	5.2	3	16
GN 967-30-60-F-1-SR	30	60	-	15	30	6.3	4	53
GN 967-30-60-F-1-SW	30	60	-	15	30	6.3	4	53
GN 967-30-60-F-1-ZB	30	60	-	15	30	6.3	4	53
GN 967-40-80-F-1-SR	40	80	-	20	40	8.3	5	114
GN 967-40-80-F-1-SW	40	80	-	20	40	8.3	5	114
GN 967-40-80-F-1-ZB	40	80	-	20	40	8.3	5	114
GN 967-45-90-F-1-SR	45	90	-	22.5	45	8.3	5	147
GN 967-45-90-F-1-SW	45	90	-	22.5	45	8.3	5	148
GN 967-45-90-F-1-ZB	45	90	-	22.5	45	8.3	5	149
GN 967-20-20-L-1-SR	20	-	20	10	20	5.2	3	14
GN 967-20-20-L-1-SW	20	-	20	10	20	5.2	3	14
GN 967-20-20-L-1-ZB	20	-	20	10	20	5.2	3	14
GN 967-30-30-L-1-SR	30	-	30	15	30	6.3	4	45
GN 967-30-30-L-1-SW	30	-	30	15	30	6.3	4	45
GN 967-30-30-L-1-ZB	30	-	30	15	30	6.3	4	45
GN 967-40-40-L-1-SR	40	-	40	20	40	8.3	5	102
GN 967-40-40-L-1-SW	40	-	40	20	40	8.3	5	102
GN 967-40-40-L-1-ZB	40	-	40	20	40	8.3	5	102
GN 967-45-45-L-1-SR	45	-	45	22.5	45	8.3	5	131
GN 967-45-45-L-1-SW	45	-	45	22.5	45	8.3	5	133
GN 967-45-45-L-1-ZB	45	-	45	22.5	45	8.3	5	132
GN 967-20-40-F-2-SR	20	40	-	10	20	5.2	3	17
GN 967-20-40-F-2-SW	20	40	-	10	20	5.2	3	17
GN 967-20-40-F-2-ZB	20	40	-	10	20	5.2	3	17
GN 967-30-60-F-2-SR	30	60	-	15	30	6.3	4	54
GN 967-30-60-F-2-SW	30	60	-	15	30	6.3	4	54
GN 967-30-60-F-2-ZB	30	60	-	15	30	6.3	4	54
GN 967-40-80-F-2-SR	40	80	-	20	40	8.3	5	121
GN 967-40-80-F-2-SW	40	80	-	20	40	8.3	5	121
GN 967-40-80-F-2-ZB	40	80	-	20	40	8.3	5	121
GN 967-45-90-F-2-SR	45	90	-	22.5	45	8.3	5	152
GN 967-45-90-F-2-SW	45	90	-	22.5	45	8.3	5	152
GN 967-45-90-F-2-ZB	45	90	-	22.5	45	8.3	5	152
GN 967-20-20-L-2-SR	20	-	20	10	20	5.2	3	15
GN 967-20-20-L-2-SW	20	-	20	10	20	5.2	3	15
GN 967-20-20-L-2-ZB	20	-	20	10	20	5.2	3	15
GN 967-30-30-L-2-SR	30	-	30	15	30	6.3	4	48
GN 967-30-30-L-2-SW	30	-	30	15	30	6.3	4	48
GN 967-30-30-L-2-ZB	30	-	30	15	30	6.3	4	48
GN 967-40-40-L-2-SR	40	-	40	20	40	8.3	5	106
GN 967-40-40-L-2-SW	40	-	40	20	40	8.3	5	106
GN 967-40-40-L-2-ZB	40	-	40	20	40	8.3	5	106
GN 967-45-45-L-2-SR	45	-	45	22.5	45	8.3	5	137
GN 967-45-45-L-2-SW	45	-	45	22.5	45	8.3	5	137
GN 967-45-45-L-2-ZB	45	-	45	22.5	45	8.3	5	137

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Installation brackets

equal / unequal sides



SPECIFICATION

Version with equal sides

Types

- Type **A**: without bores
- Type **B**: with bores

Version with unequal sides

Types

- Type **A**: without bores
- Type **C**: with bores and slotted holes

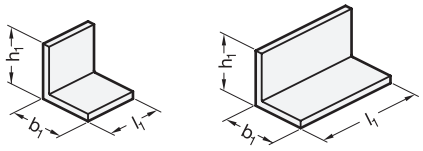
Structural Steel **STB**
drawn, with sharp edges
blackened

Aluminium **ALM**
pressed
matt, ground

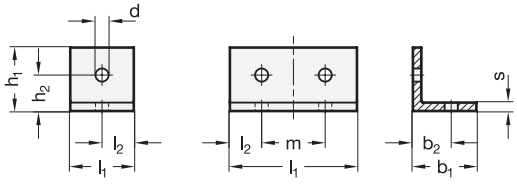
INFORMATION

GN 970 installation brackets are used universally for right-angle connecting and fastening of, e.g. base plates or covers.
Type A allows for the use of drilling templates specific to the application as well as fastening by welding.
Type C installation brackets have one or two combinations of a hole and an elongated hole depending on the length l1.

Type **A**



Type **B**





* Complete with material index of the Installation brackets

STB	ALM
Structural Steel	Aluminium

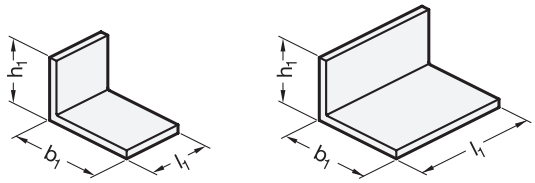
GN 970-equal sides

Description	h1	b1	l1	b2	d	h2	l2	m	s	⚖
GN 970-*-30-30-30-A	30	30	30	-	6.2	18	15	-	4	17
GN 970-*-30-30-60-A	30	30	60	-	6.2	18	15	-	4	27
GN 970-*-40-40-40-A	40	40	40	-	8.2	24	20	-	5	55
GN 970-*-40-40-80-A	40	40	80	-	8.2	24	20	-	5	75
GN 970-*-50-50-50-A	50	50**	50	-	10.2	30	25	-	6	75
GN 970-*-50-50-100-A	50	50**	100	-	10.2	30	25	-	6	85
GN 970-*-30-30-30-B	30	30	30	18	6.2	18	15	-	4	17
GN 970-*-30-30-60-B	30	30	60	18	6.2	18	15	30	4	30
GN 970-*-40-40-40-B	40	40	40	24	8.2	24	20	-	5	45
GN 970-*-40-40-80-B	40	40	80	24	8.2	24	20	40	5	45
GN 970-*-50-50-50-B	50	50**	50	30	10.2	30	25	-	6	72
GN 970-*-50-50-100-B	50	50**	100	30	10.2	30	25	50	6	85

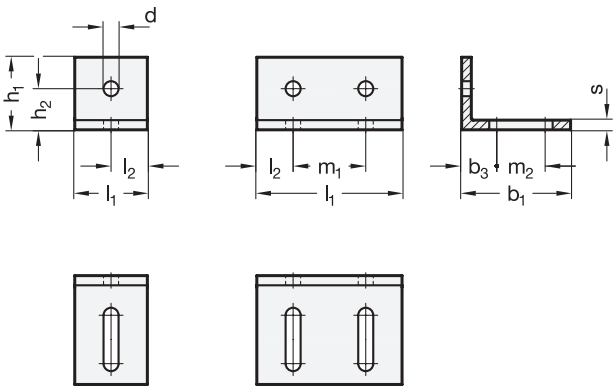
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Type **A**



Type **C**



*Complete with material index of the Installation brackets

STB
Structural Steel

ALM
Aluminium

GN 970-unequal sides

Description	h1	b1	l1	b3	d	h2	l2	m1	m2	s	⚖
GN 970-*-30-45-30-A	30	45	30	-	6.2	18	15	-	-	4	22
GN 970-*-30-45-60-A	30	45	60	-	6.2	18	15	-	-	4	35
GN 970-*-40-60-40-A	40	60	40	-	8.2	24	20	-	-	5	51
GN 970-*-40-60-80-A	40	60	80	-	8.2	24	20	-	-	5	100
GN 970-*-50-75-50-A	50	75**	50	-	10.2	30	25	-	-	6	94
GN 970-*-50-75-100-A	50	75**	100	-	10.2	30	25	-	-	6	187
GN 970-*-30-45-30-C	30	45	30	18	6.2	18	15	-	20	4	20
GN 970-*-30-45-60-C	30	45	60	18	6.2	18	15	30	20	4	30
GN 970-*-40-60-40-C	40	60	40	24	8.2	24	20	-	25	5	45
GN 970-*-40-60-80-C	40	60	80	24	8.2	24	20	40	25	5	57
GN 970-*-50-75-50-C	50	75**	50	30	10.2	30	25	-	30	6	86
GN 970-*-50-75-100-C	50	75**	100	30	10.2	30	25	50	30	6	100

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Assembly sets for profile systems 30 / 40 / 45

for slot width 8 / 10, assembly with T-Nuts GN 505

SPECIFICATION

Types

- Type **A**: with cylinder head screw DIN 912
- Type **B**: with countersunk screw DIN 7991
- Type **C**: with lens screw ISO 7380
- Type **D**: with cylinder head screw DIN 7984

T-Nuts GN 505 (see page 979)
Steel
with increased torque (Type MB)
zinc plated, blue passivated

Cylinder head screws DIN 912
Countersunk screws DIN 7991
Lens screws ISO 7380
Cylinder head screws DIN 7984

Steel
zinc plated, blue passivated



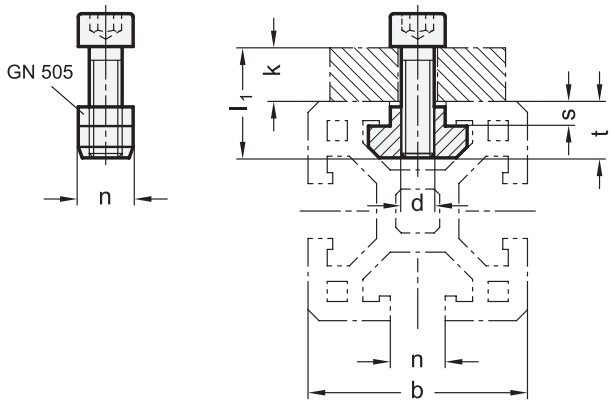


INFORMATION

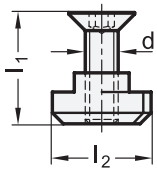
Assembly sets GN 968 allow different standard element to be attached to the most common profile systems. Each set includes one T-nut GN 505 (see page 979) and one screw.

- Explanation (see page A44)
- Overview to appropriate standards of the assembly sets GN 968 (see page A45)

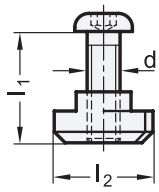
Type **A**



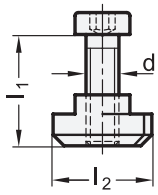
Type **B**



Type **C**



Type **D**



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GN 968

Description	b	n	d	l1	k ≈	l2 ±0.5	s ≈	t ≈	⚖
GN 968-8-M4-10-A	30	8	M 4	10	... 6	16	2.2	7.2	5
GN 968-8-M4-12-A	30	8	M 4	12	2 ... 8	16	2.2	7.2	5
GN 968-8-M4-16-A	30	8	M 4	16	6 ... 12	16	2.2	7.2	6
GN 968-8-M5-10-A	30	8	M 5	10	... 5	16	2.2	7.2	7
GN 968-8-M5-12-A	30	8	M 5	12	2 ... 7	16	2.2	7.2	7
GN 968-8-M5-14-A	30	8	M 5	14	4 ... 9	16	2.2	7.2	7
GN 968-8-M5-18-A	30	8	M 5	18	8 ... 13	16	2.2	7.2	7
GN 968-8-M5-20-A	30	8	M 5	20	10 ... 15	16	2.2	7.2	7
GN 968-8-M5-22-A	30	8	M 5	22	12 ... 17	16	2.2	7.2	8
GN 968-8-M6-10-A	30	8	M 6	10	... 4	16	2.2	7.2	8
GN 968-8-M6-12-A	30	8	M 6	12	2 ... 6	16	2.2	7.2	8
GN 968-8-M6-14-A	30	8	M 6	14	4 ... 8	16	2.2	7.2	8
GN 968-8-M6-16-A	30	8	M 6	16	6 ... 10	16	2.2	7.2	8
GN 968-8-M6-20-A	30	8	M 6	20	10 ... 14	16	2.2	7.2	9
GN 968-8-M6-25-A	30	8	M 6	25	15 ... 19	16	2.2	7.2	10
GN 968-10-M4-14-A	40 / 45	10	M 4	14	... 8	19	6	11.8	10
GN 968-10-M5-12-A	40 / 45	10	M 5	12	... 5	19	6	11.8	10
GN 968-10-M5-14-A	40 / 45	10	M 5	14	... 7	19	6	11.8	10
GN 968-10-M5-16-A	40 / 45	10	M 5	16	3 ... 9	19	6	11.8	10
GN 968-10-M5-18-A	40 / 45	10	M 5	18	5 ... 11	19	6	11.8	10
GN 968-10-M5-20-A	40 / 45	10	M 5	20	7 ... 13	19	6	11.8	10
GN 968-10-M5-25-A	40 / 45	10	M 5	25	12 ... 18	19	6	11.8	10
GN 968-10-M6-14-A	40 / 45	10	M 6	14	... 6	19	6	11.8	10
GN 968-10-M6-16-A	40 / 45	10	M 6	16	3 ... 8	19	6	11.8	10
GN 968-10-M6-18-A	40 / 45	10	M 6	18	5 ... 10	19	6	11.8	10
GN 968-10-M6-20-A	40 / 45	10	M 6	20	7 ... 12	19	6	11.8	10
GN 968-10-M6-22-A	40 / 45	10	M 6	22	9 ... 14	19	6	11.8	13
GN 968-10-M6-28-A	40 / 45	10	M 6	28	15 ... 20	19	6	11.8	13
GN 968-10-M8-14-A	40 / 45	10	M 8	14	... 5	19	6	11.8	15
GN 968-10-M8-16-A	40 / 45	10	M 8	16	3 ... 7	19	6	11.8	16
GN 968-10-M8-18-A	40 / 45	10	M 8	18	5 ... 9	19	6	11.8	17
GN 968-10-M8-20-A	40 / 45	10	M 8	20	7 ... 11	19	6	11.8	19
GN 968-10-M8-28-A	40 / 45	10	M 8	28	15 ... 19	19	6	11.8	20
GN 968-8-M5-12-B	30	8	M 5	12	2 ... 7	16	2.2	7.2	6
GN 968-8-M6-12-B	30	8	M 6	12	2 ... 6	16	2.2	7.2	6
GN 968-8-M6-14-B	30	8	M 6	14	4 ... 8	16	2.2	7.2	6
GN 968-8-M6-16-B	30	8	M 6	16	6 ... 10	16	2.2	7.2	6
GN 968-8-M6-18-B	30	8	M 6	18	8 ... 12	16	2.2	7.2	6
GN 968-10-M5-14-B	40 / 45	10	M 5	14	... 7	19	6	11.8	10
GN 968-10-M6-14-B	40 / 45	10	M 6	14	... 6	19	6	11.8	10
GN 968-10-M6-18-B	40 / 45	10	M 6	18	5 ... 10	19	6	11.8	10
GN 968-10-M6-20-B	40 / 45	10	M 6	20	7 ... 12	19	6	11.8	10
GN 968-10-M6-22-B	40 / 45	10	M 6	22	9 ... 14	19	6	11.8	10
GN 968-10-M8-16-B	40 / 45	10	M 8	16	3 ... 7	19	6	11.8	16
GN 968-8-M6-14-C	30	8	M 6	14	4 ... 8	16	2.2	7.2	16
GN 968-10-M6-18-C	40 / 45	10	M 6	18	5 ... 10	19	6	11.8	10
GN 968-10-M6-22-C	40 / 45	10	M 6	22	9 ... 14	19	6	11.8	10
GN 968-10-M8-16-C	40 / 45	10	M 8	16	3 ... 7	19	6	11.8	16
GN 968-10-M8-18-C	40 / 45	10	M 8	18	5 ... 9	19	6	11.8	17
GN 968-8-M6-10-D	30	8	M 6	10	... 4	16	2.2	7.2	8
GN 968-10-M6-14-D	40 / 45	10	M 6	14	... 6	19	6	11.8	8

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RoHS

Guide bushings

Drill bushings, with collar

SPECIFICATION

Type
- Type **A**: bore one-sided

Steel
hardened (HRC 62 ±2)

Fit sizes d_1, d_2 ground

INFORMATION

The dimensions listed in this standard sheet are merely a selection of the (currently withdrawn) DIN standards.
For applications involving positioning, we recommend the combination with the GN 771.1 guide pins (see page 1011).
For mounting bushings with tolerance n6, a hole with tolerance H7 corresponding to the external diameter is usually provided.

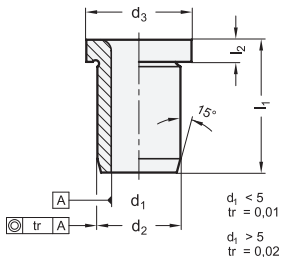
ON REQUEST

- other bores d_1

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)





DIN 172

Description	d1 F7	l1	d2 n6	d3	l2	⚖
DIN 172-B2-6-A	B 2	6	5	8	2	1
DIN 172-B2-9-A	B 2	9	5	8	2	1
DIN 172-B2,1-6-A	B 2.1	6	5	8	2	1
DIN 172-B2,1-9-A	B 2.1	9	5	8	2	2
DIN 172-B2,5-6-A	B 2.5 (M 3)	6	5	8	2	1
DIN 172-B2,5-9-A	B 2.5 (M 3)	9	5	8	2	1
DIN 172-B3-8-A	B 3	8	6	9	2.5	2
DIN 172-B3-12-A	B 3	12	6	9	2.5	3
DIN 172-B3-16-A	B 3	16	6	9	2.5	3
DIN 172-B3,1-8-A	B 3.1	8	6	9	2.5	2
DIN 172-B3,1-12-A	B 3.1	12	6	9	2.5	3
DIN 172-B3,1-16-A	B 3.1	16	6	9	2.5	3
DIN 172-B3,3-8-A	B 3.3 (M 4)	8	6	9	2.5	2
DIN 172-B3,3-12-A	B 3.3 (M 4)	12	6	9	2.5	2
DIN 172-B3,3-16-A	B 3.3 (M 4)	16	6	9	2.5	4
DIN 172-B3,5-8-A	B 3.5	8	7	10	2.5	2
DIN 172-B3,5-12-A	B 3.5	12	7	10	2.5	3
DIN 172-B3,5-16-A	B 3.5	16	7	10	2.5	4
DIN 172-B3,8-8-A	B 3.8	8	7	10	2.5	4
DIN 172-B3,8-12-A	B 3.8	12	7	10	2.5	4
DIN 172-B3,8-16-A	B 3.8	16	7	10	2.5	5
DIN 172-B4-8-A	B 4	8	7	10	2.5	2
DIN 172-B4-12-A	B 4	12	7	10	2.5	3
DIN 172-B4-16-A	B 4	16	7	10	2.5	4
DIN 172-B4,1-8-A	B 4.1	8	8	11	2.5	3
DIN 172-B4,1-12-A	B 4.1	12	8	11	2.5	4
DIN 172-B4,1-16-A	B 4.1	16	8	11	2.5	6
DIN 172-B4,2-8-A	B 4.2 (M 5)	8	8	11	2.5	3
DIN 172-B4,2-12-A	B 4.2 (M 5)	12	8	11	2.5	4
DIN 172-B4,2-16-A	B 4.2 (M 5)	16	8	11	2.5	4

DIN 172

Description	d1 F7	l1	d2 n6	d3	l2	⚖
DIN 172-B4,5-8-A	B 4.5	8	8	11	2.5	3
DIN 172-B4,5-12-A	B 4.5	12	8	11	2.5	4
DIN 172-B4,5-16-A	B 4.5	16	8	11	2.5	4
DIN 172-B4,8-8-A	B 4.8	8	8	11	2.5	3
DIN 172-B4,8-12-A	B 4.8	12	8	11	2.5	4
DIN 172-B4,8-16-A	B 4.8	16	8	11	2.5	5
DIN 172-B5-8-A	B 5 (M 6)	8	8	11	2.5	2
DIN 172-B5-12-A	B 5 (M 6)	12	8	11	2.5	3
DIN 172-B5-16-A	B 5 (M 6)	16	8	11	2.5	4
DIN 172-B5,1-10-A	B 5.1	10	10	13	3	6
DIN 172-B5,1-16-A	B 5.1	16	10	13	3	8
DIN 172-B5,1-20-A	B 5.1	20	10	13	3	10
DIN 172-B5,5-10-A	B 5.5	10	10	13	3	5
DIN 172-B5,5-16-A	B 5.5	16	10	13	3	8
DIN 172-B5,5-20-A	B 5.5	20	10	13	3	10
DIN 172-B5,8-10-A	B 5.8	10	10	13	3	5
DIN 172-B5,8-16-A	B 5.8	16	10	13	3	8
DIN 172-B5,8-20-A	B 5.8	20	10	13	3	10
DIN 172-B6-10-A	B 6	10	10	13	3	5
DIN 172-B6-16-A	B 6	16	10	13	3	7
DIN 172-B6-20-A	B 6	20	10	13	3	9
DIN 172-B6,1-10-A	B 6.1	10	12	15	3	5
DIN 172-B6,1-16-A	B 6.1	16	12	15	3	12
DIN 172-B6,1-20-A	B 6.1	20	12	15	3	15
DIN 172-B6,5-10-A	B 6.5	10	12	15	3	7
DIN 172-B6,5-16-A	B 6.5	16	12	15	3	11
DIN 172-B6,5-20-A	B 6.5	20	12	15	3	14
DIN 172-B6,8-10-A	B 6.8 (M 8)	10	12	15	3	7
DIN 172-B6,8-16-A	B 6.8 (M 8)	16	12	15	3	11
DIN 172-B6,8-20-A	B 6.8 (M 8)	20	12	15	3	13

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DIN 172

Description	d1 F7	l1	d2 n6	d3	l2	⚖
DIN 172-B7-10-A	B 7	10	12	15	3	7
DIN 172-B7-16-A	B 7	16	12	15	3	11
DIN 172-B7-20-A	B 7	20	12	15	3	12
DIN 172-B7,5-10-A	B 7.5	10	12	15	3	7
DIN 172-B7,5-16-A	B 7.5	16	12	15	3	11
DIN 172-B7,5-20-A	B 7.5	20	12	15	3	13
DIN 172-B7,8-10-A	B 7.8	10	12	15	3	6
DIN 172-B7,8-16-A	B 7.8	16	12	15	3	9
DIN 172-B7,8-20-A	B 7.8	20	12	15	3	12
DIN 172-B8-10-A	B 8	10	12	15	3	6
DIN 172-B8-16-A	B 8	16	12	15	3	9
DIN 172-B8-20-A	B 8	20	12	15	3	13
DIN 172-B8,1-12-A	B 8.1	12	15	18	3	13
DIN 172-B8,1-20-A	B 8.1	20	15	18	3	21
DIN 172-B8,1-25-A	B 8.1	25	15	18	3	26
DIN 172-B8,5-12-A	B 8.5 (M 10)	12	15	18	3	12
DIN 172-B8,5-20-A	B 8.5 (M 10)	20	15	18	3	20
DIN 172-B8,5-25-A	B 8.5 (M 10)	25	15	18	3	24
DIN 172-B9-12-A	B 9	12	15	18	3	12
DIN 172-B9-20-A	B 9	20	15	18	3	19
DIN 172-B9-25-A	B 9	25	15	18	3	24
DIN 172-B9,5-12-A	B 9.5	12	15	18	3	11
DIN 172-B9,5-20-A	B 9.5	20	15	18	3	18
DIN 172-B9,5-25-A	B 9.5	25	15	18	3	23
DIN 172-B9,8-12-A	B 9.8	12	15	18	3	11
DIN 172-B9,8-20-A	B 9.8	20	15	18	3	17
DIN 172-B9,8-25-A	B 9.8	25	15	18	3	22
DIN 172-B10-12-A	B 10	12	15	18	3	10
DIN 172-B10-20-A	B 10	20	15	18	3	17
DIN 172-B10-25-A	B 10	25	15	18	3	21
DIN 172-B10,1-12-A	B 10.1	12	18	22	4	20
DIN 172-B10,1-20-A	B 10.1	20	18	22	4	30
DIN 172-B10,1-25-A	B 10.1	25	18	22	4	35
DIN 172-B10,2-12-A	B 10.2 (M 12)	12	18	22	4	20
DIN 172-B10,2-20-A	B 10.2 (M 12)	20	18	22	4	30
DIN 172-B10,2-25-A	B 10.2 (M 12)	25	18	22	4	37
DIN 172-B10,5-12-A	B 10.5	12	18	22	4	19
DIN 172-B10,5-20-A	B 10.5	20	18	22	4	29
DIN 172-B10,5-25-A	B 10.5	25	18	22	4	36
DIN 172-B11-12-A	B 11	12	18	22	4	18
DIN 172-B11-20-A	B 11	20	18	22	4	28
DIN 172-B11-25-A	B 11	25	18	22	4	35
DIN 172-B11,5-12-A	B 11.5	12	18	22	4	17
DIN 172-B11,5-20-A	B 11.5	20	18	22	4	28
DIN 172-B11,5-25-A	B 11.5	25	18	22	4	33
DIN 172-B11,8-12-A	B 11.8	12	18	22	4	17
DIN 172-B11,8-20-A	B 11.8	20	18	22	4	26
DIN 172-B11,8-25-A	B 11.8	25	18	22	4	32
DIN 172-B12-12-A	B 12	12	18	22	4	16
DIN 172-B12-20-A	B 12	20	18	22	4	25
DIN 172-B12-25-A	B 12	25	18	22	4	31
DIN 172-B12,1-16-A	B 12.1	16	22	26	4	37
DIN 172-B12,1-28-A	B 12.1	28	22	26	4	62
DIN 172-B12,1-36-A	B 12.1	36	22	26	4	97
DIN 172-B12,5-16-A	B 12.5	16	22	26	4	36
DIN 172-B12,5-28-A	B 12.5	28	22	26	4	60
DIN 172-B12,5-36-A	B 12.5	36	22	26	4	78
DIN 172-B13-16-A	B 13 (M 14)	16	22	26	4	35
DIN 172-B13-28-A	B 13 (M 14)	28	22	26	4	58

DIN 172

Description	d1 F7	l1	d2 n6	d3	l2	⚖
DIN 172-B13-36-A	B 13 (M 14)	36	22	26	4	74
DIN 172-B13,5-16-A	B 13.5	16	22	26	4	33
DIN 172-B13,5-28-A	B 13.5	28	22	26	4	55
DIN 172-B13,5-36-A	B 13.5	36	22	26	4	71
DIN 172-B14-16-A	B 14 (M 16)	16	22	26	4	32
DIN 172-B14-28-A	B 14 (M 16)	28	22	26	4	53
DIN 172-B14-36-A	B 14 (M 16)	36	22	26	4	68
DIN 172-B14,1-16-A	B 14.1	16	22	26	4	32
DIN 172-B14,1-28-A	B 14.1	28	22	26	4	53
DIN 172-B14,1-36-A	B 14.1	36	22	26	4	68
DIN 172-B14,5-16-A	B 14.5	16	22	26	4	31
DIN 172-B14,5-28-A	B 14.5	28	22	26	4	51
DIN 172-B14,5-36-A	B 14.5	36	22	26	4	65
DIN 172-B15-16-A	B 15	16	22	26	4	29
DIN 172-B15-28-A	B 15	28	22	26	4	48
DIN 172-B15-36-A	B 15	36	22	26	4	61
DIN 172-B15,5-16-A	B 15.5	16	26	30	4	47
DIN 172-B15,5-28-A	B 15.5	28	26	30	4	79
DIN 172-B15,5-36-A	B 15.5	36	26	30	4	80
DIN 172-B16-16-A	B 16	16	26	30	4	46
DIN 172-B16-28-A	B 16	28	26	30	4	76
DIN 172-B16-36-A	B 16	36	26	30	4	98
DIN 172-B16,1-16-A	B 16.1	16	26	30	4	45
DIN 172-B16,1-28-A	B 16.1	28	26	30	4	75
DIN 172-B16,1-36-A	B 16.1	36	26	30	4	97
DIN 172-B16,5-16-A	B 16.5	16	26	30	4	44
DIN 172-B16,5-28-A	B 16.5	28	26	30	4	74
DIN 172-B16,5-36-A	B 16.5	36	26	30	4	95
DIN 172-B17-16-A	B 17	16	26	30	4	42
DIN 172-B17-28-A	B 17	28	26	30	4	71
DIN 172-B17-36-A	B 17	36	26	30	4	91
DIN 172-B18-16-A	B 18	16	26	30	4	39
DIN 172-B18-28-A	B 18	28	26	30	4	64
DIN 172-B18-36-A	B 18	36	26	30	4	83
DIN 172-B19-20-A	B 19	20	30	34	5	80
DIN 172-B19-36-A	B 19	36	30	34	5	124
DIN 172-B19-45-A	B 19	45	30	34	5	155
DIN 172-B20-20-A	B 20	20	30	34	5	100
DIN 172-B20-36-A	B 20	36	30	34	5	116
DIN 172-B20-45-A	B 20	45	30	34	5	145
DIN 172-B22-20-A	B 22	20	30	34	5	100
DIN 172-B22-36-A	B 22	36	30	34	5	110
DIN 172-B22-45-A	B 22	45	30	34	5	121
DIN 172-B24-20-A	B 24	20	35	39	5	133
DIN 172-B24-36-A	B 24	36	35	39	5	150
DIN 172-B24-45-A	B 24	45	35	39	5	186
DIN 172-B25-20-A	B 25	20	35	39	5	100
DIN 172-B25-36-A	B 25	36	35	39	5	138
DIN 172-B25-45-A	B 25	45	35	39	5	173
DIN 172-B26-20-A	B 26	20	35	39	5	100
DIN 172-B26-36-A	B 26	36	35	39	5	127
DIN 172-B26-45-A	B 26	45	35	39	5	159
DIN 172-B28-25-A	B 28	25	42	46	5	157
DIN 172-B28-45-A	B 28	45	42	46	5	277
DIN 172-B28-56-A	B 28	56	42	46	5	343
DIN 172-B30-25-A	B 30	25	42	46	5	139
DIN 172-B30-45-A	B 30	45	42	46	5	245
DIN 172-B30-56-A	B 28	56	42	46	5	303

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Guide bushings

Drill bushings, without collar

SPECIFICATION

Type
- Type **A**: bore one-sided

Steel
hardened (HRC 62 ±2)

Fit sizes d_1, d_2 ground

INFORMATION

The dimensions listed in this standard sheet are merely a selection of the (currently withdrawn) DIN standards.
For applications involving positioning, we recommend the combination with the GN 771.1 (see page 1011) guide pins.
For mounting bushings with tolerance n6, a hole with tolerance H7 corresponding to the external diameter is usually provided.

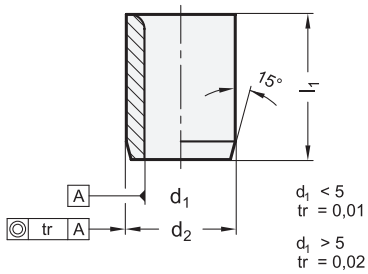
ON REQUEST

- other bores d_1

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)





DIN 179

Description	d1 F7	l1	d2 n6	d3	l2	⚖
DIN 179-B2-6-A	B 2	6	5	8	2	1
DIN 179-B2-9-A	B 2	9	5	8	2	1
DIN 179-B2,1-6-A	B 2.1	6	5	8	2	1
DIN 179-B2,1-9-A	B 2.1	9	5	8	2	1
DIN 179-B2,5-6-A	B 2.5 (M 3)	6	5	8	2	1
DIN 179-B2,5-9-A	B 2.5 (M 3)	9	5	8	2	1
DIN 179-B3-8-A	B 3	8	6	9	2.5	1
DIN 179-B3-12-A	B 3	12	6	9	2.5	2
DIN 179-B3-16-A	B 3	16	6	9	2.5	3
DIN 179-B3,1-8-A	B 3.1	8	6	9	2.5	1
DIN 179-B3,1-12-A	B 3.1	12	6	9	2.5	2
DIN 179-B3,1-16-A	B 3.1	16	6	9	2.5	4
DIN 179-B3,3-8-A	B 3.3 (M 4)	8	6	9	2.5	1
DIN 179-B3,3-12-A	B 3.3 (M 4)	12	6	9	2.5	2
DIN 179-B3,3-16-A	B 3.3 (M 4)	16	6	9	2.5	4
DIN 179-B3,5-8-A	B 3.5	8	7	10	2.5	2
DIN 179-B3,5-12-A	B 3.5	12	7	10	2.5	3
DIN 179-B3,5-16-A	B 3.5	16	7	10	2.5	4
DIN 179-B3,8-8-A	B 3.8	8	7	10	2.5	2
DIN 179-B3,8-12-A	B 3.8	12	7	10	2.5	3
DIN 179-B3,8-16-A	B 3.8	16	7	10	2.5	4
DIN 179-B4-8-A	B 4	8	7	10	2.5	2
DIN 179-B4-12-A	B 4	12	7	10	2.5	2
DIN 179-B4-16-A	B 4	16	7	10	2.5	3
DIN 179-B4,1-8-A	B 4.1	8	8	11	2.5	2
DIN 179-B4,1-12-A	B 4.1	12	8	11	2.5	3
DIN 179-B4,1-16-A	B 4.1	16	8	11	2.5	5
DIN 179-B4,2-8-A	B 4.2 (M 5)	8	8	11	2.5	2
DIN 179-B4,2-12-A	B 4.2 (M 5)	12	8	11	2.5	3
DIN 179-B4,2-16-A	B 4.2 (M 5)	16	8	11	2.5	4

DIN 179

Description	d1 F7	l1	d2 n6	d3	l2	⚖
DIN 179-B4,5-8-A	B 4.5	8	8	11	2.5	2
DIN 179-B4,5-12-A	B 4.5	12	8	11	2.5	3
DIN 179-B4,5-16-A	B 4.5	16	8	11	2.5	5
DIN 179-B4,8-8-A	B 4.8	8	8	11	2.5	2
DIN 179-B4,8-12-A	B 4.8	12	8	11	2.5	3
DIN 179-B4,8-16-A	B 4.8	16	8	11	2.5	3
DIN 179-B5-8-A	B 5 (M 6)	8	8	11	2.5	2
DIN 179-B5-12-A	B 5 (M 6)	12	8	11	2.5	3
DIN 179-B5-16-A	B 5 (M 6)	16	8	11	2.5	4
DIN 179-B5,1-10-A	B 5.1	10	10	13	3	4
DIN 179-B5,1-16-A	B 5.1	16	10	13	3	4
DIN 179-B5,1-20-A	B 5.1	20	10	13	3	9
DIN 179-B5,5-10-A	B 5.5	10	10	13	3	4
DIN 179-B5,5-16-A	B 5.5	16	10	13	3	7
DIN 179-B5,5-20-A	B 5.5	20	10	13	3	9
DIN 179-B5,8-10-A	B 5.8	10	10	13	3	4
DIN 179-B5,8-16-A	B 5.8	16	10	13	3	6
DIN 179-B5,8-20-A	B 5.8	20	10	13	3	9
DIN 179-B6-10-A	B 6	10	10	13	3	4
DIN 179-B6-16-A	B 6	16	10	13	3	6
DIN 179-B6-20-A	B 6	20	10	13	3	8
DIN 179-B6,1-10-A	B 6.1	10	12	15	3	6
DIN 179-B6,1-16-A	B 6.1	16	12	15	3	10
DIN 179-B6,1-20-A	B 6.1	20	12	15	3	20
DIN 179-B6,5-10-A	B 6.5	10	12	15	3	6
DIN 179-B6,5-16-A	B 6.5	16	12	15	3	10
DIN 179-B6,5-20-A	B 6.5	20	12	15	3	20
DIN 179-B6,8-10-A	B 6.8 (M 8)	10	12	15	3	6
DIN 179-B6,8-16-A	B 6.8 (M 8)	16	12	15	3	9
DIN 179-B6,8-20-A	B 6.8 (M 8)	20	12	15	3	20

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DIN 179

Description	d1 F7	l1	d2 n6	d3	l2	⚖
DIN 179-B7-10-A	B 7	10	12	15	3	6
DIN 179-B7-16-A	B 7	16	12	15	3	9
DIN 179-B7-20-A	B 7	20	12	15	3	12
DIN 179-B7,5-10-A	B 7.5	10	12	15	3	5
DIN 179-B7,5-16-A	B 7.5	16	12	15	3	8
DIN 179-B7,5-20-A	B 7.5	20	12	15	3	20
DIN 179-B7,8-10-A	B 7.8	10	12	15	3	5
DIN 179-B7,8-16-A	B 7.8	16	12	15	3	8
DIN 179-B7,8-20-A	B 7.8	20	12	15	3	20
DIN 179-B8-10-A	B 8	10	12	15	3	5
DIN 179-B8-16-A	B 8	16	12	15	3	11
DIN 179-B8-20-A	B 8	20	12	15	3	10
DIN 179-B8,1-12-A	B 8.1	12	15	18	3	12
DIN 179-B8,1-20-A	B 8.1	20	15	18	3	19
DIN 179-B8,1-25-A	B 8.1	25	15	18	3	20
DIN 179-B8,5-12-A	B 8.5 (M 10)	12	15	18	3	11
DIN 179-B8,5-20-A	B 8.5 (M 10)	20	15	18	3	18
DIN 179-B8,5-25-A	B 8.5 (M 10)	25	15	18	3	20
DIN 179-B9-12-A	B 9	12	15	18	3	10
DIN 179-B9-20-A	B 9	20	15	18	3	17
DIN 179-B9-25-A	B 9	25	15	18	3	20
DIN 179-B9,5-12-A	B 9.5	12	15	18	3	10
DIN 179-B9,5-20-A	B 9.5	20	15	18	3	16
DIN 179-B9,5-25-A	B 9.5	25	15	18	3	21
DIN 179-B9,8-12-A	B 9.8	12	15	18	3	9
DIN 179-B9,8-20-A	B 9.8	20	15	18	3	15
DIN 179-B9,8-25-A	B 9.8	25	15	18	3	20
DIN 179-B10-12-A	B 10	12	15	18	3	9
DIN 179-B10-20-A	B 10	20	15	18	3	15
DIN 179-B10-25-A	B 10	25	15	18	3	19
DIN 179-B10,1-12-A	B 10.1	12	18	22	4	14
DIN 179-B10,1-20-A	B 10.1	20	18	22	4	17
DIN 179-B10,1-25-A	B 10.1	25	18	22	4	20
DIN 179-B10,2-12-A	B 10.2 (M 12)	12	18	22	4	16
DIN 179-B10,2-20-A	B 10.2 (M 12)	20	18	22	4	20
DIN 179-B10,2-25-A	B 10.2 (M 12)	25	18	22	4	22
DIN 179-B10,5-12-A	B 10.5	12	18	22	4	15
DIN 179-B10,5-20-A	B 10.5	20	18	22	4	15
DIN 179-B10,5-25-A	B 10.5	25	18	22	4	20
DIN 179-B11-12-A	B 11	12	18	22	4	15
DIN 179-B11-20-A	B 11	20	18	22	4	24
DIN 179-B11-25-A	B 11	25	18	22	4	31
DIN 179-B11,5-12-A	B 11.5	12	18	22	4	14
DIN 179-B11,5-20-A	B 11.5	20	18	22	4	25
DIN 179-B11,5-25-A	B 11.5	25	18	22	4	30
DIN 179-B11,8-12-A	B 11.8	12	18	22	4	13
DIN 179-B11,8-20-A	B 11.8	20	18	22	4	22
DIN 179-B11,8-25-A	B 11.8	25	18	22	4	29
DIN 179-B12-12-A	B 12	12	18	22	4	13
DIN 179-B12-20-A	B 12	20	18	22	4	22
DIN 179-B12-25-A	B 12	25	18	22	4	29
DIN 179-B12,1-16-A	B 12.1	16	22	26	4	33
DIN 179-B12,1-28-A	B 12.1	28	22	26	4	57
DIN 179-B12,1-36-A	B 12.1	36	22	26	4	75
DIN 179-B12,5-16-A	B 12.5	16	22	26	4	32
DIN 179-B12,5-28-A	B 12.5	28	22	26	4	56
DIN 179-B12,5-36-A	B 12.5	36	22	26	4	73
DIN 179-B13-16-A	B 13 (M 14)	16	22	26	4	30
DIN 179-B13-28-A	B 13 (M 14)	28	22	26	4	53

DIN 179

Description	d1 F7	l1	d2 n6	d3	l2	⚖
DIN 179-B13-36-A	B 13 (M 14)	36	22	26	4	70
DIN 179-B13,5-16-A	B 13.5	16	22	26	4	29
DIN 179-B13,5-28-A	B 13.5	28	22	26	4	51
DIN 179-B13,5-36-A	B 13.5	36	22	26	4	67
DIN 179-B14-16-A	B 14 (M 16)	16	22	26	4	28
DIN 179-B14-28-A	B 14 (M 16)	28	22	26	4	49
DIN 179-B14-36-A	B 14 (M 16)	36	22	26	4	64
DIN 179-B14,1-16-A	B 14.1	16	22	26	4	28
DIN 179-B14,1-28-A	B 14.1	28	22	26	4	48
DIN 179-B14,1-36-A	B 14.1	36	22	26	4	61
DIN 179-B14,5-16-A	B 14.5	16	22	26	4	26
DIN 179-B14,5-28-A	B 14.5	28	22	26	4	46
DIN 179-B14,5-36-A	B 14.5	36	22	26	4	59
DIN 179-B15-16-A	B 15	16	22	26	4	25
DIN 179-B15-28-A	B 15	28	22	26	4	44
DIN 179-B15-36-A	B 15	36	22	26	4	58
DIN 179-B15,5-16-A	B 15.5	16	26	30	4	42
DIN 179-B15,5-28-A	B 15.5	28	26	30	4	74
DIN 179-B15,5-36-A	B 15.5	36	26	30	4	97
DIN 179-B16-16-A	B 16	16	26	30	4	40
DIN 179-B16-28-A	B 16	28	26	30	4	72
DIN 179-B16-36-A	B 16	36	26	30	4	93
DIN 179-B16,1-16-A	B 16.1	16	26	30	4	40
DIN 179-B16,1-28-A	B 16.1	28	26	30	4	71
DIN 179-B16,1-36-A	B 16.1	36	26	30	4	82
DIN 179-B16,5-16-A	B 16.5	16	26	30	4	39
DIN 179-B16,5-28-A	B 16.5	28	26	30	4	69
DIN 179-B16,5-36-A	B 16.5	36	26	30	4	89
DIN 179-B17-16-A	B 17	16	26	30	4	37
DIN 179-B17-28-A	B 17	28	26	30	4	66
DIN 179-B17-36-A	B 17	36	26	30	4	86
DIN 179-B18-16-A	B 18	16	26	30	4	34
DIN 179-B18-28-A	B 18	28	26	30	4	60
DIN 179-B18-36-A	B 18	36	26	30	4	78
DIN 179-B19-20-A	B 19	20	30	34	5	65
DIN 179-B19-36-A	B 19	36	30	34	5	117
DIN 179-B19-45-A	B 19	45	30	34	5	148
DIN 179-B20-20-A	B 20	20	30	34	5	60
DIN 179-B20-36-A	B 20	36	30	34	5	109
DIN 179-B20-45-A	B 20	45	30	34	5	138
DIN 179-B22-20-A	B 22	20	30	34	5	49
DIN 179-B22-36-A	B 22	36	30	34	5	90
DIN 179-B22-45-A	B 22	45	30	34	5	114
DIN 179-B24-20-A	B 24	20	35	39	5	78
DIN 179-B24-36-A	B 24	36	35	39	5	141
DIN 179-B24-45-A	B 24	45	35	39	5	177
DIN 179-B25-20-A	B 25	20	35	39	5	72
DIN 179-B25-36-A	B 25	36	35	39	5	131
DIN 179-B25-45-A	B 25	45	35	39	5	165
DIN 179-B26-20-A	B 26	20	35	39	5	65
DIN 179-B26-36-A	B 26	36	35	39	5	119
DIN 179-B26-45-A	B 26	45	35	39	5	151
DIN 179-B28-25-A	B 28	25	42	46	5	148
DIN 179-B28-45-A	B 28	45	42	46	5	268
DIN 179-B28-56-A	B 28	56	42	46	5	280
DIN 179-B30-25-A	B 30	25	42	46	5	130
DIN 179-B30-45-A	B 30	45	42	46	5	236
DIN 179-B30-56-A	B 28	56	42	46	5	295

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GN 172.1

Guide bushings

with collar / with conical bore, for indexing plungers GN 817.5

SPECIFICATION

Steel
hardened (HRC 60 ±2)

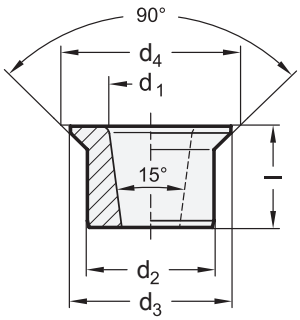
INFORMATION

Guide bushings GN 172.1 with conical bore will be used for the latch bore of indexing plungers GN 817.5 (see page 796).

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)





GN 172.1

Description	d1	d2 n6	d3	d4	l	⚖
GN 172.1-6-10	6	10	12.5	13.5	8	4
GN 172.1-8-12	8	12	15	16	10	6
GN 172.1-10-15	10	15	19	20.6	12	12

GN 179.1

Guide bushings

without collar / with conical bore, for indexing plungers GN 817.5

SPECIFICATION

Steel
hardened (HRC 60 ±2)

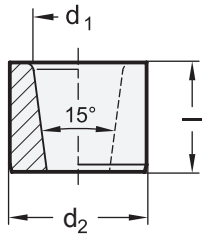
INFORMATION

Guide bushings GN 179.1 with conical bore will be used for the latch bore of indexing plungers GN 817.5 (see page 796).

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)





GN 179.1

Description	d1	d2 n6	l	⚖
GN 179.1-6-10	6	10	8	4
GN 179.1-8-12	8	12	10	7
GN 179.1-10-15	10	15	12	12

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GN 771.1

Guide pins

SPECIFICATION

Steel

- hardened (HRC 60 ±2)
- Fit sizes d p6 / d h6 ground

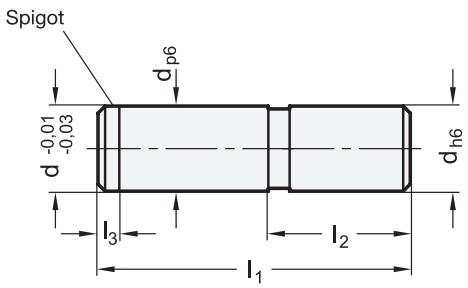
INFORMATION

Guide pins GN 771.1 are normally used in combination with DIN 172 (see page 1006) / DIN 179 (see page 1008) guide bushings. The shaft tolerance p6 guarantees a perfect pressfit in a mounting borehole H7. The spigot l3 makes the installation easier.

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)





GN 771.1

Description	d p6/h6	l1	l2	l3	⚖
GN 771.1-4-16-8	4	16	8	1.5	2
GN 771.1-5-18-8	5	18	8	1.5	3
GN 771.1-6-22-10	6	22	10	1.5	10
GN 771.1-8-24-10	8	24	10	2	11
GN 771.1-10-28-12	10	28	12	2	20
GN 771.1-12-30-12	12	30	12	2.5	26
GN 771.1-16-36-16	16	36	16	2.5	59

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GN 3490

Threaded flanges

for profile systems

SPECIFICATION

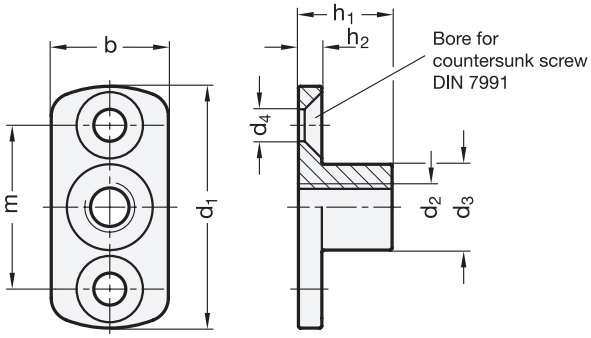
Steel fine casting

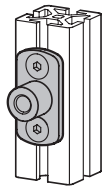
- zinc plated, blue passivated **ZB**
- zinc plated and plastic coated black, RAL 9005, textured finish **SW**

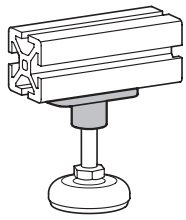
INFORMATION

Threaded flanges GN 3490 are used in connection with T-slot profile systems and allow elements to be assembled on or underneath the profiles, e.g. levelling feet.
Depending on the threaded flange, thread size and thread depth dimensions that are available can exceed the dimensions of the profile groove.









GN 3490

Description	d1	d2	h1	b	d3	d4	h2	m	⚖
GN 3490-45-M6-16-SW	45	M 6	16	25	15	M 6	6	30	51
GN 3490-45-M6-16-ZB	45	M 6	16	25	15	M 6	6	30	51
GN 3490-45-M8-16-SW	45	M 8	16	25	15	M 6	6	30	108
GN 3490-45-M8-16-ZB	45	M 8	16	25	15	M 6	6	30	108
GN 3490-60-M10-24-SW	60	M 10	24	30	21.5	M 8	6	40	103
GN 3490-60-M10-24-ZB	60	M 10	24	30	21.5	M 8	6	40	103
GN 3490-60-M12-24-SW	60	M 12	24	30	21.5	M 8	6	40	103
GN 3490-60-M12-24-ZB	60	M 12	24	30	21.5	M 8	6	40	103

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GN 6322

Workholding bolts

with ball-type shoulder

SPECIFICATION

Types

- Type **B**: Workholding bolt cylindrical
- Type **C**: Workholding bolt flattened

Steel
hardened

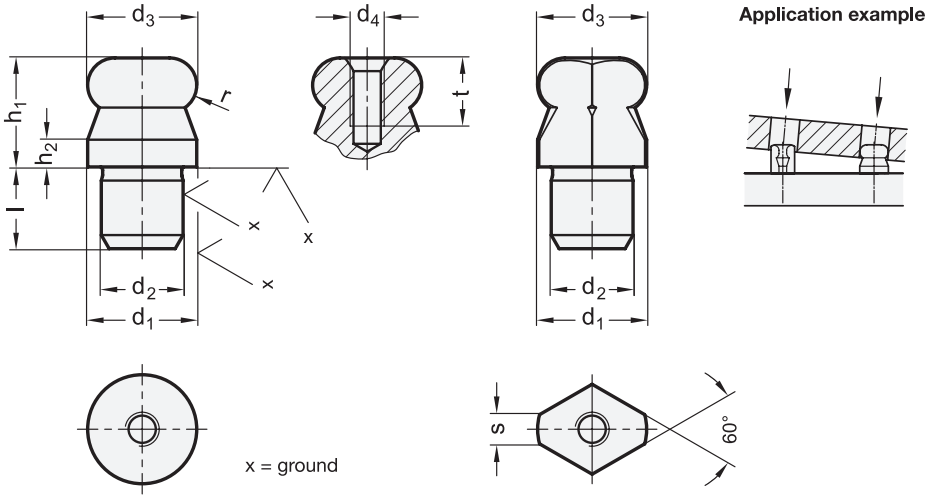


INFORMATION

Workholding bolts GN 6322 are used for positioning in bores, with the ball-type shoulder facilitating the insertion into the bore.
The flattened design (Form C) helps to compensate tolerances in the spacing of two bores. Another application of this design is to fix parts to be positioned in one direction only.

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)



GN 6322

Description	d1 g6	d2 n6	d3 -0.01/-0.05	d4	h1	h2	l	s	t	r	⚖
GN 6322-10-7-B	10	7	10	M 3	10	2.5	7	-	6	2.5	7
GN 6322-12-8-B	12	8	12	M 4	12	3	8	-	8	3	11
GN 6322-16-12-B	16	12	16	M 5	16	4	12	-	10	4	30
GN 6322-20-14-B	20	14	20	M 5	20	5	14	-	10	5	57
GN 6322-22-16-B	22	16	22	M 5	22	5.5	16	-	10	5.5	79
GN 6322-25-18-B	25	18	25	M 5	25	6	18	-	10	6	116
GN 6322-10-7-C	10	7	10	M 3	10	2.5	7	2.5	6	2.5	5
GN 6322-12-8-C	12	8	12	M 4	12	3	8	2.5	8	3	8
GN 6322-16-12-C	16	12	16	M 5	16	4	12	4.3	10	4	24
GN 6322-20-14-C	20	14	20	M 5	20	5	14	5	10	5	45
GN 6322-22-16-C	22	16	22	M 5	22	5.5	16	5	10	5.5	62
GN 6322-25-18-C	25	18	25	M 5	25	6	18	5.6	10	6	90

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Levelling sets

Steel / Stainless Steel, long version

SPECIFICATION

Types

- Type **A**: without lock nut
- Type **AK**: with lock nut

Version in Steel

Steel, 1.7225 (42 CrMo 4V) **ST**
zinc plated, blue passivated

Version in Stainless Steel

Stainless Steel AISI 303
(X 10 CrNiS 18-9) **NI**

F_1: max. total load

F_2: max. load after deduction of the max. preload

- for screws 8.8 μ = 0.125 (Steel version)
- for screws 6.8 μ = 0.14 (Stainless Steel version)

INFORMATION

Levelling sets GN 350 are used for levelling and linking operations. They comprise a threaded upper sleeve and a female threaded lower sleeve. The fine thread allows a stepless and precise setting and locking using the C-Spanner DIN 1810 (see page 994). A locking ring serves also as a height limiter for the max. height.
Normally this screw is permanently and securely locked by the static load created when the mounting screw is tightened.
Should this not be sufficient, the use of a locknut (Type AK) is recommended.

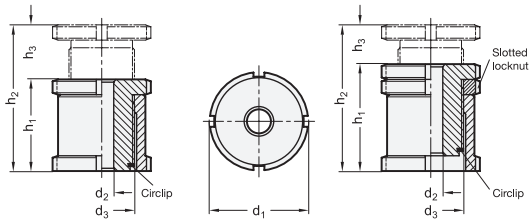
TECHNICAL INFORMATION

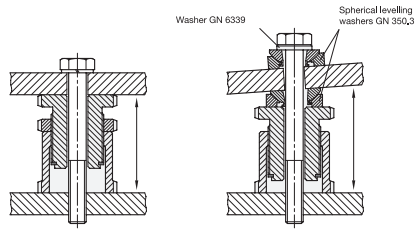
- Stainless Steel characteristics (see page A26)

ACCESSORY

- C-Spanner DIN 1810 (code no. see table)







GN 350

Description	d1	d2	d3	h1	h2	h3	For screw	Static load F in kN F1	Static load F in kN F2	Code no. for C-Spanner	⚖
GN 350-25-6,6-A-ST	25	6.6	M 15 x 1	28	43	15	M 6	40	30.7	DIN 1810-A25-28	68
GN 350-32-6,6-A-ST	32	6.6	M 20 x 1	35	55	20	M 6	65	55.7	DIN 1810-A30-32	161
GN 350-32-9-A-ST	32	9	M 20 x 1	35	55	20	M 8	65	48	DIN 1810-A30-32	152
GN 350-32-11-A-ST	32	11	M 20 x 1	35	55	20	M 10	65	37.9	DIN 1810-A30-32	144
GN 350-45-11-A-ST	45	11	M 30 x 1.5	42	67	25	M 10	120	92.9	DIN 1810-A45-50	372
GN 350-45-13,5-A-ST	45	13.5	M 30 x 1.5	42	67	25	M 12	120	80.4	DIN 1810-A45-50	397
GN 350-45-17,5-A-ST	45	17.5	M 30 x 1.5	42	67	25	M 16	120	45.5	DIN 1810-A45-50	318
GN 350-58-17,5-A-ST	58	17.5	M 40 x 1.5	54	86	32	M 16	210	136	DIN 1810-A58-62	782
GN 350-58-22-A-ST	58	22	M 40 x 1.5	54	86	32	M 20	210	90	DIN 1810-A58-62	730
GN 350-58-26-A-ST	58	26	M 40 x 1.5	54	86	32	M 24	210	37	DIN 1810-A58-62	666
GN 350-70-22-A-ST	70	22	M 50 x 1.5	66	106	40	M 20	330	210	DIN 1810-A68-75	1440
GN 350-70-26-A-ST	70	26	M 50 x 1.5	66	106	40	M 24	330	157	DIN 1810-A68-75	1360
GN 350-70-33-A-ST	70	33	M 50 x 1.5	66	106	40	M 30	330	53	DIN 1810-A68-75	1200
GN 350-80-26-A-ST	80	26	M 60 x 2	76	126	50	M 24	495	322	DIN 1810-A80-90	2167
GN 350-80-33-A-ST	80	33	M 60 x 2	76	126	50	M 30	495	218	DIN 1810-A80-90	2000
GN 350-80-39-A-ST	80	39	M 60 x 2	76	126	50	M 36	495	101	DIN 1810-A80-90	1850

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GN 350

Description	d1	d2	d3	h1	h2	h3	For screw	Static load F in kN F1	Static load F in kN F2	Code no. for C-Spanner	⚖
GN 350-25-6,6-AK-ST	25	6.6	M 15 x 1	33	43	10	M 6	40	30.7	DIN 1810-A25-28	78
GN 350-32-6,6-AK-ST	32	6.6	M 20 x 1	41	55	14	M 6	65	55.7	DIN 1810-A30-32	179
GN 350-32-9-AK-ST	32	9	M 20 x 1	41	55	14	M 8	65	48	DIN 1810-A30-32	172
GN 350-32-11-AK-ST	32	11	M 20 x 1	41	55	14	M 10	65	37.9	DIN 1810-A30-32	166
GN 350-45-11-AK-ST	45	11	M 30 x 1.5	49	67	18	M 10	120	92.9	DIN 1810-A45-50	409
GN 350-45-13,5-AK-ST	45	13.5	M 30 x 1.5	49	67	18	M 12	120	80.4	DIN 1810-A45-50	393
GN 350-45-17,5-AK-ST	45	17.5	M 30 x 1.5	49	67	18	M 16	120	45.5	DIN 1810-A45-50	365
GN 350-58-17,5-AK-ST	58	17.5	M 40 x 1.5	63	86	23	M 16	210	136	DIN 1810-A58-62	882
GN 350-58-22-AK-ST	58	22	M 40 x 1.5	63	86	23	M 20	210	90	DIN 1810-A58-62	823
GN 350-58-26-AK-ST	58	26	M 40 x 1.5	63	86	23	M 24	210	37	DIN 1810-A58-62	762
GN 350-70-22-AK-ST	70	22	M 50 x 1.5	77	106	29	M 20	330	210	DIN 1810-A68-75	1595
GN 350-70-26-AK-ST	70	26	M 50 x 1.5	77	106	29	M 24	330	157	DIN 1810-A68-75	1516
GN 350-70-33-AK-ST	70	33	M 50 x 1.5	77	106	29	M 30	330	53	DIN 1810-A68-75	1344
GN 350-80-26-AK-ST	80	26	M 60 x 2	87	126	39	M 24	495	322	DIN 1810-A80-90	2200
GN 350-80-33-AK-ST	80	33	M 60 x 2	87	126	39	M 30	495	218	DIN 1810-A80-90	2140
GN 350-80-39-AK-ST	80	39	M 60 x 2	87	126	39	M 36	495	101	DIN 1810-A80-90	1840

GN 350-NI

STAINLESS STEEL

Description	d1	d2	d3	h1	h2	h3	For screw	Static load F in kN F1	Static load F in kN F2	Code no. for C-Spanner	⚖
GN 350-25-6,6-A-NI	25	6.6	M 15 x 1	28	43	15	M 6	27.1	20.2	DIN 1810-A25-28	69
GN 350-32-6,6-A-NI	32	6.6	M 20 x 1	35	55	20	M 6	43.4	36.5	DIN 1810-A30-32	163
GN 350-32-9-A-NI	32	9	M 20 x 1	35	55	20	M 8	43.4	30.8	DIN 1810-A30-32	154
GN 350-32-11-A-NI	32	11	M 20 x 1	35	55	20	M 10	43.4	23.4	DIN 1810-A30-32	140
GN 350-45-11-A-NI	45	11	M 30 x 1.5	42	67	25	M 10	84	64	DIN 1810-A45-50	460
GN 350-45-13,5-A-NI	45	13.5	M 30 x 1.5	42	67	25	M 12	84	54.8	DIN 1810-A45-50	390
GN 350-45-17,5-A-NI	45	17.5	M 30 x 1.5	42	67	25	M 16	84	28.9	DIN 1810-A45-50	320
GN 350-58-17,5-A-NI	58	17.5	M 40 x 1.5	54	86	32	M 16	148	92.9	DIN 1810-A58-62	791
GN 350-58-22-A-NI	58	22	M 40 x 1.5	54	86	32	M 20	148	59	DIN 1810-A58-62	733
GN 350-58-26-A-NI	58	26	M 40 x 1.5	54	86	32	M 24	148	20.3	DIN 1810-A58-62	668
GN 350-70-22-A-NI	70	22	M 50 x 1.5	66	106	40	M 20	225	136	DIN 1810-A68-75	1452
GN 350-70-26-A-NI	70	26	M 50 x 1.5	66	106	40	M 24	225	97.3	DIN 1810-A68-75	1370
GN 350-70-33-A-NI	70	33	M 50 x 1.5	66	106	40	M 30	225	20.6	DIN 1810-A68-75	1210
GN 350-80-26-A-NI	80	26	M 60 x 2	76	126	50	M 24	323	195.3	DIN 1810-A80-90	2180
GN 350-80-33-A-NI	80	33	M 60 x 2	76	126	50	M 30	323	118.6	DIN 1810-A80-90	1875
GN 350-80-39-A-NI	80	39	M 60 x 2	76	126	50	M 36	323	38.2	DIN 1810-A80-90	1683
GN 350-25-6,6-AK-NI	25	6.6	M 15 x 1	33	43	10	M 6	27.1	20.2	DIN 1810-A25-28	79
GN 350-32-6,6-AK-NI	32	6.6	M 20 x 1	41	55	14	M 6	43.4	36.5	DIN 1810-A30-32	181
GN 350-32-9-AK-NI	32	9	M 20 x 1	41	55	14	M 8	43.4	30.8	DIN 1810-A30-32	174
GN 350-32-11-AK-NI	32	11	M 20 x 1	41	55	14	M 10	43.4	23.4	DIN 1810-A30-32	167
GN 350-45-11-AK-NI	45	11	M 30 x 1.5	49	67	18	M 10	84	64	DIN 1810-A45-50	411
GN 350-45-13,5-AK-NI	45	13.5	M 30 x 1.5	49	67	18	M 12	84	54.8	DIN 1810-A45-50	405
GN 350-45-17,5-AK-NI	45	17.5	M 30 x 1.5	49	67	18	M 16	84	28.9	DIN 1810-A45-50	377
GN 350-58-17,5-AK-NI	58	17.5	M 40 x 1.5	63	86	23	M 16	148	92.9	DIN 1810-A58-62	893
GN 350-58-22-AK-NI	58	22	M 40 x 1.5	63	86	23	M 20	148	59	DIN 1810-A58-62	834
GN 350-58-26-AK-NI	58	26	M 40 x 1.5	63	86	23	M 24	148	20.3	DIN 1810-A58-62	775
GN 350-70-22-AK-NI	70	22	M 50 x 1.5	77	106	29	M 20	225	136	DIN 1810-A68-75	1607
GN 350-70-26-AK-NI	70	26	M 50 x 1.5	77	106	29	M 24	225	97.3	DIN 1810-A68-75	1426
GN 350-70-33-AK-NI	70	33	M 50 x 1.5	77	106	29	M 30	225	20.6	DIN 1810-A68-75	1354
GN 350-80-26-AK-NI	80	26	M 60 x 2	87	126	39	M 24	323	195.3	DIN 1810-A80-90	2356
GN 350-80-33-AK-NI	80	33	M 60 x 2	87	126	39	M 30	323	118.6	DIN 1810-A80-90	2155
GN 350-80-39-AK-NI	80	39	M 60 x 2	87	126	39	M 36	323	38.2	DIN 1810-A80-90	1852

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Levelling sets

Steel / Stainless Steel, short version



SPECIFICATION

Types

- Type **A**: without lock nut
- Type **AK**: with lock nut

Version in Steel
Steel, 1.7225 (42 CrMo 4V) **ST**
zinc plated, blue passivated

Version in Stainless Steel
Stainless Steel AISI 303 **NI**
(X 10 CrNiS 18-9)

F_1: max. total load

F_2: max. load after deduction of the max. preload

- for screws 8.8 μ = 0.125 (Steel version)
- for screws 6.8 μ = 0.14 (Stainless Steel version)

INFORMATION

Levelling sets GN 350.1 are used for levelling, adjusting and linking operations if small dimensions are given.
They comprise a threaded upper sleeve and a female threaded lower sleeve. The fine thread allows a stepless and precise setting and locking using the C-Spanner DIN 1810 (see page 994). A locking ring serves also as a height limiter for the max. height.

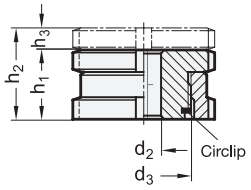
TECHNICAL INFORMATION

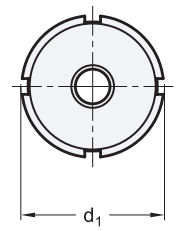
- Stainless Steel characteristics (see page A26)

ACCESSORY

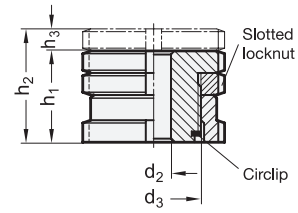
- C-Spanner DIN 1810 (code no. see table)

Type **A**





Type **AK**



GN 350.1

Description	d1	d2	d3	h1	h2	h3	For screw	Static load F in kN F1	Static load F in kN F2	Code no. for C-Spanner	⚖
GN 350.1-25-6,6-A-ST	25	6.6	M 15 x 1	15	19	4	M 6	40	30.7	DIN 1810-A25-28	43
GN 350.1-32-6,6-A-ST	32	6.6	M 20 x 1	18	23	5	M 6	65	55.7	DIN 1810-A30-32	93
GN 350.1-32-9-A-ST	32	9	M 20 x 1	18	23	5	M 8	65	48	DIN 1810-A30-32	87
GN 350.1-32-11-A-ST	32	11	M 20 x 1	18	23	5	M 10	65	37.9	DIN 1810-A30-32	83
GN 350.1-45-11-A-ST	45	11	M 30 x 1.5	22	29	7	M 10	120	92.9	DIN 1810-A45-50	216
GN 350.1-45-13,5-A-ST	45	13.5	M 30 x 1.5	22	29	7	M 12	120	80.4	DIN 1810-A45-50	207
GN 350.1-45-17,5-A-ST	45	17.5	M 30 x 1.5	22	29	7	M 16	120	45.5	DIN 1810-A45-50	188
GN 350.1-58-17,5-A-ST	58	17.5	M 40 x 1.5	28	37	9	M 16	210	136	DIN 1810-A58-62	450
GN 350.1-58-22-A-ST	58	22	M 40 x 1.5	28	37	9	M 20	210	90	DIN 1810-A58-62	418
GN 350.1-58-26-A-ST	58	26	M 40 x 1.5	28	37	9	M 24	210	37	DIN 1810-A58-62	386
GN 350.1-70-22-A-ST	70	22	M 50 x 1.5	33	43	10	M 20	330	210	DIN 1810-A68-75	788
GN 350.1-70-26-A-ST	70	26	M 50 x 1.5	33	43	10	M 24	330	157	DIN 1810-A68-75	744
GN 350.1-70-33-A-ST	70	33	M 50 x 1.5	33	43	10	M 30	330	53	DIN 1810-A68-75	700
GN 350.1-80-26-A-ST	80	26	M 60 x 2	38	50	12	M 24	495	322	DIN 1810-A80-90	1135
GN 350.1-80-33-A-ST	80	33	M 60 x 2	38	50	12	M 30	495	218	DIN 1810-A80-90	1060
GN 350.1-80-39-A-ST	80	39	M 60 x 2	38	50	12	M 36	495	101	DIN 1810-A80-90	965

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GN 350.1

Description	d1	d2	d3	h1	h2	h3	For screw	Static load F in kN F1	Static load F in kN F2	Code no. for C-Spanner	⚖
GN 350.1-25-6,6-AK-ST	25	6.6	M 15 x 1	20	24	4	M 6	40	30.7	DIN 1810-A25-28	58
GN 350.1-32-6,6-AK-ST	32	6.6	M 20 x 1	24	29	5	M 6	65	55.7	DIN 1810-A30-32	126
GN 350.1-32-9-AK-ST	32	9	M 20 x 1	24	29	5	M 8	65	48	DIN 1810-A30-32	118
GN 350.1-32-11-AK-ST	32	11	M 20 x 1	24	29	5	M 10	65	37.9	DIN 1810-A30-32	115
GN 350.1-45-11-AK-ST	45	11	M 30 x 1.5	29	36	7	M 10	120	92.9	DIN 1810-A45-50	318
GN 350.1-45-13,5-AK-ST	45	13.5	M 30 x 1.5	29	36	7	M 12	120	80.4	DIN 1810-A45-50	308
GN 350.1-45-17,5-AK-ST	45	17.5	M 30 x 1.5	29	36	7	M 16	120	45.5	DIN 1810-A45-50	254
GN 350.1-58-17,5-AK-ST	58	17.5	M 40 x 1.5	37	46	9	M 16	210	136	DIN 1810-A58-62	624
GN 350.1-58-22-AK-ST	58	22	M 40 x 1.5	37	46	9	M 20	210	90	DIN 1810-A58-62	620
GN 350.1-58-26-AK-ST	58	26	M 40 x 1.5	37	46	9	M 24	210	37	DIN 1810-A58-62	577
GN 350.1-70-22-AK-ST	70	22	M 50 x 1.5	44	54	10	M 20	330	210	DIN 1810-A68-75	1153
GN 350.1-70-26-AK-ST	70	26	M 50 x 1.5	44	54	10	M 24	330	157	DIN 1810-A68-75	1087
GN 350.1-70-33-AK-ST	70	33	M 50 x 1.5	44	54	10	M 30	330	53	DIN 1810-A68-75	974
GN 350.1-80-26-AK-ST	80	26	M 60 x 2	49	61	12	M 24	495	322	DIN 1810-A80-90	1565
GN 350.1-80-33-AK-ST	80	33	M 60 x 2	49	61	12	M 30	495	218	DIN 1810-A80-90	1440
GN 350.1-80-39-AK-ST	80	39	M 60 x 2	49	61	12	M 36	495	101	DIN 1810-A80-90	1314

GN 350.1-NI

STAINLESS STEEL

Description	d1	d2	d3	h1	h2	h3	For screw	Static load F in kN F1	Static load F in kN F2	Code no. for C-Spanner	⚖
GN 350.1-25-6,6-A-NI	25	6.6	M 15 x 1	15	19	4	M 6	27.1	20.2	DIN 1810-A25-28	43
GN 350.1-32-6,6-A-NI	32	6.6	M 20 x 1	18	23	5	M 6	43.4	36.5	DIN 1810-A30-32	93
GN 350.1-32-9-A-NI	32	9	M 20 x 1	18	23	5	M 8	43.4	30.8	DIN 1810-A30-32	87
GN 350.1-32-11-A-NI	32	11	M 20 x 1	18	23	5	M 10	43.4	23.4	DIN 1810-A30-32	60
GN 350.1-45-11-A-NI	45	11	M 30 x 1.5	22	29	7	M 10	84	64	DIN 1810-A45-50	216
GN 350.1-45-13,5-A-NI	45	13.5	M 30 x 1.5	22	29	7	M 12	84	54.8	DIN 1810-A45-50	207
GN 350.1-45-17,5-A-NI	45	17.5	M 30 x 1.5	22	29	7	M 16	84	28.9	DIN 1810-A45-50	188
GN 350.1-58-17,5-A-NI	58	17.5	M 40 x 1.5	28	37	9	M 16	148	92.9	DIN 1810-A58-62	450
GN 350.1-58-22-A-NI	58	22	M 40 x 1.5	28	37	9	M 20	148	59	DIN 1810-A58-62	418
GN 350.1-58-26-A-NI	58	26	M 40 x 1.5	28	37	9	M 24	148	20.3	DIN 1810-A58-62	386
GN 350.1-70-22-A-NI	70	22	M 50 x 1.5	33	43	10	M 20	225	136	DIN 1810-A68-75	788
GN 350.1-70-26-A-NI	70	26	M 50 x 1.5	33	43	10	M 24	225	97.3	DIN 1810-A68-75	744
GN 350.1-70-33-A-NI	70	33	M 50 x 1.5	33	43	10	M 30	225	20.6	DIN 1810-A68-75	668
GN 350.1-80-26-A-NI	80	26	M 60 x 2	38	50	12	M 24	323	195.3	DIN 1810-A80-90	1135
GN 350.1-80-33-A-NI	80	33	M 60 x 2	38	50	12	M 30	323	118.6	DIN 1810-A80-90	1060
GN 350.1-80-39-A-NI	80	39	M 60 x 2	38	50	12	M 36	323	38.2	DIN 1810-A80-90	965
GN 350.1-25-6,6-AK-NI	25	6.6	M 15 x 1	20	24	4	M 6	27.1	20.2	DIN 1810-A25-28	159
GN 350.1-32-6,6-AK-NI	32	6.6	M 20 x 1	24	29	5	M 6	43.4	36.5	DIN 1810-A30-32	128
GN 350.1-32-9-AK-NI	32	9	M 20 x 1	24	29	5	M 8	43.4	30.8	DIN 1810-A30-32	119
GN 350.1-32-11-AK-NI	32	11	M 20 x 1	24	29	5	M 10	43.4	23.4	DIN 1810-A30-32	114
GN 350.1-45-11-AK-NI	45	11	M 30 x 1.5	29	36	7	M 10	84	64	DIN 1810-A45-50	320
GN 350.1-45-13,5-AK-NI	45	13.5	M 30 x 1.5	29	36	7	M 12	84	54.8	DIN 1810-A45-50	209
GN 350.1-45-17,5-AK-NI	45	17.5	M 30 x 1.5	29	36	7	M 16	84	28.9	DIN 1810-A45-50	289
GN 350.1-58-17,5-AK-NI	58	17.5	M 40 x 1.5	37	46	9	M 16	148	92.9	DIN 1810-A58-62	665
GN 350.1-58-22-AK-NI	58	22	M 40 x 1.5	37	46	9	M 20	148	59	DIN 1810-A58-62	618
GN 350.1-58-26-AK-NI	58	26	M 40 x 1.5	37	46	9	M 24	148	20.3	DIN 1810-A58-62	574
GN 350.1-70-22-AK-NI	70	22	M 50 x 1.5	44	54	10	M 20	225	136	DIN 1810-A68-75	1123
GN 350.1-70-26-AK-NI	70	26	M 50 x 1.5	44	54	10	M 24	225	97.3	DIN 1810-A68-75	1069
GN 350.1-70-33-AK-NI	70	33	M 50 x 1.5	44	54	10	M 30	225	20.6	DIN 1810-A68-75	756
GN 350.1-80-26-AK-NI	80	26	M 60 x 2	49	61	12	M 24	323	195.3	DIN 1810-A80-90	1565
GN 350.1-80-33-AK-NI	80	33	M 60 x 2	49	61	12	M 30	323	118.6	DIN 1810-A80-90	1440
GN 350.1-80-39-AK-NI	80	39	M 60 x 2	49	61	12	M 36	323	38.2	DIN 1810-A80-90	1310

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Levelling sets

Steel / Stainless Steel, with spherical washer, without locknut



SPECIFICATION

Version in Steel
Steel, 1.7225 (42 CrMo 4V) **ST**
zinc plated, blue passivated

Version in Stainless Steel
Stainless Steel AISI 303 **NI**
(X 10 CrNiS 18-9)

F_1: max. total load

F_2: max. load after deduction of the max. preload

- for screws 8.8 μ = 0.125 (Steel version)
- for screws 6.8 μ = 0.14 (Stainless Steel version)

INFORMATION

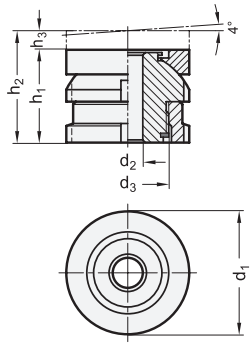
Levelling sets GN 350.2 are used for levelling, adjusting and linking operations. The spherical washer allows precise installation of two non parallel planes at a required gradient up to ≈ 4°.
They comprise a threaded upper sleeve and a female threaded lower sleeve. The fine thread allows a stepless and precise setting and locking using the C-Spanner DIN 1810 (see page 994). A locking ring serves also as a height limiter for the max. height.

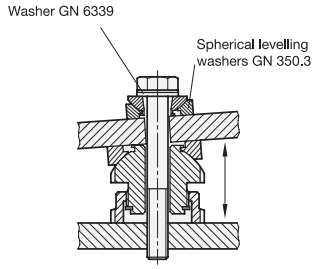
TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)

ACCESSORY

- C-Spanner DIN 1810 (code no. see table)





GN 350.2

Description	d1	d2	h1	d3	h2	h3	For screw	Static load F in kN F1	Static load F in kN F2	Code no. for C-Spanner	⚖
GN 350.2-25-6,6-22-ST	25	6.6	22	M 15 x 1	26	4	M 6	40	30.7	DIN 1810-A25-28	67
GN 350.2-25-6,6-35-ST	25	6.6	35	M 15 x 1	50	15	M 6	40	30.7	DIN 1810-A25-28	82
GN 350.2-32-6,6-26-ST	32	6.6	26	M 20 x 1	31	5	M 6	65	55.7	DIN 1810-A30-32	132
GN 350.2-32-6,6-43-ST	32	6.6	43	M 20 x 1	63	20	M 6	65	55.7	DIN 1810-A30-32	212
GN 350.2-32-9-26-ST	32	9	26	M 20 x 1	31	5	M 8	65	48	DIN 1810-A30-32	131
GN 350.2-32-9-43-ST	32	9	43	M 20 x 1	63	20	M 8	65	48	DIN 1810-A30-32	201
GN 350.2-32-11-26-ST	32	11	26	M 20 x 1	31	5	M 10	65	37.9	DIN 1810-A30-32	120
GN 350.2-32-11-43-ST	32	11	43	M 20 x 1	63	20	M 10	65	37.9	DIN 1810-A30-32	191
GN 350.2-45-11-34-ST	45	11	34	M 30 x 1.5	41	7	M 10	120	92.9	DIN 1810-A45-50	355
GN 350.2-45-11-54-ST	45	11	54	M 30 x 1.5	79	25	M 10	120	92.9	DIN 1810-A45-50	555
GN 350.2-45-13,5-34-ST	45	13.5	34	M 30 x 1.5	41	7	M 12	120	80.4	DIN 1810-A45-50	307
GN 350.2-45-13,5-54-ST	45	13.5	54	M 30 x 1.5	79	25	M 12	120	80.4	DIN 1810-A45-50	539
GN 350.2-45-17,5-34-ST	45	17.5	34	M 30 x 1.5	41	7	M 16	120	45.5	DIN 1810-A45-50	280
GN 350.2-45-17,5-54-ST	45	17.5	54	M 30 x 1.5	79	25	M 16	120	45.5	DIN 1810-A45-50	510
GN 350.2-58-17,5-44-ST	58	17.5	44	M 40 x 1.5	53	9	M 16	210	136	DIN 1810-A58-62	740
GN 350.2-58-17,5-70-ST	58	17.5	70	M 40 x 1.5	102	32	M 16	210	136	DIN 1810-A58-62	1092

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GN 350.2

Description	d1	d2	h1	d3	h2	h3	For screw	Static load F in kN F1	Static load F in kN F2	Code no. for C-Spanner	⚖
GN 350.2-58-22-44-ST	58	22	44	M 40 x 1.5	53	9	M 20	210	90	DIN 1810-A58-62	610
GN 350.2-58-22-70-ST	58	22	70	M 40 x 1.5	102	32	M 20	210	90	DIN 1810-A58-62	1031
GN 350.2-58-26-44-ST	58	26	44	M 40 x 1.5	53	9	M 24	210	37	DIN 1810-A58-62	560
GN 350.2-58-26-70-ST	58	26	70	M 40 x 1.5	102	32	M 24	210	37	DIN 1810-A58-62	955
GN 350.2-70-22-50-ST	70	22	50	M 50 x 1.5	60	10	M 20	330	210	DIN 1810-A68-75	1000
GN 350.2-70-22-83-ST	70	22	83	M 50 x 1.5	123	40	M 20	330	210	DIN 1810-A68-75	1896
GN 350.2-70-26-50-ST	70	26	50	M 50 x 1.5	60	10	M 24	330	157	DIN 1810-A68-75	940
GN 350.2-70-26-83-ST	70	26	83	M 50 x 1.5	123	40	M 24	330	157	DIN 1810-A68-75	1802
GN 350.2-70-33-50-ST	70	33	50	M 50 x 1.5	60	10	M 30	330	53	DIN 1810-A68-75	815
GN 350.2-70-33-83-ST	70	33	83	M 50 x 1.5	123	40	M 30	330	53	DIN 1810-A68-75	1599
GN 350.2-80-26-56-ST	80	26	56	M 60 x 2	68	12	M 24	495	322	DIN 1810-A80-90	1140
GN 350.2-80-26-94-ST	80	26	94	M 60 x 2	144	50	M 24	495	322	DIN 1810-A80-90	2885
GN 350.2-80-33-56-ST	80	33	56	M 60 x 2	68	12	M 30	495	218	DIN 1810-A80-90	1000
GN 350.2-80-33-94-ST	80	33	94	M 60 x 2	144	50	M 30	495	218	DIN 1810-A80-90	2560
GN 350.2-80-39-56-ST	80	39	56	M 60 x 2	68	12	M 36	495	101	DIN 1810-A80-90	1440
GN 350.2-80-39-94-ST	80	39	94	M 60 x 2	144	50	M 36	495	101	DIN 1810-A80-90	2232

GN 350.2-NI

STAINLESS STEEL

Description	d1	d2	h1	d3	h2	h3	For screw	Static load F in kN F1	Static load F in kN F2	Code no. for C-Spanner	⚖
GN 350.2-25-6,6-22-NI	25	6.6	22	M 15 x 1	26	4	M 6	27.1	20.26	DIN 1810-A25-28	66
GN 350.2-25-6,6-35-NI	25	6.6	35	M 15 x 1	50	15	M 6	27.1	20.26	DIN 1810-A25-28	100
GN 350.2-32-6,6-26-NI	32	6.6	26	M 20 x 1	31	5	M 6	43.4	36.56	DIN 1810-A30-32	132
GN 350.2-32-6,6-43-NI	32	6.6	43	M 20 x 1	63	20	M 6	43.4	36.56	DIN 1810-A30-32	216
GN 350.2-32-9-26-NI	32	9	26	M 20 x 1	31	5	M 8	43.4	30.86	DIN 1810-A30-32	131
GN 350.2-32-9-43-NI	32	9	43	M 20 x 1	63	20	M 8	43.4	30.86	DIN 1810-A30-32	200
GN 350.2-32-11-26-NI	32	11	26	M 20 x 1	31	5	M 10	43.4	23.41	DIN 1810-A30-32	120
GN 350.2-32-11-43-NI	32	11	43	M 20 x 1	63	20	M 10	43.4	23.41	DIN 1810-A30-32	179
GN 350.2-45-11-34-NI	45	11	34	M 30 x 1.5	41	7	M 10	84	64.01	DIN 1810-A45-50	355
GN 350.2-45-11-54-NI	45	11	54	M 30 x 1.5	79	25	M 10	84	64.01	DIN 1810-A45-50	553
GN 350.2-45-13,5-34-NI	45	13.5	34	M 30 x 1.5	41	7	M 12	84	54.82	DIN 1810-A45-50	307
GN 350.2-45-13,5-54-NI	45	13.5	54	M 30 x 1.5	79	25	M 12	84	54.82	DIN 1810-A45-50	547
GN 350.2-45-17,5-34-NI	45	17.5	34	M 30 x 1.5	41	7	M 16	84	28.9	DIN 1810-A45-50	280
GN 350.2-45-17,5-54-NI	45	17.5	54	M 30 x 1.5	79	25	M 16	84	28.9	DIN 1810-A45-50	513
GN 350.2-58-17,5-44-NI	58	17.5	44	M 40 x 1.5	53	9	M 16	148	92.9	DIN 1810-A58-62	665
GN 350.2-58-17,5-70-NI	58	17.5	70	M 40 x 1.5	102	32	M 16	148	92.9	DIN 1810-A58-62	904
GN 350.2-58-22-44-NI	58	22	44	M 40 x 1.5	53	9	M 20	148	59.08	DIN 1810-A58-62	900
GN 350.2-58-22-70-NI	58	22	70	M 40 x 1.5	102	32	M 20	148	59.08	DIN 1810-A58-62	680
GN 350.2-58-26-44-NI	58	26	44	M 40 x 1.5	53	9	M 24	148	20.3	DIN 1810-A58-62	800
GN 350.2-58-26-70-NI	58	26	70	M 40 x 1.5	102	32	M 24	148	20.3	DIN 1810-A58-62	950
GN 350.2-70-22-50-NI	70	22	50	M 50 x 1.5	60	10	M 20	225	136.08	DIN 1810-A68-75	1300
GN 350.2-70-22-83-NI	70	22	83	M 50x 1.5	123	40	M 20	225	136.08	DIN 1810-A68-75	1916
GN 350.2-70-26-50-NI	70	26	50	M 50 x 1.5	60	10	M 24	225	97.3	DIN 1810-A68-75	940
GN 350.2-70-26-83-NI	70	26	83	M 50 x 1.5	123	40	M 24	225	97.3	DIN 1810-A68-75	1823
GN 350.2-70-33-50-NI	70	33	50	M 50 x 1.5	60	10	M 30	225	20.6	DIN 1810-A68-75	1815
GN 350.2-70-33-83-NI	70	33	83	M 50 x 1.5	123	40	M 30	225	20.6	DIN 1810-A68-75	1618
GN 350.2-80-26-56-NI	80	26	56	M 60 x 2	68	12	M 24	323	195.3	DIN 1810-A80-90	1140
GN 350.2-80-26-94-NI	80	26	94	M 60 x 2	144	50	M 24	323	195.3	DIN 1810-A80-90	1888
GN 350.2-80-33-56-NI	80	33	56	M 60 x 2	68	12	M 30	323	118.6	DIN 1810-A80-90	1580
GN 350.2-80-33-94-NI	80	33	94	M 60 x 2	144	50	M 30	323	118.6	DIN 1810-A80-90	2492
GN 350.2-80-39-56-NI	80	39	56	M 60 x 2	68	12	M 36	323	38.2	DIN 1810-A80-90	2589
GN 350.2-80-39-94-NI	80	39	94	M 60 x 2	144	50	M 36	323	38.2	DIN 1810-A80-90	2865

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Levelling sets

Steel / Stainless Steel, with spherical washer, with locknut



SPECIFICATION

Version in Steel
Steel, 1.7225 (42 CrMo 4V) **ST**
zinc plated, blue passivated

Version in Stainless Steel
Stainless Steel AISI 303
(X 10 CrNiS 18-9) **NI**

F_1: max. total load

F_2: max. load after deduction of the max. preload

- for screws 8.8 μ = 0.125 (Steel version)
- for screws 6.8 μ = 0.14 (Stainless Steel version)

INFORMATION

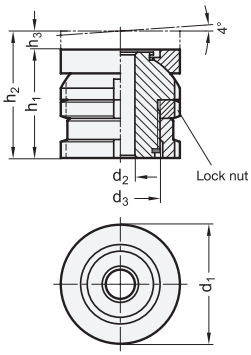
Levelling sets GN 350.5 are used for levelling, adjusting and linking operations. The spherical washer allows precise installation of two non parallel planes at a required gradient up to ≈ 4°.
They comprise a threaded upper sleeve and a female threaded lower sleeve. The fine thread allows a stepless and precise setting and locking using the C-Spanner DIN 1810 (see page 994). A locking ring serves also as a height limiter for the max. height.

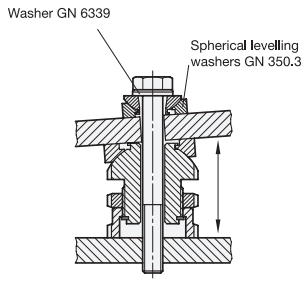
TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)

ACCESSORY

- C-Spanner DIN 1810 (code no. see table)





GN 350.5

Description	d1	d2	h1	d3	h2	h3	For screw	Static load F in kN F1	Static load F in kN F2	Code no. for C-Spanner	⚖
GN 350.5-25-6,6-27-ST	25	6.6	27	M 15 x 1	31	4	M 6	40	30.7	DIN 1810-A25-28	80
GN 350.5-25-6,6-40-ST	25	6.6	40	M 15 x 1	50	10	M 6	40	30.7	DIN 1810-A25-28	85
GN 350.5-32-6,6-32-ST	32	6.6	32	M 20 x 1	37	5	M 6	65	55.7	DIN 1810-A30-32	140
GN 350.5-32-6,6-49-ST	32	6.6	49	M 20 x 1	63	14	M 6	65	55.7	DIN 1810-A30-32	147
GN 350.5-32-9-32-ST	32	9	32	M 20 x 1	37	5	M 8	65	48	DIN 1810-A30-32	130
GN 350.5-32-9-49-ST	32	9	49	M 20 x 1	63	14	M 8	65	48	DIN 1810-A30-32	147
GN 350.5-32-11-32-ST	32	11	32	M 20 x 1	37	5	M 10	65	37.9	DIN 1810-A30-32	120
GN 350.5-32-11-49-ST	32	11	49	M 20 x 1	63	14	M 10	65	37.9	DIN 1810-A30-32	200
GN 350.5-45-11-41-ST	45	11	41	M 30 x 1.5	48	7	M 10	120	92.9	DIN 1810-A45-50	360
GN 350.5-45-11-61-ST	45	11	61	M 30 x 1.5	79	18	M 10	120	92.9	DIN 1810-A45-50	399
GN 350.5-45-13,5-41-ST	45	13.5	41	M 30 x 1.5	48	7	M 12	120	80.4	DIN 1810-A45-50	350
GN 350.5-45-13,5-61-ST	45	13.5	61	M 30 x 1.5	79	18	M 12	120	80.4	DIN 1810-A45-50	390
GN 350.5-45-17,5-41-ST	45	17.5	41	M 30 x 1.5	48	7	M 16	120	45.5	DIN 1810-A45-50	400
GN 350.5-45-17,5-61-ST	45	17.5	61	M 30 x 1.5	79	18	M 16	120	45.5	DIN 1810-A45-50	480
GN 350.5-58-17,5-53-ST	58	17.5	53	M 40 x 1.5	62	9	M 16	210	136	DIN 1810-A58-62	940
GN 350.5-58-17,5-79-ST	58	17.5	79	M 40 x 1.5	102	23	M 16	210	136	DIN 1810-A58-62	1189

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GN 350.5

Description	d1	d2	h1	d3	h2	h3	For screw	Static load F in kN F1	Static load F in kN F2	Code no. for C-Spanner	⚖
GN 350.5-58-22-53-ST	58	22	53	M 40 x 1.5	62	9	M 20	210	90	DIN 1810-A58-62	770
GN 350.5-58-22-79-ST	58	22	79	M 40 x 1.5	102	23	M 20	210	90	DIN 1810-A58-62	840
GN 350.5-58-26-53-ST	58	26	53	M 40 x 1.5	62	9	M 24	210	37	DIN 1810-A58-62	760
GN 350.5-58-26-79-ST	58	26	79	M 40 x 1.5	102	23	M 24	210	37	DIN 1810-A58-62	830
GN 350.5-70-22-61-ST	70	22	61	M 50 x 1.5	71	10	M 20	330	210	DIN 1810-A68-75	1600
GN 350.5-70-22-94-ST	70	22	94	M 50 x 1.5	123	29	M 20	330	210	DIN 1810-A68-75	1900
GN 350.5-70-26-61-ST	70	26	61	M 50 x 1.5	71	10	M 24	330	157	DIN 1810-A68-75	1200
GN 350.5-70-26-94-ST	70	26	94	M 50 x 1.5	123	29	M 24	330	157	DIN 1810-A68-75	1300
GN 350.5-70-33-61-ST	70	33	61	M 50 x 1.5	71	10	M 30	330	53	DIN 1810-A68-75	1100
GN 350.5-70-33-94-ST	70	33	94	M 50 x 1.5	123	29	M 30	330	53	DIN 1810-A68-75	1200
GN 350.5-80-26-67-ST	80	26	67	M 60 x 2	79	12	M 24	495	322	DIN 1810-A80-90	1650
GN 350.5-80-26-105-ST	80	26	105	M 60 x 2	144	39	M 24	495	322	DIN 1810-A80-90	2100
GN 350.5-80-33-67-ST	80	33	67	M 60 x 2	79	12	M 30	495	218	DIN 1810-A80-90	1550
GN 350.5-80-33-105-ST	80	33	105	M 60 x 2	144	39	M 30	495	218	DIN 1810-A80-90	1911
GN 350.5-80-39-67-ST	80	39	67	M 60 x 2	79	12	M 36	495	101	DIN 1810-A80-90	1450
GN 350.5-80-39-105-ST	80	39	105	M 60 x 2	144	39	M 36	495	101	DIN 1810-A80-90	1950

GN 350.5-NI

STAINLESS STEEL

Description	d1	d2	h1	d3	h2	h3	For screw	Static load F in kN F1	Static load F in kN F2	Code no. for C-Spanner	⚖
GN 350.5-25-6,6-27-NI	25	6.6	27	M 15 x 1	31	4	M 6	27.1	20.26	DIN 1810-A25-28	80
GN 350.5-25-6,6-40-NI	25	6.6	40	M 15 x 1	50	10	M 6	27.1	20.26	DIN 1810-A25-28	85
GN 350.5-32-6,6-32-NI	32	6.6	32	M 20 x 1	37	5	M 6	43.4	36.56	DIN 1810-A30-32	140
GN 350.5-32-6,6-49-NI	32	6.6	49	M 20 x 1	63	14	M 6	43.4	36.56	DIN 1810-A30-32	147
GN 350.5-32-9-32-NI	32	9	32	M 20 x 1	37	5	M 8	43.4	30.86	DIN 1810-A30-32	130
GN 350.5-32-9-49-NI	32	9	49	M 20 x 1	63	14	M 8	43.4	30.86	DIN 1810-A30-32	147
GN 350.5-32-11-32-NI	32	11	32	M 20 x 1	37	5	M 10	43.4	23.41	DIN 1810-A30-32	120
GN 350.5-32-11-49-NI	32	11	49	M 20 x 1	63	14	M 10	43.4	23.41	DIN 1810-A30-32	127
GN 350.5-45-11-41-NI	45	11	41	M 30 x 1.5	48	7	M 10	84	64.01	DIN 1810-A45-50	360
GN 350.5-45-11-61-NI	45	11	61	M 30 x 1.5	79	18	M 10	84	64.01	DIN 1810-A45-50	370
GN 350.5-45-13,5-41-NI	45	13.5	41	M 30 x 1.5	48	7	M 12	84	54.82	DIN 1810-A45-50	350
GN 350.5-45-13,5-61-NI	45	13.5	61	M 30 x 1.5	79	18	M 12	84	54.82	DIN 1810-A45-50	390
GN 350.5-45-17,5-41-NI	45	17.5	41	M 30 x 1.5	48	7	M 16	84	28.9	DIN 1810-A45-50	340
GN 350.5-45-17,5-61-NI	45	17.5	61	M 30 x 1.5	79	18	M 16	84	28.9	DIN 1810-A45-50	380
GN 350.5-58-17,5-53-NI	58	17.5	53	M 40 x 1.5	62	9	M 16	148	92.9	DIN 1810-A58-62	780
GN 350.5-58-17,5-79-NI	58	17.5	79	M 40 x 1.5	102	23	M 16	148	92.9	DIN 1810-A58-62	1184
GN 350.5-58-22-53-NI	58	22	53	M 40 x 1.5	62	9	M 20	148	59.08	DIN 1810-A58-62	770
GN 350.5-58-22-79-NI	58	22	79	M 40 x 1.5	102	23	M 20	148	59.08	DIN 1810-A58-62	840
GN 350.5-58-26-53-NI	58	26	53	M 40 x 1.5	62	9	M 24	148	20.3	DIN 1810-A58-62	760
GN 350.5-58-26-79-NI	58	26	79	M 40 x 1.5	102	23	M 24	148	20.3	DIN 1810-A58-62	860
GN 350.5-70-22-61-NI	70	22	61	M 50 x 1.5	71	10	M 20	225	136.08	DIN 1810-A68-75	1300
GN 350.5-70-22-94-NI	70	22	94	M 50 x 1.5	123	29	M 20	225	136.08	DIN 1810-A68-75	1418
GN 350.5-70-26-61-NI	70	26	61	M 50 x 1.5	71	10	M 24	225	97.3	DIN 1810-A68-75	1200
GN 350.5-70-26-94-NI	70	26	94	M 50 x 1.5	123	29	M 24	225	97.3	DIN 1810-A68-75	1400
GN 350.5-70-33-61-NI	70	33	61	M 50 x 1.5	71	10	M 30	225	20.6	DIN 1810-A68-75	1100
GN 350.5-70-33-94-NI	70	33	94	M 50 x 1.5	123	29	M 30	225	20.6	DIN 1810-A68-75	1200
GN 350.5-80-26-67-NI	80	26	67	M 60 x 2	79	12	M 24	323	195.3	DIN 1810-A80-90	1650
GN 350.5-80-26-105-NI	80	26	105	M 60 x 2	144	39	M 24	323	195.3	DIN 1810-A80-90	2900
GN 350.5-80-33-67-NI	80	33	67	M 60 x 2	79	12	M 30	323	118,6	DIN 1810-A80-90	1550
GN 350.5-80-33-105-NI	80	33	105	M 60 x 2	144	39	M 30	323	118,6	DIN 1810-A80-90	1911
GN 350.5-80-39-67-NI	80	39	67	M 60 x 2	79	12	M 36	323	38.2	DIN 1810-A80-90	1450
GN 350.5-80-39-105-NI	80	39	105	M 60 x 2	144	39	M 36	323	38.2	DIN 1810-A80-90	1811

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Positioning elements

with male thread

SPECIFICATION

Types

- Type **B**: Smooth contact face
- Type **K**: Spherical contact face
- Type **R**: Serrated contact face

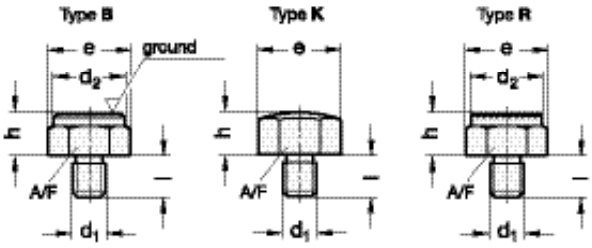
Steel

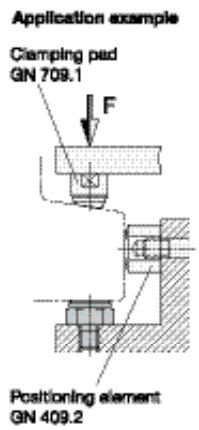
- case hardened
- blackened

INFORMATION

Positioning elements GN 409.1 with male thread are designe for use as locating plungers, stops and thrust blocks.







GN 409.1

Description	h ±0.01	h ±0.1	d1	d2	l	A/F	e	⚖
GN 409.1-10-M8-B	10	-	M 8	17	10	17	19.4	21
GN 409.1-10-M10-B	10	-	M 10	19	12	19	21.9	28
GN 409.1-10-M12-B	10	-	M 12	22	14	22	25.2	40
GN 409.1-15-M10-B	15	-	M 10	19	12	19	21.9	40
GN 409.1-15-M12-B	15	-	M 12	22	14	22	25.2	56
GN 409.1-15-M16-B	15	-	M 16	30	19	30	33	110
GN 409.1-20-M16-B	20	-	M 16	30	19	30	33	140
GN 409.1-10-M8-K	-	10	M 8	-	10	17	19.4	20
GN 409.1-10-M10-K	-	10	M 10	-	12	19	21.9	27
GN 409.1-10-M12-K	-	10	M 12	-	14	22	25.2	37
GN 409.1-15-M10-K	-	15	M 10	-	12	19	21.9	40
GN 409.1-15-M12-K	-	15	M 12	-	14	22	25.2	54
GN 409.1-15-M16-K	-	15	M 16	-	19	30	33	105
GN 409.1-20-M16-K	-	20	M 16	-	19	30	33	135
GN 409.1-10-M8-R	-	10	M 8	17	10	17	19.4	20
GN 409.1-10-M10-R	-	10	M 10	19	12	19	21.9	26
GN 409.1-10-M12-R	-	10	M 12	22	14	22	25.2	38
GN 409.1-15-M10-R	-	15	M 10	19	12	19	21.9	39
GN 409.1-15-M12-R	-	15	M 12	22	14	22	25.2	54
GN 409.1-15-M16-R	-	15	M 16	30	19	30	33	106
GN 409.1-20-M16-R	-	20	M 16	30	19	30	33	136

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GN 409.2

Positioning elements

with female thread

SPECIFICATION

Types

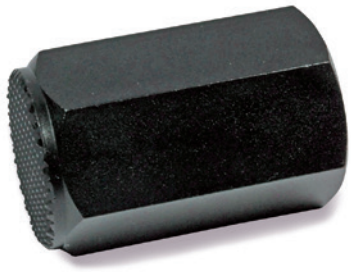
- Type **B**: Smooth contact face
- Type **K**: Spherical contact face
- Type **R**: Serrated contact face

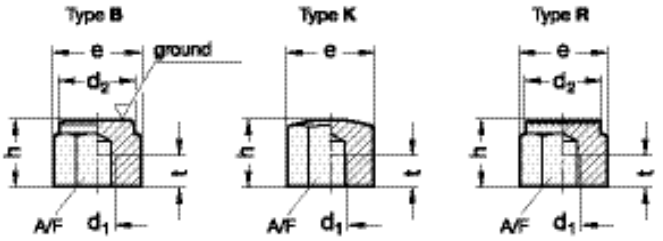
Steel

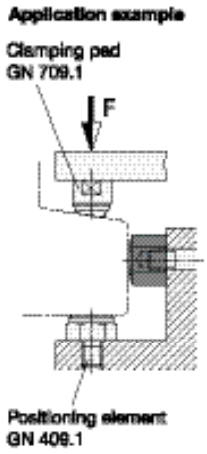
- hardened
- blackened

INFORMATION

Positioning elements GN 409.2 with male thread are designe for use as locating plungers, stops and thrust blocks.







*Complete with type index of the Positioning elements

B **K** **R**

GN 409.2

Description	h ±0.01 Type B	h ±0.1 Type K/R	d1	d2	t min.	A/F	e	⚖
GN 409.2-15-M8-*	15	15	M 8	17	6	17	19.4	25
GN 409.2-20-M10-*	20	20	M 10	19	10	19	21.9	39
GN 409.2-20-M12-*	20	20	M 12	22	10	22	25.2	52
GN 409.2-25-M8-*	25	25	M 8	17	12	17	19.4	42
GN 409.2-25-M12-*	25	25	M 12	22	15	22	25.2	47
GN 409.2-30-M10-*	30	30	M 10	19	15	19	21.9	61
GN 409.2-30-M12-*	30	30	M 12	22	18	22	25.2	79
GN 409.2-30-M16-*	30	30	M 16	30	20	30	33	136
GN 409.2-40-M10-*	40	40	M 10	19	15	19	21.9	85
GN 409.2-40-M12-*	40	40	M 12	22	18	22	25,2	110
GN 409.2-50-M12-*	50	50	M 12	22	18	22	25.2	142
GN 409.2-50-M16-*	50	50	M 16	30	24	30	33	270

Weight type B

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DIN 6320

Feet

SPECIFICATION

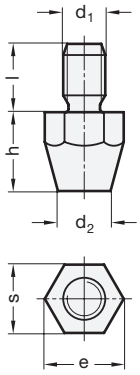
Steel (German Material No. 1.0718)

- not hardened
- blackened

INFORMATION

Feet DIN 6320 are normally used in jig construction if neither a self-aligning support nor an axial adjustment is required.
Unlike the models specified in the official standard sheet, these feet are made of 1.0718 steel (in place of quenched and tempered steel).





DIN 6320

Description	h	d1	d2	e min.	l	s	⚖
DIN 6320-10-M6	10	M 6	8	11.5	11	10	8
DIN 6320-15-M8	15	M 8	10	15	13	13	20
DIN 6320-20-M6	20	M 6	6	11.5	11	10	15
DIN 6320-20-M10	20	M 10	13	19.6	16	17	42
DIN 6320-25-M12	25	M 12	15	21.9	20	19	60
DIN 6320-30-M8	30	M 8	9	15	13	13	35
DIN 6320-40-M10	40	M 10	13	19.6	16	17	80
DIN 6320-50-M12	50	M 12	15	21.9	20	19	130

GN 6321.1

Headed dowels

SPECIFICATION

Steel
hardened

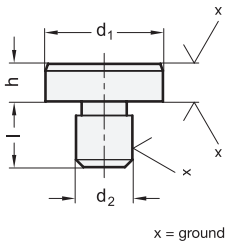
INFORMATION

Headed dowels GN 6321.1 can also be used as feet.

TECHNICAL INFORMATION

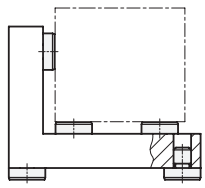
- ISO-Fundamental Tolerances (see page A21)





x = ground

Application example



GN 6321.1

Description	d1	d2 n6	h h9	l	⚖
GN 6321.1-6-2,5	6	4	2.5	6.5	1
GN 6321.1-6-4,5	6	4	4.5	8.5	2
GN 6321.1-6-5	6	4	5	6	2
GN 6321.1-10-4,5	10	6	4.5	8.5	4
GN 6321.1-10-8	10	6	8	8	6
GN 6321.1-16-5	16	8	5	10	11
GN 6321.1-16-13	16	8	13	10	23
GN 6321.1-20-6	20	10	6	12	21
GN 6321.1-20-12	20	10	12	12	35
GN 6321.1-25-8	25	12	8	14	41
GN 6321.1-25-20	25	12	20	14	87
GN 6321.1-25-30	25	12	30	14	124
GN 6321.1-30-25	30	16	25	20	164
GN 6321.1-30-40	30	16	40	20	248
GN 6321.1-30-50	30	16	50	20	305
GN 6321.1-30-65	30	16	65	20	385
GN 6321.1-40-13	40	20	13	20	171
GN 6321.1-40-32	40	20	32	20	357

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DIN 6321

Workholding bolts / Headed dowels

SPECIFICATION

Types

- Type **A**: Headed dowel, low type
- Type **B**: Workholding bolt, high, cylindrical
- Type **C**: Workholding bolt, high, flattened

Steel

- hardened
- blackened

Type A
without centre hole

Type B / Type C
with centre hole



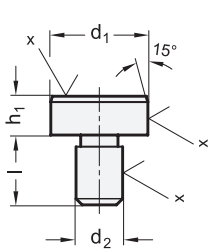
INFORMATION

Workholding bolts DIN 6321 are inserted into bores for positioning, assisted by the flattened design (Form C) to compensate tolerances in the spacing of two bores. Another application of this design is to fix parts to be positioned in one direction only.
Types A and B can also be used as bearing surfaces, stops or as foot.

TECHNICAL INFORMATION

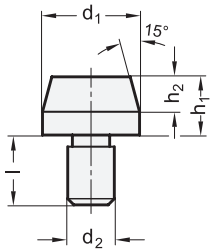
- ISO-Fundamental Tolerances (see page A21)

Type **A**

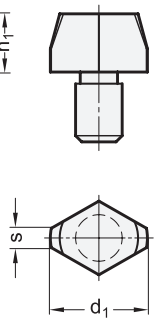


x = ground

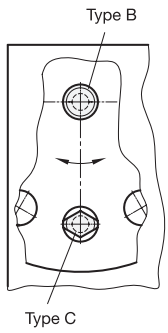
Type **B**



Type **C**



Application example



DIN 6321

Description	d1 g6	h1 h9	h1 ±0.1	d2 n6	h2	l	s ≈	⚖
DIN 6321-6-5-A	6	5	-	4	-	6	-	2
DIN 6321-10-6-A	10	6	-	6	-	9	-	5
DIN 6321-16-8-A	16	8	-	8	-	12	-	17
DIN 6321-25-10-A	25	10	-	12	-	18	-	53
DIN 6321-6-7-B	6	-	7	4	4	6	-	2
DIN 6321-6-12-B	6	-	12	4	4	6	-	3
DIN 6321-8-10-B	8	-	10	6	6	9	-	5
DIN 6321-8-16-B	8	-	16	6	6	9	-	7
DIN 6321-10-10-B	10	-	10	6	6	9	-	7
DIN 6321-10-18-B	10	-	18	6	6	9	-	12
DIN 6321-12-10-B	12	-	10	6	6	9	-	10
DIN 6321-12-18-B	12	-	18	6	6	9	-	17
DIN 6321-16-13-B	16	-	13	8	8	12	-	22
DIN 6321-16-22-B	16	-	22	8	8	12	-	36
DIN 6321-20-15-B	20	-	15	12	9	18	-	47
DIN 6321-20-25-B	20	-	25	12	9	18	-	72
DIN 6321-25-15-B	25	-	15	12	9	18	-	66
DIN 6321-25-25-B	25	-	25	12	9	18	-	105

DIN 6321

Description	d1 g6	h1 h9	h1 ±0.1	d2 n6	h2	l	s ≈	⚖
DIN 6321-6-7-C	6	-	7	4	4	6	1	1
DIN 6321-6-12-C	6	-	12	4	4	6	1	2
DIN 6321-8-10-C	8	-	10	6	6	9	1.6	4
DIN 6321-8-16-C	8	-	16	6	6	9	1.6	5
DIN 6321-10-10-C	10	-	10	6	6	9	2.5	6
DIN 6321-10-18-C	10	-	18	6	6	9	2.5	9
DIN 6321-12-10-C	12	-	10	6	6	9	2.5	7
DIN 6321-12-18-C	12	-	18	6	6	9	2.5	11
DIN 6321-16-13-C	16	-	13	8	8	12	3.5	17
DIN 6321-16-22-C	16	-	22	8	8	12	3.5	25
DIN 6321-20-15-C	20	-	15	12	9	18	5	39
DIN 6321-20-25-C	20	-	25	12	9	18	5	55
DIN 6321-25-15-C	25	-	15	12	9	18	5	49
DIN 6321-25-25-C	25	-	25	12	9	18	5	72

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DVA.1 - DVA.2 - DVA.3

Vibration-damping elements

Rubber and steel or stainless steel

BASE
- **DVA**: zinc-plated steel.
- **DVA-SST**: AISI 304 stainless steel.

VIBRATION-DAMPING BODY
Natural rubber NR, hardness 40, 55, 70 tolerance ±5 Shore A, black colour.

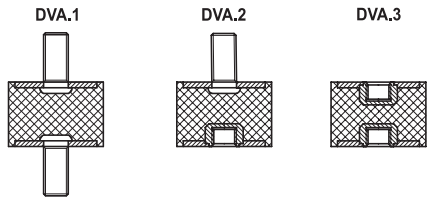
STANDARD EXECUTIONS
- **DVA.1**: zinc-plated steel threaded studs.
- **DVA.1-SST**: AISI 304 stainless steel threaded studs.
- **DVA.2**: threadead stud and boss in glossy zinc-plated steel, threaded blind hole.
- **DVA.2-SST**: threadead stud and boss in AISI 304 stainless steel, threaded blind hole.
- **DVA.3**: zinc-plated steel bosses, threaded blind holes.
- **DVA.3-SST**: AISI 304 stainless steel bosses, threaded blind holes.

FEATURES AND APPLICATIONS
The vibration-damping elements have been designed to damp vibrations, shocks and noises produced by moving bodies or non-balanced vibrating masses of equipment and machines which can cause:
- malfunctioning and reduction of the machine lifespan and/or of the adjacent ones;
- damage to health;
- noise.

Load diagrams for each single code are available on request.
See technical data and guidelines for the choice on page A53.

SPECIAL EXECUTIONS ON REQUEST
Natural rubber NR, hardness 40, 70 tolerance ±5 Shore A for executions with AISI 304 stainless steel base.





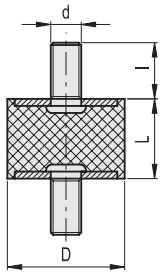
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DVA.1 - DVA.2 - DVA.3 | Vibration-damping elements

* Complete the description with the desired hardness: 40, 55 or 70 tolerance ±5 Shore A.

DVA.1 - 8 - 8 - M3 - 6 - 55
D L d l Shore A

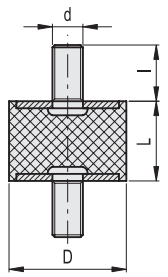
DVA.1



Description	D	L	d	l	⚖	Hardness 40 Shore A				Hardness 55 Shore A				Hardness 70 Shore A			
						Code	Max load [N]	Max deflection [mm]	Stiffness [N/mm]	Code	Max load [N]	Max deflection [mm]	Stiffness [N/mm]	Code	Max load [N]	Max deflection [mm]	Stiffness [N/mm]
DVA.1-8-8-M3-6-*	8	8	M3	6	1	413801	50	2	25	411101	85	2	43	416501	150	2	75
DVA.1-8-13-M3-6-*	8	13	M3	6	2	413803	62	3	19	411003	94	3	29	416503	133	3	41
DVA.1-10-10-M4-10-*	10	10	M4	10	2	413811	75	3	30	411121	100	3	40	416511	200	3	80
DVA.1-10-15-M4-10-*	10	15	M4	10	3	413821	65	4	17	411131	100	4	26	416521	150	4	40
DVA.1-10-20-M4-10-*	10	20	M4	10	3	413823	59	5	12	411133	93	5	19	416523	96	5	19
DVA.1-15-8-M4-10-*	15	8	M4	10	5	413831	437	2	219	411141	537	2	269	416531	1325	2	663
DVA.1-15-10-M4-10-*	15	10	M4	10	6	413841	210	3	84	411151	325	3	130	416541	717	3	287
DVA.1-15-15-M4-10-*	15	15	M4	10	7	413851	155	4	41	411161	280	4	75	416551	513	4	137
DVA.1-15-20-M4-10-*	15	20	M4	10	8	413861	151	5	30	411171	234	5	47	416561	468	5	94
DVA.1-15-25-M4-10-*	15	25	M4	10	9	413863	133	6	21	411019	234	6	37	411173	498	6	80
DVA.1-20-15-M6-18-*	20	15	M6	18	18	413871	322	4	86	411181	479	4	128	416571	1044	4	278
DVA.1-20-20-M6-18-*	20	20	M6	18	25	413881	220	5	44	411201	430	5	86	416581	995	5	199
DVA.1-20-25-M6-18-*	20	25	M6	18	20	413891	264	6	42	411211	433	6	69	416591	1010	6	162
DVA.1-20-30-M6-18-*	20	30	M6	18	23	413893	214	8	29	411213	417	8	56	416593	978	8	130
DVA.1-25-15-M6-18-*	25	15	M6	18	28	413901	860	4	229	411221	1068	4	285	416601	2690	4	717
DVA.1-25-20-M6-18-*	25	20	M6	18	31	413911	391	5	78	411241	620	5	124	416611	1533	5	307
DVA.1-25-25-M6-18-*	25	25	M6	18	35	413921	441	6	71	411261	529	6	85	416621	1374	6	220
DVA.1-25-30-M6-18-*	25	30	M6	18	38	413931	432	8	58	411271	524	8	70	416631	1208	8	161
DVA.1-30-15-M8-20-*	30	15	M8	20	45	413941	986	4	263	411281	2080	4	555	416641	3300	4	880
DVA.1-30-20-M8-20-*	30	20	M8	20	50	413951	770	5	154	411301	1067	5	213	416651	2260	5	452
DVA.1-30-30-M8-20-*	30	30	M8	20	57	413961	500	8	67	411321	1055	8	141	416661	1960	8	261
DVA.1-30-40-M8-20-*	30	40	M8	20	65	413963	649	10	65	411323	932	10	93	416663	2000	10	200
DVA.1-40-20-M8-23-*	40	20	M8	23	80	413971	1800	5	360	411331	2430	5	486	416671	4450	5	890
DVA.1-40-30-M8-23-*	40	30	M8	23	95	413981	1137	8	152	411341	1574	8	210	416681	3420	8	456
DVA.1-40-40-M8-23-*	40	40	M8	23	100	413991	1056	10	106	411361	1397	10	140	416691	3190	10	319
DVA.1-50-20-M10-28-*	50	20	M10	28	130	414001	3030	5	606	411381	4100	5	820	416701	9240	5	1848
DVA.1-50-30-M10-28-*	50	30	M10	28	184	414011	2010	8	268	411401	3300	8	440	416711	5450	8	727
DVA.1-50-40-M10-28-*	50	40	M10	28	170	414021	1477	10	148	411421	2130	10	213	416721	4940	10	494
DVA.1-50-45-M10-28-*	50	45	M10	28	180	414031	1368	11	122	411441	2046	11	182	416731	2580	11	229
DVA.1-50-50-M10-28-*	50	50	M10	28	195	414041	1500	13	120	411446	2188	13	175	416741	4750	13	380
DVA.1-60-30-M10-28-*	60	30	M10	28	211	414051	3020	8	403	411451	4170	8	556	416751	9130	8	1217
DVA.1-60-40-M10-28-*	60	40	M10	28	236	414061	2520	10	252	411456	3610	10	361	416761	6950	10	695
DVA.1-60-50-M10-28-*	60	50	M10	28	261	414063	2458	13	197	411457	3410	13	273	416763	6570	13	526
DVA.1-70-30-M10-28-*	70	30	M10	28	297	414070	6370	8	849	411460	8570	8	1143	416770	24010	8	3382
DVA.1-70-45-M10-28-*	70	45	M10	28	380	414071	3810	11	339	411461	7130	11	634	416771	13210	11	1174
DVA.1-75-25-M12-37-*	75	25	M12	37	345	414081	11000	6	1760	411471	12970	6	2075	416781	25000	6	4000
DVA.1-75-40-M12-37-*	75	40	M12	37	410	414091	4910	10	491	411481	6970	10	697	416791	15380	10	1538
DVA.1-75-55-M12-37-*	75	55	M12	37	515	414101	3470	14	252	411501	7510	14	546	416801	11240	14	817
DVA.1-100-40-M16-41-*	100	40	M16	41	765	414111	13990	10	1399	411521	20000	10	2000	416811	29000	10	2900
DVA.1-100-55-M16-41-*	100	55	M16	41	905	414121	7320	14	532	411541	13080	14	951	416821	24260	14	1764
DVA.1-100-60-M16-41-*	100	60	M16	41	950	414131	7000	15	467	411561	11290	15	753	416831	28500	15	1900
DVA.1-100-75-M16-41-*	100	75	M16	41	1090	414141	7790	19	415	411581	9640	19	514	416841	22350	19	1192
DVA.1-125-55-M16-41-*	125	55	M16	41	1320	414161	17270	14	1256	411601	19260	14	1401	416901	23610	8	3008
DVA.1-125-75-M16-41-*	125	75	M16	41	1625	414163	12235	19	653	411603	19440	19	1037	416903	21789	19	1162

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DVA.1 - DVA.2 - DVA.3 | Vibration-damping elements



DVA.1

DVA.1 - 8 - 8 - SST - M3 - 6 - 55
D L Stainless steel d l Shore A

STAINLESS STEEL

Description	D	L	d	l	⚖	Hardness 40 Shore A				Hardness 55 Shore A				Hardness 70 Shore A			
						Code	Max load [N]	Max deflection [mm]	Stiffness [N/mm]	Code	Max load [N]	Max deflection [mm]	Stiffness [N/mm]	Code	Max load [N]	Max deflection [mm]	Stiffness [N/mm]
DVA.1-8-8-SST-M3-6-55	8	8	M3	6	1		50	2	25	410001	85	2	43		150	2	75
DVA.1-8-13-SST-M3-6-55	8	13	M3	6	2		62	3	19	410003	94	3	29		133	3	41
DVA.1-10-10-SST-M4-10-55	10	10	M4	10	2		75	3	30	410005	100	3	40		200	3	80
DVA.1-10-15-SST-M4-10-55	10	15	M4	10	3		65	4	17	410007	100	4	26		150	4	40
DVA.1-10-20-SST-M4-10-55	10	20	M4	10	3		59	5	12	410009	93	5	19		96	5	19
DVA.1-15-8-SST-M4-10-55	15	8	M4	10	5		437	2	219	410011	537	2	269		1325	2	663
DVA.1-15-10-SST-M4-10-55	15	10	M4	10	6		210	3	84	410013	325	3	130		717	3	287
DVA.1-15-15-SST-M4-10-55	15	15	M4	10	7		155	4	41	410015	280	4	75		513	4	137
DVA.1-15-20-SST-M4-10-55	15	20	M4	10	8		151	5	30	410017	234	5	47		468	5	94
DVA.1-15-25-SST-M4-10-55	15	25	M4	10	9		133	6	21	410019	234	6	37		498	6	80
DVA.1-20-15-SST-M6-18-55	20	15	M6	18	18		322	4	86	410021	479	4	128		1044	4	278
DVA.1-20-20-SST-M6-18-55	20	20	M6	18	25		220	5	44	410023	430	5	86		995	5	199
DVA.1-20-25-SST-M6-18-55	20	25	M6	18	20		264	6	42	410025	433	6	69		1010	6	162
DVA.1-20-30-SST-M6-18-55	20	30	M6	18	23		214	8	29	410027	417	8	56		978	8	130
DVA.1-25-15-SST-M6-18-55	25	15	M6	18	28		860	4	229	410031	1068	4	285		2690	4	717
DVA.1-25-20-SST-M6-18-55	25	20	M6	18	31		391	5	78	410033	620	5	124		1533	5	307
DVA.1-25-25-SST-M6-18-55	25	25	M6	18	35		441	6	71	410035	529	6	85		1374	6	220
DVA.1-25-30-SST-M6-18-55	25	30	M6	18	38		432	8	58	410037	524	8	70		1208	8	161
DVA.1-30-15-SST-M8-20-55	30	15	M8	20	45		986	4	263	410041	2080	4	555		3300	4	880
DVA.1-30-20-SST-M8-20-55	30	20	M8	20	50	ON REQUEST	770	5	154	410043	1067	5	213	ON REQUEST	2260	5	452
DVA.1-30-30-SST-M8-20-55	30	30	M8	20	57		500	8	67	410045	1055	8	141		1960	8	261
DVA.1-30-40-SST-M8-20-55	30	40	M8	20	65		649	10	65	410047	932	10	93		2000	10	200
DVA.1-40-20-SST-M8-23-55	40	20	M8	23	80		1800	5	360	410051	2430	5	486		4450	5	890
DVA.1-40-30-SST-M8-23-55	40	30	M8	23	95		1137	8	152	410053	1574	8	210		3420	8	456
DVA.1-40-40-SST-M8-23-55	40	40	M8	23	100		1056	10	106	410055	1397	10	140		3190	10	319
DVA.1-50-20-SST-M10-28-55	50	20	M10	28	130		3030	5	606	410061	4100	5	820		9240	5	1848
DVA.1-50-30-SST-M10-28-55	50	30	M10	28	184		2010	8	268	410063	3300	8	440		5450	8	727
DVA.1-50-40-SST-M10-28-55	50	40	M10	28	170		1477	10	148	410065	2130	10	213		4940	10	494
DVA.1-50-45-SST-M10-28-55	50	45	M10	28	180		1368	11	122	410067	2046	11	182		2580	11	229
DVA.1-50-50-SST-M10-28-55	50	50	M10	28	195		1500	13	120	410069	2188	13	175		4750	13	380
DVA.1-60-30-SST-M10-28-55	60	30	M10	28	211		3020	8	403	410071	4170	8	556		9130	8	1217
DVA.1-60-40-SST-M10-28-55	60	40	M10	28	236		2520	10	252	410073	3610	10	361		6950	10	695
DVA.1-60-50-SST-M10-28-55	60	50	M10	28	261		2458	13	197	410075	3410	13	273		6570	13	526
DVA.1-70-30-SST-M10-28-55	70	30	M10	28	297		6370	8	849	410076	8570	8	1143		24010	8	3382
DVA.1-70-45-SST-M10-28-55	70	45	M10	28	380		3810	11	339	410077	7130	11	634		13210	11	1174
DVA.1-75-25-SST-M12-37-55	75	25	M12	37	345		11000	6	1760	410081	12970	6	2075		25000	6	4000
DVA.1-75-40-SST-M12-37-55	75	40	M12	37	410		4910	10	491	410083	6970	10	697		15380	10	1538
DVA.1-75-55-SST-M12-37-55	75	55	M12	37	515		3470	14	252	410085	7510	14	546		11240	14	817
DVA.1-100-40-SST-M16-41-55	100	40	M16	41	765		13990	10	1399	410091	20000	10	2000		29000	10	2900
DVA.1-100-55-SST-M16-41-55	100	55	M16	41	905		7320	14	532	410093	13080	14	951		24260	14	1764
DVA.1-100-60-SST-M16-41-55	100	60	M16	41	950		7000	15	467	410095	11290	15	753		28500	15	1900
DVA.1-100-75-SST-M16-41-55	100	75	M16	41	1090		7790	19	415	410097	9640	19	514		22350	19	1192
DVA.1-125-55-SST-M16-41-55	125	55	M16	41	1320		17270	14	1256	410098	19260	14	1401		23610	8	3008
DVA.1-125-75-SST-M16-41-55	125	75	M16	41	1600		12235	19	653	410099	19440	19	1037		21789	19	1162

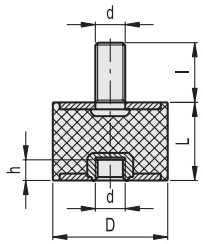
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DVA.1 - DVA.2 - DVA.3 | Vibration-damping elements

* Complete the description with the desired hardness: 40, 55 or 70 tolerance ±5 Shore A.

DVA.2 - 8 - 8 - M3 - 6 - 55
D L d l Shore A

DVA.2

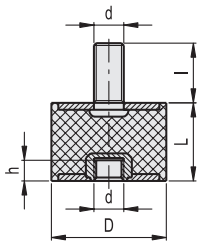


Description	D	L	d	l	h	⚖	Hardness 40 Shore A				Hardness 55 Shore A				Hardness 70 Shore A			
							Code	Max load [N]	Max deflection [mm]	Stiffness [N/mm]	Code	Max load [N]	Max deflection [mm]	Stiffness [N/mm]	Code	Max load [N]	Max deflection [mm]	Stiffness [N/mm]
DVA.2-8-8-M3-6-*	8	8	M3	6	3	1	414301	50	2	25	411701	85	2	43	417001	150	2	75
DVA.2-8-13-M3-6-*	8	13	M3	6	3	2	414303	38	3	12	411703	70	3	21	417003	145	3	45
DVA.2-10-10-M4-10-*	10	10	M4	10	4	2	414311	75	3	30	411721	100	3	40	417011	200	3	80
DVA.2-10-15-M4-10-*	10	15	M4	10	4	3	414321	65	4	17	411731	100	4	27	417021	150	4	40
DVA.2-10-20-M4-10-*	10	20	M4	10	4	3	414323	59	5	12	411733	93	5	19	417023	132	5	26
DVA.2-15-10-M4-10-*	15	10	M4	10	4	5	414331	210	2	105	411741	325	2	163	417031	717	2	359
DVA.2-15-15-M4-10-*	15	15	M4	10	4	6	414341	155	4	41	411761	280	4	75	417041	513	4	137
DVA.2-15-20-M4-10-*	15	20	M4	10	4	7	414351	151	5	30	411771	234	5	47	417051	468	5	94
DVA.2-15-25-M4-10-*	15	25	M4	10	4	8	414353	133	6	21	411773	234	6	37	417053	505	6	81
DVA.2-20-15-M6-18-*	20	15	M6	18	6	15	414361	322	4	86	411781	479	4	128	417061	1044	4	278
DVA.2-20-20-M6-18-*	20	20	M6	18	6	17	414371	220	5	44	411801	430	5	86	417071	995	5	199
DVA.2-20-25-M6-18-*	20	25	M6	18	6	18	414381	264	6	42	411811	433	6	69	417081	1010	6	162
DVA.2-20-30-M6-18-*	20	30	M6	18	6	21	414383	261	8	35	411813	417	8	56	417083	1213	8	162
DVA.2-25-15-M6-18-*	25	15	M6	18	6	26	414391	860	4	229	411821	1068	4	285	417091	2690	4	717
DVA.2-25-20-M6-18-*	25	20	M6	18	6	28	414401	391	5	78	411841	620	5	124	417101	1533	5	307
DVA.2-25-30-M6-18-*	25	30	M6	18	6	36	414411	432	8	58	411851	524	8	70	417111	1208	8	161
DVA.2-30-15-M8-20-*	30	15	M8	20	8	41	414421	986	4	263	411861	2080	4	555	417121	3300	4	880
DVA.2-30-20-M8-20-*	30	20	M8	20	8	43	414431	1300	5	260	411881	3070	5	614	417131	7540	5	1508
DVA.2-30-30-M8-20-*	30	30	M8	20	8	50	414441	500	8	67	411901	1055	8	141	417141	1960	8	261
DVA.2-30-40-M8-20-*	30	40	M8	20	8	60	414443	591	10	59	411903	932	10	93	417143	2000	10	200
DVA.2-40-20-M8-23-*	40	20	M8	23	8	73	414451	3490	5	698	411911	8420	5	1684	417151	10160	5	2032
DVA.2-40-30-M8-23-*	40	30	M8	23	8	85	414461	1137	8	152	411921	1574	8	210	417161	3420	8	456
DVA.2-40-40-M8-23-*	40	40	M8	23	8	98	414471	1056	10	106	411941	1397	10	140	417171	3190	10	319
DVA.2-50-20-M10-28-*	50	20	M10	28	10	115	414481	11610	5	2322	411961	14030	5	2806	417181	22540	5	4508
DVA.2-50-30-M10-28-*	50	30	M10	28	10	135	414491	2010	8	268	411981	3300	8	440	417191	5450	8	727
DVA.2-50-40-M10-28-*	50	40	M10	28	10	160	414501	1477	10	148	412001	2130	10	213	417201	4940	10	494
DVA.2-50-45-M10-28-*	50	45	M10	28	10	170	414511	1368	11	122	412021	2046	11	182	417211	2580	11	229
DVA.2-50-50-M10-28-*	50	50	M10	28	10	185	414521	1500	13	120	412026	2188	13	175	417221	4750	13	380
DVA.2-60-30-M10-28-*	60	30	M10	28	10	199	414531	3020	8	403	412031	4170	8	556	417231	9130	8	1217
DVA.2-60-40-M10-28-*	60	40	M10	28	10	220	414541	2520	10	252	412036	3610	10	361	417241	6950	10	695
DVA.2-60-50-M10-28-*	60	50	M10	28	10	245	414543	2650	13	212	412039	3410	13	273	417243	6570	13	526
DVA.2-70-30-M10-28-*	70	30	M10	28	10	329	414550	5940	8	792	412040	8570	8	1143	417250	24010	7	3382
DVA.2-70-45-M10-28-*	70	45	M10	28	10	372	414551	3810	11	339	412041	7130	11	634	417251	13210	11	1174
DVA.2-75-25-M12-37-*	75	25	M12	37	12	321	414561	4600	3	1533	412051	10000	3	3333	417261	15900	3	5300
DVA.2-75-40-M12-37-*	75	40	M12	37	12	385	414571	4910	10	491	412061	6970	10	697	417271	15380	10	1538
DVA.2-75-55-M12-37-*	75	55	M12	37	12	450	414581	3470	14	252	412081	7510	14	546	417281	11240	14	817
DVA.2-100-40-M16-41-*	100	40	M16	41	16	740	414591	13990	10	1399	412101	20000	10	2000	417291	29000	10	2900
DVA.2-100-55-M16-41-*	100	55	M16	41	16	850	414601	7320	14	532	412121	13080	14	951	417301	24260	14	1764
DVA.2-100-60-M16-41-*	100	60	M16	41	16	865	414611	7000	15	467	412141	11290	15	753	417311	28500	15	1900
DVA.2-100-75-M16-41-*	100	75	M16	41	16	980	414621	7790	19	415	412161	9640	19	514	417321	22350	19	1192
DVA.2-125-55-M16-41-*	125	55	M16	41	16	1320	414651	17600	14	1280	412181	19260	14	1401	417351	23610	8	3008
DVA.2-125-75-M16-41-*	125	75	M16	41	16	1600	414661	12760	19	681	412191	19440	19	1037	417361	24205	19	1291

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DVA.1 - DVA.2 - DVA.3 | Vibration-damping elements

DVA.2



DVA.2 - 8 - 8 - SST - M3 - 6 - 55
D L Stainless steel d l Shore A

STAINLESS STEEL

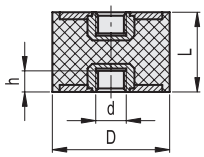
Description	D	L	d	l	h	⚖	Hardness 40 Shore A				Hardness 55 Shore A				Hardness 70 Shore A			
							Code	Max load [N]	Max deflection [mm]	Stiffness [N/mm]	Code	Max load [N]	Max deflection [mm]	Stiffness [N/mm]	Code	Max load [N]	Max deflection [mm]	Stiffness [N/mm]
DVA.2-8-8-SST-M3-6-55	8	8	M3	6	3	1		50	2	25	410101	85	2	43		150	2	75
DVA.2-8-13-SST-M3-6-55	8	13	M3	6	3	2		38	3	12	410103	70	3	21		145	3	45
DVA.2-10-10-SST-M4-10-55	10	10	M4	10	4	2		75	3	30	410105	100	3	40		200	3	80
DVA.2-10-15-SST-M4-10-55	10	15	M4	10	4	3		65	4	17	410107	100	4	27		150	4	40
DVA.2-10-20-SST-M4-10-55	10	20	M4	10	4	3		59	5	12	410109	93	5	19		132	5	26
DVA.2-15-10-SST-M4-10-55	15	10	M4	10	4	5		210	2	105	410113	325	2	163		717	2	359
DVA.2-15-15-SST-M4-10-55	15	15	M4	10	4	6		155	4	41	410115	280	4	75		513	4	137
DVA.2-15-20-SST-M4-10-55	15	20	M4	10	4	7		151	5	30	410117	234	5	47		468	5	94
DVA.2-15-25-SST-M4-10-55	15	25	M4	10	4	8		133	6	21	410119	234	6	37		505	6	81
DVA.2-20-15-SST-M6-18-55	20	15	M6	18	6	15		322	4	86	410121	479	4	128		1044	4	278
DVA.2-20-20-SST-M6-18-55	20	20	M6	18	6	17		220	5	44	410123	430	5	86		995	5	199
DVA.2-20-25-SST-M6-18-55	20	25	M6	18	6	18		264	6	42	410125	433	6	69		1010	6	162
DVA.2-20-30-SST-M6-18-55	20	30	M6	18	6	21		261	8	35	410127	417	8	56		1213	8	162
DVA.2-25-15-SST-M6-18-55	25	15	M6	18	6	26		860	4	229	410131	1068	4	285		2690	4	717
DVA.2-25-20-SST-M6-18-55	25	20	M6	18	6	28		391	5	78	410133	620	5	124		1533	5	307
DVA.2-25-30-SST-M6-18-55	25	30	M6	18	6	36		432	8	58	410137	524	8	70		1208	8	161
DVA.2-30-15-SST-M8-20-55	30	15	M8	20	8	41		986	4	263	410141	2080	4	555		3300	4	880
DVA.2-30-20-SST-M8-20-55	30	20	M8	20	8	43		1300	5	260	410143	3070	5	614		7540	5	1508
DVA.2-30-30-SST-M8-20-55	30	30	M8	20	8	50	ON REQUEST	500	8	67	410145	1055	8	141	ON REQUEST	1960	8	261
DVA.2-30-40-SST-M8-20-55	30	40	M8	20	8	60		591	10	59	410147	932	10	93		2000	10	200
DVA.2-40-20-SST-M8-23-55	40	20	M8	23	8	73		3490	5	698	410151	8420	5	1684		10160	5	2032
DVA.2-40-30-SST-M8-23-55	40	30	M8	23	8	85		1137	8	152	410153	1574	8	210		3420	8	456
DVA.2-40-40-SST-M8-23-55	40	40	M8	23	8	98		1056	10	106	410155	1397	10	140		3190	10	319
DVA.2-50-20-SST-M10-28-55	50	20	M10	28	10	115		11610	5	2322	410161	14030	5	2806		22540	5	4508
DVA.2-50-30-SST-M10-28-55	50	30	M10	28	10	135		2010	8	268	410163	3300	8	440		5450	8	727
DVA.2-50-40-SST-M10-28-55	50	40	M10	28	10	160		1477	10	148	410165	2130	10	213		4940	10	494
DVA.2-50-45-SST-M10-28-55	50	45	M10	28	10	170		1368	11	122	410167	2046	11	182		2580	11	229
DVA.2-50-50-SST-M10-28-55	50	50	M10	28	10	185		1500	13	120	410169	2188	13	175		4750	13	380
DVA.2-60-30-SST-M10-28-55	60	30	M10	28	10	199		3020	8	403	410171	4170	8	556		9130	8	1217
DVA.2-60-40-SST-M10-28-55	60	40	M10	28	10	220		2520	10	252	410173	3610	10	361		6950	10	695
DVA.2-60-50-SST-M10-28-55	60	50	M10	28	10	245		2650	13	212	410175	3410	13	273		6570	13	526
DVA.2-70-30-SST-M10-28-55	70	30	M10	28	10	329		5940	8	792	410176	8570	8	1143		24010	7	3382
DVA.2-70-45-SST-M10-28-55	70	45	M10	28	10	372		3810	11	339	410177	7130	11	634		13210	11	1174
DVA.2-75-25-SST-M12-37-55	75	25	M12	37	12	321		4600	3	1533	410181	10000	3	3333		15900	3	5300
DVA.2-75-40-SST-M12-37-55	75	40	M12	37	12	385		4910	10	491	410183	6970	10	697		15380	10	1538
DVA.2-75-55-SST-M12-37-55	75	55	M12	37	12	450		3470	14	252	410185	7510	14	546		11240	14	817
DVA.2-100-40-SST-M16-41-55	100	40	M16	41	16	740		13990	10	1399	410191	20000	10	2000		29000	10	2900
DVA.2-100-55-SST-M16-41-55	100	55	M16	41	16	850		7320	14	532	410193	13080	14	951		24260	14	1764
DVA.2-100-60-SST-M16-41-55	100	60	M16	41	16	865		7000	15	467	410195	11290	15	753		28500	15	1900
DVA.2-100-75-SST-M16-41-55	100	75	M16	41	16	980		7790	19	415	410197	9640	19	514		22350	19	1192
DVA.2-125-55-SST-M16-41-55	125	55	M16	41	16	1320		17600	14	1280	410198	19260	14	1401		23610	8	3008
DVA.2-125-75-SST-M16-41-55	125	75	M16	41	16	1600		12760	19	681	410199	19440	19	1037		24205	19	1291

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* Complete the description with the desired hardness: 40, 55 or 70 tolerance ±5 Shore A.

DVA.3 - 8 - 8 - M3 - 55
D L d Shore A

DVA.3



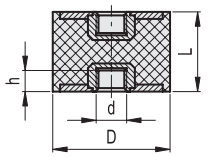
Description	D	L	d	h	⚖	Hardness 40 Shore A				Hardness 55 Shore A				Hardness 70 Shore A			
						Code	Max load [N]	Max deflection [mm]	Stiffness [N/mm]	Code	Max load [N]	Max deflection [mm]	Stiffness [N/mm]	Code	Max load [N]	Max deflection [mm]	Stiffness [N/mm]
DVA.3-8-8-M3-*	8	8	M3	3	1	414801	50	2	25	412301	85	2	43	417501	150	2	75
DVA.3-8-13-M3-*	8	13	M3	3	2	414805	41	3	13	412305	74	3	23	417505	152	3	47
DVA.3-10-10-M4-*	10	10	M4	4	2	414811	75	3	30	412321	100	3	40	417511	200	3	80
DVA.3-10-15-M4-*	10	15	M4	4	3	414821	65	4	17	412326	100	4	27	417521	150	4	40
DVA.3-10-20-M4-*	10	20	M4	4	3	414823	54	5	11	412329	108	5	22	417523	201	5	40
DVA.3-15-10-M4-*	15	10	M4	4	4	414831	210	2	105	412331	325	2	163	417531	717	2	359
DVA.3-15-15-M4-*	15	15	M4	4	6	414841	155	4	41	412341	280	4	75	417541	513	4	137
DVA.3-15-20-M4-*	15	20	M4	4	8	414851	151	5	30	412346	234	5	47	417551	468	5	94
DVA.3-20-15-M6-*	20	15	M6	6	13	414861	175	2	117	412351	227	2	151	417561	550	2	367
DVA.3-20-20-M6-*	20	20	M6	6	16	414871	220	5	44	412361	430	5	86	417571	995	5	199
DVA.3-20-25-M6-*	20	25	M6	6	19	414881	264	6	42	412371	433	6	69	417581	1010	6	162
DVA.3-25-20-M6-*	25	20	M6	6	26	414891	391	5	78	412381	620	5	124	417591	1533	5	307
DVA.3-25-25-M6-*	25	25	M6	6	29	414901	441	6	71	412386	529	6	85	417601	1374	6	220
DVA.3-25-30-M6-*	25	30	M6	6	25	414911	432	8	58	412391	524	8	70	417611	1208	8	161
DVA.3-30-20-M8-*	30	20	M8	8	39	414921	770	1	1100	412401	1067	1	1524	417621	2260	1	3229
DVA.3-30-30-M8-*	30	30	M8	8	45	414931	500	8	67	412421	1055	8	141	417631	1960	8	261
DVA.3-30-40-M8-*	30	40	M8	8	53	414941	700	10	70	412431	2100	10	210	417641	2400	10	240
DVA.3-40-20-M8-*	40	20	M8	8	64	414950	815	3	255	412440	2650	5	530	417650	6200	2	2818
DVA.3-40-30-M8-*	40	30	M8	8	80	414951	1137	8	152	412441	1574	8	210	417651	3420	8	456
DVA.3-40-40-M8-*	40	40	M8	8	98	414961	1056	10	106	412461	1397	10	140	417661	3190	10	319
DVA.3-50-30-M10-*	50	30	M10	10	125	414971	2010	8	268	412463	3300	8	440	417671	5450	8	727
DVA.3-50-40-M10-*	50	40	M10	10	150	414981	1477	10	148	412466	2130	10	213	417681	4940	10	494
DVA.3-50-50-M10-*	50	50	M10	10	125	414991	1500	11	133	412469	2188	11	194	417691	4750	11	422
DVA.3-60-30-M10-*	60	30	M10	10	189	415001	3020	8	403	412471	4170	8	556	417701	9130	8	1217
DVA.3-60-40-M10-*	60	40	M10	10	220	415011	2520	10	252	412476	3610	10	361	417711	6950	10	695
DVA.3-60-50-M10-*	60	50	M10	10	310	415013	2930	13	234	412479	3410	13	273	417713	7125	13	570
DVA.3-70-30-M10-*	70	30	M10	10	305	415020	3168	4	792	412480	4900	4	1225	417720	7250	3	2417
DVA.3-70-45-M10-*	70	45	M10	10	335	415021	3810	11	339	412481	7130	11	624	417721	13210	11	1174
DVA.3-75-30-M12-*	75	30	M12	12	320	415030	6880	3	2293	412500	9895	3	3192	417730	25000	5	5000
DVA.3-75-40-M12-*	75	40	M12	12	360	415031	4910	10	491	412501	6970	10	697	417731	15380	10	1538
DVA.3-75-55-M12-*	75	55	M12	12	445	415041	3470	14	252	412521	7510	14	546	417741	11240	14	817
DVA.3-100-40-M16-*	100	40	M16	16	690	415051	13990	10	1399	412541	20000	10	2000	417751	29000	10	2900
DVA.3-100-55-M16-*	100	55	M16	16	765	415061	7320	14	532	412551	13080	14	951	417761	24260	14	1764
DVA.3-100-60-M16-*	100	60	M16	16	885	415071	7000	15	467	412561	11290	15	753	417771	28500	15	1900
DVA.3-100-75-M16-*	100	75	M16	16	965	415081	7790	19	415	412581	9640	19	514	417781	22350	19	1192
DVA.3-125-55-M16-*	125	55	M16	16	1320	415091	18240	14	1327	412591	19260	14	1401	417791	25000	8	3185
DVA.3-125-75-M16-*	125	75	M16	16	1500	415093	13380	19	714	412593	19440	19	1037	417793	23751	19	1267

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DVA.1 - DVA.2 - DVA.3 | Vibration-damping elements

DVA.3 - 8 - 8 - SST - M3 - 55
D L Stainless steel d Shore A

DVA.3



STAINLESS STEEL

Description	D	L	d	h	⚖	Hardness 40 Shore A				Hardness 55 Shore A				Hardness 70 Shore A			
						Code	Max load [N]	Max deflection [mm]	Stiffness [N/mm]	Code	Max load [N]	Max deflection [mm]	Stiffness [N/mm]	Code	Max load [N]	Max deflection [mm]	Stiffness [N/mm]
DVA.3-8-8-SST-M3-55	8	8	M3	3	1		50	2	25	410201	85	2	43		150	2	75
DVA.3-8-13-SST-M3-55	8	13	M3	3	2		41	3	13	410203	74	3	23		152	3	47
DVA.3-10-10-SST-M4-55	10	10	M4	4	2		75	3	30	410205	100	3	40		200	3	80
DVA.3-10-15-SST-M4-55	10	15	M4	4	3		65	4	17	410207	100	4	27		150	4	40
DVA.3-10-20-SST-M4-55	10	20	M4	4	3		54	5	11	410209	108	5	22		201	5	40
DVA.3-15-10-SST-M4-55	15	10	M4	4	4		210	2	105	410213	325	2	163		717	2	359
DVA.3-15-15-SST-M4-55	15	15	M4	4	6		155	4	41	410215	280	4	75		513	4	137
DVA.3-15-20-SST-M4-55	15	20	M4	4	8		151	5	30	410217	234	5	47		468	5	94
DVA.3-20-15-SST-M6-55	20	15	M6	6	13		175	2	117	410221	227	2	151		550	2	367
DVA.3-20-20-SST-M6-55	20	20	M6	6	16		220	5	44	410223	430	5	86		995	5	199
DVA.3-20-25-SST-M6-55	20	25	M6	6	19		264	6	42	410225	433	6	69		1010	6	162
DVA.3-25-20-SST-M6-55	25	20	M6	6	26		391	5	78	410231	620	5	124		1533	5	307
DVA.3-25-25-SST-M6-55	25	25	M6	6	29		441	6	71	410233	529	6	85		1374	6	220
DVA.3-25-30-SST-M6-55	25	30	M6	6	25		432	8	58	410237	524	8	70		1208	8	161
DVA.3-30-20-SST-M8-55	30	20	M8	8	39		770	1	1100	410241	1067	1	1524		2260	1	3229
DVA.3-30-30-SST-M8-55	30	30	M8	8	45		500	8	67	410243	1055	8	141		1960	8	261
DVA.3-30-40-SST-M8-55	30	40	M8	8	53	ON REQUEST	700	10	70	410245	2100	10	210	ON REQUEST	2400	10	240
DVA.3-40-20-SST-M8-55	40	20	M8	8	64		815	3	255	410251	2650	5	530		6200	2	2818
DVA.3-40-30-SST-M8-55	40	30	M8	8	80		1137	8	152	410253	1574	8	210		3420	8	456
DVA.3-40-40-SST-M8-55	40	40	M8	8	98		1056	10	106	410255	1397	10	140		3190	10	319
DVA.3-50-30-SST-M10-55	50	30	M10	10	125		2010	8	268	410263	3300	8	440		5450	8	727
DVA.3-50-40-SST-M10-55	50	40	M10	10	150		1477	10	148	410265	2130	10	213		4940	10	494
DVA.3-50-50-SST-M10-55	50	50	M10	10	125		1500	11	133	410269	2188	11	194		4750	11	422
DVA.3-60-30-SST-M10-55	60	30	M10	10	189		3020	8	403	410271	4170	8	556		9130	8	1217
DVA.3-60-40-SST-M10-55	60	40	M10	10	220		2520	10	252	410273	3610	10	361		6950	10	695
DVA.3-60-50-SST-M10-55	60	50	M10	10	310		2930	13	234	410275	3410	13	273		7125	13	570
DVA.3-70-30-SST-M10-55	70	30	M10	10	305		3168	4	792	410276	4900	4	1225		7250	3	2417
DVA.3-70-45-SST-M10-55	70	45	M10	10	335		3810	11	339	410277	7130	11	624		13210	11	1174
DVA.3-75-30-SST-M12-55	75	30	M12	12	320		6880	3	2293	410281	9895	3	3192		25000	5	5000
DVA.3-75-40-SST-M12-55	75	40	M12	12	360		4910	10	491	410283	6970	10	697		15380	10	1538
DVA.3-75-55-SST-M12-55	75	55	M12	12	445		3470	14	252	410285	7510	14	546		11240	14	817
DVA.3-100-40-SST-M16-55	100	40	M16	16	690		13990	10	1399	410291	20000	10	2000		29000	10	2900
DVA.3-100-55-SST-M16-55	100	55	M16	16	765		7320	14	532	410293	13080	14	951		24260	14	1764
DVA.3-100-60-SST-M16-55	100	60	M16	16	885		7000	15	467	410295	11290	15	753		28500	15	1900
DVA.3-100-75-SST-M16-55	100	75	M16	16	965		7790	19	415	410297	9640	19	514		22350	19	1192
DVA.3-125-55-SST-M16-55	125	55	M16	16	1320		18240	14	1327	410298	19260	14	1401		25000	8	3185
DVA.3-125-75-SST-M16-55	125	75	M16	16	1500		13380	19	714	410299	19440	19	1037		23751	19	1267

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DVA.4 - DVA.5

Vibration-damping elements

Rubber and steel or stainless steel

BASE
- **DVA**: zinc-plated steel.
- **DVA-SST**: AISI 304 stainless steel.

VIBRATION-DAMPING BODY
Natural rubber NR, hardness 40, 55, 70 tolerance ±5 Shore A, black colour.

STANDARD EXECUTIONS
- **DVA.4**: zinc-plated steel threaded stud.
- **DVA.4-SST**: AISI 304 stainless steel threaded stud.
- **DVA.5**: zinc-plated steel boss, threaded blind hole.
- **DVA.5-SST**: AISI 304 stainless steel boss, threaded blind hole.

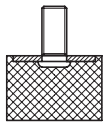
FEATURES AND APPLICATION
The vibration-damping elements have been designed to damp vibrations, shocks and noises produced by moving bodies or non-balanced vibrating masses of equipment and machines which can cause:
- malfunctioning and reduction of the machine lifespan and/or of the adjacent ones;
- damage to health;
- noise.

Load diagrams for each single code are available on request.
See technical data and guidelines for the choice on page A53.

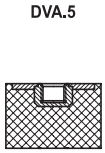
SPECIAL EXECUTIONS ON REQUEST
Natural rubber NR, hardness 40, 70 tolerance ±5 Shore A for executions with AISI 304 stainless steel base.



DVA.4



DVA.5



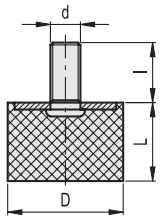
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DVA.4 - DVA.5 | Vibration-damping elements

* Complete the description with the desired hardness: 40, 55 or 70 tolerance ±5 Shore A.

DVA.4 - 8 - 8 - M3 - 6 - 55
D L d l Shore A

DVA.4

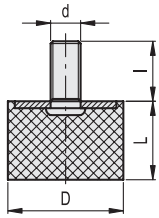


Description	D	L	d	l	⚖	Hardness 40 Shore A				Hardness 55 Shore A				Hardness 70 Shore A			
						Code	Max load [N]	Max deflection [mm]	Stiffness [N/mm]	Code	Max load [N]	Max deflection [mm]	Stiffness [N/mm]	Code	Max load [N]	Max deflection [mm]	Stiffness [N/mm]
DVA.4-8-8-M3-6-*	8	8	M3	6	3	415201	34	2	17	412700	55	2	28	417901	141	2	71
DVA.4-8-13-M3-6-*	8	13	M3	6	1	415205	33	3	10	412699	50	3	15	417905	133	3	41
DVA.4-10-10-M4-10-*	10	10	M4	10	2	415211	54	3	21	412701	88	3	35	417911	217	3	87
DVA.4-10-15-M4-10-*	10	15	M4	10	3	415221	69	4	18	412703	92	4	25	417921	175	4	47
DVA.4-10-20-M4-10-*	10	20	M4	10	3	415223	54	5	11	412705	95	5	19	417923	156	5	31
DVA.4-15-10-M4-10-*	15	10	M4	10	4	415231	110	2	55	412706	168	2	84	417931	410	2	205
DVA.4-15-15-M4-10-*	15	15	M4	10	5	415241	141	4	38	412709	259	4	69	417941	384	4	102
DVA.4-15-20-M4-10-*	15	20	M4	10	7	415251	134	5	27	412711	223	5	45	417951	590	5	118
DVA.4-15-30-M4-10-*	15	30	M4	10	9	415261	125	8	17	412716	258	8	34	417961	392	8	52
DVA.4-20-10-M6-18-*	20	10	M6	18	15	415271	390	3	156	412721	645	3	258	417971	940	3	376
DVA.4-20-15-M6-18-*	20	15	M6	18	10	415281	289	4	77	412741	468	4	125	417981	704	4	188
DVA.4-20-20-M6-18-*	20	20	M6	18	13	415291	258	5	52	412746	367	5	73	417991	809	5	162
DVA.4-20-30-M6-18-*	20	30	M6	18	23	415301	237	8	32	412751	420	8	56	418001	848	8	113
DVA.4-25-15-M6-18-*	25	15	M6	18	18	415311	485	4	129	412756	797	4	213	418011	1627	4	434
DVA.4-25-17-M6-18-*	25	17	M6	18	20	415321	422	4	99	412761	833	4	196	418021	1726	4	406
DVA.4-25-20-M6-18-*	25	20	M6	18	20	415331	416	5	83	412766	581	5	116	418031	1382	5	276
DVA.4-25-30-M6-18-*	25	30	M6	18	25	415341	290	8	39	412771	591	8	79	418041	1186	8	158
DVA.4-30-15-M8-20-*	30	15	M8	20	30	415351	746	4	199	412776	1023	4	273	418051	2610	4	696
DVA.4-30-17-M8-20-*	30	17	M8	20	31	415361	772	4	182	412781	1275	4	300	418061	2447	4	576
DVA.4-30-20-M8-20-*	30	20	M8	20	35	415371	567	5	113	412801	1014	5	203	418071	1878	5	376
DVA.4-30-25-M8-20-*	30	25	M8	20	38	415381	576	6	92	412811	1026	6	164	418081	1591	6	255
DVA.4-30-30-M8-20-*	30	30	M8	20	43	415391	601	8	80	412821	776	8	103	418091	1616	8	215
DVA.4-40-20-M8-23-*	40	20	M8	23	55	415401	1200	5	240	412831	2500	5	500	418101	4750	5	950
DVA.4-40-25-M8-23-*	40	25	M8	23	60	415411	1170	6	187	412836	1660	6	266	418111	4130	6	661
DVA.4-40-30-M8-23-*	40	30	M8	23	73	415421	1140	8	152	412841	1480	8	197	418121	2830	8	377
DVA.4-40-40-M8-23-*	40	40	M8	23	83	415431	995	10	100	412861	1403	10	140	418131	3150	10	315
DVA.4-50-20-M10-28-*	50	20	M10	28	90	415441	2680	5	536	412881	3460	5	692	418141	7450	5	1490
DVA.4-50-30-M10-28-*	50	30	M10	28	118	415451	1820	8	243	412901	2520	8	336	418151	5420	8	723
DVA.4-50-40-M10-28-*	50	40	M10	28	140	415461	1430	10	143	412921	2760	10	276	418161	4950	10	495
DVA.4-50-50-M10-28-*	50	50	M10	28	155	415463	1366	13	109	412923	2700	13	216	418163	4190	13	335
DVA.4-60-20-M10-28-*	60	20	M10	28	219	415471	1885	5	377	412931	3850	5	770	418171	11990	5	2398
DVA.4-60-40-M10-28-*	60	40	M10	28	195	415481	2600	10	260	412936	3540	10	354	418181	4640	10	464
DVA.4-60-60-M10-28-*	60	60	M10	28	312	415485	2530	15	169	412939	3480	15	232	418185	8110	15	541
DVA.4-70-30-M10-28-*	70	30	M10	28	280	415490	4930	8	657	412940	7170	8	956	418190	13070	8	1743
DVA.4-70-40-M10-28-*	70	40	M10	28	265	415491	3850	10	385	412941	6280	10	628	418191	15280	10	1528
DVA.4-70-55-M10-28-*	70	55	M10	28	357	415501	3320	14	241	412951	5770	14	420	418201	9510	14	692
DVA.4-75-25-M12-37-*	75	25	M12	37	223	415511	6560	6	1050	412961	9660	6	1546	418211	20780	6	3325
DVA.4-75-40-M12-37-*	75	40	M12	37	310	415521	5010	10	501	412971	6680	10	668	418221	9170	10	917
DVA.4-75-50-M12-37-*	75	50	M12	37	340	415531	3970	13	318	412981	5570	13	446	418231	13550	13	1084
DVA.4-100-40-M16-41-*	100	40	M16	41	570	415541	9430	10	943	413001	12110	10	1211	418241	24190	10	2419
DVA.4-100-50-M16-41-*	100	50	M16	41	655	415551	8320	13	666	413011	14040	13	1123	418251	22900	13	1832
DVA.4-100-60-M16-41-*	100	60	m16	41	830	415561	7440	15	496	413021	12950	15	863	418261	21450	15	1430
DVA.4-125-55-M16-41-*	125	55	M16	41	1055	415581	19700	14	1433	413025	23790	14	1730	418271	25000	11	2212
DVA.4-125-75-M16-41-*	125	75	M16	41	1425	415591	17600	19	939	413027	20123	19	1073	418281	24780	19	1322

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DVA.4 - DVA.5 | Vibration-damping elements

DVA.4 - 8 - 8 - SST - M3 - 6 - 55
D L Stainless steel d l Shore A



DVA.4

STAINLESS STEEL

Description	D	L	d	l	⚖	Hardness 40 Shore A				Hardness 55 Shore A				Hardness 70 Shore A			
						Code	Max load [N]	Max deflection [mm]	Stiffness [N/mm]	Code	Max load [N]	Max deflection [mm]	Stiffness [N/mm]	Code	Max load [N]	Max deflection [mm]	Stiffness [N/mm]
DVA.4-8-8-SST-M3-6-55	8	8	M3	6	3		34	2	17	410301	55	2	28		141	2	71
DVA.4-8-13-SST-M3-6-55	8	13	M3	6	1		33	3	10	410303	50	3	15		133	3	41
DVA.4-10-10-SST-M4-10-55	10	10	M4	10	2		54	3	21	410305	88	3	35		217	3	87
DVA.4-10-15-SST-M4-10-55	10	15	M4	10	3		69	4	18	410307	92	4	25		175	4	47
DVA.4-10-20-SST-M4-10-55	10	20	M4	10	3		54	5	11	410309	95	5	19		156	5	31
DVA.4-15-10-SST-M4-10-55	15	10	M4	10	4		110	2	55	410311	168	2	84		410	2	205
DVA.4-15-15-SST-M4-10-55	15	15	M4	10	5		141	4	38	410313	259	4	69		384	4	102
DVA.4-15-20-SST-M4-10-55	15	20	M4	10	7		134	5	27	410315	223	5	45		590	5	118
DVA.4-15-30-SST-M4-10-55	15	30	M4	10	9		125	8	17	410317	258	8	34		392	8	52
DVA.4-20-10-SST-M6-18-55	20	10	M6	18	15		390	3	156	410321	645	3	258		940	3	376
DVA.4-20-15-SST-M6-18-55	20	15	M6	18	10		289	4	77	410323	468	4	125		704	4	188
DVA.4-20-20-SST-M6-18-55	20	20	M6	18	13		258	5	52	410325	367	5	73		809	5	162
DVA.4-20-30-SST-M6-18-55	20	30	M6	18	23		237	8	32	410327	420	8	56		848	8	113
DVA.4-25-15-SST-M6-18-55	25	15	M6	18	18		485	4	129	410331	797	4	213		1627	4	434
DVA.4-25-17-SST-M6-18-55	25	17	M6	18	20		422	4	99	410333	833	4	196		1726	4	406
DVA.4-25-20-SST-M6-18-55	25	20	M6	18	20		416	5	83	410335	581	5	116		1382	5	276
DVA.4-25-30-SST-M6-18-55	25	30	M6	18	25		290	8	39	410337	591	8	79		1186	8	158
DVA.4-30-15-SST-M8-20-55	30	15	M8	20	30		746	4	199	410341	1023	4	273		2610	4	696
DVA.4-30-17-SST-M8-20-55	30	17	M8	20	31		772	4	182	410343	1275	4	300		2447	4	576
DVA.4-30-20-SST-M8-20-55	30	20	M8	20	35	ON REQUEST	567	5	113	410345	1014	5	203	ON REQUEST	1878	5	376
DVA.4-30-25-SST-M8-20-55	30	25	M8	20	38		576	6	92	410347	1026	6	164		1591	6	255
DVA.4-30-30-SST-M8-20-55	30	30	M8	20	43		601	8	80	410349	776	8	103		1616	8	215
DVA.4-40-20-SST-M8-23-55	40	20	M8	23	55		1200	5	240	410351	2500	5	500		4750	5	950
DVA.4-40-25-SST-M8-23-55	40	25	M8	23	60		1170	6	187	410353	1660	6	266		4130	6	661
DVA.4-40-30-SST-M8-23-55	40	30	M8	23	73		1140	8	152	410355	1480	8	197		2830	8	377
DVA.4-40-40-SST-M8-23-55	40	40	M8	23	83		995	10	100	410357	1403	10	140		3150	10	315
DVA.4-50-20-SST-M10-28-55	50	20	M10	28	90		2680	5	536	410361	3460	5	692		7450	5	1490
DVA.4-50-30-SST-M10-28-55	50	30	M10	28	118		1820	8	243	410363	2520	8	336		5420	8	723
DVA.4-50-40-SST-M10-28-55	50	40	M10	28	140		1430	10	143	410365	2760	10	276		4950	10	495
DVA.4-50-50-SST-M10-28-55	50	50	M10	28	155		1366	13	109	410367	2700	13	216		4190	13	335
DVA.4-60-20-SST-M10-28-55	60	20	M10	28	219		1885	5	377	410371	3850	5	770		11990	5	2398
DVA.4-60-40-SST-M10-28-55	60	40	M10	28	195		2600	10	260	410373	3540	10	354		4640	10	464
DVA.4-60-60-SST-M10-28-55	60	60	M10	28	312		2530	15	169	410375	3480	15	232		8110	15	541
DVA.4-70-30-SST-M10-28-55	70	30	M10	28	280		4930	8	657	410376	7170	8	956		13070	8	1743
DVA.4-70-40-SST-M10-28-55	70	40	M10	28	265		3850	10	385	410377	6280	10	628		15280	10	1528
DVA.4-70-55-SST-M10-28-55	70	55	M10	28	357		3320	14	241	410379	5770	14	420		9510	14	692
DVA.4-75-25-SST-M12-37-55	75	25	M12	37	223		6560	6	1050	410381	9660	6	1546		20780	6	3325
DVA.4-75-40-SST-M12-37-55	75	40	M12	37	310		5010	10	501	410383	6680	10	668		9170	10	917
DVA.4-75-50-SST-M12-37-55	75	50	M12	37	340		3970	13	318	410385	5570	13	446		13550	13	1084
DVA.4-100-40-SST-M16-41-55	100	40	M16	41	570		9430	10	943	410391	12110	10	1211		24190	10	2419
DVA.4-100-50-SST-M16-41-55	100	50	M16	41	655		8320	13	666	410393	14040	13	1123		22900	13	1832
DVA.4-100-60-SST-M16-41-55	100	60	M16	41	830		7440	15	496	410395	12950	15	863		21450	15	1430
DVA.4-125-55-SST-M16-41-55	125	55	M16	41	1055		19700	14	1433	410396	23790	14	1730		25000	11	2212
DVA.4-125-75-SST-M16-41-55	125	75	M16	41	1425		17600	19	939	410397	20123	19	1073		24780	19	1322

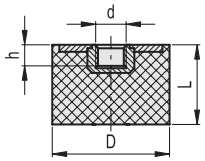
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DVA.4 - DVA.5 | Vibration-damping elements

* Complete the description with the desired hardness: 40, 55 or 70 tolerance ±5 Shore A.

DVA.5 - 10 - 10 - M4 - 55
D L d Shore A

DVA.5

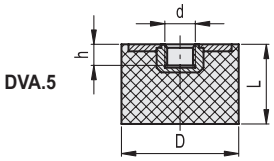


Description	D	L	d	h	⚖	Hardness 40 Shore A				Hardness 55 Shore A				Hardness 70 Shore A			
						Code	Max load [N]	Max deflection [mm]	Stiffness [N/mm]	Code	Max load [N]	Max deflection [mm]	Stiffness [N/mm]	Code	Max load [N]	Max deflection [mm]	Stiffness [N/mm]
DVA.5-8-8-M3-*	8	8	M3	3	1	415691	34	2	17	413029	55	2	28	418391	141	2	71
DVA.5-8-13-M3-*	8	13	M3	3	2	415693	33	3	10	413030	52	3	16	418393	133	3	41
DVA.5-10-10-M4-*	10	10	M4	4	2	415701	54	3	21	413031	88	3	35	418401	217	3	87
DVA.5-10-15-M4-*	10	15	M4	4	2	415703	69	4	18	413033	92	4	25	418403	175	4	47
DVA.5-15-15-M4-*	15	15	M4	4	5	415711	141	4	38	413041	259	4	69	418411	384	4	102
DVA.5-15-20-M4-*	15	20	M4	4	6	415721	134	5	27	413051	223	5	45	418421	590	5	118
DVA.5-20-15-M6-*	20	15	M6	6	10	415731	289	4	77	413061	468	4	125	418431	704	4	188
DVA.5-20-20-M6-*	20	20	M6	6	11	415741	258	5	52	413071	367	5	73	418441	809	5	162
DVA.5-20-25-M6-*	20	25	M6	6	13	415751	250	6	40	413081	437	6	70	418451	750	6	120
DVA.5-25-15-M6-*	25	15	M6	6	16	415761	485	4	129	413091	797	4	213	418461	1627	4	434
DVA.5-25-20-M6-*	25	20	M6	6	20	415771	416	5	83	413101	581	5	116	418471	1382	5	276
DVA.5-25-30-M6-*	25	30	M6	6	21	415781	290	8	39	413106	591	8	79	418481	1186	8	158
DVA.5-30-15-M8-*	30	15	M8	8	23	415791	746	3	249	413111	1023	3	341	418491	2610	3	870
DVA.5-30-17-M8-*	30	17	M8	8	25	415801	772	3	257	413121	1275	3	425	418501	2447	3	816
DVA.5-30-20-M8-*	30	20	M8	8	27	415811	567	5	113	413141	1014	5	203	418511	1878	5	376
DVA.5-30-30-M8-*	30	30	M8	8	34	415821	601	8	80	413146	776	8	103	418521	1616	8	215
DVA.5-30-40-M8-*	30	40	M8	8	43	415823	550	10	55	413148	780	10	78	418523	1785	10	179
DVA.5-40-20-M8-*	40	20	M8	8	45	415831	1200	5	240	413151	2500	5	500	418531	4750	5	950
DVA.5-40-30-M8-*	40	30	M8	8	65	415841	1140	8	152	413161	1480	8	197	418541	2830	8	377
DVA.5-40-40-M8-*	40	40	M8	8	75	415851	995	10	100	413171	1403	10	140	418551	3150	10	315
DVA.5-40-50-M8-*	40	50	M8	8	90	415853	1005	13	80	413173	1397	13	112	418553	2382	13	191
DVA.5-50-20-M10-*	50	20	M10	10	77	415861	2680	5	536	413181	3460	5	692	418561	7450	5	1490
DVA.5-50-30-M10-*	50	30	M10	10	100	415871	1820	8	243	413183	2520	8	336	418571	5420	8	723
DVA.5-50-40-M10-*	50	40	M10	10	115	415881	1430	10	143	413186	2760	10	276	418581	4950	10	495
DVA.5-60-30-M10-*	60	30	M10	10	141	415891	2800	8	373	413191	4350	8	580	418591	7500	8	1000
DVA.5-60-40-M10-*	60	40	M10	10	170	415895	2600	10	260	413192	3540	10	354	418595	4640	10	464
DVA.5-60-50-M10-*	60	50	M10	10	205	415901	2900	13	232	413193	4370	13	350	418601	9500	13	760
DVA.5-70-30-M10-*	70	30	M10	10	195	415907	4930	8	657	413195	7170	8	956	418607	13070	8	1743
DVA.5-70-40-M10-*	70	40	M10	10	255	415911	3850	10	385	413196	6280	10	628	418611	15280	10	1528
DVA.5-70-45-M10-*	70	45	M10	10	275	415921	3700	11	329	413201	6750	11	600	418621	8800	11	782
DVA.5-70-55-M10-*	70	55	M10	10	341	415931	3320	14	241	413211	5770	14	420	418631	9510	14	692
DVA.5-75-25-M12-*	75	25	M12	12	205	415941	6560	5	1312	413221	9660	5	1932	418641	20780	5	4156
DVA.5-75-30-M12-*	75	30	M12	12	210	415951	5400	8	720	413226	8700	8	1160	418651	15400	8	2053
DVA.5-75-40-M12-*	75	40	M12	12	290	415961	5010	10	501	413231	6680	10	668	418661	9170	10	917
DVA.5-75-50-M12-*	75	50	M12	12	345	415971	3970	13	318	413241	5570	13	446	418671	13550	13	1084
DVA.5-100-40-M16-*	100	40	M16	16	485	415981	9430	10	943	413261	12110	10	1211	418681	24190	10	2419
DVA.5-100-50-M16-*	100	50	M16	16	580	415991	8320	13	666	413281	14040	13	1123	418691	22900	13	1832
DVA.5-100-60-M16-*	100	60	M16	16	720	416001	7440	15	496	413291	12950	15	863	418701	21450	15	1430
DVA.5-125-55-M16-*	125	55	M16	16	1050	416021	21217	14	1543	413321	23790	13	1809	418721	23751	11	2102
DVA.5-125-75-M16-*	125	75	M16	16	1212	416031	18723	19	999	413331	22314	19	1190	418731	25000	18	1420

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DVA.4 - DVA.5 | Vibration-damping elements

DVA.5 - 10 - 10 - SST - M4 - 55
D L Stainless steel d Shore A



STAINLESS STEEL

Description	D	L	d	h	⚖	Hardness 40 Shore A				Hardness 55 Shore A				Hardness 70 Shore A			
						Code	Max load [N]	Max deflection [mm]	Stiffness [N/mm]	Code	Max load [N]	Max deflection [mm]	Stiffness [N/mm]	Code	Max load [N]	Max deflection [mm]	Stiffness [N/mm]
DVA.5-8-8-SST-M3-55	8	8	M3	3	1		34	2	17	410398	55	2	28		141	2	71
DVA.5-8-13-SST-M3-55	8	13	M3	3	2		33	3	10	410399	52	3	16		133	3	41
DVA.5-10-10-SST-M4-55	10	10	M4	4	2		54	3	21	410401	88	3	35		217	3	87
DVA.5-10-15-SST-M4-55	10	15	M4	4	2		69	4	18	410403	92	4	25		175	4	47
DVA.5-15-15-SST-M4-55	15	15	M4	4	5		141	4	38	410405	259	4	69		384	4	102
DVA.5-15-20-SST-M4-55	15	20	M4	4	6		134	5	27	410407	223	5	45		590	5	118
DVA.5-20-15-SST-M6-55	20	15	M6	6	10		289	4	77	410413	468	4	125		704	4	188
DVA.5-20-20-SST-M6-55	20	20	M6	6	11		258	5	52	410415	367	5	73		809	5	162
DVA.5-20-25-SST-M6-55	20	25	M6	6	13		250	6	40	410417	437	6	70		750	6	120
DVA.5-25-15-SST-M6-55	25	15	M6	6	16		485	4	129	410421	797	4	213		1627	4	434
DVA.5-25-20-SST-M6-55	25	20	M6	6	20		416	5	83	410425	581	5	116		1382	5	276
DVA.5-25-30-SST-M6-55	25	30	M6	6	21		290	8	39	410427	591	8	79		1186	8	158
DVA.5-30-15-SST-M8-55	30	15	M8	8	23		746	3	249	410431	1023	3	341		2610	3	870
DVA.5-30-17-SST-M8-55	30	17	M8	8	25		772	3	257	410433	1275	3	425		2447	3	816
DVA.5-30-20-SST-M8-55	30	20	M8	8	27		567	5	113	410435	1014	5	203		1878	5	376
DVA.5-30-30-SST-M8-55	30	30	M8	8	34		601	8	80	410437	776	8	103		1616	8	215
DVA.5-30-40-SST-M8-55	30	40	M8	8	43		550	10	55	410439	780	10	78		1785	10	179
DVA.5-40-20-SST-M8-55	40	20	M8	8	45	ON REQUEST	1200	5	240	410441	2500	5	500	ON REQUEST	4750	5	950
DVA.5-40-30-SST-M8-55	40	30	M8	8	65		1140	8	152	410443	1480	8	197		2830	8	377
DVA.5-40-40-SST-M8-55	40	40	M8	8	75		995	10	100	410445	1403	10	140		3150	10	315
DVA.5-40-50-SST-M8-55	40	50	M8	8	90		1005	13	80	410447	1397	13	112		2382	13	191
DVA.5-50-20-SST-M10-55	50	20	M10	10	77		2680	5	536	410451	3460	5	692		7450	5	1490
DVA.5-50-30-SST-M10-55	50	30	M10	10	100		1820	8	243	410453	2520	8	336		5420	8	723
DVA.5-50-40-SST-M10-55	50	40	M10	10	115		1430	10	143	410455	2760	10	276		4950	10	495
DVA.5-60-30-SST-M10-55	60	30	M10	10	141		2800	8	373	410461	4350	8	580		7500	8	1000
DVA.5-60-40-SST-M10-55	60	40	M10	10	170		2600	10	260	410462	3540	10	354		4640	10	464
DVA.5-60-50-SST-M10-55	60	50	M10	10	205		2900	13	232	410463	4370	13	350		9500	13	760
DVA.5-70-30-SST-M10-55	70	30	M10	10	195		4930	8	657	410470	7170	8	956		13070	8	1743
DVA.5-70-40-SST-M10-55	70	40	M10	10	255		3850	10	385	410471	6280	10	628		15280	10	1528
DVA.5-70-45-SST-M10-55	70	45	M10	10	275		3700	11	329	410473	6750	11	600		8800	11	782
DVA.5-70-55-SST-M10-55	70	55	M10	10	341		3320	14	241	410475	5770	14	420		9510	14	692
DVA.5-75-25-SST-M12-55	75	25	M12	12	205		6560	5	1312	410481	9660	5	1932		20780	5	4156
DVA.5-75-30-SST-M12-55	75	30	M12	12	210		5400	8	720	410483	8700	8	1160		15400	8	2053
DVA.5-75-40-SST-M12-55	75	40	M12	12	290		5010	10	501	410485	6680	10	668		9170	10	917
DVA.5-75-50-SST-M12-55	75	50	M12	12	345		3970	13	318	410487	5570	13	446		13550	13	1084
DVA.5-100-40-SST-M16-55	100	40	M16	16	485		9430	10	943	410491	12110	10	1211		24190	10	2419
DVA.5-100-50-SST-M16-55	100	50	M16	16	580		8320	13	666	410493	14040	13	1123		22900	13	1832
DVA.5-100-60-SST-M16-55	100	60	M16	16	720		7440	15	496	410495	12950	15	863		21450	15	1430
DVA.5-125-55-SST-M16-55	125	55	M16	16	1050		21217	14	1543	410496	23790	13	1809		23751	11	2102
DVA.5-125-75-SST-M16-55	125	75	M16	16	1212		18723	19	999	410497	22314	19	1190		25000	18	1420

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Vibration-damping elements

Rubber and steel or stainless steel



BASE
- **DVA**: zinc-plated steel.
- **DVA-SST**: AISI 304 stainless steel.

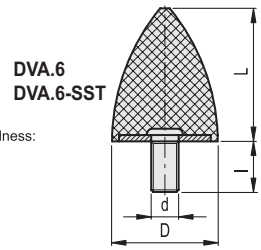
VIBRATION-DAMPING BODY
Natural rubber NR, hardness 40, 55, 70 tolerance ±5 Shore A, black colour.

STANDARD EXECUTIONS
- **DVA.6**: zinc-plated steel threaded stud.
- **DVA.6-SST**: AISI 304 stainless steel threaded stud.
- **DVA.7**: zinc-plated steel boss, threaded blind hole.
- **DVA.7-SST**: AISI 304 stainless steel boss, threaded blind hole.

FEATURES AND APPLICATIONS
The vibration-damping elements have been designed to damp vibrations, shocks and noises produced by moving bodies or non-balanced vibrating masses of equipment and machines which can cause:
- malfunctioning and reduction of the machine lifespan and/or of the adjacent ones;
- damage to health;
- noise.

Load diagrams for each single code are available on request.
See technical data and guidelines for the choice on page A53.

SPECIAL EXECUTIONS ON REQUEST
Natural rubber NR, hardness 40, 70 tolerance ±5 Shore A for executions with AISI 304 stainless steel base.



* Complete the description with the desired hardness: 40, 55 or 70 tolerance ±5 Shore A.

DVA.6 - 20 - 24 - M6 -18 - 55
D L d l Shore A

Description	D	L	d	l	⚖	Hardness 40 Shore A				Hardness 55 Shore A				Hardness 70 Shore A			
						Code	Max load [N]	Max deflection [mm]	Stiffness [N/mm]	Code	Max load [N]	Max deflection [mm]	Stiffness [N/mm]	Code	Max load [N]	Max deflection [mm]	Stiffness [N/mm]
DVA.6-10-10-M5-12-*	10	10	M5	12	2	416991	46	3	14	413381	59	3	20	418791	113	3	40
DVA.6-20-15-M6-18-*	20	15	M6	18	9	416997	84	5	17	413397	194	4	48	418797	321	4	78
DVA.6-20-24-M6-18-*	20	24	M6	18	10	416101	82	6	14	413401	130	6	22	418801	330	6	55
DVA.6-25-20-M6-18-*	25	20	M6	18	15	416107	84	5	17	413407	190	5	38	418807	495	5	96
DVA.6-30-30-M8-18-*	30	30	M8	18	24	416111	190	8	25	413411	260	8	35	418811	630	8	84
DVA.6-30-36-M8-20-*	30	36	M8	20	39	416121	180	9	20	413421	320	9	36	418821	650	9	72
DVA.6-35-40-M8-23-*	35	40	M8	23	45	416131	260	10	26	413431	300	10	30	418831	630	10	63
DVA.6-50-50-M10-28-*	50	50	M10	28	110	416137	481	13	38	413437	740	13	59	418837	1656	13	132
DVA.6-50-61-M8-28-*	50	61	M8	28	114	416141	490	15	32	413441	600	15	39	418841	1520	15	100
DVA.6-50-68-M10-28-*	50	68	M10	28	131	416151	490	17	29	413451	890	17	52	418851	1950	17	115
DVA.6-70-58-M12-37-*	70	58	M12	37	258	416171	769	15	53	413471	1332	15	92	418871	1923	15	133
DVA.6-75-89-M12-37-*	75	89	M12	37	373	416181	971	22	44	413481	1680	22	76	418881	2328	22	105

STAINLESS STEEL

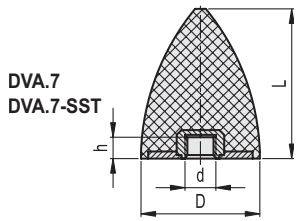
Description	D	L	d	l	⚖	Hardness 40 Shore A				Hardness 55 Shore A				Hardness 70 Shore A			
						Code	Max load [N]	Max deflection [mm]	Stiffness [N/mm]	Code	Max load [N]	Max deflection [mm]	Stiffness [N/mm]	Code	Max load [N]	Max deflection [mm]	Stiffness [N/mm]
DVA.6-10-10-SST-M5-12-55	10	10	M5	12	2	ON REQUEST	46	3	14	410499	59	3	20	ON REQUEST	113	3	40
DVA.6-20-15-SST-M6-18-55	20	15	M6	18	9		84	5	17	410500	194	4	48		321	4	78
DVA.6-20-24-SST-M6-18-55	20	24	M6	18	10		82	6	14	410501	130	6	22		330	6	55
DVA.6-25-20-SST-M6-18-55	25	20	M6	18	15		84	5	17	410503	190	5	38		495	5	96
DVA.6-30-30-SST-M8-18-55	30	30	M8	18	24		190	8	25	410505	260	8	35		630	8	84
DVA.6-30-36-SST-M8-20-55	30	36	M8	20	39		180	9	20	410507	320	9	36		650	9	72
DVA.6-35-40-SST-M8-23-55	35	40	M8	23	45		260	10	26	410511	300	10	30		630	10	63
DVA.6-50-50-SST-M10-28-55	50	50	M10	28	110		481	13	38	410519	740	13	59		1656	13	132
DVA.6-50-61-SST-M8-28-55	50	61	M8	28	114		490	15	32	410521	600	15	39		1520	15	100
DVA.6-50-68-SST-M10-28-55	50	68	M10	28	131		490	17	29	410523	890	17	52		1950	17	115
DVA.6-70-58-SST-M12-37-55	70	58	M12	37	258		769	15	53	410551	1332	15	92		1923	15	133
DVA.6-75-89-SST-M12-37-55	75	89	M12	37	373		971	22	44	410561	1680	22	76		2328	22	105

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DVA.6 - DVA.7 | Vibration-damping elements

* Complete the description with the desired hardness: 40, 55 or 70 tolerance ±5 Shore A.

DVA.7 - 20 - 24 - M6 - 55
D L d Shore A



Description	D	L	d	h	⚖	Hardness 40 Shore A				Hardness 55 Shore A				Hardness 70 Shore A			
						Code	Max load [N]	Max deflection [mm]	Stiffness [N/mm]	Code	Max load [N]	Max deflection [mm]	Stiffness [N/mm]	Code	Max load [N]	Max deflection [mm]	Stiffness [N/mm]
DVA.7-10-10-M5-*	10	10	M5	5	2	416271	46	3	14	413571	59	3	20	418971	113	3	40
DVA.7-20-15-M6-*	20	15	M6	6	7	416297	84	5	17	413597	194	4	48	418997	321	4	78
DVA.7-20-24-M6-*	20	24	M6	6	8	416301	82	6	14	413601	130	6	22	419001	330	6	55
DVA.7-25-20-M6-*	25	20	M6	6	15	416307	84	5	17	413607	190	5	38	419007	495	5	96
DVA.7-30-30-M8-*	30	30	M8	8	28	416311	190	8	25	413611	260	8	35	419011	630	8	84
DVA.7-30-36-M8-*	30	36	M8	8	30	416321	180	9	20	413621	320	9	36	419021	650	9	72
DVA.7-35-40-M8-*	35	40	M8	8	43	416331	260	10	26	413631	300	10	30	419031	630	10	63
DVA.7-50-50-M10-*	50	50	M10	10	100	416337	481	13	38	413637	835	13	67	419037	1147	13	92
DVA.7-50-61-M8-*	50	61	M8	8	114	416341	490	15	32	413641	600	15	39	419041	1520	15	100
DVA.7-50-68-M10-*	50	68	M10	10	120	416351	490	17	29	413651	890	17	52	419051	1950	17	115
DVA.7-70-58-M12-*	70	58	M12	12	230	416371	890	15	61	413671	1390	15	96	419071	1923	15	133
DVA.7-75-89-M12-*	75	89	M12	12	373	416381	971	22	44	413681	1675	22	75	419081	2328	22	105

DVA.7 - 20 - 24 - SST - M6 - 55
D L Stainless steel d Shore A

STAINLESS STEEL

Description	D	L	d	h	⚖	Hardness 40 Shore A				Hardness 55 Shore A				Hardness 70 Shore A			
						Code	Max load [N]	Max deflection [mm]	Stiffness [N/mm]	Code	Max load [N]	Max deflection [mm]	Stiffness [N/mm]	Code	Max load [N]	Max deflection [mm]	Stiffness [N/mm]
DVA.7-10-10-SST-M5-55	10	10	M5	5	2		46	3	14	410581	59	3	20		113	3	40
DVA.7-20-15-SST-M6-55	20	15	M6	6	7		84	5	17	410597	194	4	48		321	4	78
DVA.7-20-24-SST-M6-55	20	24	M6	6	8		82	6	14	410601	130	6	22		330	6	55
DVA.7-25-20-SST-M6-55	25	20	M6	6	15		84	5	17	410606	190	5	38		495	5	96
DVA.7-30-30-SST-M8-55	30	30	M8	8	28		190	8	25	410611	260	8	35		630	8	84
DVA.7-30-36-SST-M8-55	30	36	M8	8	30		180	9	20	410613	320	9	36		650	9	72
DVA.7-35-40-SST-M8-55	35	40	M8	8	43		260	10	26	410621	300	10	30		630	10	63
DVA.7-50-50-SST-M10-55	50	50	M10	10	100		481	13	38	410627	835	13	67		1147	13	92
DVA.7-50-61-SST-M8-55	50	61	M8	8	114		490	15	32	410631	600	15	39		1520	15	100
DVA.7-50-68-SST-M10-55	50	68	M10	10	120		490	17	29	410633	890	17	52		1950	17	115
DVA.7-70-58-SST-M12-55	70	58	M12	12	230		890	15	61	410651	1390	15	96		1923	15	133
DVA.7-75-89-SST-M12-55	75	89	M12	12	373		971	22	44	410661	1675	22	75		2328	22	105

ON REQUEST

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Vibration-damping elements

Rubber and steel or stainless steel

VIBRATION-DAMPING BODY

Natural rubber NR, black colour.
Hardness 40, 55, 70 Shore A ±5.

STANDARD EXECUTIONS

- **DVB.6**: zinc-plated steel plate and threaded stud.
- **DVB.6-SST**: AISI 304 stainless steel plate and threaded stud.
- **DVB.7**: zinc-plated steel plate and boss, threaded blind hole.
- **DVB.7-SST**: AISI 304 stainless steel plate and boss, threaded blind hole.

FEATURES AND APPLICATIONS

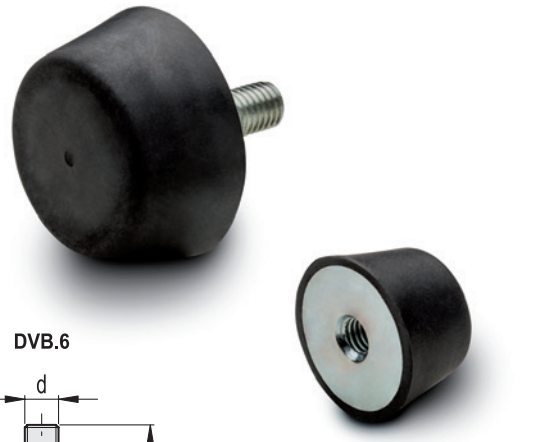
DVB. vibration-damping elements have been designed to damp vibrations, shocks and noises produced by moving bodies or non-balanced vibrating masses of equipment and machines.
DVB elements are generally used as a bumper or as a limit stop for the absorption of vibrations.
Vibrations can cause:

- malfunctioning and reduction of the machine lifespan and/or of the adjacent ones;
- damage to operator's health;
- noise.

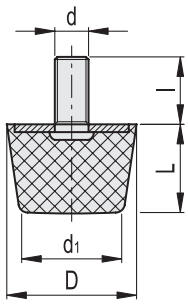
Load diagrams for each single code are available on request.
See technical data and guidelines for the choice on page A53

SPECIAL EXECUTIONS ON REQUEST

Natural rubber NR, hardness 40, 70 Shore A ±5 for the executions with AISI 304 stainless steel base.



DVB.6



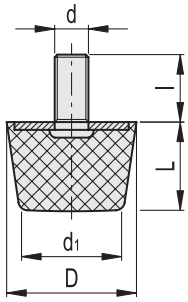
* Complete the description with the desired hardness: 40, 55 or 70 tolerance ±5 Shore A.

DVB.6 - 20 - 17 - M5 - 6 - 55
D L d l Shore A

Description	D	L	d	d1	l	⚖	Hardness 40 Shore A				Hardness 55 Shore A				Hardness 70 Shore A			
							Code	Max load [N]	Max deflection [mm]	Stiffness [N/mm]	Code	Max load [N]	Max deflection [mm]	Stiffness [N/mm]	Code	Max load [N]	Max deflection [mm]	Stiffness [N/mm]
DVB.6-20-17-M5-6-*	20	17	M5	10	6	10	432201	358	4,25	84	432001	407	4,25	96	432401	468	4,25	110
DVB.6-20-17-M5-10-*	20	17	M5	10	10	12	432202	358	4,25	84	432002	407	4,25	96	432402	468	4,25	110
DVB.6-20-17-M5-20-*	20	17	M5	10	20	16	432203	358	4,25	84	432003	407	4,25	96	432403	468	4,25	110
DVB.6-20-17-M6-12-*	20	17	M6	10	12	13	432211	358	4,25	84	432011	407	4,25	96	432411	468	4,25	110
DVB.6-20-17-M6-18-*	20	17	M6	10	18	17	432212	358	4,25	84	432012	407	4,25	96	432412	468	4,25	110
DVB.6-20-17-M6-25-*	20	17	M6	10	25	21	432213	358	4,25	84	432013	407	4,25	96	432413	468	4,25	110
DVB.6-25-17-M6-8-*	25	17	M6	19	8	26	432221	261	4,25	61	432021	293	4,25	69	432421	374	4,25	88
DVB.6-25-17-M6-12-*	25	17	M6	19	12	29	432222	261	4,25	61	432022	293	4,25	69	432422	374	4,25	88
DVB.6-25-17-M6-18-*	25	17	M6	19	18	34	432223	261	4,25	61	432023	293	4,25	69	432423	374	4,25	88
DVB.6-25-17-M6-25-*	25	17	M6	19	25	40	432224	261	4,25	61	432024	293	4,25	69	432424	374	4,25	88
DVB.6-32-22-M8-10-*	32	22	M8	24	10	36	432231	492	5,5	89	432031	638	5,5	116	432431	813	5,5	148
DVB.6-32-22-M8-16-*	32	22	M8	24	16	48	432232	492	5,5	89	432032	638	5,5	116	432432	813	5,5	148
DVB.6-32-22-M8-23-*	32	22	M8	24	23	53	432233	492	5,5	89	432033	638	5,5	116	432433	813	5,5	148
DVB.6-32-22-M8-30-*	32	22	M8	24	30	60	432234	492	5,5	89	432034	638	5,5	116	432434	813	5,5	148
DVB.6-38-35-M8-10-*	38	35	M8	30	10	67	432241	840	8,75	96	432041	1117	8,75	128	432441	1432	8,75	164
DVB.6-38-35-M8-16-*	38	35	M8	30	16	72	432242	840	8,75	96	432042	1117	8,75	128	432442	1432	8,75	164
DVB.6-38-35-M8-30-*	38	35	M8	30	30	86	432243	840	8,75	96	432043	1117	8,75	128	432443	1432	8,75	164
DVB.6-38-35-M10-12-*	38	35	M10	30	12	110	432251	840	8,75	96	432051	1117	8,75	128	432451	1432	8,75	164
DVB.6-38-35-M10-20-*	38	35	M10	30	20	128	432252	840	8,75	96	432052	1117	8,75	128	432452	1432	8,75	164
DVB.6-38-35-M10-28-*	38	35	M10	30	28	142	432253	840	8,75	96	432053	1117	8,75	128	432453	1432	8,75	164
DVB.6-38-35-M10-40-*	38	35	M10	30	40	169	432254	840	8,75	96	432054	1117	8,75	128	432454	1432	8,75	164
DVB.6-43-50-M10-12-*	43	50	M10	30	12	86	432261	1027	12,5	82	432061	1523	12,5	122	432461	2009	12,5	161
DVB.6-43-50-M10-20-*	43	50	M10	30	20	111	432262	1027	12,5	82	432062	1523	12,5	122	432462	2009	12,5	161
DVB.6-43-50-M10-28-*	43	50	M10	30	28	147	432263	1027	12,5	82	432063	1523	12,5	122	432463	2009	12,5	161
DVB.6-43-50-M10-40-*	43	50	M10	30	40	172	432264	1027	12,5	82	432064	1523	12,5	122	432464	2009	12,5	161
DVB.6-50-20-M10-12-*	50	20	M10	40	12	84	432271	1843	5	369	432071	2310	5	462	432471	3007	5	601
DVB.6-50-20-M10-20-*	50	20	M10	40	20	108	432272	1843	5	369	432072	2310	5	462	432472	3007	5	601
DVB.6-50-20-M10-28-*	50	20	M10	40	28	144	432273	1843	5	369	432073	2310	5	462	432473	3007	5	601
DVB.6-50-20-M10-40-*	50	20	M10	40	40	165	432274	1843	5	369	432074	2310	5	462	432474	3007	5	601
DVB.6-60-40-M10-12-*	60	40	M10	40	12	90	432281	1652	10	165	432081	2090	10	209	432481	3258	10	326
DVB.6-60-40-M10-20-*	60	40	M10	40	20	115	432282	1652	10	165	432082	2090	10	209	432482	3258	10	326
DVB.6-60-40-M10-28-*	60	40	M10	40	28	151	432283	1652	10	165	432083	2090	10	209	432483	3258	10	326
DVB.6-60-40-M10-40-*	60	40	M10	40	40	176	432284	1652	10	165	432084	2090	10	209	432484	3258	10	326

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DVB.6-SST



DVB.6 - 20 - 17 - SST - M5 - 6 - 55

D L Stainless steel d l Shore A

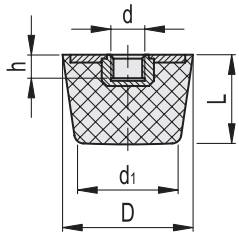
STAINLESS STEEL

Description	D	L	d	d1	l	⚖	Hardness 40 Shore A				Hardness 55 Shore A				Hardness 70 Shore A			
							Code	Max load [N]	Max deflection [mm]	Stiffness [N/mm]	Code	Max load [N]	Max deflection [mm]	Stiffness [N/mm]	Code	Max load [N]	Max deflection [mm]	Stiffness [N/mm]
DVB.6-20-17-SST-M5-6-55	20	17	M5	10	6	10		358	4,25	84	432601	407	4,25	96		468	4,25	110
DVB.6-20-17-SST-M5-10-55	20	17	M5	10	10	12		358	4,25	84	432602	407	4,25	96		468	4,25	110
DVB.6-20-17-SST-M5-20-55	20	17	M5	10	20	16		358	4,25	84	432603	407	4,25	96		468	4,25	110
DVB.6-20-17-SST-M6-12-55	20	17	M6	10	12	13		358	4,25	84	432611	407	4,25	96		468	4,25	110
DVB.6-20-17-SST-M6-18-55	20	17	M6	10	18	17		358	4,25	84	432612	407	4,25	96		468	4,25	110
DVB.6-20-17-SST-M6-25-55	20	17	M6	10	25	21		358	4,25	84	432613	407	4,25	96		468	4,25	110
DVB.6-25-17-SST-M6-8-55	25	17	M6	19	8	26		261	4,25	61	432621	293	4,25	69		374	4,25	88
DVB.6-25-17-SST-M6-12-55	25	17	M6	19	12	29		261	4,25	61	432622	293	4,25	69		374	4,25	88
DVB.6-25-17-SST-M6-18-55	25	17	M6	19	18	34		261	4,25	61	432623	293	4,25	69		374	4,25	88
DVB.6-25-17-SST-M6-25-55	25	17	M6	19	25	40		261	4,25	61	432624	293	4,25	69		374	4,25	88
DVB.6-32-22-SST-M8-10-55	32	22	M8	24	10	36		492	5,5	89	432631	638	5,5	116		813	5,5	148
DVB.6-32-22-SST-M8-16-55	32	22	M8	24	16	48		492	5,5	89	432632	638	5,5	116		813	5,5	148
DVB.6-32-22-SST-M8-23-55	32	22	M8	24	23	53		492	5,5	89	432633	638	5,5	116		813	5,5	148
DVB.6-32-22-SST-M8-30-55	32	22	M8	24	30	60		492	5,5	89	432634	638	5,5	116		813	5,5	148
DVB.6-38-35-SST-M8-10-55	38	35	M8	30	10	67	ON REQUEST	840	8,75	96	432641	1117	8,75	128	ON REQUEST	1432	8,75	164
DVB.6-38-35-SST-M8-16-55	38	35	M8	30	16	72		840	8,75	96	432642	1117	8,75	128		1432	8,75	164
DVB.6-38-35-SST-M8-30-55	38	35	M8	30	30	86		840	8,75	96	432643	1117	8,75	128		1432	8,75	164
DVB.6-38-35-SST-M10-12-55	38	35	M10	30	12	110		840	8,75	96	432651	1117	8,75	128		1432	8,75	164
DVB.6-38-35-SST-M10-20-55	38	35	M10	30	20	128		840	8,75	96	432652	1117	8,75	128		1432	8,75	164
DVB.6-38-35-SST-M10-28-55	38	35	M10	30	28	142		840	8,75	96	432653	1117	8,75	128		1432	8,75	164
DVB.6-38-35-SST-M10-40-55	38	35	M10	30	40	169		840	8,75	96	432654	1117	8,75	128		1432	8,75	164
DVB.6-43-50-SST-M10-12-55	43	50	M10	30	12	86		1027	12,5	82	432661	1523	12,5	122		2009	12,5	161
DVB.6-43-50-SST-M10-20-55	43	50	M10	30	20	111		1027	12,5	82	432662	1523	12,5	122		2009	12,5	161
DVB.6-43-50-SST-M10-28-55	43	50	M10	30	28	147		1027	12,5	82	432663	1523	12,5	122		2009	12,5	161
DVB.6-43-50-SST-M10-40-55	43	50	M10	30	40	172		1027	12,5	82	432664	1523	12,5	122		2009	12,5	161
DVB.6-50-20-SST-M10-12-55	50	20	M10	40	12	84		1843	5	369	432671	2310	5	462		3007	5	601
DVB.6-50-20-SST-M10-20-55	50	20	M10	40	20	108		1843	5	369	432672	2310	5	462		3007	5	601
DVB.6-50-20-SST-M10-28-55	50	20	M10	40	28	144		1843	5	369	432673	2310	5	462		3007	5	601
DVB.6-50-20-SST-M10-40-55	50	20	M10	40	40	165		1843	5	369	432674	2310	5	462		3007	5	601
DVB.6-60-40-SST-M10-12-55	60	40	M10	40	12	90		1652	10	165	432681	2090	10	209		3258	10	326
DVB.6-60-40-SST-M10-20-55	60	40	M10	40	20	115		1652	10	165	432682	2090	10	209		3258	10	326
DVB.6-60-40-SST-M10-28-55	60	40	M10	40	28	151		1652	10	165	432683	2090	10	209		3258	10	326
DVB.6-60-40-SST-M10-40-55	60	40	M10	40	40	176		1652	10	165	432684	2090	10	209		3258	10	326

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DVB.6 - DVB.7 | Vibration-damping elements

DVB.7



* Complete the description with the desired hardness:
40, 55 or 70 tolerance ±5 Shore A.

DVB.7 - 20 - 17 - M5 - 55
D L d Shore A

Description	D	L	d	d1	h	⚖	Hardness 40 Shore A				Hardness 55 Shore A				Hardness 70 Shore A			
							Code	Max load [N]	Max deflection [mm]	Stiffness [N/mm]	Code	Max load [N]	Max deflection [mm]	Stiffness [N/mm]	Code	Max load [N]	Max deflection [mm]	Stiffness [N/mm]
DVB.7-20-17-M5-*	20	17	M5	10	5	12	432301	207	4,25	49	432101	253	4,25	60	432501	311	4,25	73
DVB.7-20-17-M6-*	20	17	M6	10	6	18	432302	207	4,25	49	432102	253	4,25	60	432502	311	4,25	73
DVB.7-25-17-M6-*	25	17	M6	19	6	22	432303	289	4,25	68	432103	358	4,25	84	432503	454	4,25	107
DVB.7-32-22-M8-*	32	22	M8	24	8	33	432311	411	5,5	75	432111	506	5,5	92	432511	673	5,5	122
DVB.7-38-35-M8-*	38	35	M8	30	8	46	432321	604	8,75	69	432121	893	8,75	102	432521	1104	8,75	126
DVB.7-38-35-M10-*	38	35	M10	30	10	56	432331	604	8,75	69	432131	893	8,75	102	432531	1104	8,75	126
DVB.7-43-50-M10-*	43	50	M10	30	10	72	432341	1327	12,5	106	432141	2011	12,5	161	432541	3027	12,5	242
DVB.7-50-20-M10-*	50	20	M10	40	10	61	432351	2763	5	553	432151	3570	5	714	432551	4875	5	975
DVB.7-60-40-M10-*	60	40	M10	40	10	93	432361	1685	10	169	432161	2101	10	210	432561	3231	10	323

DVB.7 - 20 - 17 - SST - M5 - 55
D L Stainless steel d Shore A

STAINLESS STEEL

Description	D	L	d	d1	h	⚖	Hardness 40 Shore A				Hardness 55 Shore A				Hardness 70 Shore A			
							Code	Max load [N]	Max deflection [mm]	Stiffness [N/mm]	Code	Max load [N]	Max deflection [mm]	Stiffness [N/mm]	Code	Max load [N]	Max deflection [mm]	Stiffness [N/mm]
DVB.7-20-17-SST-M5-55	20	17	M5	10	5	12	ON REQUEST	207	4,25	49	432701	253	4,25	60	ON REQUEST	311	4,25	73
DVB.7-20-17-SST-M6-55	20	17	M6	10	6	18		207	4,25	49	432702	253	4,25	60		311	4,25	73
DVB.7-25-17-SST-M6-55	25	17	M6	10	6	22		289	4,25	68	432703	358	4,25	84		454	4,25	107
DVB.7-32-22-SST-M8-55	32	22	M8	24	8	33		411	5,5	75	432711	506	5,5	92		673	5,5	122
DVB.7-38-35-SST-M8-55	38	35	M8	30	8	46		604	8,75	69	432721	893	8,75	102		1104	8,75	126
DVB.7-38-35-SST-M10-55	38	35	M10	30	10	56		604	8,75	69	432731	893	8,75	102		1104	8,75	126
DVB.7-43-50-SST-M10-55	43	50	M10	30	10	72		1327	12,5	106	432741	2011	12,5	161		3027	12,5	242
DVB.7-50-20-SST-M10-55	50	20	M10	40	10	61		2763	5	553	432751	3570	5	714		4875	5	975
DVB.7-60-40-SST-M10-55	60	40	M10	40	10	93		1685	10	169	432761	2101	10	210		3231	10	323

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Vibration-damping elements

Silicone rubber and stainless steel



BASE
AISI 304 stainless steel.

VIBRATION-DAMPING BODY
Silicone rubber (MVQ) RAL 7040 grey colour, in compliance with FDA (U.S. Food and Drug Administration), giving the possibility to use in the food and medical industry.
- Hardness 55 Shore A ±5.
- High resistance to ageing.
- Resistance to high temperatures (up to 200°C) and low temperatures (-50°C).

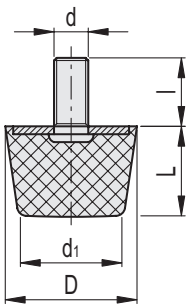
STANDARD EXECUTIONS
- **DVF.6-SST**: AISI 304 stainless steel threaded stud.
- **DVF.7-SST**: AISI 304 stainless steel boss, threaded blind hole.

FEATURES AND APPLICATIONS
DVF.6 and DVF.7 vibration-damping elements have been designed to damp vibrations, shocks and noises produced by moving bodies or non-balanced vibrating masses of equipment and machines.
DVF.6 and DVF.7 elements are generally used as a bumper or as a limit stop for the absorption of vibrations, and for preventing:
- malfunctioning and reduction of the machine lifespan and/or of the adjacent ones;
- noise and thus also damage to health.

Load diagrams for each single code are available on request.
See technical data and guidelines for the choice on page A53

SPECIAL EXECUTIONS ON REQUEST
Silicone rubber (MVQ) in compliance with FDA, hardness 40, 70 Shore A ±5.

DVF.6-SST



DVF.6 - 20 - 17 - SST - M5 - 6 - 55
D L Stainless steel d l Shore A

DVF.6-SST — **STAINLESS STEEL**

Code	Description	D	L	d	d1	l	Max. load [N]	Max. deflection [mm]	Stiffness [N/mm]	⚖
432801	DVF.6-20-17-SST-M5-6-55	20	17	M5	10	6	197	4.25	46	14
432802	DVF.6-20-17-SST-M5-10-55	20	17	M5	10	10	197	4.25	46	15
432803	DVF.6-20-17-SST-M5-20-55	20	17	M5	10	20	197	4.25	46	17
432811	DVF.6-20-17-SST-M6-12-55	20	17	M6	10	12	197	4.25	46	16
432812	DVF.6-20-17-SST-M6-18-55	20	17	M6	10	18	197	4.25	46	17
432813	DVF.6-20-17-SST-M6-25-55	20	17	M6	10	25	197	4.25	46	19
432821	DVF.6-25-17-SST-M6-8-55	25	17	M6	19	8	580	4.25	137	18
432822	DVF.6-25-17-SST-M6-12-55	25	17	M6	19	12	580	4.25	137	19
432823	DVF.6-25-17-SST-M6-18-55	25	17	M6	19	18	580	4.25	137	20
432824	DVF.6-25-17-SST-M6-25-55	25	17	M6	19	25	580	4.25	137	21

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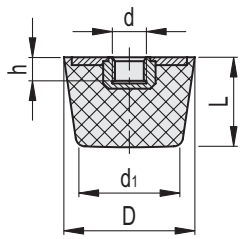
DVF.6 - DVF.7 | Vibration-damping elements

DVF.6 - 20 - 17 - SST - M5 - 6 - 55
D L Stainless steel d l Shore A

DVF.6-SST STAINLESS STEEL

Code	Description	D	L	d	d1	l	Max. load [N]	Max. deflection [mm]	Stiffness [N/mm]	⚖
432831	DVF.6-32-22-SST-M8-10-55	32	22	M8	24	10	751	5.5	137	30
432832	DVF.6-32-22-SST-M8-16-55	32	22	M8	24	16	751	5.5	137	32
432833	DVF.6-32-22-SST-M8-23-55	32	22	M8	24	23	751	5.5	137	35
432834	DVF.6-32-22-SST-M8-30-55	32	22	M8	24	30	751	5.5	137	37
432841	DVF.6-38-35-SST-M8-10-55	38	35	M8	30	10	1311	8.75	150	70
432842	DVF.6-38-35-SST-M8-16-55	38	35	M8	30	16	1311	8.75	150	74
432843	DVF.6-38-35-SST-M8-30-55	38	35	M8	30	30	1311	8.75	150	79
432851	DVF.6-38-35-SST-M10-12-55	38	35	M10	30	12	1311	8.75	150	75
432852	DVF.6-38-35-SST-M10-20-55	38	35	M10	30	20	1311	8.75	150	79
432853	DVF.6-38-35-SST-M10-28-55	38	35	M10	30	28	1311	8.75	150	82
432854	DVF.6-38-35-SST-M10-40-55	38	35	M10	30	40	1311	8.75	150	86
432861	DVF.6-43-50-SST-M10-12-55	43	50	M10	30	12	1318	12.5	105	98
432862	DVF.6-43-50-SST-M10-20-55	43	50	M10	30	20	1318	12.5	105	101
432863	DVF.6-43-50-SST-M10-28-55	43	50	M10	30	28	1318	12.5	105	105
432864	DVF.6-43-50-SST-M10-40-55	43	50	M10	30	40	1318	12.5	105	110
432871	DVF.6-50-20-SST-M10-12-55	50	20	M10	40	12	2890	5	578	72
432872	DVF.6-50-20-SST-M10-20-55	50	20	M10	40	20	2890	5	578	75
432873	DVF.6-50-20-SST-M10-28-55	50	20	M10	40	28	2890	5	578	78
432874	DVF.6-50-20-SST-M10-40-55	50	20	M10	40	40	2890	5	578	82
432881	DVF.6-60-40-SST-M10-12-55	60	40	M10	40	12	2830	10	283	295
432882	DVF.6-60-40-SST-M10-20-55	60	40	M10	40	20	2830	10	283	301
432883	DVF.6-60-40-SST-M10-28-55	60	40	M10	40	28	2830	10	283	308
432884	DVF.6-60-40-SST-M10-40-55	60	40	M10	40	40	2830	10	283	316

DVF.7-SST



DVF.7 - 20 - 17 - SST - M5 - 55
D L Stainless steel d Shore A

DVF.7-SST STAINLESS STEEL

Code	Description	D	L	d	d1	h	Max. load [N]	Max. deflection [mm]	Stiffness [N/mm]	⚖
432901	DVF.7-20-17-SST-M5-55	20	17	M5	10	5	211	4.25	50	16
432902	DVF.7-20-17-SST-M6-55	20	17	M6	10	6	211	4.25	50	14
432906	DVF.7-25-17-SST-M6-55	25	17	M6	10	6	605	4.25	142	15
432911	DVF.7-32-22-SST-M8-55	32	22	M8	24	8	778	5.5	142	18
432916	DVF.7-38-35-SST-M8-55	38	35	M8	30	8	1455	8.75	166	74
432917	DVF.7-38-35-SST-M10-55	38	35	M10	30	10	1455	8.75	166	70
432921	DVF.7-43-50-SST-M10-55	43	50	M10	30	10	1420	12.5	114	98
432931	DVF.7-50-20-SST-M10-55	50	20	M10	40	10	3010	5	602	75
432941	DVF.7-60-40-SST-M10-55	60	40	M10	40	10	2990	10	299	125

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Vibration-damping elements

Rubber and steel or stainless steel

VIBRATION-DAMPING BODY

Natural rubber NR, black colour.
Hardness 40, 55, 70 Shore A ±5.

STANDARD EXECUTIONS

- **DVC.1**: zinc-plated steel plates and threaded studs.
- **DVC.1-SST**: AISI 304 stainless steel plates and threaded studs.
- **DVC.2**: zinc-plated steel plates, threaded stud and boss, threaded blind hole.
- **DVC.2-SST**:AISI 304 stainless steel plates, threaded stud and boss, threaded blind hole.
- **DVC.3**: zinc-plated steel plates and bosses, threaded blind holes.
- **DVC.3-SST**: AISI 304 stainless steel plates and bosses, threaded blind holes.

FEATURES AND APPLICATIONS

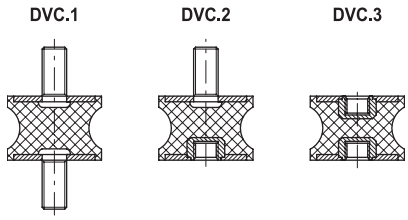
DVC. vibration-damping elements have been designed to damp vibrations, shocks and noises produced by moving bodies or non-balanced vibrating masses of equipment and machines.
Unlike DVA vibration-damping elements, under pressure these articles allow more lateral movement without leaving the vertical plane of the metal insert.
Vibrations can cause:
- malfunctioning and reduction of the machine lifespan and/or of the adjacent ones;
- damage to operator's health;
- noise.

Load diagrams for each single code are available on request.
See technical data and guidelines for the choice on page A53

SPECIAL EXECUTIONS ON REQUEST

Natural rubber NR, hardness 40, 70 Shore A ±5, for executions with AISI 304 stainless steel base.

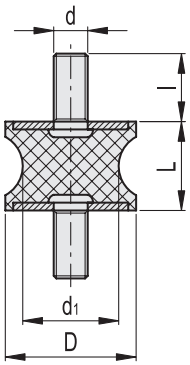




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DVC.1 - DVC.2 - DVC.3 | Vibration-damping elements

DVC.1



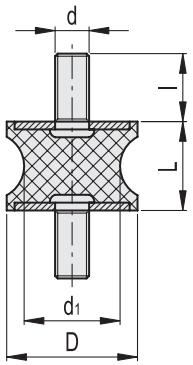
* Complete the description with the desired hardness: 40, 55 or 70 tolerance ±5 Shore A.

DVC.1 - 10 - 4.5 - 8 - M4 - 10 - 55
D d1 L d l Shore A

Description	D	L	d	d1	l	⚖	Hardness 40 Shore A				Hardness 55 Shore A				Hardness 70 Shore A			
							Code	Max load [N]	Max deflection [mm]	Stiffness [N/mm]	Code	Max load [N]	Max deflection [mm]	Stiffness [N/mm]	Code	Max load [N]	Max deflection [mm]	Stiffness [N/mm]
DVC.1-10-4,5-8-M4-10-*	10	8	M4	4,5	10	5	433201	43	2	22	433001	80	2	40	433401	105	2	53
DVC.1-10-8-10-M4-10-*	10	10	M4	8	10	8	433206	37	2,5	15	433006	69	2,5	28	433406	98	2,5	39
DVC.1-15-8,5-15-M4-10-*	15	15	M4	8,5	10	12	433211	113	3,75	30	433011	154	3,75	41	433411	207	3,75	55
DVC.1-15-12-15-M4-10-*	15	15	M4	12	10	14	433216	121	3,75	32	433016	163	3,75	43	433416	221	3,75	59
DVC.1-20-14-15-M6-18-*	20	15	M6	14	18	18	433231	211	3,75	56	433031	273	3,75	73	433431	325	3,75	87
DVC.1-20-14-19-M6-18-*	20	19	M6	14	18	25	433233	193	4,75	41	433033	238	4,75	50	433433	302	4,75	64
DVC.1-20-14-20-M6-18-*	20	20	M6	14	18	26	433235	191	5	38	433035	231	5	46	433435	300	5	60
DVC.1-21-16-22-M6-18-*	21	22	M6	16	18	28	433241	205	5,5	37	433041	268	5,5	49	433441	315	5,5	57
DVC.1-20-12-30-M6-18-*	20	30	M6	12	18	30	433221	126	7,5	17	433021	194	7,5	26	433421	217	7,5	29
DVC.1-20-14-30-M6-18-*	20	30	M6	14	18	32	433237	475	7,5	63	433037	202	7,5	27	433437	301	7,5	40
DVC.1-25-18-20-M6-18-*	25	20	M6	18	18	31	433251	539	5	108	433051	887	5	177	433451	1332	5	266
DVC.1-25-20-20-M6-18-*	25	20	M6	20	18	33	433256	560	5	112	433056	902	5	180	433456	1380	5	276
DVC.1-30-22-20-M8-20-*	30	20	M8	22	20	45	433266	738	5	148	433066	1087	5	217	433466	2005	5	401
DVC.1-30-18-25-M8-20-*	30	25	M8	18	20	50	433261	436	6,25	70	433061	671	6,25	107	433461	1342	6,25	215
DVC.1-35-31-15-M8-20-*	35	15	M8	31	20	46	433276	1120	3,75	299	433076	2097	3,75	559	433476	3215	3,75	857
DVC.1-35-25-34-M8-20-*	35	34	M8	25	20	56	433271	1073	8,5	126	433071	1564	8,5	184	433471	2415	8,5	284
DVC.1-40-30-25-M8-23-*	40	25	M8	30	23	58	433285	1823	6,25	292	433085	2430	6,25	389	433485	3378	6,25	540
DVC.1-40-25-30-M8-23-*	40	30	M8	25	23	64	433283	937	7,5	125	433083	1621	7,5	216	433483	2246	7,5	299
DVC.1-40-33-30-M8-23-*	40	30	M8	33	23	68	433289	1007	7,5	134	433089	1873	7,5	250	433489	2423	7,5	323
DVC.1-40-20-48-M8-23-*	40	48	M8	20	23	76	433281	498	12	42	433081	705	12	59	433481	1123	12	94
DVC.1-40-32-50-M8-23-*	40	50	M8	32	23	82	433287	521	12,5	42	433087	795	12,5	64	433487	1321	12,5	106
DVC.1-50-46-15-M10-28-*	50	15	M10	46	28	94	433296	1027	3,75	274	433096	2430	3,75	648	433496	3385	3,75	903
DVC.1-50-42-30-M10-28-*	50	30	M10	42	28	184	433291	1095	7,5	146	433091	1523	7,5	203	433491	2271	7,5	303
DVC.1-55-44-45-M10-28-*	55	45	M10	44	28	233	433293	911	11,25	81	433093	1328	11,25	118	433493	1974	11,25	175
DVC.1-57-25-45-M10-28-*	57	45	M10	25	28	242	433301	902	11,25	80	433101	1222	11,25	109	433501	1765	11,25	157
DVC.1-60-49-60-M10-28-*	60	60	M10	49	28	264	433306	2188	15	146	433106	3785	15	252	433506	4325	15	288
DVC.1-70-45-53-M12-37-*	70	53	M12	45	37	280	433311	1897	13,25	143	433111	2114	13,25	160	433511	3228	13,25	244
DVC.1-72-64-33,5-M12-37-*	72	33,5	M12	64	37	297	433316	2875	8,38	343	433116	4170	8,38	498	433516	7315	8,38	873
DVC.1-75-60-40-M12-37-*	75	40	M12	60	37	380	433321	2409	10	241	433121	3610	10	361	433521	6988	10	699
DVC.1-95-80-75-M16-41-*	95	75	M16	80	41	1090	433326	7584	18,75	404	433126	10865	18,75	579	433526	13263	18,75	707

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DVC.1-SST



DVC.1 - 10 - 4.5 - 8 - SST - M4 - 10 - 55

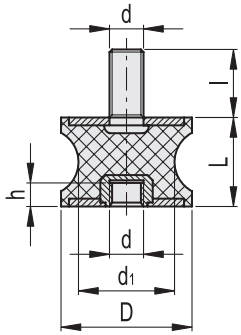
D d1 L Stainless steel d l Shore A

STAINLESS STEEL

Description	D	L	d	d1	l	⚖	Hardness 40 Shore A				Hardness 55 Shore A				Hardness 70 Shore A			
							Code	Max load [N]	Max deflection [mm]	Stiffness [N/mm]	Code	Max load [N]	Max deflection [mm]	Stiffness [N/mm]	Code	Max load [N]	Max deflection [mm]	Stiffness [N/mm]
DVC.1-10-4,5-8-SST-M4-10-55	10	8	M4	4,5	10	5		43	2	22	433601	80	2	40		105	2	53
DVC.1-10-8-10-SST-M4-10-55	10	10	M4	8	10	8		37	2,5	15	433606	69	2,5	28		98	2,5	39
DVC.1-15-8,5-15-SST-M4-10-55	15	15	M4	8,5	10	12		113	3,75	30	433611	113	3,75	30		207	3,75	55
DVC.1-15-12-15-SST-M4-10-55	15	15	M4	12	10	14		121	3,75	32	433616	163	3,75	43		221	3,75	59
DVC.1-20-14-15-SST-M6-18-55	20	15	M6	14	18	18		211	3,75	56	433631	273	3,75	73		325	3,75	87
DVC.1-20-14-19-SST-M6-18-55	20	19	M6	14	18	25		193	4,75	41	433633	238	4,75	50		302	4,75	64
DVC.1-20-14-20-SST-M6-18-55	20	20	M6	14	18	26		191	5	38	433635	231	5	46		300	5	60
DVC.1-21-16-22-SST-M6-18-55	21	22	M6	16	18	28		205	5,5	37	433641	205	5,5	37		315	5,5	57
DVC.1-20-12-30-SST-M6-18-55	20	30	M6	12	18	30		126	7,5	17	433621	280	7,5	37		217	7,5	29
DVC.1-20-14-30-SST-M6-18-55	20	30	M6	14	18	32		475	7,5	63	433637	507	7,5	68		301	7,5	40
DVC.1-25-18-20-SST-M6-18-55	25	20	M6	18	18	31		539	5	108	433651	887	5	177		1332	5	266
DVC.1-25-20-20-SST-M6-18-55	25	20	M6	20	18	33		560	5	112	433656	560	5	112		1380	5	276
DVC.1-30-22-20-SST-M8-20-55	30	20	M8	22	20	45	ON REQUEST	738	5	148	433666	1087	5	217	ON REQUEST	2005	5	401
DVC.1-30-18-25-SST-M8-20-55	30	25	M8	18	20	50		436	6,25	70	433661	671	6,25	107		1342	6,25	215
DVC.1-35-31-15-SST-M8-20-55	35	15	M8	31	20	46		1120	3,75	299	433676	2097	3,75	559		3215	3,75	857
DVC.1-35-25-34-SST-M8-20-55	35	34	M8	25	20	56		1073	8,5	126	433671	1564	8,5	184		2415	8,5	284
DVC.1-40-30-25-SST-M8-23-55	40	25	M8	30	23	58		1823	6,25	292	433685	2430	6,25	389		3378	6,25	540
DVC.1-40-25-30-SST-M8-23-55	40	30	M8	25	23	64		937	7,5	125	433683	1621	7,5	216		2246	7,5	299
DVC.1-40-33-30-SST-M8-23-55	40	30	M8	33	23	68		1007	7,5	134	433689	1873	7,5	250		2423	7,5	323
DVC.1-40-20-48-SST-M8-23-55	40	48	M8	20	23	76		498	12	42	433681	705	12,5	56		1123	12	94
DVC.1-40-32-50-SST-M8-23-55	40	50	M8	32	23	82		521	12,5	42	433687	795	12,5	64		1321	12,5	106
DVC.1-50-46-15-SST-M10-28-55	50	15	M10	46	28	94		1027	3,75	274	433696	2430	3,75	648		3385	3,75	903
DVC.1-50-42-30-SST-M10-28-55	50	30	M10	42	28	184		1095	7,5	146	433691	1523	7,5	203		2271	7,5	303
DVC.1-55-44-45-SST-M10-28-55	55	45	M10	44	28	233		911	11,25	81	433693	1328	11,25	118		1974	11,25	175
DVC.1-57-25-45-SST-M10-28-55	57	45	M10	25	28	242		902	11,25	80	433701	1222	11,25	109		1765	11,25	157
DVC.1-60-49-60-SST-M10-28-55	60	60	M10	49	28	264		2188	15	146	433706	3785	15	252		4325	15	288
DVC.1-70-45-53-SST-M12-37-55	70	53	M12	45	37	280		1897	13,25	143	433711	2114	13,25	160		3228	13,25	244
DVC.1-72-64-33,5-SST-M12-37-55	72	33,5	M12	64	37	297		2875	8,38	343	433716	4170	8,38	498		7315	8,38	873
DVC.1-75-60-40-SST-M12-37-55	75	40	M12	60	37	380		2409	10	241	433721	3610	10	361		6988	10	699
DVC.1-95-80-75-SST-M16-41-55	95	75	M16	80	41	1090		7584	18,75	404	433726	10865	18,75	579		13263	18,75	707

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DVC.2



* Complete the description with the desired hardness: 40, 55 or 70 tolerance ±5 Shore A.

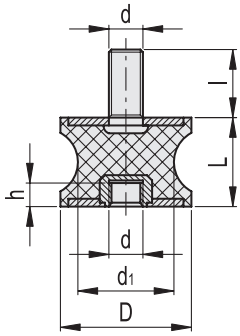
DVC.2 - 10 - 8 - 10 - M4 - 10 - 55

D d1 L d l Shore A

Description	D	L	d	d1	l	h	⚖	Hardness 40 Shore A				Hardness 55 Shore A				Hardness 70 Shore A			
								Code	Max load [N]	Max deflection [mm]	Stiffness [N/mm]	Code	Max load [N]	Max deflection [mm]	Stiffness [N/mm]	Code	Max load [N]	Max deflection [mm]	Stiffness [N/mm]
DVC.2-10-8-10-M4-10-*	10	10	M4	8	10	4	3	433901	94	2,5	37	433751	43	2,5	17	434051	81	2,5	32
DVC.2-15-8,5-15-M4-10-*	15	15	M4	8,5	10	4	5	433911	81	3,75	22	433761	132	3,75	35	434061	180	3,75	48
DVC.2-15-12-15-M4-10-*	15	15	M4	12	10	4	6	433916	132	3,75	35	433766	142	3,75	38	434066	191	3,75	51
DVC.2-20-14-15-M6-18-*	20	15	M6	14	18	6	14	433923	191	3,75	51	433773	247	3,75	66	434073	319	3,75	85
DVC.2-20-14-19-M6-18-*	20	19	M6	14	18	6	16	433925	319	4,75	67	433775	226	4,75	48	434075	278	4,75	59
DVC.2-20-14-20-M6-18-*	20	20	M6	14	18	6	17	433927	278	5	56	433777	223	5	45	434077	270	5	54
DVC.2-21-16-22-M6-18-*	21	22	M6	16	18	6	18	433931	270	5,5	49	433781	240	5,5	44	434081	314	5,5	57
DVC.2-20-12-30-M6-18-*	20	30	M6	12	18	6	22	433921	240	7,5	32	433771	147	7,5	20	434071	227	7,5	30
DVC.2-20-14-30-M6-18-*	20	30	M6	14	18	6	25	433929	173	7,5	23	433779	255	7,5	34	434079	380	7,5	51
DVC.2-25-18-20-M6-18-*	25	20	M6	18	18	6	36	433941	593	5	119	433791	631	5	126	434091	1038	5	208
DVC.2-25-20-20-M6-18-*	25	20	M6	20	18	6	39	433946	1038	5	208	433796	655	5	131	434096	1055	5	211
DVC.2-30-22-20-M8-20-*	30	20	M8	22	20	8	44	433956	655	5	131	433806	863	5	173	434106	1272	5	254
DVC.2-30-18-25-M8-20-*	30	25	M8	18	20	8	49	433951	1272	6,25	203	433801	510	6,25	82	434101	785	6,25	126
DVC.2-35-31-15-M8-20-*	35	15	M8	31	20	8	46	433966	785	3,75	209	433816	1310	3,75	349	434116	2453	3,75	654
DVC.2-35-25-34-M8-20-*	35	34	M8	25	20	8	60	433961	2453	8,5	289	433811	1255	8,5	148	434111	1830	8,5	215
DVC.2-40-30-25-M8-23-*	40	25	M8	30	23	8	73	433975	1830	6,25	293	433825	2133	6,25	341	434125	2843	6,25	455
DVC.2-40-25-30-M8-23-*	40	30	M8	25	23	8	76	433973	2843	7,5	379	433823	1096	7,5	146	434123	1897	7,5	253
DVC.2-40-33-30-M8-23-*	40	30	M8	33	23	8	80	433979	861	7,5	115	433829	1178	7,5	157	434129	2191	7,5	292
DVC.2-40-20-48-M8-23-*	40	48	M8	20	23	8	86	433971	2191	12	183	433821	583	12	49	434121	825	12	69
DVC.2-40-32-50-M8-23-*	40	50	M8	32	23	8	94	433977	825	12,5	66	433827	610	12,5	49	434127	930	12,5	74
DVC.2-50-42-30-M10-28-*	50	30	M10	42	28	10	112	433981	2843	7,5	379	433831	1281	7,5	171	434131	1782	7,5	238
DVC.2-55-44-45-M10-28-*	55	45	M10	44	28	10	162	433986	1782	11,25	158	433836	1066	11,25	95	434136	1554	11,25	138
DVC.2-57-25-45-M10-28-*	57	45	M10	25	28	10	155	433991	1554	11,25	138	433841	1055	11,25	94	434141	1430	11,25	127
DVC.2-60-49-60-M10-28-*	60	60	M10	49	28	10	245	433996	1430	15	95	433846	2560	15	171	434146	4428	15	295
DVC.2-70-45-53-M12-37-*	70	53	M12	45	37	12	321	434001	4428	13,25	334	433851	2219	13,25	168	434151	2473	13,25	187
DVC.2-72-64-33,5-M12-37-*	72	33,5	M12	64	37	12	385	434006	2473	8,38	295	433856	3364	8,38	402	434156	4879	8,38	583
DVC.2-75-60-40-M12-37-*	75	40	M12	60	37	12	450	434011	4879	10	488	433861	2819	10	282	434161	4224	10	422
DVC.2-95-80-75-M16-41-*	95	75	M16	80	41	16	740	434016	4224	18,75	225	433866	8873	18,75	473	434166	12712	18,75	678

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DVC.2-SST



DVC.2 - 10 - 8 - 10 - SST - M4 - 10 - 55

D d1 L Stainless steel d l Shore A

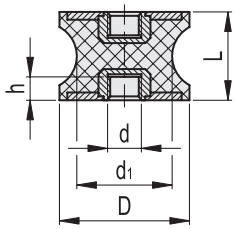
STAINLESS STEEL

Description	D	L	d	d1	l	h	⚖	Hardness 40 Shore A				Hardness 55 Shore A				Hardness 70 Shore A			
								Code	Max load [N]	Max deflection [mm]	Stiffness [N/mm]	Code	Max load [N]	Max deflection [mm]	Stiffness [N/mm]	Code	Max load [N]	Max deflection [mm]	Stiffness [N/mm]
DVC.2-10-8-10-SST-M4-10-55	10	10	M4	8	10	4	3		94	2,5	37	434201	115	2,5	46		81	2,5	32
DVC.2-15-8,5-15-SST-M4-10-55	15	15	M4	8,5	10	4	5		94	2,5	37	434211	242	3,75	65		81	2,5	32
DVC.2-15-12-15-SST-M4-10-55	15	15	M4	12	10	4	6		81	3,75	22	434216	259	3,75	69		180	3,75	48
DVC.2-20-14-15-SST-M6-18-55	20	15	M6	14	18	6	14		132	3,75	35	434223	380	3,75	101		191	3,75	51
DVC.2-20-14-19-SST-M6-18-55	20	19	M6	14	18	6	16		191	3,75	51	434225	353	4,75	74		319	3,75	85
DVC.2-20-14-20-SST-M6-18-55	20	20	M6	14	18	6	17		319	4,75	67	434227	351	5	70		278	4,75	59
DVC.2-21-16-22-SST-M6-18-55	21	22	M6	16	18	6	18		278	5	56	434231	369	5,5	67		270	5	54
DVC.2-20-12-30-SST-M6-18-55	20	30	M6	12	18	6	22		270	5,5	49	434221	254	7,5	34		314	5,5	57
DVC.2-20-14-30-SST-M6-18-55	20	30	M6	14	18	6	25		240	7,5	32	434229	255	7,5	34		227	7,5	30
DVC.2-25-18-20-SST-M6-18-55	25	20	M6	18	18	6	36		328	7,5	44	434241	1558	5	312		236	7,5	32
DVC.2-25-20-20-SST-M6-18-55	25	20	M6	20	18	6	39		593	5	119	434246	1615	5	323		1038	5	208
DVC.2-30-22-20-SST-M8-20-55	30	20	M8	22	20	8	44	ON REQUEST	1038	5	208	434256	2346	5	469	ON REQUEST	1055	5	211
DVC.2-30-18-25-SST-M8-20-55	30	25	M8	18	20	8	49		655	5	131	434251	1570	6,25	251		1272	5	254
DVC.2-35-31-15-SST-M8-20-55	35	15	M8	31	20	8	46		1272	6,25	203	434266	3762	3,75	1003		785	6,25	126
DVC.2-35-25-34-SST-M8-20-55	35	34	M8	25	20	8	60		785	3,75	209	434261	2826	8,5	332		2453	3,75	654
DVC.2-40-30-25-SST-M8-23-55	40	25	M8	30	23	8	73		2453	8,5	289	434275	3952	6,25	632		1830	8,5	215
DVC.2-40-25-30-SST-M8-23-55	40	30	M8	25	23	8	76		1830	6,25	293	434273	2628	7,5	350		2843	6,25	455
DVC.2-40-33-30-SST-M8-23-55	40	30	M8	33	23	8	80		2843	7,5	379	434279	2835	7,5	378		1897	7,5	253
DVC.2-40-20-48-SST-M8-23-55	40	48	M8	20	23	8	86		1897	7,5	253	434271	1314	12	109		2191	7,5	292
DVC.2-40-32-50-SST-M8-23-55	40	50	M8	32	23	8	94		2191	12	183	434277	1546	12,5	124		825	12	69
DVC.2-50-42-30-SST-M10-28-55	50	30	M10	42	28	10	112		825	12,5	66	434281	2657	7,5	354		930	12,5	74
DVC.2-55-44-45-SST-M10-28-55	55	45	M10	44	28	10	162		2843	7,5	379	434286	2310	11,25	205		1782	7,5	238
DVC.2-57-25-45-SST-M10-28-55	57	45	M10	25	28	10	155		1782	11,25	158	434291	2065	11,25	184		1554	11,25	138
DVC.2-60-49-60-SST-M10-28-55	60	60	M10	49	28	10	245		1554	11,25	138	434296	5060	15	337		1430	11,25	127
DVC.2-70-45-53-SST-M12-37-55	70	53	M12	45	37	12	321		1430	15	95	434301	3777	13,25	285		4428	15	295
DVC.2-72-64-33,5-SST-M12-37-55	72	33,5	M12	64	37	12	385		4428	13,25	334	434306	8559	8,38	1022		2473	13,25	187
DVC.2-75-60-40-SST-M12-37-55	75	40	M12	60	37	12	450		2473	8,38	295	434311	8176	10	818		4879	8,38	583
DVC.2-95-80-75-SST-M16-41-55	95	75	M16	80	41	16	740		4879	10	488	434316	15518	18,75	828		4224	10	422

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DVC.1 - DVC.2 - DVC.3 | Vibration-damping elements

DVC.3



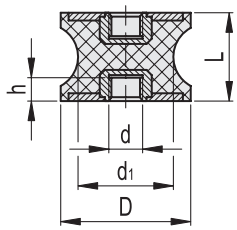
* Complete the description with the desired hardness: 40, 55 or 70 tolerance ±5 Shore A.

DVC.3 - 15 - 8.5 - 15 - M4 - 55
D d1 L d Shore A

Description	D	L	d	d1	h	⚖	Hardness 40 Shore A				Hardness 55 Shore A				Hardness 70 Shore A			
							Code	Max load [N]	Max deflection [mm]	Stiffness [N/mm]	Code	Max load [N]	Max deflection [mm]	Stiffness [N/mm]	Code	Max load [N]	Max deflection [mm]	Stiffness [N/mm]
DVC.3-15-8,5-15-M4-*	15	15	M4	8,5	4	6	434601	94	3,75	25	434501	155	3,75	41	434701	211	3,75	56
DVC.3-15-12-15-M4-*	15	15	M4	12	4	8	434606	155	3,75	41	434506	166	3,75	44	434706	223	3,75	60
DVC.3-20-14-15-M6-*	20	15	M6	14	6	13	434613	223	3,75	60	434513	289	3,75	77	434713	374	3,75	100
DVC.3-20-14-19-M6-*	20	19	M6	14	6	16	434615	374	4,75	79	434515	264	4,75	56	434715	326	4,75	69
DVC.3-20-14-20-M6-*	20	20	M6	14	6	17	434617	326	5	65	434517	261	5	52	434717	316	5	63
DVC.3-21-16-22-M6-*	21	22	M6	16	6	18	434621	316	5,5	57	434521	281	5,5	51	434721	367	5,5	67
DVC.3-20-12-30-M6-*	20	30	M6	12	6	19	434611	281	7,5	37	434511	172	7,5	23	434711	266	7,5	35
DVC.3-20-14-30-M6-*	20	30	M6	14	6	23	434619	383	7,5	51	434519	650	7,5	87	434719	277	7,5	37
DVC.3-25-18-20-M6-*	25	20	M6	18	6	27	434631	694	5	139	434531	738	5	148	434731	1214	5	243
DVC.3-25-20-20-M6-*	25	20	M6	20	6	30	434636	1214	5	243	434536	767	5	153	434736	1235	5	247
DVC.3-30-22-20-M8-*	30	20	M8	22	8	39	434643	767	5	153	434543	1010	5	202	434743	1488	5	298
DVC.3-30-18-25-M8-*	30	25	M8	18	8	42	434641	1488	6,25	238	434541	597	6,25	95	434741	919	6,25	147
DVC.3-35-25-34-M8-*	35	34	M8	25	8	53	434645	2871	8,5	338	434545	1469	8,5	173	434745	2141	8,5	252
DVC.3-40-30-25-M8-*	40	25	M8	30	8	64	434655	2141	6,25	343	434555	2496	6,25	399	434755	3326	6,25	532
DVC.3-40-25-30-M8-*	40	30	M8	25	8	72	434653	3326	7,5	444	434553	1283	7,5	171	434753	2219	7,5	296
DVC.3-40-33-30-M8-*	40	30	M8	33	8	80	434659	2219	7,5	296	434559	1378	7,5	184	434759	2564	7,5	342
DVC.3-40-32-50-M8-*	40	50	M8	32	8	98	434657	2564	12,5	205	434557	682	12,5	55	434757	965	12,5	77
DVC.3-40-20-48-M8-*	40	48	M8	20	8	86	434651	965	12	80	434551	713	12	59	434751	1088	12	91
DVC.3-50-42-30-M10-*	50	30	M10	42	10	125	434656	3326	7,5	444	434556	1499	7,5	200	434756	2085	7,5	278
DVC.3-55-44-45-M10-*	55	45	M10	44	10	150	434661	2085	11,25	185	434561	1247	11,25	111	434761	1818	11,25	162
DVC.3-57-25-45-M10-*	57	45	M10	25	10	140	434666	1818	11,25	162	434566	1235	11,25	110	434766	1673	11,25	149
DVC.3-60-49-60-M10-*	60	60	M10	49	10	310	434671	1673	15	112	434571	2995	15	200	434771	5181	15	345
DVC.3-70-45-53-M12-*	70	53	M12	45	12	336	434676	5181	13,25	391	434576	2597	13,25	196	434776	2894	13,25	218
DVC.3-72-64-33,5-M12-*	72	33,5	M12	64	12	342	434681	2894	8,38	346	434581	3936	8,38	470	434781	5708	8,38	682
DVC.3-75-60-40-M12-*	75	40	M12	60	12	360	434686	5708	10	571	434586	3298	10	330	434786	4942	10	494
DVC.3-95-80-75-M16-*	95	75	M16	80	16	690	434691	4942	18,75	264	434591	10382	18,75	554	434791	14873	18,75	793

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DVC.3-SST



DVC.3 - 15 - 8.5 - 15 - SST - M4 - 55

D d1 L Stainless steel d Shore A

STAINLESS STEEL

Description	D	L	d	d1	h	⚖	Hardness 40 Shore A				Hardness 55 Shore A				Hardness 70 Shore A			
							Code	Max load [N]	Max deflection [mm]	Stiffness [N/mm]	Code	Max load [N]	Max deflection [mm]	Stiffness [N/mm]	Code	Max load [N]	Max deflection [mm]	Stiffness [N/mm]
DVC.3-15-8,5-15-SST-M4-55	15	15	M4	8,5	4	6		94	3,75	25	434801	283	3,75	76		211	3,75	56
DVC.3-15-12-15-SST-M4-55	15	15	M4	12	4	8		94	3,75	25	434806	303	3,75	81		211	3,75	56
DVC.3-20-14-15-SST-M6-55	20	15	M6	14	6	13		155	3,75	41	434813	445	3,75	119		223	3,75	60
DVC.3-20-14-19-SST-M6-55	20	19	M6	14	6	16		223	3,75	60	434815	413	4,75	87		374	3,75	100
DVC.3-20-14-20-SST-M6-55	20	20	M6	14	6	17		374	4,75	79	434817	411	5	82		326	4,75	69
DVC.3-21-16-22-SST-M6-55	21	22	M6	16	6	18		326	5	65	434821	431	5,5	78		316	5	63
DVC.3-20-12-30-SST-M6-55	20	30	M6	12	6	19		316	5,5	57	434811	297	7,5	40		367	5,5	67
DVC.3-20-14-30-SST-M6-55	20	30	M6	14	6	23		281	7,5	37	434819	412	7,5	55		266	7,5	35
DVC.3-25-18-20-SST-M6-55	25	20	M6	18	6	27		383	7,5	51	434831	1823	5	365		277	7,5	37
DVC.3-25-20-20-SST-M6-55	25	20	M6	20	6	30		694	5	139	434836	1889	5	378		1214	5	243
DVC.3-30-22-20-SST-M8-55	30	20	M8	22	8	39	ON REQUEST	1214	5	243	434843	2745	5	549	ON REQUEST	1235	5	247
DVC.3-30-18-25-SST-M8-55	30	25	M8	18	8	42		767	5	153	434841	1837	6,25	294		1488	5	298
DVC.3-35-25-34-SST-M8-55	35	34	M8	25	8	53		1488	6,25	238	434845	3306	8,5	389		919	6,25	147
DVC.3-40-30-25-SST-M8-55	40	25	M8	30	8	64		2871	8,5	338	434855	4624	6,25	740		2141	8,5	252
DVC.3-40-25-30-SST-M8-55	40	30	M8	25	8	72		2141	6,25	343	434853	3075	7,5	410		3326	6,25	532
DVC.3-40-33-30-SST-M8-55	40	30	M8	33	8	80		3326	7,5	444	434859	3317	7,5	442		2219	7,5	296
DVC.3-40-32-50-SST-M8-55	40	50	M8	32	8	98		2219	7,5	296	434857	1537	12,5	123		2564	7,5	342
DVC.3-40-20-48-SST-M8-55	40	48	M8	20	8	86		2564	12,5	205	434851	1808	12	151		965	12,5	77
DVC.3-50-42-30-SST-M10-55	50	30	M10	42	10	125		965	12	80	434856	3109	7,5	415		1088	12	91
DVC.3-55-44-45-SST-M10-55	55	45	M10	44	10	150		3326	7,5	444	434861	2702	11,25	240		2085	7,5	278
DVC.3-57-25-45-SST-M10-55	57	45	M10	25	10	140		2085	11,25	185	434866	2416	11,25	215		1818	11,25	162
DVC.3-60-49-60-SST-M10-55	60	60	M10	49	10	310		1818	11,25	162	434871	5920	15	395		1673	11,25	149
DVC.3-70-45-53-SST-M12-55	70	53	M12	45	12	336		1673	15	112	434876	4419	13,25	333		5181	15	345
DVC.3-72-64-33,5-SST-M12-55	72	33,5	M12	64	12	342		5181	13,25	391	434881	10014	8,38	1196		2894	13,25	218
DVC.3-75-60-40-SST-M12-55	75	40	M12	60	12	360		2894	8,38	346	434886	9566	10	957		5708	8,38	682
DVC.3-95-80-75-SST-M16-55	95	75	M16	80	16	690		5708	10	571	434891	18156	18,75	968		4942	10	494

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Vibration-damping elements

Rubber and steel or rubber and stainless steel

VIBRATION-DAMPING BODY

Natural rubber NR, black colour.
Hardness 40 and 60 Shore A ±5.

STANDARD EXECUTIONS

- **DVE-A**: zinc-plated steel oval mounting flange, base plate and tapped boss.
- **DVE-SST-A**: AISI 304 stainless steel oval mounting flange, base plate and tapped boss.
- **DVE-B**: zinc-plated steel square mounting flange, base plate and tapped boss.
- **DVE-SST-B**: AISI 304 stainless steel square mounting flange, base plate and tapped boss.

FEATURES AND APPLICATIONS

DVE vibration-damping elements are composed of two metallic elements joined together by a rubber anti-vibration body. A round element with a boss with a threaded pass-through hole constitutes the base for fixing the vibrating machine. Another element, oval or square shaped, constitutes the flange for fastening to the floor.
Generally used for applications with rotary machines that do not present big dynamic imbalances, where elasticity is required both vertically and transversely.
They are therefore very suitable for use with compressors, fans, vibrating feeders, rotary pumps or electric motors.
Vibrations can cause:

- malfunctioning and reduction of the machine lifespan and/or of the adjacent ones;
- noise and thus also damage to human health.

Load diagrams for each single code are available on request.
See technical data and guidelines for the choice on page A53

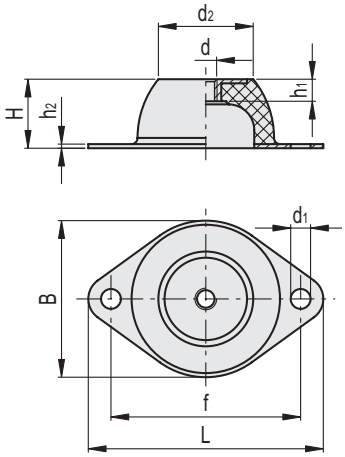
SPECIAL EXECUTIONS ON REQUEST

- AISI 304 stainless steel elements and NR natural rubber with hardness 40 tolerance ± 5 Shore A.
- Executions with AISI 316 stainless steel mounting flange, base plate and tapped boss.
- Executions with NR natural rubber with different hardness.





DVE-A
DVE-SST-A



DVE-A

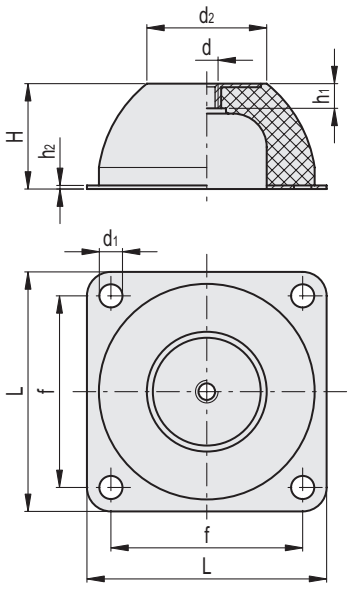
Code	Description	B	L	H	d	h1	d1	h2	d2	f	Static load [N]	Max. deflection [mm]	Stiffness [N/mm]	⚖
434901	DVE-18-M6-A-40	43	64	20	M6	7	7	2	18	50	62.5	5	13	30
434903	DVE-18-M6-A-60	43	64	20	M6	7	7	2	18	50	141	5	28	30
434906	DVE-33-M8-A-40	56	85	25	M8	9	8	2	33	66	378	6.25	60	70
434908	DVE-33-M8-A-60	56	85	25	M8	9	8	2	33	66	617	6	103	70
434911	DVE-45-M10-A-40	76	114	35	M10	11	10	2	45	92	643	8.75	73	160
434913	DVE-45-M10-A-60	76	114	35	M10	11	10	2	45	92	1374	8.75	157	160
434916	DVE-53-M10-A-40	96	136	40	M10	11	11,5	2	53	110	855	10	86	265
434918	DVE-53-M10-A-60	96	136	40	M10	11	11,5	2	53	110	2307	10	231	265
434921	DVE-58-M10-A-40	101	151	45	M10	11	11,5	3	58	124	1785	11.25	159	400
434923	DVE-58-M10-A-60	101	151	45	M10	11	11,5	3	58	124	3230	11.25	287	400

DVE-SST-A **STAINLESS STEEL**

Code	Description	B	L	H	d	h1	d1	h2	d2	f	Static load [N]	Max. deflection [mm]	Stiffness [N/mm]	⚖
434951	DVE-18-SST-M6-A-60	43	64	20	M6	7	7	2	18	50	141	5	28	30
434956	DVE-33-SST-M8-A-60	56	85	25	M8	9	8	2	33	66	617	6	103	70
434961	DVE-45-SST-M10-A-60	76	114	35	M10	11	10	2	45	92	1374	8.75	157	160
434966	DVE-53-SST-M10-A-60	96	136	40	M10	11	11,5	2	53	110	2307	10	231	265
434971	DVE-58-SST-M10-A-60	101	151	45	M10	11	11,5	3	58	124	3230	11.25	287	400

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DVE-B
DVE-SST-B



DVE-B

Code	Description	L	H	d	h1	d1	h2	d2	f	Static load [N]	Max. deflection [mm]	Stiffness [N/mm]	⚖
434926	DVE-78-M12-B-40	150	63	M12	13	14,5	3	78	120	3073	15.75	195	1025
434928	DVE-78-M12-B-60	150	63	M12	13	14,5	3	78	120	7470	15.75	474	1025
434931	DVE-100-M16-B-40	200	85	M16	16	14,5	3	100	160	8486	21.25	399	2315
434933	DVE-100-M16-B-60	200	85	M16	16	14,5	3	100	160	6003	21.25	282	2315
434936	DVE-186-M24-B-40	310	160	M24	40	18	4	186	250	10528	40	263	10500
434938	DVE-186-M24-B-60	310	160	M24	40	18	4	186	250	20812	46.5	448	10500

DVE-SST-B

STAINLESS STEEL

Code	Description	L	H	d	h1	d1	h2	d2	f	Static load [N]	Max. deflection [mm]	Stiffness [N/mm]	⚖
434976	DVE-78-SST-M12-B-60	150	63	M12	13	14,5	3	78	120	7470	15.75	474	1025
434981	DVE-100-SST-M16-B-60	200	85	M16	16	14,5	3	100	160	6003	21.25	282	2315
434986	DVE-186-SST-M24-B-60	310	160	M24	40	18	4	186	250	20812	46.5	448	10500

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Buffers

Retaining washer Stainless Steel

SPECIFICATION

Rubber
Perbunan® (NBR)

- black
- vulcanized to the retaining washer
- temperature resistant up 120 °C
- Hardness Shore A ±5

soft* **40**
medium **55**
hard* **70**

* not available from stock and requires a minium order quanitity.

Retaining washer
Stainless Steel A2

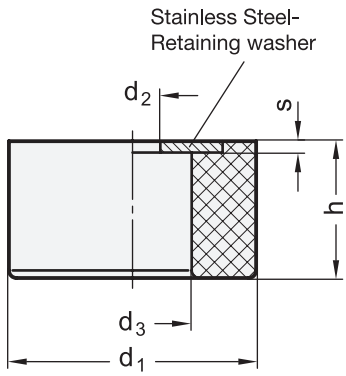


INFORMATION

Buffers GN 454 are used as end-stop buffers, e.g. conveyor trolleys. They can be fixed on the damping side with socket head cap screws DIN 912.
They absorb most of the kinetic energy development on impact. They act as dampers and prevent damaging shock and rebound. They also act as sound dampers.
These buffers are also used as levelling feet.

TECHNICAL INFORMATION

- Elastomer characteristics (see page A32)



GN 454 **STAINLESS STEEL**

Description	d1	h	d2	d3	s	Spring rate ≈ in N/mm (Hardness 55)	max. load in N (Hardness 55)	Max. travel ≈ in mm	⚖
GN 454-16-8-4,3-55	16	8	4.3	8	1	140	280	2	2
GN 454-20-10-5,3-55	20	10	5.3	9.5	1.2	148	370	2.5	4
GN 454-25-12-6,4-55	25	12	6.4	12.2	1.6	210	630	3	7
GN 454-35-16-8,4-55	35	16	8.4	14	2	345	1380	4	20
GN 454-42-20-10,5-55	42	20	10.5	17.5	2.5	360	1800	5	35
GN 454-56-24-13-55	56	24	13	19.5	3	577	3460	6	76

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GN 919

Hubs with eccentrical cam

SPECIFICATION

Sintered Steel

- case hardened, EHT 0.2 to 0.4 mm
- blank

INFORMATION

Hubs with eccentrical cam GN 919 are used for adjusting and clamping operations. As a rule these are fitted with a gear lever handle GN 310 (see page 566).
The cam offers the advantage that the clamping force remains constant in every position of its travel. In addition the cam is self locking.
Cylinder head shoulder bolts GN 732 (see page 919) can be used as bearing pins.

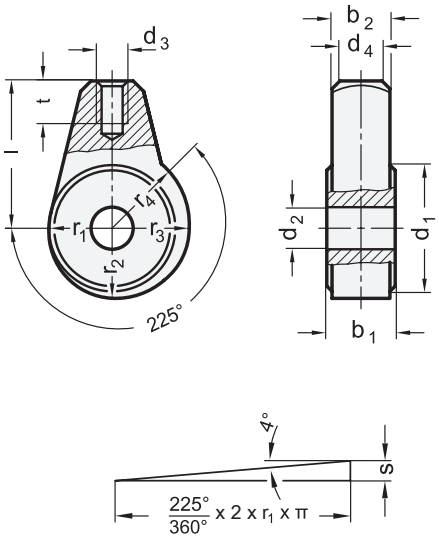
ACCESSORY

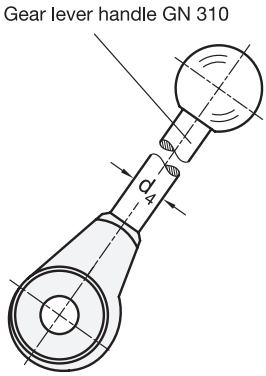
- Gear lever handles GN 310 (are to be ordered seperately) (see page 566)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)







GN 919

Description	d1	d2 H9	b1 -0.05/-0.15	b2	d3	d4	l	r1	r2	r3	r4	s	t min.	⚖
GN 919-24-B8	24	B 8	13	11	M 6	8	28	12	13.32	14.64	15.3	3.3	9	59
GN 919-30-B10	30	B 10	15	13	M 8	10	32	15	16.65	18.3	19.12	4.1	12	100
GN 919-35-B12	35	B 12	17	15	M 10	12	36	17.5	19.42	21.34	22.31	4.8	15	150

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Eccentrical cams

radial clamping

SPECIFICATION

Types

- Type **KV**: with ball lever, angular (serration)
- Type **GV**: with ball lever, straight (serration)
- Type **SK**: with hexagon

Clamping direction

- Type **R**: by clockwise rotation (drawn version)
- Type **L**: by anti-clockwise rotation

Steel

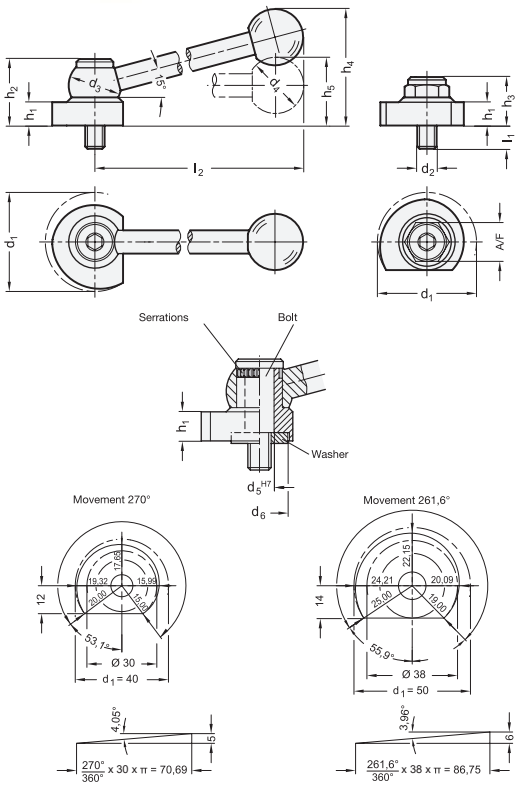
- blackened
- Eccentrical cam and washer, case hardened
- Screw bolt nitrided, Tensile strength class 8.8

Ball knob DIN 319 (see page 538)
Plastic
Duroplast
black, shiny finish

INFORMATION

Eccentrical cams GN 918 allow the rapid and safe clamping and releasing at a relatively large adjustable range and with high clamping force. The cam not only has the advantage that the clamping effect is of the same magnitude over the whole of the clamping surface (i.e. in every angular position), but also that it is self-arresting in every position.
The ball lever is linked with the eccentric cam via a serrated ratchet, allowing the adjustment of the most suitable clamping position or the "readjustment" of the handle.
Screw bolt and washer (see technical instructions) are matched to ensure that the eccentric cam can be easily turned after tightening. Using a washer requires no special requirements in terms of the threaded hole design. This means it can also be mounted on tables using T grooves.





GN 918

Description	d1 -0.5	d2	d3	d4	d5	d6	h1	h2	h3	h4 ≈	h5	l1	l2 ≈	A/F	⚖
GN 918-40-GV-R	40	M 8	24	25	10	20	10	31	-	-	31	8	100	-	178
GN 918-40-GV-L	40	M 8	24	25	10	20	10	31	-	-	31	8	100	-	178
GN 918-50-GV-R	50	M 10	28	30	12	24	12	34.5	-	-	36	11	116	-	313
GN 918-50-GV-L	50	M 10	28	30	12	24	12	34.5	-	-	36	11	116	-	313
GN 918-40-KV-R	40	M 8	24	25	10	20	10	31	-	55	-	8	100	-	179
GN 918-40-KV-L	40	M 8	24	25	10	20	10	31	-	55	-	8	100	-	179
GN 918-50-KV-R	50	M 10	28	30	12	24	12	34.5	-	62	-	11	116	-	315
GN 918-50-KV-L	50	M 10	28	30	12	24	12	34.5	-	62	-	11	116	-	315
GN 918-40-SK-R	40	M 8	-	-	10	20	10	-	21	-	-	8	-	15	87
GN 918-40-SK-L	40	M 8	-	-	10	20	10	-	21	-	-	8	-	15	87
GN 918-50-SK-R	50	M 10	-	-	12	24	12	-	24	-	-	11	-	19	159
GN 918-50-SK-L	50	M 10	-	-	12	24	12	-	24	-	-	11	-	19	159

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GN 918.5

Stainless Steel-
Eccentrical cams

radial clamping

SPECIFICATION

Types

- Type **KV**: with ball lever, angular (serration)
- Type **GV**: with ball lever, straight (serration)
- Type **SK**: with hexagon

Clamping direction

- Type **R**: by clockwise rotation (drawn version)
- Type **L**: by anti-clockwise rotation

Stainless Steel

- Eccentrical cam, AISI 303, chemically nickel plated
- Screw bolt and washer, AISI 630, tempered chemically nickel plated
- Ball lever (Type KV), AISI 303, matt shot-blasted

Ball knob DIN 319 (see page 538)
Plastic
Duroplast
Shiny finish

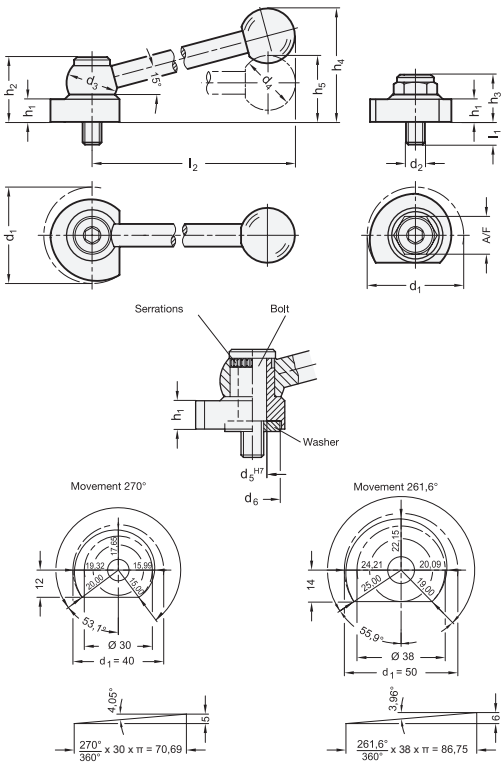
INFORMATION

Stainless Steel-Eccentrical cams GN 918.5 allow the rapid and safe clamping and releasing at a relatively large adjustable range and with high clamping force. The cam not only has the advantage that the clamping effect is of the same magnitude over the whole of the clamping surface (i.e. in every angular position), but also that it is self-arresting in every position.
The ball lever is linked with the eccentric cam via a serrated ratchet, allowing the adjustment of the most suitable clamping position or the "readjustment" of the handle.
Screw bolt and washer (see technical instructions) are matched to ensure that the eccentric cam can be easily turned after tightening. Using a washer requires no special requirements in terms of the threaded hole design. This means it can also be mounted on tables using T grooves.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)





GN 918.5 — **STAINLESS STEEL**

Description	d1 -0.5	d2	d3	d4	d5	d6	h1	h2	h3	h4 ≈	h5	l1	l2 ≈	A/F	⚖
GN 918.5-40-GV-R	40	M 8	24	25	10	20	10	31	-	-	31	8	100	-	177
GN 918.5-40-GV-L	40	M 8	24	25	10	20	10	31	-	-	31	8	100	-	177
GN 918.5-50-GV-R	50	M 10	28	30	12	24	12	34.5	-	-	36	11	116	-	312
GN 918.5-50-GV-L	50	M 10	28	30	12	24	12	34.5	-	-	36	11	116	-	312
GN 918.5-40-KV-R	40	M 8	24	25	10	20	10	31	-	55	-	8	100	-	179
GN 918.5-40-KV-L	40	M 8	24	25	10	20	10	31	-	55	-	8	100	-	179
GN 918.5-50-KV-R	50	M 10	28	30	12	24	12	34.5	-	62	-	11	116	-	310
GN 918.5-50-KV-L	50	M 10	28	30	12	24	12	34.5	-	62	-	11	116	-	310
GN 918.5-40-SK-R	40	M 8	-	-	10	20	10	-	21	-	-	8	-	15	90
GN 918.5-40-SK-L	40	M 8	-	-	10	20	10	-	21	-	-	8	-	15	90
GN 918.5-50-SK-R	50	M 10	-	-	12	24	12	-	24	-	-	11	-	19	154
GN 918.5-50-SK-L	50	M 10	-	-	12	24	12	-	24	-	-	11	-	19	154

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Clamping bolts

upward axial clamping

SPECIFICATION

Types

- Type **KV**: with ball lever, angular (serration)
- Type **GV**: with ball lever, straight (serration)
- Type **SK**: with hexagon

Clamping direction

- Type **R**: by clockwise rotation (drawn version)
- Type **L**: by anti-clockwise rotation

Steel

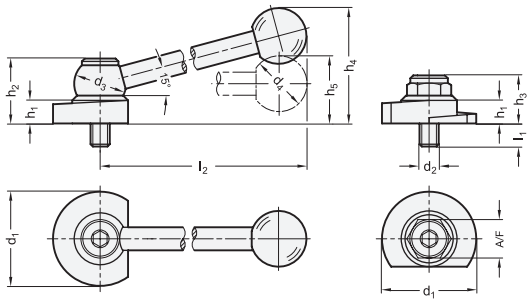
- blackened
- Eccentrical cam and washer, case hardened
- Screw bolt nitrided, Tensile strength class 8.8

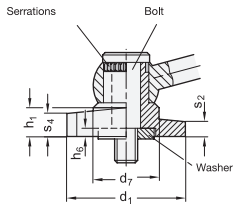
Ball knob DIN 319 (see page 538)
Plastic
Duroplast
black, shiny finish

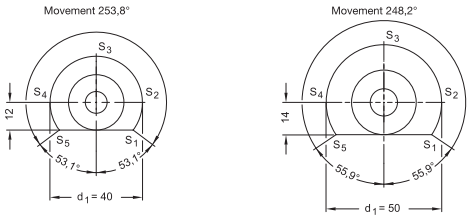
INFORMATION

Clamping bolts GN 918.1 have a circumferential wedge surface, allowing the rapid and safe clamping and releasing at a relatively large adjustable range and with high clamping force. Owing to the small pitch angle (wedge angle), the clamping bolt is self-arresting.
The ball lever is linked with the clamping bolt via a serrated ratchet, allowing the adjustment of the most suitable clamping position or the „readjustment" of the handle.
Screw bolt and washer (see technical instructions) are matched to ensure that the clamping bolt can be easily turned after tightening. Using a washer requires no special requirements in terms of the threaded hole design. This means it can also be mounted on tables using T grooves.
Clamping bolts have the advantage that they can be turned after releasing in the clamping zone.
The use of GN 605 (see page 928) ball point screws with flattened ball is recommended in connection with the clamping bolts.









GN 918.1

Description	d1 -0.5	d2	d3	d4	d7	h1	h2	h3	h4 ≈	h5	h6	l1	l2 ≈	A/F	⚖
GN 918.1-40-GV-R	40	M 8	24	25	24	10	31	-	-	31	3.6	8	100	-	179
GN 918.1-40-GV-L	40	M 8	24	25	24	10	31	-	-	31	3.6	8	100	-	179
GN 918.1-50-GV-R	50	M 10	28	30	28	12	34.5	-	-	36	4	11	116	-	306
GN 918.1-50-GV-L	50	M 10	28	30	28	12	34.5	-	-	36	4	11	116	-	306
GN 918.1-40-KV-R	40	M 8	24	25	24	10	31	-	55	-	3.6	8	100	-	180
GN 918.1-40-KV-L	40	M 8	24	25	24	10	31	-	55	-	3.6	8	100	-	180
GN 918.1-50-KV-R	50	M 10	28	30	28	12	34.5	-	62	-	4	11	116	-	305
GN 918.1-50-KV-L	50	M 10	28	30	28	12	34.5	-	62	-	4	11	116	-	305
GN 918.1-40-SK-R	40	M 8	-	-	24	10	-	21	-	-	3.6	8	-	15	68
GN 918.1-40-SK-L	40	M 8	-	-	24	10	-	21	-	-	3.6	8	-	15	68
GN 918.1-50-SK-R	50	M 10	-	-	28	12	-	24	-	-	4	11	-	19	154
GN 918.1-50-SK-L	50	M 10	-	-	28	12	-	24	-	-	4	11	-	19	154

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GN 918.6

Stainless Steel-Clamping bolts

upward axial clamping

SPECIFICATION

Types

- Type **KV**: with ball lever, angular (serration)
- Type **GV**: with ball lever, straight (serration)
- Type **SK**: with hexagon

Clamping direction

- Type **R**: by clockwise rotation (drawn version)
- Type **L**: by anti-clockwise rotation

Stainless Steel

- Eccentrical cam, AISI 303, chemically nickel plated
- Screw bolt and washer, AISI 630, tempered, chemically nickel plated
- Ball lever (Type KV), AISI 303, matt shot-blasted

Ball knob DIN 319 (see page 538)
Plastic
Duroplast
black, shiny finish

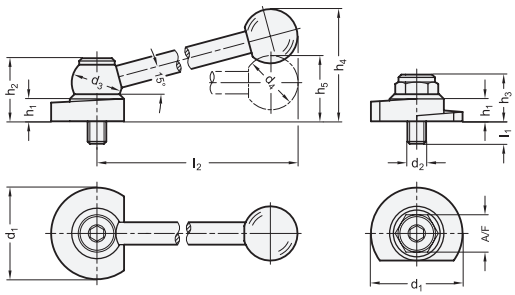
INFORMATION

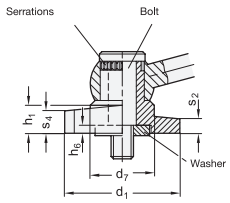
Stainless Steel-Clamping bolts GN 918.6 have a circumferential wedge surface, allowing the rapid and safe clamping and releasing at a relatively large adjustable range and with high clamping force. Owing to the small pitch angle (wedge angle), the clamping bolt is self-arresting.
The ball lever is linked with the clamping bolt via a serrated ratchet, allowing the adjustment of the most suitable clamping position or the „readjustment" of the handle.
Screw bolt and washer (see technical instructions) are matched to ensure that the clamping bolt can be easily turned after tightening. Using a washer requires no special requirements in terms of the threaded hole design. This means it can also be mounted on tables using T grooves.
Clamping bolts have the advantage that they can be turned after releasing in the clamping zone.
The use of GN 605 (see page 928) ball point screws with flattened ball is recommended in connection with the clamping bolts.

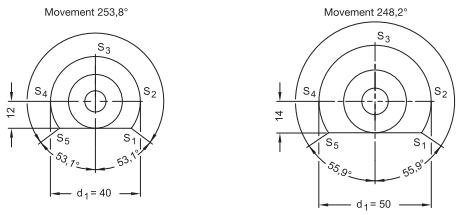
TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)









GN 918.6 — **STAINLESS STEEL**

Description	d1 -0.5	d2	d3	d4	d7	h1	h2	h3	h4 ≈	h5	h6	l1	l2 ≈	A/F	⚖
GN 918.6-40-GV-R	40	M 8	24	25	24	10	31	-	-	31	3.6	8	100	-	177
GN 918.6-40-GV-L	40	M 8	24	25	24	10	31	-	-	31	3.6	8	100	-	177
GN 918.6-50-GV-R	50	M 10	28	30	28	12	34.5	-	-	36	4	11	116	-	307
GN 918.6-50-GV-L	50	M 10	28	30	28	12	34.5	-	-	36	4	11	116	-	307
GN 918.6-40-KV-R	40	M 8	24	25	24	10	31	-	55	-	3.6	8	100	-	179
GN 918.6-40-KV-L	40	M 8	24	25	24	10	31	-	55	-	3.6	8	100	-	179
GN 918.6-50-KV-R	50	M 10	28	30	28	12	34.5	-	62	-	4	11	116	-	310
GN 918.6-50-KV-L	50	M 10	28	30	28	12	34.5	-	62	-	4	11	116	-	310
GN 918.6-40-SK-R	40	M 8	-	-	24	10	-	21	-	-	3.6	8	-	15	87
GN 918.6-40-SK-L	40	M 8	-	-	24	10	-	21	-	-	3.6	8	-	15	87
GN 918.6-50-SK-R	50	M 10	-	-	28	12	-	24	-	-	4	11	-	19	154
GN 918.6-50-SK-L	50	M 10	-	-	28	12	-	24	-	-	4	11	-	19	154

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Clamping bolts

downward axial clamping

SPECIFICATION

Types

- Type **KV**: with ball lever, angular (serration)
- Type **GV**: with ball lever, straight (serration)
- Type **SK**: with hexagon

Clamping direction

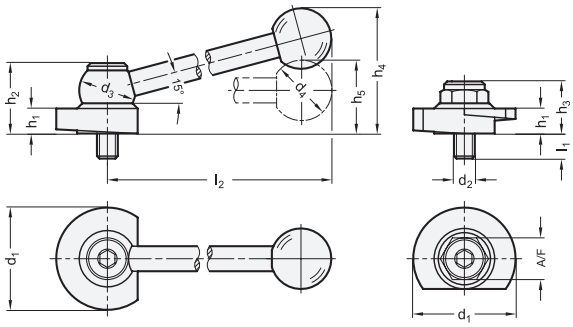
- Type **R**: by clockwise rotation (drawn version)
- Type **L**: by anti-clockwise rotation

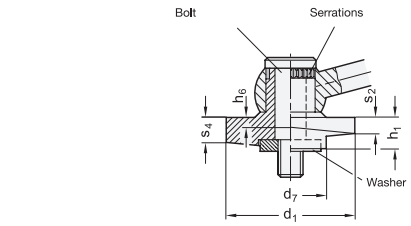
Steel

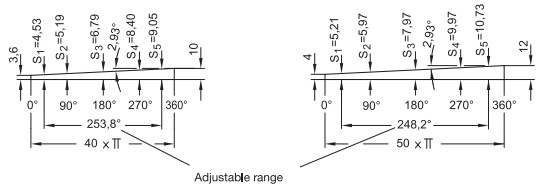
- blackened
- Eccentrical cam and washer, case hardened
- Screw bolt nitrided, Tensile strength class 8.8

Ball knob DIN 319 (see page 538)
Plastic
Duroplast
black, shiny finish









INFORMATION

Clamping bolts GN 918.2 have a circumferential wedge surface, allowing the rapid and safe clamping and releasing at a relatively large adjustable range and with high clamping force. Owing to the small pitch angle (wedge angle), the eccentric cam is self-arresting.
The ball lever is linked with the clamping bolt via a serrated ratchet, allowing the adjustment of the most suitable clamping position or the „readjustment" of the handle.
Screw bolt and washer (see technical instructions) are matched to ensure that the clamping bolt can be easily turned after tightening. Using a washer requires no special requirements in terms of the threaded hole design. This means it can also be mounted on tables using T grooves.
Clamping bolts have the advantage that they can be turned after releasing in the clamping zone.
The use of GN 605 (see page 928) ball point screws with flattened ball is recommended in connection with the clamping bolts.

GN 918.2

Description	d1 -0.5	d2	d3	d4	d7	h1	h2	h3	h4 ≈	h5	h6	l1	l2 ≈	A/F	⚖
GN 918.2-40-GV-R	40	M 8	24	25	24	10	31	-	-	31	3.6	8	100	-	177
GN 918.2-40-GV-L	40	M 8	24	25	24	10	31	-	-	31	3.6	8	100	-	177
GN 918.2-50-GV-R	50	M 10	28	30	28	12	34.5	-	-	36	4	11	116	-	308
GN 918.2-50-GV-L	50	M 10	28	30	28	12	34.5	-	-	36	4	11	116	-	308
GN 918.2-40-KV-R	40	M 8	24	25	24	10	31	-	55	-	3.6	8	100	-	180
GN 918.2-40-KV-L	40	M 8	24	25	24	10	31	-	62	-	3.6	8	100	-	180
GN 918.2-50-KV-R	50	M 10	28	30	28	12	34.5	-	55	-	4	11	116	-	310
GN 918.2-50-KV-L	50	M 10	28	30	28	12	34.5	-	62	-	4	11	116	-	310
GN 918.2-40-SK-R	40	M 8	-	-	24	10	-	21	-	-	3.6	8	-	15	87
GN 918.2-40-SK-L	40	M 8	-	-	24	10	-	21	-	-	3.6	8	-	15	87
GN 918.2-50-SK-R	50	M 10	-	-	28	12	-	24	-	-	4	11	-	19	157
GN 918.2-50-SK-L	50	M 10	-	-	28	12	-	24	-	-	4	11	-	19	157

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Stainless Steel-Clamping bolts

downward axial clamping

SPECIFICATION

Types

- Type **KV**: with ball lever, angular (serration)
- Type **GV**: with ball lever, straight (serration)
- Type **SK**: with hexagon

Clamping direction

- Type **R**: by clockwise rotation (drawn version)
- Type **L**: by anti-clockwise rotation

Stainless Steel

- Eccentrical cam, AISI 303, chemically nickel plated
- Screw bolt and washer, AISI 630, tempered, chemically nickel plated
- Ball lever (Type KV), AISI 303, matt shot-blasted

Ball knob DIN 319 (see page 538)
Plastic
Duroplast
black, shiny finish

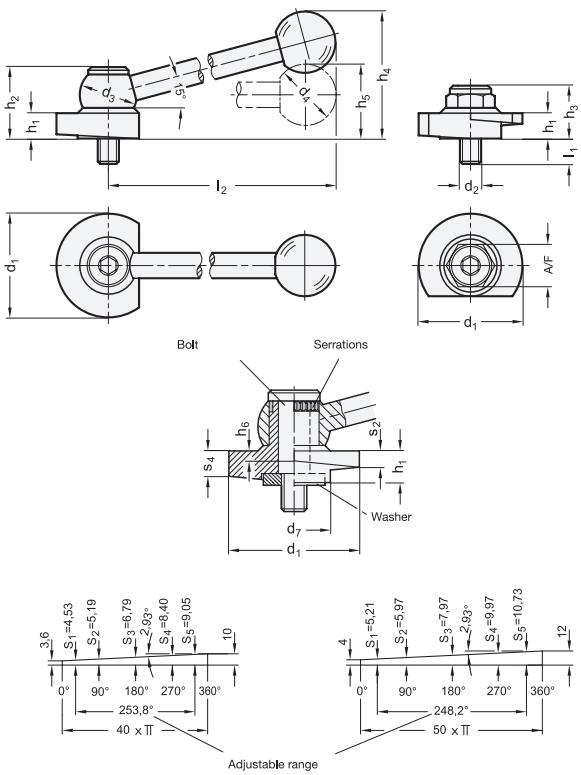
INFORMATION

Stainless Steel-Clamping bolts GN 918.7 have a circumferential wedge surface, allowing the rapid and safe clamping and releasing at a relatively large adjustable range and with high clamping force. Owing to the small pitch angle (wedge angle), the clamping bolt is self-arresting.
The ball lever is linked with the clamping bolt via a serrated ratchet, allowing the adjustment of the most suitable clamping position or the „readjustment" of the handle.
Screw bolt and washer (see technical instructions) are matched to ensure that the clamping bolt can be easily turned after tightening. Using a washer requires no special requirements in terms of the threaded hole design. This means it can also be mounted on tables using T grooves.
Clamping bolts have the advantage that they can be turned after releasing in the clamping zone.
The use of GN 605 (see page 928) ball point screws with flattened ball is recommended in connection with the clamping bolts.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)





GN 918.7 — **STAINLESS STEEL**

Description	d1 -0.5	d2	d3	d4	d7	h1	h2	h3	h4 ≈	h5	h6	l1	l2 ≈	A/F	⚖
GN 918.7-40-GV-R	40	M 8	24	25	24	10	31	-	-	31	3.6	8	100	-	178
GN 918.7-40-GV-L	40	M 8	24	25	24	10	31	-	-	31	3.6	8	100	-	178
GN 918.7-50-GV-R	50	M 10	28	30	28	12	34.5	-	-	36	4	11	116	-	350
GN 918.7-50-GV-L	50	M 10	28	30	28	12	34.5	-	-	36	4	11	116	-	350
GN 918.7-40-KV-R	40	M 8	24	25	24	10	31	-	55	-	3.6	8	100	-	181
GN 918.7-40-KV-L	40	M 8	24	25	24	10	31	-	55	-	3.6	8	100	-	181
GN 918.7-50-KV-R	50	M 10	28	30	28	12	34.5	-	62	-	4	11	116	-	310
GN 918.7-50-KV-L	50	M 10	28	30	28	12	34.5	-	62	-	4	11	116	-	310
GN 918.7-40-SK-R	40	M 8	-	-	24	10	-	21	-	-	3.6	8	-	15	88
GN 918.7-40-SK-L	40	M 8	-	-	24	10	-	21	-	-	3.6	8	-	15	88
GN 918.7-50-SK-R	50	M 10	-	-	28	12	-	24	-	-	4	11	-	19	156
GN 918.7-50-SK-L	50	M 10	-	-	28	12	-	24	-	-	4	11	-	19	156

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Serrated locking plates

Steel / Stainless Steel



SPECIFICATION

Types

Type **A**: with tapped hole d3
in the centre, with two countersunk holes
for socket head cap screws

Type **B**: with bore d4 in the centre,
with two countersunk holes
for socket head cap screws

Type **C**: with tapped hole d3
in the centre, with two tapped mounting holes

Type **D**: with bore d4 in the centre,
with two tapped mounting holes

Type **E**: without bores
blank, not hardened

Version in Sintered Steel (Distaloy AB) ST
hardened, black oxidised with vapor

Version in Stainless Steel (Sintered Steel) NI
AISI 316L

INFORMATION

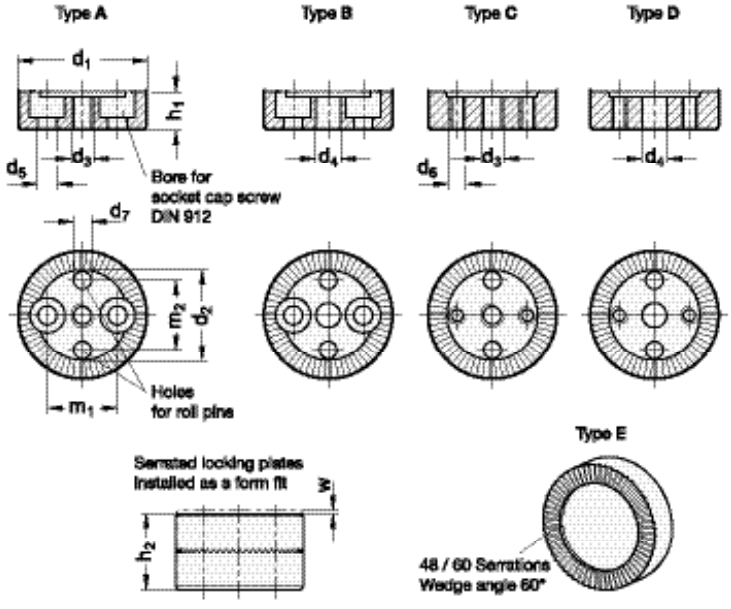
With the aid of serrated locking plates GN 187.4 standard components can be interlocked and firmly set at a defined angle.
The angular position of the fixing bores in relation to the serrations is not defined in the standard design. The exact positioning is available as special design.
The range of designs makes these plates adapt-able for almost any application in this particular field. To complement these serrated locking plates, accessories such as guide pots GN 187.1 (see page 1065) and thrust springs GN 187.2 (see page 1065) are useful additional standard parts.

ACCESSORY

- Guide pots GN 187.1 (see page 1065)
- Thrust springs GN 187.2 (see page 1065)

TECHNICAL INFORMATION

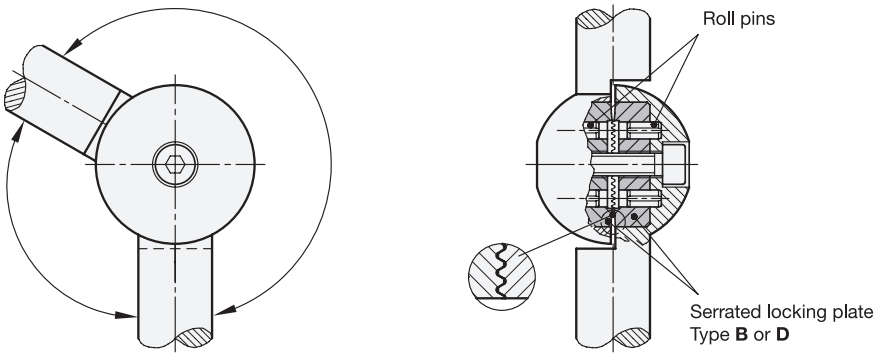
- Stainless Steel characteristics (see page A26)



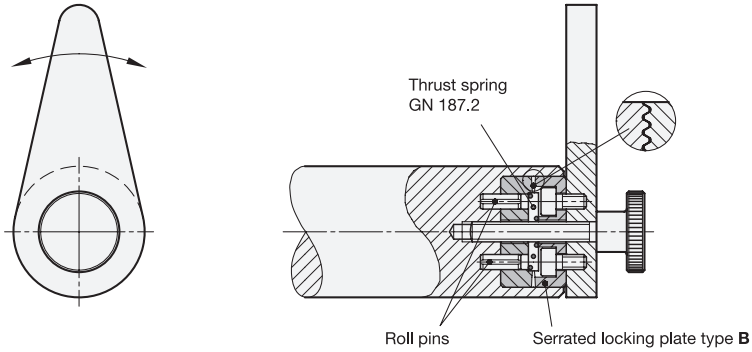
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MOUNTING APPLICATIONS FOR SERRATED LOCKING PLATES

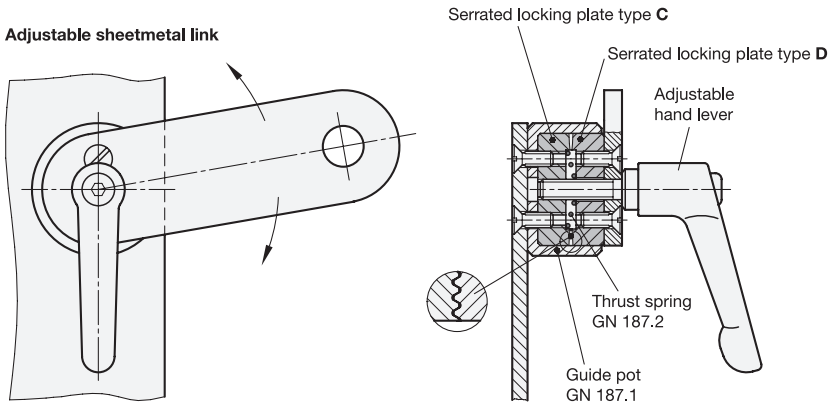
Connection of two joint rods



Connection cam / shaft



Adjustable sheetmetal link



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GN 187.4 | Serrated locking plates

*Complete with Material of the Serrated locking plates (ST or NI)

ST Steel
NI Stainless Steel

GN 187.4 **STAINLESS STEEL**

Description	d1	z	d2	d3	d4	d5	d6	d7	h1 ±0.09 Middle of the teeth	h2	m1	m2	w min.	⚖
GN 187.4-22-48-A-*	22	48	15.5	M 4	-	3.2	-	3	6.5	13	12	12	0.6	13
GN 187.4-22-60-A-*	22	60	15.5	M 4	-	3.2	-	3	6.5	13	12	12	0.6	13
GN 187.4-27-48-A-*	27	48	19.5	M 5	-	4.3	-	4	7.5	15	15	15	0.7	22
GN 187.4-27-60-A-*	27	60	19.5	M 5	-	4.3	-	4	7.5	15	15	15	0.7	22
GN 187.4-32-48-A-*	32	48	23.5	M 6	-	5.3	-	5	9	18	18	18	0.9	36
GN 187.4-32-60-A-*	32	60	23.5	M 6	-	5.3	-	5	9	18	18	18	0.9	36
GN 187.4-40-48-A-*	40	48	30	M 8	-	6.3	-	6	11.5	23	23	23	1.3	73
GN 187.4-40-60-A-*	40	60	30	M 8	-	6.3	-	6	11.5	23	23	23	1.3	73
GN 187.4-22-48-B-*	22	48	15.5	-	4.2	3.2	-	3	6.5	13	12	12	0.6	13
GN 187.4-22-60-B-*	22	60	15.5	-	4.2	3.2	-	3	6.5	13	12	12	0.6	13
GN 187.4-27-48-B-*	27	48	19.5	-	5.2	4.3	-	4	7.5	15	15	15	0.7	22
GN 187.4-27-60-B-*	27	60	19.5	-	5.2	4.3	-	4	7.5	15	15	15	0.7	22
GN 187.4-32-48-B-*	32	48	23.5	-	6.2	5.3	-	5	9	18	18	18	0.9	36
GN 187.4-32-60-B-*	32	60	23.5	-	6.2	5.3	-	5	9	18	18	18	0.9	36
GN 187.4-40-48-B-*	40	48	30	-	8.2	6.3	-	6	11.5	23	23	23	1.3	72
GN 187.4-40-60-B-*	40	60	30	-	8.2	6.3	-	6	11.5	23	23	23	1.3	72
GN 187.4-22-48-C-*	22	48	15.5	M 4	-	-	M 3	3	6.5	13	12	12	0.6	13
GN 187.4-22-60-C-*	22	60	15.5	M 4	-	-	M 3	3	6.5	13	12	12	0.6	13
GN 187.4-27-48-C-*	27	48	19.5	M 5	-	-	M 4	4	7.5	15	15	15	0.7	22
GN 187.4-27-60-C-*	27	60	19.5	M 5	-	-	M 4	4	7.5	15	15	15	0.7	22
GN 187.4-32-48-C-*	32	48	23.5	M 6	-	-	M 5	5	9	18	18	18	0.9	36
GN 187.4-32-60-C-*	32	60	23.5	M 6	-	-	M 5	5	9	18	18	18	0.9	41
GN 187.4-40-48-C-*	40	48	30	M 8	-	-	M 6	6	11.5	23	23	23	1.3	81
GN 187.4-40-60-C-*	40	60	30	M 8	-	-	M 6	6	11.5	23	23	23	1.3	81
GN 187.4-22-48-D-*	22	48	15.5	-	4.2	-	M 3	3	6.5	13	12	12	0.6	13
GN 187.4-22-60-D-*	22	60	15.5	-	4.2	-	M 3	3	6.5	13	12	12	0.6	13
GN 187.4-27-48-D-*	27	48	19.5	-	5.2	-	M 4	4	7.5	15	15	15	0.7	24
GN 187.4-27-60-D-*	27	60	19.5	-	5.2	-	M 4	4	7.5	15	15	15	0.7	24
GN 187.4-32-48-D-*	32	48	23.5	-	6.2	-	M 5	5	9	18	18	18	0.9	36
GN 187.4-32-60-D-*	32	60	23.5	-	6.2	-	M 5	5	9	18	18	18	0.9	40
GN 187.4-40-48-D-*	40	48	30	-	8.2	-	M 6	6	11.5	23	23	23	1.3	80
GN 187.4-40-60-D-*	40	60	30	-	8.2	-	M 6	6	11.5	23	23	23	1.3	80
GN 187.4-22-48-E-*	22	48	15.5	-	4.2	-	-	-	6.5	13	-	-	0.6	15
GN 187.4-22-60-E-*	22	60	15.5	-	4.2	-	-	-	6.5	13	-	-	0.6	20
GN 187.4-27-48-E-*	27	48	19.5	-	5.2	-	-	-	7.5	15	-	-	0.7	27
GN 187.4-27-60-E-*	27	60	19.5	-	5.2	-	-	-	7.5	15	-	-	0.7	20
GN 187.4-32-48-E-*	32	48	23.5	-	6.2	-	-	-	9	18	-	-	0.9	46
GN 187.4-32-60-E-*	32	60	23.5	-	6.2	-	-	-	9	18	-	-	0.9	46
GN 187.4-40-48-E-*	40	48	30	-	8.2	-	-	-	11.5	23	-	-	1.3	89
GN 187.4-40-60-E-*	40	60	30	-	8.2	-	-	-	11.5	23	-	-	1.3	89

Weight ST

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GN 187.1

Guide pots

Steel / Stainelss Steel, Accessories for serrated locking plates

SPECIFICATION

Version in Steel ST
blackened

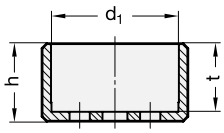
Version in Stainless Steel AISI 303 NI

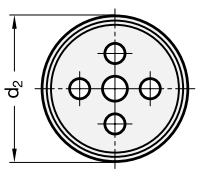
INFORMATION

Serrated locking plates GN 187.4 (see page 1062)









*Complete with material index of the Guide pots (ST or NI)

ST Steel
NI Stainless Steel

GN 187.1 **STAINLESS STEEL**

Description	d1 +0.2/+0.3	d2 -0.5	h	t	For serrated locking plates GN 187.4 - d1	⚖
GN 187.1-22-*	22	26	14.5	12.5	22	20
GN 187.1-27-*	27	31	16.5	14.5	27	28
GN 187.1-32-*	32	36	19.5	17.5	32	38
GN 187.1-40-*	40	44	24.5	22.5	40	59

Weight ST

GN 187.2

Thrust springs

Accessories for serrated locking plates

SPECIFICATION

Stainless Steel AISI 301

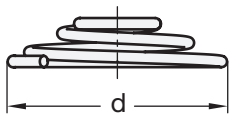
INFORMATION

- Serrated locking plates GN 187.4 (see page 1062)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)





GN 187.2 **STAINLESS STEEL**

Description	d	For serrated locking plates GN 187.4 - d1	Max. spring load in N ≈	⚖
GN 187.2-15	15	22	40	2
GN 187.2-18	18	27	45	2
GN 187.2-23	23	32	65	2
GN 187.2-29	29	40	90	4

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Toothed clamping elements

SUPER-technopolymer

MATERIAL

Glass-fibre reinforced polyamide based (PA) SUPER-tecnopolymer, black colour, matte finish.

STANDARD EXECUTIONS

Central plain pass-through hole and two holes for pins.

- **RDB-F**: front mounting by means of two holes for cylindrical-head screws.
- **RDB-CF**: with built-in case, front mounting by means of two holes for cylindrical-head screws.
- **RDB-B**: rear mounting by means of two pass-through holes and two stainless steel hexagonal nuts (included in the supply).
- **RDB-CB**: with built-in case, rear mounting by means of two pass-through holes and two stainless steel hexagonal nuts (included in the supply).

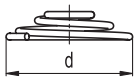
FEATURES AND APPLICATIONS

The toothed clamping elements RDB-F and RDB-B, coupled between them or with the executions RDB-CF or RDB-CB, allow to lock the position of two components rotating around an axis.
The locking angle is adjustable with a pitch of 6 °.

ACCESSORIES ON REQUEST

AISI 301 stainless steel push springs facilitating the detachment of the toothed clamping elements.

Code	Description	d	Max. load [N]	⚖
51965	ML-RDB.32	23	65	2
51967	ML-RDB.40	29	90	4



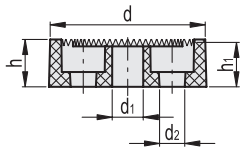




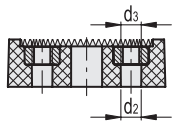




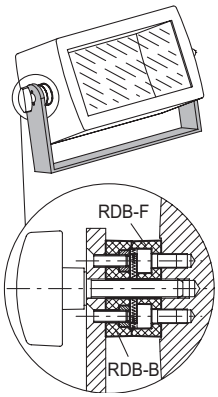
RDB-F



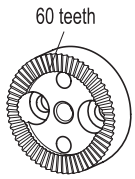
RDB-B

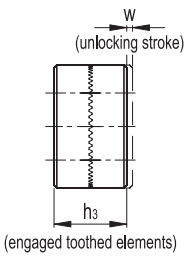


Application example

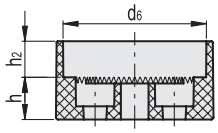


60 teeth

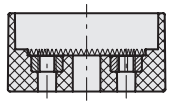


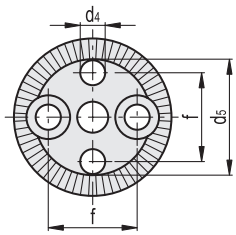


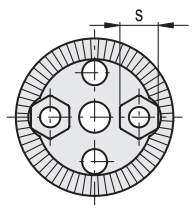
RDB-CF



RDB-CB







Code	Description	d	d1	d2	d3	d4	d5	d6	f	h	h1	h2	h3	s	w min.	C# [Nm]	⚖
51981	RDB.32-60-F	32	6.3	5	-	5	23.5	-	18	9.5	9	-	18	-	1.2	80	9
51991	RDB.40-60-F	40	8.3	6	-	6	30	-	23	12	11.4	-	22.8	-	1.3	120	16
51983	RDB.32-60-B	32	6.3	4	M4	5	23.5	-	18	9.5	9	-	18	7	1.2	80	10
51993	RDB.40-60-B	40	8.3	5	M5	6	30	-	23	12	11.4	-	22.8	8	1.3	120	18
51985	RDB.32-60-CF	35.5	6.3	5	-	5	23.5	32.5	18	9.5	9	8.2	18	-	1.2	80	15
51995	RDB.40-60-CF	43.5	8.3	6	-	6	30	40	23	12	11.4	10.5	22.8	-	1.3	140	26
51987	RDB.32-60-CB	35.5	6.3	4	M4	5	23.5	32.5	18	9.5	9	8.2	18	7	1.2	80	16
51997	RDB.40-60-CB	43.5	8.3	5	M5	6	30	40	23	12	11.4	10.5	22.8	8	1.3	140	28

The maximum torque exercisable (C) is the torque applied to the two fully meshed toothed elements beyond which the material can give rise to some type of failure such as to compromise the functionality of the product. This value will obviously be affected by a coefficient that takes into account the importance and the security level of the specific application.

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GN 917

Double cam levers

SPECIFICATION

Steel

- ST 52-3 / German Material No. 1.0570
- blackened

King pin
Stainless Steel AISI 420
tempered

Circlip
Stainless Steel AISI 301

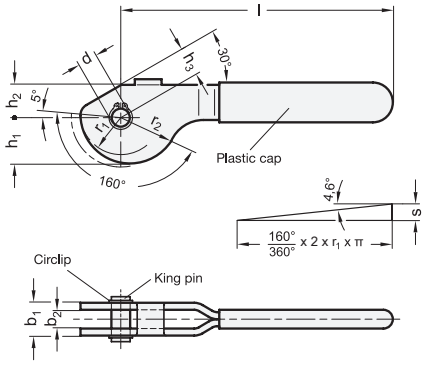
Plastic cover

- red, oil resistant
- temperature resistant up to 60 °C

INFORMATION

Double cam levers GN 917 are used for repositioning and clamping. The eccentrical cam has the advantage that the clamping force remains constant in every position of its travel and in addition is self arresting.
The dimension b_2 is made to match the head size of swing bolts DIN 444 (see page 935) and swing nuts GN 444.2 (see page 936) respectively.





GN 917.1

Stainless Steel-
Double cam levers

SPECIFICATION

Stainless Steel AISI 304
shot-blasted

King pin
Stainless Steel AISI 420
tempered

Circlip
Stainless Steel AISI 301

Plastic cover

- red, oil resistant
- temperature resistant up to 60 °C

INFORMATION

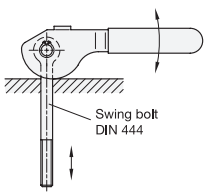
Double cam levers GN 917.1 are used for repositioning and clamping. The eccentrical cam has the advantage that the clamping force remains constant in every position of its travel and in addition is self arresting.
The dimension b_2 is made to match the head size of swing bolts DIN 444 (see page 935) and swing nuts GN 444.2 (see page 936) respectively.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



Application example



GN 917

Description	d	b1	b2	h1	h2	h3	l	r1	r2	s	r2-h3	⚖
GN 917-8-13	8	13	9	19.54	14	12	114	17.2	21.07	3.87	9.07	85
GN 917-10-17	10	17	12	24.54	17	15	138	21.6	26.45	4.85	11.45	170
GN 917-12-20	12	20	14	31.81	21	18	157	28	34.29	6.29	16.29	285

GN 917.1 STAINLESS STEEL

Description	d	b1	b2	h1	h2	h3	l	r1	r2	s	r2-h3	⚖
GN 917.1-8-13	8	13	9	19.54	14	12	114	17.2	21.07	3.87	9.07	86
GN 917.1-10-17	10	17	12	24.54	17	15	138	21.6	26.45	4.85	11.45	165
GN 917.1-12-20	12	20	14	31.81	21	18	157	28	34.29	6.29	16.29	272

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Centring bore clamps

SPECIFICATION

Types

- Type **K**: with clamping balls
- Type **S**: with clamping segments

Steel

- hardened
- blackened

Clamping balls /-segments

- hardened
- blank, ground

INFORMATION

With centring bore clamps GN 411.2 workpieces can be centrally positioned and clamped from the inside of the bore.
They offer the following advantages:
- Precise self centering
- Repetitive accuracy: ± 0.025
- Accuracy of concentricity: ± 0.05
- Solid and stable clamping through either 3 or 6 contact points on the workpiece
- Clamping of workpieces with uneven or irregular surface (such as castings)
- Distortion free clamping
- Reduced height
- Can be fitted in any position
- Large adjustable range
- Draw-down clamping

ON REQUEST

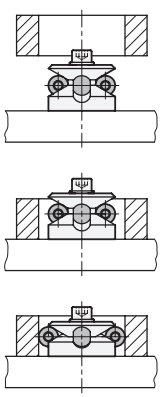
- Centring bore clamps GN 411.3, operable from the opposite side respectively for hydraulic or pneumatic operation
- Centring bore clamps with 2 clamping elements for clamping tubes

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)

Operating principle

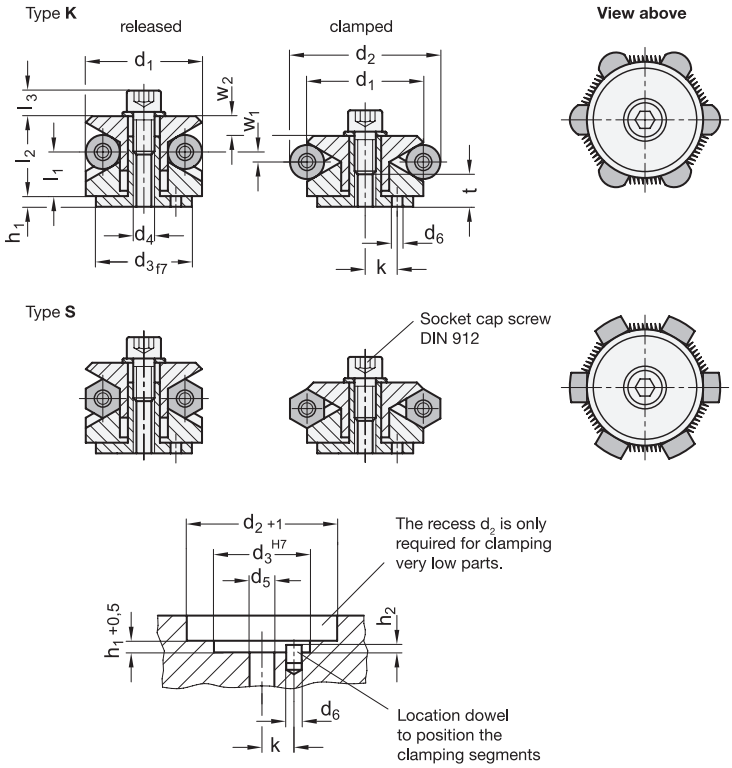
A circular ball cage containing 3 or 6 balls is forced outwards over an accurately guided cone by means of a screw which, through the exerted thrust, will enlarge the outside diameter of the circular ball cage. This in turn will lead to a firm contact between the centring clamp and bore of the workpiece.
Type K (with balls) is used for clamping applications where minute ball marks at the contact points with the workpiece are acceptable.
Type S (with clamping segments) is used in such cases where marks at the clamping points on the workpiece would be acceptable.





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GN 411.2 | Centring bore clamps



GN 411.2

Description	d1	d2	d3	d4	d5	d6	h1	h2	k ±0.1	l1 min.	l2	l3	t min.	w1	w2	Number of clamping elements	Clamping force in kN	⚖
GN 411.2-11,7-K	11.7	14.2	-	M 4	4.3	1.5	-	2.5	3.5	3.9	8.6	6.3	-	0.7	1.3	3	0.5	12
GN 411.2-14,5-K	14.5	18.5	12	M 4	4.3	2	5.5	3.5	4.5	9.8	14.2	5	6	1.2	2.3	3	3.5	20
GN 411.2-18,5-K	18.5	22.5	15	M 5	5.3	2.5	7.5	3	5.5	11.5	16.5	6.2	7	1.2	2.3	3	4	39
GN 411.2-22,5-K	22.5	26.5	20	M 6	6.4	3	6	4	7	14.1	19.6	9	8	1.2	2.3	3	4.5	77
GN 411.2-26,5-K	26.5	30.5	20	M 6	6.4	3	6	4.5	7	14.1	19.8	9	8	1.2	2.3	3	4.5	86
GN 411.2-30,5-K	30.5	38.5	25	M 6	6.4	4	7	4.5	9	14.1	23.2	9	8	2.3	4.6	3	4.5	125
GN 411.2-38,5-K	38.5	46.5	30	M 8	8.4	4	7.5	4.5	11	18	27.2	12	10	2.3	4.6	6	6.5	233
GN 411.2-46,5-K	46.5	54.5	30	M 8	8.4	4	7.5	4.5	11	18	27.1	12	10	2.3	4.6	6	6.5	323
GN 411.2-54,5-K	54.5	70.5	45	M 10	10.5	5	9	5.5	15	23.7	40.6	14	12	4.7	9.2	6	8	653
GN 411.2-70,5-K	70.5	86.5	60	M 12	13	5	10	5.5	17	28.3	46.1	17	15	4.7	9.2	6	10	1271
GN 411.2-86,5-K	86.5	102.5	60	M 16	17	5	10	5.5	25	30.3	51.2	21	15	4.7	9.2	6	12.5	1783
GN 411.2-14,5-S	14.5	18.5	12	M 4	4.3	2	5.5	3.5	4.5	9.8	14.2	5	6	1.2	2.3	3	3.5	20
GN 411.2-18,5-S	18.5	22.5	15	M 5	5.3	2.5	7.5	3	5.5	11.5	16.5	6.2	7	1.2	2.3	3	4	39
GN 411.2-22,5-S	22.5	26.5	20	M 6	6.4	3	6	4	7	14.1	19.6	9	8	1.2	2.3	3	4.5	61
GN 411.2-26,5-S	26.5	30.5	20	M 6	6.4	3	6	4.5	7	14.1	19.8	9	8	1.2	2.3	3	4.5	102
GN 411.2-30,5-S	30.5	38.5	25	M 6	6.4	4	7	4.5	9	14.1	23.2	9	8	2.3	4.6	3	4.5	127
GN 411.2-38,5-S	38.5	46.5	30	M 8	8.4	4	7.5	4.5	11	18	27.2	12	10	2.3	4.6	6	6.5	235
GN 411.2-46,5-S	46.5	54.5	30	M 8	8.4	4	7.5	4.5	11	18	27.1	12	10	2.3	4.6	6	6.5	325
GN 411.2-54,5-S	54.5	70.5	45	M 10	10.5	5	9	5.5	15	23.7	40.6	14	12	4.7	9.2	6	8	660
GN 411.2-70,5-S	70.5	86.5	60	M 12	13	5	10	5.5	17	28.3	46.1	17	15	4.7	9.2	6	10	1280
GN 411.2-86,5-S	86.5	102.5	60	M 16	17	5	10	5.5	25	30.3	51.2	21	15	4.7	9.2	6	12.5	1792

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Wedge clamps

SPECIFICATION

Types

- Type **GL**: smooth clamping surfaces
- Type **GA**: with 2 fixing threads for attachment jaws
- Type **RF**: ribbed clamping surfaces
- Type **PR**: with prism jaws

Steel

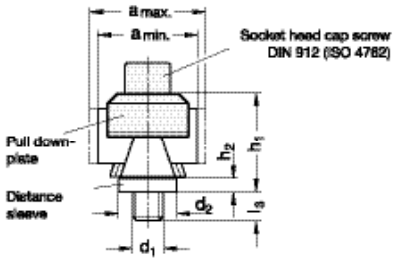
- Wedge surfaces hardened
- blackened

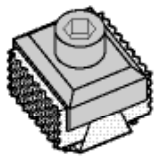
Socket head cap screw DIN 7984
Tensile strength class 10.9 (1000 N/mm²)

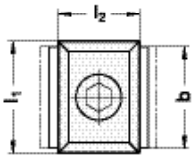


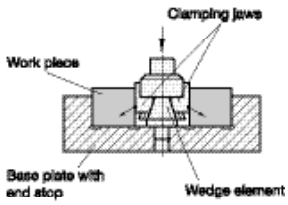
INFORMATION

Clamping with the wedge clamps GN 920.1 is achieved via the socket head cap screw and the clamp wedge which cause both clamping jaws to move outward.
When loosening the screw, the clamp wedge is returned via an **internal** return spring which, in turn, loosens the tension.
Wedge clamps are ideal for multiple clamping operations, but they are also suitable for clamping individual workpieces.
The long hole in the clamp wedge serves to compensate tolerances in the workpiece.

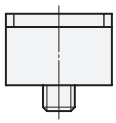


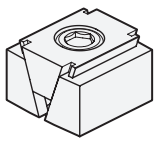




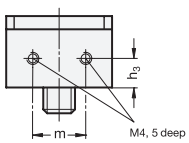


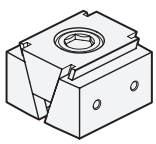
Type **GL** smooth clamping surfaces (jaw blank for workpiece-specific clamping contours)





Type **GA** with 2 fixing threads for attachment jaws



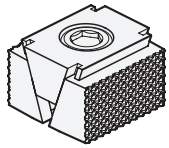


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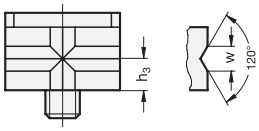
GN 920.1 | Wedge clamps

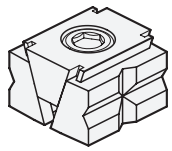
Type **RF** ribbed clamping surfaces





Type **PR** with prism jaws





GN 920.1

Description	d	b	a min.	a max.	h1	h2	h3	l max.	m	w	Clamping force per clamping jaw in kN	Max. tightening torque in Nm	⚖
GN 920.1-M8-21-GA	M 8	21	39.5	44.5	15	4.5	7.5	15	10	-	15	25	102
GN 920.1-M8-25-GA	M 8	25	39.5	44.5	15	4.5	7.5	15	12	-	15	25	119
GN 920.1-M8-32-GA	M 8	32	39.5	44.5	15	4.5	7.5	15	16	-	15	25	150
GN 920.1-M8-40-GA	M 8	40	39.5	44.5	15	4.5	7.5	15	20	-	15	25	182
GN 920.1-M8-50-GA	M 8	50	39.5	44.5	15	4.5	7.5	15	30	-	15	25	228
GN 920.1-M12-40-GA	M 12	40	40	45.5	22	4.5	11	21	20	-	30	85	275
GN 920.1-M12-50-GA	M 12	50	40	45.5	22	4.5	11	21	30	-	30	85	341
GN 920.1-M8-21-GL	M 8	21	39.5	44.5	15	4.5	-	15	-	-	15	25	100
GN 920.1-M8-25-GL	M 8	25	39.5	44.5	15	4.5	-	15	-	-	15	25	114
GN 920.1-M8-32-GL	M 8	32	39.5	44.5	15	4.5	-	15	-	-	15	25	152
GN 920.1-M8-40-GL	M 8	40	39.5	44.5	15	4.5	-	15	-	-	15	25	185
GN 920.1-M8-50-GL	M 8	50	39.5	44.5	15	4.5	-	15	-	-	15	25	231
GN 920.1-M12-40-GL	M 12	40	40	45.5	22	4.5	-	21	-	-	30	85	276
GN 920.1-M12-50-GL	M 12	50	40	45.5	22	4.5	-	21	-	-	30	85	350
GN 920.1-M8-21-PR	M 8	21	34.5	39.5	15	4.5	7.5	15	-	9	15	25	87
GN 920.1-M8-25-PR	M 8	25	34.5	39.5	15	4.5	7.5	15	-	9	15	25	102
GN 920.1-M8-32-PR	M 8	32	34.5	39.5	15	4.5	7.5	15	-	9	15	25	127
GN 920.1-M8-40-PR	M 8	40	34.5	39.5	15	4.5	7.5	15	-	9	15	25	156
GN 920.1-M8-50-PR	M 8	50	34.5	39.5	15	4.5	7.5	15	-	9	15	25	190
GN 920.1-M12-40-PR	M 12	40	40	45.5	22	4.5	11	21	-	9	30	85	280
GN 920.1-M12-50-PR	M 12	50	40	45.5	22	4.5	11	21	-	9	30	85	300
GN 920.1-M8-21-RF	M 8	21	34.5	39.5	15	4.5	-	15	-	-	15	25	89
GN 920.1-M8-25-RF	M 8	25	34.5	39.5	15	4.5	-	15	-	-	15	25	104
GN 920.1-M8-32-RF	M 8	32	34.5	39.5	15	4.5	-	15	-	-	15	25	150
GN 920.1-M8-40-RF	M 8	40	34.5	39.5	15	4.5	-	15	-	-	15	25	159
GN 920.1-M8-50-RF	M 8	50	34.5	39.5	15	4.5	-	15	-	-	15	25	193
GN 920.1-M12-40-RF	M 12	40	40	45.5	22	4.5	-	21	-	-	30	85	268
GN 920.1-M12-50-RF	M 12	50	40	45.5	22	4.5	-	21	-	-	30	85	333

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GN 920.2

Pull-down plates

for wedge clamps GN 920.1

SPECIFICATION

Steel
blackend

Socket head cap screw DIN 912 (ISO 4762)
Tensile strength class 12.9

Distance sleeve
Steel

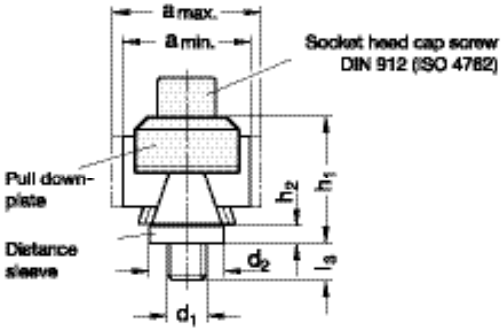
INFORMATION

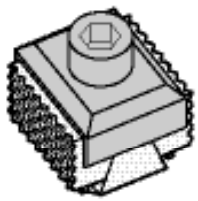
Pull-down plates GN 920.2 allow wedge clamps GN 920.1 (see page 1070) to clamp easily with pull-down effect.
The socket head cap screw and the distance bush are included.

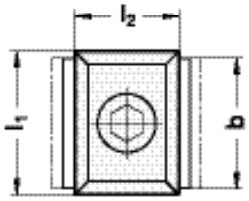
TECHNICAL INFORMATION

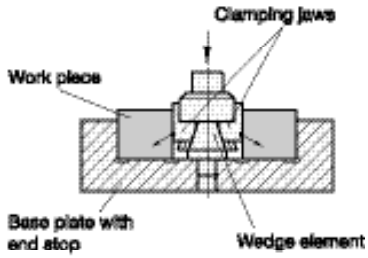
- Strength values of screws (see page A20)











GN 920.2

Description	l_1	l_2	d_1	b	a max. Type GA Type GL	a min. Type GA Type GL	a max. Type PR Type RF	a min. Type PR Type RF	d_2 Ø	h_1 ≈	h_2	l_3 max.	for wedge clamps GN 920.1 with: d	for wedge clamps GN 920.1 with: b	⚖
GN 920.2-25-32-M8	25	32	M 8	21	44.5	39.5	39.5	34.5	18	27.5	4	7.5	M 8	21	60
GN 920.2-29-32-M8	29	32	M 8	25	44.5	39.5	39.5	34.5	18	27.5	4	7.5	M 8	25	77
GN 920.2-36-32-M8	36	32	M 8	32	44.5	39.5	39.5	34.5	18	27.5	4	7.5	M 8	32	84
GN 920.2-44-32-M8	44	32	M 8	40	44.5	39.5	39.5	34.5	18	27.5	4	7.5	M 8	40	92
GN 920.2-44-32-M12	44	32	M 12	40	45.5	40	45.5	40	23	38	5	11.5	M 12	40	156
GN 920.2-54-32-M8	54	32	M 8	50	44.5	39.5	39.5	34.5	18	27.5	4	7.5	M 8	50	90
GN 920.2-54-32-M12	54	32	M 12	50	45.5	40	45.5	40	23	38	5	11.5	M 12	50	170

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GN 928

Shaft clamping units "trueround"

SPECIFICATION

Steel
blackened

Socket head cap screw DIN 912
zinc plated, blue passivated

INFORMATION

With the shaft clamping unit "trueround" GN 928, round workpieces from 6 to 125 mm can be rapidly, accurately and economically clamped.
The threaded hole d_5 can be used for attaching a jig or fixture or a fixing screw for holding the clamping unit in an axial position during an assembly operation.

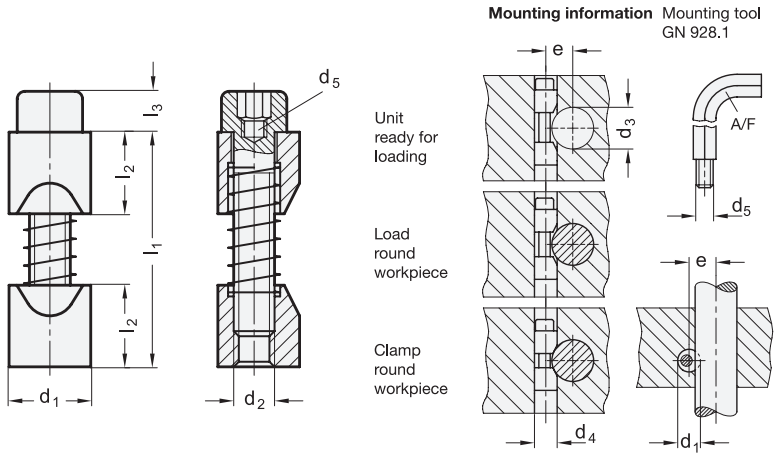
ACCESSORY

- Mounting tools GN 928.1 (Code no. see table)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)







GN 928

Description	d_1 h11	d_2	d_3 Round workpiece	d_4 H7	d_5	e +0.2	l_1 max.	l_2	l_3	A/F	Code no. mounting tool	⚖
GN 928-8	8	M 4	6 ...10	8	M 2.5	d3/2 + 2.8	22	8	4	3	GN 928.1-3	7
GN 928-10	10	M 5	10 ... 15	10	M 3	d3/2 + 3.3	30	10	5	4	GN 928.1-4	13
GN 928-12	12	M 6	15 ... 20	12	M 4	d3/2 + 3.5	36	12	6	5	GN 928.1-5	22
GN 928-16	16	M 8	20 ... 30	16	M 5	d3/2 + 4	48	16	8	6	GN 928.1-6	52
GN 928-20	20	M 10	30 ... 40	20	M 6	d3/2 + 4.8	60	20	10	8	GN 928.1-8	104
GN 928-25	25	M 12	40 ... 60	25	M 8	d3/2 + 5.6	72	25	12	10	GN 928.1-10	190
GN 928-30	30	M 16	60 ... 125	30	M 10	d3/2 + 7.9	85	30	16	14	GN 928.1-14	345

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GN 418.2

RoHS

Cam point screws

SPECIFICATION

Type

Type **R**: Clamping by clockwise rotation
(d_2 = right-hand thread)

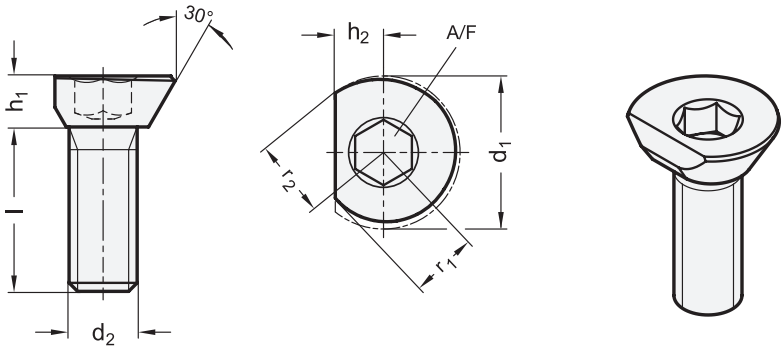
Steel

- case hardened HRC 56 ±1
- Tensile strength class 8.8
- zinc plated, blue passivated

INFORMATION

Cam point screws GN 418.2 are sturdy and compact elements, requiring a minimum of installation space and offering ultimate convenience and ease in handling.
The clamping forces F given in the table refer to the maximum permitted tightening torque and the specified screw-in depth t.



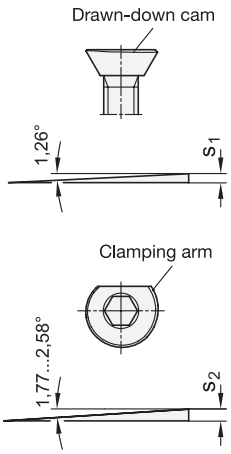


GN 418.2

Description	d1 Nominal dimension	d1	d2	l	h1	h2	r1	r2	s1	s2	A/F	x ±0.2	z ±0.2	Max. tightening torque in Nm	Max. clamping force F in kN	⚖
GN 418.2-9-M4-8-R	9	9.2	M 4	8	3	3	4	4.6	1	0.6	2.5	3.5	4.2	1.5	0.09	2
GN 418.2-12-M5-10-R	12	11.7	M 5	10	4	3.5	5	5.7	1.16	0.7	3	4.2	5.2	2	0.1	3
GN 418.2-14-M6-12-R	14	14.2	M 6	12	5	4.5	6.1	7.1	1.44	1	4	5.4	6.4	5	0.3	4
GN 418.2-18-M8-16-R	18	18	M 8	16	6	5.5	7.7	9	1.84	1.2	5	6.6	8	22	2.7	8
GN 418.2-22-M10-20-R	22	22.2	M 10	20	7	6.5	9.4	11.1	2.16	1.7	6	8.3	9.8	35	4	12
GN 418.2-26-M12-24-R	26	25.8	M 12	24	9	8	11.6	13.6	2.53	1.9	8	10.1	12	45	5.4	35

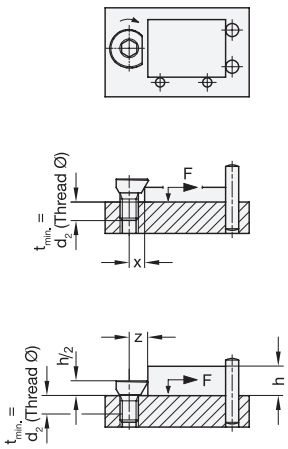
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TECHNICAL INFORMATION



Function

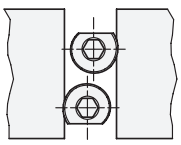
The head of the cam point screw has two cams: a radial clamping cam (with additional 30° taper) and an axial draw-down cam. The cam ensures that the clamping force is the same in any angular position. The cam is also self-locking.
Force components act on the clamping point which generate a draw-down effect and which, in addition to the friction, cause the workpiece to be pressed against a fixed stop. An additional draw-down effect is created by the thread and the 30° taper.
To ensure safe and secure clamping in every application, a right-hand version (with right-hand thread) and a left-hand version (with left-hand thread) is available.



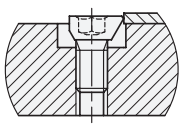
Assembly instructions

- Position the thread bore(s) as specified
- Screw the cam point screw in to the desired height and place it with its flat side facing the workpiece (note the minimum screw-in depth t)
- For clamping effect above the head taper, the minimum clamping height should be h_2
- A turn of approx. 135° is required for clamping

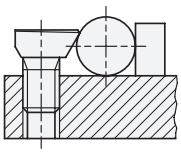
APPLICATION EXAMPLES



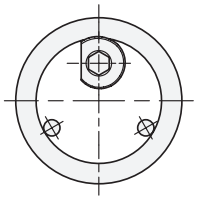
Multiple clamps in the narrowest of space



Clamping flat workpieces (sheet metal)



Clamping round workpieces



Centric clamping in a bore hole

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Lifting eye bolts

Steel / Stainless Steel

SPECIFICATION

Version in Steel ST

- Steel C 15 E
- drop-forged
- annealed
- contact face machined
- zinc plated, blue passivated

Version in Stainless Steel A2 NI

- drop-forged
- contact face machined

Version in Stainless Steel A4

- drop-forged
- contact face machined

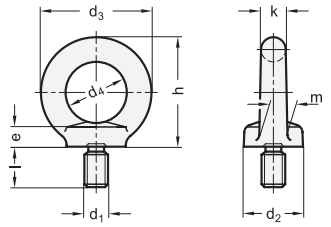
INFORMATION

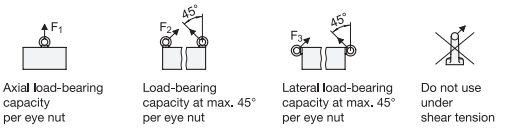
The following guidelines for lifting eye bolts DIN 580 have to be observed in addition to the load values given in the above table:
The eye bolt must be of fully screwed in to achieve a perfect contact between the two mating faces.
Both threads must be of a equal length and the base material of equal strength to that of the bolt.
Operating instructions with more details and specifications are included with every delivery.
The official DIN standard sheet specifies the additional sizes M42, M48, M56, M64, M72 x 6, M80 x 6 and M100 x 6.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)







Axial load-bearing capacity per eye nut

Load-bearing capacity at max. 45° per eye nut

Lateral load-bearing capacity at max. 45° per eye nut

Do not use under shear tension

DIN 580

Description	d1	d2	d3	d4	e	h	k	l	m	F1 max. in N	F2 max. in N	F3 max. in N	⚖
DIN 580-M8-ST	M 8	20	36	20	6	36	8	13	10	1400	1000	700	60
DIN 580-M10-ST	M 10	25	45	25	8	45	10	17	12	2300	1700	1150	102
DIN 580-M12-ST	M 12	30	54	30	10	53	12	20.5	14	3400	2400	1700	180
DIN 580-M16-ST	M 16	35	63	35	12	62	14	27	16	7000	5000	3500	280
DIN 580-M20-ST	M 20	40	72	40	14	71	16	30	19	12000	8600	6000	450
DIN 580-M24-ST	M 24	50	90	50	18	90	20	36	24	18000	12900	9000	900
DIN 580-M30-ST	M 30	65	108	60	22	109	24	45	28	32000	23000	16000	1600
DIN 580-M36-ST	M 36	75	126	70	26	128	28	54	32	46000	33000	23000	2400

DIN 580-NI

STAINLESS STEEL

Description	d1	d2	d3	d4	e	h	k	l	m	F1 max. in N	F2 max. in N	F3 max. in N	⚖
DIN 580-M8-NI	M 8	20	36	20	6	36	8	13	10	1400	1000	700	55
DIN 580-M10-NI	M 10	25	45	25	8	45	10	17	12	2300	1700	1150	120
DIN 580-M12-NI	M 12	30	54	30	10	53	12	20.5	14	3400	2400	1700	160
DIN 580-M16-NI	M 16	35	63	35	12	62	14	27	16	7000	5000	3500	300
DIN 580-M20-NI	M 20	40	72	40	14	71	16	30	19	12000	8600	6000	450
DIN 580-M24-NI	M 24	50	90	50	18	90	20	36	24	18000	12900	9000	840

DIN 580-A4

STAINLESS STEEL

Description	d1	d2	d3	d4	e	h	k	l	m	F1 max. in N	F2 max. in N	F3 max. in N	⚖
DIN 580-M10-A4	M 10	25	45	25	8	45	10	17	12	2300	1700	1150	102
DIN 580-M12-A4	M 12	30	54	30	10	53	12	20.5	14	3400	2400	1700	172
DIN 580-M16-A4	M 16	35	63	35	12	62	14	27	16	7000	5000	3500	312
DIN 580-M20-A4	M 20	40	72	40	14	71	16	30	19	12000	8600	6000	439
DIN 580-M24-A4	M 24	50	90	50	18	90	20	36	24	18000	12900	9000	918

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DIN 582

Lifting eye nuts

Steel / Stainless Steel

SPECIFICATION

Version in Steel ST

- Steel C 15 E
- drop-forged
- annealed
- contact face machined
- zinc plated, blue passivated

Version in Stainless Steel A2 NI

- drop-forged
- contact face machined

Version in Stainless Steel A4

- drop-forged
- contact face machined

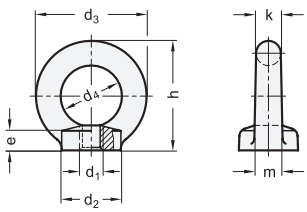
INFORMATION

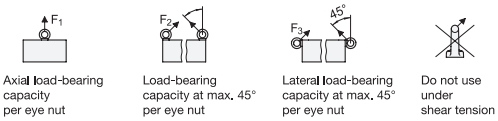
The following guidelines of the lifting eye nuts DIN 582 have to be observed in addition to the load values given in the above table:
The eye nut must be of fully screwd in to achieve a perfect contact between the two mating faces.
Both threads must be of a equal length and the base material of equal strength to that of the nut.
Operating instructions with more details and specifications are included with every delivery.
The official DIN standard sheet specifies the additional sizes M42, M48, M56, M64, M72 x 6, M80 x 6 and M100 x 6.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)







Axial load-bearing capacity per eye nut

Load-bearing capacity at max. 45° per eye nut

Lateral load-bearing capacity at max. 45° per eye nut

Do not use under shear tension

DIN 582

Description	d1	d2	d3	d4	e	h	k	m	F1 max. in N	F2 max. in N	F3 max. in N	⚖
DIN 582-M8-ST	M 8	20	36	20	8.5	36	8	10	1400	1000	700	50
DIN 582-M10-ST	M 10	25	45	25	10	45	10	12	2300	1700	1150	100
DIN 582-M12-ST	M 12	30	54	30	11	53	12	14	3400	2400	1700	155
DIN 582-M16-ST	M 16	35	63	35	13	62	14	16	7000	5000	3500	220
DIN 582-M20-ST	M 20	40	72	40	16	71	16	19	12000	8600	6000	360
DIN 582-M24-ST	M 24	50	90	50	20	90	20	24	18000	12900	9000	720
DIN 582-M30-ST	M 30	65	108	60	25	109	24	28	32000	23000	16000	1320
DIN 582-M36-ST	M 36	75	126	70	30	128	28	32	46000	33000	23000	2130

DIN 582-NI STAINLESS STEEL

Description	d1	d2	d3	d4	e	h	k	m	F1 max. in N	F2 max. in N	F3 max. in N	⚖
DIN 582-M8-NI	M 8	20	36	20	8.5	36	8	10	1400	1000	700	50
DIN 582-M10-NI	M 10	25	45	25	10	45	10	12	2300	1700	1150	100
DIN 582-M12-NI	M 12	30	54	30	11	53	12	14	3400	2400	1700	160
DIN 582-M16-NI	M 16	35	63	35	13	62	14	16	7000	5000	3500	240
DIN 582-M20-NI	M 20	40	72	40	16	71	16	19	12000	8600	6000	340
DIN 582-M24-NI	M 24	50	90	50	20	90	20	24	18000	12900	9000	650

DIN 582-A4 STAINLESS STEEL

Description	d1	d2	d3	d4	e	h	k	m	F1 max. in N	F2 max. in N	F3 max. in N	⚖
DIN 582-M10-A4	M 10	25	45	25	10	45	10	12	2300	1700	1150	88
DIN 582-M12-A4	M 12	30	54	30	11	53	12	14	3400	2400	1700	167
DIN 582-M16-A4	M 16	35	63	35	13	62	14	16	7000	5000	3500	249
DIN 582-M20-A4	M 20	40	72	40	16	71	16	19	12000	8600	6000	380
DIN 582-M24-A4	M 24	50	90	50	20	90	20	24	18000	12900	9000	753

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Lifting eye bolts (rotating)

SPECIFICATION

Types

- Type **A**: without spanner
- Type **B**: with spanner

Ring
Steel, German Material No. 1.6541

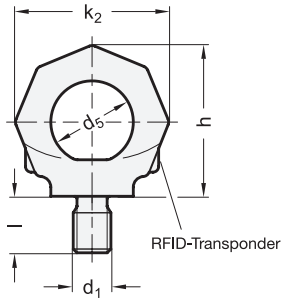
- forged
- high-tensile tempered
- 100 % electro magnetic tensile tested to EN 1677
- plastic coated, pink

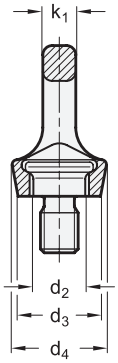
Bolt
Steel
Tensile strength class 10.9
100 % electro magnetic tensile tested

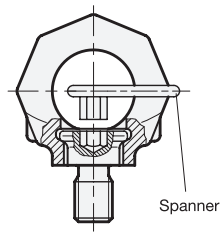


INFORMATION

The lifting eye bolts GN 581 are mounted in rotating bearings, allowing the direction of the force action to be adjusted and preventing inadvertent loosening or overturning (as potentially possible in lifting eye bolts DIN 580, see page 1076).
Lifting eye bolts GN 581 offer a high load carrying capacity and they are tested to meet safety standards (safety factor 4).
The rated load carrying capacity listed in the above table is clearly marked on the ring. It applies to the most unfavourable load application of the load types listed opposite.
Lifting eye bolts GN 581 comply with Mechanical Engineering Directive 2006 / 42 / EG and are BG tested.
The integrated RFID transponder clearly marks and identifies the sling and lifting gear, e.g. during the prescribed regular inspection.
The hexagon socket bolt cannot be removed from the ring.
Type B is suitable for assembly without the need to use tools: inserting the spanner in the hexagon socket of the bolt allows the bolt to be turned in and out by hand.







*Complete with type index of the Lifting eye bolts (A or B)

A	B
without spanner	with spanner

GN 581

Description	d1	d2	d3	d4	d5	h	k1	k2	l	Nominal load (WLL)	⚖
GN 581-M6-*	M 6	13	23	28	20	37	7	37	9	0.1 t [1.0 kN]	100
GN 581-M8-*	M 8	16	25	30	25	46	9	47	12	0.3 t [3.0 kN]	120
GN 581-M10-*	M 10	16	25	30	25	46	9	47	15	0.4 t [4.0 kN]	120
GN 581-M12-*	M 12	20	30	34	30	55	10	56	18	0.75 t [7.5 kN]	180
GN 581-M16-*	M 16	23.5	36	40	35	64	13	65	24	1.5 t [15.0 kN]	320
GN 581-M20-*	M 20	29	41	50	40	75	16	76	30	2.3 t [23.0 kN]	490
GN 581-M24-*	M 24	35	51	60	49	90	19	92	36	3.2 t [32.0 kN]	900
GN 581-M30-*	M 30	44	66	75	60	113	24	114	45	4.5 t [45.0 kN]	1650
GN 581-M36-*	M 36	53	75	90	72	135	29	135	54	7.0 t [70.0 kN]	3100

Weight A

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GN 581 | Lifting eye bolts (rotating)



Method of mounting	G_1	G_2	$2xG_1$	$2xG_2$	G_2	G_2	G_2	G_2	G_2	G_2
Number	1	1	2	2	2	2	2	3 and 4	3 and 4	3 and 4
Angles of inclination	0°	90°	0°	90°	0° to 45 °	45° to 60°	asymm.	0° to 45°	45° to 60°	asymm.
Factor	1	1	2	2	1.4	1	1	2.1	1.5	1
M 6	0.50	0.10 t	1.00	0.20 t	0.14	0.10 t	0.10 t	0.21 t	0.15 t	0.10t
M 8	1.00 [0.14]	0.30 t	2.00 [0.28]	0.60 t	0.42 [0.10]	0.30 t	0.30 t	0.63 t	0.45 t	0.30 t
M 10	1.00 t [0.23]	0.40 t	2.00 [0.46]	0.80 t	0.56 [0.17]	0.40 t	0.40 t	0.84 t	0.60 t	0.40 t
M 12	2.00 [0.34]	0.75 t	4.00 [0.68]	1.50 t	1.00 [0.24]	0.75 t	0.75 t	1.60 t	1.12 t	0.75 t
M 16	4.00 [0.70]	1.50 t	8.00 [1.40]	3.00 t	2.10 [0.50]	1.50 t	1.50 t	3.15 t	2.25 t	1.50 t
M 20	6.00 [1.20]	2.30 t	12.00 [2.40]	4.60 t	3.22 [0.86]	2.30 t	2.30 t	4.83 t	3.45 t	2.30 t
M 24	8.00 [1.80]	3.20 t	16.00 [3.60]	6.40 t	4.48 [1.29]	3.20 t	3.20 t	6.70 t	4.80 t	3.20 t
M 30	12.00 [3.20]	4.50 t	24.00 [6.40]	9.00 t	6.30 [2.30]	4.50 t	4.50 t	9.40 t	6.70 t	4.50 t
M 36	16.0 [4.60]	7.00 t	32.00 [9.20]	14.00 t	9.80 [3.30]	7.00 t	7.00 t	14.70 t	10.50 t	7.00 t

SAFETY INSTRUCTIONS

The loads given in brackets refer to the load capacity of the corresponding lifting eye bolt DIN 580. If such a value is not indicated the use of the lifting eye bolts DIN 580 is not permitted!
The bolt-on surface for the lifting eye bolts GN 581 must be plane and at a right angle to the threaded borehole; the countersinking must be ≤ the nominal diameter of the thread.
Screwed in, the collar of the screw must make firm contact (do not use washers) and the eye bolt must rotate freely by 360°.
Before applying the load, turn the lifting eye bolt in the direction of the force. The lifting eye bolt is not suitable for frequent rotation cycles under load.
The specified load values apply for a minimum screw-in length of 1.5 × nominal thread diameter in steel with a minimum tensile strength of 37 kp/mm^2, at an ambient temperature of – 40° C to + 280° C. Load-bearing capacity under different conditions upon request. Operating instructions with more details and specifications are included with every delivery (see also www.elesa-ganter.com).

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Stainless Steel-Lifting eye bolts (rotating)

SPECIFICATION

Ring
Stainless Steel

- German Material No. 1.4462
- forged
- 100 % electro magnetic tensile tested to EN 1677
- blank

Bolt
Stainless Steel
Germam Material 1.4462

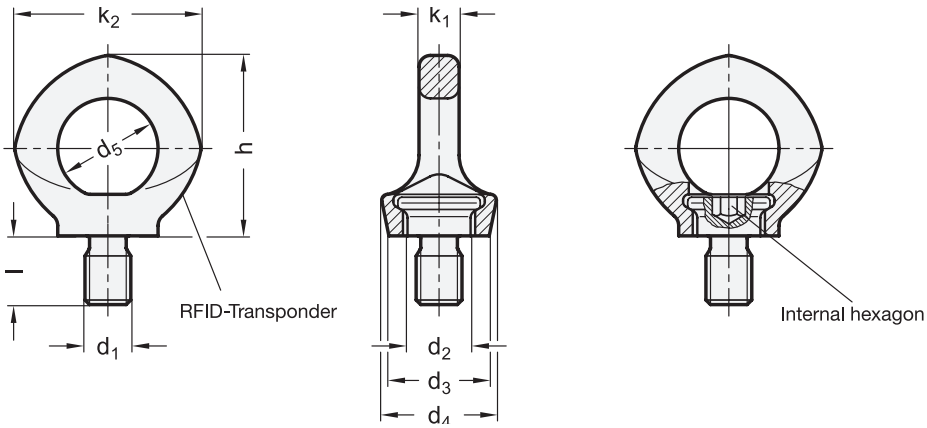


INFORMATION

Stainless Steel-Lifting eye bolts GN 581.5 are mounted in rotating bearings, allowing the direction of the force action to be adjusted and preventing inadvertent loosening or overturning (as potentially possible in Stainless Steel-Lifting eye bolts DIN 580 (see page 1076). Stainless Steel-Lifting eye bolts GN 581.5 offer a high load carrying capacity and they are tested to meet safety standards (safety factor 4).
The rated load carrying capacity listed in the above table is clearly marked on the ring. It applies to the most unfavourable load application of the load types listed opposite.
Stainless Steel-Lifting eye bolts GN 581.5 eye bolts comply with Mechanical Engineering Directive 2006 / 42 / EG and are BG tested.
The integrated RFID transponder clearly marks and identifies the sling and lifting gear, e.g. during the prescribed regular inspection.
The hexagon socket bolt cannot be removed from the ring.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



GN 581.5 — **STAINLESS STEEL**

Description	d1	d2	d3	d4	d5	h	k1	k2	l	Nominal load (WLL)	⚖
GN 581.5-M12	M 12	18	30	32	30	57	12	56	18	0.5 t [5 kN]	200
GN 581.5-M16	M 16	22	35.5	38	35	66	14	65	24	1.0 t [10 kN]	333
GN 581.5-M20	M 20	27.5	41.5	47	40	76	16	74	30	2.0 t [20 kN]	520
GN 581.5-M24	M 24	33	50	56	48	94	19	92	35	2.5 t [25 kN]	912

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GN 581.5 | Stainless Steel-Lifting eye bolts (rotating)



Method of mounting										
Number	1	1	2	2	2	2	2	3 and 4	3 and 4	3 and 4
Angles of incli-nation	0°	90°	0°	90°	0° to 45	45° to 60°	asymm.	0° to 45°	45° to 60°	asymm.
Factor	1	1	2	2	1.4	1	1	2.1	1.5	1
M 12	1.20 [0.34]	0.50 t	2.40 [0.68]	1.00 t	0.70 [0.24]	0.50 t	0.50 t	1.06 t	0.75 t	0.50 t
M 16	2.40 [0.70]	1.00 t	4.80 [1.40]	2.00 t	1.42 [0.50]	1.00 t	1.00 t	2.12 t	1.50 t	1.00 t
M 20	3.60 [1.20]	2.00 t	7.20 [2.40]	4.00 t	2.83 [0.86]	2.00 t	2.00 t	4.24 t	3.00 t	2.00 t
M 24	5.20 [1.80]	2.50 t	10.40 [3.60]	5.00 t	3.53 [1.29]	2.50 t	2.50 t	5.30 t	3.75 t	2.5 t

SAFETY INSTRUCTIONS

The loads given in brackets refer to the load capacity of the corresponding lifting eye bolt DIN 580. If such a value is not indicated the use of the lifting eye bolts DIN 580 is not permitted!
The bolt-on surface for the Stainless Steel-Lifting eye bolts GN 581.5 must be plane and at a right angle to the threaded borehole; the countersinking must be ≤ the nominal diameter of the thread.
Screwed in, the collar of the screw must make firm contact (do not use washers) and the eye bolt must rotate freely by 360°.
Before applying the load, turn the lifting eye bolt in the direction of the force. The lifting eye bolt is not suitable for frequent rotation cycles under load.
The specified load values apply for a minimum screw-in length of 1.5 × nominal thread diameter in steel with a minimum tensile strength of 37 kp/mm^2, at an ambient temperature of – 40° C to + 280° C. Load-bearing capacity under different conditions upon request.

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Lifting eye nuts (rotating)

SPECIFICATION

Ring

- Steel, German Material No. 1.6541
- high-tenslie tempered
- forged
- 100 % electro magnetic tensile tested to EN 1677
- plastic coated, pink

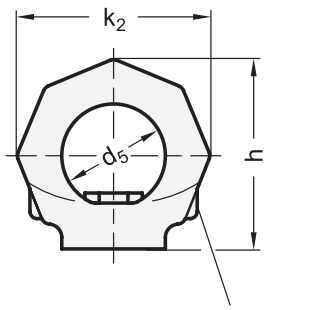
Nut
Steel
Tensile strength class 10 (1000 N/mm²)

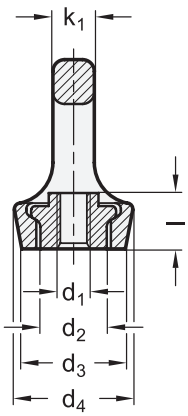
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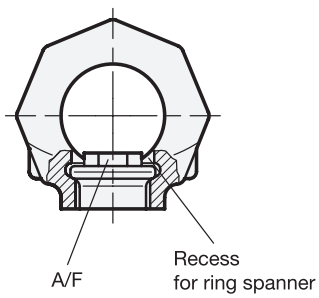
Lifting eye nuts GN 583 are mounted in rotating bearings, allowing the direction of the force action to be adjusted and preventing inadvertent loosening or overturning (as potentially possible in lifting eye nuts DIN 582 (see page 1077).
Lifting eye nuts GN 583 offer a high load carrying capacity and they are tested to meet safety standards (safety factor 4).
The rated load carrying capacity listed in the above table is clearly marked on the ring. It applies to the most unfavourable load application of the load types listed opposite.
Lifting eye nuts GN 583 comply with Mechanical Engineering Directive 2006 / 42 / EG and are BG tested.
The integrated RFID transponder clearly marks and identifies the sling and lifting gear, e.g. during the prescribed regular inspection.
The hexagon socket nut cannot be removed from the ring.



RUD







GN 583

Description	d1	d2	d3	d4	d5	h	k1	k2	l	A/F	Nominal load (WLL)	⚖
GN 583-M8	M 8	16	25	28	25	45	8.5	47	14	12	0.3 t [3 kN]	101
GN 583-M10	M 10	16	25	28	25	45	8.5	47	14	12	0.4 t [4 kN]	110
GN 583-M12	M 12	20	30	34	30	55	10	56	17	14	0.75 t [7.5 kN]	160
GN 583-M16	M 16	22	35.5	40	35	66	14	65	21	19	1.5 t [15 kN]	300
GN 583-M20	M 20	29	40	50	40	74	16	75	23	24	2.3 t [23 kN]	420
GN 583-M24	M 24	35	50	60	48	90	19	90	29	30	3.2 t [32 kN]	770
GN 583-M30	M 30	44	60	75	60	112	24	112	34	36	4.5 t [45 kN]	1480

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GN 583 | Lifting eye nuts (rotating)



Method of mounting	G_1	G_2	$2xG_1$	$2xG_2$	G_2	G_2	G_2	G_2	G_2	G_2
Number	1	1	2	2	2	2	2	3 and 4	3 and 4	3 and 4
Angles of inclination	0°	90°	0°	90°	0° to 45	45° to 60°	asymm.	0° to 45°	45° to 60°	asymm.
Factor	1	1	2	2	1.4	1	1	2.1	1.5	1
M 8	1.00 [0.14]	0.30 t	2.00 [0.28]	0.60 t	0.42 [0.10]	0.30 t	0.30 t	0.63 t	0.45 t	0.30 t
M 10	1.00 [0.23]	0.40 t	2.00 [0.46]	0.80 t	0.56 [0.17]	0.40 t	0.40 t	0.84 t	0.60 t	0.40 t
M 12	2.00 [0.34]	0.75 t	4.00 [0.68]	1.50 t	1.00 [0.24]	0.75 t	0.75 t	1.60 t	1.12 t	0.75 t
M 16	4.00 [0.70]	1.50 t	8.00 [1.40]	3.00 t	2.10 [0.50]	1.50 t	1.50 t	3.15 t	2.25 t	1.50 t
M 20	6.00 [1.20]	2.30 t	12.00 [2.40]	4.60 t	3.22 [0.86]	2.30 t	2.30 t	4.83 t	3.45 t	2.30 t
M 24	8.00 [1.80]	3.20 t	16.00 [3.60]	6.40 t	4.48 [1.29]	3.20 t	3.20 t	6.70 t	4.80 t	3.20 t
M 30	12.00 [3.20]	4.50 t	24.00 [6.40]	9.00 t	6.30 [2.30]	4.50 t	4.50 t	9.40 t	6.70 t	4.50 t

SAFETY INSTRUCTIONS

The loads given in brackets refer to the load capacity of the corresponding lifting eye nut DIN 582. If such a value is not indicated the use of the lifting eye nuts DIN 582 is not permitted!
The bolt-on surface for the lifting eye nuts GN 583 must be plane and at a right angle to the threaded borehole. Screwed in, the collar of the nut must make firm contact (do not use washers) and the eye nut must rotate freely by 360°.
Before applying the load, turn the lifting eye nutt in the direction of the force. The lifting eye nut is not suitable for frequent rotation cycles under load.
The specified load values apply only in connection with threaded bolts of steel grade > 10.9 if the bolt is turned in over its entire length l. These load values also apply only for a minimum screw-in length of 1.5 × nominal thread diameter in steel with a minimum tensile strength of 37 kp/mm^2, at an ambient temperature of – 40 °C to + 100 °C.
Load-bearing capacity under different conditions upon request.
Operating instructions with more details and specifications are included with every delivery.

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GN 5860

RoHS

Load rings

SPECIFICATION

Chain ring
Steel, German Material No. 1.6540

- high-tenisle tempered
- 100% electro magnetic tensile tested to EN 1677
- plastic coated, pink

Eye ring
Steel, German Material No. 1.6541

- forged
- high-tensile tempered
- 100 % electro magnetic tensile tested
- plastic coated, pink

Bearing case
Steel, German Material No. 1.6541

- forged
- high-tensile tempered
- 100 % electro magnetic tensile tested
- zinc plated, blue passivated

Screw
Steel
Tensile strength class 10.9 (1000 N/mm^2)
Finish: Delta Tone



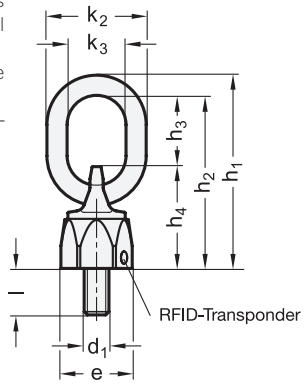
RUD

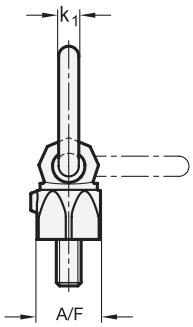
INFORMATION

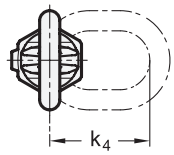
Load rings GN 5860 rotate running in ball bearings. The freely rotating ring allows the bolts to hold loads in any tensile direction.
The rated load-bearing capacity is shown clearly on the swivel eye bolt. It is valid for the most unfavourable case in term of the types of load listed opposite. Load rings GN 5860 comply with Mechanical Engineering Directive 2006 / 42 / EG and are BG tested.
The integrated RFID transponder clearly marks and identifies the sling and lifting gear, e.g. during the prescribed regular inspection.

ON REQUEST

- other screw length l







GN 5860

Description	d1	l	e	h1	h2	h3	h4	k1	k2	k3	k4	A/F	Tigh-tening torque in Nm	Nomi-nal load in t	⚖
GN 5860-M8-13	M 8	13	30	84	76	31	45	8	45	29	44	28	10	0.30	175
GN 5860-M10-17	M 10	17	36	86	78	31	47	8	45	29	44	30	10	0.45	205
GN 5860-M12-21	M 12	21	42	117	107	49	58	10	58	35	65	36	10	0.60	400
GN 5860-M16-25	M 16	25	48	126	113	46	67	13	64	38	65	41	30	1.30	664
GN 5860-M20-33	M 20	33	62	150	137	54	83	13	61	35	77	55	70	2.00	1294
GN 5860-M24-40	M 24	40	81	191	173	66	107	18	76	40	94	70	150	3.50	2647
GN 5860-M30-50	M 30	50	99	243	221	90	131	22	94	50	126	85	225	5.00	4950

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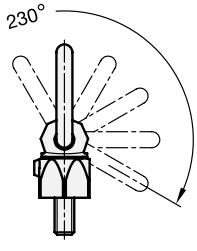
GN 5860 | Load rings



Method of mounting	G_1	G_2	$2xG_1$	$2xG_2$	G_2	G_2	G_2	G_2	G_2	G_2
Number	1	1	2	2	2	2	2	3 and 4	3 and 4	3 and 4
Angles of incli-nation	0°	90°	0°	90°	0° to 45 °	45° to 60°	asymm.	0° to 45°	45° to 60°	asymm.
Factor	1	1	2	2	1.4	1	1	2.1	1.5	1
M 8	0.60 t	0.30 t	1.20 t	0.60 t	0.42 t	0.30 t	0.30 t	0.63 t	0.45 t	0.30 t
M 10	0.90 t	0.45 t	1.80 t	0.90 t	0.63 t	0.45 t	0.45 t	0.94 t	0.67 t	0.45 t
M 12	1.20 t	0.60 t	2.40 t	1.20 t	0.84 t	0.60 t	0.60 t	1.26 t	0.90 t	0.60 t
M 16	2.60 t	1.30 t	5.20 t	2.60 t	1.81 t	1.30 t	1.30 t	2.73 t	1.95 t	1.30 t
M 20	4.00 t	2.00 t	8.00 t	4.00 t	2.80 t	2.00 t	2.00 t	4.20 t	3.00 t	2.00 t
M 24	7.00 t	3.50 t	14.00 t	7.00 t	4.90 t	3.50 t	3.50 t	7.35 t	5.25 t	3.50 t
M 30	10.00 t	5.00 t	20.00 t	10.00 t	7.00 t	5.00 t	5.00 t	10.50 t	7.50 t	5.00 t

SAFETY INSTRUCTIONS

The above load capacity table shows the maximum loads in metric tonnes as factor of the load ring type and at an operating temperature range of –40 °C to +100 °C, with a safety coefficient of 4 taken into account for all values.
The load ring GN 5860 may be used only if it is bolted with the minimum screw-in depth which depends on the material and if the bolt contact surface is plane and fixed at a right angle to the tap hole.
If permanently mounted in place, the swivel eye bolt must rotate freely by 360° and must not rest on edges or other fixture, e.g. crane hooks. The load rings are not suitable for permanent rotary movement under load exposure. Operating instructions with more details and specifications are included with every delivery (see www.elesa-ganter.com).



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GN 5862

Load hooks

SPECIFICATION

Hook
Steel, German Material No. 1.6540

- high-tenisle tempered
- 100% electro magnetic tensile tested to EN 1677
- plastic coated, pink

Safety catch
Steel, German Material No. 1.6541

- forged, high-tensile tempered
- 100 % electro magnetic tensile tested

Bearing case
Steel 1.6541

- forged, high-tensile tempered
- 100 % electro magnetic tensile tested
- zinc plated, blue passivated

Threaded stud
Steel, high-tensile tempered
Finish: Delta Tone



INFORMATION

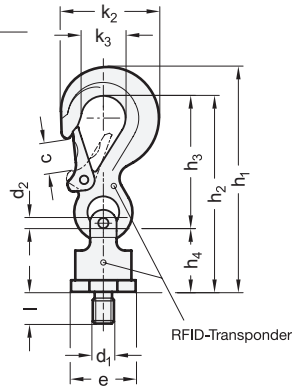
Load hooks GN 5862 rotate running in ball bearings. The freely rotating hook allows the bolts to hold loads in any allowed tensile direction.
The rated load-bearing capacity is shown clearly on the swivel eye bolt. It is valid for the most unfavourable case in term of the types of load listed opposite. Load rings GN 5862 comply with Mechanical Engineering Directive 2006 / 42 / EG and are BG tested.
The integrated RFID transponder clearly marks and identifies the sling and lifting gear, e.g. during the prescribed regular inspection.

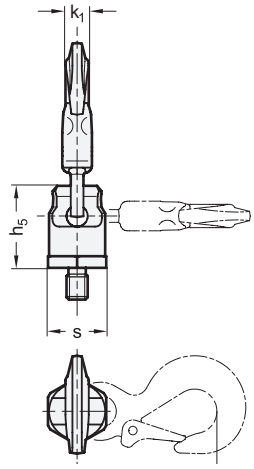
TECHNICAL INFORMATION

- Strength values of screws (see page A20)

ON REQUEST

- other screw lengths l





GN 5862

Description	d1	d2	l	e	h1	h2	h3	h4	h5	k1	k2	k3	k4	c	s	Tightening torque in Nm	Nominal load in t	⚖
GN 5862-M12-18	M 12	4.8	18	40	129	116	75	41	49	12	52	25	82	18	36	10	0.63	400
GN 5862-M16-24	M 16	7.4	24	46	167	147	97	50	63	16	73	32	105	25	41	30	1.50	820
GN 5862-M20-30	M 20	9.6	30	61	215	187	126	61	78	20	95	42	136	30	55	70	2.50	1200
GN 5862-M24-36	M 24	12.1	36	87	263	227	150	77	96	26	118	52	163	35	70	150	4.00	1600
GN 5862-M30-45	M 30	15.6	45	95	304	267	174	93	119	30	135	57	189	40	85	225	5.00	2400
GN 5862-M36-54	M 36	19	54	100	356	310	208	102	137	36	161	68	227	48	90	410	8.00	3200

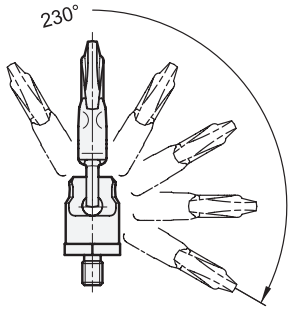
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Method of mounting	G1	G2	2xG1	2xG2		G2		G2		G2
Number	1	1	2	2	2	2	2	3 and 4	3 and 4	3 and 4
Angles of inclination	0°	90°	0°	90°	0° to 45 °	45° to 60°	asymm.	0° to 45°	45° to 60°	asymm.
Factor	1	1	2	2	1.4	1	1	2.1	1.5	1
M 12	0.63 t	0.63 t	1.26 t	1.26 t	0.88 t	0.63 t	0.63 t	1.32 t	0.95 t	0.63 t
M 16	1.50 t	1.50 t	3.00 t	3.00 t	2.10 t	1.50 t	1.50 t	3.15 t	2.25 t	1.50 t
M 20	2.50 t	2.50 t	5.00 t	5.00 t	3.50 t	2.50 t	2.50 t	5.25 t	3.75 t	2.50 t
M 24	4.00 t	4.00 t	8.00 t	8.00 t	5.60 t	4.00 t	4.00 t	8.40 t	6.00 t	4.00 t
M 30	6.70 t	5.00 t	13.40 t	10.00 t	7.00 t	5.00 t	5.00 t	10.50 t	7.50 t	5.00 t
M 36	10.00 t	8.00 t	20.00 t	16.00 t	11.20 t	8.00 t	8.00 t	16.80 t	12.00 t	8.00 t

SAFETY INSTRUCTIONS

The above load capacity table shows the maximum loads in metric tonnes as factor of the load ring type and at an operating temperature range of –40 °C to +200 °C, with a safety coefficient of 4 taken into account for all values.
The load hooks GN 5862 may be used only if it is bolted with the minimum screw-in depth which depends on the material and if the bolt contact surface is plane and fixed at a right angle to the tap hole.
If permanently mounted in place, the load hooks must rotate freely by 360° and must not rest on edges or other fixture, e.g. crane hooks. The load hooks are not suitable for permanent rotary movement under load exposure.
Operating instructions with more details and specifications are included with every delivery (see www.elesa-ganter.com)



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GN 586.1

Load rings (rotating)

SPECIFICATION

Load rings
Steel, German Material No. 1.6541

- forged
- high-tensile tempered
- 100 % electro magnetic tensile tested to EN 1677
- plastic coated, pink

Fixing holder

- forged
- high-tensile tempered
- 100 % electro magnetic tensile tested
- plastic coated, pink

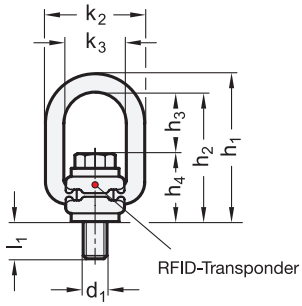
Bolt
Steel,
Tensile strength class 10.9 (1000 N/mm^2)
Finish: Delta Tone

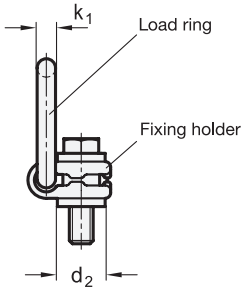
Bushing
Steel
galvanic zinc plated

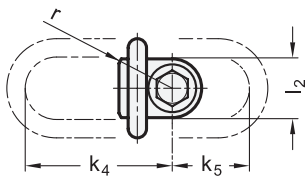


INFORMATION

The load rings GN 586.1 can be folded and rotated into all approved directions, carrying the full load in any tension direction
They offer a high load carrying capacity and they are tested to meet safety standards (safety factor 4).
The rated load carrying capacity listed in the table is clearly marked on the attachment bolt. It applies to the most unfavourable load application of the load types listed opposite.
Load rings GN 586.1 comply with Mechanical Engineering Directive 2006 / 42 / EG and are BG tested.
The integrated RFID transponder clearly marks and identifies the sling and lifting gear, e.g. during the prescribed regular inspection.
This standard replaces the previous load rings GN 586.







GN 586.1

Description	d1	d2	h1	h2	h3	h4	k1	k2	k3	k4	k5	l1	l2	r	A/F1	A/F2	Tightening torque in Nm	Nominal load in t (WLL)	⚖
GN 586.1-M8	M 8	24	87	75	40	35	12	54	34	75	45	11	30	32	13	5	30	0.3	300
GN 586.1-M10	M 10	24	87	75	39	36	12	54	34	75	45	15	30	32	17	6	60	0.63	300
GN 586.1-M12	M 12	26	87	75	38	37	12	54	34	75	45	18	32	32	19	8	100	1	326
GN 586.1-M16	M 16	30	99	85	39	46	13.5	56	36	86	47	22	33	38	24	10	150	1.5	500
GN 586.1-M20	M 20	45	127	110	55	55	16.5	82	54	113	64	32	50	48	30	12	250	2.5	1200
GN 586.1-M24	M 24	45	143	125	67	58	18	82	54	130	78	37	50	48	36	14	400	4	1320
GN 586.1-M30	M 30	60	170	147	67	80	22.5	103	65	151	80	49	60	67	46	17	500	5	3000

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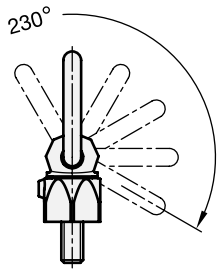
GN 586.1 | Load rings (rotating)



Method of mounting										
Number	1	1	2	2	2	2	2	3 and 4	3 and 4	3 and 4
Angles of inclination	0°	90°	0°	90°	0° to 45	45° to 60°	asymm.	0° to 45°	45° to 60°	asymm.
Factor	1	1	2	2	1.4	1	1	2.1	1.5	1
M 8	0.63 t	0.63 t	1.26 t	1.26 t	0.88 t	0.63 t	0.63 t	1.26 t	0.94 t	0.63 t
M 10	0.90 t	0.90 t	1.80 t	1.80 t	1.26 t	0.90 t	0.90 t	1.90 t	1.35 t	0.90 t
M 12	1.35 t	1.35 t	2.70 t	2.70 t	1.90 t	1.35 t	1.35 t	2.80 t	2.00 t	1.35 t
M 16	2.00 t	2.00 t	4.00 t	4.00 t	2.80 t	2.00 t	2.00 t	4.20 t	3.00 t	2.00 t
M 20	3.50 t	3.50 t	7.00 t	7.00 t	4.90 t	3.50 t	3.50 t	7.35 t	5.25 t	3.50 t
M 24	4.50 t	4.50 t	9.00 t	9.00 t	6.30 t	4.50 t	4.50 t	9.50 t	6.75 t	4.50 t
M 30	6.70 t	6.70 t	13.40 t	13.40 t	9.40 t	6.70 t	6.70 t	14.00 t	10.00 t	6.70 t

SAFETY INSTRUCTIONS

The above details specify the maximum load in metric tonnes, with the rotating load ring GN 586.1 fixed in place and set in load direction.
The contact surface of the rotating load ring GN 586.1 must be flat and at a right angle to the tapped bore.
When fixed to the member, the attachment bolt must be allowed to rotate freely by 360°. Only the hexagonal bolt supplied with the load ring may be used.
The load ring must move freely and must not be supported by edges.
Before applying the load, both the load ring and the attachment bolt must be turned in load direction, observing the permissible loading depending on the direction of the load ring. Rotating load rings are not suitable for frequent rotations under load.
The specified loading values are valid for a minimum bolt embedment depth of 1,5 × nominal thread diameter in steel with a minimum tensile strength of 37 kp/mm^2 at an operating temperature of between -40 °C and +100 °C. Load capacities under different conditions provided on request. Operating instructions with more details and specifications are included with every delivery (see also www.elesa-ganter.com).



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GN 587

Load rings

for welding

SPECIFICATION

Types

- Type **A**: without steel tape
- Type **F**: with steel tape

Ring brackets
Steel, German Material No. 1.6541

- forged
- high-tensile tempered
- 100 % electro magnetic tensile tested to EN 1677
- plastic coated, pink

Weld-on block
Steel, S355 J2 + N (ST52-3N)

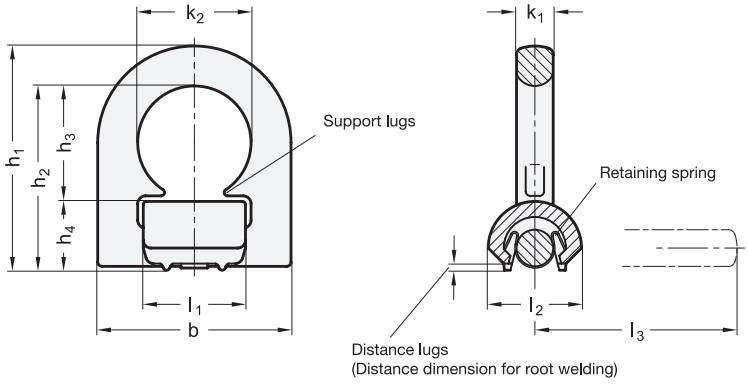
- forged, blank
- high-tensile tempered
- 100 % electro magnetic tensile tested to EN 1677

Retaining spring
Stainless Steel tape



INFORMATION

Load rings GN 587 for welding are designed for rapid mounting. They provide high dynamic and static strength and can be load from any direction with approved safety (safety factor 4) for all loading directions.
The steel tape (Type F) holds the ring in any position and dampens any noise caused by vibrations. All parts are undetachably connected. The two support lugs improve the bearing of hooks and enhance the support effect in the event of oblique suspension rings.
Load rings GN 587 comply with Mechanical Engineering Directive 2006 / 42 / EG.



* Complete with type index of the Load rings
A without steel tape
B with steel tape

GN 587

Description	b	h1	h2	h3	h4	k1	k2	l1	l2	l3	Nominal load in t (WLL)	⚖
GN 587-66-*	66	79	65	40	25	13.5	38	33	32	71	1.5	320
GN 587-77-*	77	91	75	48	27	13.5	45	40	33	80	2.5	470
GN 587-87-*	87	101	83	52	31	16.5	51	46	42	91	4	757
GN 587-115-*	115	141	117	73	44	22.5	67	60	65	126.5	6.7	2000
GN 587-129-*	129	153	126	71	55	26.5	67	60	75	135.5	10	2300

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GN 587

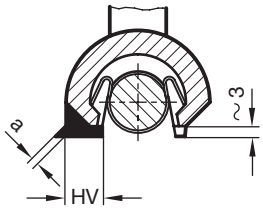
Load rings



Method of mounting	G_1	G_2	$2xG_1$	$2xG_2$	G_2	G_2	G_2	G_2	G_2
Number	1	1	2	2	2	2	2	3 and 4	3 and 4	3 and 4
Angles of inclination	0°	90°	0°	90°	0° to 45	45° to 60°	asymm.	0° to 45°	45° to 60°	asymm.
Factor	1	1	2	2	1.4	1	1	2.1	1.5	1
b = 66	1.50 t	1.50 t	3.00 t	3.00 t	2.10 t	1.50 t	1.50 t	3.15 t	2.25 t	1.50 t
b = 77	2.50 t	2.50 t	5.00 t	5.00 t	3.50 t	2.50 t	2.50 t	5.25 t	3.75 t	2.50 t
b = 87	4.00 t	4.00 t	8.00 t	8.00 t	5.60 t	4.00 t	4.00 t	8.40 t	6.00 t	4.00 t
b = 115	6.70 t	6.70 t	13.40 t	13.40 t	9.50 t	6.70 t	6.70 t	14.00 t	10.00 t	6.70 t
b = 129	10.00 t	10.00 t	20.00 t	20.00 t	14.00 t	10.00 t	10.00 t	21.00 t	15.00 t	10.00 t

SAFETY INSTRUCTIONS

The above details refer to the maximum load in metric tonnes.
The configurations of the welding seam (HV) complies with the requirements of DIN 18800, i.e. the closed seam means that no corrosive deposits can settle; this also makes the load rings suitable for outside use.



Loading ring size	Size Welding seam	Length	Volume in cm³
b = 66 (1.5 t)	HV 5 + a 3	2 x 33	1.2
b = 77 (2.5 t)	HV 7 + a 3	2 x 40	2.6
b = 87 (4.0 t)	HV 8 + a 3	2 x 46	3.2
b = 115 (6.7 t)	HV 12 + a 4	2x 60	8.7
b = 129 (10.0 t)	HV 16 + a 4	2x 60	15.5

Welding must be made by an approved welder in accordance with EN 287-1.
The specified load values are valid for an operating temperature of between -40 °C and + 100 °C. Load capacities under hicher temperatures provided on request.
If the load rings are used for lashing instead of lifting, the nominal load is doubled.
Operating instructions with more details and specifications are included with every delivery.

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GN 589

RoHS

Lifting points

for welding

SPECIFICATION

Steel, German Material No. 1.6541

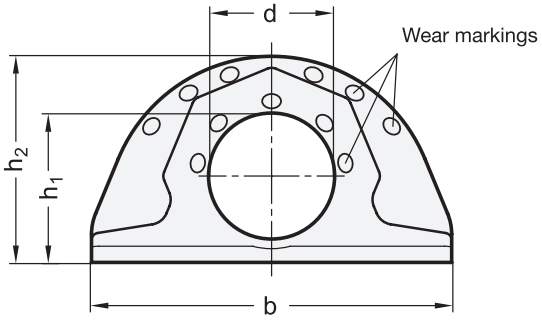
- forged
- high-tensile tempered
- 100 % electro magnetic tensile tested to EN 1677
- phosphated

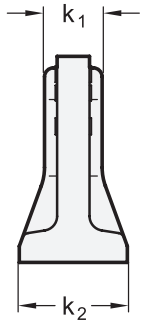
INFORMATION

Lifting points GN 589 are distinguished for their very low dimensions. They provide high dynamic and static strength and can be load from any direction with approved safety (safety factor 4) for all loading directions.
The rated load carrying capacity listed in the above table is clearly marked on the lifting point. It applies to the most unfavourable load application of the load types listed opposite
Lifting points GN 589 comply with Mechanical Engineering Directive 2006 / 42 / EG.



RUD





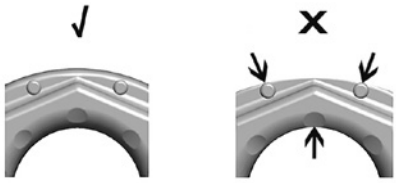
GN 589

Description	b	d	h1	h2	k1	k2	Nominal load (WLL)	max. permitted lashing force in daN (LC)	⚖
GN 589-100	100	35	41.5	57	16	30	1.6	3200	435
GN 589-137	137	50	59	80	23	41	3.2	6400	1100
GN 589-172	172	60	71.5	99	27	51	5	10000	2160
GN 589-228	228	80	95	130	38	70	10	20000	5260

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Method of mounting										
Number	1	1	2	2	2	2	2	3 and 4	3 and 4	3 and 4
Angles of inclination	0°	90°	0°	90°	0° to 45	45° to 60°	asymm.	0° to 45°	45° to 60°	asymm.
Factor	1	1	2	2	1.4	1	1	2.1	1.5	1
b = 100	1.6 t	1.6 t	3.2 t	3.2 t	2.2 t	1.6 t	1.6 t	3.4 t	2.4 t	1.6 t
b = 137	3.2 t	3.2 t	6.4 t	6.4 t	4.5 t	3.2 t	3.2 t	6.8 t	4.8 t	3.2 t
b = 172	5.0 t	5.0 t	10.0 t	10.0 t	7.1 t	5.0 t	5.0 t	10.6 t	7.5 t	5.0 t
b = 228	10.0 t	10.0 t	20.0 t	20.0 t	14.1 t	10.0 t	10.0 t	21.2 t	15.0 t	10.0 t

SAFETY INSTRUCTIONS

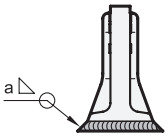


Use permitted
No traces of wear

Use not permitted
Criteria reached:
Material worn down to the wear marks

The above details refe to the maximum load in metric tonnes.

Carefully check the wear markings for the abrasion of the lifting point.



Welding seam

Lifting point	Size fillet seam	Length	Volume in cm³
b = 100 (1.6 t)	a = 4	251	4.016
b = 137 (3.2 t)	a = 6	344	12.38
b = 172 (5.0 t)	a = 7	431	21.10
b = 228 (10.0 t)	a = 8	576	36.86

Welding must be made by an approved welder in accordance with EN 287-1.
The specified loading values are valid for an operating temperature of between -40 °C and +200 °C. Load capacities under higher temperatures provided on request.
Operating instructions with more details and specifications are included with every delivery (see also www.elesa-ganter.com)

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Shackles

straight version

SPECIFICATION

Types

- Type **A**: with stud bolt
- Type **B**: Bolt with nut and split pin

Ring bracket

- Heat-treatable steel, die-forged
- hot-dip galvanised

Bolt

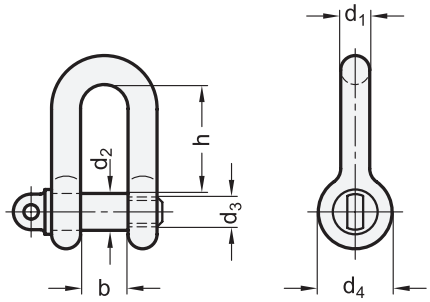
- Heat-treatable steel, die-forged
- galvanic zinc plated, lacquered

INFORMATION

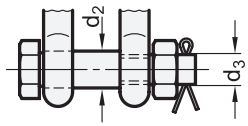
High-strength, straight shackles GN 584 are made in analogy with the US Federal Specification RR-C-271 and feature sixfold safety standards, which means that the minimum failure load is at least six times greater than the value of the nominal load (WLL).
The rated size and the nominal load (WLL) are drop-forged into the shackle which makes it easier to select the proper sling gear. In general, the nominal load must not be exceeded.
The designs with nut and split pin (Type B) are normally recommended for permanent connections. The bolts are allowed to rotate, and the nuts are secured against inadvertent loosening with a split pin.
Operating instructions with more details and specifications are included with every delivery.



Type **A**



Type **B**



*Complete with type index of the Shackles (A or B)

A with stud bolt
B Bolt with nut and split pin

GN 584

Description	d1 Nominal size	d1 In inch	b ±1	d2 ±0.5	d3** UNC-thread	d4	h	Nominal load (WLL)	⚖
GN 584-6-*	6	1/4	12	8	5/16	17	22	0.5 t [5.0 kN]	45
GN 584-8-*	8	5/16	13	10	3/8	21	26	0.75 t [7.5 kN]	80
GN 584-10-*	10	3/8	16	12	7/16	26	31	1.0 t [10 kN]	120
GN 584-11-*	11	7/16	18	14	1/2	28	36	1.5 t [15 kN]	180
GN 584-13-*	13	1/2	21	16	5/8	30	41	2.0 t [20 kN]	350
GN 584-16-*	16	5/8	27	19	3/4	42	51	3.25 t [32.5 kN]	595
GN 584-19-*	19	3/4	32	22	7/8	48	60	4.75 t [47.5 kN]	900
GN 584-22-*	22	7/8	36	25	1	57	71	6.5 t [65.0 kN]	1200
GN 584-25-*	25	1	43	28	1 1/8	62	81	8.5 t [85.0 kN]	1800

** in general, the bolts ands screws are threaded as specified. Variances are possible, however.

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Shackles

cranked version

SPECIFICATION

Types

- Type **A**: with stud bolt
- Type **B**: Bolt with nut and split pin

Ring bracket

- Heat-treatable steel, die-forged
- hot-dip galvanised

Bolt

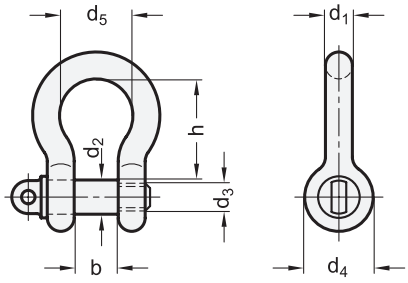
- Heat-treatable steel, die-forged
- galvanic zinc plated, lacquered

INFORMATION

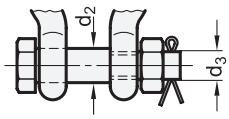
High-strength, straight shackles GN 585 are made in analogy with the US Federal Specification RR-C-271 and feature sixfold safety standards, which means that the minimum failure load is at least six times greater than the value of the nominal load (WLL).
The cranked shape is particularly suitable for applications where the shackles are exposed to multiple loads.
The rated size and the nominal load (WLL) are drop-forged into the shackle which makes it easier to select the proper sling gear. In general, the nominal load must not be exceeded.
The designs with nut and split pin (Type B) are normally recommended for permanent connections. The bolts are allowed to rotate, and the nuts are secured against inadvertent loosening with a split pin.
Operating instructions with more details and specification are included with every delivery.



Type **A**



Type **B**



*Complete with type index of the Shackles (A or B)

A with stud bolt

B Bolt with nut and split pin

GN 585

Description	d1 Nominal size	d1 In inch	b ±1	d2 ±0.5	d3** UNC-thread	d4	d5	h	Nominal load (WLL)	⚖
GN 585-6-*	6	1/4	12	8	5/16	17	19	28	0.5 t [5.0 kN]	50
GN 585-8-*	8	5/16	13	10	3/8	21	21	31	0.75 t [7.5 kN]	80
GN 585-10-*	10	3/8	16	12	7/16	26	24	36	1.0 t [10 kN]	130
GN 585-11-*	11	7/16	18	14	1/2	28	27	42	1.5 t [15 kN]	220
GN 585-13-*	13	1/2	21	16	5/8	30	30	48	2.0 t [20 kN]	350
GN 585-16-*	16	5/8	27	19	3/4	42	38	60	3.25 t [32.5 kN]	650
GN 585-19-*	19	3/4	32	22	7/8	48	45	71	4.75 t [47.5 kN]	1050
GN 585-22-*	22	7/8	36	25	1	57	51	84	6.5 t [65.0 kN]	1400
GN 585-25-*	25	1	43	28	1 1/8	62	59	95	8.5 t [85.0 kN]	2300

** in general, the bolts ands screws are threaded as specified. Variances are possible, however.

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Lifting pins

Steel / Stainless Steel, self-locking



SPECIFICATION

Version in Steel
Steel **ST**

- Stud, shackle
- heat-treated, manganese phosphated

Version in Stainless Steel
Stainless Steel **NI**
Stud AISI 630
age-hardened

Shackle AISI 316Ti

Push button
Aluminium, red anodized

Spring
Stainless Steel

INFORMATION

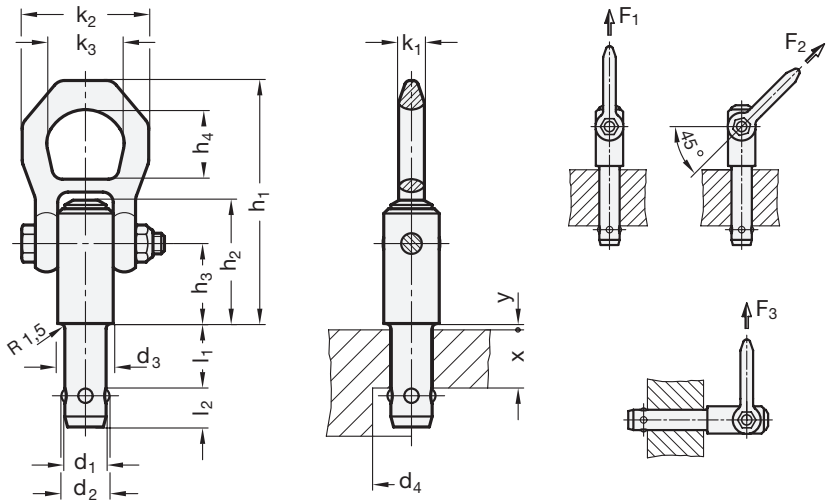
Lifting pins GN 1130 are carrier elements designed for fast and easy use. Pressing the red aluminium button will release the locking effect of the locking ball, allowing the load bolt to be moved in or out of the holding bore hole. The shackle rotates by at least 180°, with a safety flange fitted as a safeguard against inadvertent operation. Depending on the direction of pull, the ball load bolt may move freely by 360° in the holding bore hole.
Sling and lifting gear permanently remaining at the workpiece (e.g. load rings) is no longer necessary. Holding bore holes with d1 H11 are sufficient in use with corresponding strength of materials.
Furthermore, the GN 1132 (see page 1098) holding bushings are also available.
For more user guidlines, see the operating instruction enclosed with every lifting pin.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)

ACCESSORY

- Holding bushings GN 1132 (see page 1098)



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GN 1130

Description	d1 -0.04/-0.08	l1 +1	d2	d3	d4 min.	h1	h2	h3	h4	k1	k2	k3	l2	x min.	y	Nominal load in kN F1	Nominal load in kN F2	Nominal load in kN F3	⚖
GN 1130-8-10-ST	8	10	9.35	21.5	9.9	87.5	38.5	25.7	27	9.5	49	30	8.75	5	1.5	1.5*	1.2*	0.5*	220
GN 1130-8-15-ST	8	15	9.35	21.5	9.9	87.5	38.5	25.7	27	9.5	49	30	8.75	5	1.5	1.5*	1.2*	0.5*	226
GN 1130-8-25-ST	8	25	9.35	21.5	9.9	87.5	38.5	25.7	27	9.5	49	30	8.75	10	1.5	1.5*	1.2*	0.5*	229
GN 1130-8-35-ST	8	35	9.35	21.5	9.9	87.5	38.5	25.7	27	9.5	49	30	8.75	20	1.5	1.5*	1.2*	0.5*	232
GN 1130-10-15-ST	10	15	11.7	21.5	12.2	87.5	38.5	25.7	27	9.5	49	30	10.2	5	1.5	2.7*	2.4*	2.1*	227
GN 1130-10-25-ST	10	25	11.7	21.5	12.2	87.5	38.5	25.7	27	9.5	49	30	10.2	15	1.5	2.7*	2.4*	2.1*	236
GN 1130-10-35-ST	10	35	11.7	21.5	12.2	87.5	38.5	25.7	27	9.5	49	30	10.2	25	1.5	2.7*	2.4*	2.1*	243
GN 1130-10-50-ST	10	50	11.7	21.5	12.2	87.5	38.5	25.7	27	9.5	49	30	10.2	40	1.5	2.7*	2.4*	2.1*	252
GN 1130-12-15-ST	12	15	14.2	21.5	14.7	87.5	38.5	25.7	27	9.5	49	30	11	5	1.5	3.5*	3.2*	2.8*	243
GN 1130-12-25-ST	12	25	14.2	21.5	14.7	87.5	38.5	25.7	27	9.5	49	30	11	10	1.5	3.5*	3.2*	2.8*	247
GN 1130-12-35-ST	12	35	14.2	21.5	14.7	87.5	38.5	25.7	27	9.5	49	30	11	20	1.5	3.5*	3.2*	2.8*	258
GN 1130-12-50-ST	12	50	14.2	21.5	14.7	87.5	38.5	25.7	27	9.5	49	30	11	35	1.5	3.5*	3.2*	2.8*	267
GN 1130-16-25-ST	16	25	18.6	25	19.2	92.8	47.5	31	27	9.5	49	30	15.1	10	1.5	4.8*	4.5*	4.1*	318
GN 1130-16-50-ST	16	50	18.6	25	19.2	92.8	47.5	31	27	9.5	49	30	15.1	15	1.5	4.8*	4.5*	4.1*	350
GN 1130-16-75-ST	16	75	18.6	25	19.2	92.8	47.5	31	27	9.5	49	30	15.1	35	1.5	4.8*	4.5*	4.1*	392
GN 1130-20-50-ST	20	50	24.5	30	25	114	55.9	36.5	32.6	11	56	36	19.7	25	1.5	10*	8.5*	6.5*	440
GN 1130-20-75-ST	20	75	24.5	30	25	114	55.9	36.5	32.6	11	56	36	19.7	45	1.5	10*	8.5*	6.5*	480

GN 1130-NI

STAINLESS STEEL

Description	d1 -0.04/-0.08	l1 +1	d2	d3	d4 min.	h1	h2	h3	h4	k1	k2	k3	l2	x min.	y	Nominal load in kN F1	Nominal load in kN F2	Nominal load in kN F3	⚖
GN 1130-8-10-NI	8	10	9.35	21.5	9.9	87.5	38.5	25.7	27	9.5	49	30	8.75	5	1.5	1.5*	1.2*	0.5*	228
GN 1130-8-15-NI	8	15	9.35	21.5	9.9	87.5	38.5	25.7	27	9.5	49	30	8.75	5	1.5	1.5*	1.2*	0.5*	229
GN 1130-8-25-NI	8	25	9.35	21.5	9.9	87.5	38.5	25.7	27	9.5	49	30	8.75	10	1.5	1.5*	1.2*	0.5*	233
GN 1130-8-35-NI	8	35	9.35	21.5	9.9	87.5	38.5	25.7	27	9.5	49	30	8.75	20	1.5	1.5*	1.2*	0.5*	236
GN 1130-10-15-NI	10	15	11.7	21.5	12.2	87.5	38.5	25.7	27	9.5	49	30	10.2	5	1.5	2.7*	2.4*	2.1*	233
GN 1130-10-25-NI	10	25	11.7	21.5	12.2	87.5	38.5	25.7	27	9.5	49	30	10.2	15	1.5	2.7*	2.4*	2.1*	238
GN 1130-10-35-NI	10	35	11.7	21.5	12.2	87.5	38.5	25.7	27	9.5	49	30	10.2	25	1.5	2.7*	2.4*	2.1*	260
GN 1130-10-50-NI	10	50	11.7	21.5	12.2	87.5	38.5	25.7	27	9.5	49	30	10.2	40	1.5	2.7*	2.4*	2.1*	255
GN 1130-12-15-NI	12	15	14.2	21.5	14.7	87.5	38.5	25.7	27	9.5	49	30	11	5	1.5	3.5*	3.2*	2.8*	242
GN 1130-12-25-NI	12	25	14.2	21.5	14.7	87.5	38.5	25.7	27	9.5	49	30	11	10	1.5	3.5*	3.2*	2.8*	253
GN 1130-12-35-NI	12	35	14.2	21.5	14.7	87.5	38.5	25.7	27	9.5	49	30	11	20	1.5	3.5*	3.2*	2.8*	260
GN 1130-12-50-NI	12	50	14.2	21.5	14.7	87.5	38.5	25.7	27	9.5	49	30	11	35	1.5	3.5*	3.2*	2.8*	268
GN 1130-16-25-NI	16	25	18.6	25	19.2	92.8	47.5	31	27	9.5	49	30	15.1	10	1.5	4.8*	4.5*	4.1*	316
GN 1130-16-50-NI	16	50	18.6	25	19.2	92.8	47.5	31	27	9.5	49	30	15.1	15	1.5	4.8*	4.5*	4.1*	355
GN 1130-16-75-NI	16	75	18.6	25	19.2	92.8	47.5	31	27	9.5	49	30	15.1	35	1.5	4.8*	4.5*	4.1*	398
GN 1130-20-50-NI	20	50	24.5	30	25	114	55.9	36.5	32.6	11	56	36	19.7	25	1.5	10*	8.5*	6.5*	398
GN 1130-20-75-NI	20	75	24.5	30	25	114	55.9	36.5	32.6	11	56	36	19.7	45	1.5	10*	8.5*	6.5*	438

* with 5-fold anti-fracture safety

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Holding bushings

for lifting pins GN 1130

SPECIFICATION

Type

- Type **A**: with external hexagon

Bushing
Stainless Steel

- AISI 630
- precipitation hardened

INFORMATION

Holding bushings GN 1132 are used in connection with lifting pins GN 1130 (see page 1096).
The length l_1 of the holding bushing should be equal to length l_1 of the lifting pin in order to recht the load specification given in the table for GN 1130 at plug-in length x.
Holding bushingsintended to remain permanently at the workpiece, creating a place-saving alternative to load rings or similar.

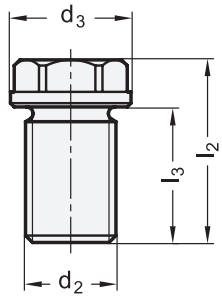
TECHNICAL INFORMATION

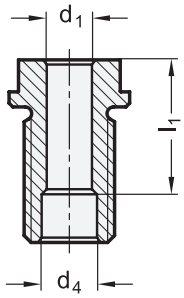
- Stainless Steel characteristics (see page A26)

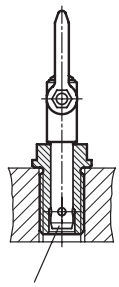
ON REQUEST

- other threads d_2

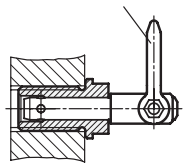


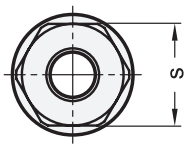






Lifting pins
GN 1130





GN 1132 — **STAINLESS STEEL**

Description	d1	l1	d2	d3	d4 +0.3	l2	l3	s	Tightening torque in Nm	⚖
GN 1132-8-10-M16x1,5-A	8	10	M 16 x 1.5	24	9.8	27.5	20	19	90	32
GN 1132-8-25-M16-A	8	25	M 16	24	9.8	37.5	25	19	75	47
GN 1132-10-15-M20x1,5-A	10	15	M 20 x 1.5	28	12.2	35.5	24	24	145	70
GN 1132-10-35-M20-A	10	35	M 20	28	12.2	46	29	24	130	92
GN 1132-12-15-M24x1,5-A	12	15	M 24 x 1.5	32	14.7	35.5	24	27	220	94
GN 1132-12-35-M24-A	12	35	M 24	32	14.7	48.5	36	27	200	119
GN 1132-16-25-M30x2-A	16	25	M 30 x 2	39	19.2	44	29	30	440	164
GN 1132-16-50-M30-A	16	50	M 30	39	19.2	66	44	30	400	236
GN 1132-20-50-M36x2-A	20	50	M 36 x 2	43	26	70	55	36	440	236

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GN 509.3

Spring rings

Retainers for ball transfer units GN 509 / GN 509.1

SPECIFICATION

Types

- Type **A**: Clamp spring washer
- Type **B**: Retaining ring

Type A
Spring steel
Stainless Steel

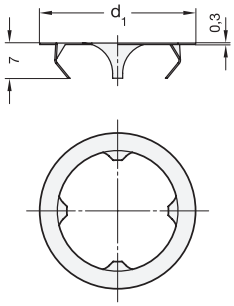
Type B
Spring steel
zinc plated

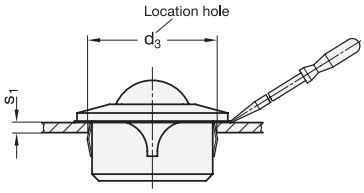


INFORMATION

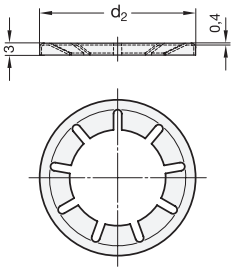
Clamp spring washers GN 509.3, type A allow ball transfers units to be mounted and removed from the installation side.
Retaining rings GN 509.3, type B are mounted from the back. Ball transfers units mounted this way can no longer be dismantled. No restrictions exist with respect to sheet metal thickness.

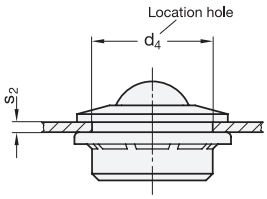
Type **A** Clamp spring washer





Type **B** Retaining ring





GN 509.3 **STAINLESS STEEL**

Description	d1	d2	d3	d4	s1	s2	For ball transfer units GN 509.1 GN 509.2 Size	⚖
GN 509.3-31-A	31	-	25 -0.2	-	2 ... 3	-	15	1
GN 509.3-44-A	44	-	37.3 -0.3	-	2 ... 4	-	22	2
GN 509.3-55-A	55	-	46.7 -0.3	-	2 ... 4	-	30	2
GN 509.3-36-B	-	36	-	22.2	-	*	12	3
GN 509.3-38-B	-	38	-	24.2	-	*	15	3

* optional

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Ball transfer units

Stainless Steel / Steel housing

SPECIFICATION

Housing sheet steel **SBL**

- zinc plated, blue passivated
- Ball Steel, blank

Housing sheet steel **SKU**

- zinc plated, blue passivated
- Ball Plastic (Polyacetal POM)

Housing sheet steel **SNI**

- zinc plated, blue passivated
- Ball Stainless Steel AISI 440C

Housing sheet steel **NNI**

- Stainless Steel AISI 304
- Ball Stainless Steel AISI 440C

INFORMATION

Ball transfer units GN 509 are used on conveyer tracks. They assist a linear or rotary movement of heavy loads on conveyer track.

ACCESSORY

- Spring rings GN 509.3 (Retainers for ball transfer units) (see page 1099)

TECHNICAL INFORMATION

All ball operated conveyers are made up of a number of balls each located in a socket resting on a number of smaller support balls thus allowing the larger ball to rotate in any direction.

Arrangement and choice of ball size

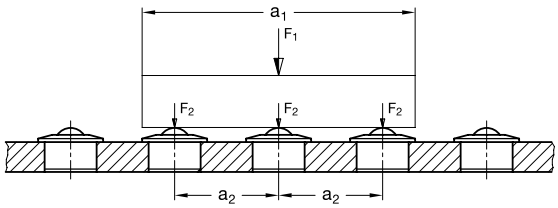
When deciding on the size of the conveyer the following factors have to be taken into account: Weight, size, base material as well as the load to be carried.

The **max. distance between the roller balls „a2“** (on a plane surface) is arrived at by dividing the shortest edge length of the load to be conveyed by 2.5. This ensures that a load will always be supported by carrier balls thus preventing it from tipping over into an empty space.

The required **load carrying capacity** of the balls is determined by the weight of the actual load divided by three. This is arrived at from the assumption that, due to tolerances on the load carrying face and the spacing of the balls in general, only three balls will be under load at any one time.

a_1 = shortest edge length of the load
a_2 = max. distance between roller balls
$a_2 = a_1/2.5$

F_1 = Load weight
F_2 = Load per roller ball
$F_2 = F_1/3$





Speed and friction

The permissible conveying speed is 2 m/sec. With larger roller balls at speeds exceeding 1 m/sec., depending on the weight being conveyed, an increased temperature would be expected.

The **friction values** of the balls at a speed of 1 m/sec. will be in the region of 0.005 µ. This value is, however, dependent on application of usage and could be subject to large variations.

In comparison of balls with sheet metal housings (GN 509) with balls in heavy duty steel housing GN 509.1 (see page 1102), the latter have a higher rigidity. Hence the static values of balls in steel housing can be applied.

Lubrication to prevent corrosion is recommended. The general recommendations applicable to ordinary roller bearings will be sufficient. In most applications lubrication can be ignored.

Resistance to temperature

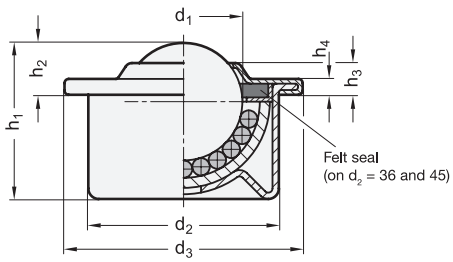
Balls from size 36 upwards are fitted with a felt seal as protection against ingress of dirt and dust. The latter have a max temperature of 100 °C only.

Balls without the felt seal can also be used at higher operating temperatures. This, however, will lead to a reduced conveying capacity (c). The following table gives indicative values:

125 °C ./. 10 %
150 °C ./. 20 %
170 °C ./. 30 %
200 °C ./. 50 %

The max. operating temperatur for ball transfer units with plastic ball is 60 °C.

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GN 509 **STAINLESS STEEL**

Description	Size	d1	d2	d3	h1 ±0.3	h2 ±0.3	h3 ±0.3	h4	Load C in N	⚖
GN 509-15-SBL	15	15.8	24 ±0.065	31	21	9.5	5	2.9	500	40
GN 509-22-SBL	22	22.2	36 ±0.08	45	29.5	9.8	6	2.9	1200	129
GN 509-30-SBL	30	30.1	45 ±0.1	55	37.8	13.8	7	3.7	2000	208
GN 509-15-SKU	15	15.8	24 ±0.065	31	21	9.5	5	2.9	70	20
GN 509-22-SKU	22	22.2	36 ±0.08	45	29.5	9.8	6	2.9	100	40
GN 509-30-SKU	30	30.1	45 ±0.1	55	37.8	13.8	7	3.7	150	80
GN 509-15-SNI	15	15.8	24 ±0.065	31	21	9.5	5	2.9	300	40
GN 509-22-SNI	22	22.2	36 ±0.08	45	29.5	9.8	6	2.9	900	130
GN 509-30-SNI	30	30.1	45 ±0.1	55	37.8	13.8	7	3.7	1500	265
GN 509-15-NNI	15	15.8	24 ±0.065	31	21	9.5	5	2.9	300	40
GN 509-22-NNI	22	22.2	36 ±0.08	45	29.5	9.8	6	2.9	900	110

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Ball transfer units

Heavy duty Stainless Steel / Steel housing, with collar

SPECIFICATION

Housing Steel **SBL**

- turned
- zinc plated, blue passivated
- Ball Steel, blank

Housing Steel **SNI**

- turned
- zinc plated, blue passivated
- Ball Stainless Steel AISI 440C

Housing Stainless Steel AISI 301 **NNI**
Ball Stainless Steel AISI 440C

INFORMATION

Ball transfer untis GN 509.1 are used on conveyer tracks. They assist a linear or rotary movement of heavy loads on a conveyer track.

ON REQUEST

- Plastic ball (Polyamide)

ACCESSORY

- Spring rings GN 509.3 (see page 1099)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)

All ball operated conveyers are made up of a number of balls each located in a socket resting on a number of smaller support balls thus allowing the larger ball to rotate in any direction.

Arrangement and choice of ball size

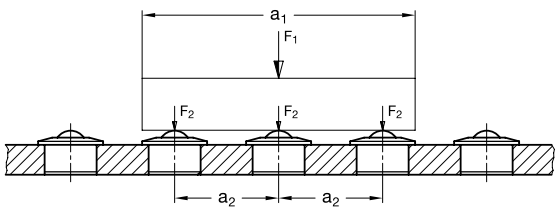
When deciding on the size of the conveyer the following factors have to be taken into account: Weight, size, base material as well as the load to be carried.

The **max. distance between the roller balls „a2“** (on a plane surface) is arrived at by dividing the shortest edge length of the load to be conveyed by 2.5. This ensures that a load will always be supported by carrier balls thus preventing it from tipping over into an empty space.

The required **load carrying capacity** of the balls is determined by the weight of the actual load divided by three. This is arrived at from the assumption that, due to tolerances on the load carrying face and the spacing of the balls in general, only three balls will be under load at any one time.

a_1 = shortest edge length of the load
a_2 = max. distance between roller balls
$a_2 = a_1/2.5$

F_1 = Load weight
F_2 = Load per roller ball
$F_2 = F_1/3$





Speed and friction

The permissible conveying speed is 2 m/sec. With larger roller balls at speeds exceeding 1 m/sec., depending on the weight being conveyed, an increased temperature would be expected.

The **friction values** of the balls at a speed of 1 m/sec. will be in the region of 0.005 µ. This value is, however, dependent on application of usage and could be subject to large variations.

In comparison of balls with sheet metal housings (GN 509, see page 1100) with balls in heavy duty steel housing GN 509.1 , the latter have a higher rigidity. Hence the static values of balls in steel housing can be applied.

Lubrication to prevent corrosion is recommended. The general recommendations applicable to ordinary roller bearings will be sufficient. In most applications lubrication can be ignored.

Resistance to temperature

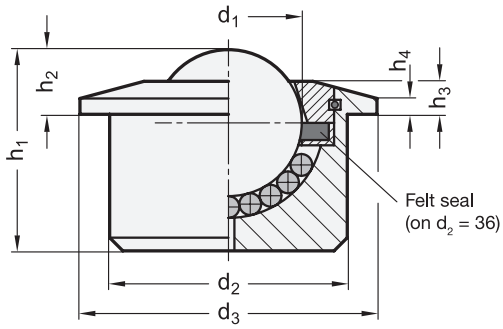
Balls from size 36 upwards are fitted with a felt seal as protection against ingress of dirt and dust. The latter have a max temperature of 100 °C only.

Balls without the felt seal can also be used at higher operating temperatures. This, however, will lead to a reduced conveying capacity (c). The following table gives indicative values:

125 °C ./. 10 %
150 °C ./. 20 %
170 °C ./. 30 %
200 °C ./. 50 %

The max. operating temperatur for ball transfer units with plastic ball is 60 °C.

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GN 509.1 **STAINLESS STEEL**

Description	Size	d1	d2 ±0.08	d3	h1 ±0.3	h2 ±0.3	h3 ±0.3	h4	Load C in N	⚖
GN 509.1-12-SBL	12	12.7	22	27	17	8	4	3.2	200	35
GN 509.1-15-SBL	15	15.8	24	30	20	8.1	3.5	1	500	44
GN 509.1-22-SBL	22	22.2	36	45	30.5	9.8	5	2.4	1300	186
GN 509.1-30-SBL	30	30.1	45	55	36.8	13.8	7	4.5	2500	360
GN 509.1-45-SBL	45	44.4	62	75	53.5	19	9.5	5.5	6000	980
GN 509.1-60-SBL	60	60	100	117	77.5	30	15	10	13000	3700
GN 509.1-12-SNI	12	12.7	22	27	17	8	4	3.2	150	35
GN 509.1-15-SNI	15	15.8	24	30	20	8.1	3.5	1	400	50
GN 509.1-22-SNI	22	22.2	36	45	30.5	9.8	5	2.4	1000	180
GN 509.1-30-SNI	30	30.1	45	55	36.8	13.8	7	4.5	2000	360
GN 509.1-45-SNI	45	44.4	62	75	53.5	19	9.5	5.5	4500	980
GN 509.1-60-SNI	60	60	100	117	77.5	30	15	10	10000	3700
GN 509.1-12-NNI	12	12.7	22	27	17	8	4	3.2	150	35
GN 509.1-15-NNI	15	15.8	24	30	20	8.1	3.5	1	400	55
GN 509.1-22-NNI	22	22.2	36	45	30.5	9.8	5	2.4	1000	193
GN 509.1-30-NNI	30	30.1	45	55	36.8	13.8	7	4.5	2000	360
GN 509.1-45-NNI	45	44.4	62	75	53.5	19	9.5	5.5	4500	980
GN 509.1-60-NNI	60	60	100	117	77.5	30	15	10	10000	3700

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Ball transfer units

Heavy duty Steel-housing, without collar

SPECIFICATION

Housing Steel **SBL**

- turned
- zinc plated, blue passivated
- Ball Steel, blank

INFORMATION

Ball transfer untis GN 509.4 are used on conveyer tracks. They assist a linear or rotary movement of heavy loads on conveyer track.
They have no support collar, taking hte load at the housing diameter d_2 instead.

ON REQUEST

- Plastic ball (Polyamide)
- Stainless Steel-Balls
- Stainless Steel-Housings



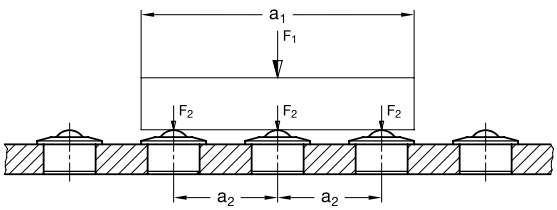
TECHNICAL INFORMATION

All ball operated conveyers are made up of a number of balls each located in a socket resting on a number of smaller support balls thus allowing the larger ball to rotate in any direction.

Arrangement and choice of ball size

When deciding on the size of the conveyer the following factors have to be taken into account: Weight, size, base material as well as the load to be carried.
The **max. distance between the roller balls „a2“** (on a plane surface) is arrived at by dividing the shortest edge length of the load to be conveyed by 2.5. This ensures that a load will always be supported by carrier balls thus preventing it from tipping over into an empty space.
The required **load carrying capacity** of the balls is determined by the weight of the actual load divided by three. This is arrived at from the assumption that, due to tolerances on the load carrying face and the spacing of the balls in general, only three balls will be under load at any one time.

a_1 = shortest edge length of the load F_1 = Load weight
a_2 = max. distance between roller balls F_2 = Load per roller ball
$a_2 = a_1/2.5$ $F_2 = F_1/3$



Speed and friction

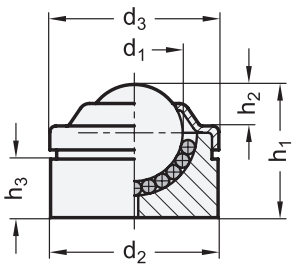
The permissible conveying speed is 2 m/sec. With larger roller balls at speeds exceeding 1 m/sec., depending on the weight being conveyed, an increased temperature would be expected.
The **friction values** of the balls at a speed of 1 m/sec. will be in the region of 0.005 µ. This value is, however, dependent on application of usage and could be subject to large variations.
In comparison of balls with sheet metal housings (GN 509, see page 1100) with balls in heavy duty steel housing (GN 509.1, see page 1102), the latter have a higher rigidity. Hence the static values of balls in steel housing can be applied.
Lubrication to prevent corrosion is recommended. The general recommendations applicable to ordinary roller bearings will be sufficient. In most applications lubrication can be ignored.

Resistance to temperature

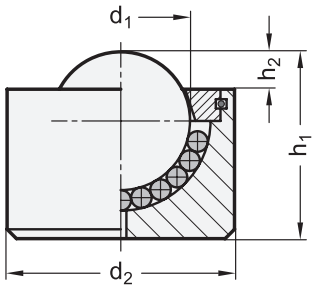
Balls from size 36 upwards are fitted with a felt seal as protection against ingress of dirt and dust. The latter have a max temperature of 100 °C only.
Balls without the felt seal can also be used at higher operating temperatures. This, however, will lead to a reduced conveying capacity (c). The following table gives indicative values:
125 °C ./. 10 %
150 °C ./. 20 %
170 °C ./. 30 %
200 °C ./. 50 %
The max. operating temperatur for ball transfer units with plastic ball is 60 °C.

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Version size 8, 12
(Sheet steel cover)



Version size 15, 22, 30, 45



GN 509.4

Description	Size	d_1	d_2 ±0.08	d_3	h_1 ±0.3	h_2 ±0.3	h_3	Load C in N	⚖
GN 509.4-8-SBL	8	7.9	18	18	12	2	5.1	120	18
GN 509.4-12-SBL	12	12.7	22	22.2	17.5	5.5	7.7	200	34
GN 509.4-15-SBL	15	15.8	24	-	20	5	-	500	49
GN 509.4-22-SBL	22	22.2	36.5	-	30	6	-	1300	175
GN 509.4-30-SBL	30	30.1	44.4	-	36.8	7.5	-	2500	324
GN 509.4-45-SBL	45	44.4	62.6	-	53.5	13	-	6000	940

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GN 753

Guide rollers



SPECIFICATION

Types

- Type **ZL**: cylindrical
- Type **KV**: convex
- Type **KF**: wedge-shaped
- Type **KK**: concave
- Type **KR**: circular (O-ring)

Identification no.

- Version **1**: with bore
- Version **2**: with threaded stud

Outer ring
Plastic (Polyacetal POM)
Working temperature: 0° ... 40 °C

Inner ring / balls
Steel, blank

Threaded stud
Steel, zinc plated

O-ring rubber
NBR (Perbunan)

70 Shore A

INFORMATION

Guide rollers GN 753 are suitable for moving or guiding smaller loads. They are commonly used in drive engineering.
With the radial load bearing capacity given in the table, the guide rollers reach a minimum run time of 1 million revolutions. In general, the guide rollers should not be used under axial load.

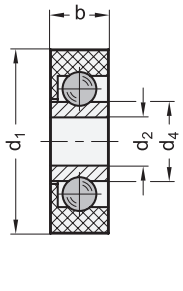
TECHNICAL INFORMATION

- Elastomer characteristics (see page A32)
- Plastic characteristic (see page A2)

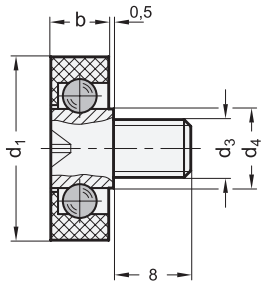
ON REQUEST

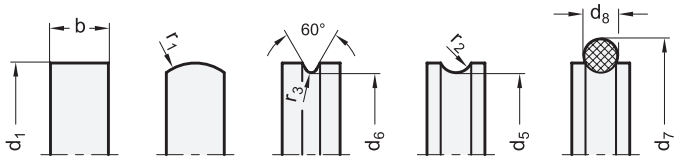
- Guide rollers with rivet spigot

Identification no. **1**



Identification no. **2**





Type **ZL** Type **KV** Type **KF** Type **KK** Type **KR**

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GN 753

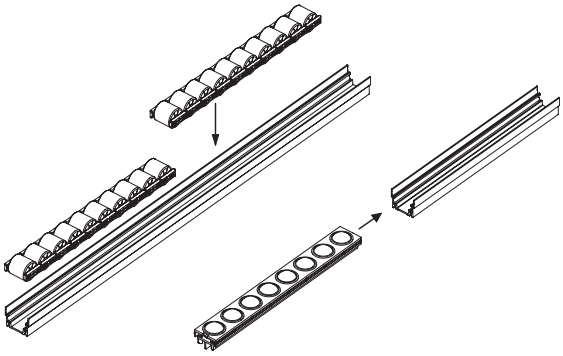
Description	d1	d2	d3	d4	d5	d6	d7	d8	b	r1	r2	r3	Radial load bearing capacity in N at max. 300 rpm	⚖
GN 753-19-B5-KR-1	19	B 5	-	8.2	-	-	24	3.5	6	-	-	-	39	4
GN 753-22-B6-KR-1	22	B 6	-	9.5	-	-	29	5	7	-	-	-	156	7
GN 753-26-B6-KR-1	26	B 6	-	9.5	-	-	33	5	7	-	-	-	156	9
GN 753-19-B5-KF-1	19	B 5	-	8.2	-	17	-	-	6	-	-	0.6	39	2
GN 753-22-B6-KF-1	22	B 6	-	9.5	-	19	-	-	7	-	-	0.6	156	2
GN 753-26-B6-KF-1	26	B 6	-	9.5	-	23	-	-	7	-	-	0.6	156	2
GN 753-19-B5-KV-1	19	B 5	-	8.2	-	-	-	-	6	5	-	-	49	2
GN 753-22-B6-KV-1	22	B 6	-	9.5	-	-	-	-	7	5	-	-	196	3
GN 753-26-B6-KV-1	26	B 6	-	9.5	-	-	-	-	7	5	-	-	196	5
GN 753-19-B5-KK-1	19	B 5	-	8.2	17	-	-	-	6	-	1.75	-	39	3
GN 753-22-B6-KK-1	22	B 6	-	9.5	19.2	-	-	-	7	-	2.5	-	156	5
GN 753-26-B6-KK-1	26	B 6	-	9.5	23.2	-	-	-	7	-	2.5	-	156	7
GN 753-19-B5-ZL-1	19	B 5	-	8.2	-	-	-	-	6	-	-	-	49	3
GN 753-19-B6-ZL-1	19	B 6	-	8.2	-	-	-	-	7	-	-	-	49	3
GN 753-22-B6-ZL-1	22	B 6	-	9.5	-	-	-	-	7	-	-	-	196	5
GN 753-22-B8-ZL-1	22	B 8	-	9.5	-	-	-	-	7	-	-	-	196	6
GN 753-26-B6-ZL-1	26	B 6	-	9.5	-	-	-	-	7	-	-	-	196	7
GN 753-26-B10-ZL-1	26	B 10	-	9.5	-	-	-	-	7	-	-	-	196	8
GN 753-19-M6-KR-2	19	-	M 6	8.2	-	-	24	3.5	6	-	-	-	39	7
GN 753-22-M6-KR-2	22	-	M 6	9.5	-	-	29	5	7	-	-	-	156	10
GN 753-26-M6-KR-2	26	-	M 6	9.5	-	-	33	5	7	-	-	-	156	12
GN 753-19-M6-KF-2	19	-	M 6	8.2	-	17	-	-	6	-	-	0.6	39	6
GN 753-22-M6-KF-2	22	-	M 6	9.5	-	19	-	-	7	-	-	0.6	156	8
GN 753-26-M6-KF-2	26	-	M 6	9.5	-	23	-	-	7	-	-	0.6	156	10
GN 753-19-M6-KV-2	19	-	M 6	8.2	-	-	-	-	6	5	-	-	49	6
GN 753-22-M6-KV-2	22	-	M 6	9.5	-	-	-	-	7	5	-	-	196	8
GN 753-26-M6-KV-2	26	-	M 6	9.5	-	-	-	-	7	5	-	-	196	10
GN 753-19-M6-KK-2	19	-	M 6	8.2	17	-	-	-	6	-	1.75	-	39	6
GN 753-22-M6-KK-2	22	-	M 6	9.5	19.2	-	-	-	7	-	2.5	-	156	8
GN 753-26-M6-KK-2	26	-	M 6	9.5	23.2	-	-	-	7	-	2.5	-	156	9
GN 753-19-M6-ZL-2	19	-	M 6	8.2	-	-	-	-	6	-	-	-	49	6
GN 753-22-M6-ZL-2	22	-	M 6	9.5	-	-	-	-	7	-	-	-	196	9
GN 753-26-M6-ZL-2	26	-	M 6	9.5	-	-	-	-	7	-	-	-	196	10

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ELEROLL Modular roller tracks

Modular roller tracks for idle handling.
They can be used to create sliding and containing benches suitable for several applications in different fields: feeding and discharging benches in construction machinery, storage and picking systems, packaging machinery, etc.

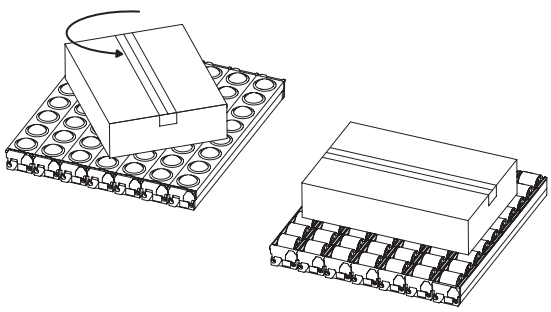
Modularity
The roller track can be easily assembled by fixing the roller or ball elements inside the appropriate aluminium anodised profiles.
The particular section of the profile allows the snap-in assembly of the roller and ball elements into the profile without the need for screws or other fasteners.





Substitution
The roller and ball elements may be removed and replaced quickly and easily, without disassembling the entire roller track.
The aluminium profile can be reused.

Sliding and quiet operation
The features of the materials of the rollers / balls and relative holders allow friction to be minimises and there is no need for lubrication maintenance.



High load capacity
The roller track ensures a high load capacity, thanks to a maximum capacity for single roller of 360N (PA rollers) and 150N (TPU rollers).

High impact strength
The roller elements are characterised by a high capacity to absorb shocks due to drop of material on the roller track.

Handling of delicate materials
The thermoplastic (TPU) polyurethane rollers, anti-scratch and antitrace material, are also suitable for handling delicate materials such as glass and wood.

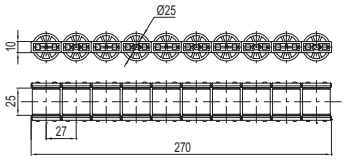
Omnidirectional handling
The technopolymer acetal resin based (POM) balls allow the easy handling of the material in any direction.

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ELEROLL Modular roller tracks

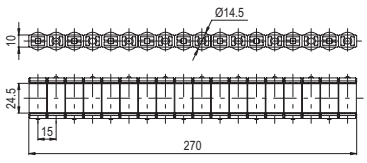


RLT-U
Roller elements
Acetal resin based (POM) technopolymer roller holder, black colour.
RLT-U-PA: polyamide based (PA) technopolymer rollers, black colour.
RLT-U-TPU: thermoplastic (TPU) polyurethane rollers, hardness 92 Shore A, grey colour.



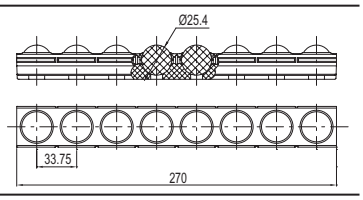


RLT-U15
Roller elements
Rollers: polyamide based (PA) technopolymer, black colour.
Roller holder: acetal resin based (POM) technopolymer, black colour.



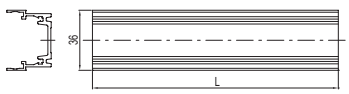


RLS-U
Ball elements
Balls: acetal resin based (POM) technopolymer, white colour.
Ball holder: polyamide based (PA) technopolymer, black colour.





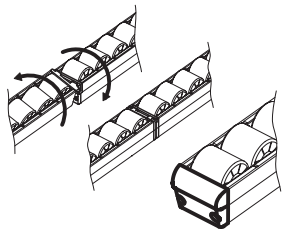
RLT-AL
Aluminium profiles
The profile can hold up to 11 RLT-U roller elements or RLS-U ball elements.
The profile ensures a high resistance to bending under load, and the assembly of the roller tracks without the need for other supports.



L max 2970 mm

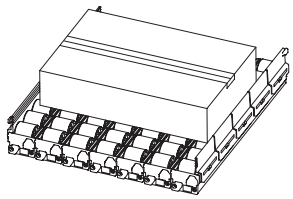


RLT-H
Headers
RLT-HJ header serves to bind tightly two rollers by engaging them. RLT-HE header is the end-element of roller tracks. In addition to being an aesthetic element, the headers represent a safety element for the operator's hands and the handled material.



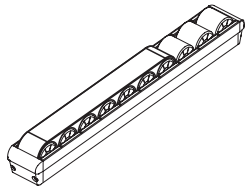


RLT-CE
Containment edge
RLT-CE containment edge is used for the lateral containment of products handled on roller tracks. It is snap-in assembled on RLT-AL aluminum profiles without the need for screws or other fasteners. It can also be mounted to the roller track already fixed.



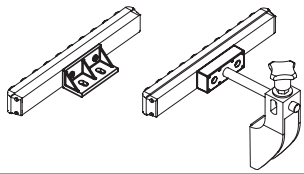


RLT-B
Brakes
RLT-B brakes allow to slow down and/or stop packages handled on roller tracks. The brakes are snap-in assembled on RLT-U roller elements without the need for screws or other fasteners.



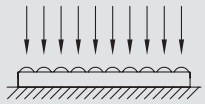
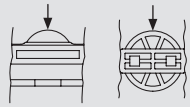


RLT-M
Bracket and support
The bracket and the support facilitate the mounting of roller tracks on machines and other supporting structures.



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ELEROLL Modular roller tracks

	Profile	Roller and ball elements	Load capacity #	
			Distributed load, roller fully supported 	Concentrated load on a single roller / ball 
	**RLT-AL**	**RLT-U-PA** **RLT-U15-PA**	13330 N/m 13330 N/m	360 N 200 N
	**RLT-AL**	**RLT-U-TPU**	5550 N/m	150 N
	**RLT-AL**	**RLS-U-POM**	850 N/m	30 N

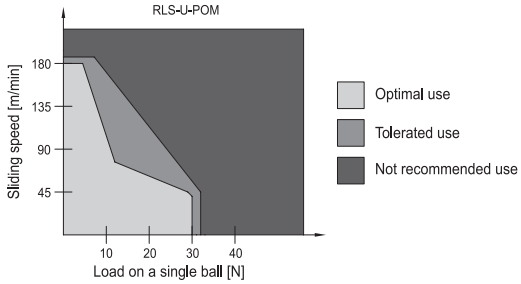
The data in the table refer to the handling of materials with a stiffness such as to keep flat the contact surface with the rollers. Otherwise the values may be lower.

 # RLT-U-PA: load values produce an elastic deformation such as to prevent the regular rotation of the rollers, which come into contact with the ribs of the aluminum profile. At these load values however, no permanent deformation of the material occurs.

 # RLT-U15-PA: the load values exceeding the ones indicated in the table determine a reduction in the rolling resistance. However, no significant permanent deformation of the material occurs to these load values.

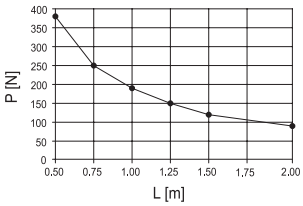
 # RLT-U-TPU: load values higher than those reported in the table produce a deformation such as to prevent the rotation of the rollers, that come into contact with the ribs of the aluminum profile. Loads higher than 100N for a single roller cause a reduction in the rolling resistance.

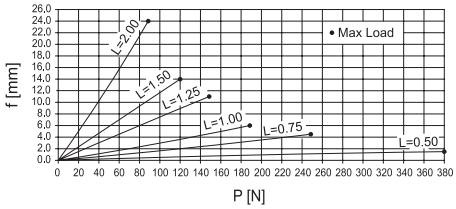
 # RLS-U-POM: load values that limit the smoothness of the balls inside its support, at low sliding speeds. At these load values, however, no permanent deformation of the material occurs. For higher sliding speeds, it is necessary to refer to the chart at the side**.**

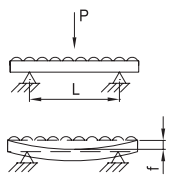


LOAD CAPACITY

LOAD CONCENTRATED IN THE CENTRE, ROLLER TRACK SUPPORTED IN TWO POINTS



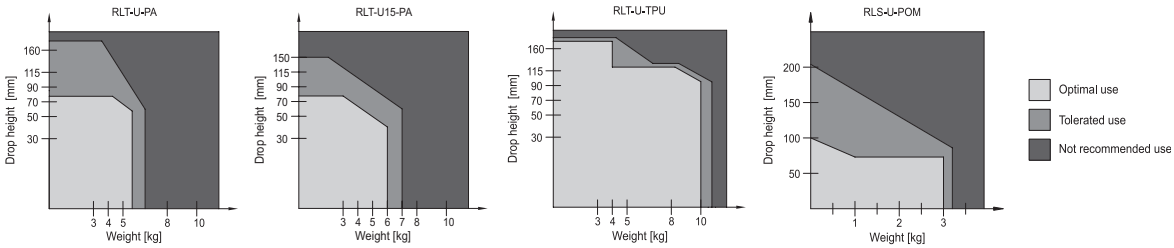




P: applied in the centre of the roller track, the load value generates an elastic deflection of the aluminum profile beyond which the product functionality may be compromised. At this load value, however, no permanent deformation of the material occurs.

L = distance between supports.
f = arrow.

IMPACT STRENGTH



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Roller elements for ELEROLL roller tracks

Technopolymer and polyurethane



STANDARD EXECUTIONS

Acetal resin based (POM) technopolymer roller holder, black colour.

- **RLT-U-PA**: polyamide based (PA) technopolymer rollers, black colour. Working temperature +90°/-20°C.
- **RLT-U-TPU**: thermoplastic (TPU) polyurethane rollers, hardness 92 Shore A, grey colour. Working temperature +70°/-20°C.

FEATURES AND APPLICATIONS

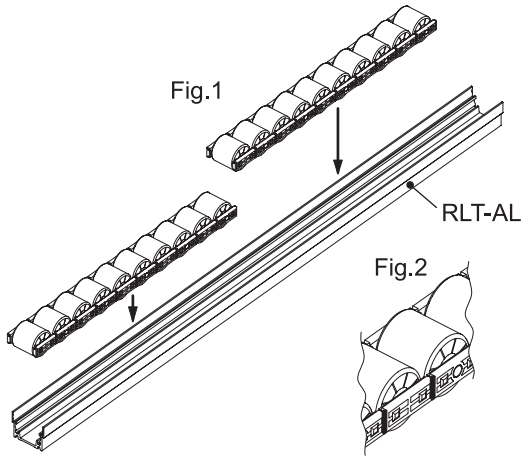
- The roller elements, suitably fixed inside the RLT-AL aluminum profiles (Fig. 1) create modular roller tracks for idle handling (both as sliding or containing surfaces), suitable for several applications in different fields: feeding and discharging benches in construction machinery, storage and picking systems, packaging machinery, etc..
- RLT-U-PA roller elements are also suitable for handling heavy packages, RLT-U-TPU roller elements, with rollers in anti-scratch material, allow the handling of delicate materials such as glass and wood.
- The low friction coefficient between the roller and the roller holder eliminates the need for lubrication maintenance.
- The particular section of RLT-AL profile allows the snap-in assembly of the roller elements into the profile without the need for screws or other fasteners (Fig.1). Therefore the roller elements may be quickly and easily removed and replaced, without disassembling the entire roller track.
- The roller elements are divisible in correspondence of predefined sections (Fig.2) so as to create roller tracks of the precise required length.

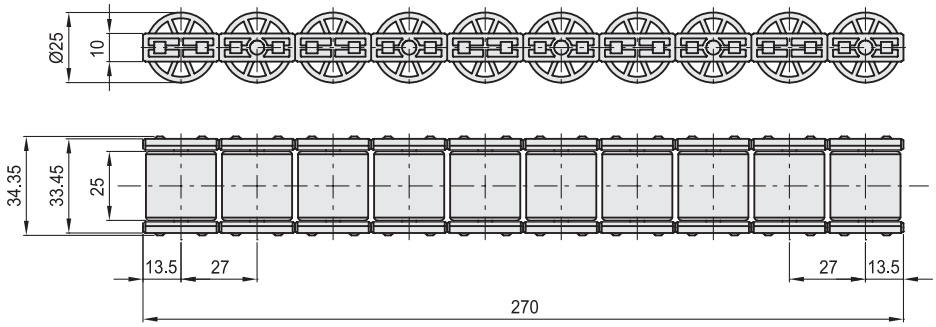
TECHNICAL DATA

See: ELEROLL Modular roller tracks (on page 1108).

SPECIAL EXECUTIONS ON REQUEST

Rollers in different colour (for example red, yellow, green for the setting up of assembly lines and dynamic warehouses according to Kanban criteria).





RLT-U-PA

Code	Description	⚖
429806	RLT-U-PA	106

RLT-U-TPU

Code	Description	⚖
429811	RLT-U-TPU	114

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Roller elements for ELEROLL roller tracks

For packages with reduced size, technopolymer

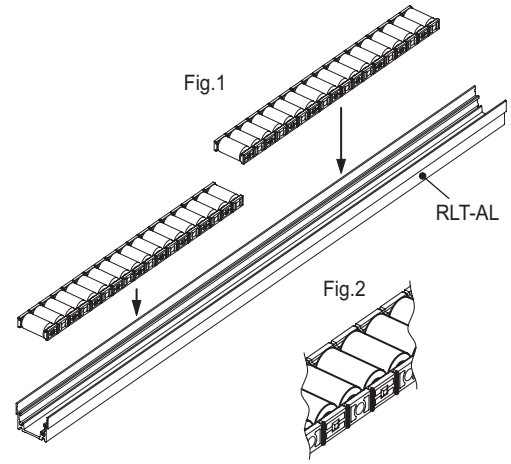


ROLLERS
Polyamide based (PA) technopolymer, black colour. Working temperature +90°/-20°C.

ROLLER HOLDER
Acetal resin based (POM) technopolymer, black colour.

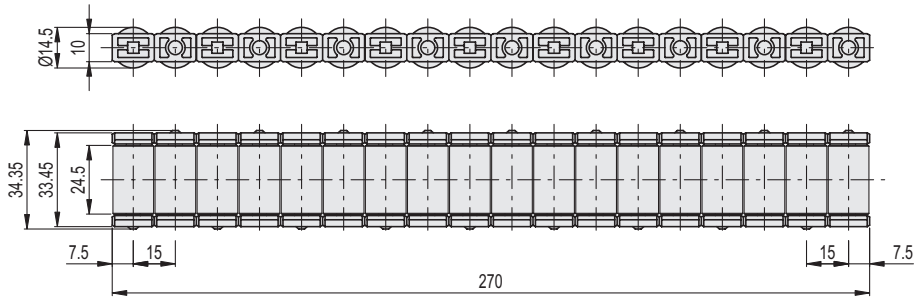
FEATURES AND APPLICATIONS
- The roller elements, suitably fixed inside the RLT-AL aluminum profiles (Fig. 1) create modular roller tracks for idle handling (both as sliding or containing surfaces), suitable for several applications in different fields: feeding and discharging benches in construction machinery, storage and picking systems, packaging machinery, etc..
- RLT-U15 roller elements are suitable for handling of packages with reduced weight and size. The smaller diameter of the rollers ensures a reduction in vibrations and consequently a lower noise during handling of packages.
- The low friction coefficient between the roller and the roller holder eliminates the need for lubrication maintenance.
- The particular section of RLT-AL profile allows the snap-in assembly of the roller elements into the profile without the need for screws or other fasteners (Fig.1). Therefore the roller elements may be quickly and easily removed and replaced, without disassembling the entire roller track.
- The roller elements are divisible in correspondence of predefined sections (Fig.2) so as to create roller tracks of the precise required length.
- All the accessories of ELEROLL series can also be used with the RLT-U15 roller elements, except for RLT-B brakes.

FM design ele:roll®



TECHNICAL DATA
See: ELEROLL Modular roller tracks (on page 1108).

SPECIAL EXECUTIONS ON REQUEST
Thermoplastic (TPU) polyurethane rollers.



Code	Description	⚖
429807	RLT-U15-PA	102

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Ball elements for ELEROLL roller tracks

Technopolymer

BALLS
Acetal resin based (POM) technopolymer, white colour.

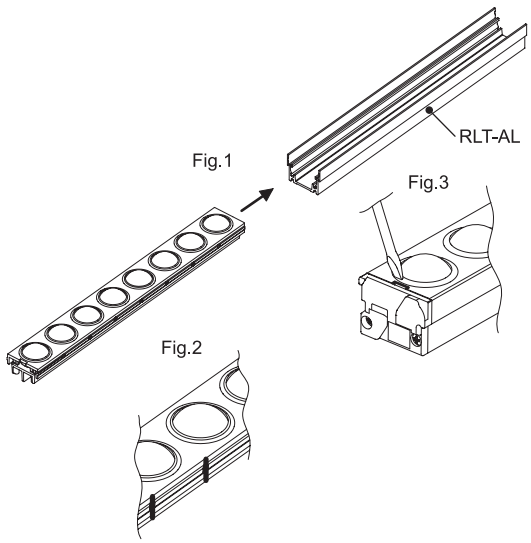
BALL HOLDER
Polyamide based (PA) technopolymer, black colour.

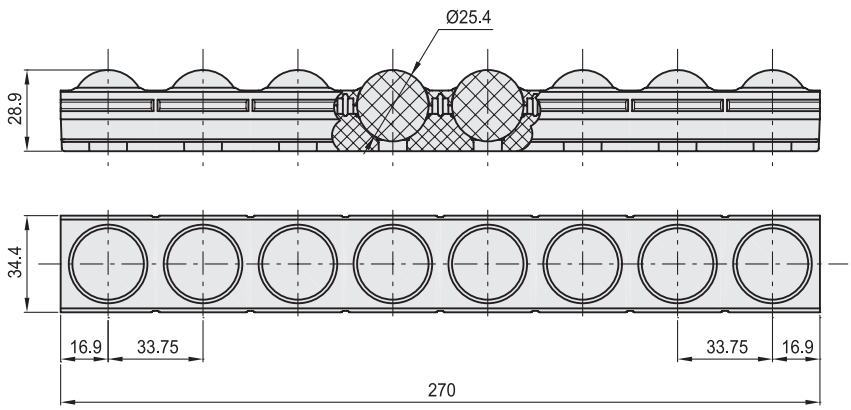
FEATURES AND APPLICATIONS
- The ball elements, suitably fixed within the RLT-AL aluminum profiles (Fig. 1) create modular roller tracks for idle omnidirectional handling.
- The ball elements can be combined with RLT-U roller elements for various applications in different fields: feeding and discharging benches in construction machinery, storage and picking systems, packaging machinery, etc.
- The low friction coefficient between the ball and the ball holder eliminates the need for lubrication maintenance.
- The particular section of RLT-AL profile allows the snap-in assembly of the ball elements into the profile without the need for screws or other fasteners (Fig.1).
- The ball elements are divisible in correspondence of predefined sections (Fig.2) so as to create roller tracks of the precise required length.
- The balls may be removed and replaced without disassembling the entire roller track, by using a common screwdriver in the appropriate notch cut into the ball holder (Fig. 3).

TECHNICAL DATA
See: ELEROLL Modular roller tracks (on page 1108).



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Code	Description	⚖
429801	RLS-U-POM	151

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Profiles for ELEROLL roller tracks

Aluminium



STANDARD EXECUTIONS

- **RLT-AL-AN**: anodised aluminium, natural colour.
- **RLT-AL-BL**: aluminium, natural colour.
- **RLT-AL-AN-SL**: anodised aluminium, natural colour, slotted holes.

FEATURES AND APPLICATIONS

The profile can hold up to 11 RLT-U, RLT-U15 roller elements or RLS-U ball elements. The particular section of the profile allows the interlocking fixing of the roller and ball elements without the need for screws or other fasteners.
The profile ensures a high resistance to bending under load, and the assembly of the roller tracks, even in case of not complete support (Fig. 1), without the need for other supports.

SPECIAL EXECUTIONS ON REQUEST

Profiles with length different from the standard executions (maximum length 2970 mm).

ASSEMBLY INSTRUCTIONS

Fix the profile to the supporting structure with screws of suitable size and number for the specific application, by making, if necessary, appropriate holes in the base of the profile.
The profile can be mounted in two points of support (Fig.1) or in complete support (Fig. 2).
For the drainage of any fluids that can collect inside the profile (for example in case of applications on machines and equipment whose parts must be frequently cleaned by using water jets, for hygienic reasons) it is recommended, if necessary to make holes of appropriate size and shape in the base of the profile.

TECHNICAL DATA

See: ELEROLL Modular roller tracks (on page 1108).

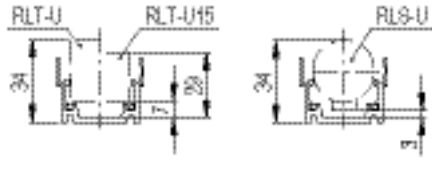
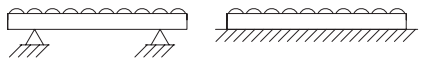
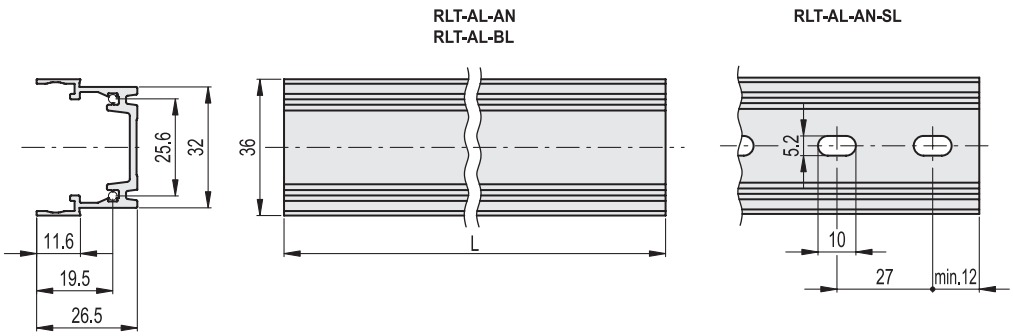


Fig.1 Fig.2





RLT-AL-AN **RLT-AL-BL** **RLT-AL-AN-SL**

Code	Description	Code	Description	Code	Description	L	⚖
429900-0270	RLT-AL-270-AN	429920-0270	RLT-AL-270-BL	429910-0270	RLT-AL-270-AN-SL	270	123
429900-0540	RLT-AL-540-AN	429920-0540	RLT-AL-540-BL	429910-0540	RLT-AL-540-AN-SL	540	247
429900-0810	RLT-AL-810-AN	429920-0810	RLT-AL-810-BL	429910-0810	RLT-AL-810-AN-SL	810	370
429900-1080	RLT-AL-1080-AN	429920-1080	RLT-AL-1080-BL	429910-1080	RLT-AL-1080-AN-SL	1080	495
429900-1350	RLT-AL-1350-AN	429920-1350	RLT-AL-1350-BL	429910-1350	RLT-AL-1350-AN-SL	1350	618
429900-1620	RLT-AL-1620-AN	429920-1620	RLT-AL-1620-BL	429910-1620	RLT-AL-1620-AN-SL	1620	740
429900-1890	RLT-AL-1890-AN	429920-1890	RLT-AL-1890-BL	429910-1890	RLT-AL-1890-AN-SL	1890	865
429900-2160	RLT-AL-2160-AN	429920-2160	RLT-AL-2160-BL	429910-2160	RLT-AL-2160-AN-SL	2160	990
429900-2430	RLT-AL-2430-AN	429920-2430	RLT-AL-2430-BL	429910-2430	RLT-AL-2430-AN-SL	2430	1110
429900-2700	RLT-AL-2700-AN	429920-2700	RLT-AL-2700-BL	429910-2700	RLT-AL-2700-AN-SL	2700	1235
429900-2970	RLT-AL-2970-AN	429920-2970	RLT-AL-2970-BL	429910-2970	RLT-AL-2970-AN-SL	2970	1360

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Headers for ELEROLL roller tracks

Technopolymer



FM design

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MATERIAL
Polyamide based technopolymer (PA), black colour.

STANDARD EXECUTIONS
- **RLT-HJ**: joining header.
- **RLT-HE**: end header.

FEATURES AND APPLICATIONS
RLT-HJ header serves to bind tightly two ELEROLL rollers by engaging them (Fig. 1).
RLT-HE header is the end-element of ELEROLL roller tracks (Fig. 2).
In addition to being an aesthetic element, the headers represent a safety element for the operator's hands and the handled material.

MOUNTING
Assemble the headers to the end of RLT-AL aluminum profile by means of two UNI 6954 Ø 2,9 x13 self-tapping screws (included in the supply).

Fig.1

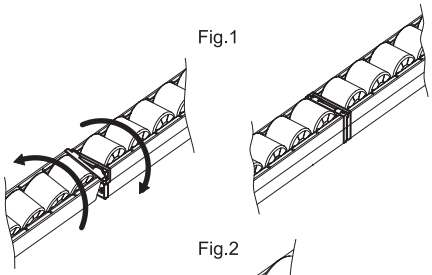
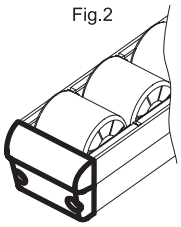
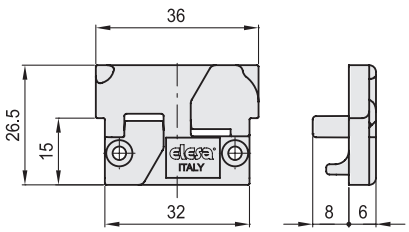


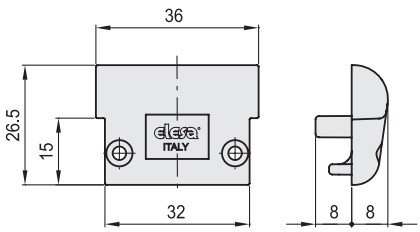
Fig.2



RLT-HJ



RLT-HE



RLT-HJ

Code	Description	⚖
429823	RLT-HJ	4

RLT-HE

Code	Description	⚖
429813	RLT-HE	6

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Containment edge for ELEROLL roller tracks

Technopolymer

MATERIAL

Polyamide based (PA) technopolymer, black colour.

FEATURES AND APPLICATIONS

Realized to be used with RLT-U and RLT-U15 roller elements, RLT-CE containment edge needs for the lateral containment of light products handled on ELEROLL roller tracks (Fig.1).
For the containment of medium-heavy materials refer to the RLT-M series (Fig. 3).
The edge is snap-in assembled on RLT-AL aluminum profiles without the need for screws or other fasteners (Fig.2). It can also be mounted to the roller track already fixed.

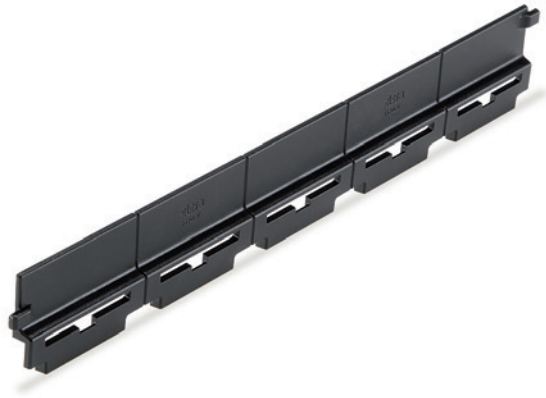


Fig.1

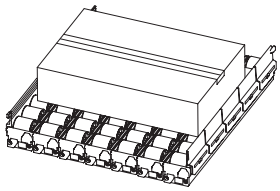
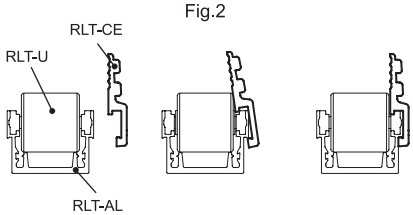
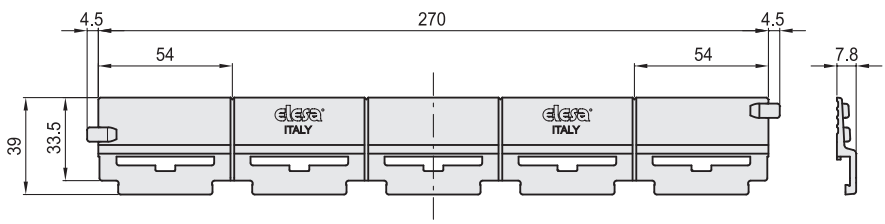


Fig.2





Code	Description	⚖
429826	RLT-CE	34

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Brakes for ELEROLL roller tracks

Technopolymer



MATERIAL
Polyamide based (PA) technopolymer, black colour.

STANDARD EXECUTIONS
- **RLT-BR**: brake for RTL-U roller elements.
- **RLT-BRS**: brake for RLT-U roller elements with stop device.

FEATURES AND APPLICATIONS
RLT-B brakes allow to slow down and/or stop packages handled on ELEROLL roller tracks.
The brakes are snap-in assembled on RLT-U roller elements without the need for screws or other fasteners.
RLT-BR brake can be assembled on the upper side of RLT-U-PA and RLT-U-TPU roller elements (Fig. 1) or on the lower side of the RLT-U-TPU roller elements (Fig. 2).

Fig.1

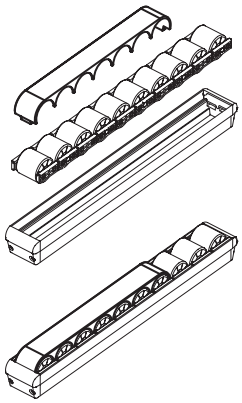
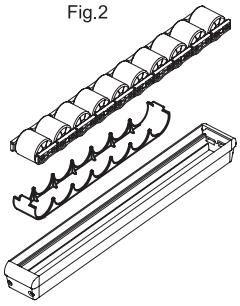


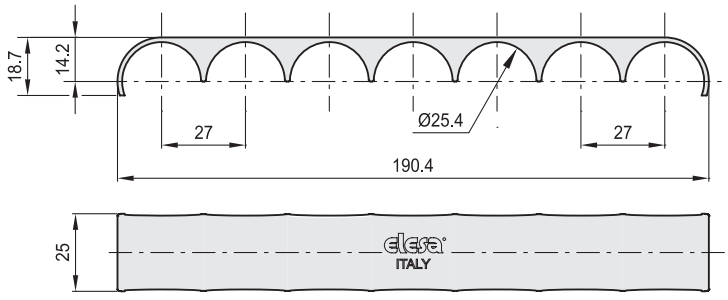
Fig.2



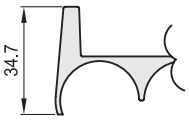
FM design

ele:roll®

RLT-BR



RLT-BRS



RLT-BR

Code	Description	⚖
429836	RLT-BR	12

RLT-BRS

Code	Description	⚖
429831	RLT-BRS	14

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Bracket and support for ELEROLL roller tracks

Technopolymer



MATERIAL
Polyamide based (PA) technopolymer, black colour.

STANDARD EXECUTIONS
- **RLT-MB**: bracket.
- **RLT-MS**: support.
- **RLT-MS-A12**: support with connecting rod and M6 cylindrical head screw with hexagon socket.

FEATURES AND APPLICATIONS
The bracket and the support facilitate the mounting of ELEROLL roller tracks on machines and other supporting structures.

MOUNTING
The bracket and the support are equipped with dowels that are housed in the slots in the lower side of RLT-AL aluminum profiles (Fig. 1) and in special counterseats on the same support for the combination of more supporting elements (Fig. 2).
RLT-MB bracket is compatible with profiles having a slot of 8 mm width (Fig.4).
The bracket and the support allow to mount ELEROLL roller tracks in different configurations. Some examples are shown in Fig.1, Fig.2 and Fig.3.

Fig.1

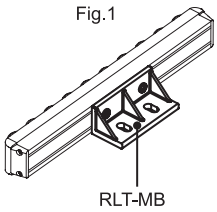


Fig.2

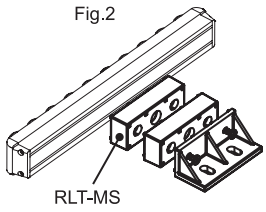


Fig.3

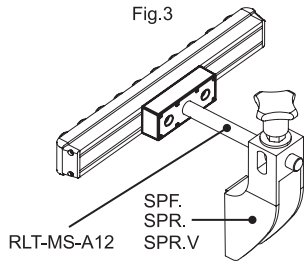
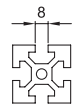
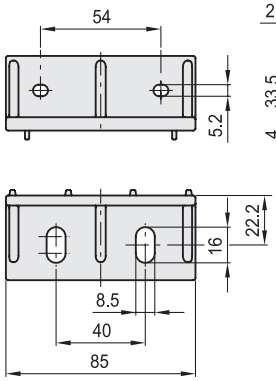


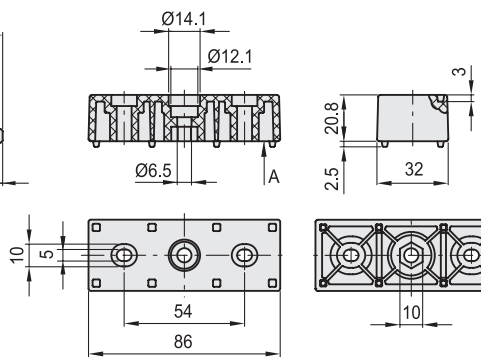
Fig.4



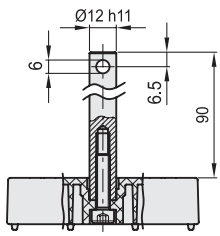
RLT-MB



RLT-MS



RLT-MS-A12



RLT-MB

Code	Description	⚖
429841	RLT-MB	35

RLT-MS

Code	Description	⚖
429846	RLT-MS	49

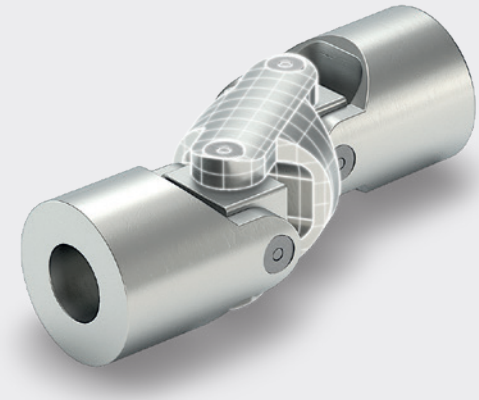
RLT-MS-A12

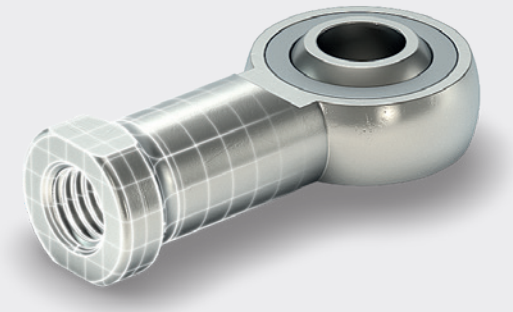
Code	Description	⚖
429848	RLT-MS-A12	145

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DESIGNED
FOR ENGINEERING

10 Joints



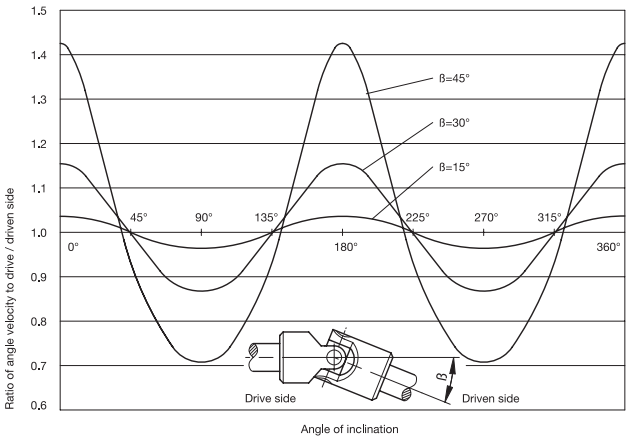
Joints



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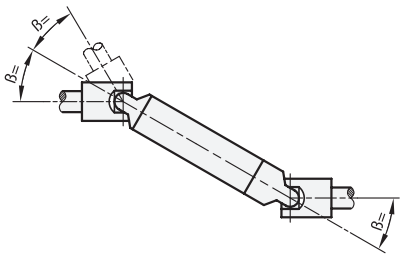
Universal joints and universal joint shafts

Mounting information

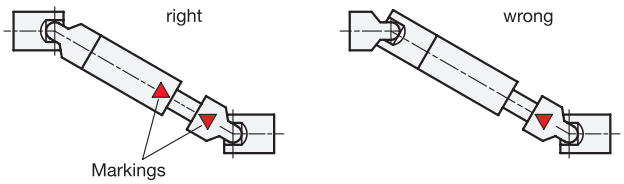


The single universal joints transfer the initial smooth rotation as an irregular rotation. One revolution of the drive shaft via single universal joint will cause the driven shaft to accelerate and decelerate twice. The extent of the irregularity depends on the operating angle ß.

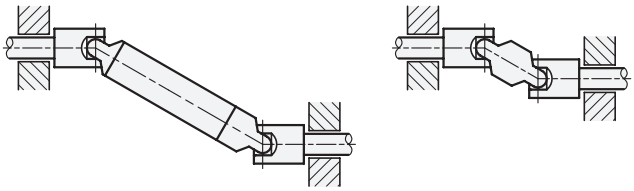
In order to obtain a smooth rotation of the driven shaft two single or one double universal joint is required. In such cases where minor irregularities in the movement are acceptable or where minor operating angles are the norm a single universal joint will do.



For a smooth transfer of a rotating speed, the angle of inclination ß must be equal at both ends of the connecting shaft.



Due to a misconnection of the universal joint shafts, the irregular rotation of each joint is not compensated, but strengthened. This allows joint bearings and wedge profiles to be destroyed. For this reason, the markings of the universal joint shaft halves have to be opposite to each other.



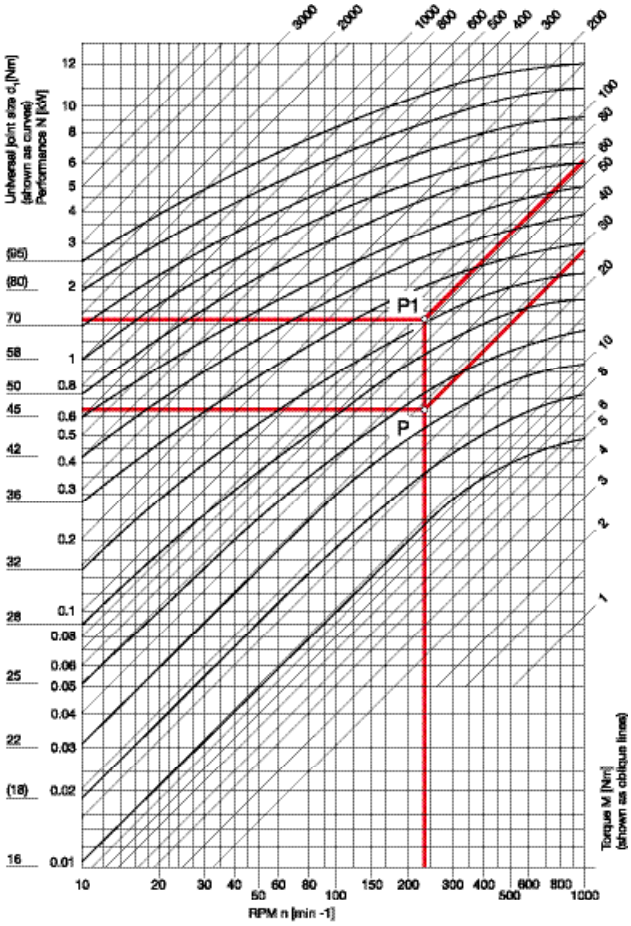
Furthermore the bearings must be as close as possible to the universal joints.

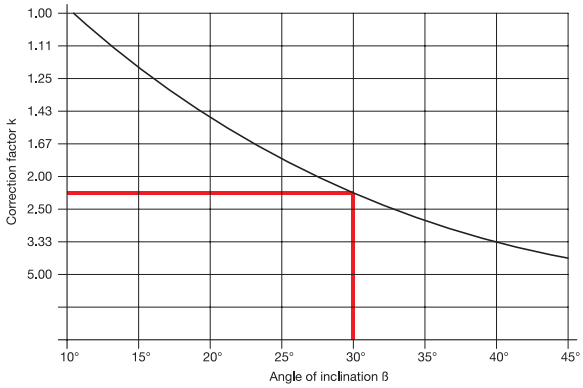
For continuous operation of universal joints with friction bearings adequate lubrication is essential. If drip lubrication is not possible they should be lubricated at least once a day. It is also possible to fit the universal joint with a gaiter GN 808.1 (see page 1131) which can be filled with oil or grease

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Universal joints with friction bearing, Type EG

Selection of the size





The table shows the transferable output N and/or torques M of universal joints DIN 808, type EG (single friction bearing) in relation to the r.p.m. n.

The values are only applicable to a constant speed of rotation, constant load and an operating inclination angle of max. 10°. They are not applicable to universal joints in Stainless Steel.

For larger inclination angles ß a nominal output N increased by the correction coefficient k and/or a nominal torque M has to be selected (see example below).

Conversion formulae:

$$\text{Torque M [Nm]} = 9550 \frac{\text{N [kW]}}{\text{n [min}^{-1}\text{]}}$$

$$\text{Output N [kW]} = \frac{\text{M [Nm] x n [min}^{-1}\text{]}}{9550}$$

1 kW = 1.36 PS 1 PS = 0.736 kW

Example 1

Output to be transferred N = 0.65 kW
R.p.m. n = 230 min^{-1}
Angle of inclination ß = 10°

Correction coefficient k = 1
Indicative output N = Nominal output N

Intersection point P is arrived at from 0.65 kW and 230 min^{-1} (which corresponds to a torque of 27 Nm).

The next size up universal joint corresponding to point P is the model with a diameter d1 = 25.

Example 2

Torque to be transferred M = 27 Nm
R.p.m. n = 230 min^{-1}
Angle of inclination ß = 30°

Correction coefficient k = 2.25
Indicative torque = 2.25 x 27 Nm = 60 Nm

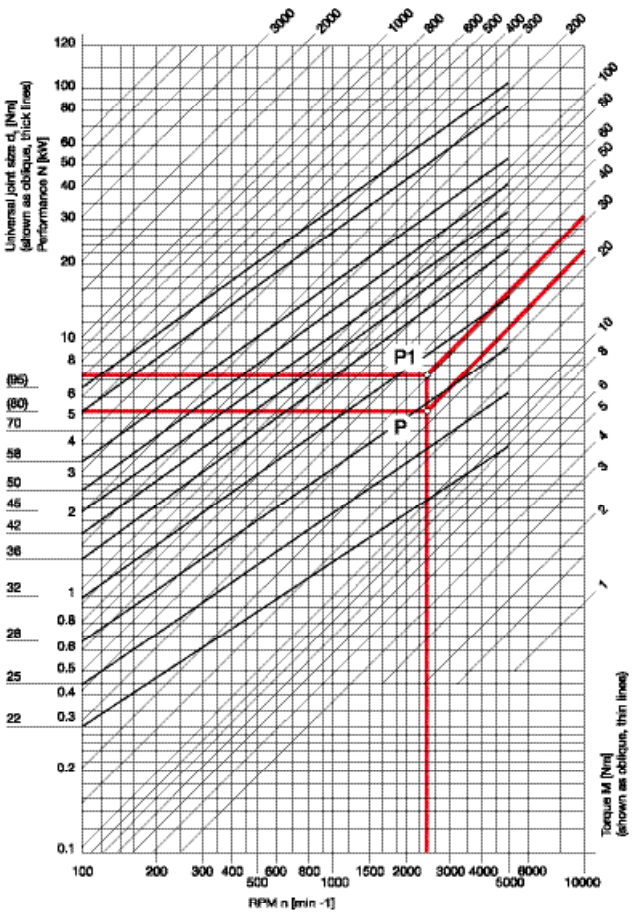
Intersection point P1 is arrived at from 61 Nm and 230 min^{-1} (which is equivalent to an indicative output N = 1.47 kW).

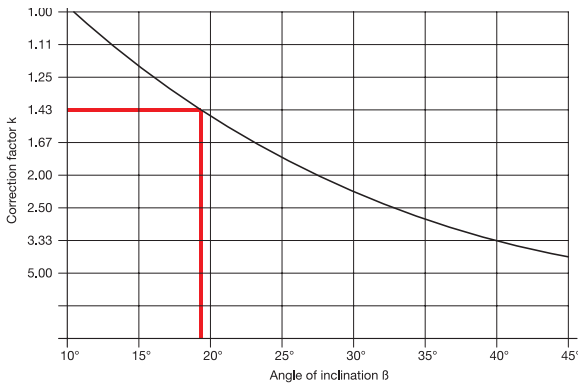
The next size up universal joint corresponding to P1 is the model with a diameter d1 = 36.

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Universal joints with needle bearing, Type EW

Selection of the size





The table shows the transferable output N and/or torques M of universal joints DIN 808, type EW (single needle bearing) in relation to the r.p.m. n.

The values are only applicable to a constant speed of rotation, constant load and an operating inclination angle of max. 10°.

For larger inclination angles ß a nominal output N increased by the correction coefficient k and/or a nominal torque M has to be selected (see example below).

Conversion formulae:

$$\text{Torque M [Nm]} = 9550 \frac{\text{N [kW]}}{\text{n [min}^{-1}\text{]}}$$

$$\text{Output N [kW]} = \frac{\text{M [Nm] x n [min}^{-1}\text{]}}{9550}$$

1 kW = 1.36 PS 1 PS = 0.736 kW

Example 1

Torque to be transferred N = 5.5 kW
R.p.m. n = 2300 min^{-1}
Angle of inclination ß = 10°

Correction coefficient k = 1
Indicative output N = Nominal output N

Intersection point P is arrived at from 5.5 kW and 2300 min^{-1} (which corresponds to a torque of 23 Nm).

The next size up universal joint corresponding to point P is the model with a diameter d1 = 28.

Example 2

Torque to be transferred M = 23 Nm
R.p.m. n = 2300 min^{-1}
Angle of inclination ß = 18°

Correction coefficient k = 1.43
Indicative torque = 1.43 x 23 Nm = 33 Nm

Intersection point P1 is arrived at from 33 Nm and 2300 min^{-1} (which is equivalent to an indicative output N = 7.9 kW).

The next size up universal joint corresponding to P1 is the model with a diameter d1 = 32.

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Universal joints

Steel / Stainless Steel, single or double

SPECIFICATION

Universal joints with friction bearing

Version in Steel

Types

- Type **EG**: single, friction bearing
- Type **DG**: double, friction bearing

Bore codes

- Version **B**: without keyway
- Version **K**: with keyway
- Version **V**: with square

Steel
blank

Joint bearing areas / pins / bearing sleeves
case hardened

Version in Stainless Steel

Types

- Type **EG**: single, friction bearing
- Type **DG**: double, friction bearing

Bore code

- Version **B**: without keyway
- Version **K**: with keyway
- Version **V**: with square

Stainless Steel AISI 304 **NI**

Universal joints with needle bearing

Types

- Type **EW**: single, needle bearing
- Type **DW**: double, needle bearing

Bore codes

- Version **B**: without keyway
- Version **K**: with keyway
- Version **V**: with square

Steel
blank

Joint bearing areas, pins
case hardened



INFORMATION

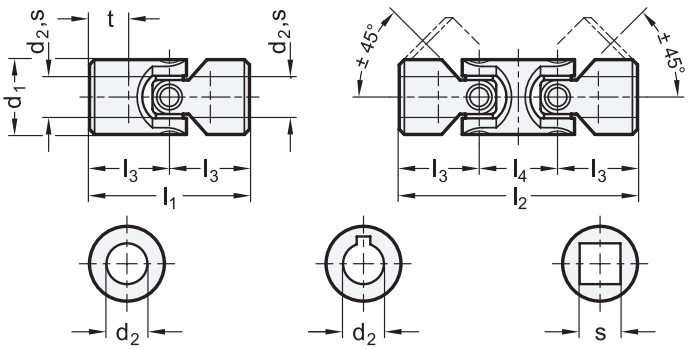
The permissible r.p.m. of universal joints with friction bearing DIN 808 is to a large extent dependent on the type of application such as load, duration, angular disposition as well as lubrication . For over 1000 r.p.m. universal joints with needle bearing should be used For continuous use ample lubrication is essential. This achieved by fitting the joint with a grease filled gaiter GN 808.1 (see page 1131).

ON REQUEST

- with other or unequal bores

TECHNICAL INFORMATION

- Permissible r.p.m. and torque (see page 1124)
- Keyway DIN 6885 (see page A16)
- Cross holes GN 110.1 (see page A18)
- Stainless Steel characteristics (see page A26)
- ISO-Fundamental Tolerances (see page A21)



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DIN 808-friction bearing

Description	d1	d2 H7	l1	l2	l3	l4	t+1 max. assembly length of the shaft	⚖
DIN 808-16-B6-34-EG	16	B 6	34	-	17	22	8	40
DIN 808-16-B6-56-DG	16	B 6	-	56	17	22	8	60
DIN 808-16-B8-40-EG	16	B 8	40	-	20	22	11	40
DIN 808-16-B8-62-DG	16	B 8	-	62	20	22	11	65
DIN 808-16-B10-52-EG	16	B 10	52	-	26	22	14	49
DIN 808-16-B10-74-DG	16	B 10	-	74	26	22	14	70
DIN 808-22-B10-48-EG	22	B 10	48	-	24	26	12	95
DIN 808-22-B10-74-DG	22	B 10	-	74	24	26	12	145
DIN 808-22-B12-62-EG	22	B 12	62	-	31	26	18	119
DIN 808-22-B12-88-DG	22	B 12	-	88	31	26	18	167
DIN 808-25-B12-56-EG	25	B 12	56	-	28	30	13	147
DIN 808-25-B12-86-DG	25	B 12	-	86	28	30	13	220
DIN 808-25-B16-74-EG	25	B 16	74	-	37	30	21	140
DIN 808-25-B16-105-DG	25	B 16	-	104	37	30	21	185
DIN 808-28-B14-60-EG	28	B 14	60	-	30	36	13	195
DIN 808-28-B14-96-DG	28	B 14	-	96	30	36	13	286
DIN 808-32-B16-68-EG	32	B 16	68	-	34	37	16	324
DIN 808-32-B16-105-DG	32	B 16	-	105	34	37	16	430
DIN 808-32-B20-86-EG	32	B 20	86	-	43	38	24	382
DIN 808-32-B20-124-DG	32	B 20	-	124	43	38	24	462
DIN 808-36-B18-74-EG	36	B 18	74	-	37	40	17	565
DIN 808-36-B18-114-DG	36	B 18	-	114	37	40	17	599
DIN 808-42-B20-82-EG	42	B 20	82	-	41	46	18	700
DIN 808-42-B20-128-DG	42	B 20	-	128	41	46	18	895
DIN 808-42-B25-108-EG	42	B 25	108	-	54	48	31	781
DIN 808-42-B25-156-DG	42	B 25	-	156	54	48	31	1035
DIN 808-45-B22-95-EG	45	B 22	95	-	47.5	50	22	1137
DIN 808-45-B22-145-DG	45	B 22	-	145	47.5	50	22	2220
DIN 808-50-B25-108-EG	50	B 25	108	-	54	55	26	1248
DIN 808-50-B25-163-DG	50	B 25	-	163	54	55	26	1620
DIN 808-50-B30-132-EG	50	B 30	132	-	66	56	38	1660
DIN 808-50-B30-188-DG	50	B 30	-	188	66	56	38	1248
DIN 808-58-B30-122-EG	58	B 30	122	-	61	68	29	1724
DIN 808-58-B30-190-DG	58	B 30	-	190	61	68	29	2528
DIN 808-58-B32-130-EG	58	B 32	130	-	65	68	33	1724
DIN 808-58-B32-198-DG	58	B 32	-	198	65	68	33	2619
DIN 808-70-B35-140-EG	70*	B 35	140	-	70	72	35	278
DIN 808-70-B35-212-DG	70*	B 35	-	212	70	72	35	375
DIN 808-16-K6-34-EG	16	K 6	34	-	17	22	8	39
DIN 808-16-K6-56-DG	16	K 6	-	56	17	22	8	62
DIN 808-16-K8-40-EG	16	K 8	40	-	20	22	11	40
DIN 808-16-K8-62-DG	16	K 8	-	62	20	22	11	65
DIN 808-16-K10-52-EG	16	K 10	52	-	26	22	14	47
DIN 808-16-K10-74-DG	16	K 10	-	74	26	22	14	69
DIN 808-22-K10-48-EG	22	K 10	48	-	24	26	12	96
DIN 808-22-K10-74-DG	22	K 10	-	74	24	26	12	144
DIN 808-22-K12-62-EG	22	K 12	62	-	31	26	18	118
DIN 808-22-K12-88-DG	22	K 12	-	88	31	26	18	157
DIN 808-25-K12-56-EG	25	K 12	56	-	28	30	13	163
DIN 808-25-K12-86-DG	25	K 12	-	86	28	30	13	222
DIN 808-25-K16-74-EG	25	B 16	74	-	37	30	21	163
DIN 808-25-K16-105-DG	25	B 16	-	104	37	30	21	222
DIN 808-28-K14-60-EG	28	B 14	60	-	30	36	13	185
DIN 808-28-K14-96-DG	28	K 14	-	96	30	36	13	285
DIN 808-32-K16-68-EG	32	K 16	68	-	34	37	16	283
DIN 808-32-K16-105-DG	32	K 16	-	105	34	37	16	426
DIN 808-32-K20-86-EG	32	K 20	86	-	43	38	24	317
DIN 808-32-K20-124-DG	32	K 20	-	124	43	38	24	460

* not available from stock, requires a minimum order quantity

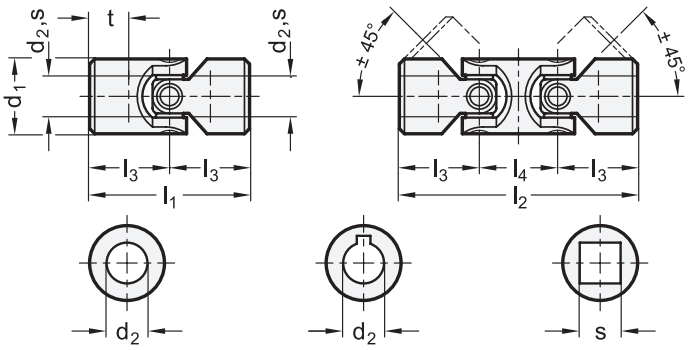
DIN 808-friction bearing

Description	d1	d2 H7	s H10	l1	l2	l3	l4	t+1 max. assembly length of the shaft	⚖
DIN 808-36-K18-74-EG	36	K 18	-	74	-	37	40	17	375
DIN 808-36-K18-114-DG	36	K 18	-	-	114	37	40	17	565
DIN 808-42-K20-82-EG	42	K 20	-	82	-	41	46	18	595
DIN 808-42-K20-128-DG	42	K 20	-	-	128	41	46	18	905
DIN 808-42-K25-108-EG	42	K 25	-	108	-	54	48	31	715
DIN 808-42-K25-156-DG	42	K 25	-	-	156	54	48	31	1026
DIN 808-45-K22-95-EG	45	K 22	-	95	-	47.5	50	22	773
DIN 808-45-K22-145-DG	45	K 22	-	-	145	47.5	50	22	1121
DIN 808-50-K25-108-EG	50	K 25	-	108	-	54	55	26	1098
DIN 808-50-K25-163-DG	50	K 25	-	-	163	54	55	26	1600
DIN 808-50-K30-132-EG	50	K30	-	132	-	66	56	38	1241
DIN 808-50-K30-188-DG	50	K 30	-	-	188	66	56	38	17557
DIN 808-58-K30-122-EG	58	K 30	-	122	-	61	68	29	1646
DIN 808-58-K30-190-DG	58	K 30	-	-	190	61	68	29	2507
DIN 808-58-K32-130-EG	58	K 32	-	130	-	65	68	33	1703
DIN 808-58-K32-198-DG	58	K 32	-	-	198	65	68	33	2598
DIN 808-70-K35-140-EG	70*	K 35	-	140	-	70	72	35	40
DIN 808-70-K35-212-DG	70*	K 35	-	-	212	70	72	35	60
DIN 808-16-V6-34-EG	16	-	V 6*	34	-	17	22	8	40
DIN 808-16-V6-56-DG	16	-	V 6*	-	56	17	22	8	64
DIN 808-16-V8-40-EG	16	-	V 8*	40	-	20	22	11	56
DIN 808-16-V8-62-DG	16	-	V 8*	-	62	20	22	11	75
DIN 808-16-V8-52-EG	16	-	V 8*	52	-	26	22	14	100
DIN 808-16-V8-74-DG	16	-	V 8*	-	74	26	22	14	142
DIN 808-22-V10-48-EG	22	-	V 10*	48	-	24	26	12	123
DIN 808-22-V10-74-DG	22	-	V 10*	-	74	24	26	12	178
DIN 808-22-V10-62-EG	22	-	V 10*	62	-	31	26	18	145
DIN 808-22-V10-88-DG	22	-	V 10*	-	88	31	26	18	215
DIN 808-25-V12-56-EG	25	-	V 12*	56	-	28	30	13	189
DIN 808-25-V12-86-DG	25	-	V 12*	-	86	28	30	13	215
DIN 808-25-V12-74-EG	25	-	V 12*	74	-	37	30	21	230
DIN 808-25-V12-105-DG	25	-	V 12*	-	104	34	30	21	275
DIN 808-28-V14-60-EG	28	-	V 14*	60	-	30	36	13	348
DIN 808-28-V14-96-DG	28	-	V 14*	-	96	30	36	13	420
DIN 808-32-V16-68-EG	32	-	V 16*	68	-	34	37	16	274
DIN 808-32-V16-105-DG	32	-	V 16*	-	105	34	37	16	420
DIN 808-32-V16-86-EG	32	-	V 16*	86	-	43	38	24	274
DIN 808-32-V16-124-DG	32	-	V 16*	-	124	43	38	24	488
DIN 808-36-V18-74-EG	36	-	V 18*	74	-	37	40	17	366
DIN 808-36-V18-114-DG	36	-	V 18*	-	114	37	40	17	536
DIN 808-42-V20-82-EG	42	-	V 20*	82	-	41	46	18	580
DIN 808-42-V20-128-DG	42	-	V 20*	-	128	41	46	18	743
DIN 808-42-V20-108-EG	42	-	V 20*	108	-	54	48	31	774
DIN 808-42-V20-156-DG	42	-	V 20*	-	156	54	48	31	1009
DIN 808-45-V22-95-EG	45	-	V 22*	95	-	47.5	50	22	1000
DIN 808-45-V22-145-DG	45	-	V 22*	-	145	47.5	50	22	1009
DIN 808-50-V25-108-EG	50	-	V 25*	108	-	54	55	26	1025
DIN 808-50-V25-163-DG	50	-	V 25*	-	163	54	55	26	1565
DIN 808-50-V25-132-EG	50	-	V 25*	132	-	66	56	38	1050
DIN 808-50-V25-188-DG	50	-	V 25*	-	188	66	56	38	1790
DIN 808-58-V30-122-EG	58	-	V 30*	122	-	61	68	29	1565
DIN 808-58-V30-190-DG	58	-	V 30*	-	190	61	68	29	2420
DIN 808-58-V30-130-EG	58	-	V 30*	130	-	65	68	33	1600
DIN 808-58-V30-198-DG	58	-	V 30*	-	198	65	68	33	2500
DIN 808-70-V35-140-EG	70*	-	V 35*	140	-	70	72	35	2650
DIN 808-70-V35-212-DG	70*	-	V 35*	-	212	70	72	35	2800

* not available from stock, requires a minimum order quantity

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DIN 808 | Universal joints



DIN 808-NI friction bearing — **STAINLESS STEEL**

Description	d1	d2 H7	s H10	l1	l2	l3	l4	t+1 max. assembly length of the shaft	⚖
DIN 808-16-B6-34-EG-NI	16	B 6	-	34	-	54	22	8	40
DIN 808-16-B6-56-DG-NI	16	B 6	-	-	56	54	22	8	60
DIN 808-16-B8-40-EG-NI	16	B 8	-	40	-	66	22	11	33
DIN 808-16-B8-62-DG-NI	16	B 8	-	-	62	66	22	11	65
DIN 808-22-B10-48-EG-NI	22	B 10	-	48	-	61	26	12	100
DIN 808-22-B10-74-DG-NI	22	B 10	-	-	74	61	26	12	150
DIN 808-25-B12-56-EG-NI	25	B 12	-	56	-	65	30	13	150
DIN 808-25-B12-86-DG-NI	25	B 12	-	-	86	65	30	13	225
DIN 808-32-B16-68-EG-NI	32	B 16	-	68	-	70	36	16	290
DIN 808-32-B16-105-DG-NI	32	B 16	-	-	105	70	37	16	144
DIN 808-42-B20-82-EG-NI	42	B 20	-	82	-	24	46	18	600
DIN 808-42-B20-128-DG-NI	42	B 20	-	-	128	24	46	18	919
DIN 808-50-B25-108-EG-NI	50	B 25	-	108	-	31	55	26	1130
DIN 808-50-B25-163-DG-NI	50	B 25	-	-	163	31	55	26	1620
DIN 808-16-K6-34-EG-NI	16	K 6	-	34	-	28	22	8	38
DIN 808-16-K6-56-DG-NI	16	K 6	-	-	56	28	22	8	65
DIN 808-16-K8-40-EG-NI	16	K 8	-	40	-	37	22	11	40
DIN 808-16-K8-62-DG-NI	16	K 8	-	-	62	37	22	11	65
DIN 808-22-K10-48-EG-NI	22	K 10	-	48	-	30	26	12	97
DIN 808-22-K10-74-DG-NI	22	K 10	-	-	74	30	26	12	144
DIN 808-25-K12-56-EG-NI	25	K 12	-	56	-	34	30	13	146
DIN 808-25-K12-86-DG-NI	25	K 12	-	-	86	34	30	13	219
DIN 808-32-K16-68-EG-NI	32	K 16	-	68	-	43	36	16	289
DIN 808-32-K16-105-DG-NI	32	K 16	-	-	105	43	36	16	427
DIN 808-42-K20-82-EG-NI	42	K 20	-	82	-	37	46	18	598
DIN 808-42-K20-128-DG-NI	42	K 20	-	-	128	37	46	18	900
DIN 808-50-K25-108-EG-NI	50	K 25	-	108	-	41	55	26	1098
DIN 808-50-K25-163-DG-NI	50	K 25	-	-	163	41	55	26	1628
DIN 808-16-V6-34-EG-NI	16	-	V6*	34	-	54	22	8	40
DIN 808-16-V6-56-DG-NI	16	-	V6*	-	56	54	22	8	60
DIN 808-16-V8-40-EG-NI	16	-	V8*	40	-	47.5	22	11	40
DIN 808-16-V8-62-DG-NI	16	-	V8*	-	62	47.5	22	11	64
DIN 808-22-V10-48-EG-NI	22	-	V10*	48	-	54	26	12	100
DIN 808-22-V10-74-DG-NI	22	-	V10*	-	74	54	26	12	145
DIN 808-25-V12-56-EG-NI	25	-	V12*	56	-	66	30	13	140
DIN 808-25-V12-86-EG-NI	25	-	V12*	-	86	66	30	13	219
DIN 808-32-V16-68-EG-NI	32	-	V16*	68	-	61	36	16	274
DIN 808-32-V16-105-EG-NI	32	-	V16*	-	105	61	36	16	427
DIN 808-42-V20-82-EG-NI	42	-	V20*	82	-	65	46	18	570
DIN 808-42-V20-128-EG-NI	42	-	V20*	-	128	65	46	18	886
DIN 808-50-V25-108-EG-NI	50	-	V25*	108	-	70	55	26	1065
DIN 808-50-V25-163-EG-NI	50	-	V25*	-	163	70	55	26	1400

* not available from stock, requires a minimum order quantity

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DIN 808-needle bearing

Description	d1	d2 H7	l1	l2	l3	l4	t+1 max. assembly length of the shaft	⚖
DIN 808-22-B10-48-EW	22	B 10	48	-	17	26	12	95
DIN 808-22-B10-74-DW	22	B 10	-	74	17	26	12	140
DIN 808-22-B12-62-EW	22	B 12	62	-	20	26	18	118
DIN 808-22-B12-88-DW	22	B 12	-	88	20	26	18	170
DIN 808-25-B12-56-EW	25	B 12	56	-	24	30	13	145
DIN 808-25-B12-86-DW	25	B 12	-	86	24	30	13	216
DIN 808-25-B16-74-EW	25	B 16	74	-	28	30	21	165
DIN 808-25-B16-105-DW	25	B 16	-	104	28	30	21	183
DIN 808-28-B14-60-EW	28	B 14	60	-	34	36	13	183
DIN 808-28-B14-96-DW	28	B 14	-	96	34	36	13	284
DIN 808-32-B16-68-EW	32	B 16	68	-	41	37	16	424
DIN 808-32-B16-105-DW	32	B 16	-	105	41	37	16	320
DIN 808-32-B20-86-EW	32	B 20	86	-	54	38	24	320
DIN 808-32-B20-124-DW	32	B 20	-	124	54	38	24	461
DIN 808-36-B18-74-EW	36	B 18	74	-	17	40	17	378
DIN 808-36-B18-114-DW	36	B 18	-	114	17	40	17	554
DIN 808-42-B20-82-EW	42	B 20	82	-	20	46	18	450
DIN 808-42-B20-128-DW	42	B 20	-	128	20	46	18	898
DIN 808-42-B25-108-EW	42	B 25	108	-	24	48	31	718
DIN 808-42-B25-156-DW	42	B 25	-	156	24	48	31	1025
DIN 808-45-B22-95-EW	45	B 22	95	-	28	50	22	771
DIN 808-45-B22-145-DW	45	B 22	-	145	28	50	22	1125
DIN 808-50-B25-108-EW	50	B 25	108	-	34	55	26	1095
DIN 808-50-B25-163-DW	50	B 25	-	163	34	55	26	1594
DIN 808-50-B30-132-EW	50	B 30	132	-	41	56	38	1234
DIN 808-50-B30-188-DW	50	B 30	-	188	41	56	38	1751
DIN 808-58-B30-122-EW	58	B 30	122	-	54	68	29	1633
DIN 808-58-B30-190-DW	58	B 30	-	190	54	68	29	2496
DIN 808-58-B32-130-EW	58	B 32	130	-	17	68	33	1723
DIN 808-58-B32-198-DW	58	B 32	-	198	17	68	33	2532
DIN 808-70-B35-140-EW	70*	B 35	140	-	20	72	35	2600
DIN 808-70-B35-212-DW	70*	B 35	-	212	20	72	35	3200
DIN 808-22-K10-48-EW	22	K 10	48	-	24	26	12	95
DIN 808-22-K10-74-DW	22	K 10	-	74	24	26	12	141
DIN 808-22-K12-62-EW	22	K 12	62	-	28	26	18	116
DIN 808-22-K12-88-DW	22	K 12	-	88	28	26	18	163
DIN 808-25-K12-56-EW	25	K 12	56	-	34	30	13	142
DIN 808-25-K12-86-DW	25	K 12	-	86	34	30	13	212
DIN 808-25-K16-74-EW	25	K 16	74	-	41	30	21	162
DIN 808-25-K16-105-DW	25	K 16	-	104	41	30	21	180
DIN 808-28-K14-60-EW	28	K 14	60	-	54	36	13	180
DIN 808-28-K14-96-DW	28	K 14	-	96	54	36	13	280
DIN 808-32-K16-68-EW	32	K 16	68	-	24	37	16	280

* not available from stock, requires a minimum order quantity

DIN 808-needle bearing

Description	d1	d2 H7	s H10	l1	l2	l3	l4	t+1 max. assembly length of the shaft	⚖
DIN 808-32-K16-105-DW	32	K 16	-	-	105	24	37	16	417
DIN 808-32-K20-86-EW	32	K 20	-	86	-	31	38	24	313
DIN 808-32-K20-124-DW	32	K 20	-	-	124	31	38	24	458
DIN 808-36-K18-74-EW	36	K 18	-	74	-	28	40	17	373
DIN 808-36-K18-114-DW	36	K 18	-	-	114	28	40	17	558
DIN 808-42-K20-82-EW	42	K 20	-	82	-	37	46	18	559
DIN 808-42-K20-128-DW	42	K 20	-	-	128	37	46	18	889
DIN 808-42-K25-108-EW	42	K 25	-	108	-	30	48	31	703
DIN 808-42-K25-156-DW	42	K 25	-	-	156	30	48	31	1006
DIN 808-45-K22-95-EW	45	K 22	-	95	-	34	50	22	771
DIN 808-45-K22-145-DW	45	K 22	-	-	145	34	50	22	1117
DIN 808-50-K25-108-EW	50	K 25	-	108	-	43	55	26	1085
DIN 808-50-K25-163-DW	50	K 25	-	-	163	43	55	26	1590
DIN 808-50-K30-132-EW	50	K 30	-	132	-	37	56	38	1229
DIN 808-50-K30-188-DW	50	K 30	-	-	188	37	56	38	1714
DIN 808-58-K30-122-EW	58	K 30	-	122	-	41	68	29	1631
DIN 808-58-K30-190-DW	58	K 30	-	-	190	41	68	29	2531
DIN 808-58-K32-130-EW	58	K 32	-	130	-	54	68	33	1718
DIN 808-58-K32-198-DW	58	K 32	-	-	198	54	68	33	2541
DIN 808-70-K35-140-EW	70*	K 35	-	140	-	47.5	72	35	1920
DIN 808-70-K35-212-DW	70*	K 35	-	-	212	47.5	72	35	2760
DIN 808-22-V10-48-EW	22	-	V10*	48	-	54	26	12	91
DIN 808-22-V10-74-DW	22	-	V10*	-	74	54	26	12	141
DIN 808-25-V12-56-EW	25	-	V12*	56	-	61	30	13	91
DIN 808-25-V12-86-DW	25	-	V12*	-	86	61	30	13	208
DIN 808-28-V14-60-EW	28	-	V14*	60	-	70	36	13	174
DIN 808-28-V14-96-DW	28	-	V14*	-	96	70	36	13	287
DIN 808-32-V16-68-EW	32	-	V16*	68	-	24	37	16	174
DIN 808-32-V16-105-DW	32	-	V16*	-	104	24	37	16	414
DIN 808-36-V18-74-EW	36	-	V18*	74	-	28	40	17	380
DIN 808-36-V18-114-DW	36	-	V18*	-	114	28	40	17	414
DIN 808-42-V20-82-EW	42	-	V20*	82	-	37	46	18	572
DIN 808-42-V20-128-DW	42	-	V20*	-	128	37	46	18	620
DIN 808-45-V22-95-EW	45	-	V22*	95	-	34	50	22	740
DIN 808-45-V22-145-DW	45	-	V22*	-	145	34	50	22	810
DIN 808-50-V25-108-EW	50	-	V25*	108	-	43	55	26	1038
DIN 808-50-V25-163-DW	50	-	V25*	-	163	43	55	26	1518
DIN 808-58-V30-122-EW	58	-	V30*	122	-	41	68	29	1560
DIN 808-58-V30-190-DW	58	-	V30*	-	190	41	68	29	2040
DIN 808-70-V35-140-EW	70*	-	V35*	140	-	47.5	72	35	2540
DIN 808-70-V35-212-DW	70*	-	V35*	-	212	47.5	72	35	3000

* not available from stock, requires a minimum order quantity

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Universal joints

for ordinary applications

SPECIFICATION

Types

- Type **EG**: single, friction bearing
- Type **DG**: double, friction bearing

Steel

- not hardened
- blackened

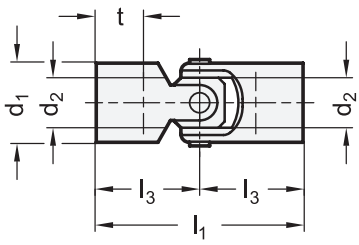
INFORMATION

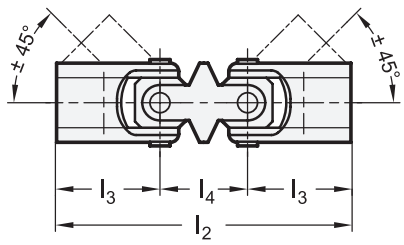
Universal joints GN 9080 are a simple and very competitively priced variant.
They can only be used for applications with low revolutions. Typical applications are all types of manual operations such as the adjustment of louvers.

TECHNICAL INFORMATION

- Cross holes GN 110.1 (see page A17)
- ISO-Fundamental Tolerances (see page A21)







GN 9080

Description	d1	d2 H8	l1	l2	l3	l4	t+1 max. assembly length of the shaft	Max. torque in Nm	⚖
GN 9080-13-B8-DG	13	B 8	-	60	21	18	12	2	36
GN 9080-16-B10-DG	16	B 10	-	74	26	22	15	3	68
GN 9080-20-B12-DG	20	B 12	-	88	31	26	18	6	132
GN 9080-25-B16-DG	25	B 16	-	104	37	30	22	12	235
GN 9080-32-B20-DG	32	B 20	-	124	43	38	25	24	455
GN 9080-13-B8-EG	13	B 8	42	-	21	-	12	2	25
GN 9080-16-B10-EG	16	B 10	52	-	26	-	15	3	47
GN 9080-20-B12-EG	20	B 12	62	-	31	-	18	6	91
GN 9080-25-B16-EG	25	B 16	74	-	37	-	22	12	164
GN 9080-32-B20-EG	32	B 20	86	-	43	-	25	24	290

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GN 808.1

Gaiters

for universal joints DIN 808

SPECIFICATION

Types

- Type **E**: for single joints
- Type **D**: for double joints

Type **E**
Rubber (CR)
black

Type **D**
Elastomer plastic
smooth PVC
black

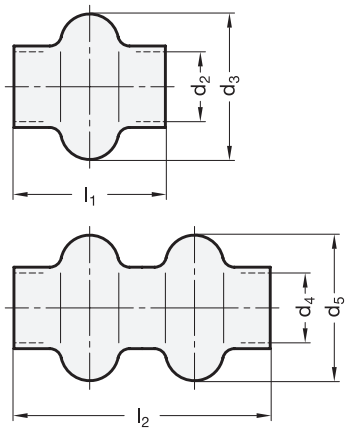


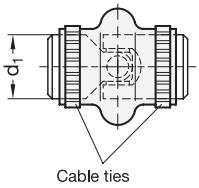
INFORMATION

Gaiters GN 808.1 give universal joints full protection against ingress of dirt.
At the same time they can be filled with grease which gives long term lubrication for friction bearings.
The gaiters are secured at each end with two cable ties, which are supplied each sleeve.

TECHNICAL INFORMATION

- Elastomer characteristics (see page A32)





GN 808.1

Description	d1	d2	d3	d4	d5	l1	l2	⚖
GN 808.1-16-D	16	-	-	16	35	-	55	10
GN 808.1-22-D	22	-	-	20	36	-	65	11
GN 808.1-25-D	25	-	-	24	44	-	70	25
GN 808.1-28-D	28	-	-	28	51	-	80	25
GN 808.1-32-D	32	-	-	32	62	-	90	51
GN 808.1-42-D	42	-	-	40	73	-	120	84
GN 808.1-50-D	50	-	-	50	90	-	155	101
GN 808.1-16-E	16	15	28	-	-	34	-	7
GN 808.1-22-E	22	20.5	40	-	-	45	-	20
GN 808.1-25-E	25	24.5	48	-	-	50	-	10
GN 808.1-28-E	28	27.5	52	-	-	56	-	20
GN 808.1-32-E	32	30.5	56	-	-	65	-	20
GN 808.1-36-E	36	35.5	66	-	-	72	-	24
GN 808.1-42-E	42	40	75	-	-	82	-	40
GN 808.1-45-E	45	45	84	-	-	95	-	50
GN 808.1-50-E	50	50	92	-	-	108	-	63
GN 808.1-58-E	58	56	100	-	-	122	-	60

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Universal joint shafts with friction bearing

with longitudinal compensation

SPECIFICATION

Bore code

- Version **K**: with keyway

Steel blank

Joint bearing areas / pins / bearing sleeves
case hardened

INFORMATION

Universal joint shafts with friction bearing GN 808.2 not only join the offset between two shafts, but also enable the alignment of lengths, which depending on the overall length l_1 enables the corresponding extraction length l_2. The power transmission is achieved by two universal joints DIN 808 (type EG) (see page 1126) a splined shaft and a sliding sleeve.
It is important to check the accuracy when connec-ting the splined shaft to the sliding sleeve: The markings -> <- have to be opposite to each other. Any kind of misconnection leads to an inhomogeneous output and to a quick abrasion.

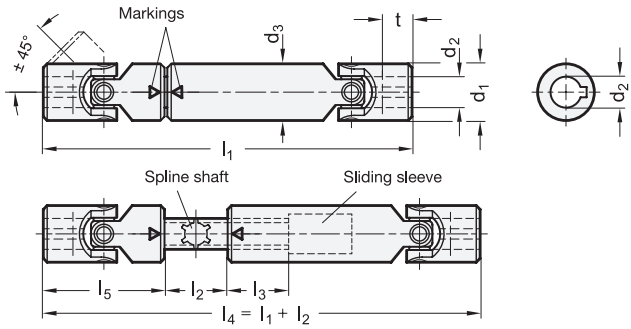
ON REQUEST

- different length l_1 - l_2
- Bores without keyway
- Bores with square
- with other or unequal bores

TECHNICAL INFORMATION

- Permissible r.p.m. and torque (see page 1124)
- Keyway DIN 6885 (see page A16)
- Cross holes GN 110.1 (see page A17)
- ISO-Fundamental Tolerances (see page A21)





GN 808.2

Description	d1	d2 H7	l1-l2	d3	l3	l5	t +1	⚖
GN 808.2-22-K10-140-30	22	K 10	140-30	22	30	48	12	310
GN 808.2-22-K10-160-40	22	K 10	160-40	22	30	48	12	368
GN 808.2-22-K10-180-60	22	K 10	180-60	22	30	48	12	400
GN 808.2-25-K12-160-30	25	K 12	160-30	26	40	56	13	502
GN 808.2-25-K12-180-45	25	K 12	180-45	29	40	56	13	554
GN 808.2-25-K12-200-70	25	K 12	200-70	29	40	56	13	620
GN 808.2-25-K12-250-105	25	K 12	250-105	29	40	56	13	770
GN 808.2-28-K14-170-30	28	K 14	170-30	32	40	60	13	630
GN 808.2-28-K14-200-60	28	K 14	200-60	37	40	60	13	719
GN 808.2-28-K14-220-80	28	K 14	220-80	37	40	60	13	785
GN 808.2-28-K14-280-140	28	K 14	280-140	37	40	60	13	965
GN 808.2-32-K16-190-30	32	K 16	190-30	37	40	68	16	900
GN 808.2-32-K16-240-80	32	K 16	240-80	42	40	68	16	1093
GN 808.2-32-K16-275-115	32	K 16	275-115	42	40	68	16	1245
GN 808.2-32-K16-380-210	32	K 16	380-210	42	40	68	16	1600

GN 808.2

Description	d1	d2 H7	l1-l2	d3	l3	l5	t +1	⚖
GN 808.2-36-K18-230-50	36	K 18	230-50	52	40	74	17	1368
GN 808.2-36-K18-270-100	36	K 18	270-100	52	40	74	17	1560
GN 808.2-36-K18-290-110	36	K 18	290-110	58	40	74	17	1665
GN 808.2-36-K18-400-220	36	K 18	400-220	58	40	74	17	2225
GN 808.2-42-K20-250-50	42	K 20	250-50	42	45	82	18	1990
GN 808.2-42-K20-320-120	42	K 20	320-120	42	45	82	18	2400
GN 808.2-42-K20-420-220	42	K 20	420-220	42	45	82	18	3130
GN 808.2-45-K22-270-50	45	K 22	270-50	45	50	95	22	2520
GN 808.2-45-K22-330-100	45	K 22	330-100	45	50	95	22	3010
GN 808.2-45-K22-470-240	45	K 22	470-240	45	50	95	22	4140
GN 808.2-50-K25-295-50	50	K 25	295-50	50	50	108	26	3400
GN 808.2-50-K25-350-100	50	K 25	350-100	50	50	108	26	3920
GN 808.2-50-K25-420-170	50	K 25	420-170	50	50	108	26	4605
GN 808.2-58-K30-330-50	58	K 30	330-50	58	60	122	29	4880
GN 808.2-58-K30-400-110	58	K 30	400-110	58	60	122	29	5880

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GN 808.3

Universal joint shafts with needle bearing

with longitudinal compensation

SPECIFICATION

Bore codes

- Version **K**: with keyway

Steel
blank

Joint bearing areas, pins
case hardened



INFORMATION

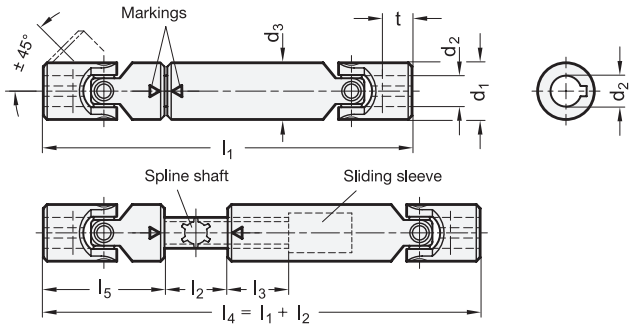
Universal joint shafts with needle bearing GN 808.3 not only join the offset between two shafts, but also enable the alignment of lengths, which depending on the overall length l1 enables the corresponding extraction length l2. The power transmission is achive-bed by two universal joints DIN 808 (type EW) (see page 1126) a splined shaft and a sliding sleeve . It is important to check the accuracy when connecting the splined shaft to the sliding sleeve. The markings -> <- have to be opposite to each other. Any kind of misconnection leads to an inhomogeneous output and to a quick abrasion.

ON REQUEST

- different length l1 - l2
- Bores without keyway
- Bores with square
- with other or unequal bores

TECHNICAL INFORMATION

- Permissible r.p.m. and torque (see page 1125)
- Keyway DIN 6885 (see page A16)
- Cross holes GN 110 (see page A17)
- ISO-Fundamental Tolerances (see page A21)



GN 808.3

Description	d1	d2 H7	l1-l2	d3	l3	l5	t +1	⚖
GN 808.3-22-K10-140-30	22	K 10	140-30	22	30	48	12	320
GN 808.3-22-K10-160-40	22	K 10	160-40	22	30	48	12	360
GN 808.3-22-K10-180-60	22	K 10	180-60	22	30	48	12	395
GN 808.3-25-K12-160-30	25	K 12	160-30	26	40	56	13	500
GN 808.3-25-K12-180-45	25	K 12	180-45	26	40	56	13	510
GN 808.3-25-K12-200-70	25	K 12	200-70	26	40	56	13	563
GN 808.3-25-K12-250-105	25	K 12	250-105	26	40	56	13	755
GN 808.3-28-K14-170-30	28	K 14	170-30	29	40	60	13	627
GN 808.3-28-K14-200-60	28	K 14	200-60	29	40	60	13	730
GN 808.3-28-K14-220-80	28	K 14	220-80	29	40	60	13	804
GN 808.3-28-K14-280-140	28	K 14	280-140	29	40	60	13	972
GN 808.3-32-K16-190-30	32	K 16	190-30	32	40	68	16	910
GN 808.3-32-K16-240-80	32	K 16	240-80	32	40	68	16	1106
GN 808.3-32-K16-275-115	32	K 16	275-115	32	40	68	16	1250
GN 808.3-32-K16-380-210	32	K 16	380-210	32	40	68	16	1640

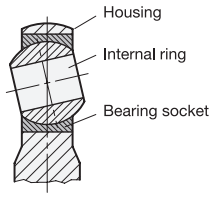
GN 808.3

Description	d1	d2 H7	l1-l2	d3	l3	l5	t +1	⚖
GN 808.3-36-K18-230-50	36	K 18	230-50	37	40	74	17	1355
GN 808.3-36-K18-270-100	36	K 18	270-100	37	40	74	17	1575
GN 808.3-36-K18-290-110	36	K 18	290-110	37	40	74	17	1900
GN 808.3-36-K18-400-220	36	K 18	400-220	37	40	74	17	2241
GN 808.3-42-K20-250-50	42	K 20	250-50	42	45	82	18	1947
GN 808.3-42-K20-320-120	42	K 20	320-120	42	45	82	18	2480
GN 808.3-42-K20-420-220	42	K 20	420-220	42	45	82	18	3130
GN 808.3-45-K22-270-50	45	K 22	270-50	47	50	95	22	2540
GN 808.3-45-K22-330-100	45	K 22	330-100	47	50	95	22	3060
GN 808.3-45-K22-470-240	45	K 22	470-240	47	50	95	22	4140
GN 808.3-50-K25-295-50	50	K 25	295-50	52	50	108	26	3375
GN 808.3-50-K25-350-100	50	K 25	350-100	52	50	108	26	3940
GN 808.3-50-K25-420-170	50	K 25	420-170	52	50	108	26	4680
GN 808.3-58-K30-330-50	58	K 30	330-50	58	60	122	29	4900
GN 808.3-58-K30-400-110	58	K 30	400-110	58	60	122	29	5800

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Ball joint heads DIN ISO 12240-4 / DIN 12240-1, Series K

Technical information



Steel version

Type **N**
Housing steel, zinc plated
Pairings
Internal ring steel, hardened
Bearing socket brass
lubrication possible.

Features of general use:

For general use, and in particular for continuously changing thrust and shock loads in radial and axial plane.

Type **W**
Housing steel, zinc plated
Pairings
Internal ring steel, hardened
Bearing socket steel, zinc plated with PTFE-insert
self lubricated.

For general use, especially for application under dynamic operating conditions.
Load bearing capacitiy than Type **N.**

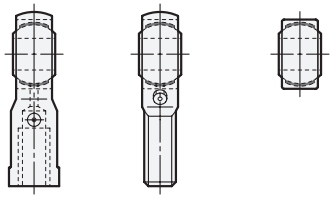
Ball joint heads

with female thread

with threaded bolt

Ball joints

without housing



Stainless Steel version

Type **NH**
Housing Stainless Steel
Pairings
Internal ring, hardened, hard chrome plated
Bearing socket bronze
lubrication possible.

As Type **N**
for use in corrosion endangered area.

Type **WH**
Housing Stainless Steel
Pairings
Internal ring steel, hardened
Bearing socket bronze, with PTFE-insert
self lubricated.

As Type **W**
for use in corrosion endangered area.

Type **WK**
Housing Stainless Steel
Pairings
Internal ring Stainless Steel, hardened
Bearing socket Stainless Steel, with PTFE-insert
self lubricated.

As Type **W**
for use in areas where the highest degree of corrosion resistance is of paramount importance.
Such as for instance in the food industry.

Bearing play

Bearing play refers to the amount of play by which the internal ring inside a bearing socket without lubrication can be moved either a radial or an axial plane.

Types **N, NH** lubrication possible		Types **W, WH, WK** self lubricated		
d1 Bore internal ring	Radial bearing play	**d1** Bore internal ring	Radial bearing play	Axial bearing play
5 ... 10	0.005 ... 0.035	5 ... 10	0,005 ... 0.030	2 to 3 times radial play
12 ... 20	0.010 ... 0.040	12 ... 18	0,005 ... 0.035	
22 ... 30	0.010 ... 0.050	20 ... 30	0,005 ... 0.055	

Load applied to obtain the measured results: 100 N at room temperature.

Lubrication

Ball joint heads of type **N** (lubrication possible) require regular lubrication. On delivery the ball joint heads are not lubricated. The initial lubrication takes place when installed. Within the temperature range of -20 °C to +125 °C, a multipurose grease proved to be adequate. Under extreme conditions a high quality grease such as for instance Gleitmo 805 K should be used. Ball joint heads of the type **W** (self lubricated) **must never be lubricated.** The internal ring moves on a PTFE-insert of the bearing socket.

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Ball joint heads DIN ISO 12240-4 / DIN ISO 12240-1, Series K

Technical information

Operating temperature

Ball joint heads of the type **N** (lubrication possible) can be used within the temperature range -50 °C to +200 °C and if use with a high temperature grease even higher. Ball joint heads of the type **W** (self lubricated) can be used in the temperature range of -50 °C bis +200 °C. In general use at higher temperature is possible, but this will of course shorten the working life of the head.

Load values

Load values are bearing related values, arrived at from the raw material data of the basic material of construction used. The latter is used to determine the choice of a ball joint head for a given load. These might, however, have to be reduced to meet the requirements of particular circumstances.

Static load values Co in kN

Co gives the permitted radial static load which can be applied to a ball joint head with the weakest cross section without causing permanent deformation. The Co-values quoted in the catalogue table have been calculated, based on the corresponding raw material specification. Subsequently a random number of the ball joint heads was stress tested at room temperature. Each and every time the stress tests were based on using up to 80 % before the onset of deformation thus leaving a safety factor of 1.25. The static value Co is used to obtain the permissible axial load which in general is limited by the mounting strength of the internal bearing. To obtain the maximum axial load Fa tests were carried out at the largest permissible slant angle and the results obtained are shown in the table below:
Fa = 0.4 Co for type N
Fa = 0.2 Co for types NH, W, WH, WK

d1	GN 648.1		GN 648.2		GN 648.5	GN 648.6	GN 648.8		GN 648.9
Size	Type **N**	Type **W**	Type **N**	Type **W**	Type **NH/WH/WK**	Type **NH/WH/WK**	Type **N**	Type **W**	Type **WK**
5	9.9	8	4.3	4.3	11.8	6.2	19.8	12.5	12.5
6	11.9	8.9	6	6	13.1	8.8	25.8	15.5	15.5
8	17.1	14.1	11	11	20.7	16.1	42.6	27.8	27.8
10	21.4	19.3	17.4	17.4	28.3	25.5	60	39.0	39.0
12	27	23.5	25.5	23.5	34.5	34.5	80	53.5	53.5
14	24.5	21	24.5	21	39.5	39.5	102.5	70	70
16	37	32	36.5	32	60.5	60.5	128.5	88	88
18	43	38.5	43	38.5	73	73	157	106.5	106.5
20	49.5	44	49.5	44	83	83	188.5	130	130
22	57	53	57	53	100	100	229	162	162
25	68	62	68	61	118	118	293	204	204
30	82	82	82	82	155	155	381	281	281

Dynamic load value C in kN

They help to evaluate the length of life for ball joint heads when use under dynamic conditions.

d1	GN 648.1 / GN 648.2		GN 648.5/.6		GN 648.8		GN 648.9
Size	Type **N**	Type **W**	Type **NH**	Type **WH/WK**	Type **N**	Type **W**	Type **WK**
5	2.5	7.5	3.3	7.5	3.3	7.5	7.5
6	3.2	9.3	4.3	9.3	4.3	9.3	9.3
8	5.4	16.7	7.1	16.7	7.1	16.7	16.7
10	7.5	23.4	10	23.4	10	23.4	23.4
12	10	32	13.5	32	13.5	32.0	32.0
14	13	42	17	42	17	42.0	42.0
16	16	52.5	21.5	52.5	21.5	52.5	52.5
18	19.5	64	26	64	26	64.0	64.0
20	23.5	78	31.5	78	31.5	78.0	78.0
22	29	97	38	97	38	97.0	97.0
25	35	122	47	122	47	122	122
30	64	168	64	168	64	168	168

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Ball joint heads with female thread



SPECIFICATION

Types (pairings)

- Type **N**: Brass / Steel lubrication possible
- Type **W**: Steel-PTFE / Steel self lubricated

Housing Steel

- zinc plated, blue passivated
- d_1 = 5 up to 12: machined
- d_1 = 14 up to 25: forged

Pairings

Type N (lubrication possible)
Bearing socket
Brass, CuZn40Al1

Internal ring
Steel, 100Cr6
hardened, ground, polished

Type W (self lubricated)
Bearing socket
Steel, zinc plated
with PTFE-insert

Internal ring
Steel, 100Cr6
hardened, ground, polished

INFORMATION

Ball joint heads GN 648.1 are similar to DIN ISO 12240-4, series K (formerly DIN 648 K).

- More information to ball joints as well as load capacity (see page 1134)

ON REQUEST

- narrow model (ISO 12240-1, series E)

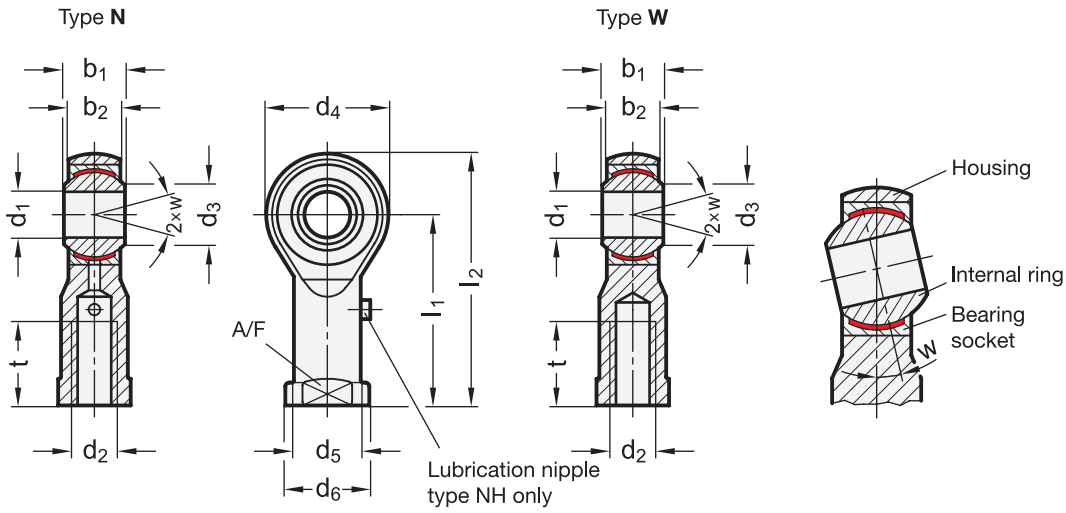
TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)

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GN 648.1

Ball joint heads with female thread



*Complete with type index of the Ball joint heads

N W

GN 648.1

Description	d1 H7	d2	b1 -0.12	b2	d3	d4	d5	d6	l1	l2	A/F	t	w	⚖
GN 648.1-5-M4-*	5	M 4***	8	6	7.7	18	9	11	27	36	9	10	13 °	19
GN 648.1-5-M5-*	5	M 5	8	6	7.7	18	9	11	27	36	9	10	13 °	20
GN 648.1-5-M5L-*	5	M 5L	8	6	7.7	18	9	11	27	36	9	10	13 °	19
GN 648.1-6-M6-*	6	M 6	9	6.75	8.9	20	10	13	30	40	11	12	13 °	25
GN 648.1-6-M6L-*	6	M 6L	9	6.75	8.9	20	10	13	30	40	11	12	13 °	25
GN 648.1-8-M8-*	8	M 8	12	9	10.4	24	12.5	16	36	48	13	16	14 °	45
GN 648.1-8-M8L-*	8	M 8L	12	9	10.4	24	12.5	16	36	48	13	16	14 °	45
GN 648.1-10-M10-*	10	M 10	14	10.5	12.9	28	15	19	43	57	17	20	13 °	75
GN 648.1-10-M10L-*	10	M 10L	14	10.5	12.9	28	15	19	43	57	17	20	13 °	74
GN 648.1-10-M10x1,25-*	10	M 10 x 1.25***	14	10.5	12.9	28	15	19	43	57	17	20	13 °	75
GN 648.1-12-M12-*	12	M 12	16	12	15.4	32	17.5	22	50	66	19	22	13 °	110
GN 648.1-12-M12L-*	12	M 12L	16	12	15.4	32	17.5	22	50	66	19	22	13 °	111
GN 648.1-12-M12x1,25-*	12	M 12 x 1.25***	16	12	15.4	32	17.5	22	50	66	19	22	13 °	110
GN 648.1-14-M14-*	14	M 14	19	13.5	16.8	36	20	25	57	75	22	25	16 °	167
GN 648.1-14-M14L-*	14	M 14L	19	13.5	16.8	36	20	25	57	75	22	25	16 °	167
GN 648.1-16-M16-*	16	M 16	21	15	19.3	42	22	27	64	85	22	28	15 °	225
GN 648.1-16-M16L-*	16	M 16L	21	15	19.3	42	22	27	64	85	22	28	15 °	224
GN 648.1-16-M16x1,5-*	16	M 16 x 1.5***	21	15	19.3	42	22	27	64	85	22	28	15 °	225
GN 648.1-18-M18x1,5-*	18	M 18 x 1.5	23	16.5	21.8	46	25	31	71	94	27	32	15 °	318
GN 648.1-18-M18x1,5L-*	18	M 18 x 1.5L	23	16.5	21.8	46	25	31	71	94	27	32	15 °	320
GN 648.1-20-M20x1,5-*	20	M 20 x 1.5	25	18	24.3	50	27.5	34	77	102	32	33	14 °	405
GN 648.1-20-M20x1,5L-*	20	M 20 x 1.5L	25	18	24.3	50	27.5	34	77	102	32	33	14 °	408
GN 648.1-22-M22x1,5-*	22	M 22 x 1.5	28	20	25.8	54	30	37	84	111	32	37	15 °	505
GN 648.1-22-M22x1,5L-*	22	M 22 x 1.5L	28	20	25.8	54	30	37	84	111	32	37	15 °	512
GN 648.1-25-M24x2-*	25	M 24 x 2	31	22	29.6	60	33.5	42	94	124	36	42	15 °	720
GN 648.1-25-M24x2L-*	25	M 24 x 2L	31	22	29.6	60	33.5	42	94	124	36	42	15 °	725
GN 648.1-30-M30x2-*	30**	M 30 x 2	37	25	34.8	70	40	51	110	145	41	51	17 °	1100
GN 648.1-30-M30x2L-*	30**	M 30 x 2L	37	25	34.8	70	40	51	110	145	41	51	17 °	1130

** only available in type W | *** Cetop

Weight type W

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RoHS

Ball joints heads with threaded bolt



SPECIFICATION

Types (pairings)

- Type **N**: Brass / Steel lubrication possible
- Type **W**: Steel-PTFE / Steel self lubricated

Housing Steel

- zinc plated, blue passivated
- d_1 = 5 up to 12: machined
- d_1 = 14 up to 25: forged

Pairings

Type N (lubrication possible)
Bearing socket
Brass, CuZn40Al1

Internal ring
Steel, 100Cr6
hardened, ground, polished

Type W (self lubricated)
Bearing socket
Steel, zinc plated
with PTFE-insert

Internal ring
Steel, 100Cr6
hardened, ground, polished

INFORMATION

Ball joint heads GN 648.2 are similar to DIN ISO 12240-4, series K (formerly DIN 648 K).

- More information to ball joints as well as load capacity (see page 1134)

ON REQUEST

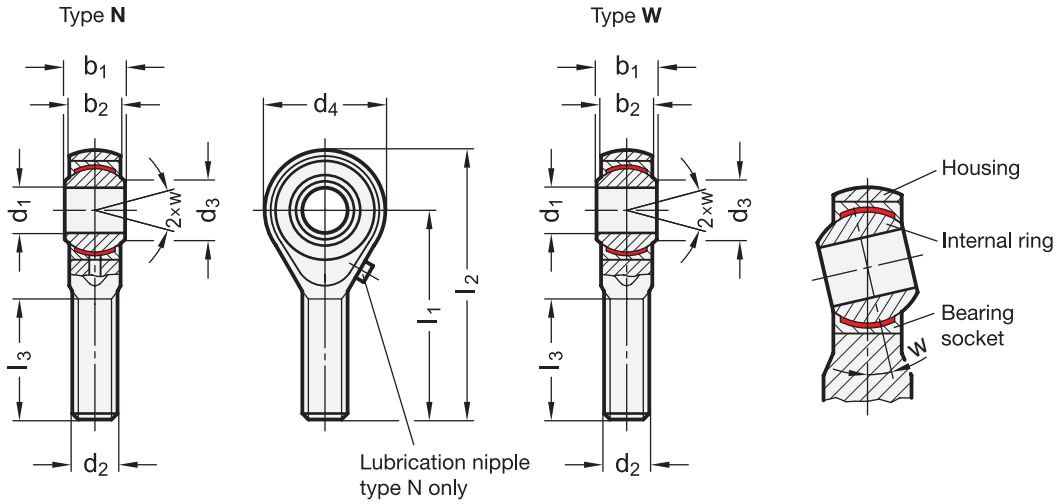
- narrow model (ISO 12240-1, series E)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)

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GN 648.2 | Ball joints heads with threaded bolt



*Complete with type index of the Ball joint heads

N W

GN 648.2

Description	d1 H7	d2	b1 -0.12	b2	d3	d4	l1	l2	l3	w	⚖
GN 648.2-5-M5-*	5**	M 5	8	6	7.7	18	33	42	20	13 °	15
GN 648.2-5-M5L-*	5**	M 5L	8	6	7.7	18	33	42	20	13 °	15
GN 648.2-6-M6-*	6	M 6	9	6.75	8.9	20	36	46	22	13 °	20
GN 648.2-6-M6L-*	6	M 6L	9	6.75	8.9	20	36	46	22	13 °	20
GN 648.2-8-M8-*	8	M 8	12	9	10.4	24	42	54	25	14 °	40
GN 648.2-8-M8L-*	8	M 8L	12	9	10.4	24	42	54	25	14 °	40
GN 648.2-10-M10-*	10	M 10	14	10.5	12.9	28	48	62	29	13 °	60
GN 648.2-10-M10L-*	10	M 10L	14	10.5	12.9	28	48	62	29	13 °	60
GN 648.2-12-M12-*	12	M 12	16	12	15.4	32	54	70	33	13 °	90
GN 648.2-12-M12L-*	12	M 12L	16	12	15.4	32	54	70	33	13 °	90
GN 648.2-14-M14-*	14	M 14	19	13.5	16.8	36	60	78	38	16 °	135
GN 648.2-14-M14L-*	14	M 14L	19	13.5	16.8	36	60	78	38	16 °	135
GN 648.2-16-M16-*	16	M 16	21	15	19.3	42	66	87	40	15 °	205
GN 648.2-16-M16L-*	16	M 16L	21	15	19.3	42	66	87	40	15 °	205
GN 648.2-18-M18x1,5-*	18	M 18 x 1.5	23	16.5	21.8	46	72	95	44	15 °	270
GN 648.2-18-M18x1,5L-*	18	M 18 x 1.5L	23	16.5	21.8	46	72	95	44	15 °	270
GN 648.2-20-M20x1,5-*	20	M 20 x 1.5	25	18	24.3	50	78	103	47	14 °	355
GN 648.2-20-M20x1,5L-*	20	M 20 x 1.5L	25	18	24.3	50	78	103	47	14 °	355
GN 648.2-22-M22x1,5-*	22	M 22 x 1.5	28	20	25.8	54	84	111	51	15 °	455
GN 648.2-22-M22x1,5L-*	22	M 22 x 1.5L	28	20	25.8	54	84	111	51	15 °	460
GN 648.2-25-M24x2-*	25	M 24 x 2	31	22	29.6	60	94	124	58	15 °	605
GN 648.2-25-M24x2L-*	25	M 24 x 2L	31	22	29.6	60	94	124	58	15 °	600
GN 648.2-30-M30x2-*	30***	M 30 x 2	37	25	34.8	70	110	145	71	17 °	1020
GN 648.2-30-M30x2L-*	30***	M 30 x 2L	37	25	34.8	70	110	145	71	17 °	1020

** d1 = 5 type N no lubrication possible | *** only available in type W

Weight type W

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Stainless Steel-Ball joint heads with female thread



SPECIFICATION

Types (pairings)

- Type **NH**: Bronze / Steel lubrication possible
- Type **WH**: Bronze-PTFE / Steel self lubricated
- Type **WK**: Stainless Steel-PTFE / Stainless Steel, self lubricated

Housing Stainless Steel AISI 431
forged, polished

Pairings

Type NH (lubrication possible)
Bearing socket Bronze CuSn8

Internal ring Steel 100 Cr6
hardened, ground, polished
hard chrome plated

Type WH (self lubricated)
Bearing socket Bronze CuSN8
with PTFE-insert

Internal ring Steel 100Cr6
hardened, ground, polished
hard chrome plated

Type WK (self lubricated)
Bearing socket, Stainless Steel
AISI 316Ti with PTFE-insert

Internal ring
Stainless Steel AISI 420
hardened, ground, polished

INFORMATION

Ball joint heads GN 648.5 are similar to DIN ISO 12240-4, series K (formerly DIN 648 K).

- More information to ball joints as well as load capacity (see page 1134)

ON REQUEST

- narrow model (ISO 12240-1, series E)

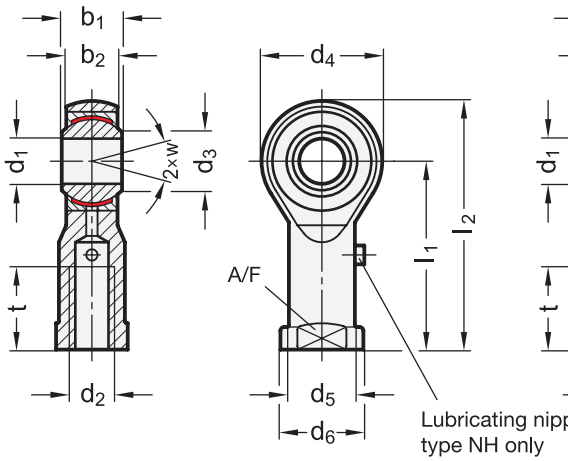
TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)

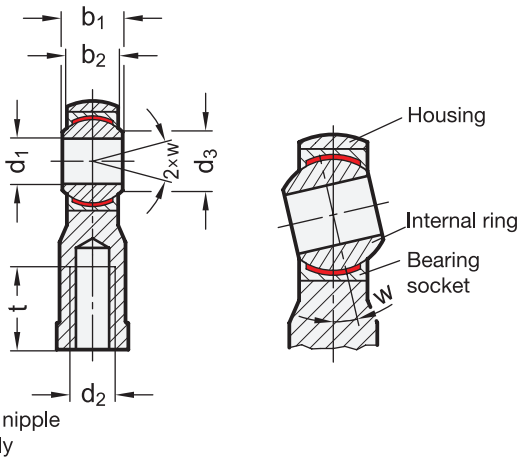
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GN 648.5 | Stainless Steel-Ball joint heads with female thread

Type **NH**



Type **WH**
Type **WK**



*Complete with type index of the Ball joint heads

NH **WH** **WK**

GN 648.5 **STAINLESS STEEL**

Description	d1 H7	d2	b1 -0.12	b2	d3	d4	d5	d6	l1	l2	A/F	t	w	⚖
GN 648.5-5-M5-*	5	M 5	8	6	7.7	18	9	11	27	36	9	10	13°	19
GN 648.5-5-M5L-*	5	M 5L	8	6	7.7	18	9	11	27	36	9	10	13°	19
GN 648.5-6-M6-*	6	M 6	9	6.75	8.9	20	10	13	30	40	11	12	13°	26
GN 648.5-6-M6L-*	6	M 6L	9	6.75	8.9	20	10	13	30	40	11	12	13°	26
GN 648.5-8-M8-*	8	M 8	12	9	10.4	24	12.5	16	36	48	13	16	14°	48
GN 648.5-8-M8L-*	8	M 8L	12	9	10.4	24	12.5	16	36	48	13	16	14°	47
GN 648.5-10-M10-*	10	M 10	14	10.5	12.9	28	15	19	43	57	17	20	13°	76
GN 648.5-10-M10L-*	10	M 10L	14	10.5	12.9	28	15	19	43	57	17	20	13°	75
GN 648.5-12-M12-*	12	M 12	16	12	15.4	32	17.5	22	50	66	19	22	13°	112
GN 648.5-12-M12L-*	12	M 12L	16	12	15.4	32	17.5	22	50	66	19	22	13°	111
GN 648.5-14-M14-*	14	M 14	19	13.5	16.8	36	20	25	57	75	22	25	16°	165
GN 648.5-14-M14L-*	14	M 14L	19	13.5	16.8	36	20	25	57	75	22	25	16°	163
GN 648.5-16-M16-*	16	M 16	21	15	19.3	42	22	27	64	85	22	28	15°	227
GN 648.5-16-M16L-*	16	M 16L	21	15	19.3	42	22	27	64	85	22	28	15°	225
GN 648.5-18-M18x1,5-*	18	M 18 x 1.5	23	16.5	21.8	46	25	31	71	94	27	32	15°	309
GN 648.5-18-M18x1,5L-*	18	M 18 x 1.5L	23	16.5	21.8	46	25	31	71	94	27	32	15°	308
GN 648.5-20-M20x1,5-*	20	M 20 x 1.5	25	18	24.3	50	27.5	34	77	102	32	33	14°	401
GN 648.5-20-M20x1,5L-*	20	M 20 x 1.5L	25	18	24.3	50	27.5	34	77	102	32	33	14°	400
GN 648.5-22-M22x1,5-*	22	M 22 x 1.5	28	20	25.8	54	30	37	84	111	32	37	15°	517
GN 648.5-22-M22x1,5L-*	22	M 22 x 1.5L	28	20	25.8	54	30	37	84	111	32	37	15°	517
GN 648.5-25-M24x2-*	25	M 24 x 2	31	22	29.6	60	33.5	42	94	124	36	42	15°	734
GN 648.5-25-M24x2L-*	25	M 24 x 2L	31	22	29.6	60	33.5	42	94	124	36	42	15°	732
GN 648.5-30-M30x2-*	30	M 30 x 2	37	25	34.8	70	40	51	110	145	41	51	17°	1130
GN 648.5-30-M30x2L-*	30	M 30 x 2L	37	25	34.8	70	40	51	110	145	41	51	17°	1130

Weight type NH

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Stainless Steel-Ball joint heads with threaded bolt



SPECIFICATION

Types (pairings)

- Type **NH**: Bronze / Steel lubrication possible
- Type **WH**: Bronze-PTFE / Steel self lubricated
- Type **WK**: Stainless Steel-PTFE / Stainless Steel self lubricated

Housing Stainless Steel AISI 431
forged, polished

Pairings

Type NH (lubrication possible)
Bearing socket Bronze CuSn8

Internal ring Steel 100 Cr6
hardened, ground, polished
hard chrome plated

Type WH (self lubricated)
Bearing socket Bronze CuSN8
with PTFE-insert

Internal ring Steel 100Cr6
hardened, ground, polished
hard chrome plated

Type WK (self lubricated)
Bearing socket, Stainless Steel AISI 316Ti
with PTFE-insert

Internal ring
Stainless Steel AISI 420
hardened, ground, polished

INFORMATION

Ball joint heads GN 648.6 are similar to DIN ISO 12240-4, series K (formerly DIN 648 K).

- More information to ball joints as well as load capacity (see page 1134)

ON REQUEST

- narrow model (ISO 12240-1, series E)

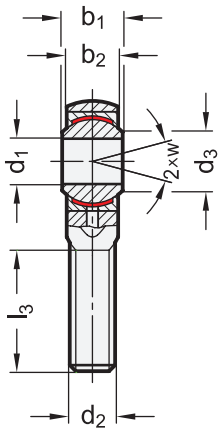
TECHNICAL INFORMATION

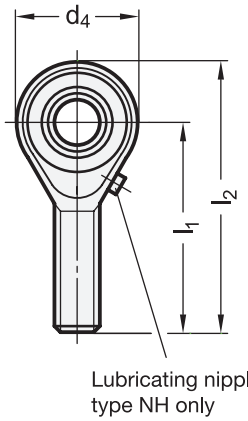
- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A24)

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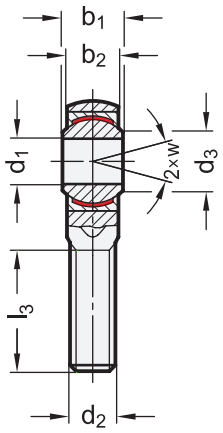
GN 648.6 | Stainless Steel-Ball joint heads with threaded bolt

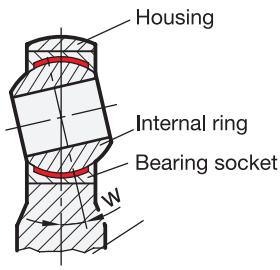
Type **NH**





Type **WH**
Type **WK**





*Complete with type index of the Ball joint heads

NH **WH** **WK**

GN 648.6 **STAINLESS STEEL**

Description	d1 H7	d2	b1 -0.12	b2	d3	d4	l1	l2	l3	w	⚖
GN 648.6-5-M5-*	5**	M 5	8	6	7.7	18	33	42	20	13°	15
GN 648.6-5-M5L-*	5**	M 5L	8	6	7.7	18	33	42	20	13°	15
GN 648.6-6-M6-*	6	M 6	9	6.75	8.9	20	36	46	22	13°	20
GN 648.6-6-M6L-*	6	M 6L	9	6.75	8.9	20	36	46	22	13°	20
GN 648.6-8-M8-*	8	M 8	12	9	10.4	24	42	54	25	14°	40
GN 648.6-8-M8L-*	8	M 8L	12	9	10.4	24	42	54	25	14°	40
GN 648.6-10-M10-*	10	M 10	14	10.5	12.9	28	48	62	29	13°	63
GN 648.6-10-M10L-*	10	M 10L	14	10.5	12.9	28	48	62	29	13°	62
GN 648.6-12-M12-*	12	M 12	16	12	15.4	32	54	70	33	13°	96
GN 648.6-12-M12L-*	12	M 12L	16	12	15.4	32	54	70	33	13°	95
GN 648.6-14-M14-*	14	M 14	19	13.5	16.8	36	60	78	38	16°	133
GN 648.6-14-M14L-*	14	M 14L	19	13.5	16.8	36	60	78	38	16°	135
GN 648.6-16-M16-*	16	M 16	21	15	19.3	42	66	87	40	15°	203
GN 648.6-16-M16L-*	16	M 16L	21	15	19.3	42	66	87	40	15°	202
GN 648.6-18-M18x1,5-*	18	M 18 x 1.5	23	16.5	21.8	46	72	95	44	15°	278
GN 648.6-18-M18x1,5L-*	18	M 18 x 1.5L	23	16.5	21.8	46	72	95	44	15°	278
GN 648.6-20-M20x1,5-*	20	M 20 x 1.5	25	18	24.3	50	78	103	47	14°	354
GN 648.6-20-M20x1,5L-*	20	M 20 x 1.5L	25	18	24.3	50	78	103	47	14°	351
GN 648.6-22-M22x1,5-*	22	M 22 x 1.5	28	20	25.8	54	84	111	51	15°	460
GN 648.6-22-M22x1,5L-*	22	M 22 x 1.5L	28	20	25.8	54	84	111	51	15°	463
GN 648.6-25-M24x2-*	25	M 24 x 2	31	22	29.6	60	94	124	58	15°	631
GN 648.6-25-M24x2L-*	25	M 24 x 2L	31	22	29.6	60	94	124	58	15°	610
GN 648.6-30-M30x2-*	30	M 30 x 2	37	25	34.8	70	110	145	71	17°	1030
GN 648.6-30-M30x2L-*	30	M 30 x 2L	37	25	34.8	70	110	145	71	17°	1020

** d1 = 5 type NH no lubrication possible

Weight type NH

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Rod ends

Technopolymer

MATERIAL
Glass-fibre reinforced polyamide based (PA) technopolymer.

ROD SPHERICAL CAP
Polyamide-based self-lubricating technopolymer (PA).

STANDARD EXECUTIONS
- **BJT:** with threaded hole.
- **BJT-p:** with threaded pin.

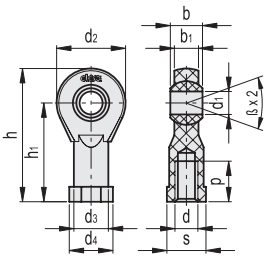
FEATURES AND APPLICATIONS
BJT. rod ends are remarkably suitable for rotary, oscillating and linear movements even in particularly aggressive environments and when water or humidity, fine dusts, dirt, fabrics and machining residues are present.
The shaft rotary movement can take place directly on the inner diameter of the spherical cap, made of self-lubricating material.
Features of the technopolymer rod ends:
- totally corrosion resistant even in the presence of chemicals;
- high strength to saline mist;
- high mechanical strength to the applied loads;
- lightness combined with high-rigidity;
- maintenance free;
- compensation of possible misalignments;
- absorption of vibrations and transverse stresses;
- noise minimization.



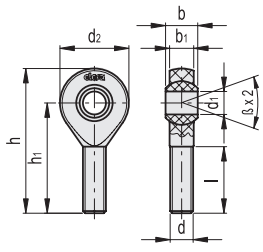
Resistance tests	Max static load under traction		Max transverse load	
Description	short term	continuous	short term	continuous
	[N]	[N]	[N]	[N]
BJT-M6	1400	700	400	200
BJT-M8	2100	1050	700	350
BJT-M10	3100	1550	800	400
BJT-M10x1.25	3100	1550	800	400
BJT-M12	3600	1800	900	450
BJT-M12x1.25	3600	1800	900	450
BJT-M14	4000	2000	1000	500
BJT-p-M6-36	1000	500	100	50
BJT-p-M8-42	1700	850	200	100
BJT-p-M10-48	2500	1250	300	150
BJT-p-M10x1.25-48	2500	1250	300	150
BJT-p-M12-54	2700	1350	400	200
BJT-p-M12x1.25-54	2700	1350	400	200
BJT-p-M14-61	3400	1700	700	350

The strength values are the result of lab tests carried out under room temperature (23°C).

BJT



BJT-p



BJT.

Code	Description	d	p	d1 E10	d2	d3	d4	b	b1	h	h1	s	[Nm]*	[Nm]#	min. thread tightening depth [mm]	Max. oscillation angle β	⚖
470001	BJT-M6	M6	12	6	20	10	13	9	7	40	30	11	1.5	10	8	29°	5
470011	BJT-M8	M8	16	8	24	13	16	12	9	48	36	14	10	12	11	25°	9
470021	BJT-M10	M10	20	10	30	15	19	14	10.5	58	43	17	15	20	13	25°	15
470022	BJT-M10x1.25	M10x1.25	20	10	30	15	19	14	10.5	58	43	17	6	20	13	25°	15
470031	BJT-M12	M12	22	12	34	18	22	16	12	67	50	19	20	30	15	25°	20
470032	BJT-M12x1.25	M12x1.25	22	12	34	18	22	16	12	67	50	19	15	30	15	25°	20
470041	BJT-M14	M14	25	14	38	20	25	19	13.5	76	57	22	25	35	17	25°	31

BJT-p

Code	Description	d	d1 E10	d2	l	b	b1	h	h1	[Nm]*	[Nm]#	min. thread tightening depth [mm]	Max. oscillation angle β	⚖
470101	BJT-p-M6-36	M6	6	20	21	9	7	46	36	0.5	10	15	29°	4
470111	BJT-p-M8-43	M8	8	24	25	12	9	55	43	2	12	18	25°	7
470121	BJT-p-M10-48	M10	10	30	28	14	10.5	63	48	5	20	20	25°	13
470122	BJT-p-M10x1.25-48	M10x1.25	10	30	28	14	10.5	63	48	3	20	20	25°	13
470131	BJT-p-M12-54	M12	12	34	32	16	12	71	54	6	30	22	25°	18
470132	BJT-p-M12x1.25-54	M12X1.25	12	34	32	16	12	71	54	6	30	22	25°	18
470141	BJT-p-M14-61	M14	14	38	36	19	13.5	80	61	12	35	25	25°	26

***** Max. thread tightening torque

Max. cap tightening torque

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GN 648.8

Ball joints

SPECIFICATION

Types (pairings)

- Type **N**: Bronze / Steel, lubrication possible
- Type **W**: Steel-PTFE / Steel, self lubricated

Pairings

Type N (lubrication possible)
Bearing socket
Brass, CuSn8

Internal ring Steel 100 Cr6
hardened, ground, polished

Type W (self lubricated)
Bearing socket
Steel, zinc plated
with PTFE-insert

Internal ring
Steel, 100Cr6
hardened, ground, polished



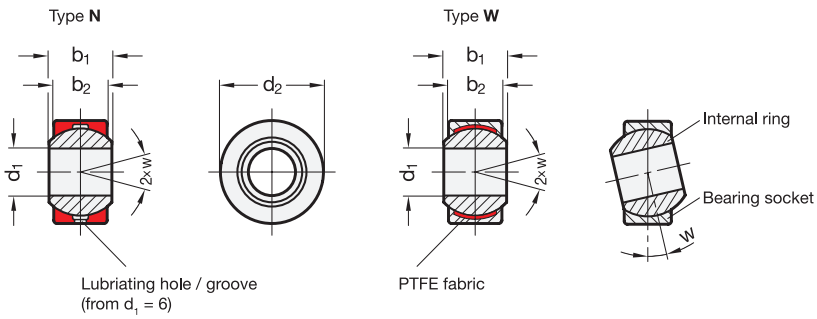
INFORMATION

Ball joints GN 648.8 are similar to DIN ISO 12240-4, series K. These ball joints are integrated in the ball joint heads GN 648.1 (see page 1136) and GN 648.2 (see page 1138).

- More information to ball joints as well as load capacity (see page 1134)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)



*Complete with type index of the Ball joints

N **W**

GN 648.8

Description	d1 H7	d2 h6	b1 -0.2	b2	w	⚖
GN 648.8-5-13-*	5	13	8	6	13°	9
GN 648.8-6-16-*	6	16	9	6.75	13°	12
GN 648.8-8-19-*	8	19	12	9	14°	24
GN 648.8-10-22-*	10	22	14	10.5	13°	38
GN 648.8-12-26-*	12	26	16	12	13°	59
GN 648.8-14-28-*	14	28**	19	13.5	16°	85
GN 648.8-16-32-*	16	32	21	15	15°	116
GN 648.8-18-35-*	18	35	23	16.5	15°	154
GN 648.8-20-40-*	20	40	25	18	14°	202
GN 648.8-22-42-*	22	42	28	20	15°	230
GN 648.8-25-47-*	25	47	31	22	15°	254
GN 648.8-30-55-*	30	55	37	25	17°	362

** DIN ISO 12240-1: Ø 29

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GN 648.9

Stainless Steel-Ball joints



SPECIFICATION

Type

Type **WK**: Stainless Steel-PTFE / Stainless Steel, self lubricated

Pairing
Type WK (self lubricated)

Bearing socket
Stainless Steel AISI 316Ti
with PTFE-insert

Internal ring
Stainless Steel AISI 420
hardened, ground, polished

INFORMATION

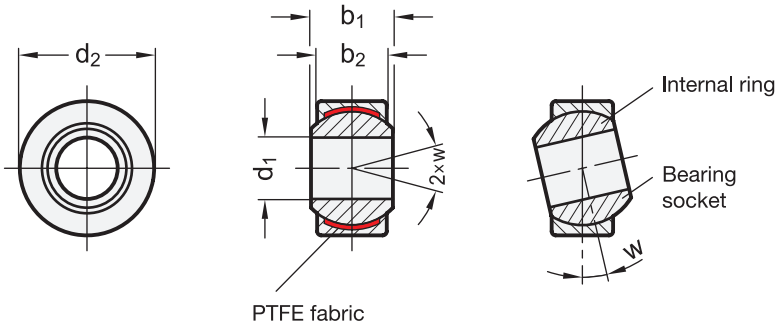
Stainless Steel-Ball joints GN 648.9 are similar to DIN ISO 12240-4, series K.
These ball joints are integrated in the ball joint heads GN 648.5 (see page 1140) and GN 648.6 (see page 1142).

- More information to ball joints as well as load capacity (see page 1134)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)

Type **WK**



GN 648.9 **STAINLESS STEEL**

Description	d1 H7	d2 h6	b1 -0.2	b2	w	⚖
GN 648.9-5-13-WK	5	13	8	6	13°	8
GN 648.9-6-16-WK	6	16	9	6.75	13°	12
GN 648.9-8-19-WK	8	19	12	9	14 °	22
GN 648.9-10-22-WK	10	22	14	10.5	13°	36
GN 648.9-12-26-WK	12	26	16	12	13°	40
GN 648.9-14-28-WK	14	28*	19	13.5	16 °	81
GN 648.9-16-32-WK	16	32	21	15	15 °	111
GN 648.9-18-35-WK	18	35	23	16.5	15 °	150
GN 648.9-20-40-WK	20	40	25	18	14 °	140
GN 648.9-22-42-WK	22	42	28	20	15 °	259
GN 648.9-25-47-WK	25	47	31	22	15 °	355
GN 648.9-30-55-WK	30	55	37	25	17 °	350

* DIN ISO 12240-1: Ø 29

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GN 751.1

Fork joints

with rotating shaft



SPECIFICATION

Types

- Type **A**: without pin
- Type **KL**: Pin with KL-shaft safety
- Type **SL**: Pin with SL-shaft safety

Steel

- Tensile strength class 5
- zinc plated, blue passivated

Shaft safetys

- Spring steel
- hardened and tempered
- zinc plated, blue passivated

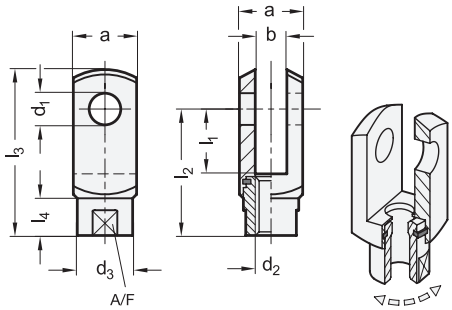
INFORMATION

Fork joints GN 751.1 basically correspond to the fork head of DIN 71752 (Type A), but, unlike the DIN element, they have a rotating shaft and an additional bolt with axial shaft lock (Type KL and SL) which can be mounted and dismantled without tools (see page 1152). The rotating shaft allows non-dynamic radial movements to be compensated, movements which may occur e.g. when using cable winches. Also, there is no need for the otherwise necessary alignment of joint heads during assembly.

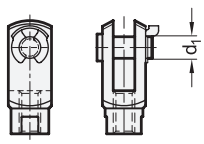
TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Strength values of nuts (see page A20)

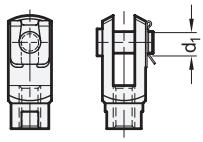
Type **A**



Type **KL**



Type **SL**



* Complete with type index of the Fork joints

A **KL** **SL**

GN 751.1

Description	d1 H9/h11	l1	d2	a	b	d3	l2	l3	l4	A/F	Static max. load in N ≈	⚖
GN 751.1-5-10-M5-*	5	10	M 5	10	5	9	20	26	4	7	800	9
GN 751.1-5-20-M5-*	5	20	M 5	10	5	9	30	36	4	7	800	12
GN 751.1-6-12-M6-*	6	12	M 6	12	6	10	24	31	5.5	9	2400	15
GN 751.1-6-24-M6-*	6	24	M 6	12	6	10	36	43	5.5	9	2400	22
GN 751.1-8-16-M8-*	8	16	M 8	16	8	14	32	42	8	12	3400	38
GN 751.1-8-32-M8-*	8	32	M 8	16	8	14	48	58	8	12	3400	53
GN 751.1-10-20-M10-*	10	20	M 10	20	10	18	40	52	11.5	16	6000	74
GN 751.1-10-40-M10-*	10	40	M 10	20	10	18	60	72	11.5	16	6000	102
GN 751.1-12-24-M12-*	12	24	M 12	24	12	20	48	62	14	18	14000	122
GN 751.1-12-48-M12-*	12	48	M 12	24	12	20	72	86	14	18	14000	174

Weight type A

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Fork joints

SPECIFICATION

Version in Steel

Types

Type **B**: Snap on spring pin
Type **KL**: Pin with KL-shaft safety
Type **SL**: Pin with SL-shaft safety
(only for d_1 = 4 ... 16)

Steel

- Tensile strength class 5
- zinc plated, blue passivated

Shaft safetys

- spring sheet metal
- hardened and tempered
- zinc plated, blue passivated

Version in Aluminium

Types

- Type **KL**: Pin with side mount ring
- Type **SL**: Pin with safety clip

Aluminium **AL**
anodized, black

KL- / SL-shaft safetys

- Spring steel
- hardened and tempered
- zinc plated, blue passivated

Version in Stainless Steel

Type

- Type **A**: Pin with reatining ring

Stainless Steel AISI 303 **NI**
uncoated

Safety circlip DIN 471
Stainless Steel
German Material No. 1.4122

INFORMATION

Fork joints GN 751 consist of a fork head according DIN 71752 and a pin with KL-shaft (Type KL and SL) a pin with snap-on spring (Type B). Both versions can be dismantled without tools and moniter.
Size d_1 = 12 is supplied with a fine thread M12x1.5 according to DIN. In practice, however, M12x1.25 is preferred. Standard DIN 71752 does not foresee size d_1 = 20.

ON REQUEST

Fork heads in accordance with DIN 71752 (see page 1152) with d_1 = 25, 30, 35, 42 and 50 (only Steel Version).

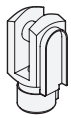


TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)

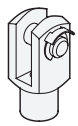
Types of fork joint shafts

Snap-on spring



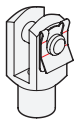
The snap-on spring pin is easily mounted and dismantled. It is therefore particularly suitable for applications where the articulated connection needs to be loosened often.

KL-shaft safety



The pin with side mount ring can be fitted and dismantled without tools, i. e. by hand.

SL-shaft safety

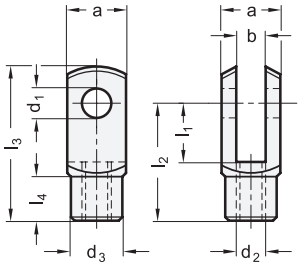


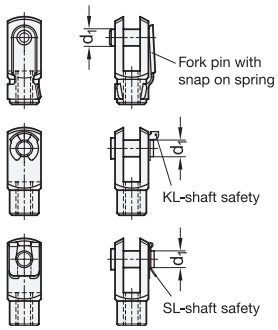
The pin with safety clip requires a tool for dismantling (e.g. a screw driver). It is therefore better secured.

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GN 751

Fork joints





*Complete with type index of Fork joints

B **KL** **SL**

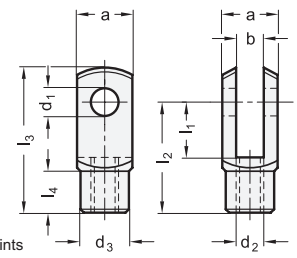
GN 751-ST

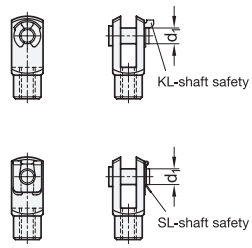
Description	d1 H9/h11	l1	d2	a	b	d3	l2	l3	l4	⚖
GN 751-4-8-M4-*	4	8	M 4	8	4	8	16	21	6	7
GN 751-4-16-M4-*	4**	16	M 4	8	4	8	24	29	6	11
GN 751-5-10-M5L-*	5	10	M 5L	10	5	9	20	26	7.5	14
GN 751-5-10-M5-*	5	10	M 5	10	5	9	20	26	7.5	13
GN 751-5-20-M5L-*	5	20	M 5L	10	5	9	30	36	7.5	18
GN 751-5-20-M5-*	5	20	M 5	10	5	9	30	36	7.5	15
GN 751-6-12-M6L-*	6	12	M 6L	12	6	10	24	31	9	20
GN 751-6-12-M6-*	6	12	M 6	12	6	10	24	31	9	20
GN 751-6-24-M6L-*	6	24	M 6L	12	6	10	36	43	9	30
GN 751-6-24-M6-*	6	24	M 6	12	6	10	36	43	9	27
GN 751-8-16-M8L-*	8	16	M 8L	16	8	14	32	42	12	50
GN 751-8-16-M8F-*	8	16	M 8F = M8x1	16	8	14	32	42	12	49
GN 751-8-16-M8-*	8	16	M 8	16	8	14	32	42	12	48
GN 751-8-32-M8L-*	8	32	M 8L	16	8	14	48	58	12	65
GN 751-8-32-M8F-*	8	32	M 8F = M8x1	16	8	14	48	58	12	66
GN 751-8-32-M8-*	8	32	M 8	16	8	14	48	58	12	64
GN 751-10-20-M10L-*	10	20	M 10L	20	10	18	40	52	15	90
GN 751-10-20-M10F-*	10	20	M 10F = M10x1.25	20	10	18	40	52	15	90
GN 751-10-20-M10-*	10	20	M 10	20	10	18	40	52	15	93
GN 751-10-40-M10L-*	10	40	M 10L	20	10	18	60	72	15	120
GN 751-10-40-M10F-*	10	40	M 10F = M10x1.25	20	10	18	60	72	15	120
GN 751-10-40-M10-*	10	40	M 10	20	10	18	60	72	15	125
GN 751-12-24-M12L-*	12	24	M 12L	24	12	20	48	62	18	148
GN 751-12-24-M12F-*	12	24	M 12F = M12x1.25	24	12	20	48	62	18	151
GN 751-12-24-M12-*	12	24	M 12	24	12	20	48	62	18	140
GN 751-12-48-M12L-*	12	48	M 12L	24	12	20	72	86	18	206
GN 751-12-48-M12F-*	12	48	M 12F = M12x1.25	24	12	20	72	86	18	204
GN 751-12-48-M12-*	12	48	M 12	24	12	20	72	86	18	200
GN 751-14-28-M14L-*	14	28	M 14L	28	14	24	56	72	22.5	221
GN 751-14-28-M14F-*	14	28	M 14F = M14x1.5	28	14	24	56	72	22.5	218
GN 751-14-28-M14-*	14	28	M 14	28	14	24	56	72	22.5	219
GN 751-14-56-M14L-*	14	56	M 14L	28	14	24	85	101	22.5	302
GN 751-14-56-M14F-*	14	56	M 14F = M14x1.5	28	14	24	85	101	22.5	298
GN 751-14-56-M14-*	14	56	M 14	28	14	24	85	101	22.5	300
GN 751-16-32-M16L-*	16	32	M 16L	32	16	26	64	83	24	340
GN 751-16-32-M16F-*	16	32	M 16F = M16x1.5	32	16	26	64	83	24	340
GN 751-16-32-M16-*	16	32	M 16	32	16	26	64	83	24	339
GN 751-16-64-M16L-*	16	64	M 16L	32	16	26	96	115	24	467
GN 751-16-64-M16F-*	16	64	M 16F = M16x1.5	32	16	26	96	115	24	471
GN 751-16-64-M16-*	16	64	M 16	32	16	26	96	115	24	467
GN 751-20-40-M20L-*	20**	40	M 20L	40	20	34	80	105	30	675
GN 751-20-40-M20-*	20**	40	M 20	40	20	34	80	105	30	660

** in type B not available from stock

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GN 751 | Fork joints





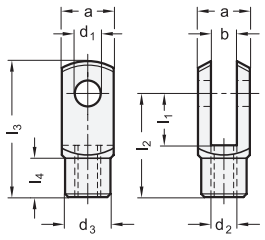
*Complete with type index of Fork joints

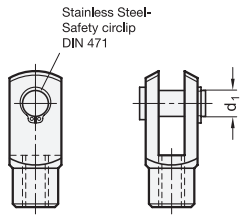
KL SL

GN 751-AL

Description	d1 H9/h11	l1	d2	a	b	d3	l2	l3	l4	⚖
GN 751-4-8-M4-*-AL	4	8	M 4	8	4	8	16	21	6	6
GN 751-4-16-M4-*-AL	4**	16	M 4	8	4	8	24	29	6	11
GN 751-5-10-M5-*-AL	5	10	M 5	10	5	9	20	26	7.5	10
GN 751-5-20-M5-*-AL	5**	20	M 5	10	5	9	30	36	7.5	18
GN 751-6-12-M6-*-AL	6	12	M 6	12	6	10	24	31	9	20
GN 751-6-24-M6-*-AL	6**	24	M 6	12	6	10	36	43	9	28
GN 751-8-16-M8-*-AL	8	16	M 8	16	8	14	32	42	12	48
GN 751-8-32-M8-*-AL	8**	32	M 8	16	8	14	48	58	12	62
GN 751-10-20-M10-*-AL	10	20	M 10	20	10	18	40	52	15	92
GN 751-10-40-M10-*-AL	10**	40	M 10	20	10	18	60	72	15	123
GN 751-12-24-M12-*-AL	12	24	M 12	24	12	20	48	62	18	144
GN 751-12-48-M12-*-AL	12**	48	M 12	24	12	20	72	86	18	197
GN 751-14-28-M14-*-AL	14	28	M 14	28	14	24	56	72	22.5	220
GN 751-14-56-M14-*-AL	14**	56	M 14	28	14	24	85	101	22.5	298
GN 751-16-32-M16-*-AL	16	32	M 16	32	16	26	64	83	24	335
GN 751-16-64-M16-*-AL	16**	64	M 16	32	16	26	96	115	24	460

** not available from stock, requires a minimum order quantity





GN 751-NI **STAINLESS STEEL**

Description	d1 H9/h11	l1	d2	a	b	d3	l2	l3	l4	⚖
GN 751-4-8-M4-A-NI	4	8	M 4	8	4	8	16	21	6	6
GN 751-4-16-M4-A-NI	4	16	M 4	8	4	8	24	29	6	8
GN 751-5-10-M5-A-NI	5	10	M 5	10	5	9	20	26	7.5	10
GN 751-5-20-M5-A-NI	5	20	M 5	10	5	9	30	36	7.5	19
GN 751-6-12-M6-A-NI	6	12	M 6	12	6	10	24	31	9	20
GN 751-6-24-M6-A-NI	6	24	M 6	12	6	10	36	43	9	25
GN 751-8-16-M8-A-NI	8	16	M 8	16	8	14	32	42	12	46
GN 751-8-32-M8-A-NI	8	32	M 8	16	8	14	48	58	12	60
GN 751-10-20-M10-A-NI	10	20	M 10	20	10	18	40	52	15	85
GN 751-10-40-M10-A-NI	10	40	M 10	20	10	18	60	72	15	121
GN 751-12-24-M12-A-NI	12	24	M 12	24	12	20	48	62	18	145
GN 751-12-48-M12-A-NI	12	48	M 12	24	12	20	72	86	18	200
GN 751-14-28-M14-A-NI	14	28	M 14	28	14	24	56	72	22.5	220
GN 751-14-56-M14-A-NI	14	56	M 14	28	14	24	85	101	22.5	280
GN 751-16-32-M16-A-NI	16	32	M 16	32	16	26	64	83	24	328
GN 751-16-64-M16-A-NI	16	64	M 16	32	16	26	96	115	24	400
GN 751-20-40-M20-A-NI	20	40	M 20	40	20	34	80	105	30	680

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Forks

Technopolymer

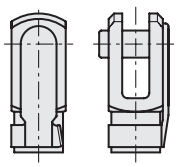
MATERIAL
Glass-fibre reinforced polyamide based (PA) technopolymer.

STANDARD EXECUTIONS
Threaded hole.
- **FJT+PC:** with clip pin.
- **FJT+S:** with pin and seeger ring.

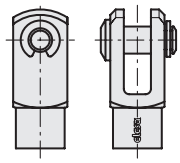
FEATURES AND APPLICATIONS
FJT. forks are remarkably suitable for actuation for example of pneumatic cylinders even when water and humidity are present.
Features of the technopolymer forks:
- totally corrosion resistant even when humidity and chemicals are present;
- high strength to saline mist;
- high mechanical strength to the applied loads;
- lightness combined with high-rigidity;
- resistant to continuous washing cycles with solvents and detergents, so they are suitable, for example, in applications in the food and pharmaceutical sectors;
- excellent shock-absorbing features;
- noise minimization.

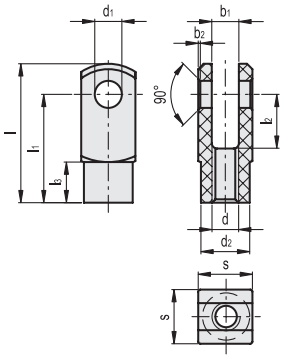


FJT+PC



FJT+S





Resistance tests	Max static load under traction		Max transverse load	
Description	short term	continuous	short term	continuous
	[N]	[N]	[N]	[N]
FJT-M6	1300	650	300	150
FJT-M8	2100	1050	650	325
FJT-M10	3000	1500	800	400
FJT-M10x1.25	3000	1500	800	400
FJT-M12	3500	1750	900	450
FJT-M12x1.25	3500	1750	900	450
FJT-M14	6100	3050	1000	500

The strength values are the result of lab tests carried out under room temperature (23°C).

FJT-PC

Code	Description	d_{6H}	d_1	d_2	l	l_1	l_2	l_3	b_1	b_2	s	⚖
470201	FJT-M6+PC	M6	6	10	31	24	12	9	6	0.5	12	4
470211	FJT-M8+PC	M8	8	14	42	32	16	12	8	0.5	16	9
470221	FJT-M10+PC	M10	10	18	52	40	20	15	10	0.5	20	16
470222	FJT-M10x1.25+PC	M10x1.25	10	18	52	40	20	15	10	0.5	20	16
470231	FJT-M12+PC	M12	12	20	62	48	24	18	12	0.5	24	28
470232	FJT-M12x1.25+PC	M12x1.25	12	20	62	48	24	18	12	0.5	24	28
470241	FJT-M14+PC	M14	14	24	72	56	28	22.5	14	0.5	27	42

FJT-S

Code	Description	d_{6H}	d_1	d_2	l	l_1	l_2	l_3	b_1	b_2	s	⚖
470301	FJT-M6+S	M6	6	10	31	24	12	9	6	0.5	12	3
470311	FJT-M8+S	M8	8	14	42	32	16	12	8	0.5	16	8
470321	FJT-M10+S	M10	10	18	52	40	20	15	10	0.5	20	15
470322	FJT-M10x1.25+S	M10x1.25	10	18	52	40	20	15	10	0.5	20	15
470331	FJT-M12+S	M12	12	20	62	48	24	18	12	0.5	24	25
470332	FJT-M12x1.25+S	M12x1.25	12	20	62	48	24	18	12	0.5	24	25
470341	FJT-M14+S	M14	14	24	72	56	28	22.5	14	0.5	27	41

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DIN 71752

Fork heads

SPECIFICATION

Version in Steel

Steel

- Tensile strength class 5
- zinc plated, blue passivated

Version in Aluminium

Aluminium **AL**
anodized, black

Version in Stainless Steel

Stainless Steel AISI 303 **NI**
blank

INFORMATION

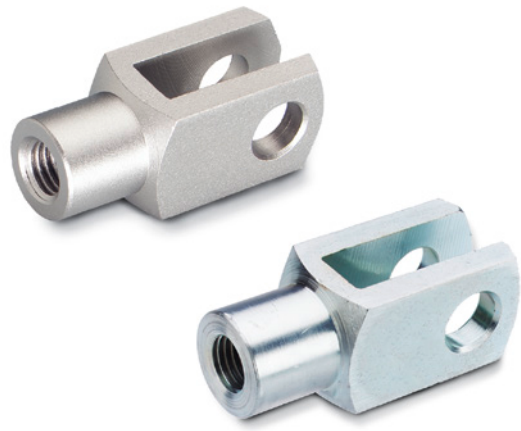
Size d_1= 12 is supplied with a fine thrad M12 x1.5 according to DIN. In practice, however, M12 x1.25 is preferred. DIN 71752 does not foresee size d_1= 20.

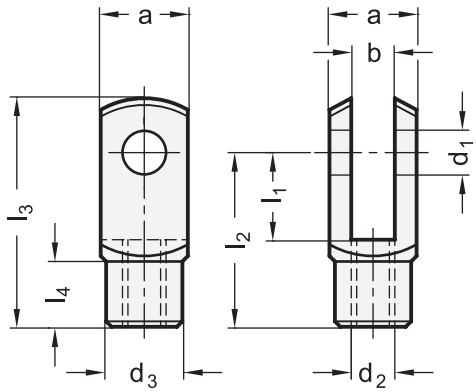
TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)
- Strength values of nuts (see page A20)

ON REQUEST

- Fork heads in accordance with DIN 71752 with d_1 = 25, 30, 35, 42 and 50 (only Steel-Version)
- Fork heads in accordane with DIN 71752 with d_1 = 30 and 35 (only Stainless Steel-Version)





*Complete with type index of the Fork heads (AL or NI)

AL	NI
Aluminium	Stainless Steel

DIN 71752 — **STAINLESS STEEL**

Description	d_1 H9/h11	l_1	d_2	a	b	d_3	l_2	l_3	l_4
DIN 71752-4-8-M4-*	4**	8	M 4	8	4	8	16	21	6
DIN 71752-4-16-M4-*	4**	16	M 4	8	4	8	24	29	6
DIN 71752-5-10-M5-*	5**	10	M 5	10	5	9	20	26	7.5
DIN 71752-5-20-M5-*	5**	20	M 5	10	5	9	30	36	7.5
DIN 71752-6-12-M6-*	6**	12	M 6	12	6	10	24	31	9
DIN 71752-6-24-M6-*	6**	24	M 6	12	6	10	36	43	9
DIN 71752-8-16-M8-*	8**	16	M 8	16	8	14	32	42	12
DIN 71752-8-32-M8-*	8**	32	M 8	16	8	14	48	58	12
DIN 71752-10-20-M10-*	10**	20	M 10	20	10	18	40	52	15
DIN 71752-10-40-M10-*	10**	40	M 10	20	10	18	60	72	15
DIN 71752-12-24-M12-*	12**	24	M 12	24	12	20	48	62	18
DIN 71752-12-48-M12-*	12**	48	M 12	24	12	20	72	86	18
DIN 71752-14-28-M14-*	14**	28	M 14	28	14	24	56	72	22.5
DIN 71752-14-56-M14-*	14**	56	M 14	28	14	24	85	101	22.5
DIN 71752-16-32-M16-*	16**	32	M 16	32	16	26	64	83	24
DIN 71752-16-64-M16-*	16**	64	M 16	32	16	26	96	115	24
DIN 71752-20-40-M20-*	20**	40	M 20	40	20	34	80	105	30

Weight type AL

** Aluminium not available from stock, requires a minimum order quantity

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DIN 71752-Steel

Description	d1 H9/h11	l1	d2	a	b	d3	l2	l3	l4	⚖
DIN 71752-4-8-M4	4	8	M 4	8	4	8	16	21	6	5
DIN 71752-4-16-M4	4	16	M 4	8	4	8	24	29	6	7
DIN 71752-5-10-M5	5	10	M 5	10	5	9	20	26	7.5	9
DIN 71752-5-10-M5L	5	10	M 5L	10	5	9	20	26	7.5	9
DIN 71752-5-20-M5	5	20	M 5	10	5	9	30	36	7.5	13
DIN 71752-5-20-M5L	5	20	M 5L	10	5	9	30	36	7.5	13
DIN 71752-6-12-M6	6	12	M 6	12	6	10	24	31	9	14
DIN 71752-6-12-M6L	6	12	M 6L	12	6	10	24	31	9	11
DIN 71752-6-24-M6	6	24	M 6	12	6	10	36	43	9	21
DIN 71752-6-24-M6L	6	24	M 6L	12	6	10	36	43	9	21
DIN 71752-8-16-M8	8	16	M 8	16	8	14	32	42	12	36
DIN 71752-8-16-M8L	8	16	M 8L	16	8	14	32	42	12	36
DIN 71752-8-16-M8F	8	16	M 8F = M8x1	16	8	14	32	42	12	36
DIN 71752-8-32-M8	8	32	M 8	16	8	14	48	58	12	52
DIN 71752-8-32-M8L	8	32	M 8L	16	8	14	48	58	12	52
DIN 71752-8-32-M8F	8	32	M 8F = M8x1	16	8	14	48	58	12	52
DIN 71752-10-20-M10	10	20	M 10	20	10	18	40	52	15	72
DIN 71752-10-20-M10L	10	20	M 10L	20	10	18	40	52	15	72
DIN 71752-10-20-M10F	10	20	M 10F = M10x1.25	20	10	18	40	52	15	72
DIN 71752-10-40-M10	10	40	M 10	20	10	18	60	72	15	102
DIN 71752-10-40-M10L	10	40	M 10L	20	10	18	60	72	15	102
DIN 71752-10-40-M10F	10	40	M 10F = M10x1.25	20	10	18	60	72	15	102
DIN 71752-12-24-M12	12	24	M 12	24	12	20	48	62	18	117
DIN 71752-12-24-M12L	12	24	M 12L	24	12	20	48	62	18	117
DIN 71752-12-24-M12F	12	24	M 12F = M12x1.25	24	12	20	48	62	18	117
DIN 71752-12-48-M12	12	48	M 12	24	12	20	72	86	18	165
DIN 71752-12-48-M12L	12	48	M 12L	24	12	20	72	86	18	165
DIN 71752-12-48-M12F	12	48	M 12F = M12x1.25	24	12	20	72	86	18	165
DIN 71752-14-28-M14	14	28	M 14	28	14	24	56	72	22.5	171
DIN 71752-14-28-M14L	14	28	M 14L	28	14	24	56	72	22.5	171
DIN 71752-14-28-M14F	14	28	M 14F = M14x1.5	28	14	24	56	72	22.5	171
DIN 71752-14-56-M14	14	56	M 14	28	14	24	85	101	22.5	248
DIN 71752-14-56-M14L	14	56	M 14L	28	14	24	85	101	22.5	248
DIN 71752-14-56-M14F	14	56	M 14F = M14x1.5	28	14	24	85	101	22.5	248
DIN 71752-16-32-M16	16	32	M 16	32	16	26	64	83	24	267
DIN 71752-16-32-M16L	16	32	M 16L	32	16	26	64	83	24	267
DIN 71752-16-32-M16F	16	32	M 16F = M16x1.5	32	16	26	64	83	24	267
DIN 71752-16-64-M16	16	64	M 16	32	16	26	96	115	24	393
DIN 71752-16-64-M16L	16	64	M 16L	32	16	26	96	115	24	393
DIN 71752-16-64-M16F	16	64	M 16F = M16x1.5	32	16	26	96	115	24	393
DIN 71752-20-40-M20	20	40	M 20	40	20	34	80	105	30	520
DIN 71752-20-40-M20L	20	40	M 20L	40	20	34	80	105	30	520

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Joint pieces

Steel / Stainless Steel, for fork joints GN 751

SPECIFICATION

Steel

- Tensile strength class 5
- zinc plated, blue passivated

Stainless Steel AISI 303 **NI**

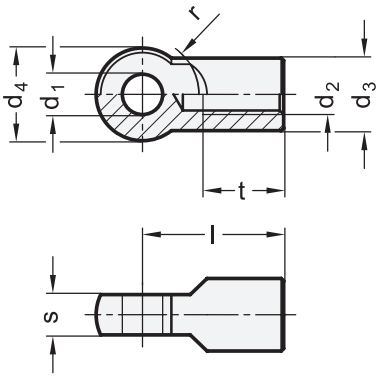
INFORMATION

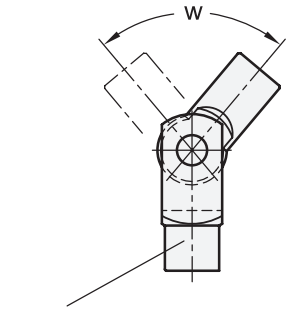
Joint pieces GN 752 are designed to be used in combination with for heads DIN 71752 (see page 1152) and GN 751 (see page 1148) respectively fork joints.

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)
- Strength values of nuts (see page A20)







Fork joint GN 751

GN 752

Description	d1 H9	d2	d3	d4	l	r	s -0.2	t min.	w min.	⚖
GN 752-6-M6	6	M 6	10	14	22	8.5	6	12	218°	11
GN 752-8-M8	8	M 8	14	18	29	12	8	16	218°	27
GN 752-10-M10	10	M 10	18	23	35	14	10	20	212°	56
GN 752-12-M12	12	M 12	20	27	43	17	12	24	216°	88
GN 752-14-M14	14	M 14	24	30	50	19	14	28	214°	100
GN 752-16-M16	16	M 16	26	36	56	22	16	32	216°	197

GN 752-NI **STAINLESS STEEL**

Description	d1 H9	d2	d3	d4	l	r	s -0.2	t min.	w min.	⚖
GN 752-6-M6-NI	6	M 6	10	14	22	8.5	6	12	218°	11
GN 752-8-M8-NI	8	M 8	14	18	29	12	8	16	218°	28
GN 752-10-M10-NI	10	M 10	18	23	35	14	10	20	212°	56
GN 752-12-M12-NI	12	M 12	20	27	43	17	12	24	216°	88
GN 752-14-M14-NI	14	M 14	24	30	50	19	14	28	214°	141
GN 752-16-M16-NI	16	M 16	26	36	56	22	16	32	216°	197

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Angled ball joints

with threaded ball and rivet ball shanks



SPECIFICATION

Version in Steel

Types

- Type **CS**: with threaded ball shank with safety catch
- Type **C**: with threaded ball shank without safety catch
- Type **BS**: with rivet ball shank, with safety catch
- Type **B**: with rivet ball shank, without safety catch

Steel

- Tensile strength class 5
- zinc plated, colourless passivated

Ball
Steel

- hardened
- ball seat lubricated

Version in Stainless Steel

Types

- Type **CSN**: with threaded ball shank, with safety catch
- Type **CN**: with threaded ball shank, without safety catch

Stainless Steel AISI 303

Ball
Stainless Steel

- not hardened
- ball seat greased

INFORMATION

Angled ball joints DIN 71802 consist of a ball socket DIN 71805 and a ball shank DIN 71803.
The angle of rotation for the type with safety catch (Types CS, BS, CSN) ist 15°, without safety catch (Types C, B, CN) is 18°.
For assembly the ball ist pushed through the circlip which acts as a retainer. Should the retaining force (see pull-off force in the table above) between ball and socket not be sufficient, this can be increased by adding a safety catch, which can easily be fitted.
To protect the angled ball point, a dust cap GN 710 (see page 1158) can be added.
The hexagon nut is part of the angled ball joints.
Dust caps GN 710 (see page 1158) have to be ordered seperately.

ON REQUEST

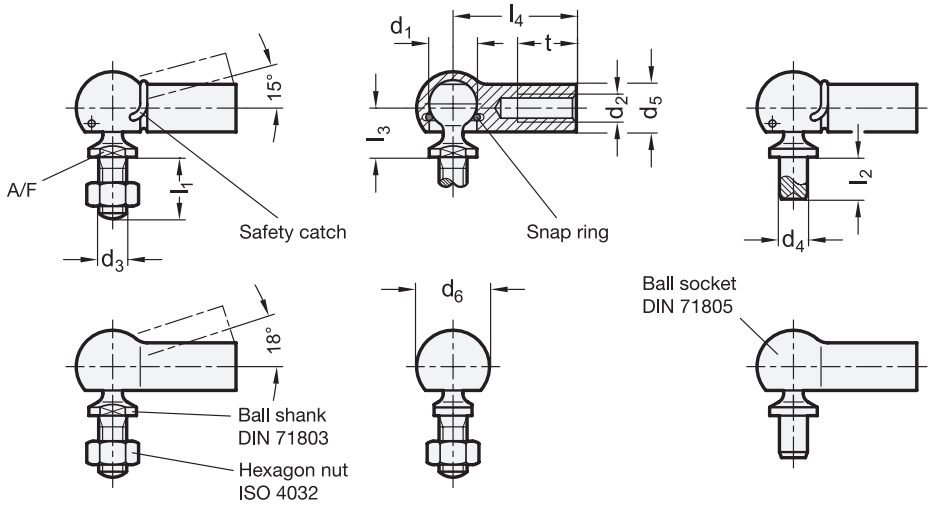
- smooth specification (Ball seat with play)
- Ball studs DIN 71803
- Ball sockets DIN 71805
- Axial joints (ball socket and ball shank in one axis)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)
- Strength values of nuts (see page A20)

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DIN 71802 | Angled ball joints



*Complete with type index of the Angled ball joints

BS B

DIN 71802-B/BS

Description	d1 H9/h9	d2	l2	d4 h11	d5	d6	l3	l4	t min.	A/F	min. pull-off force in N	⚖
DIN 71802-8-M5L-4-*	8	M 5L	4	5	8	12.8	8.5	22	10.5	7	30	13
DIN 71802-8-M5-4-*	8	M 5	4	5	8	12.8	8.5	22	10.5	7	30	13
DIN 71802-8-M5L-7,5-*	8	M 5L	7.5	5	8	12.8	8.5	22	10.5	7	30	14
DIN 71802-8-M5-7,5-*	8	M 5	7.5	5	8	12.8	8.5	22	10.5	7	30	14
DIN 71802-10-M6L-4,5-*	10	M 6L	4.5	6	10	14.8	10.5	25	11.5	8	40	20
DIN 71802-10-M6-4,5-*	10	M 6	4.5	6	10	14.8	10.5	25	11.5	8	40	20
DIN 71802-10-M6L-8-*	10	M 6L	8	6	10	14.8	10.5	25	11.5	8	40	23
DIN 71802-10-M6-8-*	10	M 6	8	6	10	14.8	10.5	25	11.5	8	40	23
DIN 71802-13-M8L-5-*	13	M 8L	5	8	13	19.3	12	30	14	11	60	44
DIN 71802-13-M8-5-*	13	M 8	5	8	13	19.3	12	30	14	11	60	44
DIN 71802-13-M8L-10-*	13	M 8L	10	8	13	19.3	12	30	14	11	60	46
DIN 71802-13-M8-10-*	13	M 8	10	8	13	19.3	12	30	14	11	60	47
DIN 71802-16-M10L-6-*	16	M 10L	6	10	16	24	15	35	15.5	13	80	80
DIN 71802-16-M10-6-*	16	M 10	6	10	16	24	15	35	15.5	13	80	88
DIN 71802-16-M10L-13-*	16	M 10L	13	10	16	24	15	35	15.5	13	80	80
DIN 71802-16-M10-13-*	16	M 10	13	10	16	24	15	35	15.5	13	80	89
DIN 71802-16-M12L-6-*	16	M 12L	6	10	16	24	15	35	15.5	13	80	90
DIN 71802-16-M12-6-*	16	M 12	6	10	16	24	15	35	15.5	13	80	96
DIN 71802-16-M12L-13-*	16	M 12L	13	10	16	24	15	35	15.5	13	80	80
DIN 71802-16-M12-13-*	16	M 12	13	10	16	24	15	35	15.5	13	80	80
DIN 71802-19-M14FL-12-*	19	M 14FL	12	14	22	30	19.5	45	21.5	16	100	200
DIN 71802-19-M14F-12-*	19	M 14F	12	14	22	30	19.5	45	21.5	16	100	200
DIN 71802-19-M14FL-18-*	19	M 14FL	18	14	22	30	19.5	45	21.5	16	100	190
DIN 71802-19-M14F-18-*	19	M 14F	18	14	22	30	19.5	45	21.5	16	100	190

Weight type B

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DIN 71802 | Angled ball joints

*Complete with type index of the Angled ball joints
CS C

DIN 71802-C/CS

Description	d1 H9/ h9	d2	d3	d5	d6	l1	l3	l4	t min.	A/F	min. pull-off force in N	⚖
DIN 71802-8-M5-*	8	M 5	M 5	8	12.8	10	8.5	22	10.5	7	30	14
DIN 71802-8-M5L-*	8	M 5L	M 5	8	12.8	10	8.5	22	10.5	7	30	15
DIN 71802-10-M6-*	10	M 6	M 6	10	14.8	12.5	10.5	25	11.5	8	40	25
DIN 71802-10-M6L-*	10	M 6L	M 6	10	14.8	12.5	10.5	25	11.5	8	40	25
DIN 71802-13-M8-*	13	M 8	M 8	13	19.3	16.5	12	30	14	11	60	49
DIN 71802-13-M8L-*	13	M 8L	M 8	13	19.3	16.5	12	30	14	11	60	50
DIN 71802-16-M10-*	16	M 10	M 10	16	24	20	15	35	15.5	13	80	90
DIN 71802-16-M10L-*	16	M 10L	M 10	16	24	20	15	35	15.5	13	80	95
DIN 71802-16-M12-*	16	M 12	M 12	16	24	20	15	35	15.5	13	80	100
DIN 71802-16-M12L-*	16	M 12L	M 12	16	24	20	15	35	15.5	13	80	100
DIN 71802-19-M14F-*	19	M 14F = M 14x1.5L	M 14 x 1.5	22	30	28	19.5	45	21.5	16	100	217
DIN 71802-19-M14FL-*	19	M 14 FL = M 14x1.5 L	M 14 x 1.5	22	30	28	19.5	45	21.5	16	100	220

Weight type C

*Complete with type index of the Angled ball joints
CSN CN

DIN 71802-CN/CSN

STAINLESS STEEL

Description	d1 H9/ h9	d2	d3	d5	d6	l1	l3	l4	t min.	A/F	min. pull-off force in N	⚖
DIN 71802-8-M5-*	8	M 5	M 5	8	12.8	10	8.5	22	10.5	7	30	10
DIN 71802-8-M5L-*	8	M 5L	M 5	8	12.8	10	8.5	22	10.5	7	30	15
DIN 71802-10-M6-*	10	M 6	M 6	10	14.8	12.5	10.5	25	11.5	8	40	20
DIN 71802-10-M6L-*	10	M 6L	M 6	10	14.8	12.5	10.5	25	11.5	8	40	25
DIN 71802-13-M8-*	13	M 8	M 8	13	19.3	16.5	12	30	14	11	60	50
DIN 71802-13-M8L-*	13	M 8L	M 8	13	19.3	16.5	12	30	14	11	60	50
DIN 71802-16-M10-*	16	M 10	M 10	16	24	20	15	35	15.5	13	80	98
DIN 71802-16-M10L-*	16	M 10L	M 10	16	24	20	15	35	15.5	13	80	95
DIN 71802-16-M12-*	16	M 12	M 12	16	24	20	15	35	15.5	13	80	102
DIN 71802-16-M12L-*	16	M 12L	M 12	16	24	20	15	35	15.5	13	80	102
DIN 71802-19-M14F-*	19	M 14F = M 14x1.5L	M 14 x 1.5	22	30	28	19.5	45	21.5	16	100	218
DIN 71802-19-M14FL-*	19	M 14 FL = M 14x1.5 L	M 14 x 1.5	22	30	28	19.5	45	21.5	16	100	219

Weight type CN

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Dust caps

for angled ball joints DIN 71802

SPECIFICATION

Rubber

- temperature resistant up to 110 °C
- black

INFORMATION

Dust caps GN 710 prevent the entering of dirt into angled ball joints DIN 71802 (see page 1155).

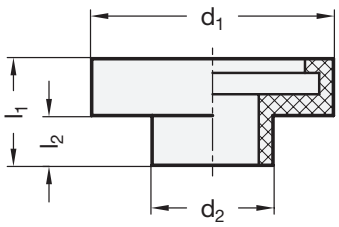
ON REQUEST

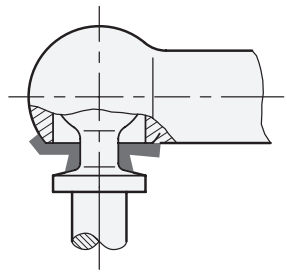
- Angled ball joints with mounted dust cap

TECHNICAL INFORMATION

- Elastomer characteristics (see page A32)







GN 710

Description	d1	d2	l1	l2	For angeled ball joints DIN 71802 Size (d1)	⚖
GN 710-12	12	5.5	4.5	1.5	8	1
GN 710-13,5	13.5	7	6.5	3.5	10	1
GN 710-17,5	17.5	8.5	7.5	3.5	13	1
GN 710-22	22	10.5	8.5	4.5	16	2
GN 710-25,5	25.5	12.5	12.5	7	19	2

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GN 782

Axial ball joints

SPECIFICATION

Types

- Type **KS**: Ball with male thread
- Type **KI**: Ball with female thread

Identification No.

- No. **1**: Mounting socket with female thread
- No. **2**: Mounting socket with male thread

Steel
zinc plated, blue passivated

Brake piece
Technopolymer (Polyamide PA)



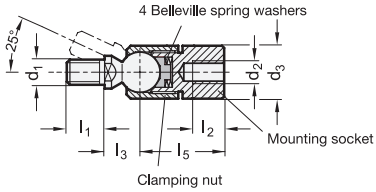
INFORMATION

The clamping nut of the axial ball joints GN 782 can be set to give a required thrust on the Belleville spring washers in order to increase the resistance to the ball movement.
At the same time the Belleville spring washers act as safety washers for the screws.
Once the max. thrust to the Belleville spring washers is reached the ball arm is firmly immobilised in position over the clamping nut and screw.

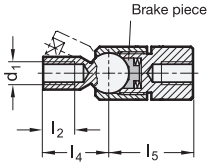
TECHNICAL INFORMATION

- Plastic characteristics (see page A2)

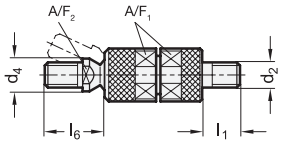
Version **KS-1**



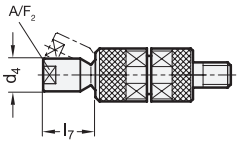
Version **KI-1**



Version **KS-2**



Version **KI-2**



GN 782

Description	d1	d2	d3	d4	l1	l2	l3	l4	l5 +1.0/-0.3	l6 ≈	l7 ≈	A/F 1	A/F 2	recommended tightening torque in Nm≈	⚖
GN 782-M6-KS-1	M 6	M 6	17	8.5	10	8	11	20	25	16.8	16	15	7	15	46
GN 782-M6-KI-1	M 6	M 6	17	8.5	10	8	11	20	25	16.8	16	15	7	15	46
GN 782-M8-KS-1	M 8	M 8	19	11	12	10	12.5	23	29.5	19.5	18	17	9	20	68
GN 782-M8-KI-1	M 8	M 8	19	11	12	10	12.5	23	29.5	19.5	18	17	9	20	67
GN 782-M10-KS-1	M 10	M 10	21	13	15	12	14	26	33.5	23.5	20	19	11	35	95
GN 782-M10-KI-1	M 10	M 10	21	13	15	12	14	26	33.5	23.5	20	19	11	35	95
GN 782-M12-KS-1	M 12	M 12	28	16	18	15	20	34	44	27.7	28	25	14	45	220
GN 782-M12-KI-1	M 12	M 12	28	16	18	15	20	34	44	27.7	28	25	14	45	220
GN 782-M6-KS-2	M 6	M 6	17	8.5	10	8	11	20	25	16.8	16	15	7	15	50
GN 782-M6-KI-2	M 6	M 6	17	8.5	10	8	11	20	25	16.8	16	15	7	15	50
GN 782-M8-KS-2	M 8	M 8	19	11	12	10	12.5	23	29.5	19.5	18	17	9	20	76
GN 782-M8-KI-2	M 8	M 8	19	11	12	10	12.5	23	29.5	19.5	18	17	9	20	75
GN 782-M10-KS-2	M 10	M 10	21	13	15	12	14	26	33.5	23.5	20	19	11	35	110
GN 782-M10-KI-2	M 10	M 10	21	13	15	12	14	26	33.5	23.5	20	19	11	35	108
GN 782-M12-KS-2	M 12	M 12	28	16	18	15	20	34	44	27.7	28	25	14	45	252
GN 782-M12-KI-2	M 12	M 12	28	16	18	15	20	34	44	27.7	28	25	14	45	252

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Swivel ball joints

Aluminum

SPECIFICATION

Types

- Type **A**: Ball with female thread
- Type **B**: Ball with male thread

Identification no.

- No. **1**: Clamping with adjustable hand lever (only for d_1 = 39 and 49)
- No. **2**: Clamping set with screw

Housing
Aluminum
anodized black **ELS**

Base plate, ball
Aluminium, blank

Adjustable hand lever (Identification no. 1)

- Zinc die casting, plastic coated, silver RAL 9006, textured finish
- Threaded stud and retaining screw, Stainless Steel AISI 303

Set screw (Identification no. 2)
Stainless Steel AISI 304



INFORMATION

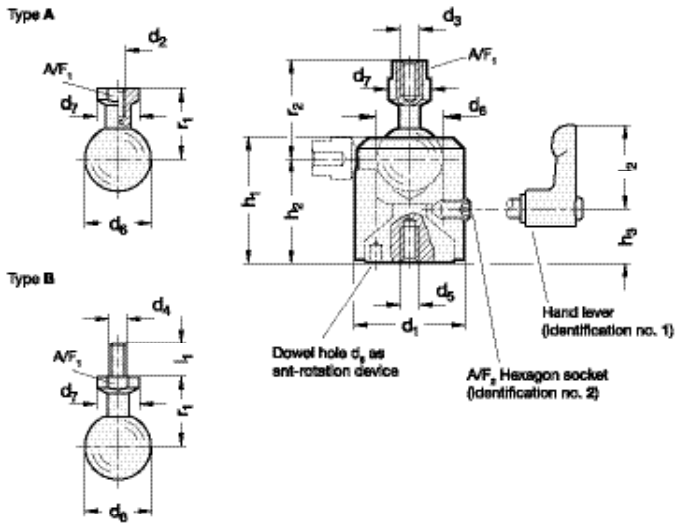
GN 784 swivel ball joints allow precise and variable adjustment of the ball pivot within the rotation range. This is a particular advantage when adjusting scanners, cameras, lighting, monitors, etc.
Thanks to the efficient clamping mechanism, only small amounts of torque on the clamping screw result in comparatively strong clamping pressure on the ball. This force is easily applied by the clamping lever (Identification no. 1).
The ball joint can be mounted from below with the d_4 internal thread or together with the GN 784.1 (see page 1162) flange, available as an accessory, using three through-holes from above.
For a permanent high stop torque, the contact surfaces of the balls must be kept free of grease. Exceeding the recommended tightening torque increases the securing of the ball joint in its end position, but may result in increased wear and potential failure of the clamping mechanism.

ON REQUEST

- Clamping with star knob DIN 6335 (see page 234)

TECHNICAL INFORMATION

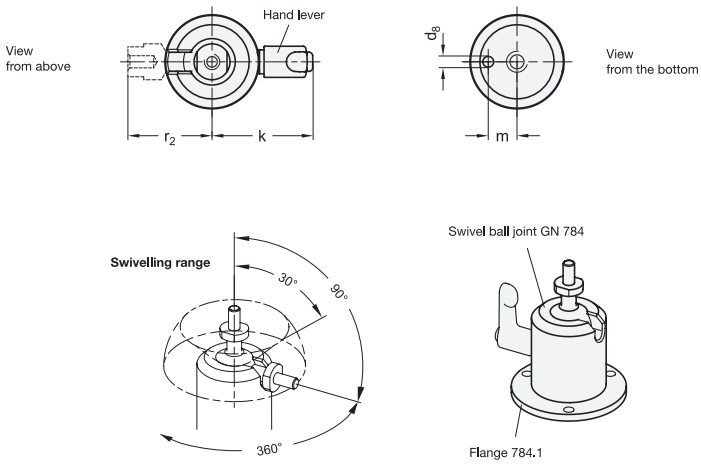
- Stainless Steel characteristics (see page A26)



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GN 784

Swivel ball joints



GN 784

Description	d1	d2	r1	d3	r2	d4	l1	d5	d6	d7	d8	h1	h2	h3	k	l2	m	A/F 1	A/F 2	Tigh-tening torque in Nm ≈	Stop torque on the ball in Nm≈	⚖
GN 784-23-M4-A-2-ELS	23	M 4*	17.3	-	-	-	-	M 5***	14	11	2.5	26.6	21.7	10.6	-	-	7	9	2.5	1.5	4.5	30
GN 784-23-M5-A-2-ELS	23	-	-	M 5**	24.8	-	-	M 5***	14	11	2.5	26.6	21.7	10.6	-	-	7	9	2.5	1.5	4.5	35
GN 784-23-1/4-A-2-ELS	23	-	-	1/4**	24.8	-	-	M 5***	14	11	2.5	26.6	21.7	10.6	-	-	7	9	2.5	1.5	4.5	30
GN 784-31-M5-A-2-ELS	31	M 5*	21.5	-	-	-	-	M 6***	18	14	3.5	35.5	29.6	14.9	-	-	9	12	3	2.5	6.5	70
GN 784-31-M6-A-2-ELS	31	-	-	M 6**	32.5	-	-	M 6***	18	14	3.5	35.5	29.6	14.9	-	-	9	12	3	2.5	6.5	70
GN 784-31-1/4-A-2-ELS	31	-	-	1/4**	32.5	-	-	M 6***	18	14	3.5	35.5	29.6	14.9	-	-	9	12	3	2.5	6.5	73
GN 784-39-M5-A-1-ELS	39	M 5*	25.5	-	-	-	-	M 8***	24	15	4.5	45	37.2	18.9	44	30	12	13	-	4	16	159
GN 784-39-M5-A-2-ELS	39	M 5*	25.5	-	-	-	-	M 8***	24	15	4.5	45	37.2	18.9	-	-	12	13	4	4	16	159
GN 784-39-M6-A-1-ELS	39	-	-	M 6**	36.2	-	-	M 8***	24	15	4.5	45	37.2	18.9	44	30	12	13	-	4	16	164
GN 784-39-M6-A-2-ELS	39	-	-	M 6**	36.2	-	-	M 8***	24	15	4.5	45	37.2	18.9	-	-	12	13	4	4	16	150
GN 784-39-M8-A-1-ELS	39	-	-	M 8**	40.5	-	-	M 8***	24	15	4.5	45	37.2	18.9	44	30	12	13	-	4	16	165
GN 784-39-M8-A-2-ELS	39	-	-	M 8**	40.5	-	-	M 8***	24	15	4.5	45	37.2	18.9	-	-	12	13	4	4	16	130
GN 784-39-3/8-A-1-ELS	39	-	-	3/8***	40.5	-	-	M 8***	24	15	4.5	45	37.2	18.9	44	30	12	13	-	4	16	133
GN 784-39-3/8-A-2-ELS	39	-	-	3/8***	40.5	-	-	M 8***	24	15	4.5	45	37.2	18.9	-	-	12	13	4	4	16	128
GN 784-49-M8-A-1-ELS	49	M 8*	30.8	-	-	-	-	M 8***	28	19.5	4.5	56	46.1	24	49	30	16	17	-	4	20	285
GN 784-49-M8-A-2-ELS	49	M 8*	30.8	-	-	-	-	M 8***	28	19.5	4.5	56	46.1	24	-	-	16	17	4	4	20	260
GN 784-49-3/8-A-1-ELS	49	-	-	3/8***	44.8	-	-	M 8***	28	19.5	4.5	56	46.1	24	49	30	16	17	-	4	20	290
GN 784-49-3/8-A-2-ELS	49	-	-	3/8***	44.8	-	-	M 8***	28	19.5	4.5	56	46.1	24	-	-	16	17	4	4	20	274
GN 784-49-M10-A-1-ELS	49	-	-	M 10**	51.8	-	-	M 8***	28	19.5	4.5	56	46.1	24	49	30	16	17	-	4	20	300
GN 784-49-M10-A-2-ELS	49	-	-	M 10**	51.8	-	-	M 8***	28	19.5	4.5	56	46.1	24	-	-	16	17	4	4	20	275
GN 784-23-M5-B-2-ELS	23	-	17.3	-	-	M 5	8	M 5***	14	11	2.5	26.6	21.7	10.6	-	-	7	9	2.5	1.5	4.5	32
GN 784-23-M6-B-2-ELS	23	-	17.3	-	-	M 6	10	M 5***	14	11	2.5	26.6	21.7	10.6	-	-	7	9	2.5	1.5	4.5	40
GN 784-23-1/4-B-2-ELS	23	-	17.3	-	-	1/4	10	M 5***	14	11	2.5	26.6	21.7	10.6	-	-	7	9	2.5	1.5	4.5	29
GN 784-31-M6-B-2-ELS	31	-	21.5	-	-	M 6	10	M 6***	18	14	3.5	35.5	29.6	14.9	-	-	9	12	3	2.5	6.5	80
GN 784-31-M8-B-2-ELS	31	-	21.5	-	-	M 8	12	M 6***	18	14	3.5	35.5	29.6	14.9	-	-	9	12	3	2.5	6.5	80
GN 784-31-1/4-B-2-ELS	31	-	21.5	-	-	1/4	10	M 6***	18	14	3.5	35.5	29.6	14.9	-	-	9	12	3	2.5	6.5	70
GN 784-39-M6-B-1-ELS	39	-	25.5	-	-	M 6	10	M 8***	24	15	4.5	45	37.2	18.9	44	30	12	13	-	4	16	160
GN 784-39-M6-B-2-ELS	39	-	25.5	-	-	M 6	10	M 8***	24	15	4.5	45	37.2	18.9	-	-	12	13	4	4	16	130
GN 784-39-M8-B-1-ELS	39	-	25.5	-	-	M 8	12	M 8***	24	15	4.5	45	37.2	18.9	44	30	12	13	-	4	16	161
GN 784-39-M8-B-2-ELS	39	-	25.5	-	-	M 8	12	M 8***	24	15	4.5	45	37.2	18.9	-	-	12	13	4	4	16	160
GN 784-39-3/8-B-1-ELS	39	-	25.5	-	-	3/8	12	M 8***	24	15	4.5	45	37.2	18.9	44	30	12	13	-	4	16	165
GN 784-39-3/8-B-2-ELS	39	-	25.5	-	-	3/8	12	M 8***	24	15	4.5	45	37.2	18.9	-	-	12	13	4	4	16	165
GN 784-49-M8-B-1-ELS	49	-	30.8	-	-	M 8	12	M 8***	28	19.5	4.5	56	46.1	24	49	30	16	17	-	4	20	289
GN 784-49-M8-B-2-ELS	49	-	30.8	-	-	M 8	12	M 8***	28	19.5	4.5	56	46.1	24	-	-	16	17	4	4	20	287
GN 784-49-M10-B-1-ELS	49	-	30.8	-	-	M 10	15	M 8***	28	19.5	4.5	56	46.1	24	49	30	16	17	-	4	20	290
GN 784-49-M10-B-2-ELS	49	-	30.8	-	-	M 10	15	M 8***	28	19.5	4.5	56	46.1	24	-	-	16	17	4	4	20	264
GN 784-49-3/8-B-1-ELS	49	-	30.8	-	-	3/8	12	M 8***	28	19.5	4.5	56	46.1	24	49	30	16	17	-	4	20	294
GN 784-49-3/8-B-2-ELS	49	-	30.8	-	-	3/8	12	M 8***	28	19.5	4.5	56	46.1	24	-	-	16	17	4	4	20	294

*usable depth of thread min. 1.5 x d_2 | ** usable depth of thread min. 1.5 x d_3 | *** usable depth of thread min. 1.5 x d_5

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GN 784.1

Flanges

for mounting clamps with swivel ball joint GN 784

SPECIFICATION

Stainless Steel AISI 304
matte, tumbled finish **MT**

Countersunk screw DIN 7991
Stainless Steel AISI 304

Half-length tapered groove pin DIN 8745
Stainless Steel AISI 304

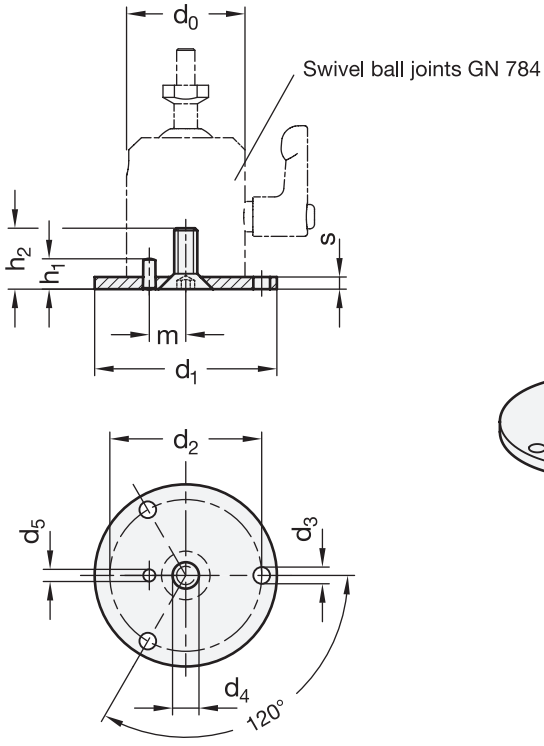
INFORMATION

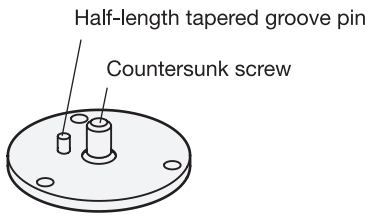
The GN 784.1 flanges are mounted from below into the GN 784 swivel ball joints (see page 1160). A half-length tapered groove pin prevents any rotation.
The flange enables the swivel ball joints to be mounted on the upper surface. The d_2 section with the three d_3 drill holes is configured so that standard screws with washers can be used.
The half-length tapered groove pin is mounted on the flange. The countersunk screw is included separately.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)







GN 784.1 **STAINLESS STEEL**

Description	d0	d1	d2	d3	d4	d5	h1	h2	m	s	⚖
GN 784.1-42-MT	23	42	32.5	4.5	M5	2	6	8.5	7	2.5	29
GN 784.1-49-MT	31	49	40	4.5	M6	3	6	10.5	9	3	46
GN 784.1-60-MT	39	60	50	5.5	M8	4	10	14.6	12	4	91
GN 784.1-70-MT	49	70	60	5.5	M8	4	10	14.6	16	4	122

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GN 240

Quick-fit couplings

with radial off-set compensation

SPECIFICATION

Types

- Type **A**: with male thread
- Type **B**: with female thread

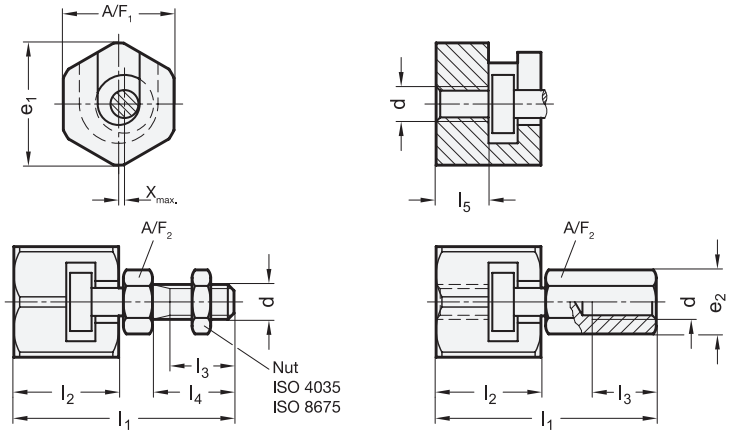
Steel

- tempered
- phosphated



INFORMATION

Quick-fit couplings GN 240 have been designed for the purpose of compensating a radial shaft off-set (x). A typical application is the axial link to a piston rod of a cylinder operating in any type of fixture or system.
The coupling is **not** designed for the transfer of torque.



GN 240

Description	d	e1	e2 ≈	l1 ≈	l2	l3 min.	l4	l5 +1.0	A/F 1	A/F 2	x	Max. pull-/ push load in kN	⚖
GN 240-M6-A	M6	21	11	37.5	18	11	14	9	19	10	0.6	2.5	42
GN 240-M8-A	M8	26	14,5	45	22.5	13.5	17	11.5	24	13	0.7	4.5	84
GN 240-M10-A	M10	30	19	56	29	16	20	16	27	17	0.7	6.5	144
GN 240-M10x1,25-A	M10x1.25	30	19	56	29	16	20	16	27	17	0.7	6.5	144
GN 240-M12-A	M12	32.5	21	66.5	34	21	25	17	30	19	0.8	10	205
GN 240-M12x1,25-A	M12x1.25	32.5	21	66.5	34	21	25	17	30	19	0.8	10	205
GN 240-M16-A	M16	39	27	83	42	25	30	23	36	24	1	18	384
GN 240-M16x1,5-A	M16x1.5	39	27	83	42	25	30	23	36	24	1	18	385
GN 240-M20-A	M20	44	34	93.5	45.5	29	35	23.5	41	30	1	30	568
GN 240-M20x1,5-A	M20x1.5	44	34	93.5	45.5	29	35	23.5	41	30	1	30	568
GN 240-M6-B	M6	21	11	37.5	18	11	14	9	19	10	0.6	2.5	45
GN 240-M8-B	M8	26	14,5	45	22.5	13.5	17	11.5	24	13	0.7	4.5	89
GN 240-M10-B	M10	30	19	56	29	16	20	16	27	17	0.7	6.5	155
GN 240-M10x1,25-B	M10x1.25	30	19	56	29	16	20	16	27	17	0.7	6.5	155
GN 240-M12-B	M12	32.5	21	66.5	34	21	25	17	30	19	0.8	10	220
GN 240-M12x1,25-B	M12x1.25	32.5	21	66.5	34	21	25	17	30	19	0.8	10	220
GN 240-M16-B	M16	39	27	83	42	25	30	23	36	24	1	18	397
GN 240-M16x1,5-B	M16x1.5	39	27	83	42	25	30	23	36	24	1	18	398
GN 240-M20-B	M20	44	34	93.5	45.5	29	35	23.5	41	30	1	30	599
GN 240-M20x1,5-B	M20x1.5	44	34	93.5	45.5	29	35	23.5	41	30	1	30	594

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Quick-fit couplings

with radial off-set compensation

SPECIFICATION

Types

- Type **A**: with male thread
- Type **B**: with female thread

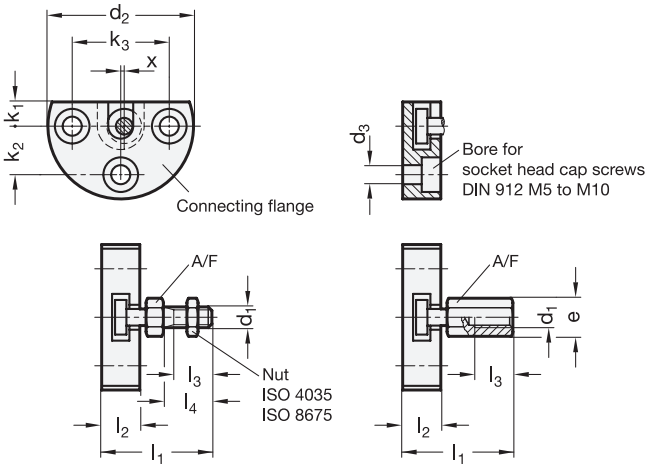
Steel

- tempered
- phosphated

INFORMATION

Quick-fit couplings GN 240.1 have been designed for the purpose of compensating a radial shaft off-set (x). A typical application is the axial link to a piston rod of a cylinder operating in any type of fixture or system.
The coupling is **not** designed for the transfer of torque.





GN 240.1

Description	d1	d2	d3	e ≈	k1	k2	k3	l1 ≈	l2	l3 min.	l4	A/F	x Max. shaft off set	Max. pull-/ push load in kN	⚖
GN 240.1-M6-A	M6	42	5.5	-	7	14	28	30.5	11	11	14	10	0.6	2.5	73
GN 240.1-M8-A	M8	48	6.5	-	8	16	32	35.5	13	13.5	17	13	0.7	4.5	116
GN 240.1-M10-A	M10	50	6.5	-	9	17	34	43	16	16	20	17	0.7	6.5	173
GN 240.1-M10x1,25-A	M10x1.25	50	6.5	-	9	17	34	43	16	16	20	17	0.7	6.5	174
GN 240.1-M12-A	M12	55	6.5	-	10	19	38	53	20.5	21	25	19	0.8	10	261
GN 240.1-M12x1,25-A	M12x1.25	55	6.5	-	10	19	38	53	20.5	21	25	19	0.8	10	262
GN 240.1-M16-A	M16	65	9	-	12.5	22.5	45	64	23	25	30	24	1	18	431
GN 240.1-M16x1,5-A	M16x1.5	65	9	-	12.5	22.5	45	64	23	25	30	24	1	18	433
GN 240.1-M20-A	M20	80	11	-	17	28	56	74	26	29	35	30	1	30	815
GN 240.1-M20x1,5-A	M20x1.5	80	11	-	17	28	56	74	26	29	35	30	1	30	816
GN 240.1-M6-B	M6	42	5.5	11	7	14	28	30.5	11	11	-	10	0.6	2.5	76
GN 240.1-M8-B	M8	48	6.5	14.5	8	16	32	35.5	13	13.5	-	13	0.7	4.5	122
GN 240.1-M10-B	M10	50	6.5	19	9	17	34	43	16	15	-	17	0.7	6.5	184
GN 240.1-M10x1,25-B	M10x1.25	50	6.5	19	9	17	34	43	16	15	-	17	0.7	6.5	184
GN 240.1-M12-B	M12	55	6.5	21	10	19	38	53	20.5	17.5	-	19	0.8	10	276
GN 240.1-M12x1,25-B	M12x1.25	55	6.5	21	10	19	38	53	20.5	17.5	-	19	0.8	10	276
GN 240.1-M16-B	M16	65	9	27	12.5	22.5	45	64	23	22	-	24	1	18	449
GN 240.1-M16x1,5-B	M16x1.5	65	9	27	12.5	22.5	45	64	23	22	-	24	1	18	449
GN 240.1-M20-B	M20	80	11	34	17	28	56	74	26	25	-	30	1	30	845
GN 240.1-M20x1,5-B	M20x1.5	80	11	34	17	28	56	74	26	25	-	30	1	30	845

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GN 240.2

Quick-fit couplings

with angle- and radial off-set compensation

SPECIFICATION

Steel

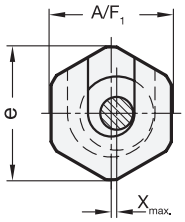
- tempered
- phosphated

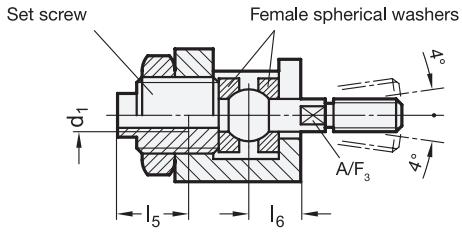
Retaining ring (spring)
Stainless Steel AISI 631

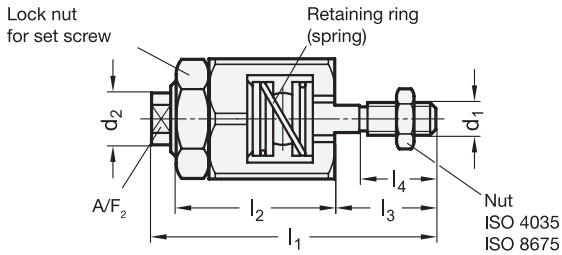
INFORMATION

Quick-fit couplings GN 240.2 have been designed to compensate a **radial** and **angular** off-set. Furthermore they are axially freely adjustable via the set screw.
A typical application is the axial link to a piston rod of a cylinder operating in any type of fixture or system.
The coupling is renowned by its very compact construction without any loose components.
It is **not** designed for the transfer of torque.





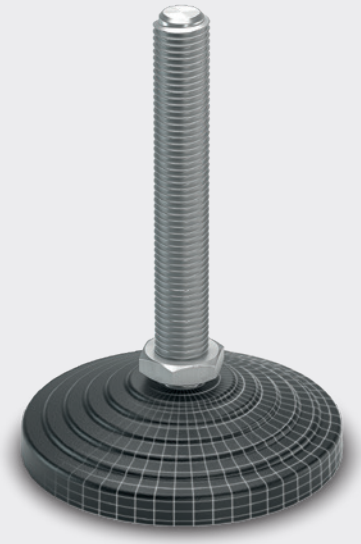




GN 240.2

Description	d1	d2	e	l1 ≈	l2	l3	l4	l5 min.	l6	A/F 1	A/F 2	A/F 3	x	Max. pull-/ push load in kN	⚖
GN 240.2-M6	M6	9.5	24.5	52	29	18.5	14	13	9.5	22	8	5	0.6	2.5	75
GN 240.2-M8	M8	15	30	63	33	23.5	18	16	11.5	27	13	7	0.7	4.5	135
GN 240.2-M10	M10	21	44	81	43	30.5	22	24	16	41	18	12	0.7	6.5	400
GN 240.2-M10x1,25	M10x1.25	21	44	81	43	30.5	22	24	16	41	18	12	0.7	6.5	403
GN 240.2-M12	M12	21	44	85	43	34.5	26	24	16	41	18	12	0.8	10	405
GN 240.2-M12x1,25	M12x1.25	21	44	85	43	34.5	26	24	16	41	18	12	0.8	10	409
GN 240.2-M16	M16	32	60	121	62	45	34	34	26	55	27	18	1	18	1090
GN 240.2-M16x1,5	M16x1.5	32	60	121	62	45	34	34	26	55	27	18	1	18	1094
GN 240.2-M20	M20	32	60	129	62	53	42	34	26	55	27	18	1	30	1136
GN 240.2-M20x1,5	M20x1.5	32	60	129	62	53	42	34	26	55	27	18	1	30	1143

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DESIGNED
FOR ENGINEERING

11 Levelling elements



Levelling elements

Bearing end caps

Supports and guides

Levelling elements

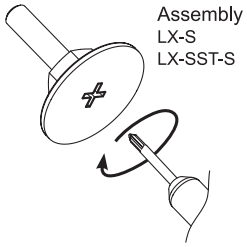
Technopolymer base, steel or stainless steel stem

BASE
Polyamide based (PA) technopolymer with adjusting hexagon, black colour, matte finish.

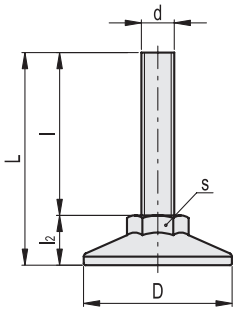
STANDARD EXECUTIONS
- **LX**: zinc-plated steel threaded stem.
- **LX-S**: zinc-plated steel threaded stem, base with screwdriver slot.
- **LX-SST**: AISI 304 stainless steel threaded stem.
- **LX-SST-S**: AISI 304 stainless steel threaded stem, base with screwdriver slot.

TECHNICAL DATA
It's the user's responsibility to determine whether the product is suitable for the intended purpose according to the actual conditions of use.

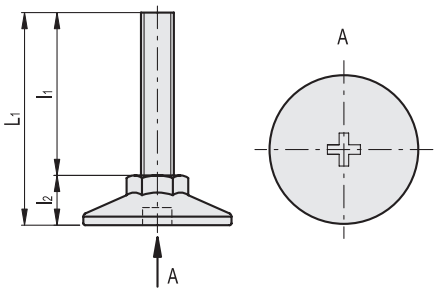




LX.
LX-SST



LX-S
LX-SST-S



LX **LX-S**

Code	Description	Code	Description	D	d	L	L1	l	l2	s	Max. limit static load* [N]	⚖
431001	LX.25-SW13-M6x24	431001-S	LX.25-SW13-M6x26-S	25	M6	35	37	24	11	13	1500	8
431003	LX.25-SW13-M6x34	431003-S	LX.25-SW13-M6x36-S	25	M6	45	47	34	11	13	1500	10
431005	LX.25-SW13-M6x54	431005-S	LX.25-SW13-M6x56-S	25	M6	65	67	54	11	13	1500	14
431007	LX.25-SW13-M6x62	431007-S	LX.25-SW13-M6x64-S	25	M6	73	75	62	11	13	1500	16
431011	LX.25-SW13-M8x17	431011-S	LX.25-SW13-M8x19-S	25	M8	28	30	17	11	13	2500	10
431013	LX.25-SW13-M8x22	431013-S	LX.25-SW13-M8x24-S	25	M8	33	35	22	11	13	2500	12
431015	LX.25-SW13-M8x32	431015-S	LX.25-SW13-M8x32-S	25	M8	43	45	32	11	13	2500	14
431017	LX.25-SW13-M8x52	431017-S	LX.25-SW13-M8x54-S	25	M8	63	65	52	11	13	2500	18
431019	LX.25-SW13-M8x72	431019-S	LX.25-SW13-M8x74-S	25	M8	83	85	72	11	13	2500	22

***** The max static load is the value above which the load applied to the element may cause some plastic material breakage, in particular conditions of use. Obviously, a factor that takes into consideration the importance and the safety level of the specific application must be applied to this value.

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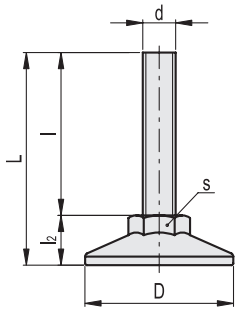
LX LX-S

Code	Description	Code	Description	D	d	L	L1	l	l2	s	Max. limit static load* [N]	⚖
431051	LX.30-SW17-M6x22	431051-S	LX.30-SW17-M6x24-S	30	M6	34	36	22	12	17	1500	14
431053	LX.30-SW17-M6x32	431053-S	LX.30-SW17-M6x34-S	30	M6	44	46	32	12	17	1500	16
431055	LX.30-SW17-M6x52	431055-S	LX.30-SW17-M6x54-S	30	M6	64	66	52	12	17	1500	20
431057	LX.30-SW17-M8x16	431057-S	LX.30-SW17-M8x18-S	30	M8	28	30	16	12	17	2500	17
431059	LX.30-SW17-M8x21	431059-S	LX.30-SW17-M8x23-S	30	M8	33	35	21	12	17	2500	18
431061	LX.30-SW17-M8x31	431061-S	LX.30-SW17-M8x33-S	30	M8	43	45	31	12	17	2500	20
431063	LX.30-SW17-M8x51	431063-S	LX.30-SW17-M8x53-S	30	M8	63	65	51	12	17	2500	24
431065	LX.30-SW17-M8x71	431065-S	LX.30-SW17-M8x73-S	30	M8	83	85	71	12	17	2500	28
431067	LX.30-SW17-M10x16	431067-S	LX.30-SW17-M10x18-S	30	M10	28	30	16	12	17	3000	21
431069	LX.30-SW17-M10x21	431069-S	LX.30-SW17-M10x23-S	30	M10	33	35	21	12	17	3000	22
431071	LX.30-SW17-M10x31	431071-S	LX.30-SW17-M10x33-S	30	M10	43	45	31	12	17	3000	24
431073	LX.30-SW17-M10x41	431073-S	LX.30-SW17-M10x43-S	30	M10	53	55	41	12	17	3000	26
431075	LX.30-SW17-M10x51	431075-S	LX.30-SW17-M10x53-S	30	M10	63	65	51	12	17	3000	28
431077	LX.30-SW17-M10x61	431077-S	LX.30-SW17-M10x63-S	30	M10	73	75	61	12	17	3000	30
431079	LX.30-SW17-M10x71	431079-S	LX.30-SW17-M10x73-S	30	M10	83	85	71	12	17	3000	32
431031	LX.40-SW17-M8x12	431031-S	LX.40-SW17-M8x14-S	40	M8	24.5	26.5	11.5	13	17	2500	20
431033	LX.40-SW17-M8x20	431033-S	LX.40-SW17-M8x22-S	40	M8	32.5	34.5	19.5	13	17	2500	22
431035	LX.40-SW17-M8x30	431035-S	LX.40-SW17-M8x32-S	40	M8	42.5	44.5	29.5	13	17	2500	24
431037	LX.40-SW17-M8x50	431037-S	LX.40-SW17-M8x52-S	40	M8	62.5	64.5	49.5	13	17	2500	26
431039	LX.40-SW17-M8x70	431039-S	LX.40-SW17-M8x72-S	40	M8	82.5	84.5	69.5	13	17	2500	29
431041	LX.40-SW17-M10x20	431041-S	LX.40-SW17-M10x22-S	40	M10	32.5	34.5	19.5	13	17	3000	24
431042	LX.40-SW17-M10x30	431042-S	LX.40-SW17-M10x32-S	40	M10	42.5	44.5	29.5	13	17	3000	26
431043	LX.40-SW17-M10x40	431043-S	LX.40-SW17-M10x42-S	40	M10	52.5	54.5	39.5	13	17	3000	28
431044	LX.40-SW17-M10x50	431044-S	LX.40-SW17-M10x52-S	40	M10	62.5	64.5	49.5	13	17	3000	31
431045	LX.40-SW17-M10x60	431045-S	LX.40-SW17-M10x62-S	40	M10	72.5	74.5	59.5	13	17	3000	34
431046	LX.40-SW17-M10x70	431046-S	LX.40-SW17-M10x72-S	40	M10	82.5	84.5	69.5	13	17	3000	37
431049	LX.40-SW17-M10x100	431049-S	LX.40-SW17-M10x102-S	40	M10	112.5	114.5	99.5	13	17	3000	46
431047	LX.40-SW17-M12x50	431047-S	LX.40-SW17-M12x52-S	40	M12	62.5	64.5	49.5	13	17	5000	34
431048	LX.40-SW17-M12x70	431048-S	LX.40-SW17-M12x72-S	40	M12	82.5	84.5	69.5	13	17	5000	40
431050	LX.40-SW17-M12x100	431050-S	LX.40-SW17-M12x102-S	40	M12	112.5	114.5	99.5	13	17	5000	50
431081	LX.50-SW19-M10x46	431081-S	LX.50-SW19-M10x48-S	50	M10	62.5	64.5	45.5	17	19	3000	64
431082	LX.50-SW19-M10x66	431082-S	LX.50-SW19-M10x68-S	50	M10	82.5	84.5	65.5	17	19	3000	68
431083	LX.50-SW19-M10x96	431083-S	LX.50-SW19-M10x98-S	50	M10	112.5	114.5	95.5	17	19	3000	75
431084	LX.50-SW19-M12x46	431084-S	LX.50-SW19-M12x48-S	50	M12	62.5	64.5	45.5	17	19	5000	67
431085	LX.50-SW19-M12x66	431085-S	LX.50-SW19-M12x68-S	50	M12	82.5	84.5	65.5	17	19	5000	72
431086	LX.50-SW19-M12x96	431086-S	LX.50-SW19-M12x98-S	50	M12	112.5	114.5	95.5	17	19	5000	79
431091	LX.60-SW24-M12x44	431091-S	LX.60-SW24-M12x46-S	60	M12	62.5	64.5	43.5	19	24	5000	67
431092	LX.60-SW24-M12x64	431092-S	LX.60-SW24-M12x66-S	60	M12	82.5	84.5	63.5	19	24	5000	73
431093	LX.60-SW24-M12x94	431093-S	LX.60-SW24-M12x96-S	60	M12	112.5	114.5	93.5	19	24	5000	82
431094	LX.60-SW24-M16x64	431094-S	LX.60-SW24-M16x66-S	60	M16	82.5	84.5	63.5	19	24	7500	102
431095	LX.60-SW24-M16x104	431095-S	LX.60-SW24-M16x106-S	60	M16	122.5	124.5	103.5	19	24	7500	132
431096	LX.60-SW24-M16x144	431096-S	LX.60-SW24-M16x146-S	60	M16	162.5	164.5	143.5	19	24	7500	156

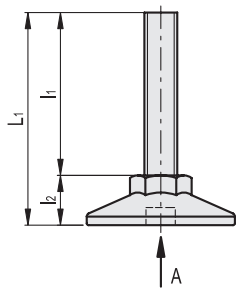
***** The max static load is the value above which the load applied to the element may cause some plastic material breakage, in particular conditions of use. Obviously, a factor that takes into consideration the importance and the safety level of the specific application must be applied to this value.

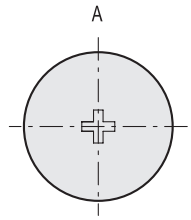
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LX.
LX-SST



LX-S
LX-SST-S





LX-SST **LX-SST-S** **STAINLESS STEEL**

Code	Description	Code	Description	D	d	L	L1	l	l2	s	Max. limit static load* [N]	⚖
431101	LX.25-SW13-SST-M6x24	431101-S	LX.25-SW13-SST-M6x26-S	25	M6	35	37	24	11	13	1500	8
431103	LX.25-SW13-SST-M6x34	431103-S	LX.25-SW13-SST-M6x36-S	25	M6	45	47	34	11	13	1500	10
431105	LX.25-SW13-SST-M6x54	431105-S	LX.25-SW13-SST-M6x56-S	25	M6	65	67	54	11	13	1500	14
431113	LX.25-SW13-SST-M8x22	431113-S	LX.25-SW13-SST-M8x24-S	25	M8	35	37	24	11	13	2500	16
431115	LX.25-SW13-SST-M8x32	431115-S	LX.25-SW13-SST-M8x34-S	25	M8	43	45	32	11	13	2500	10
431117	LX.25-SW13-SST-M8x52	431117-S	LX.25-SW13-SST-M8x54-S	25	M8	63	65	52	11	13	2500	12
431151	LX.30-SW17-SST-M6x22	431151-S	LX.30-SW17-SST-M6x24-S	30	M6	34	36	22	12	17	1500	14
431153	LX.30-SW17-SST-M6x32	431153-S	LX.30-SW17-SST-M6x34-S	30	M6	44	46	32	12	17	1500	18
431155	LX.30-SW17-SST-M6x52	431155-S	LX.30-SW17-SST-M6x54-S	30	M6	64	66	52	12	17	1500	22
431159	LX.30-SW17-SST-M8x21	431159-S	LX.30-SW17-SST-M8x23-S	30	M8	33	35	21	12	17	2500	14
431161	LX.30-SW17-SST-M8x31	431161-S	LX.30-SW17-SST-M8x33-S	30	M8	43	45	31	12	17	2500	16
431163	LX.30-SW17-SST-M8x51	431163-S	LX.30-SW17-SST-M8x53-S	30	M8	63	65	51	12	17	2500	20
431171	LX.30-SW17-SST-M10x31	431171-S	LX.30-SW17-SST-M10x33-S	30	M10	43	45	31	12	17	3000	17
431175	LX.30-SW17-SST-M10x51	431175-S	LX.30-SW17-SST-M10x53-S	30	M10	63	65	51	12	17	3000	18
431179	LX.30-SW17-SST-M10x71	431179-S	LX.30-SW17-SST-M10x73-S	30	M10	83	85	71	12	17	3000	20
431133	LX.40-SW17-SST-M8x20	431133-S	LX.40-SW17-SST-M8x22-S	40	M8	32.5	34.5	19.5	13	17	2500	24
431135	LX.40-SW17-SST-M8x30	431135-S	LX.40-SW17-SST-M8x32-S	40	M8	42.5	44.5	29.5	13	17	2500	28
431137	LX.40-SW17-SST-M8x50	431137-S	LX.40-SW17-SST-M8x52-S	40	M8	62.5	64.5	49.5	13	17	2500	21
431142	LX.40-SW17-SST-M10x30	431142-S	LX.40-SW17-SST-M10x32-S	40	M10	42.5	44.5	29.5	13	17	3000	22
431144	LX.40-SW17-SST-M10x50	431144-S	LX.40-SW17-SST-M10x52-S	40	M10	62.5	64.5	49.5	13	17	3000	24
431146	LX.40-SW17-SST-M10x70	431146-S	LX.40-SW17-SST-M10x72-S	40	M10	82.5	84.5	69.5	13	17	3000	26
431148	LX.40-SW17-SST-M12x50	431148-S	LX.40-SW17-SST-M12x52-S	40	M12	62.5	64.5	49.5	13	17	5000	34
431149	LX.40-SW17-SST-M12x70	431149-S	LX.40-SW17-SST-M12x72-S	40	M12	82.5	84.5	69.5	13	17	5000	40
431150	LX.40-SW17-SST-M12x100	431150-S	LX.40-SW17-SST-M12x102-S	40	M12	112.5	114.5	99.5	13	17	5000	50
431181	LX.50-SW19-SST-M10x46	431181-S	LX.50-SW19-SST-M10x48-S	50	M10	62.5	64.5	45.5	17	19	3000	64
431182	LX.50-SW19-SST-M10x66	431182-S	LX.50-SW19-SST-M10x68-S	50	M10	82.5	84.5	65.5	17	19	3000	68
431183	LX.50-SW19-SST-M10x96	431183-S	LX.50-SW19-SST-M10x98-S	50	M10	112.5	114.5	95.5	17	19	3000	75
431184	LX.50-SW19-SST-M12x46	431184-S	LX.50-SW19-SST-M12x48-S	50	M12	62.5	64.5	45.5	17	19	5000	67
431185	LX.50-SW19-SST-M12x66	431185-S	LX.50-SW19-SST-M12x68-S	50	M12	82.5	84.5	65.5	17	19	5000	72
431186	LX.50-SW19-SST-M12x96	431186-S	LX.50-SW19-SST-M12x98-S	50	M12	112.5	114.5	95.5	17	19	5000	79
431191	LX.60-SW24-SST-M12x44	431191-S	LX.60-SW24-SST-M12x46-S	60	M12	62.5	64.5	43.5	19	24	5000	67
431192	LX.60-SW24-SST-M12x64	431192-S	LX.60-SW24-SST-M12x66-S	60	M12	82.5	84.5	63.5	19	24	5000	73
431193	LX.60-SW24-SST-M12x94	431193-S	LX.60-SW24-SST-M12x96-S	60	M12	112.5	114.5	93.5	19	24	5000	82
431194	LX.60-SW24-SST-M16x64	431194-S	LX.60-SW24-SST-M16x66-S	60	M16	82.5	84.5	63.5	19	24	7500	102
431195	LX.60-SW24-SST-M16x104	431195-S	LX.60-SW24-SST-M16x106-S	60	M16	122.5	124.5	103.5	19	24	7500	132
431196	LX.60-SW24-SST-M16x144	431196-S	LX.60-SW24-SST-M16x146-S	60	M16	162.5	164.5	143.5	19	24	7500	156

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Levelling elements

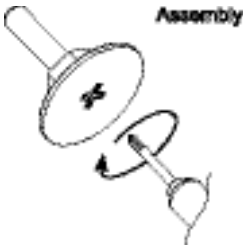
Technopolymer base, steel stem with hexagon socket at the upper end

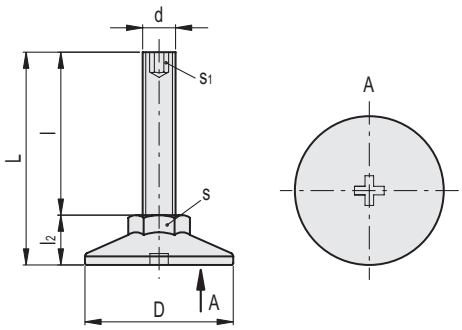


BASE
Polyamide based (PA) technopolymer with adjusting hexagon, black colour, matte finish.

STANDARD EXECUTION
Zinc-plated steel threaded stem with hexagon socket at the upper end.
Base with screwdriver cross slot.

TECHNICAL DATA
It's the user's responsibility to determine whether the product is suitable for the intended purpose according to the actual conditions of use.

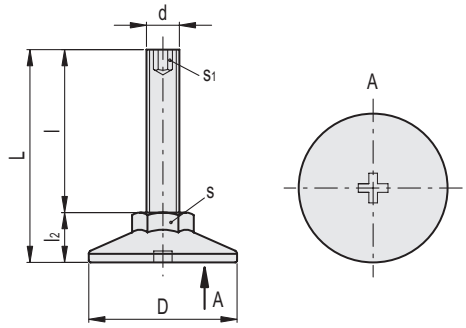




Code	Description	D	d	L	l	l2	s	s1	Max. limit static load* [N]	⚖
431201	LX.25-SW13-M6x22-HS	25	M6	33	22	11	13	3	1500	8
431203	LX.25-SW13-M6x32-HS	25	M6	43	32	11	13	3	1500	10
431205	LX.25-SW13-M6x52-HS	25	M6	63	52	11	13	3	1500	14
431207	LX.25-SW13-M6x62-HS	25	M6	73	62	11	13	3	1500	16
431211	LX.25-SW13-M8x17-HS	25	M8	28	17	11	13	4	2500	10
431213	LX.25-SW13-M8x22-HS	25	M8	33	22	11	13	4	2500	12
431215	LX.25-SW13-M8x32-HS	25	M8	43	32	11	13	4	2500	14
431217	LX.25-SW13-M8x52-HS	25	M8	63	52	11	13	4	2500	18
431219	LX.25-SW13-M8x72-HS	25	M8	83	72	11	17	4	2500	22

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Code	Description	D	d	L	l	l2	s	s1	Max. limit static load* [N]	⚖
431241	LX.30-SW17-M6x21-HS	30	M6	33	21	12	17	3	1500	14
431243	LX.30-SW17-M6x31-HS	30	M6	43	31	12	17	3	1500	16
431245	LX.30-SW17-M6x51-HS	30	M6	63	51	12	17	3	1500	20
431251	LX.30-SW17-M8x16-HS	30	M8	28	16	12	17	4	2500	17
431253	LX.30-SW17-M8x21-HS	30	M8	33	21	12	17	4	2500	18
431255	LX.30-SW17-M8x31-HS	30	M8	43	31	12	17	4	2500	20
431257	LX.30-SW17-M8x51-HS	30	M8	63	51	12	17	4	2500	24
431259	LX.30-SW17-M8x71-HS	30	M8	83	71	12	17	4	2500	28
431271	LX.30-SW17-M10x16-HS	30	M10	28	16	12	17	5	3000	21
431273	LX.30-SW17-M10x21-HS	30	M10	33	21	12	17	5	3000	22
431275	LX.30-SW17-M10x31-HS	30	M10	43	31	12	17	5	3000	24
431277	LX.30-SW17-M10x41-HS	30	M10	53	41	12	17	5	3000	26
431279	LX.30-SW17-M10x51-HS	30	M10	63	51	12	17	5	3000	28
431281	LX.30-SW17-M10x61-HS	30	M10	73	61	12	17	5	3000	30
431283	LX.30-SW17-M10x71-HS	30	M10	83	71	12	17	5	3000	32
431221	LX.40-SW17-M8x15-HS	40	M8	28	15	13	17	4	2500	20
431223	LX.40-SW17-M8x20-HS	40	M8	33	20	13	17	4	2500	22
431225	LX.40-SW17-M8x30-HS	40	M8	43	30	13	17	4	2500	24
431227	LX.40-SW17-M8x50-HS	40	M8	63	50	13	17	4	2500	26
431229	LX.40-SW17-M8x70-HS	40	M8	83	70	13	17	4	2500	29
431301	LX.40-SW17-M10x20-HS	40	M10	33	20	13	17	5	3000	24
431303	LX.40-SW17-M10x30-HS	40	M10	43	30	13	17	5	3000	26
431305	LX.40-SW17-M10x40-HS	40	M10	53	40	13	17	5	3000	28
431307	LX.40-SW17-M10x50-HS	40	M10	63	50	13	17	5	3000	31
431309	LX.40-SW17-M10x60-HS	40	M10	73	60	13	17	5	3000	34
431311	LX.40-SW17-M10x70-HS	40	M10	83	70	13	17	5	3000	37
431325	LX.40-SW17-M10x100-HS	40	M10	113	100	13	17	5	3000	46
431321	LX.40-SW17-M12x50-HS	40	M12	63	50	13	17	6	5000	34
431323	LX.40-SW17-M12x70-HS	40	M12	87	70	17	17	6	5000	40
431327	LX.40-SW17-M12x100-HS	40	M12	113	100	13	17	6	5000	50
431285	LX.50-SW19-M10x46-HS	50	M10	63	46	17	19	5	3000	64
431287	LX.50-SW19-M10x66-HS	50	M10	83	66	17	19	5	3000	68
431289	LX.50-SW19-M10x96-HS	50	M10	113	96	17	19	5	3000	75
431351	LX.50-SW19-M12x46-HS	50	M12	63	46	17	19	6	5000	67
431353	LX.50-SW19-M12x66-HS	50	M12	83	66	17	19	6	5000	72
431355	LX.50-SW19-M12x96-HS	50	M12	113	96	17	19	6	5000	79
431361	LX.60-SW24-M12x44-HS	60	M12	63	44	19	24	6	5000	67
431363	LX.60-SW24-M12x64-HS	60	M12	83	64	19	24	6	5000	73
431365	LX.60-SW24-M12x94-HS	60	M12	113	94	19	24	6	5000	82
431367	LX.60-SW24-M16x64-HS	60	M16	83	64	19	24	8	7500	102
431369	LX.60-SW24-M16x104-HS	60	M16	123	104	19	24	8	7500	132
431371	LX.60-SW24-M16x144-HS	60	M16	163	144	19	24	8	7500	156

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Levelling elements

Technopolymer base, steel stem

BASE
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

ARTICULATED STEM
Threaded zinc-plated steel with regulation hexagon.

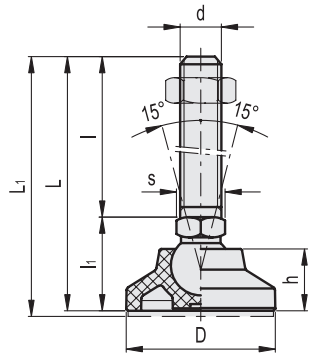
STANDARD EXECUTIONS
- **LS.A**: without no-slip disk.
- **LS.A-AS:** with NBR rubber no-slip disk, hardness 70 Shore A, supplied assembled to the base.

FEATURES
The particular assembling system of the no-slip disk to the base assures a perfect anchoring, preventing separation even in case of impact during transport or of adhesion (sticking) to the floor (see No-slip disk on page 1223).

ORDER INFORMATION
The levelling elements are supplied unassembled to make carriage and storage easier. The components (base and stem) are supplied in separate packing: less volume taken and better protection from scratches and dirt.
To order bases and stems separately, see:
table of the possible combinations Bases/Stems on page 1229.

ACCESSORIES ON REQUEST
Zinc-plated steel nut (see Nuts NT. on page 1223).





LS.A		LS.A-AS													
Code	**Description**	**Code**	**Description**	**D**	**d**	**L**	**L1#**	**l**	**l1**	**h**	**s**	**Articulation Ø**	**Max. limit static load* [N]**	⚖	⚖ #
341121	LS.A-25-14-M8x43	346121	LS.A-25-14-AS-M8x43	25	M8	67	70	43	24	12	14	14	5000	32	34
341125	LS.A-25-14-M8x68	346125	LS.A-25-14-AS-M8x68	25	M8	92	95	68	24	12	14	14	5000	42	44
341221	LS.A-25-14-M10x43	346221	LS.A-25-14-AS-M10x43	25	M10	67	70	43	24	12	14	14	5000	42	44
341225	LS.A-25-14-M10x68	346225	LS.A-25-14-AS-M10x68	25	M10	92	95	68	24	12	14	14	5000	54	56
341231	LS.A-25-14-M10x98	346231	LS.A-25-14-AS-M10x98	25	M10	122	125	98	24	12	14	14	5000	68	70
341321	LS.A-25-14-M12x43	346321	LS.A-25-14-AS-M12x43	25	M12	67	70	43	24	12	14	14	5000	52	54
341325	LS.A-25-14-M12x68	346325	LS.A-25-14-AS-M12x68	25	M12	92	95	68	24	12	14	14	5000	69	71
341331	LS.A-25-14-M12x98	346331	LS.A-25-14-AS-M12x98	25	M12	122	125	98	24	12	14	14	5000	90	92
341421	LS.A-25-14-M14X68	346421	LS.A-25-14-AS-M14X68	25	M14	92	95	68	24	12	14	14	5000	84	86
341431	LS.A-25-14-M14X98	346431	LS.A-25-14-AS-M14X98	25	M14	122	125	98	24	12	14	14	5000	105	107
341441	LS.A-25-14-M14X148	346441	LS.A-25-14-AS-M14X148	25	M14	172	175	148	24	12	14	14	5000	188	190
341521	LS.A-25-14-M16x68	346521	LS.A-25-14-AS-M16x68	25	M16	92	95	68	24	12	16	14	5000	113	115
341525	LS.A-25-14-M16x108	346525	LS.A-25-14-AS-M16x108	25	M16	132	135	108	24	12	16	14	5000	162	164
341541	LS.A-25-14-M16x148	346541	LS.A-25-14-AS-M16x148	25	M16	172	175	148	24	12	16	14	5000	214	216
341561	LS.A-25-14-M16x168	346561	LS.A-25-14-AS-M16x168	25	M16	192	195	168	24	12	16	14	5000	240	242

***** The max static load is the value above which the load applied to the element may cause some plastic material breakage, in particular conditions of use. Obviously, a factor that takes into consideration the importance and the safety level of the specific application must be applied to this value.

Data with no-slip disk mounted.

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LS.A **LS.A-AS**

Code	Description	Code	Description	D	d	L	L1#	l	l1	h	s	Articulation Ø	Max. limit static load* [N]	⚖	⚖ #
342121	LS.A-32-14-M8x43	347121	LS.A-32-14-AS-M8x43	32	M8	68	71	43	25	15	14	14	7000	37	41
342125	LS.A-32-14-M8x68	347125	LS.A-32-14-AS-M8x68	32	M8	93	96	68	25	15	14	14	7000	47	51
342221	LS.A-32-14-M10x43	347221	LS.A-32-14-AS-M10x43	32	M10	68	71	43	25	15	14	14	7000	47	51
342225	LS.A-32-14-M10x68	347225	LS.A-32-14-AS-M10x68	32	M10	93	96	68	25	15	14	14	7000	59	63
342231	LS.A-32-14-M10x98	347231	LS.A-32-14-AS-M10x98	32	M10	123	126	98	25	15	14	14	7000	73	77
342321	LS.A-32-14-M12x43	347321	LS.A-32-14-AS-M12x43	32	M12	68	71	43	25	15	14	14	7000	57	61
342325	LS.A-32-14-M12x68	347325	LS.A-32-14-AS-M12x68	32	M12	93	96	68	25	15	14	14	7000	74	78
342331	LS.A-32-14-M12x98	347331	LS.A-32-14-AS-M12x98	32	M12	123	126	98	25	15	14	14	7000	95	99
342421	LS.A-32-14-M14X68	347421	LS.A-32-14-AS-M14X68	32	M14	93	96	68	25	15	14	14	7000	90	94
342431	LS.A-32-14-M14X98	347431	LS.A-32-14-AS-M14X98	32	M14	123	126	98	25	15	14	14	7000	111	115
342441	LS.A-32-14-M14X148	347441	LS.A-32-14-AS-M14X148	32	M14	173	176	148	25	15	14	14	7000	194	198
342521	LS.A-32-14-M16x68	347521	LS.A-32-14-AS-M16x68	32	M16	93	96	68	25	15	16	14	7000	118	122
342525	LS.A-32-14-M16x108	347525	LS.A-32-14-AS-M16x108	32	M16	133	136	108	25	15	16	14	7000	170	174
342541	LS.A-32-14-M16x148	347541	LS.A-32-14-AS-M16x148	32	M16	173	176	148	25	15	16	14	7000	222	226
342561	LS.A-32-14-M16x168	347561	LS.A-32-14-AS-M16x168	32	M16	193	196	168	25	15	16	14	7000	248	252
343121	LS.A-40-14-M8x43	348121	LS.A-40-14-AS-M8x43	40	M8	68	71	43	25	17	14	14	10000	41	48
343125	LS.A-40-14-M8x68	348125	LS.A-40-14-AS-M8x68	40	M8	93	96	68	25	17	14	14	10000	51	58
343221	LS.A-40-14-M10x43	348221	LS.A-40-14-AS-M10x43	40	M10	68	71	43	25	17	14	14	10000	51	58
343225	LS.A-40-14-M10x68	348225	LS.A-40-14-AS-M10x68	40	M10	93	96	68	25	17	14	14	10000	63	70
343231	LS.A-40-14-M10x98	348231	LS.A-40-14-AS-M10x98	40	M10	123	126	98	25	17	14	14	10000	77	84
343321	LS.A-40-14-M12x43	348321	LS.A-40-14-AS-M12x43	40	M12	68	71	43	25	17	14	14	10000	61	68
343325	LS.A-40-14-M12x68	348325	LS.A-40-14-AS-M12x68	40	M12	93	96	68	25	17	14	14	10000	78	85
343331	LS.A-40-14-M12x98	348331	LS.A-40-14-AS-M12x98	40	M12	123	126	98	25	17	14	14	10000	99	106
343421	LS.A-40-14-M14X68	348421	LS.A-40-14-AS-M14X68	40	M14	93	96	68	25	17	14	14	10000	93	100
343431	LS.A-40-14-M14X98	348431	LS.A-40-14-AS-M14X98	40	M14	123	126	98	25	17	14	14	10000	114	121
343441	LS.A-40-14-M14X148	348441	LS.A-40-14-AS-M14X148	40	M14	173	176	148	25	17	14	14	10000	197	204
343521	LS.A-40-14-M16x68	348521	LS.A-40-14-AS-M16x68	40	M16	93	96	68	25	17	16	14	10000	122	129
343525	LS.A-40-14-M16x108	348525	LS.A-40-14-AS-M16x108	40	M16	133	136	108	25	17	16	14	10000	174	181
343541	LS.A-40-14-M16x148	348541	LS.A-40-14-AS-M16x148	40	M16	173	176	148	25	17	16	14	10000	226	233
343561	LS.A-40-14-M16x168	348561	LS.A-40-14-AS-M16x168	40	M16	193	196	168	25	17	16	14	10000	252	259
344121	LS.A-50-14-M8x43	349121	LS.A-50-14-AS-M8x43	50	M8	70	73	43	27	19	14	14	10000	48	60
344125	LS.A-50-14-M8x68	349125	LS.A-50-14-AS-M8x68	50	M8	95	98	68	27	19	14	14	10000	58	70
344221	LS.A-50-14-M10x43	349221	LS.A-50-14-AS-M10x43	50	M10	70	73	43	27	19	14	14	10000	58	70
344225	LS.A-50-14-M10x68	349225	LS.A-50-14-AS-M10x68	50	M10	95	98	68	27	19	14	14	10000	70	82
344231	LS.A-50-14-M10x98	349231	LS.A-50-14-AS-M10x98	50	M10	125	128	98	27	19	14	14	10000	84	96
344321	LS.A-50-14-M12x43	349321	LS.A-50-14-AS-M12x43	50	M12	70	73	43	27	19	14	14	10000	68	80
344325	LS.A-50-14-M12x68	349325	LS.A-50-14-AS-M12x68	50	M12	95	98	68	27	19	14	14	10000	85	97
344331	LS.A-50-14-M12x98	349331	LS.A-50-14-AS-M12x98	50	M12	125	128	98	27	19	14	14	10000	106	118
344421	LS.A-50-14-M14X68	349421	LS.A-50-14-AS-M14X68	50	M14	95	98	68	27	19	14	14	10000	100	112
344431	LS.A-50-14-M14X98	349431	LS.A-50-14-AS-M14X98	50	M14	125	128	98	27	19	14	14	10000	121	133
344441	LS.A-50-14-M14X148	349441	LS.A-50-14-AS-M14X148	50	M14	175	178	148	27	19	14	14	10000	204	216
344521	LS.A-50-14-M16x68	349521	LS.A-50-14-AS-M16x68	50	M16	95	98	68	27	19	16	14	10000	129	141
344525	LS.A-50-14-M16x108	349525	LS.A-50-14-AS-M16x108	50	M16	135	138	108	27	19	16	14	10000	181	193
344541	LS.A-50-14-M16x148	349541	LS.A-50-14-AS-M16x148	50	M16	175	178	148	27	19	16	14	10000	233	245
344561	LS.A-50-14-M16x168	349561	LS.A-50-14-AS-M16x168	50	M16	195	198	168	27	19	16	14	10000	259	271

***** The max static load is the value above which the load applied to the element may cause some plastic material breakage, in particular conditions of use. Obviously, a factor that takes into consideration the importance and the safety level of the specific application must be applied to this value.

Data with no-slip disk mounted.

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INOX STAINLESS STEEL · RoHS · PA · NBR · +100° -30°

Levelling elements

Technopolymer base, stainless steel stem



BASE
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

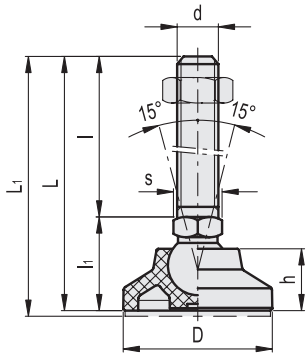
ARTICULATED STEM
Threaded AISI 304 stainless steel with regulation hexagon.

STANDARD EXECUTIONS
- **LS.A-SST**: without no-slip disk.
- **LS.A-AS-SST**: with NBR rubber no-slip disk, hardness 70 Shore A, supplied assembled to the base.

FEATURES
The particular assembling system of the no-slip disk to the base assures a perfect anchoring, preventing separation even in case of impact during transport or of adhesion (sticking) to the floor (see No-slip disk on page 1223).

ORDER INFORMATION
The levelling elements are supplied unassembled to make carriage and storage easier. The components (base and stem) are supplied in separate packing: less volume taken and better protection from scratches and dirt.
To order bases and stems separately, see:
table of the possible combinations Bases/Stems on page 1229.

ACCESSORIES ON REQUEST
AISI 304 stainless steel nut (see Nuts NT. on page 1223).



LS.A-SST **LS.A-AS-SST** **STAINLESS STEEL**

Code	Description	Code	Description	D	d	L	L1#	l	l1	h	s	Articulation Ø	Max. limit static load* [N]	⚖	⚖#
351121	LS.A-25-14-SST-M8x43	356121	LS.A-25-14-AS-SST-M8x43	25	M8	67	70	43	24	12	14	14	5000	33	35
351125	LS.A-25-14-SST-M8x68	356125	LS.A-25-14-AS-SST-M8x68	25	M8	92	95	68	24	12	14	14	5000	43	45
351221	LS.A-25-14-SST-M10x43	356221	LS.A-25-14-AS-SST-M10x43	25	M10	67	70	43	24	12	14	14	5000	43	45
351225	LS.A-25-14-SST-M10x68	356225	LS.A-25-14-AS-SST-M10x68	25	M10	92	95	68	24	12	14	14	5000	56	58
351231	LS.A-25-14-SST-M10x98	356231	LS.A-25-14-AS-SST-M10x98	25	M10	122	125	98	24	12	14	14	5000	70	72
351321	LS.A-25-14-SST-M12x43	356321	LS.A-25-14-AS-SST-M12x43	25	M12	67	70	43	24	12	14	14	5000	53	55
351325	LS.A-25-14-SST-M12x68	356325	LS.A-25-14-AS-SST-M12x68	25	M12	92	95	68	24	12	14	14	5000	71	73
351331	LS.A-25-14-SST-M12x98	356331	LS.A-25-14-AS-SST-M12x98	25	M12	122	125	98	24	12	14	14	5000	93	95
351421	LS.A-25-14-SST-M14X68	356421	LS.A-25-14-AS-SST-M14X68	25	M14	92	95	68	24	12	14	14	5000	86	88
351431	LS.A-25-14-SST-M14X98	356431	LS.A-25-14-AS-SST-M14X98	25	M14	122	125	98	24	12	14	14	5000	107	109
351441	LS.A-25-14-SST-M14X148	356441	LS.A-25-14-AS-SST-M14X148	25	M14	172	175	148	24	12	14	14	5000	190	192
351521	LS.A-25-14-SST-M16x68	356521	LS.A-25-14-AS-SST-M16x68	25	M16	92	95	68	24	12	16	14	5000	116	118
351525	LS.A-25-14-SST-M16x108	356525	LS.A-25-14-AS-SST-M16x108	25	M16	132	135	108	24	12	16	14	5000	167	169
351541	LS.A-25-14-SST-M16x148	356541	LS.A-25-14-AS-SST-M16x148	25	M16	172	175	148	24	12	16	14	5000	220	222
351561	LS.A-25-14-SST-M16x168	356561	LS.A-25-14-AS-SST-M16x168	25	M16	192	195	168	24	12	16	14	5000	247	249

***** The max static load is the value above which the load applied to the element may cause some plastic material breakage, in particular conditions of use. Obviously, a factor that takes into consideration the importance and the safety level of the specific application must be applied to this value.
# Data with no-slip disk mounted.

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LS.A-SST **LS.A-AS-SST** **STAINLESS STEEL**

Code	Description	Code	Description	D	d	L	L1#	l	l1	h	s	Articulation Ø	Max. limit static load* [N]	⚖⚖	⚖⚖#
352121	LS.A-32-14-SST-M8x43	357121	LS.A-32-14-AS-SST-M8x43	32	M8	68	71	43	25	15	14	14	7000	38	42
352125	LS.A-32-14-SST-M8x68	357125	LS.A-32-14-AS-SST-M8x68	32	M8	93	96	68	25	15	14	14	7000	48	52
352221	LS.A-32-14-SST-M10x43	357221	LS.A-32-14-AS-SST-M10x43	32	M10	68	71	43	25	15	14	14	7000	48	52
352225	LS.A-32-14-SST-M10x68	357225	LS.A-32-14-AS-SST-M10x68	32	M10	93	96	68	25	15	14	14	7000	61	65
352231	LS.A-32-14-SST-M10x98	357231	LS.A-32-14-AS-SST-M10x98	32	M10	123	126	98	25	15	14	14	7000	75	79
352321	LS.A-32-14-SST-M12x43	357321	LS.A-32-14-AS-SST-M12x43	32	M12	68	71	43	25	15	14	14	7000	58	62
352325	LS.A-32-14-SST-M12x68	357325	LS.A-32-14-AS-SST-M12x68	32	M12	93	96	68	25	15	14	14	7000	78	82
352331	LS.A-32-14-SST-M12x98	357331	LS.A-32-14-AS-SST-M12x98	32	M12	123	126	98	25	15	14	14	7000	98	102
352421	LS.A-32-14-SST-M14X68	357421	LS.A-32-14-AS-SST-M14X68	32	M14	93	96	68	25	15	14	14	7000	95	99
352431	LS.A-32-14-SST-M14X98	357431	LS.A-32-14-AS-SST-M14X98	32	M14	123	126	98	25	15	14	14	7000	116	120
352441	LS.A-32-14-SST-M14X148	357441	LS.A-32-14-AS-SST-M14X148	32	M14	173	176	148	25	15	14	14	7000	199	203
352521	LS.A-32-14-SST-M16x68	357521	LS.A-32-14-AS-SST-M16x68	32	M16	93	97	68	25	15	16	14	7000	121	125
352525	LS.A-32-14-SST-M16x108	357525	LS.A-32-14-AS-SST-M16x108	32	M16	133	137	108	25	15	16	14	7000	175	179
352541	LS.A-32-14-SST-M16x148	357541	LS.A-32-14-AS-SST-M16x148	32	M16	173	176	148	25	15	16	14	7000	228	232
352561	LS.A-32-14-SST-M16x168	357561	LS.A-32-14-AS-SST-M16x168	32	M16	193	196	168	25	15	16	14	7000	255	259
353121	LS.A-40-14-SST-M8x43	358121	LS.A-40-14-AS-SST-M8x43	40	M8	68	71	43	25	17	14	14	10000	42	49
353125	LS.A-40-14-SST-M8x68	358125	LS.A-40-14-AS-SST-M8x68	40	M8	93	96	68	25	17	14	14	10000	52	59
353221	LS.A-40-14-SST-M10x43	358221	LS.A-40-14-AS-SST-M10x43	40	M10	68	71	43	25	17	14	14	10000	52	59
353225	LS.A-40-14-SST-M10x68	358225	LS.A-40-14-AS-SST-M10x68	40	M10	93	96	68	25	17	14	14	10000	65	72
353231	LS.A-40-14-SST-M10x98	358231	LS.A-40-14-AS-SST-M10x98	40	M10	123	126	98	25	17	14	14	10000	79	86
353321	LS.A-40-14-SST-M12x43	358321	LS.A-40-14-AS-SST-M12x43	40	M12	68	71	43	25	17	14	14	10000	62	69
353325	LS.A-40-14-SST-M12x68	358325	LS.A-40-14-AS-SST-M12x68	40	M12	93	96	68	25	17	14	14	10000	80	87
353331	LS.A-40-14-SST-M12x98	358331	LS.A-40-14-AS-SST-M12x98	40	M12	123	126	98	25	17	14	14	10000	102	109
353421	LS.A-40-14-SST-M14X68	358421	LS.A-40-14-AS-SST-M14X68	40	M14	93	96	68	25	17	14	14	10000	95	102
353431	LS.A-40-14-SST-M14X98	358431	LS.A-40-14-AS-SST-M14X98	40	M14	123	126	98	25	17	14	14	10000	116	123
353441	LS.A-40-14-SST-M14X148	358441	LS.A-40-14-AS-SST-M14X148	40	M14	173	176	148	25	17	14	14	10000	199	206
353521	LS.A-40-14-SST-M16x68	358521	LS.A-40-14-AS-SST-M16x68	40	M16	93	96	68	25	17	16	14	10000	125	132
353525	LS.A-40-14-SST-M16x108	358525	LS.A-40-14-AS-SST-M16x108	40	M16	133	136	108	25	17	16	14	10000	179	186
353541	LS.A-40-14-SST-M16x148	358541	LS.A-40-14-AS-SST-M16x148	40	M16	173	176	148	25	17	16	14	10000	232	239
353561	LS.A-40-14-SST-M16x168	358561	LS.A-40-14-AS-SST-M16x168	40	M16	193	196	168	25	17	16	14	10000	259	266
354121	LS.A-50-14-SST-M8x43	359121	LS.A-50-14-AS-SST-M8x43	50	M8	70	73	43	27	19	14	14	10000	49	61
354125	LS.A-50-14-SST-M8x68	359125	LS.A-50-14-AS-SST-M8x68	50	M8	95	98	68	27	19	14	14	10000	59	71
354221	LS.A-50-14-SST-M10x43	359221	LS.A-50-14-AS-SST-M10x43	50	M10	70	73	43	27	19	14	14	10000	59	71
354225	LS.A-50-14-SST-M10x68	359225	LS.A-50-14-AS-SST-M10x68	50	M10	95	98	68	27	19	14	14	10000	72	84
354231	LS.A-50-14-SST-M10x98	359231	LS.A-50-14-AS-SST-M10x98	50	M10	125	128	98	27	19	14	14	10000	86	98
354321	LS.A-50-14-SST-M12x43	359321	LS.A-50-14-AS-SST-M12x43	50	M12	70	73	43	27	19	14	14	10000	69	81
354325	LS.A-50-14-SST-M12x68	359325	LS.A-50-14-AS-SST-M12x68	50	M12	95	98	68	27	19	14	14	10000	87	99
354331	LS.A-50-14-SST-M12x98	359331	LS.A-50-14-AS-SST-M12x98	50	M12	125	128	98	27	19	14	14	10000	109	121
354421	LS.A-50-14-SST-M14X68	359421	LS.A-50-14-AS-SST-M14X68	50	M14	95	98	68	27	19	14	14	10000	102	114
354431	LS.A-50-14-SST-M14X98	359431	LS.A-50-14-AS-SST-M14X98	50	M14	125	128	98	27	19	14	14	10000	123	135
354441	LS.A-50-14-SST-M14X148	359441	LS.A-50-14-AS-SST-M14X148	50	M14	175	178	148	27	19	14	14	10000	206	218
354521	LS.A-50-14-SST-M16x68	359521	LS.A-50-14-AS-SST-M16x68	50	M16	95	98	68	27	19	16	14	10000	132	144
354525	LS.A-50-14-SST-M16x108	359525	LS.A-50-14-AS-SST-M16x108	50	M16	135	138	108	27	19	16	14	10000	185	197
354541	LS.A-50-14-SST-M16x148	359541	LS.A-50-14-AS-SST-M16x148	50	M16	175	178	148	27	19	16	14	10000	239	251
354561	LS.A-50-14-SST-M16x168	359561	LS.A-50-14-AS-SST-M16x168	50	M16	195	198	168	27	19	16	14	10000	266	278

***** The max static load is the value above which the load applied to the element may cause some plastic material breakage, in particular conditions of use. Obviously, a factor that takes into consideration the importance and the safety level of the specific application must be applied to this value.
# Data with no-slip disk mounted.

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Levelling elements

Technopolymer base, stainless steel stem

BASE
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

ARTICULATED STEM
Threaded AISI 304 stainless steel with adjusting square.

STANDARD EXECUTIONS
- **LSQ.A-SST**: without no-slip disk.
- **LSQ.A-AS-SST**: with NBR rubber no-slip disk, hardness 70 Shore A, supplied assembled to the base.

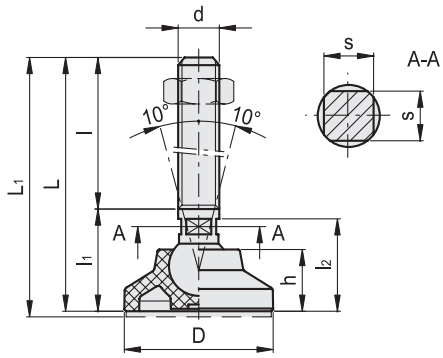
FEATURES
The particular assembling system of the no-slip disk to the base assures a perfect anchoring, preventing separation even in case of impact during transport or of adhesion (sticking) to the floor (see No-slip disk on page 1223).

ORDER INFORMATION
The levelling elements are supplied unassembled to make carriage and storage easier. The components (base and stem) are supplied in separate packing: less volume taken and better protection from scratches and dirt.
To order bases and stems separately, see:
table of the possible combinations Bases/Stems on page 1229.

ACCESSORIES ON REQUEST
AISI 304 stainless steel nut (see Nuts NT. on page 1223).



ELESA Original design



LSQ.A-SST **LSQ.A-AS-SST** **STAINLESS STEEL**

Code	Description	Code	Description	D	d	L	L1#	l	l1	l2	h	s	Articulation Ø	Max. limit static load* [N]	⚖	⚖#
359991	LSQ.A-25-8.5-SST-M8x48	360491	LSQ.A-25-8.5-AS-SST-M8x48	25	M8	68	71	48	20	18.5	12	7	8.5	5000	24	26
359993	LSQ.A-25-8.5-SST-M8x73	360493	LSQ.A-25-8.5-AS-SST-M8x73	25	M8	93	96	73	20	18.5	12	7	8.5	5000	34	36
360001	LSQ.A-25-8.5-SST-M10x48	360501	LSQ.A-25-8.5-AS-SST-M10x48	25	M10	68	71	48	20	18.5	12	7	8.5	5000	31	33
360003	LSQ.A-25-8.5-SST-M10x73	360503	LSQ.A-25-8.5-AS-SST-M10x73	25	M10	93	96	73	20	18.5	12	7	8.5	5000	47	49
360005	LSQ.A-25-8.5-SST-M10x103	360505	LSQ.A-25-8.5-AS-SST-M10x103	25	M10	123	126	103	20	18.5	12	7	8.5	5000	65	67
360011	LSQ.A-25-8.5-SST-M12x48	360511	LSQ.A-25-8.5-AS-SST-M12x48	25	M12	68	71	48	20	18.5	12	9	8.5	5000	42	44
360013	LSQ.A-25-8.5-SST-M12x73	360513	LSQ.A-25-8.5-AS-SST-M12x73	25	M12	93	96	73	20	18.5	12	9	8.5	5000	64	66
360015	LSQ.A-25-8.5-SST-M12x103	360515	LSQ.A-25-8.5-AS-SST-M12x103	25	M12	123	126	103	20	18.5	12	9	8.5	5000	95	97
360031	LSQ.A-25-14-SST-M16x68	360531	LSQ.A-25-14-AS-SST-M16x68	25	M16	92	95	68	24	22.5	12	12	14	5000	100	102
360033	LSQ.A-25-14-SST-M16x108	360533	LSQ.A-25-14-AS-SST-M16x108	25	M16	132	135	108	24	22.5	12	12	14	5000	164	166
360035	LSQ.A-25-14-SST-M16x148	360535	LSQ.A-25-14-AS-SST-M16x148	25	M16	172	175	148	24	22.5	12	12	14	5000	228	230
360037	LSQ.A-25-14-SST-M16x168	360537	LSQ.A-25-14-AS-SST-M16x168	25	M16	192	195	168	24	22.5	12	12	14	5000	260	262

***** The max static load is the value above which the load applied to the element may cause some plastic material breakage, in particular conditions of use. Obviously, a factor that takes into consideration the importance and the safety level of the specific application must be applied to this value.

Data with no-slip disk mounted.

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LSQ.A-SST | Levelling elements

LSQ.A-SST **LSQ.A-AS-SST** **STAINLESS STEEL**

Code	Description	Code	Description	D	d	L	L1#	l	l1	l2	h	s	Articulation Ø	Max. limit static load* [N]	⚖	⚖#
360091	LSQ.A-32-8.5-SST-M8x48	360591	LSQ.A-32-8.5-AS-SST-M8x48	32	M8	71	74	48	23	21.5	15	7	8.5	6000	28	32
360093	LSQ.A-32-8.5-SST-M8x73	360593	LSQ.A-32-8.5-AS-SST-M8x73	32	M8	96	99	73	23	21.5	15	7	8.5	6000	38	42
360101	LSQ.A-32-8.5-SST-M10x48	360601	LSQ.A-32-8.5-AS-SST-M10x48	32	M10	71	74	48	23	21.5	15	7	8.5	6000	35	39
360103	LSQ.A-32-8.5-SST-M10x73	360603	LSQ.A-32-8.5-AS-SST-M10x73	32	M10	96	99	73	23	21.5	15	7	8.5	6000	51	55
360105	LSQ.A-32-8.5-SST-M10x103	360605	LSQ.A-32-8.5-AS-SST-M10x103	32	M10	126	129	103	23	21.5	15	7	8.5	6000	69	73
360111	LSQ.A-32-8.5-SST-M12x48	360611	LSQ.A-32-8.5-AS-SST-M12x48	32	M12	71	74	48	23	21.5	15	9	8.5	6000	46	50
360113	LSQ.A-32-8.5-SST-M12x73	360613	LSQ.A-32-8.5-AS-SST-M12x73	32	M12	96	99	73	23	21.5	15	9	8.5	6000	68	72
360115	LSQ.A-32-8.5-SST-M12x103	360615	LSQ.A-32-8.5-AS-SST-M12x103	32	M12	126	129	103	23	21.5	15	9	8.5	6000	99	103
360131	LSQ.A-32-14-SST-M16x68	360631	LSQ.A-32-14-AS-SST-M16x68	32	M16	92	95	68	24	22.5	15	12	14	7000	104	108
360133	LSQ.A-32-14-SST-M16x108	360633	LSQ.A-32-14-AS-SST-M16x108	32	M16	132	135	108	24	22.5	15	12	14	7000	168	172
360135	LSQ.A-32-14-SST-M16x148	360635	LSQ.A-32-14-AS-SST-M16x148	32	M16	172	175	148	24	22.5	15	12	14	7000	232	236
360137	LSQ.A-32-14-SST-M16x168	360637	LSQ.A-32-14-AS-SST-M16x168	32	M16	192	195	168	24	22.5	15	12	14	7000	264	268
360191	LSQ.A-40-8.5-SST-M8x48	360691	LSQ.A-40-8.5-AS-SST-M8x48	40	M8	73	76	48	25	23.5	17	7	8.5	7000	33	40
360193	LSQ.A-40-8.5-SST-M8x73	360693	LSQ.A-40-8.5-AS-SST-M8x73	40	M8	98	101	73	25	23.5	17	7	8.5	7000	43	50
360201	LSQ.A-40-8.5-SST-M10x48	360701	LSQ.A-40-8.5-AS-SST-M10x48	40	M10	73	76	48	25	23.5	17	7	8.5	7000	40	47
360203	LSQ.A-40-8.5-SST-M10x73	360703	LSQ.A-40-8.5-AS-SST-M10x73	40	M10	98	101	73	25	23.5	17	7	8.5	7000	56	63
360205	LSQ.A-40-8.5-SST-M10x103	360705	LSQ.A-40-8.5-AS-SST-M10x103	40	M10	128	131	103	25	23.5	17	7	8.5	7000	74	81
360211	LSQ.A-40-8.5-SST-M12x48	360711	LSQ.A-40-8.5-AS-SST-M12x48	40	M12	73	76	48	25	23.5	17	9	8.5	7000	51	58
360213	LSQ.A-40-8.5-SST-M12x73	360713	LSQ.A-40-8.5-AS-SST-M12x73	40	M12	98	101	73	25	23.5	17	9	8.5	7000	73	80
360215	LSQ.A-40-8.5-SST-M12x103	360715	LSQ.A-40-8.5-AS-SST-M12x103	40	M12	128	131	103	25	23.5	17	9	8.5	7000	104	111
360231	LSQ.A-40-14-SST-M16x68	360731	LSQ.A-40-14-AS-SST-M16x68	40	M16	93	96	68	25	23.5	17	12	14	10000	109	116
360233	LSQ.A-40-14-SST-M16x108	360733	LSQ.A-40-14-AS-SST-M16x108	40	M16	133	136	108	25	23.5	17	12	14	10000	173	180
360235	LSQ.A-40-14-SST-M16x148	360735	LSQ.A-40-14-AS-SST-M16x148	40	M16	173	176	148	25	23.5	17	12	14	10000	237	244
360237	LSQ.A-40-14-SST-M16x168	360737	LSQ.A-40-14-AS-SST-M16x168	40	M16	193	196	168	25	23.5	17	12	14	10000	269	276
360291	LSQ.A-50-8.5-SST-M8x48	360791	LSQ.A-50-8.5-AS-SST-M8x48	50	M8	75	78	48	27	25.5	19	7	8.5	7000	39	51
360293	LSQ.A-50-8.5-SST-M8x73	360793	LSQ.A-50-8.5-AS-SST-M8x73	50	M8	100	103	73	27	25.5	19	7	8.5	7000	49	61
360301	LSQ.A-50-8.5-SST-M10x48	360801	LSQ.A-50-8.5-AS-SST-M10x48	50	M10	75	78	48	27	25.5	19	7	8.5	7000	46	58
360303	LSQ.A-50-8.5-SST-M10x73	360803	LSQ.A-50-8.5-AS-SST-M10x73	50	M10	100	103	73	27	25.5	19	7	8.5	7000	62	74
360305	LSQ.A-50-8.5-SST-M10x103	360805	LSQ.A-50-8.5-AS-SST-M10x103	50	M10	130	133	103	27	25.5	19	7	8.5	7000	80	92
360311	LSQ.A-50-8.5-SST-M12x48	360811	LSQ.A-50-8.5-AS-SST-M12x48	50	M12	75	78	48	27	25.5	19	9	8.5	7000	57	69
360313	LSQ.A-50-8.5-SST-M12x73	360813	LSQ.A-50-8.5-AS-SST-M12x73	50	M12	100	103	73	27	25.5	19	9	8.5	7000	79	91
360315	LSQ.A-50-8.5-SST-M12x103	360815	LSQ.A-50-8.5-AS-SST-M12x103	50	M12	130	133	103	27	25.5	19	9	8.5	7000	110	122
360331	LSQ.A-50-14-SST-M16x68	360831	LSQ.A-50-14-AS-SST-M16x68	50	M16	95	98	68	27	25.5	19	12	14	10000	115	127
360333	LSQ.A-50-14-SST-M16x108	360833	LSQ.A-50-14-AS-SST-M16x108	50	M16	135	138	108	27	25.5	19	12	14	10000	179	191
360335	LSQ.A-50-14-SST-M16x148	360835	LSQ.A-50-14-AS-SST-M16x148	50	M16	175	178	148	27	25.5	19	12	14	10000	243	255
360337	LSQ.A-50-14-SST-M16x168	360837	LSQ.A-50-14-AS-SST-M16x168	50	M16	195	198	168	27	25.5	19	12	14	10000	275	287

***** The max static load is the value above which the load applied to the element may cause some plastic material breakage, in particular conditions of use. Obviously, a factor that takes into consideration the importance and the safety level of the specific application must be applied to this value.

Data with no-slip disk mounted.

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Ball jointed levelling feet

Steel / Stainless Steel



SPECIFICATION

Version in Steel ST

Thrust pad
Plastic (Polyacetal POM)

- temperature resistant up to 80 °C
- black, matt

Threaded stud
Steel, blackened

Tensile strength class 5.8

Version in Stainless Steel NI

Thrust pad
Plastic (Polyacetal POM)

- temperature resistant up to 80 °C
- black, matt

Threaded stud
Stainless Steel AISI 303

Version completely in Stainless Steel NV

Thrust pad
Stainless Steel AISI 303

- O-ring rubber FPM (Viton®)
- temperature resistant up to 200 °C

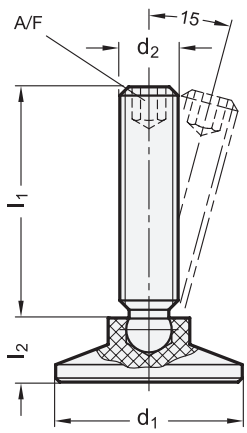
Threaded stud
Stainless Steel AISI 303

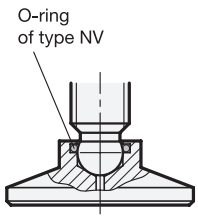
INFORMATION

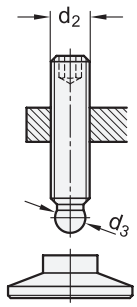
Ball jointed levelling feet GN 638 feature a smaller size ball diameter than the trunk of the threaded stud. As a result the studs can be screwed into position from the ball side. The ball end can easily be hammered in and also dismantled.
Details regarding the static load capacity have been established by a series of tests but are indicative only. For these tests the loads have been placed vertically and centrally over the stud. At the measured load of 3.5 kN there was no remaining deformation visible on the thrust pad nor was there any breakage.

TECHNICAL INFORMATION

- Plastic characteristics (see page A2)
- Stainless Steel characteristics (see page A26)
- Strength values of screws (see page A20)







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GN 638 | Ball jointed levelling feet

*Complete with type index of the Ball jointed levelling feet

ST Steel

NI Stainless Steel

GN 638-ST/NI — **STAINLESS STEEL**

Description	d1	d2	l1	d3	l2	A/F	Static load in kN	⚖
GN 638-15-M6-26-*	15	M 6	26	4.5	7.6	3	3.5	5
GN 638-15-M6-36-*	15	M 6	36	4.5	7.6	3	3.5	6
GN 638-15-M6-46-*	15	M 6	46	4.5	7.6	3	3.5	7
GN 638-15-M8-20-*	15	M 8	20	6.1	7.6	4	3.5	8
GN 638-15-M8-35-*	15	M 8	35	6.1	7.6	4	3.5	11
GN 638-15-M8-45-*	15	M 8	45	6.1	7.6	4	3.5	13
GN 638-15-M8-58-*	15	M 8	58	6.1	7.6	4	3.5	18
GN 638-18-M6-26-*	18	M 6	26	4.5	9.2	3	3.5	11
GN 638-18-M6-36-*	18	M 6	36	4.5	9.2	3	3.5	11
GN 638-18-M6-46-*	18	M 6	46	4.5	9.2	3	3.5	11
GN 638-18-M8-20-*	18	M 8	20	6.1	9.2	4	3.5	11
GN 638-18-M8-35-*	18	M 8	35	6.1	9.2	4	3.5	11
GN 638-18-M8-45-*	18	M 8	45	6.1	9.2	4	3.5	17
GN 638-18-M8-58-*	18	M 8	58	6.1	9.2	4	3.5	19
GN 638-18-M10-34-*	18	M 10	34	7.8	9.2	5	3.5	18
GN 638-18-M10-44-*	18	M 10	44	7.8	9.2	5	3.5	24
GN 638-18-M10-57-*	18	M 10	57	7.8	9.2	5	3.5	29
GN 638-18-M10-74-*	18	M 10	74	7.8	9.2	5	3.5	37
GN 638-21-M6-26-*	21	M 6	26	4.5	10	3	3.5	7
GN 638-21-M6-36-*	21	M 6	36	4.5	10	3	3.5	11
GN 638-21-M6-46-*	21	M 6	46	4.5	10	3	3.5	11
GN 638-21-M8-20-*	21	M 8	20	6.1	10	4	3.5	10
GN 638-21-M8-35-*	21	M 8	35	6.1	10	4	3.5	11
GN 638-21-M8-45-*	21	M 8	45	6.1	10	4	3.5	16
GN 638-21-M8-58-*	21	M 8	58	6.1	10	4	3.5	20
GN 638-21-M10-34-*	21	M 10	34	7.8	10	5	3.5	19
GN 638-21-M10-44-*	21	M 10	44	7.8	10	5	3.5	25
GN 638-21-M10-57-*	21	M 10	57	7.8	10	5	3.5	31
GN 638-21-M10-74-*	21	M 10	74	7.8	10	5	3.5	40
GN 638-21-M12-34-*	21	M 12	34	9.4	10	6	3.5	23
GN 638-21-M12-57-*	21	M 12	57	9.4	10	6	3.5	44
GN 638-21-M12-74-*	21	M 12	74	9.4	10	6	3.5	56
GN 638-21-M12-94-*	21	M 12	94	9.4	10	6	3.5	71
GN 638-25-M6-26-*	25	M 6	26	4.5	10.5	3	3.5	10
GN 638-25-M6-36-*	25	M 6	36	4.5	10.5	3	3.5	11
GN 638-25-M6-46-*	25	M 6	46	4.5	10.5	3	3.5	11
GN 638-25-M8-20-*	25	M 8	20	6.1	10.5	4	3.5	9
GN 638-25-M8-35-*	25	M 8	35	6.1	10.5	4	3.5	14

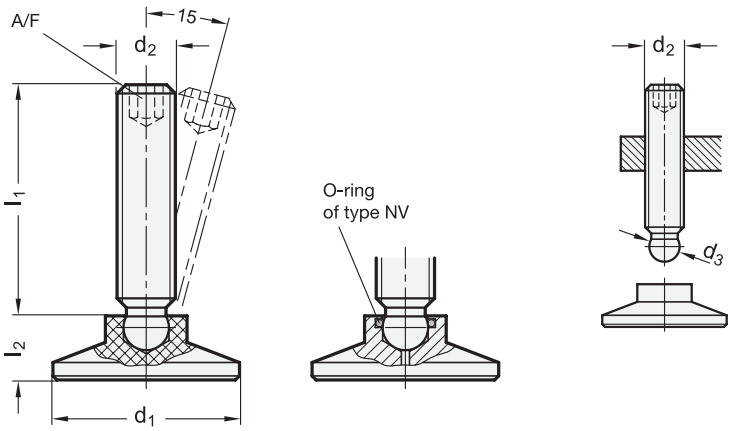
GN 638-ST/NI — **STAINLESS STEEL**

Description	d1	d2	l1	d3	l2	A/F	Static load in kN	⚖
GN 638-25-M8-45-*	25	M 8	45	6.1	10.5	4	3.5	16
GN 638-25-M8-58-*	25	M 8	58	6.1	10.5	4	3.5	20
GN 638-25-M10-34-*	25	M 10	34	7.8	10.5	5	3.5	21
GN 638-25-M10-44-*	25	M 10	44	7.8	10.5	5	3.5	25
GN 638-25-M10-57-*	25	M 10	57	7.8	10.5	5	3.5	30
GN 638-25-M10-74-*	25	M 10	74	7.8	10.5	5	3.5	40
GN 638-25-M12-34-*	25	M 12	34	9.4	10.5	6	3.5	25
GN 638-25-M12-57-*	25	M 12	57	9.4	10.5	6	3.5	44
GN 638-25-M12-74-*	25	M 12	74	9.4	10.5	6	3.5	57
GN 638-25-M12-94-*	25	M 12	94	9.4	10.5	6	3.5	73
GN 638-32-M6-26-*	32	M 6	26	4.5	11	3	3.5	11
GN 638-32-M6-36-*	32	M 6	36	4.5	11	3	3.5	11
GN 638-32-M6-46-*	32	M 6	46	4.5	11	3	3.5	11
GN 638-32-M8-20-*	32	M 8	20	6.1	11	4	3.5	13
GN 638-32-M8-35-*	32	M 8	35	6.1	11	4	3.5	16
GN 638-32-M8-45-*	32	M 8	45	6.1	11	4	3.5	20
GN 638-32-M8-58-*	32	M 8	58	6.1	11	4	3.5	23
GN 638-32-M10-34-*	32	M 10	34	7.8	11	5	3.5	20
GN 638-32-M10-44-*	32	M 10	44	7.8	11	5	3.5	20
GN 638-32-M10-57-*	32	M 10	57	7.8	11	5	3.5	32
GN 638-32-M10-74-*	32	M 10	74	7.8	11	5	3.5	40
GN 638-32-M12-34-*	32	M 12	34	9.4	11	6	3.5	20
GN 638-32-M12-57-*	32	M 12	57	9.4	11	6	3.5	40
GN 638-32-M12-74-*	32	M 12	74	9.4	11	6	3.5	53
GN 638-32-M12-94-*	32	M 12	94	9.4	11	6	3.5	70
GN 638-40-M8-20-*	40	M 8	20	6.1	13	4	3.5	15
GN 638-40-M8-35-*	40	M 8	35	6.1	13	4	3.5	20
GN 638-40-M8-45-*	40	M 8	45	6.1	13	4	3.5	22
GN 638-40-M8-58-*	40	M 8	58	6.1	13	4	3.5	20
GN 638-40-M10-34-*	40	M 10	34	7.8	13	5	3.5	25
GN 638-40-M10-44-*	40	M 10	44	7.8	13	5	3.5	30
GN 638-40-M10-57-*	40	M 10	57	7.8	13	5	3.5	38
GN 638-40-M10-74-*	40	M 10	74	7.8	13	5	3.5	46
GN 638-40-M12-34-*	40	M 12	34	9.4	13	6	3.5	34
GN 638-40-M12-57-*	40	M 12	57	9.4	13	6	3.5	50
GN 638-40-M12-74-*	40	M 12	74	9.4	13	6	3.5	60
GN 638-40-M12-94-*	40	M 12	94	9.4	13	6	3.5	77

Weight type ST

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GN 638 | Ball jointed levelling feet



GN 638-NV — **STAINLESS STEEL**

Description	d1	d2	l1	d3	l2	A/F	Static load in kN	⚖
GN 638-21-M6-26-NV	21	M 6	26	4.5	10	3	3.5	20
GN 638-21-M6-36-NV	21	M 6	36	4.5	10	3	3.5	20
GN 638-21-M6-46-NV	21	M 6	46	4.5	10	3	3.5	20
GN 638-21-M8-20-NV	21	M 8	20	6.1	10	4	7	20
GN 638-21-M8-35-NV	21	M 8	35	6.1	10	4	7	20
GN 638-21-M8-45-NV	21	M 8	45	6.1	10	4	7	30
GN 638-21-M8-58-NV	21	M 8	58	6.1	10	4	7	40
GN 638-21-M10-34-NV	21	M 10	34	7.8	10	5	11	32
GN 638-21-M10-44-NV	21	M 10	44	7.8	10	5	11	36
GN 638-21-M10-57-NV	21	M 10	57	7.8	10	5	11	40
GN 638-21-M10-74-NV	21	M 10	74	7.8	10	5	11	58
GN 638-21-M12-34-NV	21	M 12	34	9.4	10	6	16	40
GN 638-21-M12-57-NV	21	M 12	57	9.4	10	6	16	55
GN 638-21-M12-74-NV	21	M 12	74	9.4	10	6	16	78
GN 638-21-M12-94-NV	21	M 12	94	9.4	10	6	16	70
GN 638-25-M6-26-NV	25	M 6	26	4.5	10.5	3	3.5	40
GN 638-25-M6-36-NV	25	M 6	36	4.5	10.5	3	3.5	80
GN 638-25-M6-46-NV	25	M 6	46	4.5	10.5	3	3.5	80
GN 638-25-M8-20-NV	25	M 8	20	6.1	10.5	4	7	38
GN 638-25-M8-35-NV	25	M 8	35	6.1	10.5	4	7	30
GN 638-25-M8-45-NV	25	M 8	45	6.1	10.5	4	7	35
GN 638-25-M8-58-NV	25	M 8	58	6.1	10.5	4	7	38
GN 638-25-M10-34-NV	25	M 10	34	7.8	10.5	5	11	34
GN 638-25-M10-44-NV	25	M 10	44	7.8	10.5	5	11	41
GN 638-25-M10-57-NV	25	M 10	57	7.8	10.5	5	11	50
GN 638-25-M10-74-NV	25	M 10	74	7.8	10.5	5	11	60
GN 638-25-M12-34-NV	25	M 12	34	9.4	10.5	6	16	60
GN 638-25-M12-57-NV	25	M 12	57	9.4	10.5	6	16	75
GN 638-25-M12-74-NV	25	M 12	74	9.4	10.5	6	16	75

GN 638-NV — **STAINLESS STEEL**

Description	d1	d2	l1	d3	l2	A/F	Static load in kN	⚖
GN 638-25-M12-94-NV	25	M 12	94	9.4	10.5	6	16	80
GN 638-32-M6-26-NV	32	M 6	26	4.5	11	3	3.5	39
GN 638-32-M6-36-NV	32	M 6	36	4.5	11	3	3.5	40
GN 638-32-M6-46-NV	32	M 6	46	4.5	11	3	3.5	40
GN 638-32-M8-20-NV	32	M 8	20	6.1	11	4	7	42
GN 638-32-M8-35-NV	32	M 8	35	6.1	11	4	7	40
GN 638-32-M8-45-NV	32	M 8	45	6.1	11	4	7	46
GN 638-32-M8-58-NV	32	M 8	58	6.1	11	4	7	62
GN 638-32-M10-34-NV	32	M 10	34	7.8	11	5	11	50
GN 638-32-M10-44-NV	32	M 10	44	7.8	11	5	11	62
GN 638-32-M10-57-NV	32	M 10	57	7.8	11	5	11	77
GN 638-32-M10-74-NV	32	M 10	74	7.8	11	5	11	89
GN 638-32-M12-34-NV	32	M 12	34	9.4	11	6	16	80
GN 638-32-M12-57-NV	32	M 12	57	9.4	11	6	16	81
GN 638-32-M12-74-NV	32	M 12	74	9.4	11	6	16	86
GN 638-32-M12-94-NV	32	M 12	94	9.4	11	6	16	86
GN 638-40-M8-20-NV	40	M 8	20	6.1	13	4	7	85
GN 638-40-M8-35-NV	40	M 8	35	6.1	13	4	7	80
GN 638-40-M8-45-NV	40	M 8	45	6.1	13	4	7	81
GN 638-40-M8-58-NV	40	M 8	58	6.1	13	4	7	86
GN 638-40-M10-34-NV	40	M 10	34	7.8	13	5	11	87
GN 638-40-M10-44-NV	40	M 10	44	7.8	13	5	11	92
GN 638-40-M10-57-NV	40	M 10	57	7.8	13	5	11	107
GN 638-40-M10-74-NV	40	M 10	74	7.8	13	5	11	107
GN 638-40-M12-34-NV	40	M 12	34	9.4	13	6	16	80
GN 638-40-M12-57-NV	40	M 12	57	9.4	13	6	16	100
GN 638-40-M12-74-NV	40	M 12	74	9.4	13	6	16	120
GN 638-40-M12-94-NV	40	M 12	94	9.4	13	6	16	140

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GN 339

Levelling mount

Steel / Stainless Steel / Threaded stem, not adjustable



SPECIFICATION

Types

- Type **KS**: with plastic cap, gliding
- Type **KR**: with plastic cap, non-gliding

Version in Steel ST

- Tensile strength class 5.8
- zinc plated, blue passivated
- Hexagon nut ISO 4035, Steel zinc plated, blue passivated

Version in Stainless Steel NI

- AISI 303
- Hexagon nut ISO 4035, Stainless Steel AISI 304

Plastic caps:

Type KS
Technopolymer (Polyacetal POM)
white (natural colour) RAL 9001

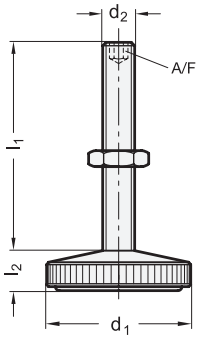
Type KR
Elastomer (TPE)
73 shore A ≈, black

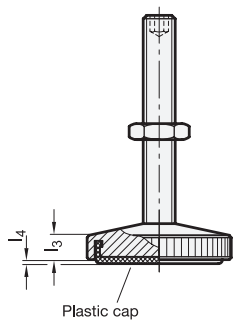
INFORMATION

Levelling mount GN 339 are used for applications in cases where no jointed link is required between foot and adjusting screw.
For this reason they offer the advantage of reduced height.
The gliding and/or the non-gliding protective cap is safely fixed in the foot.

TECHNICAL INFORMATION

- Elastomer characteristics (see page A32)
- Plastic characteristics (see page A2)
- Stainless Steel characteristics (see page A26)
- Strength values of screws (see page A20)





*Complete with type index of the Levelling mount

ST	NI
Steel	Stainless Steel

GN 339

Description	d1	d2	l1	l2 ≈	l3 ≈	l4	A/F	⚖
GN 339-29-M6-30-KR-*	29	M 6	30	8	5	0.4	3	30
GN 339-29-M6-45-KR-*	29	M 6	45	8	5	0.4	3	32
GN 339-29-M8-35-KR-*	29	M 8	35	8	5	0.4	4	37
GN 339-29-M8-55-KR-*	29	M 8	55	8	5	0.4	4	43
GN 339-36-M8-40-KR-*	36	M 8	40	9	6	0.5	4	56
GN 339-36-M8-65-KR-*	36	M 8	65	9	6	0.5	4	65
GN 339-36-M10-45-KR-*	36	M 10	45	9	6	0.5	5	70
GN 339-36-M10-70-KR-*	36	M 10	70	9	6	0.5	5	83
GN 339-29-M6-30-KS-*	29	M 6	30	8	5	1	3	34
GN 339-29-M6-45-KS-*	29	M 6	45	8	5	1	3	36
GN 339-29-M8-35-KS-*	29	M 8	35	8	5	1	4	41
GN 339-29-M8-55-KS-*	29	M 8	55	8	5	1	4	48
GN 339-36-M8-40-KS-*	36	M 8	40	9	6	1	4	64
GN 339-36-M8-65-KS-*	36	M 8	65	9	6	1	4	72
GN 339-36-M10-45-KS-*	36	M 10	45	9	6	1	5	78
GN 339-36-M10-70-KS-*	36	M 10	70	9	6	1	5	91

Weight type ST

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Levelling feet

Foot plastic, female thread

SPECIFICATION

Types

- Type **A**: without rubber underlay
- Type **G**: with rubber underlay

Foot: Plastic (Polyamide PA)

- glass fibre reinforced
- black, matt
- temperature resistant up to 100 °C

Female thread
Steel

- Tensile strength class 5.8
- zinc plated, blue passivated

Hexagon nut ISO 4032
Steel
zinc plated, blue passivated

Rubber underlay (NBR)
70 Shore A, black



INFORMATION

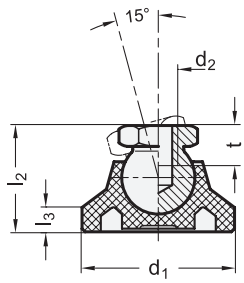
Levelling feet GN 343.3 are capable of withstanding high static loads through the use of a high density plastic material coupled with a design which distributes the load over a larger area.
Exceeding the static values specified in the table could lead to failure of the plastic component.
The above values have been arrived at by a series of load tests whereby a defined number of levelling feet were subjected to a vertical load over a defined period.
Under normal operating conditions side loading or angular loading is not uncommon and the load capacity would be considerably reduced which must be taken into consideration.
Levelling feet GN 343.3 are supplied assembled, but are removable.

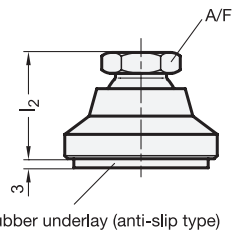
TECHNICAL INFORMATION

- Elastomer characteristics (see page A32)
- Plastic characteristics (see page A2)

ON REQUEST

- ESD version (conductive plastic cap to avoid electrostatic charging)





Rubber underlay (anti-slip type)

* Complete with type index of the Levelling feet (A or G)

A	G
without rubber underlay	with rubber underlay

GN 343.3

Description	d1	d2	l2	l3	A/F	t min.	Static load in kN	⚖
GN 343.3-25-M6-*	25	M 6	18.5	4	12	9	5	19
GN 343.3-25-M8-*	25	M 8	18.5	4	12	9	5	13
GN 343.3-32-M8-*	32	M 8	22.5	5	12	9	7	15
GN 343.3-32-M10-*	32	M 10	22.5	5	15	10.5	7	22
GN 343.3-40-M10-*	40	M 10	25.5	6	15	10.5	10	26
GN 343.3-40-M12-*	40	M 12	25.5	6	17	11.5	10	33
GN 343.3-50-M10-*	50	M 10	27.5	7	15	10.5	10	48
GN 343.3-50-M12-*	50	M 12	27.5	7	17	11.5	10	39
GN 343.3-60-M12-*	60	M 12	35.5	8.5	17	11.5	14	96
GN 343.3-60-M16-*	60	M 16	35.5	8.5	24	16	14	81

Weight type A

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GN 343.7

Levelling feet

Foot plastic / female thread Stainless Steel

SPECIFICATION

Types

- Type **A**: without rubber underlay
- Type **G**: with rubber underlay

Foot: Plastic (Polyamide PA)

- glass, fibre reinforced
- black, matt
- temperature resistant up to 100 °C

Female thread
Stainless Steel AISI 303

Rubber underlay (NBR)
70 Shore A, black



INFORMATION

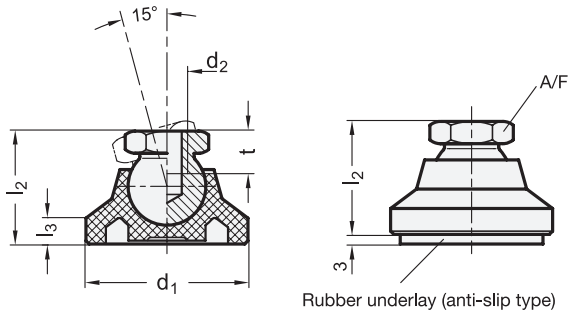
Levelling feet GN 343.7 are capable of withstanding high static loads through the use of a high density plastic material coupled with a design which distributes the load over a larger area.
Exceeding the static values specified in the table could lead to failure of the plastic component.
The values have been arrived at by a series of load tests whereby a defined number of levelling feet were subjected to a vertical load over a defined period.
Under normal operating conditions side loading or angular loading is not uncommon and the load capacity would be considerably reduced which must be taken into consideration.
Levelling feet GN 343.7 are supplied assembled, but are removable.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)
- Elastomer characteristics (see page A32)
- Plastic characteristics (see pageA2)

ON REQUEST

- ESD version (conductive plastic cap to avoid electrostatic charging)



*Complete with type index of the Levelling feet (A or G)

A without rubber underlay
G with rubber underlay

GN 343.7

Description	d1	d2	l2	l3	A/F	t min.	Static load in kN	⚖
GN 343.7-25-M6-*	25	M 6	18.5	4	12	9	5	14
GN 343.7-25-M8-*	25	M 8	18.5	4	12	9	5	14
GN 343.7-32-M8-*	32	M 8	22.5	5	12	9	7	22
GN 343.7-32-M10-*	32	M 10	22.5	5	15	10.5	7	22
GN 343.7-40-M10-*	40	M 10	25.5	6	15	10.5	10	26
GN 343.7-40-M12-*	40	M 12	25.5	6	17	11.5	10	33
GN 343.7-50-M10-*	50	M 10	27.5	7	15	10.5	10	44
GN 343.7-50-M12-*	50	M 12	27.5	7	17	11.5	10	39
GN 343.7-60-M12-*	60	M 12	35.5	8.5	17	11.5	14	69
GN 343.7-60-M16-*	60	M 16	35.5	8.5	24	16	14	78

Weight type A

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Levelling feet

Foot, threaded stud steel



SPECIFICATION

Types

- Type **OS**: without plastic cap
- Type **KS**: with plastic cap, gliding
- Type **KR**: with plastic cap, non-gliding
- Type **KSE**: with plastic cap, gliding, electrically conductive (antistatic)
- Type **KRE**: with plastic cap, non-gliding, electrically conductive (antistatic)

Steel
Tensile strength class 5.8
zinc plated, blue passivated

Type **KS / KSE**
Plastic cap Polyacetal (POM)

KS: white (natural colour) RAL 9001
KSE: black, electrically conductive
Surface resistivity: $< 10^6\ \Omega$
Volume resistivity: $< 10^7\ \Omega$
DIN EN 61340-5-1 / 61340-2-3

Type **KR / KRE**
Plastic cap Elastomer (TPE), 78 Shore A ≈

KR: black
KRE: black, electrically conductive
Surface resistivity: $< 10^6\ \Omega$
Volume resistivity: $< 10^7\ \Omega$
DIN EN 61340-5-1 / 61340-2-3

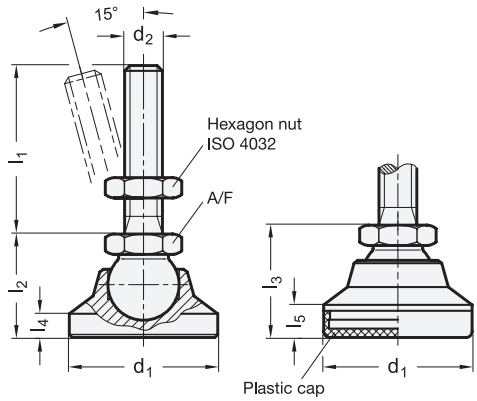
Hexagon nut ISO 4032
Steel, zinc plated, blue passivated

INFORMATION

The static load of the levelling feet GN 343.2 is limited by the load capacity of the ball joint threaded stud (tensile strength class 5.8). The static load values (only valid for Type OS / KS) in the table refer to a net vertical load in relation to the levelling foot. Under normal operating conditions side loading or angular loading is not uncommon and the load capacity would be considerably reduced which must be taken into consideration.
Levelling feet GN 343.2 cannot be disassembled.

TECHNICAL INFORMATION

- Elastomer characteristics (see page A32)
- Plastic characteristics (see page A2)
- Strength values of screws (see page A20)



*Complete with type index of the Levelling feet

OS KS KR KSE KRE

GN 343.2

Description	d1	d2	l1	l2	l3	l4	l5	A/F	Static load in kN	⚖
GN 343.2-25-M6-40-*	25	M 6	40	19	20.5	4	5.5	12	7.5	43
GN 343.2-25-M6-50-*	25	M 6	50	19	20.5	4	5.5	12	7.5	45
GN 343.2-25-M6-63-*	25	M 6	63	19	20.5	4	5.5	12	7.5	48
GN 343.2-25-M8-40-*	25	M 8	40	19	20.5	4	5.5	12	14	51
GN 343.2-25-M8-50-*	25	M 8	50	19	20.5	4	5.5	12	14	5
GN 343.2-25-M8-63-*	25	M 8	63	19	20.5	4	5.5	12	14	60
GN 343.2-25-M10-50-*	25	M 10	50	19	20.5	4	5.5	12	23	68
GN 343.2-25-M10-63-*	25	M 10	63	19	20.5	4	5.5	12	23	74
GN 343.2-25-M10-80-*	25	M 10	80	19	20.5	4	5.5	12	23	83

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GN 343.2 | Levelling feet

*Complete with type index of the Levelling feet

OS KS KR KSE KRE

GN 343.2

Description	d1	d2	l1	l2	l3	l4	l5	A/F	Static load in kN	⚖
GN 343.2-32-M8-40-*	32	M 8	40	23	24.5	5	6.5	12	14	80
GN 343.2-32-M8-50-*	32	M 8	50	23	24.5	5	6.5	12	14	60
GN 343.2-32-M8-63-*	32	M 8	63	23	24.5	5	6.5	12	14	38
GN 343.2-32-M10-50-*	32	M 10	50	23	24.5	5	6.5	15	23	102
GN 343.2-32-M10-63-*	32	M 10	63	23	24.5	5	6.5	15	23	100
GN 343.2-32-M10-80-*	32	M 10	80	23	24.5	5	6.5	15	23	117
GN 343.2-32-M12-63-*	32	M 12	63	23	24.5	5	6.5	15	33	127
GN 343.2-32-M12-80-*	32	M 12	80	23	24.5	5	6.5	15	33	140
GN 343.2-32-M12-100-*	32	M 12	100	23	24.5	5	6.5	15	33	154
GN 343.2-40-M8-50-*	40	M 8	50	26	27.5	6	7.5	15	14	130
GN 343.2-40-M8-63-*	40	M 8	63	26	27.5	6	7.5	15	14	134
GN 343.2-40-M8-80-*	40	M 8	80	26	27.5	6	7.5	15	14	139
GN 343.2-40-M10-50-*	40	M 10	50	26	27.5	6	7.5	15	23	143
GN 343.2-40-M10-63-*	40	M 10	63	26	27.5	6	7.5	15	23	150
GN 343.2-40-M10-80-*	40	M 10	80	26	27.5	6	7.5	15	23	140
GN 343.2-40-M12-63-*	40	M 12	63	26	27.5	6	7.5	17	33	178
GN 343.2-40-M12-80-*	40	M 12	80	26	27.5	6	7.5	17	33	182
GN 343.2-40-M12-100-*	40	M 12	100	26	27.5	6	7.5	17	33	198
GN 343.2-50-M8-50-*	50	M 8	50	28	29.5	7	8.5	15	14	196
GN 343.2-50-M8-63-*	50	M 8	63	28	29.5	7	8.5	15	14	199
GN 343.2-50-M8-80-*	50	M 8	80	28	29.5	7	8.5	15	14	204
GN 343.2-50-M10-50-*	50	M 10	50	28	29.5	7	8.5	15	23	200
GN 343.2-50-M10-63-*	50	M 10	63	28	29.5	7	8.5	15	23	214
GN 343.2-50-M10-80-*	50	M 10	80	28	29.5	7	8.5	15	23	220
GN 343.2-50-M12-63-*	50	M 12	63	28	29.5	7	8.5	17	33	213
GN 343.2-50-M12-80-*	50	M 12	80	28	29.5	7	8.5	17	33	240
GN 343.2-50-M12-100-*	50	M 12	100	28	29.5	7	8.5	17	33	261
GN 343.2-50-M16-63-*	50	M 16	63	28	29.5	7	8.5	17	40	284
GN 343.2-50-M16-80-*	50	M 16	80	28	29.5	7	8.5	17	40	308
GN 343.2-50-M16-100-*	50	M 16	100	28	29.5	7	8.5	17	40	334
GN 343.2-60-M10-50-*	60	M 10	50	36	37.5	8.5	10	17	23	365
GN 343.2-60-M10-63-*	60	M 10	63	36	37.5	8.5	10	17	23	372
GN 343.2-60-M10-80-*	60	M 10	80	36	37.5	8.5	10	17	23	380
GN 343.2-60-M12-63-*	60	M 12	63	36	37.5	8.5	10	17	33	380
GN 343.2-60-M12-80-*	60	M 12	80	36	37.5	8.5	10	17	33	400
GN 343.2-60-M12-100-*	60	M 12	100	36	37.5	8.5	10	17	33	420
GN 343.2-60-M16-80-*	60	M 16	80	36	37.5	8.5	10	24	62	469
GN 343.2-60-M16-100-*	60	M 16	100	36	37.5	8.5	10	24	62	500
GN 343.2-60-M16-125-*	60	M 16	125	36	37.5	8.5	10	24	62	540
GN 343.2-60-M20-98-*	60	M 20	98	36	37.5	8.5	10	24	95	580
GN 343.2-60-M20-138-*	60	M 20	138	36	37.5	8.5	10	24	95	680
GN 343.2-60-M20-158-*	60	M 20	158	36	37.5	8.5	10	24	95	720
GN 343.2-60-M24-98-*	60	M 24	98	36	37.5	8.5	10	24	95	727
GN 343.2-60-M24-138-*	60	M 24	138	36	37.5	8.5	10	24	95	837
GN 343.2-60-M24-158-*	60	M 24	158	36	37.5	8.5	10	24	95	923

Weight type KR

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Stainless Steel-Levelling feet

Adjustable spindle

SPECIFICATION

Types

- Type **OS**: without plastic cap
- Type **KS**: with plastic cap, gliding
- Type **KR**: with plastic cap, non-gliding
- Type **KSE**: with plastic cap, gliding, electrically conductive (antistatic)
- Type **KRE**: with plastic cap, non-gliding, electrically conductive (antistatic)

Stainless Steel AISI 303

Type **KS / KSE**
Plastic cap Polyacetal (POM)

KS: white (natural colour) RAL 9001

KSE: black, electrically conductive
Surface resistivity: $< 10^6\ \Omega$
Volume resistivity: $< 10^7\ \Omega$
DIN EN 61340-5-1 / 61340-2-3

Type **KR / KRE**
Plastic cap Elastomer (TPE), 78 Shore A ≈

KR: black

KRE: black, electrically conductive
Surface resistivity: $< 10^6\ \Omega$
Volume resistivity: $< 10^7\ \Omega$
DIN EN 61340-5-1 / 61340-2-3

Hexagon nut ISO 4032
Stainless Steel AISI 304

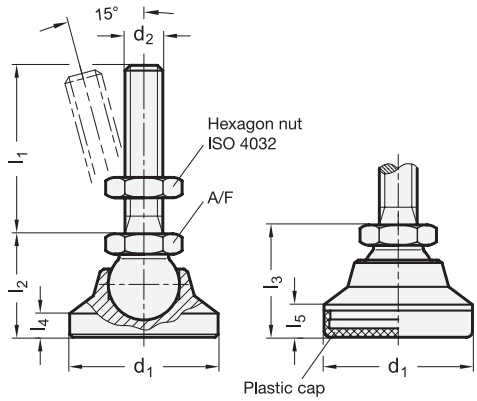


INFORMATION

The static load of the Stainless Steel-Levelling feet GN GN 343.6 is limited by the load capacity of the ball joint / threaded stud (AISI 303).
The static load values (only valid for Type OS, KS and KSE) in the above table refer to a net vertical load in relation to the levelling foot. Under normal operating conditions side loading or angular loading is not uncommon and the load capacity would be considerably reduced which must be taken into consideration.
Stainless Steel-Levelling feet GN 343.6 cannot be disassembled.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)
- Elastomer characteristics (see page A32)
- Plastic characteristics (see page A2)



*Complete with type index of the Levelling feet

OS KS KR KSE KRE

GN 343.6 — **STAINLESS STEEL**

Description	d1	d2	l1	l2	l3	l4	l5	A/F	Static load in kN	⚖
GN 343.6-25-M6-40-*	25	M 6	40	19	20.5	4	5.5	12	4	44
GN 343.6-25-M6-50-*	25	M 6	50	19	20.5	4	5.5	12	4	43
GN 343.6-25-M6-63-*	25	M 6	63	19	20.5	4	5.5	12	4	46
GN 343.6-25-M8-40-*	25	M 8	40	19	20.5	4	5.5	12	7	52
GN 343.6-25-M8-50-*	25	M 8	50	19	20.5	4	5.5	12	7	50
GN 343.6-25-M8-63-*	25	M 8	63	19	20.5	4	5.5	12	7	61
GN 343.6-25-M10-50-*	25	M 10	50	19	20.5	4	5.5	12	11	67

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GN 343.6 | Stainless Steel-Levelling feet

*Complete with type index of the Levelling feet

OS KS KR KSE KRE

GN 343.6 — **STAINLESS STEEL**

Description	d1	d2	l1	l2	l3	l4	l5	A/F	Static load in kN	⚖
GN 343.6-25-M10-63-*	25	M 10	63	19	20.5	4	5.5	12	11	73
GN 343.6-25-M10-80-*	25	M 10	80	19	20.5	4	5.5	12	11	81
GN 343.6-32-M8-40-*	32	M 8	40	23	24.5	5	6.5	12	7	60
GN 343.6-32-M8-50-*	32	M 8	50	23	24.5	5	6.5	12	7	80
GN 343.6-32-M8-63-*	32	M 8	63	23	24.5	5	6.5	12	7	80
GN 343.6-32-M10-50-*	32	M 10	50	23	24.5	5	6.5	15	11	107
GN 343.6-32-M10-63-*	32	M 10	63	23	24.5	5	6.5	15	11	97
GN 343.6-32-M10-80-*	32	M 10	80	23	24.5	5	6.5	15	11	116
GN 343.6-32-M12-63-*	32	M 12	63	23	24.5	5	6.5	15	16	125
GN 343.6-32-M12-80-*	32	M 12	80	23	24.5	5	6.5	15	16	137
GN 343.6-32-M12-100-*	32	M 12	100	23	24.5	5	6.5	15	16	152
GN 343.6-40-M8-50-*	40	M 8	50	26	27.5	6	7.5	15	7	129
GN 343.6-40-M8-63-*	40	M 8	63	26	27.5	6	7.5	15	7	134
GN 343.6-40-M8-80-*	40	M 8	80	26	27.5	6	7.5	15	7	139
GN 343.6-40-M10-50-*	40	M 10	50	26	27.5	6	7.5	15	11	140
GN 343.6-40-M10-63-*	40	M 10	63	26	27.5	6	7.5	15	11	150
GN 343.6-40-M10-80-*	40	M 10	80	26	27.5	6	7.5	15	11	160
GN 343.6-40-M12-63-*	40	M 12	63	26	27.5	6	7.5	17	16	173
GN 343.6-40-M12-80-*	40	M 12	80	26	27.5	6	7.5	17	16	180
GN 343.6-40-M12-100-*	40	M 12	100	26	27.5	6	7.5	17	16	202
GN 343.6-50-M8-50-*	50	M 8	50	26	29.5	7	8.5	15	7	198
GN 343.6-50-M8-63-*	50	M 8	63	26	29.5	7	8.5	15	7	200
GN 343.6-50-M8-80-*	50	M 8	80	26	29.5	7	8.5	15	7	207
GN 343.6-50-M10-50-*	50	M 10	50	28	29.5	7	8.5	15	11	200
GN 343.6-50-M10-63-*	50	M 10	63	28	29.5	7	8.5	15	11	200
GN 343.6-50-M10-80-*	50	M 10	80	28	29.5	7	8.5	15	11	220
GN 343.6-50-M12-63-*	50	M 12	63	28	29.5	7	8.5	17	16	245
GN 343.6-50-M12-80-*	50	M 12	80	28	29.5	7	8.5	17	16	240
GN 343.6-50-M12-100-*	50	M 12	100	28	29.5	7	8.5	17	16	220
GN 343.6-50-M16-63-*	50	M 16	63	28	29.5	7	8.5	17	30	290
GN 343.6-50-M16-80-*	50	M 16	80	28	29.5	7	8.5	17	30	314
GN 343.6-50-M16-100-*	50	M 16	100	28	29.5	7	8.5	17	30	338
GN 343.6-60-M10-50-*	60	M 10	50	36	37.5	8.5	10	17	11	370
GN 343.6-60-M10-63-*	60	M 10	63	36	37.5	8.5	10	17	11	375
GN 343.6-60-M10-80-*	60	M 10	80	36	37.5	8.5	10	17	11	384
GN 343.6-60-M12-63-*	60	M 12	63	36	37.5	8.5	10	17	16	400
GN 343.6-60-M12-80-*	60	M 12	80	36	37.5	8.5	10	17	16	400
GN 343.6-60-M12-100-*	60	M 12	100	36	37.5	8.5	10	17	16	400
GN 343.6-60-M16-80-*	60	M 16	80	36	37.5	8.5	10	24	30	470
GN 343.6-60-M16-100-*	60	M 16	100	36	37.5	8.5	10	24	30	480
GN 343.6-60-M16-125-*	60	M 16	125	36	37.5	8.5	10	24	30	524
GN 343.6-60-M20-98-*	60	M 20	98	36	37.5	8.5	10	24	45	550
GN 343.6-60-M20-138-*	60	M 20	138	36	37.5	8.5	10	24	45	660
GN 343.6-60-M20-158-*	60	M 20	158	36	37.5	8.5	10	24	45	700
GN 343.6-60-M24-98-*	60	M 24	98	36	37.5	8.5	10	24	45	712
GN 343.6-60-M24-138-*	60	M 24	138	36	37.5	8.5	10	24	45	800
GN 343.6-60-M24-158-*	60	M 24	158	36	37.5	8.5	10	24	45	900

Weight type KR

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Levelling mounts

Foot, female thread

SPECIFICATION

Types

- Type **OS**: without plastic cap
- Type **KS**: with plastic cap, gliding
- Type **KR**: with plastic cap, non-gliding
- Type **KSE**: with plastic cap, gliding, electrically conductive (antistatic)
- Type **KRE**: with plastic cap, non-gliding, electrically conductive (antistatic)

Steel
Tensile strength class 5.8
zinc plated, blue passivated

Type **KS / KSE**
Plastic cap Polyacetal (POM)

KS: white (natural colour) RAL 9001

KSE: black, electrically conductive
Surface resistivity: $< 10^6\ \Omega$
Volume resistivity: $< 10^7\ \Omega$
DIN EN 61340-5-1 / 61340-2-3

Type **KR / KRE**
Plastic cap Elastomer (TPE), 78 Shore A ≈

KR: black

KRE: black, electrically conductive
Surface resistivity: $< 10^6\ \Omega$
Volume resistivity: $< 10^7\ \Omega$
DIN EN 61340-5-1 / 61340-2-3

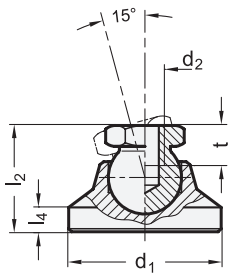
INFORMATION

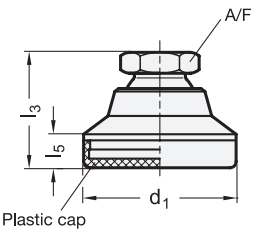
The static load of the levelling mounts GN 343.1 is limited by the load capacity of the ball joint with threaded stud (tensile strength class 5.8). The static load values (only valid for Type OS / KS) in the table refer to a net vertical load in relation to the levelling foot. Under normal operating conditions side loading or angular loading is not uncommon and the load capacity would be considerably reduced which must be taken into consideration.
Levelling feet GN 343.1 cannot be disassembled.



TECHNICAL INFORMATION

- Elastomer characteristics (see page A32)
- Plastic characteristics (see page A2)
- Strength values (see page A20)





*Complete with type index of the Levelling feet

OS **KS** **KR** **KSE** **KRE**

GN 343.1

Description	d1	d2	l2	l3	l4	l5	A/F	t min.	⚖
GN 343.1-25-M6-*	25	M 6	19	20.5	4	5.5	12	9	31
GN 343.1-25-M8-*	25	M 8	19	20.5	4	5.5	12	9	29
GN 343.1-32-M8-*	32	M 8	23	24.5	5	6.5	12	9	65
GN 343.1-32-M10-*	32	M 10	23	24.5	5	6.5	15	10.5	60
GN 343.1-40-M10-*	40	M 10	26	27.5	6	7.5	15	10.5	101
GN 343.1-40-M12-*	40	M 12	26	27.5	6	7.5	17	11.5	100
GN 343.1-50-M10-*	50	M 10	28	29.5	7	8.5	15	10.5	166
GN 343.1-50-M12-*	50	M 12	28	29.5	7	8.5	17	11.5	162
GN 343.1-60-M12-*	60	M 12	36	37.5	8.5	10	17	11.5	320
GN 343.1-60-M16-*	60	M 16	36	37.5	8.5	10	24	16	296

Weight type KR

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GN 343.5

Stainless Steel-Levelling feet

Female thread



SPECIFICATION

Types

- Type **OS**: without plastic cap
- Type **KS**: with plastic cap, gliding
- Type **KR**: with plastic cap, non-gliding
- Type **KSE**: with plastic cap, gliding, electrically conductive (antistatic)
- Type **KRE**: with plastic cap, non-gliding, electrically conductive (antistatic)

Stainless Steel AISI 303

Type **KS / KSE**
Plastic cap Polyacetal (POM)

KS: white (natural colour) RAL 9001

KSE: black, electrically conductive
Surface resistivity: $< 10^6\ \Omega$
Volume resistivity: $< 10^7\ \Omega$
DIN EN 61340-5-1 / 61340-2-3

Type **KR / KRE**
Plastic cap elastomer (TPE), 78 Shore A ≈

KR: black

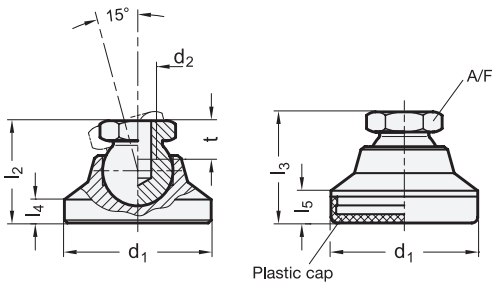
KRE: black, electrically conductive
Surface resistivity: $< 10^6\ \Omega$
Volume resistivity: $< 10^7\ \Omega$
DIN EN 61340-5-1 / 61340-2-3

INFORMATION

The static load of the Stainless Steel-Levelling feet GN 343.5 is limited by the load capacity of the ball joint (AISI 303).
The static load values (only valid for Type OS, KS and KSE) in the above table refer to a net vertical load in relation to the levelling foot.
Under normal operating conditions side loading or angular loading is not uncommon and the load capacity would be considerably reduced which must be taken into consideration.
Levelling feet GN 343.5 cannot be disassembled.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)
- Elastomer characteristics (see page A32)
- Plastic characteristics (see page A2)



*Complete with type index of the Levelling feet
OS **KS** **KR** **KSE** **KRE**

GN 343.5 **STAINLESS STEEL**

Description	d1	d2	l2	l3	l4	l5	A/F	t min.	⚖
GN 343.5-25-M6-*	25	M 6	19	20.5	4	5.5	12	9	30
GN 343.5-25-M8-*	25	M 8	19	20.5	4	5.5	12	9	25
GN 343.5-32-M8-*	32	M 8	23	24.5	5	6.5	12	9	57
GN 343.5-32-M10-*	32	M 10	23	24.5	5	6.5	15	10.5	55
GN 343.5-40-M10-*	40	M 10	26	27.5	6	7.5	15	10.5	110
GN 343.5-40-M12-*	40	M 12	26	27.5	6	7.5	17	11.5	99
GN 343.5-50-M10-*	50	M 10	28	29.5	7	8.5	15	10.5	170
GN 343.5-50-M12-*	50	M 12	28	29.5	7	8.5	17	11.5	161
GN 343.5-60-M12-*	60	M 12	36	37.5	8.5	10	17	11.5	320
GN 343.5-60-M16-*	60	M 16	36	37.5	8.5	10	24	16	305

Weight type KR

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Levelling elements

Technopolymer base, steel stem



ELESA Original design

BASE
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

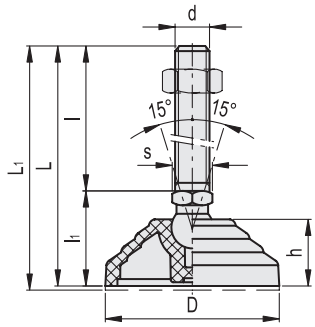
ARTICULATED STEM
Threaded zinc-plated steel with regulation hexagon.

STANDARD EXECUTIONS
- **LV.A**: without no-slip disk.
- **LV.A-AS:** with NBR rubber no-slip disk, hardness 70 Shore A, supplied assembled to the base.

FEATURES
The special knurling under the lower lip of the base provides excellent stability and grip when using the levelling element without no-slip disk even on surfaces that are not perfectly flat.
The particular assembling system of the no-slip disk to the base assures a perfect anchoring, preventing separation even in case of impact during transport or of adhesion (sticking) to the floor (see No-slip disk on page 1223).

ORDER INFORMATION
The levelling elements are supplied unassembled to make carriage and storage easier. The components (base and stem) are supplied in separate packing: less volume taken and better protection from scratches and dirt.
To order bases and stems separately, see:
table of the possible combinations Bases/Stems on page 1229.

ACCESSORIES ON REQUEST
Zinc-plated steel nut (see Nuts NT. on page 1223).



LV.A **LV.A-AS**

Code	Description	Code	Description	D	d	L	L1#	l	l1	h	s	Articulation Ø	Max. limit static load* [N]	⚖	⚖ #
303121	LV.A-60-14-M8x43	307121	LV.A-60-14-AS-M8x43	60	M8	76	79	43	33	24	14	14	14000	62	81
303125	LV.A-60-14-M8x68	307125	LV.A-60-14-AS-M8x68	60	M8	101	104	68	33	24	14	14	14000	74	93
303221	LV.A-60-14-M10x43	307221	LV.A-60-14-AS-M10x43	60	M10	76	79	43	33	24	14	14	14000	71	90
303225	LV.A-60-14-M10x68	307225	LV.A-60-14-AS-M10x68	60	M10	101	104	68	33	24	14	14	14000	83	102
303231	LV.A-60-14-M10x98	307231	LV.A-60-14-AS-M10x98	60	M10	131	134	98	33	24	14	14	14000	97	116
303321	LV.A-60-14-M12x43	307321	LV.A-60-14-AS-M12x43	60	M12	76	79	43	33	24	14	14	14000	81	100
303325	LV.A-60-14-M12x68	307325	LV.A-60-14-AS-M12x68	60	M12	101	104	68	33	24	14	14	14000	98	117
303331	LV.A-60-14-M12x98	307331	LV.A-60-14-AS-M12x98	60	M12	131	134	98	33	24	14	14	14000	119	138
303421	LV.A-60-14-M14X68	307421	LV.A-60-14-AS-M14X68	60	M14	101	104	68	33	24	14	14	14000	123	139
303431	LV.A-60-14-M14X98	307431	LV.A-60-14-AS-M14X98	60	M14	131	134	98	33	24	14	14	14000	144	160
303441	LV.A-60-14-M14X148	307441	LV.A-60-14-AS-M14X148	60	M14	181	184	148	33	24	14	14	14000	227	243
303521	LV.A-60-14-M16x68	307521	LV.A-60-14-AS-M16x68	60	M16	101	104	68	33	24	16	14	14000	142	161
303525	LV.A-60-14-M16x108	307525	LV.A-60-14-AS-M16x108	60	M16	141	144	108	33	24	16	14	14000	194	213
303541	LV.A-60-14-M16x148	307541	LV.A-60-14-AS-M16x148	60	M16	181	184	148	33	24	16	14	14000	246	265
303561	LV.A-60-14-M16x168	307561	LV.A-60-14-AS-M16x168	60	M16	201	204	168	33	24	16	14	14000	272	291

***** The max static load is the value above which the load applied to the element may cause some plastic material breakage, in particular conditions of use. Obviously, a factor that takes into consideration the importance and the safety level of the specific application must be applied to this value.

Data with no-slip disk mounted.

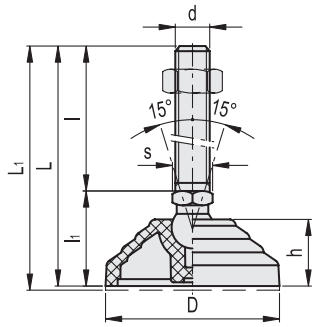
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LV.A		LV.A-AS												
Code	**Description**	**Code**	**Description**	**D**	**d**	**L**	**L1#**	**l**	**l1**	**h**	**s**	**Articulation Ø**	**Max. limit static load* [N]**	⚖ ⚖ #
303621	LV.A-60-24-M16x58	307621	LV.A-60-24-AS-M16x58	60	M16	101	104	58	43	24	24	24	18000	205 224
303625	LV.A-60-24-M16x98	307625	LV.A-60-24-AS-M16x98	60	M16	141	144	98	43	24	24	24	18000	256 275
303641	LV.A-60-24-M16x138	307641	LV.A-60-24-AS-M16x138	60	M16	181	184	138	43	24	24	24	18000	306 325
303661	LV.A-60-24-M16x158	307661	LV.A-60-24-AS-M16x158	60	M16	201	204	158	43	24	24	24	18000	333 352
303725	LV.A-60-24-M20x98	307725	LV.A-60-24-AS-M20x98	60	M20	141	144	98	43	24	24	24	18000	326 345
303741	LV.A-60-24-M20x138	307741	LV.A-60-24-AS-M20x138	60	M20	181	184	138	43	24	24	24	18000	405 424
303761	LV.A-60-24-M20x158	307761	LV.A-60-24-AS-M20x158	60	M20	201	204	158	43	24	24	24	18000	444 463
303781	LV.A-60-24-M20x198	307781	LV.A-60-24-AS-M20x198	60	M20	241	244	198	43	24	24	24	18000	527 546
303825	LV.A-60-24-M24x98	307825	LV.A-60-24-AS-M24x98	60	M24	141	144	98	43	24	24	24	18000	424 443
303861	LV.A-60-24-M24x158	307861	LV.A-60-24-AS-M24x158	60	M24	201	204	158	43	24	24	24	18000	596 615
303881	LV.A-60-24-M24x198	307881	LV.A-60-24-AS-M24x198	60	M24	241	244	198	43	24	24	24	18000	714 733
304005	LV.A-70-14-M8x43	308005	LV.A-70-14-AS-M8x43	70	M8	71	74	43	28	19	14	14	14000	60 80
304011	LV.A-70-14-M8x68	308011	LV.A-70-14-AS-M8x68	70	M8	96	99	68	28	19	14	14	14000	72 92
304021	LV.A-70-14-M10x43	308021	LV.A-70-14-AS-M10x43	70	M10	71	74	43	28	19	14	14	14000	69 89
304025	LV.A-70-14-M10x68	308025	LV.A-70-14-AS-M10x68	70	M10	96	99	68	28	19	14	14	14000	81 101
304031	LV.A-70-14-M10x98	308031	LV.A-70-14-AS-M10x98	70	M10	126	129	98	28	19	14	14	14000	95 115
304061	LV.A-70-14-M12x43	308061	LV.A-70-14-AS-M12x43	70	M12	71	74	43	28	19	14	14	14000	79 99
304065	LV.A-70-14-M12x68	308065	LV.A-70-14-AS-M12x68	70	M12	96	99	68	28	19	14	14	14000	96 116
304071	LV.A-70-14-M12x98	308071	LV.A-70-14-AS-M12x98	70	M12	126	129	98	28	19	14	14	14000	117 137
304075	LV.A-70-14-M14X68	308075	LV.A-70-14-AS-M14X68	70	M14	96	99	68	28	19	14	14	14000	118 138
304081	LV.A-70-14-M14X98	308081	LV.A-70-14-AS-M14X98	70	M14	126	129	98	28	19	14	14	14000	139 159
304085	LV.A-70-14-M14X148	308085	LV.A-70-14-AS-M14X148	70	M14	176	179	148	28	19	14	14	14000	222 242
304101	LV.A-70-14-M16x68	308101	LV.A-70-14-AS-M16x68	70	M16	96	99	68	28	19	16	14	14000	140 160
304105	LV.A-70-14-M16x108	308105	LV.A-70-14-AS-M16x108	70	M16	136	139	108	28	19	16	14	14000	192 212
304111	LV.A-70-14-M16x148	308111	LV.A-70-14-AS-M16x148	70	M16	176	179	148	28	19	16	14	14000	244 264
304115	LV.A-70-14-M16x168	308115	LV.A-70-14-AS-M16x168	70	M16	196	199	168	28	19	16	14	14000	270 290
304121	LV.A-80-14-M8x43	308121	LV.A-80-14-AS-M8x43	80	M8	76	79	43	33	24	14	14	16000	83 109
304125	LV.A-80-14-M8x68	308125	LV.A-80-14-AS-M8x68	80	M8	101	104	68	33	24	14	14	16000	95 121
304221	LV.A-80-14-M10x43	308221	LV.A-80-14-AS-M10x43	80	M10	76	79	43	33	24	14	14	16000	92 118
304225	LV.A-80-14-M10x68	308225	LV.A-80-14-AS-M10x68	80	M10	101	104	68	33	24	14	14	16000	104 130
304231	LV.A-80-14-M10x98	308231	LV.A-80-14-AS-M10x98	80	M10	131	134	98	33	24	14	14	16000	118 144
304321	LV.A-80-14-M12x43	308321	LV.A-80-14-AS-M12x43	80	M12	76	79	43	33	24	14	14	16000	102 128
304325	LV.A-80-14-M12x68	308325	LV.A-80-14-AS-M12x68	80	M12	101	104	68	33	24	14	14	16000	119 145
304331	LV.A-80-14-M12x98	308331	LV.A-80-14-AS-M12x98	80	M12	131	134	98	33	24	14	14	16000	140 166
304421	LV.A-80-14-M14X68	308421	LV.A-80-14-AS-M14X68	80	M14	101	104	68	33	24	14	14	16000	141 167
304431	LV.A-80-14-M14X98	308431	LV.A-80-14-AS-M14X98	80	M14	131	134	98	33	24	14	14	16000	162 188
304441	LV.A-80-14-M14X148	308441	LV.A-80-14-AS-M14X148	80	M14	181	184	148	33	24	14	14	16000	245 271
304521	LV.A-80-14-M16x68	308521	LV.A-80-14-AS-M16x68	80	M16	101	104	68	33	24	16	14	16000	163 189
304525	LV.A-80-14-M16x108	308525	LV.A-80-14-AS-M16x108	80	M16	141	144	108	33	24	16	14	16000	215 241
304541	LV.A-80-14-M16x148	308541	LV.A-80-14-AS-M16x148	80	M16	181	184	148	33	24	16	14	16000	267 293
304561	LV.A-80-14-M16x168	308561	LV.A-80-14-AS-M16x168	80	M16	201	204	168	33	24	16	14	16000	293 319
304621	LV.A-80-24-M16x58	308621	LV.A-80-24-AS-M16x58	80	M16	101	104	58	43	24	24	24	18000	225 251
304625	LV.A-80-24-M16x98	308625	LV.A-80-24-AS-M16x98	80	M16	141	144	98	43	24	24	24	18000	276 302
304641	LV.A-80-24-M16x138	308641	LV.A-80-24-AS-M16x138	80	M16	181	184	138	43	24	24	24	18000	326 352
304661	LV.A-80-24-M16x158	308661	LV.A-80-24-AS-M16x158	80	M16	201	204	158	43	24	24	24	18000	353 379
304725	LV.A-80-24-M20x98	308725	LV.A-80-24-AS-M20x98	80	M20	141	144	98	43	24	24	24	18000	346 372
304741	LV.A-80-24-M20x138	308741	LV.A-80-24-AS-M20x138	80	M20	181	184	138	43	24	24	24	18000	425 451
304761	LV.A-80-24-M20x158	308761	LV.A-80-24-AS-M20x158	80	M20	201	204	158	43	24	24	24	18000	464 490
304781	LV.A-80-24-M20x198	308781	LV.A-80-24-AS-M20x198	80	M20	241	244	198	43	24	24	24	18000	547 573
304825	LV.A-80-24-M24x98	308825	LV.A-80-24-AS-M24x98	80	M24	141	144	98	43	24	24	24	18000	444 470
304861	LV.A-80-24-M24x158	308861	LV.A-80-24-AS-M24x158	80	M24	201	204	158	43	24	24	24	18000	616 642
304881	LV.A-80-24-M24x198	308881	LV.A-80-24-AS-M24x198	80	M24	241	244	198	43	24	24	24	18000	734 760

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LV.A **LV.A-AS**

Code	Description	Code	Description	D	d	L	L1#	l	l1	h	s	Articulation Ø	Max. limit static load* [N]	⚖	⚖ #
305451	LV.A-100-14-M8x43	309451	LV.A-100-14-AS-M8x43	100	M8	76	79	43	33	24	14	14	18000	91	146
305453	LV.A-100-14-M8x68	309453	LV.A-100-14-AS-M8x68	100	M8	101	104	68	33	24	14	14	18000	103	158
305461	LV.A-100-14-M10x43	309461	LV.A-100-14-AS-M10x43	100	M10	76	79	43	33	24	14	14	18000	100	155
305463	LV.A-100-14-M10x68	309463	LV.A-100-14-AS-M10x68	100	M10	101	104	68	33	24	14	14	18000	112	167
305465	LV.A-100-14-M10x98	309465	LV.A-100-14-AS-M10x98	100	M10	131	134	98	33	24	14	14	18000	126	181
305471	LV.A-100-14-M12x43	309471	LV.A-100-14-AS-M12x43	100	M12	76	79	43	33	24	14	14	18000	110	165
305473	LV.A-100-14-M12x68	309473	LV.A-100-14-AS-M12x68	100	M12	101	104	68	33	24	14	14	18000	127	182
305475	LV.A-100-14-M12x98	309475	LV.A-100-14-AS-M12x98	100	M12	131	134	98	33	24	14	14	18000	148	203
305477	LV.A-100-14-M14X68	309477	LV.A-100-14-AS-M14X68	100	M14	101	104	68	33	24	14	14	18000	149	204
305479	LV.A-100-14-M14X98	309479	LV.A-100-14-AS-M14X98	100	M14	131	134	98	33	24	14	14	18000	170	225
305480	LV.A-100-14-M14X148	309480	LV.A-100-14-AS-M14X148	100	M14	181	184	148	33	24	14	14	18000	253	308
305481	LV.A-100-14-M16x68	309481	LV.A-100-14-AS-M16x68	100	M16	101	104	68	33	24	16	14	18000	171	226
305483	LV.A-100-14-M16x108	309483	LV.A-100-14-AS-M16x108	100	M16	141	144	108	33	24	16	14	18000	223	278
305485	LV.A-100-14-M16x148	309485	LV.A-100-14-AS-M16x148	100	M16	181	184	148	33	24	16	14	18000	275	330
305487	LV.A-100-14-M16x168	309487	LV.A-100-14-AS-M16x168	100	M16	201	204	168	33	24	16	14	18000	301	356
305521	LV.A-100-24-M16x58	309521	LV.A-100-24-AS-M16x58	100	M16	101	104	58	43	24	24	24	25000	251	305
305525	LV.A-100-24-M16x98	309525	LV.A-100-24-AS-M16x98	100	M16	141	144	98	43	24	24	24	25000	302	356
305541	LV.A-100-24-M16x138	309541	LV.A-100-24-AS-M16x138	100	M16	181	184	138	43	24	24	24	25000	352	406
305561	LV.A-100-24-M16x158	309561	LV.A-100-24-AS-M16x158	100	M16	201	204	158	43	24	24	24	25000	379	433
305625	LV.A-100-24-M20x98	309625	LV.A-100-24-AS-M20x98	100	M20	141	144	98	43	24	24	24	25000	372	426
305641	LV.A-100-24-M20x138	309641	LV.A-100-24-AS-M20x138	100	M20	181	184	138	43	24	24	24	25000	451	505
305661	LV.A-100-24-M20x158	309661	LV.A-100-24-AS-M20x158	100	M20	201	204	158	43	24	24	24	25000	490	544
305681	LV.A-100-24-M20x198	309681	LV.A-100-24-AS-M20x198	100	M20	241	244	198	43	24	24	24	25000	573	627
305725	LV.A-100-24-M24x98	309725	LV.A-100-24-AS-M24x98	100	M24	141	144	98	43	24	24	24	25000	470	524
305761	LV.A-100-24-M24x158	309761	LV.A-100-24-AS-M24x158	100	M24	201	204	158	43	24	24	24	25000	642	696
305781	LV.A-100-24-M24x198	309781	LV.A-100-24-AS-M24x198	100	M24	241	244	198	43	24	24	24	25000	760	814
306521	LV.A-125-24-M16x58	310221	LV.A-125-24-AS-M16x58	125	M16	125	128	58	67	46	24	24	28000	386	512
306525	LV.A-125-24-M16x98	310225	LV.A-125-24-AS-M16x98	125	M16	165	168	98	67	46	24	24	28000	437	563
306541	LV.A-125-24-M16x138	310241	LV.A-125-24-AS-M16x138	125	M16	205	208	138	67	46	24	24	28000	487	613
306561	LV.A-125-24-M16x158	310261	LV.A-125-24-AS-M16x158	125	M16	225	228	158	67	46	24	24	28000	514	640
306625	LV.A-125-24-M20x98	310325	LV.A-125-24-AS-M20x98	125	M20	165	168	98	67	46	24	24	28000	507	633
306641	LV.A-125-24-M20x138	310341	LV.A-125-24-AS-M20x138	125	M20	205	208	138	67	46	24	24	28000	586	712
306661	LV.A-125-24-M20x158	310361	LV.A-125-24-AS-M20x158	125	M20	225	228	158	67	46	24	24	28000	625	751
306681	LV.A-125-24-M20x198	310381	LV.A-125-24-AS-M20x198	125	M20	265	268	198	67	46	24	24	28000	708	834
306725	LV.A-125-24-M24x98	310425	LV.A-125-24-AS-M24x98	125	M24	165	168	98	67	46	24	24	28000	605	731
306761	LV.A-125-24-M24x158	310461	LV.A-125-24-AS-M24x158	125	M24	225	228	158	67	46	24	24	28000	777	903
306781	LV.A-125-24-M24x198	310481	LV.A-125-24-AS-M24x198	125	M24	265	268	198	67	46	24	24	28000	895	1021

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LV.A-SST

INOX STAINLESS STEEL | RoHS | PA | NBR | +100° -30°

Levelling elements

Technopolymer base, stainless steel stem

BASE
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

ARTICULATED STEM
Threaded AISI 304 stainless steel with regulation hexagon.

STANDARD EXECUTIONS
- **LV.A-SST**: without no-slip disk.
- **LV.A-AS-SST:** with NBR rubber no-slip disk, hardness 70 Shore A, supplied assembled to the base.

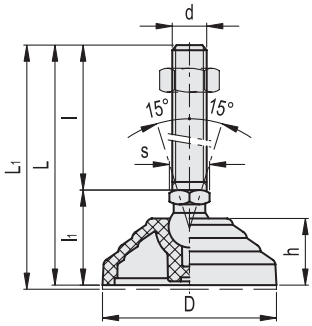
FEATURES
The special knurling under the lower lip of the base provides excellent stability and grip when using the levelling element without no-slip disk even on surfaces that are not perfectly flat.
The particular assembling system of the no-slip disk to the base assures a perfect anchoring, preventing separation even in case of impact during transport or of adhesion (sticking) to the floor (see No-slip disk on page 1223).

ORDER INFORMATION
The levelling elements are supplied unassembled to make carriage and storage easier. The components (base and stem) are supplied in separate packing: less volume taken and better protection from scratches and dirt.
To order bases and stems separately, see:
table of the possible combinations Bases/Stems on page 1229.

ACCESSORIES ON REQUEST
AISI 304 stainless steel nut (see Nuts NT. on page 1223).



ELESA Original design



LV.A-SST **LV.A-AS-SST** **STAINLESS STEEL**

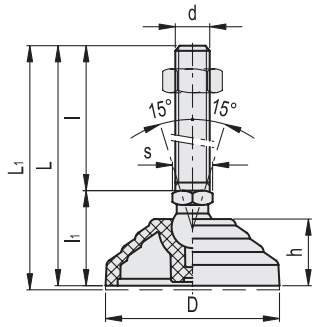
Code	Description	Code	Description	D	d	L	L1#	l	l1	h	s	Articulation ø	Max. limit static load* [N]	⚖	⚖#
323121	LV.A-60-14-SST-M8x43	327121	LV.A-60-14-AS-SST-M8x43	60	M8	76	79	43	33	24	14	14	14000	63	82
323125	LV.A-60-14-SST-M8x68	327125	LV.A-60-14-AS-SST-M8x68	60	M8	101	104	68	33	24	14	14	14000	75	94
323221	LV.A-60-14-SST-M10x43	327221	LV.A-60-14-AS-SST-M10x43	60	M10	76	79	43	33	24	14	14	14000	72	91
323225	LV.A-60-14-SST-M10x68	327225	LV.A-60-14-AS-SST-M10x68	60	M10	101	104	68	33	24	14	14	14000	85	104
323231	LV.A-60-14-SST-M10x98	327231	LV.A-60-14-AS-SST-M10x98	60	M10	131	134	98	33	24	14	14	14000	99	118
323321	LV.A-60-14-SST-M12x43	327321	LV.A-60-14-AS-SST-M12x43	60	M12	76	79	43	33	24	14	14	14000	82	101
323325	LV.A-60-14-SST-M12x68	327325	LV.A-60-14-AS-SST-M12x68	60	M12	101	104	68	33	24	14	14	14000	100	119
323331	LV.A-60-14-SST-M12x98	327331	LV.A-60-14-AS-SST-M12x98	60	M12	131	134	98	33	24	14	14	14000	122	141
323421	LV.A-60-14-SST-M14X68	327421	LV.A-60-14-AS-SST-M14X68	60	M14	101	104	68	33	24	14	14	14000	123	142
323431	LV.A-60-14-SST-M14X98	327431	LV.A-60-14-AS-SST-M14X98	60	M14	131	134	98	33	24	14	14	14000	144	163
323441	LV.A-60-14-SST-M14X148	327441	LV.A-60-14-AS-SST-M14X148	60	M14	181	184	148	33	24	14	14	14000	227	246
323521	LV.A-60-14-SST-M16x68	327521	LV.A-60-14-AS-SST-M16x68	60	M16	101	104	68	33	24	16	14	14000	145	164
323525	LV.A-60-14-SST-M16x108	327525	LV.A-60-14-AS-SST-M16x108	60	M16	141	144	108	33	24	16	14	14000	199	218
323541	LV.A-60-14-SST-M16x148	327541	LV.A-60-14-AS-SST-M16x148	60	M16	181	184	148	33	24	16	14	14000	252	271
323561	LV.A-60-14-SST-M16x168	327561	LV.A-60-14-AS-SST-M16x168	60	M16	201	204	168	33	24	16	14	14000	279	298

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LV.A-SST | Levelling elements



LV.A-SST **LV.A-AS-SST** **STAINLESS STEEL**

Code	Description	Code	Description	D	d	L	L1#	l	l1	h	s	Articulation Ø	Max. limit static load* [N]	⚖	⚖ #
323621	LV.A-60-24-SST-M16x58	327621	LV.A-60-24-AS-SST-M16x58	60	M16	101	104	58	43	24	24	24	18000	208	227
323625	LV.A-60-24-SST-M16x98	327625	LV.A-60-24-AS-SST-M16x98	60	M16	141	144	98	43	24	24	24	18000	260	279
323641	LV.A-60-24-SST-M16x138	327641	LV.A-60-24-AS-SST-M16x138	60	M16	181	184	138	43	24	24	24	18000	311	330
323661	LV.A-60-24-SST-M16x158	327661	LV.A-60-24-AS-SST-M16x158	60	M16	201	204	158	43	24	24	24	18000	339	358
323725	LV.A-60-24-SST-M20x98	327725	LV.A-60-24-AS-SST-M20x98	60	M20	141	144	98	43	24	24	24	18000	332	351
323741	LV.A-60-24-SST-M20x138	327741	LV.A-60-24-AS-SST-M20x138	60	M20	181	184	138	43	24	24	24	18000	412	431
323761	LV.A-60-24-SST-M20x158	327761	LV.A-60-24-AS-SST-M20x158	60	M20	201	204	158	43	24	24	24	18000	452	471
323781	LV.A-60-24-SST-M20x198	327781	LV.A-60-24-AS-SST-M20x198	60	M20	241	244	198	43	24	24	24	18000	537	556
323825	LV.A-60-24-SST-M24x98	327825	LV.A-60-24-AS-SST-M24x98	60	M24	141	144	98	43	24	24	24	18000	432	451
323861	LV.A-60-24-SST-M24x158	327861	LV.A-60-24-AS-SST-M24x158	60	M24	201	204	158	43	24	24	24	18000	607	626
323881	LV.A-60-24-SST-M24x198	327881	LV.A-60-24-AS-SST-M24x198	60	M24	241	244	198	43	24	24	24	18000	728	747
324005	LV.A-70-14-SST-M8x43	328005	LV.A-70-14-AS-SST-M8x43	70	M8	71	74	43	28	19	14	14	14000	61	81
324011	LV.A-70-14-SST-M8x68	328011	LV.A-70-14-AS-SST-M8x68	70	M8	96	99	68	28	19	14	14	14000	73	93
324021	LV.A-70-14-SST-M10x43	328021	LV.A-70-14-AS-SST-M10x43	70	M10	71	74	43	28	19	14	14	14000	70	90
324025	LV.A-70-14-SST-M10x68	328025	LV.A-70-14-AS-SST-M10x68	70	M10	96	99	68	28	19	14	14	14000	84	103
324031	LV.A-70-14-SST-M10x98	328031	LV.A-70-14-AS-SST-M10x98	70	M10	126	129	98	28	19	14	14	14000	97	117
324061	LV.A-70-14-SST-M12x43	328061	LV.A-70-14-AS-SST-M12x43	70	M12	71	74	43	28	19	14	14	14000	80	100
324065	LV.A-70-14-SST-M12x68	328065	LV.A-70-14-AS-SST-M12x68	70	M12	96	99	68	28	19	14	14	14000	98	118
324071	LV.A-70-14-SST-M12x98	328071	LV.A-70-14-AS-SST-M12x98	70	M12	126	129	98	28	19	14	14	14000	120	140
324075	LV.A-70-14-SST-M14X68	328075	LV.A-70-14-AS-SST-M14X68	70	M14	96	99	68	28	19	14	14	14000	121	141
324081	LV.A-70-14-SST-M14X98	328081	LV.A-70-14-AS-SST-M14X98	70	M14	126	129	98	28	19	14	14	14000	142	162
324085	LV.A-70-14-SST-M14X148	328085	LV.A-70-14-AS-SST-M14X148	70	M14	176	179	148	28	19	14	14	14000	225	245
324101	LV.A-70-14-SST-M16x68	328101	LV.A-70-14-AS-SST-M16x68	70	M16	96	99	68	28	19	16	14	14000	143	163
324105	LV.A-70-14-SST-M16x108	328105	LV.A-70-14-AS-SST-M16x108	70	M16	136	139	108	28	19	16	14	14000	197	217
324111	LV.A-70-14-SST-M16x148	328111	LV.A-70-14-AS-SST-M16x148	70	M16	176	179	148	28	19	16	14	14000	250	270
324115	LV.A-70-14-SST-M16x168	328115	LV.A-70-14-AS-SST-M16x168	70	M16	196	199	168	28	19	16	14	14000	277	297
324121	LV.A-80-14-SST-M8x43	328121	LV.A-80-14-AS-SST-M8x43	80	M8	76	79	43	33	24	14	14	16000	84	110
324125	LV.A-80-14-SST-M8x68	328125	LV.A-80-14-AS-SST-M8x68	80	M8	101	104	68	33	24	14	14	16000	96	122
324221	LV.A-80-14-SST-M10x43	328221	LV.A-80-14-AS-SST-M10x43	80	M10	76	79	43	33	24	14	14	16000	93	119
324225	LV.A-80-14-SST-M10x68	328225	LV.A-80-14-AS-SST-M10x68	80	M10	101	104	68	33	24	14	14	16000	106	132
324231	LV.A-80-14-SST-M10x98	328231	LV.A-80-14-AS-SST-M10x98	80	M10	131	134	98	33	24	14	14	16000	120	146
324321	LV.A-80-14-SST-M12x43	328321	LV.A-80-14-AS-SST-M12x43	80	M12	76	79	43	33	24	14	14	16000	103	129
324325	LV.A-80-14-SST-M12x68	328325	LV.A-80-14-AS-SST-M12x68	80	M12	101	104	68	33	24	14	14	16000	121	147
324331	LV.A-80-14-SST-M12x98	328331	LV.A-80-14-AS-SST-M12x98	80	M12	131	134	98	33	24	14	14	16000	143	169
324421	LV.A-80-14-SST-M14X68	328421	LV.A-80-14-AS-SST-M14X68	80	M14	101	104	68	33	24	14	14	16000	144	170
324431	LV.A-80-14-SST-M14X98	328431	LV.A-80-14-AS-SST-M14X98	80	M14	131	134	98	33	24	14	14	16000	165	191
324441	LV.A-80-14-SST-M14X148	328441	LV.A-80-14-AS-SST-M14X148	80	M14	181	184	148	33	24	14	14	16000	248	274
324521	LV.A-80-14-SST-M16x68	328521	LV.A-80-14-AS-SST-M16x68	80	M16	101	104	68	33	24	16	14	16000	166	192
324525	LV.A-80-14-SST-M16x108	328525	LV.A-80-14-AS-SST-M16x108	80	M16	141	144	108	33	24	16	14	16000	220	246
324541	LV.A-80-14-SST-M16x148	328541	LV.A-80-14-AS-SST-M16x148	80	M16	181	184	148	33	24	16	14	16000	273	299
324561	LV.A-80-14-SST-M16x168	328561	LV.A-80-14-AS-SST-M16x168	80	M16	201	204	168	33	24	16	14	16000	300	326

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LV.A-SST **LV.A-AS-SST** **STAINLESS STEEL**

Code	Description	Code	Description	D	d	L	L1#	l	l1	h	s	Articulation Ø	Max. limit static load* [N]	⚖	⚖#
324621	LV.A-80-24-SST-M16x58	328621	LV.A-80-24-AS-SST-M16x58	80	M16	101	104	58	43	24	24	24	18000	228	254
324625	LV.A-80-24-SST-M16x98	328625	LV.A-80-24-AS-SST-M16x98	80	M16	141	144	98	43	24	24	24	18000	280	306
324641	LV.A-80-24-SST-M16x138	328641	LV.A-80-24-AS-SST-M16x138	80	M16	181	184	138	43	24	24	24	18000	331	357
324661	LV.A-80-24-SST-M16x158	328661	LV.A-80-24-AS-SST-M16x158	80	M16	201	204	158	43	24	24	24	18000	359	385
324725	LV.A-80-24-SST-M20x98	328725	LV.A-80-24-AS-SST-M20x98	80	M20	141	144	98	43	24	24	24	18000	352	378
324741	LV.A-80-24-SST-M20x138	328741	LV.A-80-24-AS-SST-M20x138	80	M20	181	184	138	43	24	24	24	18000	432	458
324761	LV.A-80-24-SST-M20x158	328761	LV.A-80-24-AS-SST-M20x158	80	M20	201	204	158	43	24	24	24	18000	472	498
324781	LV.A-80-24-SST-M20x198	328781	LV.A-80-24-AS-SST-M20x198	80	M20	241	244	198	43	24	24	24	18000	577	583
324825	LV.A-80-24-SST-M24x98	328825	LV.A-80-24-AS-SST-M24x98	80	M24	141	144	98	43	24	24	24	18000	452	478
324861	LV.A-80-24-SST-M24x158	328861	LV.A-80-24-AS-SST-M24x158	80	M24	201	204	158	43	24	24	24	18000	627	653
324881	LV.A-80-24-SST-M24x198	328881	LV.A-80-24-AS-SST-M24x198	80	M24	241	244	198	43	24	24	24	18000	748	774
325451	LV.A-100-14-SST-M8x43	329451	LV.A-100-14-AS-SST-M8x43	100	M8	76	79	43	33	24	14	14	18000	91	146
325453	LV.A-100-14-SST-M8x68	329453	LV.A-100-14-AS-SST-M8x68	100	M8	101	104	68	33	24	14	14	18000	103	158
325461	LV.A-100-14-SST-M10x43	329461	LV.A-100-14-AS-SST-M10x43	100	M10	76	79	43	33	24	14	14	18000	100	155
325463	LV.A-100-14-SST-M10x68	329463	LV.A-100-14-AS-SST-M10x68	100	M10	101	104	68	33	24	14	14	18000	112	167
325465	LV.A-100-14-SST-M10x98	329465	LV.A-100-14-AS-SST-M10x98	100	M10	131	134	98	33	24	14	14	18000	126	181
325471	LV.A-100-14-SST-M12x43	329471	LV.A-100-14-AS-SST-M12x43	100	M12	76	79	43	33	24	14	14	18000	110	165
325473	LV.A-100-14-SST-M12x68	329473	LV.A-100-14-AS-SST-M12x68	100	M12	101	104	68	33	24	14	14	18000	127	182
325475	LV.A-100-14-SST-M12x98	329475	LV.A-100-14-AS-SST-M12x98	100	M12	131	134	98	33	24	14	14	18000	148	203
325477	LV.A-100-14-SST-M14X68	329477	LV.A-100-14-AS-SST-M14X68	100	M14	101	104	68	33	24	14	14	18000	149	204
325479	LV.A-100-14-SST-M14X98	329479	LV.A-100-14-AS-SST-M14X98	100	M14	131	134	98	33	24	14	14	18000	170	225
325480	LV.A-100-14-SST-M14X148	329480	LV.A-100-14-AS-SST-M14X148	100	M14	181	184	148	33	24	14	14	18000	253	308
325481	LV.A-100-14-SST-M16x68	329481	LV.A-100-14-AS-SST-M16x68	100	M16	101	104	68	33	24	16	14	18000	171	226
325483	LV.A-100-14-SST-M16x108	329483	LV.A-100-14-AS-SST-M16x108	100	M16	141	144	108	33	24	16	14	18000	223	278
325485	LV.A-100-14-SST-M16x148	329485	LV.A-100-14-AS-SST-M16x148	100	M16	181	184	148	33	24	16	14	18000	275	330
325487	LV.A-100-14-SST-M16x168	329487	LV.A-100-14-AS-SST-M16x168	100	M16	201	204	168	33	24	16	14	18000	301	356
325521	LV.A-100-24-SST-M16x58	329521	LV.A-100-24-AS-SST-M16x58	100	M16	101	104	58	43	24	24	24	25000	254	308
325525	LV.A-100-24-SST-M16x98	329525	LV.A-100-24-AS-SST-M16x98	100	M16	141	144	98	43	24	24	24	25000	357	411
325541	LV.A-100-24-SST-M16x138	329541	LV.A-100-24-AS-SST-M16x138	100	M16	181	184	138	43	24	24	24	25000	357	411
325561	LV.A-100-24-SST-M16x158	329561	LV.A-100-24-AS-SST-M16x158	100	M16	201	204	158	43	24	24	24	25000	385	439
325625	LV.A-100-24-SST-M20x98	329625	LV.A-100-24-AS-SST-M20x98	100	M20	141	144	98	43	24	24	24	25000	378	432
325641	LV.A-100-24-SST-M20x138	329641	LV.A-100-24-AS-SST-M20x138	100	M20	181	184	138	43	24	24	24	25000	458	512
325661	LV.A-100-24-SST-M20x158	329661	LV.A-100-24-AS-SST-M20x158	100	M20	201	204	158	43	24	24	24	25000	498	552
325681	LV.A-100-24-SST-M20x198	329681	LV.A-100-24-AS-SST-M20x198	100	M20	241	244	198	43	24	24	24	25000	583	637
325725	LV.A-100-24-SST-M24x98	329725	LV.A-100-24-AS-SST-M24x98	100	M24	141	144	98	43	24	24	24	25000	478	532
325761	LV.A-100-24-SST-M24x158	329761	LV.A-100-24-AS-SST-M24x158	100	M24	201	204	158	43	24	24	24	25000	653	707
325781	LV.A-100-24-SST-M24x198	329781	LV.A-100-24-AS-SST-M24x198	100	M24	241	244	198	43	24	24	24	25000	774	828
326521	LV.A-125-24-SST-M16x58	330221	LV.A-125-24-AS-SST-M16x58	125	M16	125	128	58	67	46	24	24	28000	389	515
326525	LV.A-125-24-SST-M16x98	330225	LV.A-125-24-AS-SST-M16x98	125	M16	165	168	98	67	46	24	24	28000	441	567
326541	LV.A-125-24-SST-M16x138	330241	LV.A-125-24-AS-SST-M16x138	125	M16	205	208	138	67	46	24	24	28000	492	618
326561	LV.A-125-24-SST-M16x158	330261	LV.A-125-24-AS-SST-M16x158	125	M16	225	228	158	67	46	24	24	28000	520	646
326625	LV.A-125-24-SST-M20x98	330325	LV.A-125-24-AS-SST-M20x98	125	M20	165	168	98	67	46	24	24	28000	513	639
326641	LV.A-125-24-SST-M20x138	330341	LV.A-125-24-AS-SST-M20x138	125	M20	205	208	138	67	46	24	24	28000	633	759
326661	LV.A-125-24-SST-M20x158	330361	LV.A-125-24-AS-SST-M20x158	125	M20	225	228	158	67	46	24	24	28000	633	759
326681	LV.A-125-24-SST-M20x198	330381	LV.A-125-24-AS-SST-M20x198	125	M20	265	268	198	67	46	24	24	28000	718	844
326725	LV.A-125-24-SST-M24x98	330425	LV.A-125-24-AS-SST-M24x98	125	M24	165	168	98	67	46	24	24	28000	613	739
326761	LV.A-125-24-SST-M24x158	330461	LV.A-125-24-AS-SST-M24x158	125	M24	225	228	158	67	46	24	24	28000	788	914
326781	LV.A-125-24-SST-M24x198	330481	LV.A-125-24-AS-SST-M24x198	125	M24	265	268	198	67	46	24	24	28000	909	1035

***** The max static load is the value above which the load applied to the element may cause some plastic material breakage, in particular conditions of use. Obviously, a factor that takes into consideration the importance and the safety level of the specific application must be applied to this value.

Data with no-slip disk mounted.

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Levelling elements

ESD conductive technopolymer base, steel stem

BASE

Glass-fibre reinforced polyamide based (PA) special conductive technopolymer, black colour, matte finish.
Surface resistivity = 10^3 Ω (ASTM D257 measuring method).
Volume resistivity = 10^3 Ωcm (ASTM D257 measuring method).

ARTICULATED STEM

Threaded zinc-plated steel with regulation hexagon.

STANDARD EXECUTIONS

- **LV.A-ESD-C**: without no-slip disk.
- **LV.A-AS-ESD-C**: with NBR conductive rubber, hardness 70 Shore A, supplied assembled.

Surface resistivity = 10^3 Ω (ASTM D991 measuring method).
Volume resistivity = 10^3 Ωcm (ASTM D991 measuring method).

FEATURES AND APPLICATIONS

The special conductive technopolymer (ESD-C Electrostatic Discharge Conductive) prevents the accumulation of electrostatic charge.
The particular assembling system of the no-slip disk to the base assures a perfect anchoring, preventing separation even in case of impact during transport or of adhesion (sticking) to the floor (see No-slip disk on page 1223).
The bases are suitable for "ESD PROTECTED AREA" (EPA) where components, which are susceptible to electrostatic discharges, are handled.
The (ESD-C) indelibly printed mark on the surface of the levelling elements bases identifies the particular conductive features of the material according to EN 100015/1 and IEC 61340-5-1.

ORDER INFORMATION

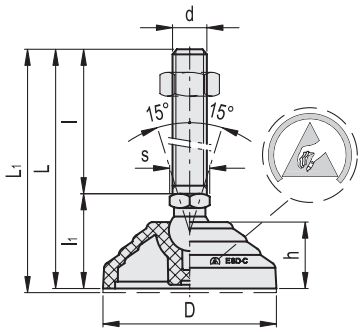
The levelling elements are supplied unassembled to make carriage and storage easier. The components (base and stem) are supplied in separate packing: less volume taken and better protection from scratches and dirt.
To order bases and stems separately, see:
table of the possible combinations Bases/Stems on page 1229.

ACCESSORIES ON REQUEST

Zinc-plated steel nut (see Nuts NT. on page 1223).



ELESA Original design



LV.A-ESD-C **LV.A-AS-ESD-C**

Code	Description	Code	Description	D	d	L	L1#	l	l1	h	s	Articulation Ø	Max. limit static load* [N]	⚖	⚖ #
303121-ESD	LV.A-60-14-M8x43-ESD-C	307121-ESD	LV.A-60-14-AS-M8x43-ESD-C	60	M8	76	79	43	33	24	14	14	14000	62	81
303125-ESD	LV.A-60-14-M8x68-ESD-C	307125-ESD	LV.A-60-14-AS-M8x68-ESD-C	60	M8	101	104	68	33	24	14	14	14000	74	93
303221-ESD	LV.A-60-14-M10x43-ESD-C	307221-ESD	LV.A-60-14-AS-M10x43-ESD-C	60	M10	76	79	43	33	24	14	14	14000	71	90
303225-ESD	LV.A-60-14-M10x68-ESD-C	307225-ESD	LV.A-60-14-AS-M10x68-ESD-C	60	M10	101	104	68	33	24	14	14	14000	83	102
303231-ESD	LV.A-60-14-M10x98-ESD-C	307231-ESD	LV.A-60-14-AS-M10x98-ESD-C	60	M10	131	134	98	33	24	14	14	14000	97	116
303321-ESD	LV.A-60-14-M12x43-ESD-C	307321-ESD	LV.A-60-14-AS-M12x43-ESD-C	60	M12	76	79	43	33	24	14	14	14000	81	100
303325-ESD	LV.A-60-14-M12x68-ESD-C	307325-ESD	LV.A-60-14-AS-M12x68-ESD-C	60	M12	101	104	68	33	24	14	14	14000	98	117
303331-ESD	LV.A-60-14-M12x98-ESD-C	307331-ESD	LV.A-60-14-AS-M12x98-ESD-C	60	M12	131	134	98	33	24	14	14	14000	119	138
303421-ESD	LV.A-60-14-M14X68-ESD-C	307421-ESD	LV.A-60-14-AS-M14X68-ESD-C	60	M14	101	104	68	33	24	14	14	14000	120	139
303431-ESD	LV.A-60-14-M14X98-ESD-C	307431-ESD	LV.A-60-14-AS-M14X98-ESD-C	60	M14	131	134	98	33	24	14	14	14000	141	160
303441-ESD	LV.A-60-14-M14X148-ESD-C	307441-ESD	LV.A-60-14-AS-M14X148-ESD-C	60	M14	181	184	148	33	24	14	14	14000	224	243
303521-ESD	LV.A-60-14-M16x68-ESD-C	307521-ESD	LV.A-60-14-AS-M16x68-ESD-C	60	M16	101	104	68	33	24	16	14	14000	142	161
303525-ESD	LV.A-60-14-M16x108-ESD-C	307525-ESD	LV.A-60-14-AS-M16x108-ESD-C	60	M16	141	144	108	33	24	16	14	14000	194	213
303541-ESD	LV.A-60-14-M16x148-ESD-C	307541-ESD	LV.A-60-14-AS-M16x148-ESD-C	60	M16	181	184	148	33	24	16	14	14000	246	265
303561-ESD	LV.A-60-14-M16x168-ESD-C	307561-ESD	LV.A-60-14-AS-M16x168-ESD-C	60	M16	201	204	168	33	24	16	14	14000	272	291

***** The max static load is the value above which the load applied to the element may cause some plastic material breakage, in particular conditions of use. Obviously, a factor that takes into consideration the importance and the safety level of the specific application must be applied to this value.

Data with no-slip disk mounted.

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LV.A-ESD-C **LV.A-AS-ESD-C**

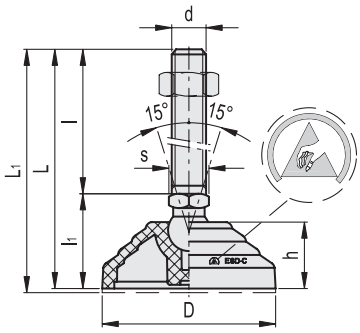
Code	Description	Code	Description	D	d	L	L1#	l	l1	h	s	Articulation Ø	Max. limit static load* [N]	⚖	⚖ #
303621-ESD	LV.A-60-24-M16x58-ESD-C	307621-ESD	LV.A-60-24-AS-M16x58-ESD-C	60	M16	101	104	58	43	24	24	24	18000	205	224
303625-ESD	LV.A-60-24-M16x98-ESD-C	307625-ESD	LV.A-60-24-AS-M16x98-ESD-C	60	M16	141	144	98	43	24	24	24	18000	256	275
303641-ESD	LV.A-60-24-M16x138-ESD-C	307641-ESD	LV.A-60-24-AS-M16x138-ESD-C	60	M16	181	184	138	43	24	24	24	18000	306	325
303661-ESD	LV.A-60-24-M16x158-ESD-C	307661-ESD	LV.A-60-24-AS-M16x158-ESD-C	60	M16	201	204	158	43	24	24	24	18000	333	352
303725-ESD	LV.A-60-24-M20x98-ESD-C	307725-ESD	LV.A-60-24-AS-M20x98-ESD-C	60	M20	141	144	98	43	24	24	24	18000	326	345
303741-ESD	LV.A-60-24-M20x138-ESD-C	307741-ESD	LV.A-60-24-AS-M20x138-ESD-C	60	M20	181	184	138	43	24	24	24	18000	405	424
303761-ESD	LV.A-60-24-M20x158-ESD-C	307761-ESD	LV.A-60-24-AS-M20x158-ESD-C	60	M20	201	204	158	43	24	24	24	18000	444	463
303781-ESD	LV.A-60-24-M20x198-ESD-C	307781-ESD	LV.A-60-24-AS-M20x198-ESD-C	60	M20	241	244	198	43	24	24	24	18000	527	546
303825-ESD	LV.A-60-24-M24x98-ESD-C	307825-ESD	LV.A-60-24-AS-M24x98-ESD-C	60	M24	141	144	98	43	24	24	24	18000	424	443
303861-ESD	LV.A-60-24-M24x158-ESD-C	307861-ESD	LV.A-60-24-AS-M24x158-ESD-C	60	M24	201	204	158	43	24	24	24	18000	596	615
303881-ESD	LV.A-60-24-M24x198-ESD-C	307881-ESD	LV.A-60-24-AS-M24x198-ESD-C	60	M24	241	244	198	43	24	24	24	18000	714	733
304005-ESD	LV.A-70-14-M8x43-ESD-C	308005-ESD	LV.A-70-14-AS-M8x43-ESD-C	70	M8	71	74	43	28	19	14	14	14000	60	80
304011-ESD	LV.A-70-14-M8x68-ESD-C	308011-ESD	LV.A-70-14-AS-M8x68-ESD-C	70	M8	96	99	68	28	19	14	14	14000	72	92
304021-ESD	LV.A-70-14-M10x43-ESD-C	308021-ESD	LV.A-70-14-AS-M10x43-ESD-C	70	M10	71	74	43	28	19	14	14	14000	69	89
304025-ESD	LV.A-70-14-M10x68-ESD-C	308025-ESD	LV.A-70-14-AS-M10x68-ESD-C	70	M10	96	99	68	28	19	14	14	14000	81	101
304031-ESD	LV.A-70-14-M10x98-ESD-C	308031-ESD	LV.A-70-14-AS-M10x98-ESD-C	70	M10	126	129	98	28	19	14	14	14000	95	115
304061-ESD	LV.A-70-14-M12x43-ESD-C	308061-ESD	LV.A-70-14-AS-M12x43-ESD-C	70	M12	71	74	43	28	19	14	14	14000	79	99
304065-ESD	LV.A-70-14-M12x68-ESD-C	308065-ESD	LV.A-70-14-AS-M12x68-ESD-C	70	M12	96	99	68	28	19	14	14	14000	96	116
304071-ESD	LV.A-70-14-M12x98-ESD-C	308071-ESD	LV.A-70-14-AS-M12x98-ESD-C	70	M12	126	129	98	28	19	14	14	14000	117	137
304075-ESD	LV.A-70-14-M14X68-ESD-C	308075-ESD	LV.A-70-14-AS-M14X68-ESD-C	70	M14	96	99	68	28	19	14	14	14000	118	138
304081-ESD	LV.A-70-14-M14X98-ESD-C	308081-ESD	LV.A-70-14-AS-M14X98-ESD-C	70	M14	126	129	98	28	19	14	14	14000	139	159
304085-ESD	LV.A-70-14-M14X148-ESD-C	308085-ESD	LV.A-70-14-AS-M14X148-ESD-C	70	M14	176	179	148	28	19	14	14	14000	222	242
304101-ESD	LV.A-70-14-M16x68-ESD-C	308101-ESD	LV.A-70-14-AS-M16x68-ESD-C	70	M16	96	99	68	28	19	16	14	14000	140	160
304105-ESD	LV.A-70-14-M16x108-ESD-C	308105-ESD	LV.A-70-14-AS-M16x108-ESD-C	70	M16	136	139	108	28	19	16	14	14000	192	212
304111-ESD	LV.A-70-14-M16x148-ESD-C	308111-ESD	LV.A-70-14-AS-M16x148-ESD-C	70	M16	176	179	148	28	19	16	14	14000	244	264
304115-ESD	LV.A-70-14-M16x168-ESD-C	308115-ESD	LV.A-70-14-AS-M16x168-ESD-C	70	M16	196	199	168	28	19	16	14	14000	270	290
304121-ESD	LV.A-80-14-M8x43-ESD-C	308121-ESD	LV.A-80-14-AS-M8x43-ESD-C	80	M8	76	79	43	33	24	14	14	16000	83	109
304125-ESD	LV.A-80-14-M8x68-ESD-C	308125-ESD	LV.A-80-14-AS-M8x68-ESD-C	80	M8	101	104	68	33	24	14	14	16000	95	121
304221-ESD	LV.A-80-14-M10x43-ESD-C	308221-ESD	LV.A-80-14-AS-M10x43-ESD-C	80	M10	76	79	43	33	24	14	14	16000	92	118
304225-ESD	LV.A-80-14-M10x68-ESD-C	308225-ESD	LV.A-80-14-AS-M10x68-ESD-C	80	M10	101	104	68	33	24	14	14	16000	104	130
304231-ESD	LV.A-80-14-M10x98-ESD-C	308231-ESD	LV.A-80-14-AS-M10x98-ESD-C	80	M10	131	134	98	33	24	14	14	16000	118	144
304321-ESD	LV.A-80-14-M12x43-ESD-C	308321-ESD	LV.A-80-14-AS-M12x43-ESD-C	80	M12	76	79	43	33	24	14	14	16000	102	128
304325-ESD	LV.A-80-14-M12x68-ESD-C	308325-ESD	LV.A-80-14-AS-M12x68-ESD-C	80	M12	101	104	68	33	24	14	14	16000	119	145
304331-ESD	LV.A-80-14-M12x98-ESD-C	308331-ESD	LV.A-80-14-AS-M12x98-ESD-C	80	M12	131	134	98	33	24	14	14	16000	140	166
304421-ESD	LV.A-80-14-M14X68-ESD-C	308421-ESD	LV.A-80-14-AS-M14X68-ESD-C	80	M14	101	104	68	33	24	14	14	16000	141	167
304431-ESD	LV.A-80-14-M14X98-ESD-C	308431-ESD	LV.A-80-14-AS-M14X98-ESD-C	80	M14	131	134	98	33	24	14	14	16000	162	188
304441-ESD	LV.A-80-14-M14X148-ESD-C	308441-ESD	LV.A-80-14-AS-M14X148-ESD-C	80	M14	181	184	148	33	24	14	14	16000	245	271
304521-ESD	LV.A-80-14-M16x68-ESD-C	308521-ESD	LV.A-80-14-AS-M16x68-ESD-C	80	M16	101	104	68	33	24	16	14	16000	163	189
304525-ESD	LV.A-80-14-M16x108-ESD-C	308525-ESD	LV.A-80-14-AS-M16x108-ESD-C	80	M16	141	144	108	33	24	16	14	16000	215	241
304541-ESD	LV.A-80-14-M16x148-ESD-C	308541-ESD	LV.A-80-14-AS-M16x148-ESD-C	80	M16	181	184	148	33	24	16	14	16000	267	293
304561-ESD	LV.A-80-14-M16x168-ESD-C	308561-ESD	LV.A-80-14-AS-M16x168-ESD-C	80	M16	201	204	168	33	24	16	14	16000	293	319
304621-ESD	LV.A-80-24-M16x58-ESD-C	308621-ESD	LV.A-80-24-AS-M16x58-ESD-C	80	M16	101	104	58	43	24	24	24	18000	225	251
304625-ESD	LV.A-80-24-M16x98-ESD-C	308625-ESD	LV.A-80-24-AS-M16x98-ESD-C	80	M16	141	144	98	43	24	24	24	18000	276	302
304641-ESD	LV.A-80-24-M16x138-ESD-C	308641-ESD	LV.A-80-24-AS-M16x138-ESD-C	80	M16	181	184	138	43	24	24	24	18000	326	352
304661-ESD	LV.A-80-24-M16x158-ESD-C	308661-ESD	LV.A-80-24-AS-M16x158-ESD-C	80	M16	201	204	158	43	24	24	24	18000	353	379
304725-ESD	LV.A-80-24-M20x98-ESD-C	308725-ESD	LV.A-80-24-AS-M20x98-ESD-C	80	M20	141	144	98	43	24	24	24	18000	346	372
304741-ESD	LV.A-80-24-M20x138-ESD-C	308741-ESD	LV.A-80-24-AS-M20x138-ESD-C	80	M20	181	184	138	43	24	24	24	18000	425	451
304761-ESD	LV.A-80-24-M20x158-ESD-C	308761-ESD	LV.A-80-24-AS-M20x158-ESD-C	80	M20	201	204	158	43	24	24	24	18000	464	490
304781-ESD	LV.A-80-24-M20x198-ESD-C	308781-ESD	LV.A-80-24-AS-M20x198-ESD-C	80	M20	241	244	198	43	24	24	24	18000	547	573
304825-ESD	LV.A-80-24-M24x98-ESD-C	308825-ESD	LV.A-80-24-AS-M24x98-ESD-C	80	M24	141	144	98	43	24	24	24	18000	444	470
304861-ESD	LV.A-80-24-M24x158-ESD-C	308861-ESD	LV.A-80-24-AS-M24x158-ESD-C	80	M24	201	204	158	43	24	24	24	18000	616	642
304881-ESD	LV.A-80-24-M24x198-ESD-C	308881-ESD	LV.A-80-24-AS-M24x198-ESD-C	80	M24	241	244	198	43	24	24	24	18000	734	760

***** The max static load is the value above which the load applied to the element may cause some plastic material breakage, in particular conditions of use. Obviously, a factor that takes into consideration the importance and the safety level of the specific application must be applied to this value.

Data with no-slip disk mounted.

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LV.A-ESD-C | Levelling elements



LV.A-ESD-C **LV.A-AS-ESD-C**

Code	Description	Code	Description	D	d	L	L1#	l	l1	h	s	Articulation Ø	Max. limit static load* [N]	⚖	⚖ #
305451-ESD	LV.A-100-14-M8x43-ESD-C	309451-ESD	LV.A-100-14-AS-M8x43-ESD-C	100	M8	76	79	43	33	24	14	14	18000	91	146
305453-ESD	LV.A-100-14-M8x68-ESD-C	309453-ESD	LV.A-100-14-AS-M8x68-ESD-C	100	M8	101	104	68	33	24	14	14	18000	103	158
305461-ESD	LV.A-100-14-M10x43-ESD-C	309461-ESD	LV.A-100-14-AS-M10x43-ESD-C	100	M10	76	79	43	33	24	14	14	18000	100	155
305463-ESD	LV.A-100-14-M10x68-ESD-C	309463-ESD	LV.A-100-14-AS-M10x68-ESD-C	100	M10	101	104	68	33	24	14	14	18000	112	167
305465-ESD	LV.A-100-14-M10x98-ESD-C	309465-ESD	LV.A-100-14-AS-M10x98-ESD-C	100	M10	131	134	98	33	24	14	14	18000	126	181
305471-ESD	LV.A-100-14-M12x43-ESD-C	309471-ESD	LV.A-100-14-AS-M12x43-ESD-C	100	M12	76	79	43	33	24	14	14	18000	110	165
305473-ESD	LV.A-100-14-M12x68-ESD-C	309473-ESD	LV.A-100-14-AS-M12x68-ESD-C	100	M12	101	104	68	33	24	14	14	18000	127	182
305475-ESD	LV.A-100-14-M12x98-ESD-C	309475-ESD	LV.A-100-14-AS-M12x98-ESD-C	100	M12	131	134	98	33	24	14	14	18000	148	203
305477-ESD	LV.A-100-14-M14X68-ESD-C	309477-ESD	LV.A-100-14-AS-M14X68-ESD-C	100	M14	101	104	68	33	24	14	14	18000	149	204
305479-ESD	LV.A-100-14-M14X98-ESD-C	309479-ESD	LV.A-100-14-AS-M14X98-ESD-C	100	M14	131	134	98	33	24	14	14	18000	170	225
305480-ESD	LV.A-100-14-M14X148-ESD-C	309480-ESD	LV.A-100-14-AS-M14X148-ESD-C	100	M14	181	184	148	33	24	14	14	18000	253	308
305481-ESD	LV.A-100-14-M16x68-ESD-C	309481-ESD	LV.A-100-14-AS-M16x68-ESD-C	100	M16	101	104	68	33	24	16	14	18000	171	226
305483-ESD	LV.A-100-14-M16x108-ESD-C	309483-ESD	LV.A-100-14-AS-M16x108-ESD-C	100	M16	141	144	108	33	24	16	14	18000	223	278
305485-ESD	LV.A-100-14-M16x148-ESD-C	309485-ESD	LV.A-100-14-AS-M16x148-ESD-C	100	M16	181	184	148	33	24	16	14	18000	275	330
305487-ESD	LV.A-100-14-M16x168-ESD-C	309487-ESD	LV.A-100-14-AS-M16x168-ESD-C	100	M16	201	204	168	33	24	16	14	18000	301	356
305521-ESD	LV.A-100-24-M16x58-ESD-C	309521-ESD	LV.A-100-24-AS-M16x58-ESD-C	100	M16	101	104	58	43	24	24	24	25000	251	305
305525-ESD	LV.A-100-24-M16x98-ESD-C	309525-ESD	LV.A-100-24-AS-M16x98-ESD-C	100	M16	141	144	98	43	24	24	24	25000	302	356
305541-ESD	LV.A-100-24-M16x138-ESD-C	309541-ESD	LV.A-100-24-AS-M16x138-ESD-C	100	M16	181	184	138	43	24	24	24	25000	352	406
305561-ESD	LV.A-100-24-M16x158-ESD-C	309561-ESD	LV.A-100-24-AS-M16x158-ESD-C	100	M16	201	204	158	43	24	24	24	25000	379	433
305625-ESD	LV.A-100-24-M20x98-ESD-C	309625-ESD	LV.A-100-24-AS-M20x98-ESD-C	100	M20	141	144	98	43	24	24	24	25000	372	426
305641-ESD	LV.A-100-24-M20x138-ESD-C	309641-ESD	LV.A-100-24-AS-M20x138-ESD-C	100	M20	181	184	138	43	24	24	24	25000	451	505
305661-ESD	LV.A-100-24-M20x158-ESD-C	309661-ESD	LV.A-100-24-AS-M20x158-ESD-C	100	M20	201	204	158	43	24	24	24	25000	490	544
305681-ESD	LV.A-100-24-M20x198-ESD-C	309681-ESD	LV.A-100-24-AS-M20x198-ESD-C	100	M20	241	244	198	43	24	24	24	25000	573	627
305725-ESD	LV.A-100-24-M24x98-ESD-C	309725-ESD	LV.A-100-24-AS-M24x98-ESD-C	100	M24	141	144	98	43	24	24	24	25000	470	524
305761-ESD	LV.A-100-24-M24x158-ESD-C	309761-ESD	LV.A-100-24-AS-M24x158-ESD-C	100	M24	201	204	158	43	24	24	24	25000	642	696
305781-ESD	LV.A-100-24-M24x198-ESD-C	309781-ESD	LV.A-100-24-AS-M24x198-ESD-C	100	M24	241	244	198	43	24	24	24	25000	760	814
306521-ESD	LV.A-125-24-M16x58-ESD-C	310221-ESD	LV.A-125-24-AS-M16x58-ESD-C	125	M16	125	128	58	67	46	24	24	28000	386	512
306525-ESD	LV.A-125-24-M16x98-ESD-C	310225-ESD	LV.A-125-24-AS-M16x98-ESD-C	125	M16	165	168	98	67	46	24	24	28000	437	563
306541-ESD	LV.A-125-24-M16x138-ESD-C	310241-ESD	LV.A-125-24-AS-M16x138-ESD-C	125	M16	205	208	138	67	46	24	24	28000	487	613
306561-ESD	LV.A-125-24-M16x158-ESD-C	310261-ESD	LV.A-125-24-AS-M16x158-ESD-C	125	M16	225	228	158	67	46	24	24	28000	514	640
306625-ESD	LV.A-125-24-M20x98-ESD-C	310325-ESD	LV.A-125-24-AS-M20x98-ESD-C	125	M20	165	168	98	67	46	24	24	28000	507	633
306641-ESD	LV.A-125-24-M20x138-ESD-C	310341-ESD	LV.A-125-24-AS-M20x138-ESD-C	125	M20	205	208	138	67	46	24	24	28000	586	712
306661-ESD	LV.A-125-24-M20x158-ESD-C	310361-ESD	LV.A-125-24-AS-M20x158-ESD-C	125	M20	225	228	158	67	46	24	24	28000	625	751
306681-ESD	LV.A-125-24-M20x198-ESD-C	310381-ESD	LV.A-125-24-AS-M20x198-ESD-C	125	M20	265	268	198	67	46	24	24	28000	708	834
306725-ESD	LV.A-125-24-M24x98-ESD-C	310425-ESD	LV.A-125-24-AS-M24x98-ESD-C	125	M24	165	168	98	67	46	24	24	28000	605	731
306761-ESD	LV.A-125-24-M24x158-ESD-C	310461-ESD	LV.A-125-24-AS-M24x158-ESD-C	125	M24	225	228	158	67	46	24	24	28000	777	903
306781-ESD	LV.A-125-24-M24x198-ESD-C	310481-ESD	LV.A-125-24-AS-M24x198-ESD-C	125	M24	265	268	198	67	46	24	24	28000	895	1021

***** The max static load is the value above which the load applied to the element may cause some plastic material breakage, in particular conditions of use. Obviously, a factor that takes into consideration the importance and the safety level of the specific application must be applied to this value.

Data with no-slip disk mounted.

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LV.A-SST-ESD-C

Levelling elements

ESD conductive technopolymer base, stainless steel stem

BASE
Glass-fibre reinforced polyamide based (PA) special conductive technopolymer, black colour, matte finish.
Surface resistivity = 10^3 Ω (ASTM D257 measuring method).
Volume resistivity = 10^3 Ωcm (ASTM D257 measuring method).

ARTICULATED STEM
Threaded AISI 304 stainless steel with regulation hexagon.

STANDARD EXECUTIONS
- **LV.A-SST-ESD-C**: without no-slip disk.
- **LV.A-AS-SST-ESD-C**: with NBR conductive rubber, hardness 70 Shore A, supplied assembled.

Surface resistivity = 10^3 Ω (ASTM D257 measuring method).
Volume resistivity = 10^3 Ωcm (ASTM D257 measuring method).

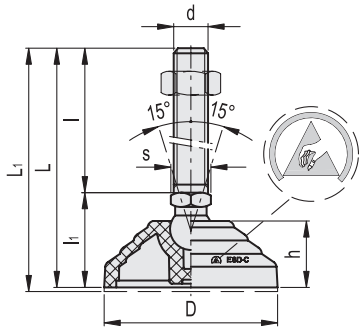
FEATURES AND APPLICATIONS
The special conductive technopolymer (ESD-C Electrostatic Discharge Conductive) prevents the accumulation of electrostatic charge.
The bases are suitable for "ESD PROTECTED AREA" (EPA) where components, which are susceptible to electrostatic discharges, are handled.
The (ESD-C) indelibly printed mark on the surface of the levelling elements bases identifies the particular conductive features of the material according to EN 100015/1 and IEC 61340-5-1.
The particular assembling system of the no-slip disk to the base assures a perfect anchoring, preventing separation even in case of impact during transport or of adhesion (sticking) to the floor (see No-slip disks on page 1223).

ORDER INFORMATION
The levelling elements are supplied unassembled to make carriage and storage easier. The components (base and stem) are supplied in separate packing: less volume taken and better protection from scratches and dirt.
To order bases and stems separately, see:
table of the possible combinations Bases/Stems on page 1229.

ACCESSORIES ON REQUEST
AISI 304 stainless steel nut (see Nuts NT. on page 1223).



ELESA Original design



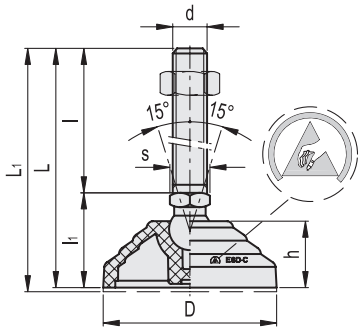
LV.A-SST-ESD-C **LV.A-AS-SST-ESD-C** **STAINLESS STEEL**

Code	Description	Code	Description	D	d	L	L1#	l	l1	h	s	Articulation Ø	Max. limit static load* [N]	⚖⚖	⚖⚖ #
323121-ESD	LV.A-60-14-SST-M8x43-ESD-C	327121-ESD	LV.A-60-14-AS-SST-M8x43-ESD-C	60	M8	76	79	43	33	24	14	14	14000	63	82
323125-ESD	LV.A-60-14-SST-M8x68-ESD-C	327125-ESD	LV.A-60-14-AS-SST-M8x68-ESD-C	60	M8	101	104	68	33	24	14	14	14000	75	94
323221-ESD	LV.A-60-14-SST-M10x43-ESD-C	327221-ESD	LV.A-60-14-AS-SST-M10x43-ESD-C	60	M10	76	79	43	33	24	14	14	14000	72	91
323225-ESD	LV.A-60-14-SST-M10x68-ESD-C	327225-ESD	LV.A-60-14-AS-SST-M10x68-ESD-C	60	M10	101	104	68	33	24	14	14	14000	85	104
323231-ESD	LV.A-60-14-SST-M10x98-ESD-C	327231-ESD	LV.A-60-14-AS-SST-M10x98-ESD-C	60	M10	131	134	98	33	24	14	14	14000	99	118
323321-ESD	LV.A-60-14-SST-M12x43-ESD-C	327321-ESD	LV.A-60-14-AS-SST-M12x43-ESD-C	60	M12	76	79	43	33	24	14	14	14000	82	101
323325-ESD	LV.A-60-14-SST-M12x68-ESD-C	327325-ESD	LV.A-60-14-AS-SST-M12x68-ESD-C	60	M12	101	104	68	33	24	14	14	14000	100	119
323331-ESD	LV.A-60-14-SST-M12x98-ESD-C	327331-ESD	LV.A-60-14-AS-SST-M12x98-ESD-C	60	M12	131	134	98	33	24	14	14	14000	122	141
323421-ESD	LV.A-60-14-SST-M14X68-ESD-C	327421-ESD	LV.A-60-14-AS-SST-M14X68-ESD-C	60	M14	101	104	68	33	24	14	14	14000	123	142
323431-ESD	LV.A-60-14-SST-M14X98-ESD-C	327431-ESD	LV.A-60-14-AS-SST-M14X98-ESD-C	60	M14	131	134	98	33	24	14	14	14000	144	163
323441-ESD	LV.A-60-14-SST-M14X148-ESD-C	327441-ESD	LV.A-60-14-AS-SST-M14X148-ESD-C	60	M14	181	184	148	33	24	14	14	14000	227	246
323521-ESD	LV.A-60-14-SST-M16x68-ESD-C	327521-ESD	LV.A-60-14-AS-SST-M16x68-ESD-C	60	M16	101	104	68	33	24	16	14	14000	145	164
323525-ESD	LV.A-60-14-SST-M16x108-ESD-C	327525-ESD	LV.A-60-14-AS-SST-M16x108-ESD-C	60	M16	141	144	108	33	24	16	14	14000	199	218
323541-ESD	LV.A-60-14-SST-M16x148-ESD-C	327541-ESD	LV.A-60-14-AS-SST-M16x148-ESD-C	60	M16	181	184	148	33	24	16	14	14000	252	271
323561-ESD	LV.A-60-14-SST-M16x168-ESD-C	327561-ESD	LV.A-60-14-AS-SST-M16x168-ESD-C	60	M16	201	204	168	33	24	16	14	14000	279	298

***** The max static load is the value above which the load applied to the element may cause some plastic material breakage, in particular conditions of use. Obviously, a factor that takes into consideration the importance and the safety level of the specific application must be applied to this value.
# Data with no-slip disk mounted.

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LV.A-SST-ESD-C | Levelling elements



LV.A-SST-ESD-C **LV.A-AS-SST-ESD-C** **STAINLESS STEEL**

Code	Description	Code	Description	D	d	L	L1#	l	l1	h	s	Articulation Ø	Max. limit static load* [N]		#
323621-ESD	LV.A-60-24-SST-M16x58-ESD-C	327621-ESD	LV.A-60-24-AS-SST-M16x58-ESD-C	60	M16	101	104	58	43	24	24	24	18000	208	227
323625-ESD	LV.A-60-24-SST-M16x98-ESD-C	327625-ESD	LV.A-60-24-AS-SST-M16x98-ESD-C	60	M16	141	144	98	43	24	24	24	18000	260	279
323641-ESD	LV.A-60-24-SST-M16x138-ESD-C	327641-ESD	LV.A-60-24-AS-SST-M16x138-ESD-C	60	M16	181	184	138	43	24	24	24	18000	311	330
323661-ESD	LV.A-60-24-SST-M16x158-ESD-C	327661-ESD	LV.A-60-24-AS-SST-M16x158-ESD-C	60	M16	201	204	158	43	24	24	24	18000	339	358
323725-ESD	LV.A-60-24-SST-M20x98-ESD-C	327725-ESD	LV.A-60-24-AS-SST-M20x98-ESD-C	60	M20	141	144	98	43	24	24	24	18000	332	351
323741-ESD	LV.A-60-24-SST-M20x138-ESD-C	327741-ESD	LV.A-60-24-AS-SST-M20x138-ESD-C	60	M20	181	184	138	43	24	24	24	18000	412	431
323761-ESD	LV.A-60-24-SST-M20x158-ESD-C	327761-ESD	LV.A-60-24-AS-SST-M20x158-ESD-C	60	M20	201	204	158	43	24	24	24	18000	452	471
323781-ESD	LV.A-60-24-SST-M20x198-ESD-C	327781-ESD	LV.A-60-24-AS-SST-M20x198-ESD-C	60	M20	241	244	198	43	24	24	24	18000	537	556
323825-ESD	LV.A-60-24-SST-M24x98-ESD-C	327825-ESD	LV.A-60-24-AS-SST-M24x98-ESD-C	60	M24	141	144	98	43	24	24	24	18000	432	451
323861-ESD	LV.A-60-24-SST-M24x158-ESD-C	327861-ESD	LV.A-60-24-AS-SST-M24x158-ESD-C	60	M24	201	204	158	43	24	24	24	18000	607	626
323881-ESD	LV.A-60-24-SST-M24x198-ESD-C	327881-ESD	LV.A-60-24-AS-SST-M24x198-ESD-C	60	M24	241	244	198	43	24	24	24	18000	728	747
324005-ESD	LV.A-70-14-SST-M8x43-ESD-C	328005-ESD	LV.A-70-14-AS-SST-M8x43-ESD-C	70	M8	71	74	43	28	19	14	14	14000	61	81
324011-ESD	LV.A-70-14-SST-M8x68-ESD-C	328011-ESD	LV.A-70-14-AS-SST-M8x68-ESD-C	70	M8	96	99	68	28	19	14	14	14000	73	93
324021-ESD	LV.A-70-14-SST-M10x43-ESD-C	328021-ESD	LV.A-70-14-AS-SST-M10x43-ESD-C	70	M10	71	74	43	28	19	14	14	14000	70	90
324025-ESD	LV.A-70-14-SST-M10x68-ESD-C	328025-ESD	LV.A-70-14-AS-SST-M10x68-ESD-C	70	M10	96	99	68	28	19	14	14	14000	84	103
324031-ESD	LV.A-70-14-SST-M10x98-ESD-C	328031-ESD	LV.A-70-14-AS-SST-M10x98-ESD-C	70	M10	126	129	98	28	19	14	14	14000	97	117
324061-ESD	LV.A-70-14-SST-M12x43-ESD-C	328061-ESD	LV.A-70-14-AS-SST-M12x43-ESD-C	70	M12	71	74	43	28	19	14	14	14000	80	100
324065-ESD	LV.A-70-14-SST-M12x68-ESD-C	328065-ESD	LV.A-70-14-AS-SST-M12x68-ESD-C	70	M12	96	99	68	28	19	14	14	14000	98	118
324071-ESD	LV.A-70-14-SST-M12x98-ESD-C	328071-ESD	LV.A-70-14-AS-SST-M12x98-ESD-C	70	M12	126	129	98	28	19	14	14	14000	120	140
324075-ESD	LV.A-70-14-SST-M14X68-ESD-C	328075-ESD	LV.A-70-14-AS-SST-M14X68-ESD-C	70	M14	96	99	68	28	19	14	14	14000	121	141
324081-ESD	LV.A-70-14-SST-M14X98-ESD-C	328081-ESD	LV.A-70-14-AS-SST-M14X98-ESD-C	70	M14	126	129	98	28	19	14	14	14000	142	162
324085-ESD	LV.A-70-14-SST-M14X148-ESD-C	328085-ESD	LV.A-70-14-AS-SST-M14X148-ESD-C	70	M14	176	179	148	28	19	14	14	14000	225	245
324101-ESD	LV.A-70-14-SST-M16x68-ESD-C	328101-ESD	LV.A-70-14-AS-SST-M16x68-ESD-C	70	M16	96	99	68	28	19	16	14	14000	143	163
324105-ESD	LV.A-70-14-SST-M16x108-ESD-C	328105-ESD	LV.A-70-14-AS-SST-M16x108-ESD-C	70	M16	136	139	108	28	19	16	14	14000	197	217
324111-ESD	LV.A-70-14-SST-M16x148-ESD-C	328111-ESD	LV.A-70-14-AS-SST-M16x148-ESD-C	70	M16	176	179	148	28	19	16	14	14000	250	270
324115-ESD	LV.A-70-14-SST-M16x168-ESD-C	328115-ESD	LV.A-70-14-AS-SST-M16x168-ESD-C	70	M16	196	199	168	28	19	16	14	14000	277	297
324121-ESD	LV.A-80-14-SST-M8x43-ESD-C	328121-ESD	LV.A-80-14-AS-SST-M8x43-ESD-C	80	M8	76	79	43	33	24	14	14	16000	84	110
324125-ESD	LV.A-80-14-SST-M8x68-ESD-C	328125-ESD	LV.A-80-14-AS-SST-M8x68-ESD-C	80	M8	101	104	68	33	24	14	14	16000	96	122
324221-ESD	LV.A-80-14-SST-M10x43-ESD-C	328221-ESD	LV.A-80-14-AS-SST-M10x43-ESD-C	80	M10	76	79	43	33	24	14	14	16000	93	119
324225-ESD	LV.A-80-14-SST-M10x68-ESD-C	328225-ESD	LV.A-80-14-AS-SST-M10x68-ESD-C	80	M10	101	104	68	33	24	14	14	16000	106	132
324231-ESD	LV.A-80-14-SST-M10x98-ESD-C	328231-ESD	LV.A-80-14-AS-SST-M10x98-ESD-C	80	M10	131	134	98	33	24	14	14	16000	120	146
324321-ESD	LV.A-80-14-SST-M12x43-ESD-C	328321-ESD	LV.A-80-14-AS-SST-M12x43-ESD-C	80	M12	76	79	43	33	24	14	14	16000	103	129
324325-ESD	LV.A-80-14-SST-M12x68-ESD-C	328325-ESD	LV.A-80-14-AS-SST-M12x68-ESD-C	80	M12	101	104	68	33	24	14	14	16000	121	147
324331-ESD	LV.A-80-14-SST-M12x98-ESD-C	328331-ESD	LV.A-80-14-AS-SST-M12x98-ESD-C	80	M12	131	134	98	33	24	14	14	16000	143	169
324421-ESD	LV.A-80-14-SST-M14X68-ESD-C	328421-ESD	LV.A-80-14-AS-SST-M14X68-ESD-C	80	M14	101	104	68	33	24	14	14	16000	144	170
324431-ESD	LV.A-80-14-SST-M14X98-ESD-C	328431-ESD	LV.A-80-14-AS-SST-M14X98-ESD-C	80	M14	131	134	98	33	24	14	14	16000	165	191
324441-ESD	LV.A-80-14-SST-M14X148-ESD-C	328441-ESD	LV.A-80-14-AS-SST-M14X148-ESD-C	80	M14	181	184	148	33	24	14	14	16000	248	274
324521-ESD	LV.A-80-14-SST-M16x68-ESD-C	328521-ESD	LV.A-80-14-AS-SST-M16x68-ESD-C	80	M16	101	104	68	33	24	16	14	16000	166	192
324525-ESD	LV.A-80-14-SST-M16x108-ESD-C	328525-ESD	LV.A-80-14-AS-SST-M16x108-ESD-C	80	M16	141	144	108	33	24	16	14	16000	220	246
324541-ESD	LV.A-80-14-SST-M16x148-ESD-C	328541-ESD	LV.A-80-14-AS-SST-M16x148-ESD-C	80	M16	181	184	148	33	24	16	14	16000	273	299
324561-ESD	LV.A-80-14-SST-M16x168-ESD-C	328561-ESD	LV.A-80-14-AS-SST-M16x168-ESD-C	80	M16	201	204	168	33	24	16	14	16000	300	326

***** The max static load is the value above which the load applied to the element may cause some plastic material breakage, in particular conditions of use. Obviously, a factor that takes into consideration the importance and the safety level of the specific application must be applied to this value.
# Data with no-slip disk mounted.

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LV.A-SST-ESD-C | Levelling elements

LV.A-SST-ESD-C **LV.A-AS-SST-ESD-C** **STAINLESS STEEL**

Code	Description	Code	Description	D	d	L	L1#	l	l1	h	s	Articulation Ø	Max. limit static load* [N]	⚖⚖⚖	⚖⚖⚖ #
324621-ESD	LV.A-80-24-SST-M16x58-ESD-C	328621-ESD	LV.A-80-24-AS-SST-M16x58-ESD-C	80	M16	101	104	58	43	24	24	24	18000	228	254
324625-ESD	LV.A-80-24-SST-M16x98-ESD-C	328625-ESD	LV.A-80-24-AS-SST-M16x98-ESD-C	80	M16	141	144	98	43	24	24	24	18000	280	306
324641-ESD	LV.A-80-24-SST-M16x138-ESD-C	328641-ESD	LV.A-80-24-AS-SST-M16x138-ESD-C	80	M16	181	184	138	43	24	24	24	18000	331	357
324661-ESD	LV.A-80-24-SST-M16x158-ESD-C	328661-ESD	LV.A-80-24-AS-SST-M16x158-ESD-C	80	M16	201	204	158	43	24	24	24	18000	359	385
324725-ESD	LV.A-80-24-SST-M20x98-ESD-C	328725-ESD	LV.A-80-24-AS-SST-M20x98-ESD-C	80	M20	141	144	98	43	24	24	24	18000	352	378
324741-ESD	LV.A-80-24-SST-M20x138-ESD-C	328741-ESD	LV.A-80-24-AS-SST-M20x138-ESD-C	80	M20	181	184	138	43	24	24	24	18000	432	458
324761-ESD	LV.A-80-24-SST-M20x158-ESD-C	328761-ESD	LV.A-80-24-AS-SST-M20x158-ESD-C	80	M20	201	204	158	43	24	24	24	18000	472	498
324781-ESD	LV.A-80-24-SST-M20x198-ESD-C	328781-ESD	LV.A-80-24-AS-SST-M20x198-ESD-C	80	M20	241	244	198	43	24	24	24	18000	577	583
324825-ESD	LV.A-80-24-SST-M24x98-ESD-C	328825-ESD	LV.A-80-24-AS-SST-M24x98-ESD-C	80	M24	141	144	98	43	24	24	24	18000	452	478
324861-ESD	LV.A-80-24-SST-M24x158-ESD-C	328861-ESD	LV.A-80-24-AS-SST-M24x158-ESD-C	80	M24	201	204	158	43	24	24	24	18000	627	653
324881-ESD	LV.A-80-24-SST-M24x198-ESD-C	328881-ESD	LV.A-80-24-AS-SST-M24x198-ESD-C	80	M24	241	244	198	43	24	24	24	18000	748	774
325451-ESD	LV.A-100-14-SST-M8x43-ESD-C	329451-ESD	LV.A-100-14-AS-SST-M8x43-ESD-C	100	M8	76	79	43	33	24	14	14	18000	91	146
325453-ESD	LV.A-100-14-SST-M8x68-ESD-C	329453-ESD	LV.A-100-14-AS-SST-M8x68-ESD-C	100	M8	101	104	68	33	24	14	14	18000	103	158
325461-ESD	LV.A-100-14-SST-M10x43-ESD-C	329461-ESD	LV.A-100-14-AS-SST-M10x43-ESD-C	100	M10	76	79	43	33	24	14	14	18000	100	155
325463-ESD	LV.A-100-14-SST-M10x68-ESD-C	329463-ESD	LV.A-100-14-AS-SST-M10x68-ESD-C	100	M10	101	104	68	33	24	14	14	18000	112	167
325465-ESD	LV.A-100-14-SST-M10x98-ESD-C	329465-ESD	LV.A-100-14-AS-SST-M10x98-ESD-C	100	M10	131	134	98	33	24	14	14	18000	126	181
325471-ESD	LV.A-100-14-SST-M12x43-ESD-C	329471-ESD	LV.A-100-14-AS-SST-M12x43-ESD-C	100	M12	76	79	43	33	24	14	14	18000	110	165
325473-ESD	LV.A-100-14-SST-M12x68-ESD-C	329473-ESD	LV.A-100-14-AS-SST-M12x68-ESD-C	100	M12	101	104	68	33	24	14	14	18000	127	182
325475-ESD	LV.A-100-14-SST-M12x98-ESD-C	329475-ESD	LV.A-100-14-AS-SST-M12x98-ESD-C	100	M12	131	134	98	33	24	14	14	18000	148	203
325477-ESD	LV.A-100-14-SST-M14X68-ESD-C	329477-ESD	LV.A-100-14-AS-SST-M14X68-ESD-C	100	M14	101	104	68	33	24	14	14	18000	149	204
325479-ESD	LV.A-100-14-SST-M14X98-ESD-C	329479-ESD	LV.A-100-14-AS-SST-M14X98-ESD-C	100	M14	131	134	98	33	24	14	14	18000	170	225
325480-ESD	LV.A-100-14-SST-M14X148-ESD-C	329480-ESD	LV.A-100-14-AS-SST-M14X148-ESD-C	100	M14	181	184	148	33	24	14	14	18000	253	308
325481-ESD	LV.A-100-14-SST-M16x68-ESD-C	329481-ESD	LV.A-100-14-AS-SST-M16x68-ESD-C	100	M16	101	104	68	33	24	16	14	18000	171	226
325483-ESD	LV.A-100-14-SST-M16x108-ESD-C	329483-ESD	LV.A-100-14-AS-SST-M16x108-ESD-C	100	M16	141	144	108	33	24	16	14	18000	223	278
325485-ESD	LV.A-100-14-SST-M16x148-ESD-C	329485-ESD	LV.A-100-14-AS-SST-M16x148-ESD-C	100	M16	181	184	148	33	24	16	14	18000	275	330
325487-ESD	LV.A-100-14-SST-M16x168-ESD-C	329487-ESD	LV.A-100-14-AS-SST-M16x168-ESD-C	100	M16	201	204	168	33	24	16	14	18000	301	356
325521-ESD	LV.A-100-24-SST-M16x58-ESD-C	329521-ESD	LV.A-100-24-AS-SST-M16x58-ESD-C	100	M16	101	104	58	43	24	24	24	25000	254	308
325525-ESD	LV.A-100-24-SST-M16x98-ESD-C	329525-ESD	LV.A-100-24-AS-SST-M16x98-ESD-C	100	M16	141	144	98	43	24	24	24	25000	357	411
325541-ESD	LV.A-100-24-SST-M16x138-ESD-C	329541-ESD	LV.A-100-24-AS-SST-M16x138-ESD-C	100	M16	181	184	138	43	24	24	24	25000	357	411
325561-ESD	LV.A-100-24-SST-M16x158-ESD-C	329561-ESD	LV.A-100-24-AS-SST-M16x158-ESD-C	100	M16	201	204	158	43	24	24	24	25000	385	439
325625-ESD	LV.A-100-24-SST-M20x98-ESD-C	329625-ESD	LV.A-100-24-AS-SST-M20x98-ESD-C	100	M20	141	144	98	43	24	24	24	25000	378	432
325641-ESD	LV.A-100-24-SST-M20x138-ESD-C	329641-ESD	LV.A-100-24-AS-SST-M20x138-ESD-C	100	M20	181	184	138	43	24	24	24	25000	458	512
325661-ESD	LV.A-100-24-SST-M20x158-ESD-C	329661-ESD	LV.A-100-24-AS-SST-M20x158-ESD-C	100	M20	201	204	158	43	24	24	24	25000	498	552
325681-ESD	LV.A-100-24-SST-M20x198-ESD-C	329681-ESD	LV.A-100-24-AS-SST-M20x198-ESD-C	100	M20	241	244	198	43	24	24	24	25000	583	637
325725-ESD	LV.A-100-24-SST-M24x98-ESD-C	329725-ESD	LV.A-100-24-AS-SST-M24x98-ESD-C	100	M24	141	144	98	43	24	24	24	25000	478	532
325761-ESD	LV.A-100-24-SST-M24x158-ESD-C	329761-ESD	LV.A-100-24-AS-SST-M24x158-ESD-C	100	M24	201	204	158	43	24	24	24	25000	653	707
325781-ESD	LV.A-100-24-SST-M24x198-ESD-C	329781-ESD	LV.A-100-24-AS-SST-M24x198-ESD-C	100	M24	241	244	198	43	24	24	24	25000	774	828
326521-ESD	LV.A-125-24-SST-M16x58-ESD-C	330221-ESD	LV.A-125-24-AS-SST-M16x58-ESD-C	125	M16	125	128	58	67	46	24	24	28000	389	515
326525-ESD	LV.A-125-24-SST-M16x98-ESD-C	330225-ESD	LV.A-125-24-AS-SST-M16x98-ESD-C	125	M16	165	168	98	67	46	24	24	28000	441	567
326541-ESD	LV.A-125-24-SST-M16x138-ESD-C	330241-ESD	LV.A-125-24-AS-SST-M16x138-ESD-C	125	M16	205	208	138	67	46	24	24	28000	492	618
326561-ESD	LV.A-125-24-SST-M16x158-ESD-C	330261-ESD	LV.A-125-24-AS-SST-M16x158-ESD-C	125	M16	225	228	158	67	46	24	24	28000	520	646
326625-ESD	LV.A-125-24-SST-M20x98-ESD-C	330325-ESD	LV.A-125-24-AS-SST-M20x98-ESD-C	125	M20	165	168	98	67	46	24	24	28000	513	639
326641-ESD	LV.A-125-24-SST-M20x138-ESD-C	330341-ESD	LV.A-125-24-AS-SST-M20x138-ESD-C	125	M20	205	208	138	67	46	24	24	28000	633	759
326661-ESD	LV.A-125-24-SST-M20x158-ESD-C	330361-ESD	LV.A-125-24-AS-SST-M20x158-ESD-C	125	M20	225	228	158	67	46	24	24	28000	633	759
326681-ESD	LV.A-125-24-SST-M20x198-ESD-C	330381-ESD	LV.A-125-24-AS-SST-M20x198-ESD-C	125	M20	265	268	198	67	46	24	24	28000	718	844
326725-ESD	LV.A-125-24-SST-M24x98-ESD-C	330425-ESD	LV.A-125-24-AS-SST-M24x98-ESD-C	125	M24	165	168	98	67	46	24	24	28000	613	739
326761-ESD	LV.A-125-24-SST-M24x158-ESD-C	330461-ESD	LV.A-125-24-AS-SST-M24x158-ESD-C	125	M24	225	228	158	67	46	24	24	28000	788	914
326781-ESD	LV.A-125-24-SST-M24x198-ESD-C	330481-ESD	LV.A-125-24-AS-SST-M24x198-ESD-C	125	M24	265	268	198	67	46	24	24	28000	909	1035

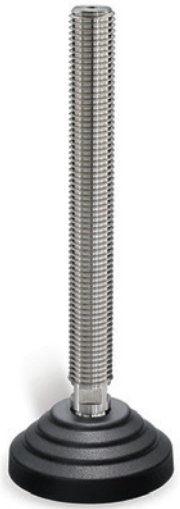
***** The max static load is the value above which the load applied to the element may cause some plastic material breakage, in particular conditions of use. Obviously, a factor that takes into consideration the importance and the safety level of the specific application must be applied to this value.
# Data with no-slip disk mounted.

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INOX STAINLESS STEEL · RoHS · PA · NBR · +100° -30°

Levelling elements

Technopolymer base, stainless steel stem



ELESA Original design

BASE
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

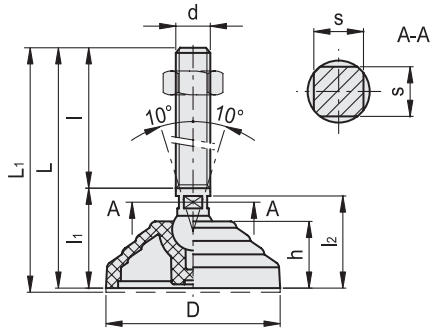
ARTICULATED STEM
Threaded AISI 304 stainless steel with adjusting square.

STANDARD EXECUTIONS
- **LVQ.A-SST**: without no-slip disk.
- **LVQ.A-AS-SST**: with NBR rubber no-slip disk, hardness 70 Shore A, supplied assembled to the base.

FEATURES
The special knurling under the lower lip of the base provides excellent stability and grip when using the levelling element without no-slip disk even on surfaces that are not perfectly flat.
The particular assembling system of the no-slip disk to the base assures a perfect anchoring, preventing separation even in case of impact during transport or of adhesion (sticking) to the floor (see No-slip disks on page 1223).

ORDER INFORMATION
The levelling elements are supplied unassembled to make carriage and storage easier. The components (base and stem) are supplied in separate packing: less volume taken and better protection from scratches and dirt.
To order bases and stems separately, see:
table of the possible combinations Bases/Stems on page 1229.

ACCESSORIES ON REQUEST
AISI 304 stainless steel nut (see Nuts NT. on page 1223).



LVQ.A-SST **LVQ.A-AS-SST** **STAINLESS STEEL**

Code	Description	Code	Description	D	d	L	L1#	l	l1	l2	h	s	Articulation Ø	Max. limit static load* [N]	⚖⚖⚖ #	
323901	LVQ.A-60-14-SST-M16x68	327901	LVQ.A-60-14-AS-SST-M16x68	60	M16	102	105	68	34	32.5	24	12	14	14000	128	147
323903	LVQ.A-60-14-SST-M16x108	327903	LVQ.A-60-14-AS-SST-M16x108	60	M16	142	145	108	34	32.5	24	12	14	14000	192	211
323905	LVQ.A-60-14-SST-M16x148	327905	LVQ.A-60-14-AS-SST-M16x148	60	M16	182	185	148	34	32.5	24	12	14	14000	256	275
323907	LVQ.A-60-14-SST-M16x168	327907	LVQ.A-60-14-AS-SST-M16x168	60	M16	202	205	168	34	32.5	24	12	14	14000	288	307
323911	LVQ.A-60-14-SST-M20x110	327911	LVQ.A-60-14-AS-SST-M20x110	60	M20	149	152	110	39	36.5	24	15	14	14000	292	311
323913	LVQ.A-60-14-SST-M20x150	327913	LVQ.A-60-14-AS-SST-M20x150	60	M20	189	192	150	39	36.5	24	15	14	14000	392	411
323915	LVQ.A-60-14-SST-M20x170	327915	LVQ.A-60-14-AS-SST-M20x170	60	M20	209	212	170	39	36.5	24	15	14	14000	442	461
323917	LVQ.A-60-14-SST-M20x210	327917	LVQ.A-60-14-AS-SST-M20x210	60	M20	249	252	210	39	36.5	24	15	14	14000	541	560

***** The max static load is the value above which the load applied to the element may cause some plastic material breakage, in particular conditions of use. Obviously, a factor that takes into consideration the importance and the safety level of the specific application must be applied to this value.

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LVQ.A-SST **LVQ.A-AS-SST** **STAINLESS STEEL**

Code	Description	Code	Description	D	d	L	L1#	l	l1	l2	h	s	Articulation Ø	Max. limit static load* [N]	⚖⚖	⚖⚖ #
324951	LVQ.A-70-14-SST-M16x68	328951	LVQ.A-70-14-AS-SST-M16x68	70	M16	97	100	68	29	27.5	19	12	14	14000	126	146
324953	LVQ.A-70-14-SST-M16x108	328953	LVQ.A-70-14-AS-SST-M16x108	70	M16	137	140	108	29	27.5	19	12	14	14000	190	210
324955	LVQ.A-70-14-SST-M16x148	328955	LVQ.A-70-14-AS-SST-M16x148	70	M16	177	180	148	29	27.5	19	12	14	14000	254	274
324957	LVQ.A-70-14-SST-M16x168	328957	LVQ.A-70-14-AS-SST-M16x168	70	M16	197	200	168	29	27.5	19	12	14	14000	286	306
324961	LVQ.A-70-14-SST-M20x110	328961	LVQ.A-70-14-AS-SST-M20x110	70	M20	144	147	110	34	31.5	19	15	14	14000	290	310
324963	LVQ.A-70-14-SST-M20x150	328963	LVQ.A-70-14-AS-SST-M20x150	70	M20	184	187	150	34	31.5	19	15	14	14000	390	410
324965	LVQ.A-70-14-SST-M20x170	328965	LVQ.A-70-14-AS-SST-M20x170	70	M20	204	207	170	34	31.5	19	15	14	14000	440	460
324967	LVQ.A-70-14-SST-M20x210	328967	LVQ.A-70-14-AS-SST-M20x210	70	M20	244	247	210	34	31.5	19	15	14	14000	539	559
324971	LVQ.A-70-14-SST-M24x110	328971	LVQ.A-70-14-AS-SST-M24x110	70	M24	144	147	110	34	31.5	19	18	14	14000	397	417
324973	LVQ.A-70-14-SST-M24x170	328973	LVQ.A-70-14-AS-SST-M24x170	70	M24	204	207	170	34	31.5	19	18	14	14000	612	632
324975	LVQ.A-70-14-SST-M24x210	328975	LVQ.A-70-14-AS-SST-M24x210	70	M24	244	247	210	34	31.5	19	18	14	14000	756	776
325001	LVQ.A-80-14-SST-M16x68	329001	LVQ.A-80-14-AS-SST-M16x68	80	M16	102	105	68	34	32.5	24	12	14	16000	149	175
325003	LVQ.A-80-14-SST-M16x108	329003	LVQ.A-80-14-AS-SST-M16x108	80	M16	142	145	108	34	32.5	24	12	14	16000	213	239
325005	LVQ.A-80-14-SST-M16x148	329005	LVQ.A-80-14-AS-SST-M16x148	80	M16	182	185	148	34	32.5	24	12	14	16000	277	303
325007	LVQ.A-80-14-SST-M16x168	329007	LVQ.A-80-14-AS-SST-M16x168	80	M16	202	205	168	34	32.5	24	12	14	16000	309	335
325011	LVQ.A-80-14-SST-M20x110	329011	LVQ.A-80-14-AS-SST-M20x110	80	M20	149	152	110	39	36.5	24	15	14	16000	313	339
325013	LVQ.A-80-14-SST-M20x150	329013	LVQ.A-80-14-AS-SST-M20x150	80	M20	189	192	150	39	36.5	24	15	14	16000	413	439
325015	LVQ.A-80-14-SST-M20x170	329015	LVQ.A-80-14-AS-SST-M20x170	80	M20	209	212	170	39	36.5	24	15	14	16000	463	489
325017	LVQ.A-80-14-SST-M20x210	329017	LVQ.A-80-14-AS-SST-M20x210	80	M20	249	252	210	39	36.5	24	15	14	16000	562	588
325021	LVQ.A-80-14-SST-M24x110	329021	LVQ.A-80-14-AS-SST-M24x110	80	M24	149	152	110	39	36.5	24	18	14	16000	420	446
325023	LVQ.A-80-14-SST-M24x170	329023	LVQ.A-80-14-AS-SST-M24x170	80	M24	209	212	170	39	36.5	24	18	14	16000	635	661
325025	LVQ.A-80-14-SST-M24x210	329025	LVQ.A-80-14-AS-SST-M24x210	80	M24	249	252	210	39	36.5	24	18	14	16000	779	805
325851	LVQ.A-100-14-SST-M16x68	329851	LVQ.A-100-14-AS-SST-M16x68	100	M16	102	105	68	34	32.5	24	12	14	16000	179	233
325853	LVQ.A-100-14-SST-M16x108	329853	LVQ.A-100-14-AS-SST-M16x108	100	M16	142	145	108	34	32.5	24	12	14	16000	243	297
325855	LVQ.A-100-14-SST-M16x148	329855	LVQ.A-100-14-AS-SST-M16x148	100	M16	182	185	148	34	32.5	24	12	14	16000	307	361
325857	LVQ.A-100-14-SST-M16x168	329857	LVQ.A-100-14-AS-SST-M16x168	100	M16	202	205	168	34	32.5	24	12	14	16000	339	393
325861	LVQ.A-100-14-SST-M20x110	329861	LVQ.A-100-14-AS-SST-M20x110	100	M20	149	152	110	39	36.5	24	15	14	16000	343	397
325863	LVQ.A-100-14-SST-M20x150	329863	LVQ.A-100-14-AS-SST-M20x150	100	M20	189	192	150	39	36.5	24	15	14	16000	443	497
325865	LVQ.A-100-14-SST-M20x170	329865	LVQ.A-100-14-AS-SST-M20x170	100	M20	209	212	170	39	36.5	24	15	14	16000	493	547
325867	LVQ.A-100-14-SST-M20x210	329867	LVQ.A-100-14-AS-SST-M20x210	100	M20	249	252	210	39	36.5	24	15	14	16000	592	646
325871	LVQ.A-100-14-SST-M24x110	329871	LVQ.A-100-14-AS-SST-M24x110	100	M24	149	152	110	39	36.5	24	18	14	16000	450	504
325873	LVQ.A-100-14-SST-M24x170	329873	LVQ.A-100-14-AS-SST-M24x170	100	M24	209	212	170	39	36.5	24	18	14	16000	665	719
325875	LVQ.A-100-14-SST-M24x210	329875	LVQ.A-100-14-AS-SST-M24x210	100	M24	249	252	210	39	36.5	24	18	14	16000	809	863

***** The max static load is the value above which the load applied to the element may cause some plastic material breakage, in particular conditions of use. Obviously, a factor that takes into consideration the importance and the safety level of the specific application must be applied to this value.

Data with no-slip disk mounted.

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RoHS PA NBR +100° -30°

Levelling elements for ground mounting

Technopolymer base, steel stem



ELESA Original design

BASE
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

ARTICULATED STEM
Threaded zinc-plated steel with regulation hexagon.

STANDARD EXECUTIONS
- **LV.F**: without no-slip disk.
- **LV.F-AS**: with NBR rubber no-slip disk, hardness 70 Shore A, supplied assembled to the base.

GROUND MOUNTING
By means of two holes at 180°, supplied covered by a diaphragm (which can be easily removed by a metal tool), to avoid all unhealthy deposits of dirt and dust when the ground mounting is not required (see Fig. 1).

FEATURES
The special knurling under the lower lip of the base provides excellent stability and grip when using the levelling element without no-slip disk even on surfaces that are not perfectly flat.
The particular assembling system of the no-slip disk to the base assures a perfect anchoring, preventing separation even in case of impact during transport or of adhesion (sticking) to the floor (see No-slip disk on page 1223).

ORDER INFORMATION
The levelling elements are supplied unassembled to make carriage and storage easier. The components (base and stem) are supplied in separate packing: less volume taken and better protection from scratches and dirt.
To order bases and stems separately, see:
table of the possible combinations Bases/Stems on page 1229.

ACCESSORIES ON REQUEST
Zinc-plated steel nut (see Nuts NT. on page 1223).

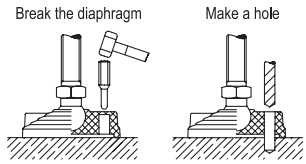
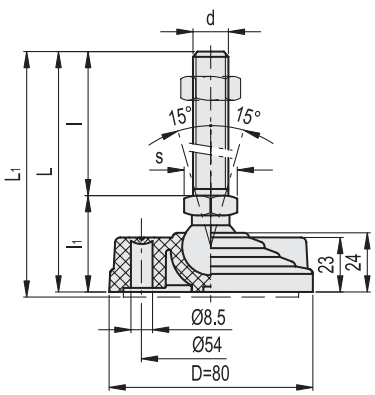
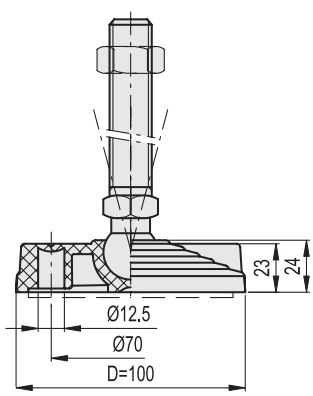


Fig.1

LV.F-80



LV.F-100



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LV.F **LV.F-AS**

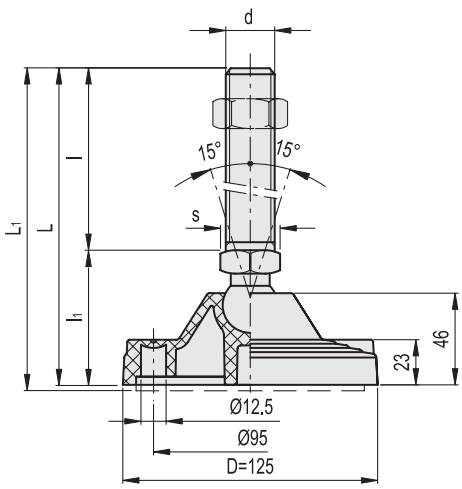
Code	Description	Code	Description	D	d	L	L1#	l	l1	s	Articulation Ø	Max. limit static load* [N]	⚖	⚖ #
311121	LV.F-80-14-M8x43	314121	LV.F-80-14-AS-M8x43	80	M8	76	79	43	33	14	14	16000	85	111
311125	LV.F-80-14-M8x68	314125	LV.F-80-14-AS-M8x68	80	M8	101	104	68	33	14	14	16000	97	123
311221	LV.F-80-14-M10x43	314221	LV.F-80-14-AS-M10x43	80	M10	76	79	43	33	14	14	16000	94	120
311225	LV.F-80-14-M10x68	314225	LV.F-80-14-AS-M10x68	80	M10	101	104	68	33	14	14	16000	106	132
311231	LV.F-80-14-M10x98	314231	LV.F-80-14-AS-M10x98	80	M10	131	134	98	33	14	14	16000	120	146
311321	LV.F-80-14-M12x43	314321	LV.F-80-14-AS-M12x43	80	M12	76	79	43	33	14	14	16000	104	130
311325	LV.F-80-14-M12x68	314325	LV.F-80-14-AS-M12x68	80	M12	101	104	68	33	14	14	16000	121	147
311331	LV.F-80-14-M12x98	314331	LV.F-80-14-AS-M12x98	80	M12	131	134	98	33	14	14	16000	142	168
311421	LV.F-80-14-M14X68	314421	LV.F-80-14-AS-M14X68	80	M14	101	104	68	33	14	14	16000	143	169
311431	LV.F-80-14-M14X98	314431	LV.F-80-14-AS-M14X98	80	M14	131	134	98	33	14	14	16000	164	190
311441	LV.F-80-14-M14X148	314441	LV.F-80-14-AS-M14X148	80	M14	181	184	148	33	14	14	16000	247	273
311521	LV.F-80-14-M16x68	314521	LV.F-80-14-AS-M16x68	80	M16	101	104	68	33	16	14	16000	165	191
311525	LV.F-80-14-M16x108	314525	LV.F-80-14-AS-M16x108	80	M16	141	144	108	33	16	14	16000	217	243
311541	LV.F-80-14-M16x148	314541	LV.F-80-14-AS-M16x148	80	M16	181	184	148	33	16	14	16000	269	295
311561	LV.F-80-14-M16x168	314561	LV.F-80-14-AS-M16x168	80	M16	201	204	168	33	16	14	16000	295	321
311621	LV.F-80-24-M16x58	314621	LV.F-80-24-AS-M16x58	80	M16	101	104	58	43	24	24	18000	227	253
311625	LV.F-80-24-M16x98	314625	LV.F-80-24-AS-M16x98	80	M16	141	144	98	43	24	24	18000	278	304
311641	LV.F-80-24-M16x138	314641	LV.F-80-24-AS-M16x138	80	M16	181	184	138	43	24	24	18000	328	354
311661	LV.F-80-24-M16x158	314661	LV.F-80-24-AS-M16x158	80	M16	201	204	158	43	24	24	18000	355	381
311725	LV.F-80-24-M20x98	314725	LV.F-80-24-AS-M20x98	80	M20	141	144	98	43	24	24	18000	348	374
311741	LV.F-80-24-M20x138	314741	LV.F-80-24-AS-M20x138	80	M20	181	184	138	43	24	24	18000	427	453
311761	LV.F-80-24-M20x158	314761	LV.F-80-24-AS-M20x158	80	M20	201	204	158	43	24	24	18000	466	492
311781	LV.F-80-24-M20x198	314781	LV.F-80-24-AS-M20x198	80	M20	241	244	198	43	24	24	18000	549	575
311825	LV.F-80-24-M24x98	314825	LV.F-80-24-AS-M24x98	80	M24	141	144	98	43	24	24	18000	446	472
311861	LV.F-80-24-M24x158	314861	LV.F-80-24-AS-M24x158	80	M24	201	204	158	43	24	24	18000	618	644
311881	LV.F-80-24-M24x198	314881	LV.F-80-24-AS-M24x198	80	M24	241	244	198	43	24	24	18000	736	762
312451	LV.F-100-14-M8x43	315451	LV.F-100-14-AS-M8x43	100	M8	76	79	43	33	14	14	18000	93	148
312453	LV.F-100-14-M8x68	315453	LV.F-100-14-AS-M8x68	100	M8	101	104	68	33	14	14	18000	105	160
312461	LV.F-100-14-M10x43	315461	LV.F-100-14-AS-M10x43	100	M10	76	79	43	33	14	14	18000	102	157
312463	LV.F-100-14-M10x68	315463	LV.F-100-14-AS-M10x68	100	M10	101	104	68	33	14	14	18000	114	169
312465	LV.F-100-14-M10x98	315465	LV.F-100-14-AS-M10x98	100	M10	131	134	98	33	14	14	18000	128	183
312471	LV.F-100-14-M12x43	315471	LV.F-100-14-AS-M12x43	100	M12	76	79	43	33	14	14	18000	112	167
312473	LV.F-100-14-M12x68	315473	LV.F-100-14-AS-M12x68	100	M12	101	104	68	33	14	14	18000	129	184
312475	LV.F-100-14-M12x98	315475	LV.F-100-14-AS-M12x98	100	M12	131	134	98	33	14	14	18000	150	205
312477	LV.F-100-14-M14X68	315477	LV.F-100-14-AS-M14X68	100	M14	101	104	68	33	14	14	18000	151	206
312479	LV.F-100-14-M14X98	315479	LV.F-100-14-AS-M14X98	100	M14	131	134	98	33	14	14	18000	172	227
312480	LV.F-100-14-M14X148	315480	LV.F-100-14-AS-M14X148	100	M14	181	184	148	33	14	14	18000	255	310
312481	LV.F-100-14-M16x68	315481	LV.F-100-14-AS-M16x68	100	M16	101	104	68	33	16	14	18000	173	228
312483	LV.F-100-14-M16x108	315483	LV.F-100-14-AS-M16x108	100	M16	141	144	108	33	16	14	18000	225	280
312485	LV.F-100-14-M16x148	315485	LV.F-100-14-AS-M16x148	100	M16	181	184	148	33	16	14	18000	277	332
312487	LV.F-100-14-M16x168	315487	LV.F-100-14-AS-M16x168	100	M16	201	204	168	33	16	14	18000	303	358
312521	LV.F-100-24-M16x58	315521	LV.F-100-24-AS-M16x58	100	M16	101	104	58	43	24	24	25000	257	311
312525	LV.F-100-24-M16x98	315525	LV.F-100-24-AS-M16x98	100	M16	141	144	98	43	24	24	25000	308	362
312541	LV.F-100-24-M16x138	315541	LV.F-100-24-AS-M16x138	100	M16	181	184	138	43	24	24	25000	358	412
312561	LV.F-100-24-M16x158	315561	LV.F-100-24-AS-M16x158	100	M16	201	204	158	43	24	24	25000	385	439
312625	LV.F-100-24-M20x98	315625	LV.F-100-24-AS-M20x98	100	M20	141	144	98	43	24	24	25000	378	432
312641	LV.F-100-24-M20x138	315641	LV.F-100-24-AS-M20x138	100	M20	181	184	138	43	24	24	25000	457	511
312661	LV.F-100-24-M20x158	315661	LV.F-100-24-AS-M20x158	100	M20	201	204	158	43	24	24	25000	496	550
312681	LV.F-100-24-M20x198	315681	LV.F-100-24-AS-M20x198	100	M20	241	244	198	43	24	24	25000	579	633
312725	LV.F-100-24-M24x98	315725	LV.F-100-24-AS-M24x98	100	M24	141	144	98	43	24	24	25000	476	530
312761	LV.F-100-24-M24x158	315761	LV.F-100-24-AS-M24x158	100	M24	201	204	158	43	24	24	25000	648	702
312781	LV.F-100-24-M24x198	315781	LV.F-100-24-AS-M24x198	100	M24	241	244	198	43	24	24	25000	766	820

***** The max static load is the value above which the load applied to the element may cause some plastic material breakage, in particular conditions of use. Obviously, a factor that takes into consideration the importance and the safety level of the specific application must be applied to this value.

Data with no-slip disk mounted.

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LV.F-125



LV.F **LV.F-AS**

Code	Description	Code	Description	D	d	L	L1#	l	l1	s	Articulation Ø	Max. limit static load* [N]	⚖	⚖ #
313521	LV.F-125-24-M16x58	316221	LV.F-125-24-AS-M16x58	125	M16	125	128	58	67	24	24	28000	396	521
313525	LV.F-125-24-M16x98	316225	LV.F-125-24-AS-M16x98	125	M16	165	168	98	67	24	24	28000	447	572
313541	LV.F-125-24-M16x138	316241	LV.F-125-24-AS-M16x138	125	M16	205	208	138	67	24	24	28000	497	622
313561	LV.F-125-24-M16x158	316261	LV.F-125-24-AS-M16x158	125	M16	225	228	158	67	24	24	28000	524	649
313625	LV.F-125-24-M20x98	316325	LV.F-125-24-AS-M20x98	125	M20	165	168	98	67	24	24	28000	517	642
313641	LV.F-125-24-M20x138	316341	LV.F-125-24-AS-M20x138	125	M20	205	208	138	67	24	24	28000	596	721
313661	LV.F-125-24-M20x158	316361	LV.F-125-24-AS-M20x158	125	M20	225	228	158	67	24	24	28000	635	760
313681	LV.F-125-24-M20x198	316381	LV.F-125-24-AS-M20x198	125	M20	265	268	198	67	24	24	28000	718	843
313725	LV.F-125-24-M24x98	316425	LV.F-125-24-AS-M24x98	125	M24	165	168	98	67	24	24	28000	615	740
313761	LV.F-125-24-M24x158	316461	LV.F-125-24-AS-M24x158	125	M24	225	228	158	67	24	24	28000	787	912
313781	LV.F-125-24-M24x198	316481	LV.F-125-24-AS-M24x198	125	M24	265	268	198	67	24	24	28000	905	1030

***** The max static load is the value above which the load applied to the element may cause some plastic material breakage, in particular conditions of use. Obviously, a factor that takes into consideration the importance and the safety level of the specific application must be applied to this value.

Data with no-slip disk mounted.

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Levelling elements for ground mounting

Technopolymer base, stainless steel stem

BASE
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

ARTICULATED STEM
Threaded AISI 304 stainless steel with regulation hexagon.

STANDARD EXECUTIONS
- **LV.F-SST**: without no-slip disk.
- **LV.F-AS-SST:** with NBR rubber no-slip disk, hardness 70 Shore A, supplied assembled to the base.

GROUND MOUNTING
By means of two holes at 180°, supplied covered by a diaphragm (which can be easily removed by a metal tool), to avoid all unhealthy deposits of dirt and dust when the ground mounting is not required (see Fig. 1).

FEATURES
The special knurling under the lower lip of the base provides excellent stability and grip when using the levelling element without no-slip disk even on surfaces that are not perfectly flat.
The particular assembling system of the no-slip disk to the base assures a perfect anchoring, preventing separation even in case of impact during transport or of adhesion (sticking) to the floor (see No-slip disk on page 1223).

ORDER INFORMATION
The levelling elements are supplied unassembled to make carriage and storage easier. The components (base and stem) are supplied in separate packing: less volume taken and better protection from scratches and dirt.
To order bases and stems separately, see:
table of the possible combinations Bases/Stems on page 1229.

ACCESSORIES ON REQUEST
AISI 304 stainless steel nut (see Nuts NT. on page 1223).



ELESA Original design

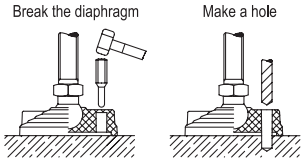
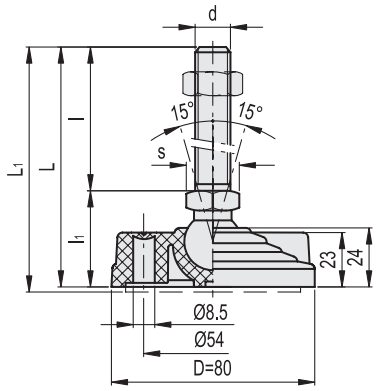


Fig.1

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LV.F-SST | Levelling elements for ground mounting

LV.F-80-SST



LV.F-SST **LV.F-AS-SST** **STAINLESS STEEL**

Code	Description	Code	Description	D	d	L	L1#	l	l1	s	Articulation Ø	Max. limit static load* [N]	⚖	⚖#
331121	LV.F-80-14-SST-M8x43	334121	LV.F-80-14-AS-SST-M8x43	80	M8	76	79	43	33	14	14	16000	86	112
331125	LV.F-80-14-SST-M8x68	334125	LV.F-80-14-AS-SST-M8x68	80	M8	101	104	68	33	14	14	16000	98	124
331221	LV.F-80-14-SST-M10x43	334221	LV.F-80-14-AS-SST-M10x43	80	M10	76	79	43	33	14	14	16000	95	121
331225	LV.F-80-14-SST-M10x68	334225	LV.F-80-14-AS-SST-M10x68	80	M10	101	104	68	33	14	14	16000	108	134
331231	LV.F-80-14-SST-M10x98	334231	LV.F-80-14-AS-SST-M10x98	80	M10	131	134	98	33	14	14	16000	122	148
331321	LV.F-80-14-SST-M12x43	334321	LV.F-80-14-AS-SST-M12x43	80	M12	76	79	43	33	14	14	16000	105	131
331325	LV.F-80-14-SST-M12x68	334325	LV.F-80-14-AS-SST-M12x68	80	M12	101	104	68	33	14	14	16000	123	149
331331	LV.F-80-14-SST-M12x98	334331	LV.F-80-14-AS-SST-M12x98	80	M12	131	134	98	33	14	14	16000	145	171
331421	LV.F-80-14-SST-M14X68	334421	LV.F-80-14-AS-SST-M14X68	80	M14	101	104	68	33	14	14	16000	146	172
331431	LV.F-80-14-SST-M14X98	334431	LV.F-80-14-AS-SST-M14X98	80	M14	131	134	98	33	14	14	16000	167	193
331441	LV.F-80-14-SST-M14X148	334441	LV.F-80-14-AS-SST-M14X148	80	M14	181	184	148	33	14	14	16000	250	276
331521	LV.F-80-14-SST-M16x68	334521	LV.F-80-14-AS-SST-M16x68	80	M16	101	104	68	33	16	14	16000	168	194
331525	LV.F-80-14-SST-M16x108	334525	LV.F-80-14-AS-SST-M16x108	80	M16	141	144	108	33	16	14	16000	222	248
331541	LV.F-80-14-SST-M16x148	334541	LV.F-80-14-AS-SST-M16x148	80	M16	181	184	148	33	16	14	16000	275	301
331561	LV.F-80-14-SST-M16x168	334561	LV.F-80-14-AS-SST-M16x168	80	M16	201	204	168	33	16	14	16000	302	328
331621	LV.F-80-24-SST-M16x58	334621	LV.F-80-24-AS-SST-M16x58	80	M16	101	104	58	43	24	24	18000	230	256
331625	LV.F-80-24-SST-M16x98	334625	LV.F-80-24-AS-SST-M16x98	80	M16	141	144	98	43	24	24	18000	282	308
331641	LV.F-80-24-SST-M16x138	334641	LV.F-80-24-AS-SST-M16x138	80	M16	181	184	138	43	24	24	18000	333	359
331661	LV.F-80-24-SST-M16x158	334661	LV.F-80-24-AS-SST-M16x158	80	M16	201	204	158	43	24	24	18000	361	387
331725	LV.F-80-24-SST-M20x98	334725	LV.F-80-24-AS-SST-M20x98	80	M20	141	144	98	43	24	24	18000	354	380
331741	LV.F-80-24-SST-M20x138	334741	LV.F-80-24-AS-SST-M20x138	80	M20	181	184	138	43	24	24	18000	434	460
331761	LV.F-80-24-SST-M20x158	334761	LV.F-80-24-AS-SST-M20x158	80	M20	201	204	158	43	24	24	18000	474	500
331781	LV.F-80-24-SST-M20x198	334781	LV.F-80-24-AS-SST-M20x198	80	M20	241	244	198	43	24	24	18000	559	585
331825	LV.F-80-24-SST-M24x98	334825	LV.F-80-24-AS-SST-M24x98	80	M24	141	144	98	43	24	24	18000	454	480
331861	LV.F-80-24-SST-M24x158	334861	LV.F-80-24-AS-SST-M24x158	80	M24	201	204	158	43	24	24	18000	629	655
331881	LV.F-80-24-SST-M24x198	334881	LV.F-80-24-AS-SST-M24x198	80	M24	241	244	198	43	24	24	18000	750	776

***** The max static load is the value above which the load applied to the element may cause some plastic material breakage, in particular conditions of use. Obviously, a factor that takes into consideration the importance and the safety level of the specific application must be applied to this value.

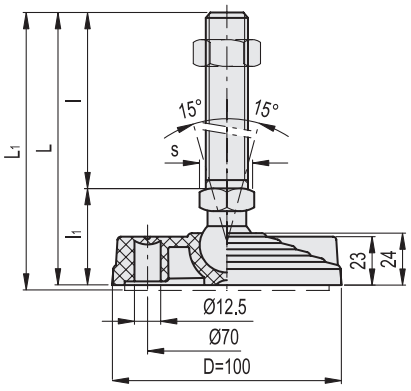
Data with no-slip disk mounted.

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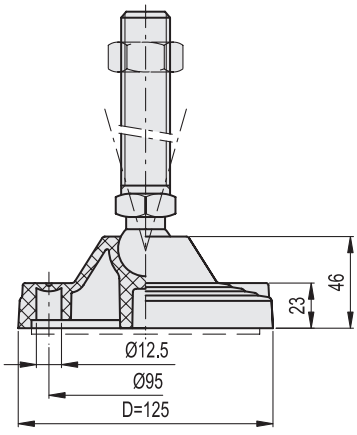
LV.F-SST

Levelling elements for ground mounting

LV.F-100-SST



LV.F-125-SST



LV.F-SST **LV.F-AS-SST** **STAINLESS STEEL**

Code	Description	Code	Description	D	d	L	L1#	l	l1	s	Articulation Ø	Max. limit static load* [N]	⚖	⚖#
332451	LV.F-100-14-SST-M8x43	335451	LV.F-100-14-AS-SST-M8x43	100	M8	76	79	43	33	14	14	18000	93	148
332453	LV.F-100-14-SST-M8x68	335453	LV.F-100-14-AS-SST-M8x68	100	M8	101	104	68	33	14	14	18000	105	160
332461	LV.F-100-14-SST-M10x43	335461	LV.F-100-14-AS-SST-M10x43	100	M10	76	79	43	33	14	14	18000	102	157
332463	LV.F-100-14-SST-M10x68	335463	LV.F-100-14-AS-SST-M10x68	100	M10	101	104	68	33	14	14	18000	114	169
332465	LV.F-100-14-SST-M10x98	335465	LV.F-100-14-AS-SST-M10x98	100	M10	131	134	98	33	14	14	18000	128	183
332471	LV.F-100-14-SST-M12x43	335471	LV.F-100-14-AS-SST-M12x43	100	M12	76	79	43	33	14	14	18000	112	167
332473	LV.F-100-14-SST-M12x68	335473	LV.F-100-14-AS-SST-M12x68	100	M12	101	104	68	33	14	14	18000	129	184
332475	LV.F-100-14-SST-M12x98	335475	LV.F-100-14-AS-SST-M12x98	100	M12	131	134	98	33	14	14	18000	150	205
332477	LV.F-100-14-SST-M14X68	335477	LV.F-100-14-AS-SST-M14X68	100	M14	101	104	68	33	14	14	18000	151	206
332479	LV.F-100-14-SST-M14X98	335479	LV.F-100-14-AS-SST-M14X98	100	M14	131	134	98	33	14	14	18000	172	227
332480	LV.F-100-14-SST-M14X148	335480	LV.F-100-14-AS-SST-M14X148	100	M14	181	184	148	33	14	14	18000	255	310
332481	LV.F-100-14-SST-M16x68	335481	LV.F-100-14-AS-SST-M16x68	100	M16	101	104	68	33	16	14	18000	173	228
332483	LV.F-100-14-SST-M16x108	335483	LV.F-100-14-AS-SST-M16x108	100	M16	141	144	108	33	16	14	18000	225	280
332485	LV.F-100-14-SST-M16x148	335485	LV.F-100-14-AS-SST-M16x148	100	M16	181	184	148	33	16	14	18000	277	332
332487	LV.F-100-14-SST-M16x168	335487	LV.F-100-14-AS-SST-M16x168	100	M16	201	204	168	33	16	14	18000	303	358
332521	LV.F-100-24-SST-M16x58	335521	LV.F-100-24-AS-SST-M16x58	100	M16	101	104	58	43	24	24	25000	260	314
332525	LV.F-100-24-SST-M16x98	335525	LV.F-100-24-AS-SST-M16x98	100	M16	141	144	98	43	24	24	25000	312	366
332541	LV.F-100-24-SST-M16x138	335541	LV.F-100-24-AS-SST-M16x138	100	M16	181	184	138	43	24	24	25000	363	417
332561	LV.F-100-24-SST-M16x158	335561	LV.F-100-24-AS-SST-M16x158	100	M16	201	204	158	43	24	24	25000	391	445
332625	LV.F-100-24-SST-M20x98	335625	LV.F-100-24-AS-SST-M20x98	100	M20	141	144	98	43	24	24	25000	384	438
332641	LV.F-100-24-SST-M20x138	335641	LV.F-100-24-AS-SST-M20x138	100	M20	181	184	138	43	24	24	25000	464	518
332661	LV.F-100-24-SST-M20x158	335661	LV.F-100-24-AS-SST-M20x158	100	M20	201	204	158	43	24	24	25000	504	558
332681	LV.F-100-24-SST-M20x198	335681	LV.F-100-24-AS-SST-M20x198	100	M20	241	244	198	43	24	24	25000	589	643
332725	LV.F-100-24-SST-M24x98	335725	LV.F-100-24-AS-SST-M24x98	100	M24	141	144	98	43	24	24	25000	484	538
332761	LV.F-100-24-SST-M24x158	335761	LV.F-100-24-AS-SST-M24x158	100	M24	201	204	158	43	24	24	25000	659	713
332781	LV.F-100-24-SST-M24x198	335781	LV.F-100-24-AS-SST-M24x198	100	M24	241	244	198	43	24	24	25000	780	834
333521	LV.F-125-24-SST-M16x58	336221	LV.F-125-24-AS-SST-M16x58	125	M16	125	128	58	67	24	24	28000	399	524
333525	LV.F-125-24-SST-M16x98	336225	LV.F-125-24-AS-SST-M16x98	125	M16	165	168	98	67	24	24	28000	451	576
333541	LV.F-125-24-SST-M16x138	336241	LV.F-125-24-AS-SST-M16x138	125	M16	205	208	138	67	24	24	28000	502	627
333561	LV.F-125-24-SST-M16x158	336261	LV.F-125-24-AS-SST-M16x158	125	M16	225	228	158	67	24	24	28000	530	655
333625	LV.F-125-24-SST-M20x98	336325	LV.F-125-24-AS-SST-M20x98	125	M20	165	168	98	67	24	24	28000	523	648
333641	LV.F-125-24-SST-M20x138	336341	LV.F-125-24-AS-SST-M20x138	125	M20	205	208	138	67	24	24	28000	603	728
333661	LV.F-125-24-SST-M20x158	336361	LV.F-125-24-AS-SST-M20x158	125	M20	225	228	158	67	24	24	28000	643	768
333681	LV.F-125-24-SST-M20x198	336381	LV.F-125-24-AS-SST-M20x198	125	M20	265	268	198	67	24	24	28000	728	853
333725	LV.F-125-24-SST-M24x98	336425	LV.F-125-24-AS-SST-M24x98	125	M24	165	168	98	67	24	24	28000	623	748
333761	LV.F-125-24-SST-M24x158	336461	LV.F-125-24-AS-SST-M24x158	125	M24	225	228	158	67	24	24	28000	798	923
333781	LV.F-125-24-SST-M24x198	336481	LV.F-125-24-AS-SST-M24x198	125	M24	265	268	198	67	24	24	28000	919	1044

***** The max static load is the value above which the load applied to the element may cause some plastic material breakage, in particular conditions of use. Obviously, a factor that takes into consideration the importance and the safety level of the specific application must be applied to this value.

Data with no-slip disk mounted.

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Levelling elements for ground mounting

Technopolymer base, stainless steel stem

BASE
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

ARTICULATED STEM
Threaded AISI 304 stainless steel with adjusting square.

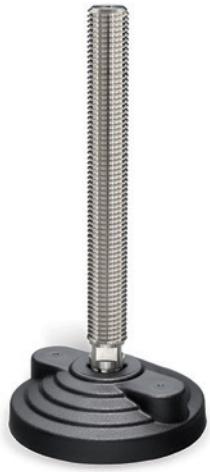
STANDARD EXECUTIONS
- **LVQ.F-SST**: without no-slip disk.
- **LVQ.F-AS-SST:** with NBR rubber no-slip disk, hardness 70 Shore A, supplied assembled to the base.

GROUND MOUNTING
By means of two holes at 180°, supplied covered by a diaphragm (which can be easily removed by a metal tool), to avoid all unhealthy deposits of dirt and dust when the ground mounting is not required (see Fig. 1).

FEATURES
The special knurling under the lower lip of the base provides excellent stability and grip when using the levelling element without no-slip disk even on surfaces that are not perfectly flat.
The particular assembling system of the no-slip disk to the base assures a perfect anchoring, preventing separation even in case of impact during transport or of adhesion (sticking) to the floor (see No-slip disk on page 1223).

ORDER INFORMATION
The levelling elements are supplied unassembled to make carriage and storage easier. The components (base and stem) are supplied in separate packing: less volume taken and better protection from scratches and dirt.
To order bases and stems separately, see:
table of the possible combinations Bases/Stems on page 1229.

ACCESSORIES ON REQUEST
AISI 304 stainless steel nut (see Nuts NT. on page 1223).



ELESA Original design

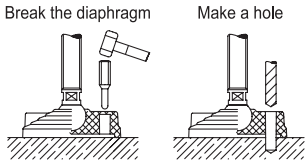
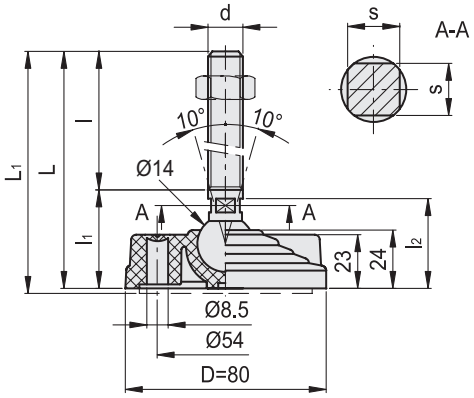


Fig.1

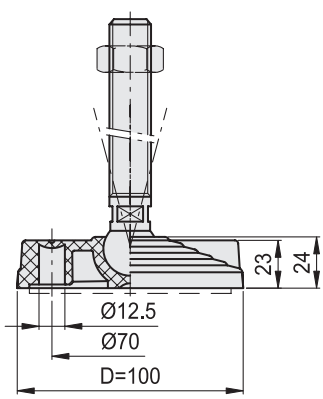
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LVQ.F-SST | Levelling elements for ground mounting

LVQ.F-80-SST



LVQ.F-100-SST



LVQ.F-SST **LVQ.F-AS-SST** **STAINLESS STEEL**

Code	Description	Code	Description	D	d	L	L1#	l	l1	l2	s	Max. limit static load* [N]	⚖	⚖#
332001	LVQ.F-80-14-SST-M16x68	335001	LVQ.F-80-14-AS-SST-M16x68	80	M16	102	105	68	34	32.5	12	16000	151	177
332003	LVQ.F-80-14-SST-M16x108	335003	LVQ.F-80-14-AS-SST-M16x108	80	M16	142	145	108	34	32.5	12	16000	215	241
332005	LVQ.F-80-14-SST-M16x148	335005	LVQ.F-80-14-AS-SST-M16x148	80	M16	182	185	148	34	32.5	12	16000	279	305
332007	LVQ.F-80-14-SST-M16x168	335007	LVQ.F-80-14-AS-SST-M16x168	80	M16	202	205	168	34	32.5	12	16000	311	337
332011	LVQ.F-80-14-SST-M20x110	335011	LVQ.F-80-14-AS-SST-M20x110	80	M20	149	152	110	39	36.5	15	16000	315	341
332013	LVQ.F-80-14-SST-M20x150	335013	LVQ.F-80-14-AS-SST-M20x150	80	M20	189	192	150	39	36.5	15	16000	415	441
332015	LVQ.F-80-14-SST-M20x170	335015	LVQ.F-80-14-AS-SST-M20x170	80	M20	209	212	170	39	36.5	15	16000	465	491
332017	LVQ.F-80-14-SST-M20x210	335017	LVQ.F-80-14-AS-SST-M20x210	80	M20	249	252	210	39	36.5	15	16000	564	590
332021	LVQ.F-80-14-SST-M24x110	335021	LVQ.F-80-14-AS-SST-M24x110	80	M24	149	152	110	39	36.5	18	16000	422	448
332023	LVQ.F-80-14-SST-M24x170	335023	LVQ.F-80-14-AS-SST-M24x170	80	M24	209	212	170	39	36.5	18	16000	637	663
332025	LVQ.F-80-14-SST-M24x210	335025	LVQ.F-80-14-AS-SST-M24x210	80	M24	249	252	210	39	36.5	18	16000	781	807
333851	LVQ.F-100-14-SST-M16x68	335851	LVQ.F-100-14-AS-SST-M16x68	100	M16	102	105	68	34	32.5	12	16000	181	235
333853	LVQ.F-100-14-SST-M16x108	335853	LVQ.F-100-14-AS-SST-M16x108	100	M16	142	145	108	34	32.5	12	16000	245	299
333855	LVQ.F-100-14-SST-M16x148	335855	LVQ.F-100-14-AS-SST-M16x148	100	M16	182	185	148	34	32.5	12	16000	309	363
333857	LVQ.F-100-14-SST-M16x168	335857	LVQ.F-100-14-AS-SST-M16x168	100	M16	202	205	168	34	32.5	12	16000	341	395
333861	LVQ.F-100-14-SST-M20x110	335861	LVQ.F-100-14-AS-SST-M20x110	100	M20	149	152	110	39	36.5	15	16000	345	399
333863	LVQ.F-100-14-SST-M20x150	335863	LVQ.F-100-14-AS-SST-M20x150	100	M20	189	192	150	39	36.5	15	16000	445	499
333865	LVQ.F-100-14-SST-M20x170	335865	LVQ.F-100-14-AS-SST-M20x170	100	M20	209	212	170	39	36.5	15	16000	495	549
333867	LVQ.F-100-14-SST-M20x210	335867	LVQ.F-100-14-AS-SST-M20x210	100	M20	249	252	210	39	36.5	15	16000	594	648
333871	LVQ.F-100-14-SST-M24x110	335871	LVQ.F-100-14-AS-SST-M24x110	100	M24	149	152	110	39	36.5	18	16000	452	506
333873	LVQ.F-100-14-SST-M24x170	335873	LVQ.F-100-14-AS-SST-M24x170	100	M24	209	212	170	39	36.5	18	16000	667	721
333875	LVQ.F-100-14-SST-M24x210	335875	LVQ.F-100-14-AS-SST-M24x210	100	M24	249	252	210	39	36.5	18	16000	811	865

***** The max static load is the value above which the load applied to the element may cause some plastic material breakage, in particular conditions of use. Obviously, a factor that takes into consideration the importance and the safety level of the specific application must be applied to this value.

Data with no-slip disk mounted.

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Levelling elements for ground mounting

Technopolymer base, steel or stainless steel stem



ELESA Original design

BASE

Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

STANDARD EXECUTIONS

Zinc-plated steel threaded and articulated stem with regulation hexagon:
- **LV.FO**: base without no-slip disk.
- **LV.FO-AS**: base with NBR rubber no-slip disk, hardness 70 Shore A, supplied assembled to the base.

AISI 304 stainless steel articulated and threaded stem with regulation hexagon:
- **LV.FO-SST**: base without no-slip disk.
- **LV.FO-AS-SST**: base with NBR rubber no-slip disk, hardness 70 Shore A, supplied assembled to the base.

GROUND MOUNTING

By means of two holes, supplied covered by a diaphragm (which can be easily removed by a metal tool), to avoid all unhealthy deposits of dirt and dust when only one hole is used (see Fig. 1).

FEATURES

The special knurling under the lower lip of the base provides excellent stability and grip when using the levelling element without no-slip disk even on surfaces that are not perfectly flat.
The particular assembling system of the no-slip disk to the base assures a perfect anchoring, preventing separation even in case of impact during transport or of adhesion (sticking) to the floor (see No-slip disks on page 1223).

ORDER INFORMATION

The levelling elements are supplied unassembled to make carriage and storage easier. The components (base and stem) are supplied in separate packing: less volume taken and better protection from scratches and dirt.
To order bases and stems separately, see:
table of the possible combinations Bases/Stems on page 1229.

ACCESSORIES ON REQUEST

AISI 304 stainless steel or zinc-plated steel nut (see Nuts NT. on page 1223).

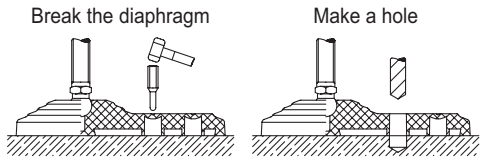
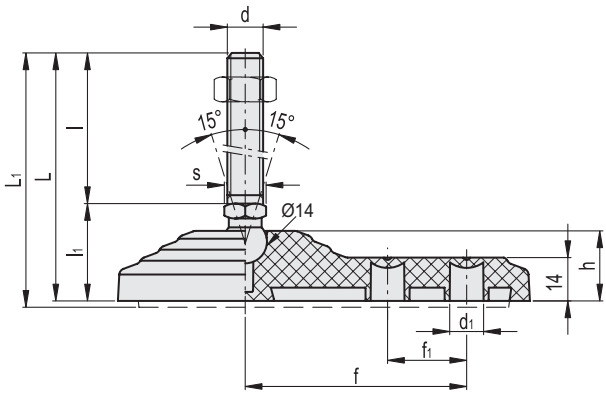
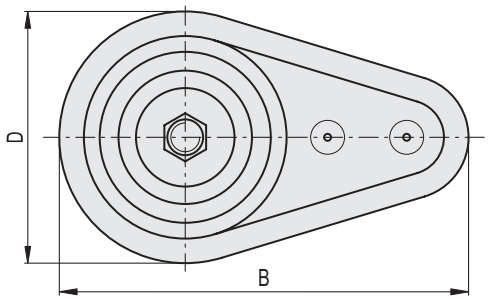


Fig.1





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LV.FO

Levelling elements for ground mounting

LV.FO **LV.FO-AS**

Code	Description	Code	Description	D	d	d1	L	L1#	l	l1	h	f	f1	s	Max. limit static load* [N]	⚖	⚖ #
513011	LV.FO-60-14-M8x43	516011	LV.FO-60-14-AS-M8x43	60	M8	8.5	73	75	43	30	21	50	18	14	14000	78	94
513016	LV.FO-60-14-M8x68	516016	LV.FO-60-14-AS-M8x68	60	M8	8.5	98	100	68	30	21	50	18	14	14000	90	106
513021	LV.FO-60-14-M10x43	516021	LV.FO-60-14-AS-M10x43	60	M10	8.5	73	75	43	30	21	50	18	14	14000	87	103
513026	LV.FO-60-14-M10x68	516026	LV.FO-60-14-AS-M10x68	60	M10	8.5	98	100	68	30	21	50	18	14	14000	99	115
513031	LV.FO-60-14-M10x98	516031	LV.FO-60-14-AS-M10x98	60	M10	8.5	128	130	98	30	21	50	18	14	14000	113	129
513036	LV.FO-60-14-M12x43	516036	LV.FO-60-14-AS-M12x43	60	M12	8.5	73	75	43	30	21	50	18	14	14000	97	113
513041	LV.FO-60-14-M12x68	516041	LV.FO-60-14-AS-M12x68	60	M12	8.5	98	100	68	30	21	50	18	14	14000	114	130
513046	LV.FO-60-14-M12x98	516046	LV.FO-60-14-AS-M12x98	60	M12	8.5	128	130	98	30	21	50	18	14	14000	135	151
513047	LV.FO-60-14-M14X68	516047	LV.FO-60-14-AS-M14X68	60	M14	8.5	98	100	68	30	21	50	18	14	14000	136	152
513049	LV.FO-60-14-M14X98	516049	LV.FO-60-14-AS-M14X98	60	M14	8.5	128	130	98	30	21	50	18	14	14000	157	174
513050	LV.FO-60-14-M14X148	516050	LV.FO-60-14-AS-M14X148	60	M14	8.5	178	180	148	30	21	50	18	14	14000	240	256
513051	LV.FO-60-14-M16x68	516051	LV.FO-60-14-AS-M16x68	60	M16	8.5	98	100	68	30	21	50	18	16	14000	158	174
513056	LV.FO-60-14-M16x108	516056	LV.FO-60-14-AS-M16x108	60	M16	8.5	138	140	108	30	21	50	18	16	14000	210	226
513061	LV.FO-60-14-M16x148	516061	LV.FO-60-14-AS-M16x148	60	M16	8.5	178	180	148	30	21	50	18	16	14000	262	278
513066	LV.FO-60-14-M16x168	516066	LV.FO-60-14-AS-M16x168	60	M16	8.5	198	200	168	30	21	50	18	16	14000	288	304
513121	LV.FO-80-14-M8x43	516121	LV.FO-80-14-AS-M8x43	80	M8	10.5	74	76	43	31	22	70	25	14	16000	116	146
513125	LV.FO-80-14-M8x68	516125	LV.FO-80-14-AS-M8x68	80	M8	10.5	99	101	68	31	22	70	25	14	16000	128	158
513221	LV.FO-80-14-M10x43	516221	LV.FO-80-14-AS-M10x43	80	M10	10.5	74	76	43	31	22	70	25	14	16000	125	155
513225	LV.FO-80-14-M10x68	516225	LV.FO-80-14-AS-M10x68	80	M10	10.5	99	101	68	31	22	70	25	14	16000	137	167
513231	LV.FO-80-14-M10x98	516231	LV.FO-80-14-AS-M10x98	80	M10	10.5	129	131	98	31	22	70	25	14	16000	151	181
513321	LV.FO-80-14-M12x43	516321	LV.FO-80-14-AS-M12x43	80	M12	10.5	74	76	43	31	22	70	25	14	16000	135	165
513325	LV.FO-80-14-M12x68	516325	LV.FO-80-14-AS-M12x68	80	M12	10.5	99	101	68	31	22	70	25	14	16000	152	182
513331	LV.FO-80-14-M12x98	516331	LV.FO-80-14-AS-M12x98	80	M12	10.5	129	131	98	31	22	70	25	14	16000	173	203
513421	LV.FO-80-14-M14X68	516421	LV.FO-80-14-AS-M14X68	80	M14	10.5	99	101	68	31	22	70	25	14	16000	174	204
513431	LV.FO-80-14-M14X98	516431	LV.FO-80-14-AS-M14X98	80	M14	10.5	129	131	98	31	22	70	25	14	16000	196	225
513441	LV.FO-80-14-M14X148	516441	LV.FO-80-14-AS-M14X148	80	M14	10.5	179	181	148	31	22	70	25	14	16000	278	308
513521	LV.FO-80-14-M16x68	516521	LV.FO-80-14-AS-M16x68	80	M16	10.5	99	101	68	31	22	70	25	16	16000	196	226
513525	LV.FO-80-14-M16x108	516525	LV.FO-80-14-AS-M16x108	80	M16	10.5	139	141	108	31	22	70	25	16	16000	248	278
513541	LV.FO-80-14-M16x148	516541	LV.FO-80-14-AS-M16x148	80	M16	10.5	179	181	148	31	22	70	25	16	16000	300	330
513561	LV.FO-80-14-M16x168	516561	LV.FO-80-14-AS-M16x168	80	M16	10.5	199	201	168	31	22	70	25	16	16000	326	356

LV.FO-SST **LV.FO-AS-SST** **STAINLESS STEEL**

533011	LV.FO-60-14-SST-M8x43	535901	LV.FO-60-14-AS-SST-M8x43	60	M8	8.5	73	75	43	30	21	50	18	14	14000	79	95
533016	LV.FO-60-14-SST-M8x68	535906	LV.FO-60-14-AS-SST-M8x68	60	M8	8.5	98	100	68	30	21	50	18	14	14000	91	107
533021	LV.FO-60-14-SST-M10x43	535911	LV.FO-60-14-AS-SST-M10x43	60	M10	8.5	73	75	43	30	21	50	18	14	14000	88	104
533026	LV.FO-60-14-SST-M10x68	535916	LV.FO-60-14-AS-SST-M10x68	60	M10	8.5	98	100	68	30	21	50	18	14	14000	101	117
533031	LV.FO-60-14-SST-M10x98	535921	LV.FO-60-14-AS-SST-M10x98	60	M10	8.5	128	130	98	30	21	50	18	14	14000	115	131
533036	LV.FO-60-14-SST-M12x43	535926	LV.FO-60-14-AS-SST-M12x43	60	M12	8.5	73	75	43	30	21	50	18	14	14000	98	114
533041	LV.FO-60-14-SST-M12x68	535931	LV.FO-60-14-AS-SST-M12x68	60	M12	8.5	98	100	68	30	21	50	18	14	14000	116	132
533046	LV.FO-60-14-SST-M12x98	535936	LV.FO-60-14-AS-SST-M12x98	60	M12	8.5	128	130	98	30	21	50	18	14	14000	138	154
533047	LV.FO-60-14-SST-M14X68	535937	LV.FO-60-14-AS-SST-M14X68	60	M14	8.5	98	100	68	30	21	50	18	14	14000	139	155
533049	LV.FO-60-14-SST-M14X98	535939	LV.FO-60-14-AS-SST-M14X98	60	M14	8.5	128	130	98	30	21	50	18	14	14000	160	176
533050	LV.FO-60-14-SST-M14X148	535940	LV.FO-60-14-AS-SST-M14X148	60	M14	8.5	178	180	148	30	21	50	18	14	14000	243	259
533051	LV.FO-60-14-SST-M16x68	535941	LV.FO-60-14-AS-SST-M16x68	60	M16	8.5	98	100	68	30	21	50	18	16	14000	161	177
533056	LV.FO-60-14-SST-M16x108	535946	LV.FO-60-14-AS-SST-M16x108	60	M16	8.5	138	140	108	30	21	50	18	16	14000	215	231
533061	LV.FO-60-14-SST-M16x148	535951	LV.FO-60-14-AS-SST-M16x148	60	M16	8.5	178	180	148	30	21	50	18	16	14000	268	284
533066	LV.FO-60-14-SST-M16x168	535956	LV.FO-60-14-AS-SST-M16x168	60	M16	8.5	198	200	168	30	21	50	18	16	14000	295	311
533121	LV.FO-80-14-SST-M8x43	536121	LV.FO-80-14-AS-SST-M8x43	80	M8	10.5	74	76	43	31	22	70	25	14	16000	117	147
533125	LV.FO-80-14-SST-M8x68	536125	LV.FO-80-14-AS-SST-M8x68	80	M8	10.5	99	101	68	31	22	70	25	14	16000	129	159
533221	LV.FO-80-14-SST-M10x43	536221	LV.FO-80-14-AS-SST-M10x43	80	M10	10.5	74	76	43	31	22	70	25	14	16000	126	156
533225	LV.FO-80-14-SST-M10x68	536225	LV.FO-80-14-AS-SST-M10x68	80	M10	10.5	99	101	68	31	22	70	25	14	16000	139	169
533231	LV.FO-80-14-SST-M10x98	536231	LV.FO-80-14-AS-SST-M10x98	80	M10	10.5	129	131	98	31	22	70	25	14	16000	153	183
533321	LV.FO-80-14-SST-M12x43	536321	LV.FO-80-14-AS-SST-M12x43	80	M12	10.5	74	76	43	31	22	70	25	14	16000	136	166
533325	LV.FO-80-14-SST-M12x68	536325	LV.FO-80-14-AS-SST-M12x68	80	M12	10.5	99	101	68	31	22	70	25	14	16000	154	184
533331	LV.FO-80-14-SST-M12x98	536331	LV.FO-80-14-AS-SST-M12x98	80	M12	10.5	129	131	98	31	22	70	25	14	16000	176	206
533421	LV.FO-80-14-SST-M14X68	536421	LV.FO-80-14-AS-SST-M14X68	80	M14	10.5	99	101	68	31	22	70	25	14	16000	177	207
533431	LV.FO-80-14-SST-M14X98	536431	LV.FO-80-14-AS-SST-M14X98	80	M14	10.5	129	131	98	31	22	70	25	14	16000	198	228
533441	LV.FO-80-14-SST-M14X148	536441	LV.FO-80-14-AS-SST-M14X148	80	M14	10.5	179	181	148	31	22	70	25	14	16000	281	311
533521	LV.FO-80-14-SST-M16x68	536521	LV.FO-80-14-AS-SST-M16x68	80	M16	10.5	99	101	68	31	22	70	25	16	16000	199	229
533525	LV.FO-80-14-SST-M16x108	536525	LV.FO-80-14-AS-SST-M16x108	80	M16	10.5	139	141	108	31	22	70	25	16	16000	253	283
533541	LV.FO-80-14-SST-M16x148	536541	LV.FO-80-14-AS-SST-M16x148	80	M16	10.5	179	181	148	31	22	70	25	16	16000	306	336
533561	LV.FO-80-14-SST-M16x168	536561	LV.FO-80-14-AS-SST-M16x168	80	M16	10.5	199	201	168	31	22	70	25	16	16000	333	363

***** The max static load is the value above which the load applied to the element may cause some plastic material breakage, in particular conditions of use. Obviously, a factor that takes into consideration the importance and the safety level of the specific application must be applied to this value.

Data with no-slip disk mounted.

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LVQ.FO-SST

Levelling elements for ground mounting

Technopolymer base, stainless steel stem

BASE
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

STANDARD EXECUTIONS
AISI 304 stainless steel articulated and threaded stem with adjusting square.
- **LVQ.FO-SST**: base without no-slip disk.
- **LVQ.FO-AS-SST**: base with NBR rubber no-slip disk, hardness 70 Shore A, supplied assembled to the base.

GROUND MOUNTING
By means of two holes, supplied covered by a diaphragm (which can be easily removed by a metal tool), to avoid all unhealthy deposits of dirt and dust when only one hole is used (see Fig. 1).

FEATURES
The special knurling under the lower lip of the base provides excellent stability and grip when using the levelling element without no-slip disk even on surfaces that are not perfectly flat.
The particular assembling system of the no-slip disk to the base assures a perfect anchoring, preventing separation even in case of impact during transport or of adhesion (sticking) to the floor (see No-slip disks on page 1223).

ORDER INFORMATION
The levelling elements are supplied unassembled to make carriage and storage easier. The components (base and stem) are supplied in separate packing: less volume taken and better protection from scratches and dirt.
To order bases and stems separately, see:
table of the possible combinations Bases/Stems on page 1229.

ACCESSORIES ON REQUEST
AISI 304 stainless steel nut (see Nuts NT. on page 1223).



ELESA Original design

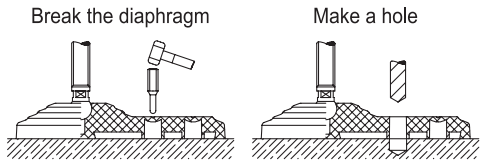
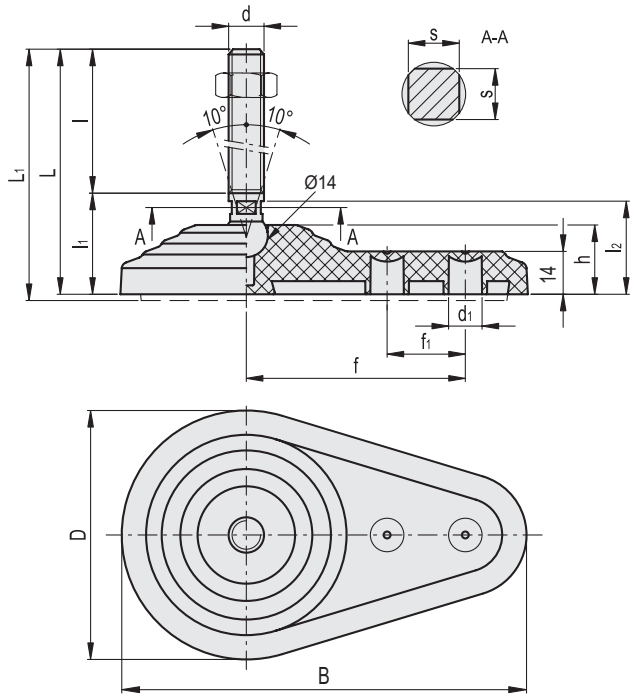


Fig.1

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LVQ.FO-SST | Levelling elements for ground mounting



LVQ.FO-SST **LVQ.FO-AS-SST** **STAINLESS STEEL**

Code	Description	Code	Description	D	d	d1	L	L1#	l	l1	l2	h	B	f	f1	s	Max. limit static load* [N]	⚖	⚖#
533901	LVQ.FO-60-14-SST-M16x68	536901	LVQ.FO-60-14-AS-SST-M16x68	60	M16	8.5	99	101	68	31	29.5	21	96.5	50	18	12	14000	144	160
533906	LVQ.FO-60-14-SST-M16x108	536906	LVQ.FO-60-14-AS-SST-M16x108	60	M16	8.5	139	141	108	31	29.5	21	96.5	50	18	12	14000	208	224
533911	LVQ.FO-60-14-SST-M16x148	536911	LVQ.FO-60-14-AS-SST-M16x148	60	M16	8.5	179	181	148	31	29.5	21	96.5	50	18	12	14000	272	288
533916	LVQ.FO-60-14-SST-M16x168	536916	LVQ.FO-60-14-AS-SST-M16x168	60	M16	8.5	199	201	168	31	29.5	21	96.5	50	18	12	14000	304	320
533921	LVQ.FO-60-14-SST-M20x110	536921	LVQ.FO-60-14-AS-SST-M20x110	60	M20	8.5	146	148	110	36	33.5	21	96.5	50	18	15	14000	308	324
533926	LVQ.FO-60-14-SST-M20x150	536926	LVQ.FO-60-14-AS-SST-M20x150	60	M20	8.5	186	188	150	36	33.5	21	96.5	50	18	15	14000	408	424
533931	LVQ.FO-60-14-SST-M20x170	536931	LVQ.FO-60-14-AS-SST-M20x170	60	M20	8.5	206	208	170	36	33.5	21	96.5	50	18	15	14000	458	474
533936	LVQ.FO-60-14-SST-M20x210	536936	LVQ.FO-60-14-AS-SST-M20x210	60	M20	8.5	246	248	210	36	33.5	21	96.5	50	18	15	14000	557	573
533941	LVQ.FO-60-14-SST-M24x110	536941	LVQ.FO-60-14-AS-SST-M24x110	60	M24	8.5	146	148	110	36	33.5	21	96.5	50	18	18	14000	415	431
533946	LVQ.FO-60-14-SST-M24x170	536946	LVQ.FO-60-14-AS-SST-M24x170	60	M24	8.5	206	208	170	36	33.5	21	96.5	50	18	18	14000	630	646
533951	LVQ.FO-60-14-SST-M24x210	536951	LVQ.FO-60-14-AS-SST-M24x210	60	M24	8.5	246	248	210	36	33.5	21	96.5	50	18	18	14000	774	790
534001	LVQ.FO-80-14-SST-M16x68	537001	LVQ.FO-80-14-AS-SST-M16x68	80	M16	10.5	100	102	68	32	30.5	22	130	70	25	12	16000	182	212
534003	LVQ.FO-80-14-SST-M16x108	537003	LVQ.FO-80-14-AS-SST-M16x108	80	M16	10.5	140	142	108	32	30.5	22	130	70	25	12	16000	246	276
534005	LVQ.FO-80-14-SST-M16x148	537005	LVQ.FO-80-14-AS-SST-M16x148	80	M16	10.5	180	182	148	32	30.5	22	130	70	25	12	16000	310	340
534007	LVQ.FO-80-14-SST-M16x168	537007	LVQ.FO-80-14-AS-SST-M16x168	80	M16	10.5	200	202	168	32	30.5	22	130	70	25	12	16000	342	372
534011	LVQ.FO-80-14-SST-M20x110	537011	LVQ.FO-80-14-AS-SST-M20x110	80	M20	10.5	147	149	110	37	34.5	22	130	70	25	15	16000	346	376
534013	LVQ.FO-80-14-SST-M20x150	537013	LVQ.FO-80-14-AS-SST-M20x150	80	M20	10.5	187	189	150	37	34.5	22	130	70	25	15	16000	446	476
534015	LVQ.FO-80-14-SST-M20x170	537015	LVQ.FO-80-14-AS-SST-M20x170	80	M20	10.5	207	209	170	37	34.5	22	130	70	25	15	16000	496	526
534017	LVQ.FO-80-14-SST-M20x210	537017	LVQ.FO-80-14-AS-SST-M20x210	80	M20	10.5	247	249	210	37	34.5	22	130	70	25	15	16000	595	625
534021	LVQ.FO-80-14-SST-M24x110	537021	LVQ.FO-80-14-AS-SST-M24x110	80	M24	10.5	147	149	110	37	34.5	22	130	70	25	18	16000	453	483
534023	LVQ.FO-80-14-SST-M24x170	537023	LVQ.FO-80-14-AS-SST-M24x170	80	M24	10.5	207	209	170	37	34.5	22	130	70	25	18	16000	668	698
534025	LVQ.FO-80-14-SST-M24x210	537025	LVQ.FO-80-14-AS-SST-M24x210	80	M24	10.5	247	249	210	37	34.5	22	130	70	25	18	16000	812	842

***** The max static load is the value above which the load applied to the element may cause some plastic material breakage, in particular conditions of use. Obviously, a factor that takes into consideration the importance and the safety level of the specific application must be applied to this value.

Data with no-slip disk mounted.

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LV.A-125-ACV

RoHS PA NBR +100° -30°

Levelling elements

Technopolymer base, steel stem

BASE
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

ARTICULATED THROUGH STEM
Threaded zinc-plated steel with regulation hexagon.
Assembled to the base by means of zinc-plated steel set screw and washer.

CUP WASHER FOR STEM BEARING
Glossy zinc-plated steel.

STANDARD EXECUTIONS
- **LV.A-ACV**: without no-slip disk.
- **LV.A-ACV-AS**: with NBR rubber no-slip disk, hardness 90 Shore A, supplied assembled with reinforced zinc-plated steel plate fixed by means of two screws.

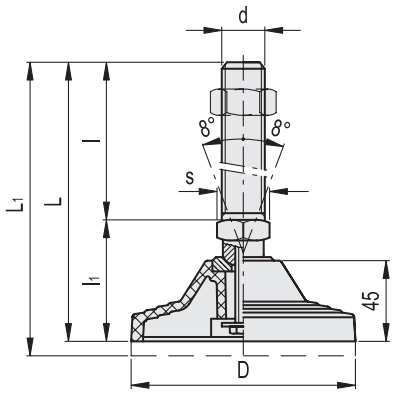
FEATURES
The special knurling under the lower lip of the base provides excellent stability and grip when using the levelling element without no-slip disk even on surfaces that are not perfectly flat.
The components of the levelling elements (base and stem) are supplied already assembled.

ACCESSORIES ON REQUEST
Zinc-plated steel nut (see Nuts NT. on page 1223).

SPECIAL EXECUTIONS ON REQUEST
AISI 304 stainless steel stems.



ELESA Original design



LV.A-ACV **LV.A-ACV-AS**

Code	Description	Code	Description	D	d	L	L1#	l	l1	s	Max. limit static load* [N]	⚖	⚖ #
306921	LV.A-125-ACV-M20x136	310921	LV.A-125-ACV-AS-M20x136	125	M20	200	210	136	64	24	40000	580	830
306925	LV.A-125-ACV-M20x186	310925	LV.A-125-ACV-AS-M20x186	125	M20	250	260	186	64	24	40000	690	940
306931	LV.A-125-ACV-M24x136	310931	LV.A-125-ACV-AS-M24x136	125	M24	200	210	136	64	24	40000	730	980
306935	LV.A-125-ACV-M24x186	310935	LV.A-125-ACV-AS-M24x186	125	M24	250	260	186	64	24	40000	840	1090
306941	LV.A-125-ACV-M30x136	310941	LV.A-125-ACV-AS-M30x136	125	M30	200	210	136	64	30	40000	940	1190
306945	LV.A-125-ACV-M30x186	310945	LV.A-125-ACV-AS-M30x186	125	M30	250	260	186	64	30	40000	1030	1280

***** The max static load is the value above which the load applied to the element may cause some plastic material breakage, in particular conditions of use. Obviously, a factor that takes into consideration the importance and the safety level of the specific application must be applied to this value.

Data with no-slip disk mounted.

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LV.F-125-ACV

Levelling elements for ground mounting

Technopolymer base, steel stem

BASE
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

ARTICULATED THROUGH STEM
Threaded zinc-plated steel with regulation hexagon.
Assembled to the base by means of zinc-plated steel set screw and washer.

CUP WASHER FOR STEM BEARING
Glossy zinc-plated steel.

STANDARD EXECUTIONS
- **LV.F-ACV**: without no-slip disk.
- **LV.F-ACV-AS**: with NBR rubber no-slip disk, hardness 90 Shore A, supplied assembled, reinforced with zinc-plated steel plate, fixed by means of two screws.

GROUND MOUNTING
By means of two holes at 180°, supplied covered by a diaphragm (which can be easily removed by a metal tool), to avoid all unhealthy deposits of dirt and dust when the ground mounting is not required (see Fig. 1).

FEATURES
The special knurling under the lower lip of the base provides excellent stability and grip when using the levelling element without no-slip disk even on surfaces that are not perfectly flat.
The components of the levelling elements (base and stem) are supplied already assembled.

ACCESSORIES ON REQUEST
Zinc-plated steel nut (see Nuts NT. on page 1223).

SPECIAL EXECUTIONS ON REQUEST
AISI 304 stainless steel stems.



ELESA Original design

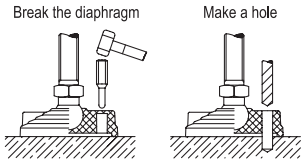
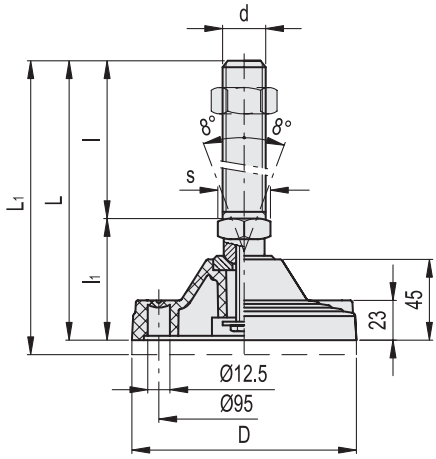


Fig.1



LV.F-ACV **LV.F-ACV-AS**

Code	Description	Code	Description	D	d	L	L1#	l	l1	s	Max. limit static load* [N]	⚖	⚖ #
313921	LV.F-125-ACV-M20x136	316921	LV.F-125-ACV-AS-M20x136	125	M20	200	210	136	64	24	40000	585	835
313925	LV.F-125-ACV-M20x186	316925	LV.F-125-ACV-AS-M20x186	125	M20	250	260	186	64	24	40000	695	945
313931	LV.F-125-ACV-M24x136	316931	LV.F-125-ACV-AS-M24x136	125	M24	200	210	136	64	24	40000	735	985
313935	LV.F-125-ACV-M24x186	316935	LV.F-125-ACV-AS-M24x186	125	M24	250	260	186	64	24	40000	845	1095
313941	LV.F-125-ACV-M30x136	316941	LV.F-125-ACV-AS-M30x136	125	M30	200	210	136	64	30	40000	945	1195
313945	LV.F-125-ACV-M30x186	316945	LV.F-125-ACV-AS-M30x186	125	M30	250	260	186	64	30	40000	1035	1285

***** The max static load is the value above which the load applied to the element may cause some plastic material breakage, in particular conditions of use. Obviously, a factor that takes into consideration the importance and the safety level of the specific application must be applied to this value.

Data with no-slip disk mounted.

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LV.A-125-APS

RoHS PA NBR +100° -30°

Levelling elements

Technopolymer base, steel stem

BASE
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

THROUGH STEM
Threaded zinc-plated steel with regulation hexagon, black-oxide steel retaining ring and zinc-plated steel plain washer.

STANDARD EXECUTIONS
- **LV.A-APS**: without no-slip disk.
- **LV.A-APS-AS**: with NBR rubber no-slip disk, hardness 90 Shore A, supplied assembled, reinforced with zinc-plated steel plate, fixed by means of two screws.

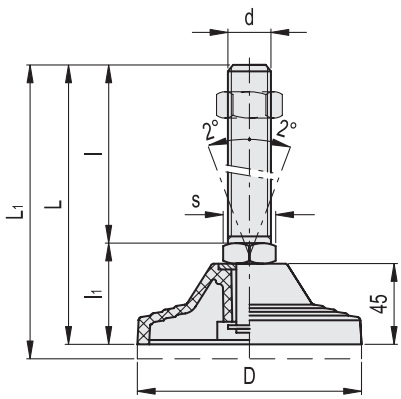
FEATURES
The special knurling under the lower lip of the base provides excellent stability and grip when using the levelling element without no-slip disk even on surfaces that are not perfectly flat.
The components of the levelling elements (base and stem) are supplied already assembled.

ACCESSORIES ON REQUEST
Zinc-plated steel nut (see Nuts NT. on page 1223).

SPECIAL EXECUTIONS ON REQUEST
AISI 304 stainless steel stems.



ELESA Original design



LV.A-APS **LV.A-APS-AS**

Code	Description	Code	Description	D	d	L	L1#	l	l1	s	Max. limit static load* [N]	⚖	⚖ #
306961	LV.A-125-APS-M20x95	310961	LV.A-125-APS-AS-M20x95	125	M20	150	160	95	55	24	40000	465	715
306965	LV.A-125-APS-M20x155	310965	LV.A-125-APS-AS-M20x155	125	M20	210	220	155	55	24	40000	585	835
306971	LV.A-125-APS-M24x95	310971	LV.A-125-APS-AS-M24x95	125	M24	150	160	95	55	24	40000	620	870
306975	LV.A-125-APS-M24x155	310975	LV.A-125-APS-AS-M24x155	125	M24	210	220	155	55	24	40000	735	985
306985	LV.A-125-APS-M30x155	310985	LV.A-125-APS-AS-M30x155	125	M30	210	220	155	55	30	40000	925	1175

***** The max static load is the value above which the load applied to the element may cause some plastic material breakage, in particular conditions of use. Obviously, a factor that takes into consideration the importance and the safety level of the specific application must be applied to this value.

Data with no-slip disk mounted.

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LV.F-125-APS

Levelling elements for ground mounting

Technopolymer base, steel stem



ELESA Original design

BASE
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

THROUGH STEM
Threaded zinc-plated steel with regulation hexagon.

STANDARD EXECUTIONS
- **LV.F-APS**: without no-slip disk.
- **LV.F-APS-AS**: with NBR rubber no-slip disk, hardness 90 Shore A, supplied assembled, reinforced with zinc-plated steel plate, fixed by means of two screws.

GROUND MOUNTING
By means of two holes at 180°, supplied covered by a diaphragm (which can be easily removed by a metal tool), to avoid all unhealthy deposits of dirt and dust when the ground mounting is not required (see Fig. 1).

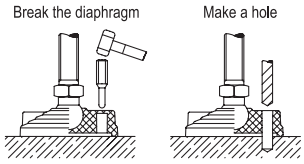
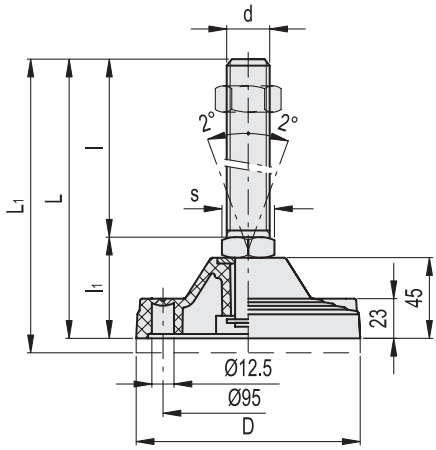


Fig.1

FEATURES
The special knurling under the lower lip of the base provides excellent stability and grip when using the levelling element without no-slip disk even on surfaces that are not perfectly flat.
The components of the levelling elements (base and stem) are supplied already assembled.

ACCESSORIES ON REQUEST
Zinc-plated steel nut (see Nuts NT. on page 1223).

SPECIAL EXECUTIONS ON REQUEST
AISI 304 stainless steel stems.



LV.F-APS **LV.F-APS-AS**

Code	Description	Code	Description	D	d	L	L1#	l	l1	s	Max. limit static load* [N]	⚖	⚖ #
313961	LV.F-125-APS-M20x95	316961	LV.F-125-APS-AS-M20x95	125	M20	150	160	95	55	24	40000	470	720
313965	LV.F-125-APS-M20x155	316965	LV.F-125-APS-AS-M20x155	125	M20	210	220	155	55	24	40000	590	840
313971	LV.F-125-APS-M24x95	316971	LV.F-125-APS-AS-M24x95	125	M24	150	160	95	55	24	40000	625	875
313975	LV.F-125-APS-M24x155	316975	LV.F-125-APS-AS-M24x155	125	M24	210	220	155	55	24	40000	740	990
313985	LV.F-125-APS-M30x155	316985	LV.F-125-APS-AS-M30x155	125	M30	210	220	155	55	30	40000	930	1180

***** The max static load is the value above which the load applied to the element may cause some plastic material breakage, in particular conditions of use. Obviously, a factor that takes into consideration the importance and the safety level of the specific application must be applied to this value.

Data with no-slip disk mounted.

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RoHS PA NBR +100° -30°

Levelling elements

Technopolymer base and knob, steel stem

BASE
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

ARTICULATED STEM AND BUILT-IN REGULATION KNOB
Threaded zinc-plated steel stem. Regulation knob in technopolymer type ELK.
Black-oxide steel washer and retaining screw (M4x10).

STANDARD EXECUTIONS
- **LV.A-ELK**: without no-slip disk.
- **LV.A-AS-ELK**: with NBR rubber no-slip disk, hardness 70 Shore A, supplied assembled to the base.

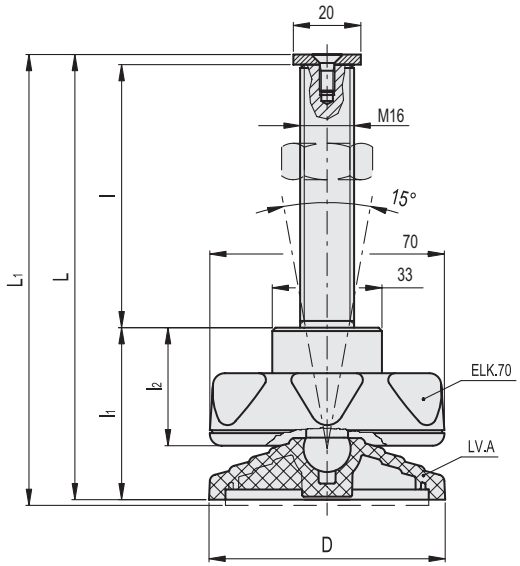
FEATURES
The special knurling under the lower lip of the base provides excellent stability and grip when using the levelling element without no-slip disk even on surfaces that are not perfectly flat.
The particular assembling system of the no-slip disk to the base assures a perfect anchoring, preventing separation even in case of impact during transport or of adhesion (sticking) to the floor (see No-slip disk on page 1223).
ELK. built-in regulation knob enables the operator to adjust manually the stem without the use of tools.
The components of the levelling elements (base and stem) are supplied already assembled.

NOTE
The threaded stem with built-in knob SM-14-M16x78-ELK (code 302581) can be assembled on other bases with hole for articulation with diameter 14.

ACCESSORIES ON REQUEST
Zinc-plated steel nut (see Nuts NT. on page 1223).



ELESA Original design



LV.A-ELK **LV.A-AS-ELK**

Code	Description	Code	Description	D	L	L1#	l	l1	l2	Articulation Ø	Max. limit static load* [N]	⚖	⚖ #
304118	LV.A-70-14-M16x78-ELK	308118	LV.A-70-14-AS-M16x78-ELK	70	132	135	78	51	35	14	14000	332	352
304581	LV.A-80-14-M16x78-ELK	308581	LV.A-80-14-AS-M16x78-ELK	80	137	140	78	56	35	14	14000	330	356

***** The max static load is the value above which the load applied to the element may cause some plastic material breakage, in particular conditions of use. Obviously, a factor that takes into consideration the importance and the safety level of the specific application must be applied to this value.

Data with no-slip disk mounted.

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Nuts for levelling elements

Steel or stainless steel

STANDARD EXECUTIONS
- **NT**: zinc-plated steel.
- **NT-SST**: AISI 304 stainless steel.

CONFORMITY
UNI 5588 DIN 934.



NT.

Code	Description	⚖
301015	NT-M8	16
301021	NT-M10	18
301025	NT-M12	20
301031	NT-M14	24
301035	NT-M16	30
301045	NT-M20	55
301055	NT-M24	93
301065	NT-M30	105

NT-SST **STAINLESS STEEL**

Code	Description	⚖
321015	NT-SST-M8	16
321021	NT-SST-M10	18
321025	NT-SST-M12	20
321031	NT-SST-M14	24
321035	NT-SST-M16	30
321045	NT-SST-M20	55
321055	NT-SST-M24	93

No-slip disks for levelling elements

It is extremely important that the no-slip disk must not detach from the base of the levelling element.
There are typical situations in which the conditions for the detachment of the no-slip disk could take place:
- case of eventual "sticking" of the no-slip disk to the floor while lifting the machinery for moving;
- case of side impacts against the levelling element with the no-slip disk during machinery transport.

The assembling system created by Elesa+Ganter consists of an anchoring in the central part of the disk, besides a particular slot along the whole rim profile.
Tests of separation, carried out in our labs with suitable equipment simulating real conditions (Fig. 1 and Fig. 2), have given the following results, compared with the current anchoring systems:
- detachment resistance in cases of adhesion (sticking) of the no-slip disk to the floor: fourfold increased;
- detachment resistance in case of side impacts: tenfold increased.

The no-slip disks are supplied assembled to their plastic bases.



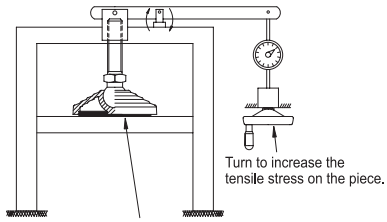


Fig.1
Test of no-slip disk separation with a no-slip disk "stuck" to the floor (case of machinery lifting for moving to another location)

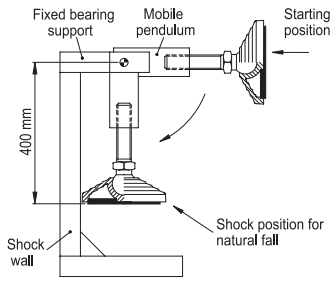


Fig.2
Test of no-slip disk separation for transversal shock (case of machinery transport)

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RoHS PA NBR +100° -30°

Levelling element bases

Technopolymer



ELESA Original design

MATERIAL

Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

BASES WITHOUT NO-SLIP DISK

- **LS.A** (D = 25 - 32 - 40 - 50 mm): base without ground mounting.
- **LV.A** (D = 60 - 70 - 80 - 100 - 125 mm): base without ground mounting.
- **LV.F** (D = 80 - 100 - 125 mm): base with two holes at 180° for ground mounting, supplied covered by a diaphragm (which can be easily removed by a metal tool) to avoid all unhealthy deposits of dirt and dust when only one hole is used (see Fig.1).
- **LV.FO** (D = 60 - 80 mm): base with two holes for ground mounting, supplied covered by a diaphragm (which can be easily removed by a metal tool) to avoid all unhealthy deposits of dirt and dust when only one hole is used (see Fig.1).

BASES WITH NO-SLIP DISK ASSEMBLED

NBR rubber no-slip disk, hardness 70 Shore A.
The particular assembling system of the no-slip disk to the base assures a perfect anchoring, preventing separation even in case of impact during transport or of adhesion (sticking) to the floor (see No-slip disks on page 1223).

- **LS.A-AS** (D = 25 - 32 - 40 - 50 mm): base without ground mounting.
- **LV.A-AS** (D = 60 - 70 - 80 - 100 - 125 mm): base without ground mounting.
- **LV.F-AS** (D = 80 - 100 - 125 mm): base with two holes at 180° for ground mounting, supplied covered by a diaphragm (which can be easily removed by a metal tool) to avoid all unhealthy deposits of dirt and dust when one only hole is used (see Fig.1).
- **LV.FO-AS** (D = 60 - 80 mm): base with two holes for ground mounting, supplied covered by a diaphragm (which can be easily removed by a metal tool) to avoid all unhealthy deposits of dirt and dust when only one hole is used (see Fig.1).

NOTE

To choose the stem see:
tables of the possible combinations Bases/Stems on page 1229.

SPECIAL EXECUTIONS ON REQUEST

Polypropylene based (PP) technopolymer bases. Max. limit static load lower than the table data.

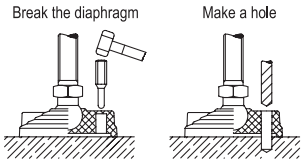
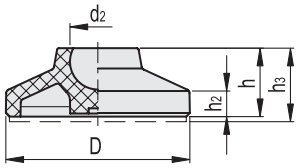


Fig.1

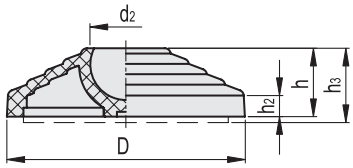
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BASE LS.A - LV.A - LV.F - LV.FO | Levelling element bases

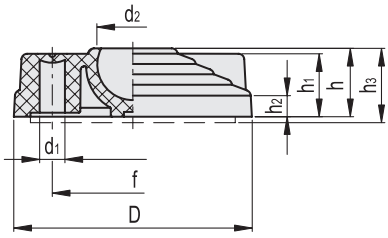
LS.A
LS.A-AS



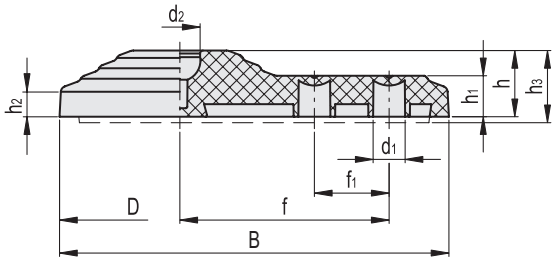
LV.A
LV.A-AS



LV.F
LV.F-AS



LV.FO
LV.FO-AS



Code	Description	Code	Description	D	d1	d2	h	h1	h2	h3#	B	f	f1	Ground mounting	Max. limit static load* [N]	⚖	⚖ #
340119	LS.A-25-8.5	340219	LS.A-25-8.5-AS	25	-	8.5	12	-	4	15	-	-	-	-	5000	4	6
340121	LS.A-25-14	340221	LS.A-25-14-AS	25	-	14	12	-	4	15	-	-	-	-	5000	4	6
340123	LS.A-32-8.5	340223	LS.A-32-8.5-AS	32	-	8.5	15	-	5	18	-	-	-	-	6000	8	12
340125	LS.A-32-14	340225	LS.A-32-14-AS	32	-	14	15	-	5	18	-	-	-	-	7000	8	12
340129	LS.A-40-8.5	340229	LS.A-40-8.5-AS	40	-	8.5	17	-	5.5	20	-	-	-	-	7000	13	20
340131	LS.A-40-14	340231	LS.A-40-14-AS	40	-	14	17	-	5.5	20	-	-	-	-	10000	13	20
340133	LS.A-50-8.5	340233	LS.A-50-8.5-AS	50	-	8.5	19	-	6.5	22	-	-	-	-	7000	19	31
340135	LS.A-50-14	340235	LS.A-50-14-AS	50	-	14	19	-	6.5	22	-	-	-	-	10000	19	31
301241	LV.A-60-14	301741	LV.A-60-14-AS	60	-	14	24	-	9	27	-	-	-	-	14000	32	51
301242	LV.A-60-24	301742	LV.A-60-24-AS	60	-	24	24	-	9	27	-	-	-	-	18000	29	48
301246	LV.A-70-14	301746	LV.A-70-14-AS	70	-	14	19	-	7	22	-	-	-	-	14000	30	50
301251	LV.A-80-14	301751	LV.A-80-14-AS	80	-	14	24	-	9	27	-	-	-	-	16000	53	79
301252	LV.A-80-24	301752	LV.A-80-24-AS	80	-	24	24	-	9	27	-	-	-	-	18000	49	75
301261	LV.A-100-14	301761	LV.A-100-14-AS	100	-	14	24	-	9	27	-	-	-	-	18000	82	136
301262	LV.A-100-24	301762	LV.A-100-24-AS	100	-	24	24	-	9	27	-	-	-	-	25000	81	135
301272	LV.A-125-24	301772	LV.A-125-24-AS	125	-	24	46	-	15	49	-	-	-	-	28000	190	315
301331	LV.F-80-14	301831	LV.F-80-14-AS	80	8.5	14	24	23	9	27	-	54	-	•	16000	55	81
301332	LV.F-80-24	301832	LV.F-80-24-AS	80	8.5	24	24	23	9	27	-	54	-	•	18000	79	75
301341	LV.F-100-14	301841	LV.F-100-14-AS	100	12.5	14	24	23	9	27	-	70	-	•	18000	85	139
301342	LV.F-100-24	301842	LV.F-100-24-AS	100	12.5	24	24	23	9	27	-	70	-	•	25000	85	139
301352	LV.F-125-24	301852	LV.F-125-24-AS	125	12.5	24	46	23	15	49	-	95	-	•	28000	200	325
301421	LV.FO-60-14	301921	LV.FO-60-14-AS	60	8.5	14	21	14	9	23	96.5	50	18	•	14000	48	64
301431	LV.FO-80-14	301931	LV.FO-80-14-AS	80	10.5	14	22	14	9	24	130	70	25	•	16000	86	116

***** The max static load is the value above which the load applied to the element may cause some plastic material breakage, in particular conditions of use. Obviously, a factor that takes into consideration the importance and the safety level of the specific application must be applied to this value.
# Data with no-slip disk mounted.

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Levelling element bases

ESD conductive technopolymer

MATERIAL

Glass-fibre reinforced polyamide based (PA) special conductive technopolymer, black colour, matte finish.
Surface resistivity = 10^3 Ω (ASTM D257 measuring method).
Volume resistivity = 10^3 Ωcm (ASTM D257 measuring method).

BASES WITHOUT NO-SLIP DISK

- **LV.A-ESD-C**: without ground mounting.
- **LV.F-ESD-C**: with two holes at 180° for ground mounting, supplied covered by a breakable plastic diaphragm (which can be easily removed by a metal tool) to avoid all unhealthy deposits of dirt and dust when the ground mounting is not required (see Fig.1).

BASES WITHOUT NO-SLIP DISK

NBR rubber no-slip disk, hardness 70 Shore A, supplied assembled to the base.
Surface resistivity = 10^3 Ω (ASTM D991 measuring method).
Volume resistivity = 10^3 Ωcm (ASTM D991 measuring method).
The particular assembling system of the no-slip disk to the base assures a perfect anchoring, preventing separation even in case of impact during transport or of adhesion (sticking) to the floor (see No-slip disks on page 1223).

- **LV.A-AS-ESD-C**: without ground mounting.
- **LV.F-AS-ESD-C**: with two holes at 180° for ground mounting, supplied covered by a breakable plastic diaphragm (which can be easily removed by a metal tool) to avoid all unhealthy deposits of dirt and dust when the ground mounting is not required (see Fig.1).

NOTE

To choose the stem see:
tables of the possible combinations Bases/Stems on page 1229.



ELESA Original design

FEATURES AND APPLICATIONS

The special conductive technopolymer (ESD-C Electrostatic Discharge Conductive) prevents the accumulation of electrostatic charge.
The bases are suitable for "ESD PROTECTED AREA" (EPA) where components, which are susceptible to electrostatic discharges, are handled.
The (ESD-C) indelibly printed mark on the surface of the levelling elements bases identifies the particular conductive features of the material according to EN 100015/1 and IEC 61340-5-1.
The special knurling under the lower lip of the base provides excellent stability and grip when using the levelling element without no-slip disk even on surfaces that are not perfectly flat.

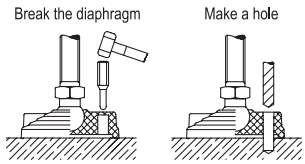
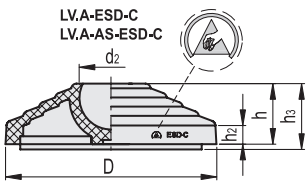
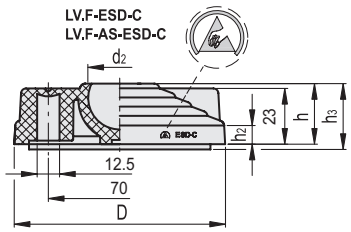


Fig.1





Code	Description	Code	Description	D	d2	h	h2	h3#	Max. limit static load* [N]	⚖	⚖ #
301241-ESD	LV.A-60-14-ESD-C	301741-ESD	LV.A-60-14-AS-ESD-C	60	14	24	9	27	14000	32	51
301242-ESD	LV.A-60-24-ESD-C	301742-ESD	LV.A-60-24-AS-ESD-C	60	24	24	9	27	18000	29	48
301246-ESD	LV.A-70-14-ESD-C	301746-ESD	LV.A-70-14-AS-ESD-C	70	14	19	7	22	14000	30	50
301251-ESD	LV.A-80-14-ESD-C	301751-ESD	LV.A-80-14-AS-ESD-C	80	14	24	9	27	16000	53	79
301252-ESD	LV.A-80-24-ESD-C	301752-ESD	LV.A-80-24-AS-ESD-C	80	24	24	9	27	18000	49	75
301261-ESD	LV.A-100-14-ESD-C	301761-ESD	LV.A-100-14-AS-ESD-C	100	14	24	9	27	18000	82	136
301262-ESD	LV.A-100-24-ESD-C	301762-ESD	LV.A-100-24-AS-ESD-C	100	24	24	9	27	25000	81	135
301272-ESD	LV.A-125-24-ESD-C	301772-ESD	LV.A-125-24-AS-ESD-C	125	24	46	15	49	28000	190	315
301341-ESD	LV.F-100-14-ESD-C	301841-ESD	LV.F-100-14-AS-ESD-C	100	14	24	9	27	18000	85	139

***** The max static load is the value above which the load applied to the element may cause some plastic material breakage, in particular conditions of use. Obviously, a factor that takes into consideration the importance and the safety level of the specific application must be applied to this value.
# Data with no-slip disk mounted.

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Stems for levelling elements

Steel or stainless steel

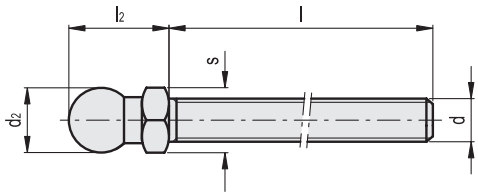
STANDARD EXECUTIONS

- **SM**: zinc-plated steel spheric articulated and threaded stem with regulation hexagon.
- **SM-SST**: AISI 304 stainless steel spheric articulated and threaded stem with regulation hexagon.

NOTE

To choose the base see:
table of the possible combinations Bases/Stems on page 1229.
The stems are usually supplied in a packing of four pieces compacted by means of a shrink film to avoid any damaging movement during transport.
For big quantities, the stems are supplied in wooden boxes and are placed in order, to avoid any damaging movement during transport.





SM.

Code	Description	d	l	l2	d2	s	⚖
302121	SM-14-M8x43	M8	43	19.5	13.9	14	30
302125	SM-14-M8x68	M8	68	19.5	13.9	14	42
302221	SM-14-M10x43	M10	43	19.5	13.9	14	39
302225	SM-14-M10x68	M10	68	19.5	13.9	14	51
302231	SM-14-M10x98	M10	98	19.5	13.9	14	65
302321	SM-14-M12x43	M12	43	19.5	13.9	14	49
302325	SM-14-M12x68	M12	68	19.5	13.9	14	66
302331	SM-14-M12x98	M12	98	19.5	13.9	14	87
302421	SM-14-M14x68	M14	68	19.5	13.9	14	88
302431	SM-14-M14x98	M14	98	19.5	13.9	14	109
302441	SM-14-M14x148	M14	148	19.5	13.9	14	192
302521	SM-14-M16x68	M16	68	19.5	13.9	16	110
302525	SM-14-M16x108	M16	108	19.5	13.9	16	162
302541	SM-14-M16x148	M16	148	19.5	13.9	16	214
302561	SM-14-M16x168	M16	168	19.5	13.9	16	240
302621	SM-24-M16x58	M16	58	37	23.9	24	176
302625	SM-24-M16x98	M16	98	37	23.9	24	227
302641	SM-24-M16x138	M16	138	37	23.9	24	277
302661	SM-24-M16x158	M16	158	37	23.9	24	304
302725	SM-24-M20x98	M20	98	37	23.9	24	297
302741	SM-24-M20x138	M20	138	37	23.9	24	376
302761	SM-24-M20x158	M20	158	37	23.9	24	415
302781	SM-24-M20x198	M20	198	37	23.9	24	498
302825	SM-24-M24x98	M24	98	37	23.9	24	395
302861	SM-24-M24x158	M24	158	37	23.9	24	567
302881	SM-24-M24x198	M24	198	37	23.9	24	685

SM-SST **STAINLESS STEEL**

Code	Description	⚖
322121	SM-14-SST-M8x43	31
322125	SM-14-SST-M8x68	43
322221	SM-14-SST-M10x43	40
322225	SM-14-SST-M10x68	53
322231	SM-14-SST-M10x98	67
322321	SM-14-SST-M12x43	50
322325	SM-14-SST-M12x68	68
322331	SM-14-SST-M12x98	90
322421	SM-14-SST-M14x68	91
322431	SM-14-SST-M14x98	112
322441	SM-14-SST-M14x148	195
322521	SM-14-SST-M16x68	113
322525	SM-14-SST-M16x108	167
322541	SM-14-SST-M16x148	220
322561	SM-14-SST-M16x168	247
322621	SM-24-SST-M16x58	181
322625	SM-24-SST-M16x98	234
322641	SM-24-SST-M16x138	285
322661	SM-24-SST-M16x158	313
322725	SM-24-SST-M20x98	306
322741	SM-24-SST-M20x138	387
322761	SM-24-SST-M20x158	427
322781	SM-24-SST-M20x198	513
322825	SM-24-SST-M24x98	407
322861	SM-24-SST-M24x158	584
322881	SM-24-SST-M24x198	706

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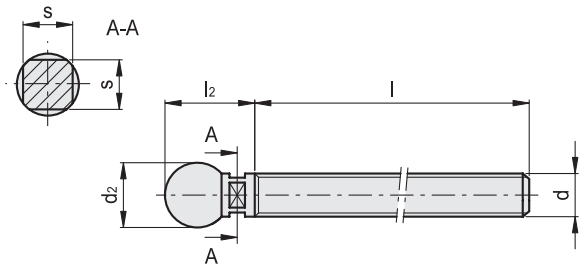
Stems for levelling elements

Stainless steel

SPHERIC ARTICULATED AND THREADED STEM WITH ADJUSTING SQUARE
AISI 304 stainless steel

NOTE
To choose the base see:
table of the possible combinations Bases/Stems on page 1229.
The stems are usually supplied in a packing of four pieces compacted by means of a shrink film to avoid any damaging movement during transport.
For big quantities, the stems are supplied in wooden boxes and are placed in order, to avoid any damaging movement during transport.





STAINLESS STEEL

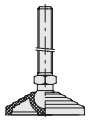
Code	Description	d	l	l2	d2	s	⚖
322891	SMQ-8.5-SST-M8x48	M8	48	15	8.5	7	19
322894	SMQ-8.5-SST-M8x73	M8	73	15	8.5	7	29
322901	SMQ-8.5-SST-M10x48	M10	48	15	8.5	7	26
322904	SMQ-8.5-SST-M10x73	M10	73	15	8.5	7	42
322907	SMQ-8.5-SST-M10x103	M10	103	15	8.5	7	60
322911	SMQ-8.5-SST-M12x48	M12	48	15	8.5	9	37
322914	SMQ-8.5-SST-M12x73	M12	73	15	8.5	9	59
322917	SMQ-8.5-SST-M12x103	M12	103	15	8.5	9	90
322971	SMQ-14-SST-M16x68	M16	68	19.7	13.9	12	96
322974	SMQ-14-SST-M16x108	M16	108	19.7	13.9	12	160
322977	SMQ-14-SST-M16x148	M16	148	19.7	13.9	12	224
322979	SMQ-14-SST-M16x168	M16	168	19.7	13.9	12	256
322981	SMQ-14-SST-M20x110	M20	110	24.7	13.9	15	260
322984	SMQ-14-SST-M20x150	M20	150	24.7	13.9	15	360
322987	SMQ-14-SST-M20x170	M20	170	24.7	13.9	15	410
322989	SMQ-14-SST-M20x210	M20	210	24.7	13.9	15	509
322991	SMQ-14-SST-M24x110	M24	110	24.7	13.9	18	367
322994	SMQ-14-SST-M24x170	M24	170	24.7	13.9	18	582
322997	SMQ-14-SST-M24x210	M24	210	24.7	13.9	18	726

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Tables of the possible combinations Bases / Stems

Stems	d2 (2)	dxl (3)	Base LS.A								Base LV.A								Base LV.F					Base LV.FO	
			d2 (2)	Ø 8.5				Ø14				Ø14				Ø24				Ø14		Ø24			Ø14	
			D (1)	25	32	40	50	25	32	40	50	60	70	80	100	60	80	100	125	80	100	80	100	125	60	80
			Max. limit static load	5000	6000	7000	7000	7000	10000	12000	12000	18000	18000	20000	18000	23000	23000	28000	30000	20000	18000	23000	28000	30000	14000	16000
SM. zinc-plated steel stem	Ø14	M8x43÷68					•	•	•	•	•	•	•	•					•	•				•	•
		M10x43÷68÷98					•	•	•	•	•	•	•	•					•	•				•	•
		M12x43÷68÷96					•	•	•	•	•	•	•	•					•	•				•	•
		M14x68÷98÷148					•	•	•	•	•	•	•	•					•	•				•	•
		M16x68÷108÷148÷168					•	•	•	•	•	•	•	•					•	•				•	•
	Ø24	M16x58÷98÷138÷158													•	•	•	•			•	•	•		
		M20x98÷138÷158÷158													•	•	•	•			•	•	•		
		M24x98÷158÷198													•	•	•	•			•	•	•		
STAINLESS STEEL																									
SM-SST stainless steel stem	Ø14	M8x43÷68					•	•	•	•	•	•	•	•					•	•				•	•
		M10x43÷68÷98					•	•	•	•	•	•	•	•					•	•				•	•
		M12x43÷68÷98					•	•	•	•	•	•	•	•					•	•				•	•
		M14x68÷98÷148					•	•	•	•	•	•	•	•					•	•				•	•
		M16x68÷108÷148÷168					•	•	•	•	•	•	•	•					•	•				•	•
	Ø24	M16x58÷98÷138÷158													•	•	•	•			•	•	•		
		M20x98÷138÷158÷198													•	•	•	•			•	•	•		
		M24x98÷158÷198													•	•	•	•			•	•	•		
SMQ-SST stainless steel stem	Ø8.5	M8x48÷73	•	•	•	•																			
		M10x48÷73÷103	•	•	•	•																			
		M12x48÷73÷103	•	•	•	•																			
	Ø14	M16x68÷108÷148÷168					•	•	•	•	•	•	•	•					•	•				•	•
		M20x110÷150÷170÷210					•	•	•	•	•	•	•	•					•	•				•	•
		M24x110÷170÷210					•	•	•	•	•	•	•	•					•	•				•	•

DESCRIPTION STRUCTURE



Levelling element	–	Base diameter (D) (1)	–	Articulation diameter (d2) (2)	–	To add only for the version with no-slip disk assembled to the base	–	To add only for the version with stainless steel stem	–	Thread diameter (d) Thread length (l) (3)	–	To add only for the version with antistatic base
LV.A	–	80	–	14	–	AS	–	SST	–	M8x43	–	ESD-C



LV.A	–	80	–	14	–	AS	–	–	–	ESD-C



SM	–	14	–	SST	–	M8x43

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Levelling feet

Steel sheet metal, zinc plated / with rubber underlay



SPECIFICATION

Types (Base plate)

- Type **A1**: Steel, zinc plated, rubber inlaid, black
- Type **A2**: Steel, zinc plated, rubber inlaid, white

Version

- Version **S**: without nut, external hexagon at the bottom
- Version **SK**: with nut, external hexagon at the bottom
- Version **U**: without nut, hexagon socket at the top, wrench flat at the bottom
- Version **UK**: with nut, hexagon socket at the top, wrench flat at the bottom
- Version **X**: with female thread, external hexagon

Base plate, sheet metal
Steel, zinc plated, blue passivated

Threaded stem
Steel, zinc plated, blue passivated

Hexagon nut ISO 4032
Steel, zinc plated, blue passivated

Rubber underlay, inlaid

- black: Perbunan® (NBR) 80±5 Shore A
- white: Santoprene® (TPE) 80±5 Shore A

INFORMATION

Levelling feet GN 30 will be delivered mounted and are not removable.

TECHNICAL INFORMATION

- Elastomer characteristics (see page A32)

LOAD RATING OF LEVELLING FEET

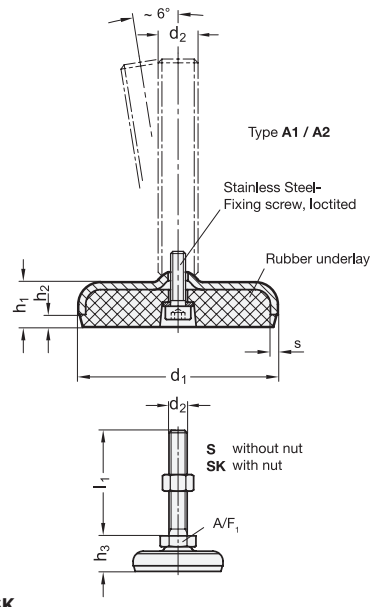
Information

The static load bearing capacity given in the table rests on a test series in which the load has been applied perpendicular to the base plate. For the values given in the table, the strain relief may result in minor deformations of the base plate.
Bending and buckling stress which often occurs in practice results in a lower load bearing capacity of the adjustment spindle and may have to be taken into account.
Also, the spindle strength is assumed to be ≥ 500 N/mm^2.
The details given on strength are nonbinding guide values without any liability. In general, they do not constitute a warranty of quality.
The user must determine from case to case if a product is suitable for the intended purpose or use. Environmental factors may influence the stated values.

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GN 30

Levelling feet



*Complete with version of the Levelling feet (External hexagon at the bottom)

S without nut

SK with nut

GN 30-S/SK

Description	d1	d2	l1	h1	h2	h3	s	A/F 1	Static load in kN	⚖
GN 30-50-M8-40-A1-*	50	M 8	40	14.5	3.5	23	3	17	8	110
GN 30-50-M8-40-A2-*	50	M 8	40	14.5	3.5	23	3	17	8	80
GN 30-50-M8-50-A1-*	50	M 8	50	14.5	3.5	23	3	17	8	110
GN 30-50-M8-50-A2-*	50	M 8	50	14.5	3.5	23	3	17	8	100
GN 30-50-M8-63-A1-*	50	M 8	63	14.5	3.5	23	3	17	8	118
GN 30-50-M8-63-A2-*	50	M 8	63	14.5	3.5	23	3	17	8	110
GN 30-50-M10-50-A1-*	50	M 10	50	14.5	3.5	23	3	17	10	120
GN 30-50-M10-50-A2-*	50	M 10	50	14.5	3.5	23	3	17	10	110
GN 30-50-M10-60-A1-*	50	M 10	60	14.5	3.5	23	3	17	10	120
GN 30-50-M10-60-A2-*	50	M 10	60	14.5	3.5	23	3	17	10	115
GN 30-50-M10-80-A1-*	50	M 10	80	14.5	3.5	23	3	17	10	140
GN 30-50-M10-80-A2-*	50	M 10	80	14.5	3.5	23	3	17	10	110
GN 30-50-M10-100-A1-*	50	M 10	100	14.5	3.5	23	3	17	10	140
GN 30-50-M10-100-A2-*	50	M 10	100	14.5	3.5	23	3	17	10	110
GN 30-50-M12-60-A1-*	50	M 12	60	14.5	3.5	23	3	17	12	140
GN 30-50-M12-60-A2-*	50	M 12	60	14.5	3.5	23	3	17	12	130
GN 30-50-M12-80-A1-*	50	M 12	80	14.5	3.5	23	3	17	12	153
GN 30-50-M12-80-A2-*	50	M 12	80	14.5	3.5	23	3	17	12	145
GN 30-50-M12-100-A1-*	50	M 12	100	14.5	3.5	23	3	17	12	170
GN 30-50-M12-100-A2-*	50	M 12	100	14.5	3.5	23	3	17	12	160
GN 30-50-M12-125-A1-*	50	M 12	125	14.5	3.5	23	3	17	12	180
GN 30-50-M12-125-A2-*	50	M 12	125	14.5	3.5	23	3	17	12	200
GN 30-60-M8-40-A1-*	60	M 8	40	16	4	24	3	17	8	170
GN 30-60-M8-40-A2-*	60	M 8	40	16	4	24	3	17	8	147
GN 30-60-M8-50-A1-*	60	M 8	50	16	4	24	3	17	8	150
GN 30-60-M8-50-A2-*	60	M 8	50	16	4	24	3	17	8	140
GN 30-60-M8-63-A1-*	60	M 8	63	16	4	24	3	17	8	170
GN 30-60-M8-63-A2-*	60	M 8	63	16	4	24	3	17	8	160
GN 30-60-M10-50-A1-*	60	M 10	50	16	4	24	3	17	10	170
GN 30-60-M10-50-A2-*	60	M 10	50	16	4	24	3	17	10	145
GN 30-60-M10-60-A1-*	60	M 10	60	16	4	24	3	17	10	160
GN 30-60-M10-60-A2-*	60	M 10	60	16	4	24	3	17	10	150
GN 30-60-M10-80-A1-*	60	M 10	80	16	4	24	3	17	10	160
GN 30-60-M10-80-A2-*	60	M 10	80	16	4	24	3	17	10	150
GN 30-60-M10-100-A1-*	60	M 10	100	16	4	24	3	17	10	200
GN 30-60-M10-100-A2-*	60	M 10	100	16	4	24	3	17	10	172
GN 30-60-M12-60-A1-*	60	M 12	60	16	4	24	3	17	12	200
GN 30-60-M12-60-A2-*	60	M 12	60	16	4	24	3	17	12	239
GN 30-60-M12-80-A1-*	60	M 12	80	16	4	24	3	17	12	190
GN 30-60-M12-80-A2-*	60	M 12	80	16	4	24	3	17	12	180
GN 30-60-M12-100-A1-*	60	M 12	100	16	4	24	3	17	12	220
GN 30-60-M12-100-A2-*	60	M 12	100	16	4	24	3	17	12	200
GN 30-60-M12-125-A1-*	60	M 12	125	16	4	24	3	17	12	233
GN 30-60-M12-125-A2-*	60	M 12	125	16	4	24	3	17	12	220
GN 30-80-M8-40-A1-*	80	M 8	40	18	5	26	3	17	8	400
GN 30-80-M8-40-A2-*	80	M 8	40	18	5	26	3	17	8	217
GN 30-80-M8-50-A1-*	80	M 8	50	18	5	26	3	17	8	220
GN 30-80-M8-50-A2-*	80	M 8	50	18	5	26	3	17	8	150
GN 30-80-M8-63-A1-*	80	M 8	63	18	5	26	3	17	8	224
GN 30-80-M8-63-A2-*	80	M 8	63	18	5	26	3	17	8	220

GN 30-S/SK

Description	d1	d2	l1	h1	h2	h3	s	A/F 1	Static load in kN	⚖
GN 30-80-M10-50-A1-*	80	M 10	50	18	5	26	3	17	10	250
GN 30-80-M10-50-A2-*	80	M 10	50	18	5	26	3	17	10	240
GN 30-80-M10-60-A1-*	80	M 10	60	18	5	26	3	17	10	250
GN 30-80-M10-60-A2-*	80	M 10	60	18	5	26	3	17	10	210
GN 30-80-M10-80-A1-*	80	M 10	80	18	5	26	3	17	10	200
GN 30-80-M10-80-A2-*	80	M 10	80	18	5	26	3	17	10	190
GN 30-80-M10-100-A1-*	80	M 10	100	18	5	26	3	17	10	300
GN 30-80-M10-100-A2-*	80	M 10	100	18	5	26	3	17	10	274
GN 30-80-M12-60-A1-*	80	M 12	60	18	5	26	3	17	12	298
GN 30-80-M12-60-A2-*	80	M 12	60	18	5	26	3	17	12	267
GN 30-80-M12-80-A1-*	80	M 12	80	18	5	26	3	17	12	270
GN 30-80-M12-80-A2-*	80	M 12	80	18	5	26	3	17	12	280
GN 30-80-M12-100-A1-*	80	M 12	100	18	5	26	3	17	12	325
GN 30-80-M12-100-A2-*	80	M 12	100	18	5	26	3	17	12	296
GN 30-80-M12-125-A1-*	80	M 12	125	18	5	26	3	17	12	320
GN 30-80-M12-125-A2-*	80	M 12	125	18	5	26	3	17	12	310
GN 30-100-M8-40-A1-*	100	M 8	40	20	6	28	3	17	8	400
GN 30-100-M8-40-A2-*	100	M 8	40	20	6	28	3	17	8	326
GN 30-100-M8-50-A1-*	100	M 8	50	20	6	28	3	17	8	416
GN 30-100-M8-50-A2-*	100	M 8	50	20	6	28	3	17	8	329
GN 30-100-M8-63-A1-*	100	M 8	63	20	6	28	3	17	8	460
GN 30-100-M8-63-A2-*	100	M 8	63	20	6	28	3	17	8	333
GN 30-100-M10-50-A1-*	100	M 10	50	20	6	28	3	17	10	350
GN 30-100-M10-50-A2-*	100	M 10	50	20	6	28	3	17	10	330
GN 30-100-M10-60-A1-*	100	M 10	60	20	6	28	3	17	10	420
GN 30-100-M10-60-A2-*	100	M 10	60	20	6	28	3	17	10	364
GN 30-100-M10-80-A1-*	100	M 10	80	20	6	28	3	17	10	433
GN 30-100-M10-80-A2-*	100	M 10	80	20	6	28	3	17	10	373
GN 30-100-M10-100-A1-*	100	M 10	100	20	6	28	3	17	10	445
GN 30-100-M10-100-A2-*	100	M 10	100	20	6	28	3	17	10	383
GN 30-100-M12-60-A1-*	100	M 12	60	20	6	28	3	17	11	440
GN 30-100-M12-60-A2-*	100	M 12	60	20	6	28	3	17	10	376
GN 30-100-M12-80-A1-*	100	M 12	80	20	6	28	3	17	11	350
GN 30-100-M12-80-A2-*	100	M 12	80	20	6	28	3	17	10	330
GN 30-100-M12-100-A1-*	100	M 12	100	20	6	28	3	17	11	460
GN 30-100-M12-100-A2-*	100	M 12	100	20	6	28	3	17	10	405
GN 30-100-M12-125-A1-*	100	M 12	125	20	6	28	3	17	11	482
GN 30-100-M12-125-A2-*	100	M 12	125	20	6	28	3	17	10	420

Weight Version S

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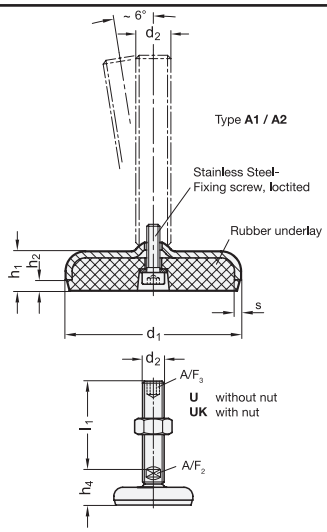
GN 30

Levelling feet

*Complete with version of the Levelling feet (Hexagon socket at the top / Wrench at the bottom)

U without nut

UK with nut



GN 30-U/UK

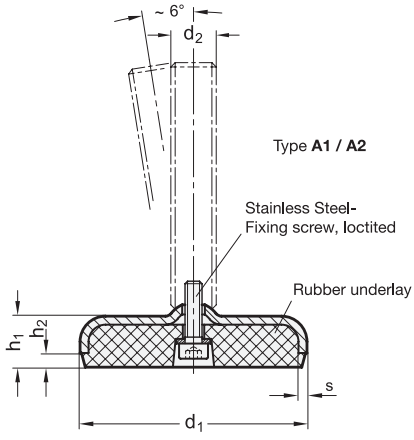
Description	d1	d2	l1	h1	h2	h4	s	A/F 2	A/F 3	Static load in kN	⚖
GN 30-50-M16-75-A1-*	50	M 16	75	14.5	3.5	29	3	12	8	16	192
GN 30-50-M16-75-A2-*	50	M 16	75	14.5	3.5	29	3	12	8	13	189
GN 30-50-M16-100-A1-*	50	M 16	100	14.5	3.5	29	3	12	8	16	220
GN 30-50-M16-100-A2-*	50	M 16	100	14.5	3.5	29	3	12	8	13	210
GN 30-50-M16-125-A1-*	50	M 16	125	14.5	3.5	29	3	12	8	16	260
GN 30-50-M16-125-A2-*	50	M 16	125	14.5	3.5	29	3	12	8	13	250
GN 30-50-M16-150-A1-*	50	M 16	150	14.5	3.5	29	3	12	8	16	300
GN 30-50-M16-150-A2-*	50	M 16	150	14.5	3.5	29	3	12	8	13	280
GN 30-50-M16-200-A1-*	50	M 16	200	14.5	3.5	29	3	12	8	16	351
GN 30-50-M16-200-A2-*	50	M 16	200	14.5	3.5	29	3	12	8	13	340
GN 30-60-M16-75-A1-*	60	M 16	75	16	4	30	3	12	8	16	240
GN 30-60-M16-75-A2-*	60	M 16	75	16	4	30	3	12	8	13	220
GN 30-60-M16-100-A1-*	60	M 16	100	16	4	30	3	12	8	16	241
GN 30-60-M16-100-A2-*	60	M 16	100	16	4	30	3	12	8	13	230
GN 30-60-M16-125-A1-*	60	M 16	125	16	4	30	3	12	8	16	300
GN 30-60-M16-125-A2-*	60	M 16	125	16	4	30	3	12	8	13	280
GN 30-60-M16-150-A1-*	60	M 16	150	16	4	30	3	12	8	16	330
GN 30-60-M16-150-A2-*	60	M 16	150	16	4	30	3	12	8	13	310
GN 30-60-M16-200-A1-*	60	M 16	200	16	4	30	3	12	8	16	398
GN 30-60-M16-200-A2-*	60	M 16	200	16	4	30	3	12	8	13	350
GN 30-80-M16-75-A1-*	80	M 16	75	18	5	32	3	12	8	12	320
GN 30-80-M16-75-A2-*	80	M 16	75	18	5	32	3	12	8	11	310
GN 30-80-M16-100-A1-*	80	M 16	100	18	5	32	3	12	8	12	380
GN 30-80-M16-100-A2-*	80	M 16	100	18	5	32	3	12	8	11	370
GN 30-80-M16-125-A1-*	80	M 16	125	18	5	32	3	12	8	12	404
GN 30-80-M16-125-A2-*	80	M 16	125	18	5	32	3	12	8	11	414
GN 30-80-M16-150-A1-*	80	M 16	150	18	5	32	3	12	8	12	440
GN 30-80-M16-150-A2-*	80	M 16	150	18	5	32	3	12	8	11	430
GN 30-80-M16-200-A1-*	80	M 16	200	18	5	32	3	12	8	12	508
GN 30-80-M16-200-A2-*	80	M 16	200	18	5	32	3	12	8	11	520
GN 30-80-M20-75-A1-*	80	M 20	75	18	5	33	3	15	10	12	420
GN 30-80-M20-75-A2-*	80	M 20	75	18	5	33	3	15	10	11	410
GN 30-80-M20-100-A1-*	80	M 20	100	18	5	33	3	15	10	12	460
GN 30-80-M20-100-A2-*	80	M 20	100	18	5	33	3	15	10	11	450
GN 30-80-M20-125-A1-*	80	M 20	125	18	5	33	3	15	10	12	520
GN 30-80-M20-125-A2-*	80	M 20	125	18	5	33	3	15	10	11	510
GN 30-80-M20-150-A1-*	80	M 20	150	18	5	33	3	15	10	12	560
GN 30-80-M20-150-A2-*	80	M 20	150	18	5	33	3	15	10	11	550
GN 30-80-M20-200-A1-*	80	M 20	200	18	5	33	3	15	10	12	663
GN 30-80-M20-200-A2-*	80	M 20	200	18	5	33	3	15	10	11	660
GN 30-80-M24-100-A1-*	80	M 24	100	18	5	36	3	19	12	12	560
GN 30-80-M24-100-A2-*	80	M 24	100	18	5	36	3	19	12	11	560
GN 30-80-M24-125-A1-*	80	M 24	125	18	5	36	3	19	12	12	690
GN 30-80-M24-125-A2-*	80	M 24	125	18	5	36	3	19	12	11	679
GN 30-80-M24-150-A1-*	80	M 24	150	18	5	36	3	19	12	12	700
GN 30-80-M24-150-A2-*	80	M 24	150	18	5	36	3	19	12	11	651
GN 30-80-M24-200-A1-*	80	M 24	200	18	5	36	3	19	12	12	700
GN 30-80-M24-200-A2-*	80	M 24	200	18	5	36	3	19	12	11	789
GN 30-100-M16-75-A1-*	100	M 16	75	20	6	34	3	12	8	11	505
GN 30-100-M16-100-A1-*	100	M 16	100	20	6	34	3	12	8	10	441
GN 30-100-M16-100-A2-*	100	M16	100	20	6	34	3	12	8	10	441
GN 30-100-M16-125-A1-*	100	M 16	125	20	6	34	3	12	8	11	560
GN 30-100-M16-125-A2-*	100	M 16	125	20	6	34	3	12	8	10	473
GN 30-100-M16-150-A1-*	100	M 16	150	20	6	34	3	12	8	11	600
GN 30-100-M16-150-A2-*	100	M 16	150	20	6	34	3	12	8	11	505
GN 30-100-M16-200-A1-*	100	M 16	200	20	6	34	3	12	8	11	650
GN 30-100-M16-200-A2-*	100	M 16	200	20	6	34	3	12	8	10	600

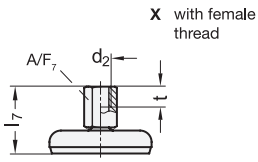
GN 30-U/UK

Description	d1	d2	l1	h1	h2	h4	s	A/F 2	A/F 3	Static load in kN	⚖
GN 30-100-M20-75-A1-*	100	M 20	75	20	6	35	3	15	10	11	500
GN 30-100-M20-75-A2-*	100	M 20	75	20	6	35	3	15	10	10	450
GN 30-100-M20-100-A1-*	100	M 20	100	20	6	35	3	15	10	11	600
GN 30-100-M20-100-A2-*	100	M 20	100	20	6	35	3	15	10	10	550
GN 30-100-M20-125-A1-*	100	M 20	125	20	6	35	3	15	10	11	650
GN 30-100-M20-125-A2-*	100	M 20	125	20	6	35	3	15	10	10	649
GN 30-100-M20-150-A1-*	100	M 20	150	20	6	35	3	15	10	11	700
GN 30-100-M20-150-A2-*	100	M 20	150	20	6	35	3	15	10	10	749
GN 30-100-M20-200-A1-*	100	M 20	200	20	6	35	3	15	10	11	780
GN 30-100-M20-200-A2-*	100	M 20	200	20	6	35	3	15	10	10	720
GN 30-100-M24-100-A1-*	100	M 24	100	20	6	38	3	19	12	11	700
GN 30-100-M24-100-A2-*	100	M 24	100	20	6	38	3	19	12	10	652
GN 30-100-M24-125-A1-*	100	M 24	125	20	6	38	3	19	12	11	780
GN 30-100-M24-125-A2-*	100	M 24	125	20	6	38	3	19	12	10	770
GN 30-100-M24-150-A1-*	100	M 24	150	20	6	38	3	19	12	11	839
GN 30-100-M24-150-A2-*	100	M 24	150	20	6	38	3	19	12	10	820
GN 30-100-M24-200-A1-*	100	M 24	200	20	6	38	3	19	12	11	840
GN 30-100-M24-200-A2-*	100	M 24	200	20	6	38	3	19	12	10	900
GN 30-120-M20-100-A1-*	120	M 20	100	22	6	39	4	15	10	20	825
GN 30-120-M20-100-A2-*	120	M 20	100	22	6	39	4	15	10	16	742
GN 30-120-M20-125-A1-*	120	M 20	125	22	6	39	4	15	10	20	930
GN 30-120-M20-125-A2-*	120	M 20	125	22	6	39	4	15	10	16	910
GN 30-120-M20-150-A1-*	120	M 20	150	22	6	39	4	15	10	20	822
GN 30-120-M20-150-A2-*	120	M 20	150	22	6	39	4	15	10	16	820
GN 30-120-M20-200-A1-*	120	M 20	200	22	6	39	4	15	10	20	1100
GN 30-120-M20-200-A2-*	120	M 20	200	22	6	39	4	15	10	16	932
GN 30-120-M24-100-A1-*	120	M 24	100	22	6	42	4	19	12	20	1020
GN 30-120-M24-100-A2-*	120	M 24	100	22	6	42	4	19	12	16	847
GN 30-120-M24-125-A1-*	120	M 24	125	22	6	42	4	19	12	20	1060
GN 30-120-M24-125-A2-*	120	M 24	125	22	6	42	4	19	12	16	919
GN 30-120-M24-150-A1-*	120	M 24	150	22	6	42	4	19	12	20	1120
GN 30-120-M24-150-A2-*	120	M 24	150	22	6	42	4	19	12	16	1020
GN 30-120-M24-200-A1-*	120	M 24	200	22	6	42	4	19	12	20	1280
GN 30-120-M24-200-A2-*	120	M 24	200	22	6	42	4	19	12	16	1000
GN 30-120-M30-100-A1-*	120	M 30	100	22	6	46	4	24	12	20	1180
GN 30-120-M30-100-A2-*	120	M 30	100	22	6	46	4	24	12	16	1051
GN 30-120-M30-125-A1-*	120	M 30	125	22	6	46	4	24	12	20	1330
GN 30-120-M30-125-A2-*	120	M 30	125	22	6	46	4	24	12	16	1160
GN 30-120-M30-150-A1-*	120	M 30	150	22	6	46	4	24	12	20	1300
GN 30-120-M30-150-A2-*	120	M 30	150	22	6	46	4	24	12	16	1274
GN 30-120-M30-200-A1-*	120	M 30	200	22	6	46	4	24	12	20	1680
GN 30-120-M30-200-A2-*	120	M 30	200	22	6	46	4	24	12	16	1500

Weight Version U

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GN 30-X

Description	d1	d2	l7	h1	h2	s	A/F 7	t	Static load in kN	⚖
GN 30-50-M8-37-A1-X	50	M 8	37	14.5	3.5	3	14	8	8	110
GN 30-50-M8-37-A2-X	50	M 8	37	14.5	3.5	3	14	8	8	100
GN 30-50-M10-40-A1-X	50	M 10	40	14.5	3.5	3	14	10	13	110
GN 30-50-M10-40-A2-X	50	M 10	40	14.5	3.5	3	14	10	13	108
GN 30-50-M12-43-A1-X	50	M 12	43	14.5	3.5	3	17	12	16	120
GN 30-50-M12-43-A2-X	50	M 12	43	14.5	3.5	3	17	12	13	115
GN 30-50-M16-49-A1-X	50	M 16	49	14.5	3.5	3	22	16	16	161
GN 30-50-M16-49-A2-X	50	M 16	49	14.5	3.5	3	22	16	13	170
GN 30-60-M8-38-A1-X	60	M 8	38	16	4	3	14	8	8	150
GN 30-60-M8-38-A2-X	60	M 8	38	16	4	3	14	8	8	140
GN 30-60-M10-41-A1-X	60	M 10	41	16	4	3	14	10	13	160
GN 30-60-M10-41-A2-X	60	M 10	41	16	4	3	14	10	13	150
GN 30-60-M12-45-A1-X	60	M 12	45	16	4	3	17	12	16	140
GN 30-60-M12-45-A2-X	60	M 12	45	16	4	3	17	12	13	100
GN 30-60-M16-50-A1-X	60	M 16	50	16	4	3	22	16	16	210
GN 30-60-M16-50-A2-X	60	M 16	50	16	4	3	22	16	13	190
GN 30-80-M8-40-A1-X	80	M 8	40	18	5	3	14	8	8	260
GN 30-80-M8-40-A2-X	80	M 8	40	18	5	3	14	8	8	241
GN 30-80-M10-43-A1-X	80	M 10	43	18	5	3	14	10	12	300
GN 30-80-M10-43-A2-X	80	M 10	43	18	5	3	14	10	11	239

GN 30-X

Description	d1	d2	l7	h1	h2	s	A/F 7	t	Static load in kN	⚖
GN 30-80-M12-47-A1-X	80	M 12	47	18	5	3	17	12	12	250
GN 30-80-M12-47-A2-X	80	M 12	47	18	5	3	17	12	11	240
GN 30-80-M16-52-A1-X	80	M 16	52	18	5	3	22	16	12	320
GN 30-80-M16-52-A2-X	80	M 16	52	18	5	3	22	16	11	290
GN 30-80-M20-60-A1-X	80	M 20	60	18	5	3	27	20	12	380
GN 30-80-M20-60-A2-X	80	M 20	60	18	5	3	27	20	11	350
GN 30-100-M8-42-A1-X	100	M 8	42	20	6	3	14	8	8	437
GN 30-100-M8-42-A2-X	100	M 8	42	20	6	3	14	8	8	349
GN 30-100-M10-45-A1-X	100	M 10	45	20	6	3	14	10	11	280
GN 30-100-M10-45-A2-X	100	M 10	45	20	6	3	14	10	10	270
GN 30-100-M12-49-A1-X	100	M 12	49	20	6	3	17	12	11	360
GN 30-100-M12-49-A2-X	100	M 12	49	20	6	3	17	12	10	350
GN 30-100-M16-54-A1-X	100	M 16	54	20	6	3	22	16	11	460
GN 30-100-M16-54-A2-X	100	M 16	54	20	6	3	22	16	10	450
GN 30-100-M20-62-A1-X	100	M 20	62	20	6	3	27	20	11	500
GN 30-100-M20-62-A2-X	100	M 20	62	20	6	3	27	20	10	450
GN 30-120-M20-65-A1-X	120	M 20	65	22	6	4	27	20	20	820
GN 30-120-M20-65-A2-X	120	M 20	65	22	6	4	27	20	16	800

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Stainless Steel-Levelling fe

with rubber underlay



SPECIFICATION

Types (Base plate)

- Type **B1**: matt shot-blasted, rubber inlaid, black
- Type **B2**: matt shot-blasted, rubber inlaid, white
- Type **B3**: matt shot-blasted, rubber vulcanised, black
- Type **B4**: matt shot-blasted, rubber vulcanised, white
- Type **C3**: polished, rubber vulcanised, black
- Type **C4**: polished, rubber vulcanised, white

Version

- Version **S**: without nut, external hexagon at the bottom
- Version **SK**: with nut, external hexagon at the bottom
- Version **T**: without nut, wrench flat at the bottom
- Version **TK**: with nut, wrench flat at the bottom
- Version **U**: without nut, hexagon socket at the top, wrench flat at the bottom
- Version **UK**: with nut, hexagon at the top, wrench flat at the bottom
- Version **V**: without nut, external hexagon at the top, wrench flat at the bottom
- Version **VK**: with nut, external hexagon socket at the top, wrench flat at the bottom
- Version **W**: with adjustable sleeve, covered thread, wrench flat at the bottom
- Version **X**: with female thread, external hexagon

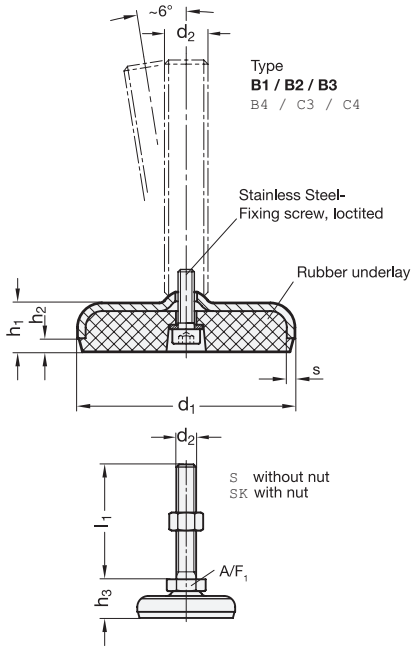
Base plate, blank ground
Stainless Steel AISI 304

Threaded stem
Stainless Steel AISI 303

Hexagon nut ISO 4032
Stainless Steel AISI 304

Rubber underlay, inlaid
- black: Perbunan® (NBR) 80±5 Shore A
- white: Perbunan® (CTP) 80±5 Shore A

Rubber underlay, vulcanised
- black: Perbunan® (NBR) 80±5 Shore A
- white: Perbunan® (NBR) 80±5 Shore A



INFORMATION

GN 31 Stainless Steel-Levelling feet with vulcanised rubber (Type B3, B4, C3 and C4) and screw version W feature fewer dead spots owing to their construction method and are also easier to clean.

Stainless Steel-Levelling feet GN 31 will be delivered mounted and are not removable.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)
- Elastomer characteristics (see page A32)

LOAD RATING OF STAINLESS STEEL-LEVELLING FEET

Information

The static load bearing capacity given in the table rests on a test series in which the load has been applied perpendicular to the base plate (without rubber underlay). For the values given in the table, the strain relief may result in minor deformations of the base plate.
Bending and buckling stress which often occurs in practice results in a lower load bearing capacity of the adjustment spindle and may have to be taken into account.
Also, the spindle strength is assumed to be ≥ 500 N/mm^2.
The details given on strength are nonbinding guide values without any liability. In general, they do not constitute a warranty of quality.
The user must determine from case to case if a product is suitable for the intended purpose or use. Environmental factors may influence the stated values.

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*Complete with version of the Levelling feet (External hexagon at the bottom)

S without nut

SK with nut

GN 31-S/SK

STAINLESS STEEL

Description	d1	d2	l1	h1	h2	h3 +0.4/0	s	A/F1	Static load in kN	⚖
GN 31-50-M8-40-B1-*	50	M 8	40	14.5	3.5	23	3	17	8	109
GN 31-50-M8-40-B2-*	50	M 8	40	14.5	3.5	23	3	17	8	100
GN 31-50-M8-50-B1-*	50	M 8	50	14.5	3.5	23	3	17	8	109
GN 31-50-M8-50-B2-*	50	M 8	50	14.5	3.5	23	3	17	8	105
GN 31-50-M8-63-B1-*	50	M 8	63	14.5	3.5	23	3	17	8	112
GN 31-50-M8-63-B2-*	50	M 8	63	14.5	3.5	23	3	17	8	110
GN 31-50-M10-50-B1-*	50	M 10	50	14.5	3.5	23	3	17	14	121
GN 31-50-M10-50-B2-*	50	M 10	50	14.5	3.5	23	3	17	14	115
GN 31-50-M10-60-B1-*	50	M 10	60	14.5	3.5	23	3	17	14	125
GN 31-50-M10-60-B2-*	50	M 10	60	14.5	3.5	23	3	17	14	117
GN 31-50-M10-80-B1-*	50	M 10	80	14.5	3.5	23	3	17	14	136
GN 31-50-M10-80-B2-*	50	M 10	80	14.5	3.5	23	3	17	14	130
GN 31-50-M10-100-B1-*	50	M 10	100	14.5	3.5	23	3	17	14	145
GN 31-50-M10-100-B2-*	50	M 10	100	14.5	3.5	23	3	17	14	140
GN 31-50-M12-60-B1-*	50	M 12	60	14.5	3.5	23	3	17	20	150
GN 31-50-M12-60-B2-*	50	M 12	60	14.5	3.5	23	3	17	20	145
GN 31-50-M12-80-B1-*	50	M 12	80	14.5	3.5	23	3	17	20	160
GN 31-50-M12-80-B2-*	50	M 12	80	14.5	3.5	23	3	17	20	155
GN 31-50-M12-100-B1-*	50	M 12	100	14.5	3.5	23	3	17	20	172
GN 31-50-M12-100-B2-*	50	M 12	100	14.5	3.5	23	3	17	20	167
GN 31-50-M12-125-B1-*	50	M 12	125	14.5	3.5	23	3	17	20	183
GN 31-50-M12-125-B2-*	50	M 12	125	14.5	3.5	23	3	17	20	180
GN 31-60-M8-40-B1-*	60	M 8	40	16	4	24	3	17	8	140
GN 31-60-M8-40-B2-*	60	M 8	40	16	4	24	3	17	8	130
GN 31-60-M8-40-B3-*	60	M 8	40	16	4	24	3	17	8	144
GN 31-60-M8-40-B4-*	60	M 8	40	16	4	24	3	17	8	144
GN 31-60-M8-40-C3-*	60	M 8	40	16	4	24	3	17	8	144
GN 31-60-M8-40-C4-*	60	M 8	40	16	4	24	3	17	8	144
GN 31-60-M8-50-B1-*	60	M 8	50	16	4	24	3	17	8	144
GN 31-60-M8-50-B2-*	60	M 8	50	16	4	24	3	17	8	140
GN 31-60-M8-50-B3-*	60	M 8	50	16	4	24	3	17	8	144
GN 31-60-M8-50-B4-*	60	M 8	50	16	4	24	3	17	8	144
GN 31-60-M8-50-C3-*	60	M 8	50	16	4	24	3	17	8	144
GN 31-60-M8-50-C4-*	60	M 8	50	16	4	24	3	17	8	144
GN 31-60-M8-63-B1-*	60	M 8	63	16	4	24	3	17	8	150
GN 31-60-M8-63-B2-*	60	M 8	63	16	4	24	3	17	8	144
GN 31-60-M8-63-B3-*	60	M 8	63	16	4	24	3	17	8	150
GN 31-60-M8-63-B4-*	60	M 8	63	16	4	24	3	17	8	150
GN 31-60-M8-63-C3-*	60	M 8	63	16	4	24	3	17	8	150
GN 31-60-M8-63-C4-*	60	M 8	63	16	4	24	3	17	8	150
GN 31-60-M10-50-B1-*	60	M 10	50	16	4	24	3	17	14	160
GN 31-60-M10-50-B2-*	60	M 10	50	16	4	24	3	17	14	150
GN 31-60-M10-50-B3-*	60	M 10	50	16	4	24	3	17	14	160
GN 31-60-M10-50-B4-*	60	M 10	50	16	4	24	3	17	14	160
GN 31-60-M10-50-C3-*	60	M 10	50	16	4	24	3	17	14	170
GN 31-60-M10-50-C4-*	60	M 10	50	16	4	24	3	17	14	160
GN 31-60-M10-60-B1-*	60	M 10	60	16	4	24	3	17	14	170
GN 31-60-M10-60-B2-*	60	M 10	60	16	4	24	3	17	14	170
GN 31-60-M10-60-B3-*	60	M 10	60	16	4	24	3	17	14	170
GN 31-60-M10-60-B4-*	60	M 10	60	16	4	24	3	17	14	170
GN 31-60-M10-60-C3-*	60	M 10	60	16	4	24	3	17	14	180
GN 31-60-M10-60-C4-*	60	M 10	60	16	4	24	3	17	14	160
GN 31-60-M10-80-B1-*	60	M 10	80	16	4	24	3	17	14	180
GN 31-60-M10-80-B2-*	60	M 10	80	16	4	24	3	17	14	180
GN 31-60-M10-80-B3-*	60	M 10	80	16	4	24	3	17	14	180
GN 31-60-M10-80-B4-*	60	M 10	80	16	4	24	3	17	14	180
GN 31-60-M10-80-C3-*	60	M 10	80	16	4	24	3	17	14	190
GN 31-60-M10-80-C4-*	60	M 10	80	16	4	24	3	17	14	170

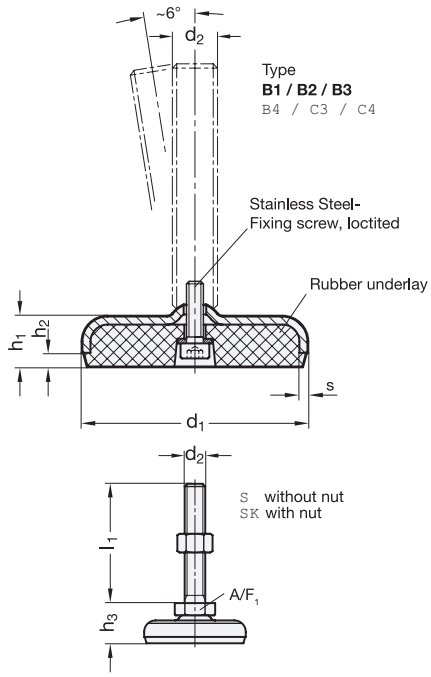
GN 31-S/SK

STAINLESS STEEL

Description	d1	d2	l1	h1	h2	h3 +0.4/0	s	A/F1	Static load in kN	⚖
GN 31-60-M10-100-B1-*	60	M 10	100	16	4	24	3	17	14	190
GN 31-60-M10-100-B2-*	60	M 10	100	16	4	24	3	17	14	190
GN 31-60-M10-100-B3-*	60	M 10	100	16	4	24	3	17	14	190
GN 31-60-M10-100-B4-*	60	M 10	100	16	4	24	3	17	14	190
GN 31-60-M10-100-C3-*	60	M 10	100	16	4	24	3	17	14	181
GN 31-60-M10-100-C4-*	60	M 10	100	16	4	26	3	17	14	175
GN 31-60-M12-60-B1-*	60	M 12	60	16	4	24	3	17	20	181
GN 31-60-M12-60-B2-*	60	M 12	60	16	4	24	3	17	20	181
GN 31-60-M12-60-B3-*	60	M 12	60	16	4	24	3	17	20	181
GN 31-60-M12-60-B4-*	60	M 12	60	16	4	24	3	17	20	181
GN 31-60-M12-60-C3-*	60	M 12	60	16	4	24	3	17	20	200
GN 31-60-M12-60-C4-*	60	M 12	60	16	4	24	3	17	20	181
GN 31-60-M12-80-B1-*	60	M 12	80	16	4	24	3	17	20	200
GN 31-60-M12-80-B2-*	60	M 12	80	16	4	24	3	17	20	200
GN 31-60-M12-80-B3-*	60	M 12	80	16	4	24	3	17	20	200
GN 31-60-M12-80-B4-*	60	M 12	80	16	4	24	3	17	20	200
GN 31-60-M12-80-C3-*	60	M 12	80	16	4	24	3	17	20	220
GN 31-60-M12-80-C4-*	60	M 12	80	16	4	24	3	17	20	200
GN 31-60-M12-100-B1-*	60	M 12	100	16	4	24	3	17	20	220
GN 31-60-M12-100-B2-*	60	M 12	100	16	4	24	3	17	20	220
GN 31-60-M12-100-B3-*	60	M 12	100	16	4	24	3	17	20	220
GN 31-60-M12-100-B4-*	60	M 12	100	16	4	24	3	17	20	220
GN 31-60-M12-100-C3-*	60	M 12	100	16	4	24	3	17	20	230
GN 31-60-M12-100-C4-*	60	M 12	100	16	4	24	3	17	20	200
GN 31-60-M12-125-B1-*	60	M 12	125	16	4	24	3	17	20	230
GN 31-60-M12-125-B2-*	60	M 12	125	16	4	24	3	17	20	230
GN 31-60-M12-125-B3-*	60	M 12	125	16	4	24	3	17	20	230
GN 31-60-M12-125-B4-*	60	M 12	125	16	4	24	3	17	20	230
GN 31-60-M12-125-C3-*	60	M 12	125	18	5	24	3	17	20	172
GN 31-60-M12-125-C4-*	60	M 12	125	18	5	24	3	17	20	160
GN 31-80-M8-40-B1-*	80	M 8	40	18	5	26	3	17	8	172
GN 31-80-M8-40-B2-*	80	M 8	40	18	5	26	3	17	8	172
GN 31-80-M8-40-B3-*	80	M 8	40	18	5	26	3	17	8	172
GN 31-80-M8-40-B4-*	80	M 8	40	18	5	26	3	17	8	172
GN 31-80-M8-40-C3-*	80	M 8	40	18	5	26	3	17	8	173
GN 31-80-M8-40-C4-*	80	M 8	40	18	5	26	3	17	8	176
GN 31-80-M8-50-B1-*	80	M 8	50	18	5	26	3	17	8	176
GN 31-80-M8-50-B2-*	80	M 8	50	18	5	26	3	17	8	176
GN 31-80-M8-50-B3-*	80	M 8	50	18	5	26	3	17	8	176
GN 31-80-M8-50-B4-*	80	M 8	50	18	5	26	3	17	8	176
GN 31-80-M8-50-C3-*	80	M 8	50	18	5	26	3	17	8	180
GN 31-80-M8-50-C4-*	80	M 8	50	18	5	26	3	17	8	175
GN 31-80-M8-63-B1-*	80	M 8	63	18	5	26	3	17	8	180
GN 31-80-M8-63-B2-*	80	M 8	63	18	5	26	3	17	8	180
GN 31-80-M8-63-B3-*	80	M 8	63	18	5	26	3	17	8	180
GN 31-80-M8-63-B4-*	80	M 8	63	18	5	26	3	17	8	180
GN 31-80-M8-63-C3-*	80	M 8	63	18	5	26	3	17	8	220
GN 31-80-M8-63-C4-*	80	M 8	63	18	5	26	3	17	8	200
GN 31-80-M10-50-B1-*	80	M 10	50	18	5	26	3	17	14	220
GN 31-80-M10-50-B2-*	80	M 10	50	18	5	26	3	17	14	220
GN 31-80-M10-50-B3-*	80	M 10	50	18	5	26	3	17	14	220
GN 31-80-M10-50-B4-*	80	M 10	50	18	5	26	3	17	14	220
GN 31-80-M10-50-C3-*	80	M 10	50	18	5	26	3	17	14	260
GN 31-80-M10-50-C4-*	80	M 10	50	18	5	26	3	17	14	240
GN 31-80-M10-60-B1-*	80	M 10	60	18	5	26	3	17	14	260
GN 31-80-M10-60-B2-*	80	M 10	60	18	5	26	3	17	14	260
GN 31-80-M10-60-B3-*	80	M 10	60	18	5	26	3	17	14	260
GN 31-80-M10-60-B4-*	80	M 10	60	18	5	26	3	17	14	260
GN 31-80-M10-60-C3-*	80	M 10	60	18	5	26	3	17	14	280
GN 31-80-M10-60-C4-*	80	M 10	60	18	5	26	3	17	14	260
GN 31-80-M10-80-B1-*	80	M 10	80	18	5	26	3	17	14	280
GN 31-80-M10-80-B2-*	80	M 10	80	18	5	26	3	17	14	280
GN 31-80-M10-80-B3-*	80	M 10	80	18	5	26	3	17	14	280
GN 31-80-M10-80-B4-*	80	M 10	80	18	5	26	3	17	14	280
GN 31-80-M10-80-C3-*	80	M 10	80	18	5	26	3	17	14	290
GN 31-80-M10-80-C4-*	80	M 10	80	18	5	26	3	17	14	280

Weight Version S

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*Complete with version of the Levelling feet (External hexagon at the bottom)

S	SK
without nut	with nut

GN 31-S/SK — **STAINLESS STEEL**

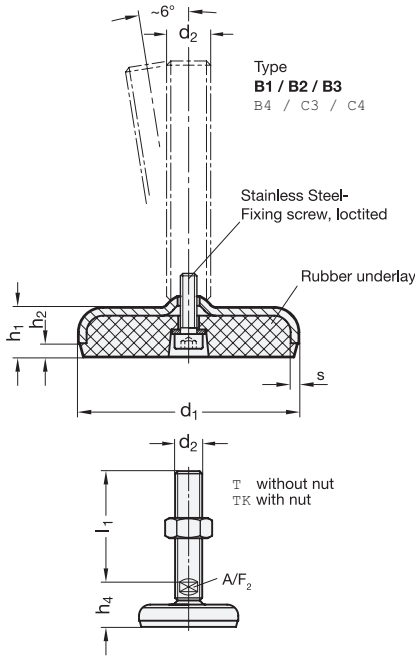
Description	d1	d2	l1	h1	h2	h3 +0.4/0	s	A/F1	Static load in kN	⚖
GN 31-80-M10-100-B1-*	80	M 10	100	18	5	26	3	17	14	290
GN 31-80-M10-100-B2-*	80	M 10	100	18	5	26	3	17	14	290
GN 31-80-M10-100-B3-*	80	M 10	100	18	5	26	3	17	14	290
GN 31-80-M10-100-B4-*	80	M 10	100	18	5	26	3	17	14	290
GN 31-80-M10-100-C3-*	80	M 10	100	18	5	26	3	17	14	300
GN 31-80-M10-100-C4-*	80	M 10	100	18	5	26	3	17	14	295
GN 31-80-M12-60-B1-*	80	M 12	60	18	5	26	3	17	19	300
GN 31-80-M12-60-B2-*	80	M 12	60	18	5	26	3	17	15	300
GN 31-80-M12-60-B3-*	80	M 12	60	18	5	26	3	17	19	300
GN 31-80-M12-60-B4-*	80	M 12	60	18	5	26	3	17	15	300
GN 31-80-M12-60-C3-*	80	M 12	60	18	5	26	3	17	19	320
GN 31-80-M12-60-C4-*	80	M 12	60	18	5	26	3	17	15	300
GN 31-80-M12-80-B1-*	80	M 12	80	18	5	26	3	17	19	320
GN 31-80-M12-80-B2-*	80	M 12	80	18	5	26	3	17	15	320
GN 31-80-M12-80-B3-*	80	M 12	80	18	5	26	3	17	19	320
GN 31-80-M12-80-B4-*	80	M 12	80	18	5	26	3	17	15	320
GN 31-80-M12-80-C3-*	80	M 12	80	18	5	26	3	17	19	330
GN 31-80-M12-80-C4-*	80	M 12	80	18	5	26	3	17	15	325
GN 31-80-M12-100-B1-*	80	M 12	100	18	5	26	3	17	19	330
GN 31-80-M12-100-B2-*	80	M 12	100	18	5	26	3	17	15	330
GN 31-80-M12-100-B3-*	80	M 12	100	18	5	26	3	17	19	330
GN 31-80-M12-100-B4-*	80	M 12	100	18	5	26	3	17	15	330
GN 31-80-M12-100-C3-*	80	M 12	100	18	5	26	3	17	19	350
GN 31-80-M12-100-C4-*	80	M 12	100	18	5	26	3	17	15	340
GN 31-80-M12-125-B1-*	80	M 12	125	18	5	26	3	17	19	350
GN 31-80-M12-125-B2-*	80	M 12	125	18	5	26	3	17	15	350
GN 31-80-M12-125-B3-*	80	M 12	125	18	5	26	3	17	19	350
GN 31-80-M12-125-B4-*	80	M 12	125	18	5	26	3	17	15	350
GN 31-80-M12-125-C3-*	80	M 12	125	20	6	28	3	17	19	290
GN 31-80-M12-125-C4-*	80	M 12	125	20	6	28	3	17	15	280
GN 31-100-M8-40-B1-*	100	M 8	40	20	6	28	3	17	8	290

GN 31-S/SK — **STAINLESS STEEL**

Description	d1	d2	l1	h1	h2	h3 +0.4/0	s	A/F1	Static load in kN	⚖
GN 31-100-M8-40-B2-*	100	M 8	40	20	6	28	3	17	8	290
GN 31-100-M8-40-B3-*	100	M 8	40	20	6	28	3	17	8	280
GN 31-100-M8-40-B4-*	100	M 8	40	20	6	28	3	17	8	290
GN 31-100-M8-40-C3-*	100	M 8	40	20	6	28	3	17	8	290
GN 31-100-M8-40-C4-*	100	M 8	40	20	6	28	3	17	8	290
GN 31-100-M8-50-B1-*	100	M 8	50	20	6	28	3	17	8	290
GN 31-100-M8-50-B2-*	100	M 8	50	20	6	28	3	17	8	548
GN 31-100-M8-50-B3-*	100	M 8	50	20	6	28	3	17	8	300
GN 31-100-M8-50-B4-*	100	M 8	50	20	6	28	3	17	8	290
GN 31-100-M8-50-C3-*	100	M 8	50	20	6	28	3	17	8	300
GN 31-100-M8-50-C4-*	100	M 8	50	20	6	28	3	17	8	300
GN 31-100-M8-63-B1-*	100	M 8	63	20	6	28	3	17	8	300
GN 31-100-M8-63-B2-*	100	M 8	63	20	6	28	3	17	8	340
GN 31-100-M8-63-B3-*	100	M 8	63	20	6	28	3	17	8	320
GN 31-100-M8-63-B4-*	100	M 8	63	20	6	28	3	17	8	340
GN 31-100-M8-63-C3-*	100	M 8	63	20	6	28	3	17	8	340
GN 31-100-M8-63-C4-*	100	M 8	63	20	6	28	3	17	8	340
GN 31-100-M10-50-B1-*	100	M 10	50	20	6	28	3	17	14	340
GN 31-100-M10-50-B2-*	100	M 10	50	20	6	28	3	17	14	390
GN 31-100-M10-50-B3-*	100	M 10	50	20	6	28	3	17	14	380
GN 31-100-M10-50-B4-*	100	M 10	50	20	6	28	3	17	14	390
GN 31-100-M10-50-C3-*	100	M 10	50	20	6	28	3	17	14	390
GN 31-100-M10-50-C4-*	100	M 10	50	20	6	28	3	17	14	390
GN 31-100-M10-60-B1-*	100	M 10	60	20	6	28	3	17	14	390
GN 31-100-M10-60-B2-*	100	M 10	60	20	6	28	3	17	14	420
GN 31-100-M10-60-B3-*	100	M 10	60	20	6	28	3	17	14	400
GN 31-100-M10-60-B4-*	100	M 10	60	20	6	28	3	17	14	420
GN 31-100-M10-60-C3-*	100	M 10	60	20	6	28	3	17	14	420
GN 31-100-M10-60-C4-*	100	M 10	60	20	6	28	3	17	14	420
GN 31-100-M10-80-B1-*	100	M 10	80	20	6	28	3	17	14	420
GN 31-100-M10-80-B2-*	100	M 10	80	20	6	28	3	17	14	450
GN 31-100-M10-80-B3-*	100	M 10	80	20	6	28	3	17	14	420
GN 31-100-M10-80-B4-*	100	M 10	80	20	6	28	3	17	14	450
GN 31-100-M10-80-C3-*	100	M 10	80	20	6	28	3	17	14	450
GN 31-100-M10-80-C4-*	100	M 10	80	20	6	28	3	17	14	450
GN 31-100-M10-100-B1-*	100	M 10	100	20	6	28	3	17	14	450
GN 31-100-M10-100-B2-*	100	M 10	100	20	6	28	3	17	14	470
GN 31-100-M10-100-B3-*	100	M 10	100	20	6	28	3	17	14	460
GN 31-100-M10-100-B4-*	100	M 10	100	20	6	28	3	17	14	470
GN 31-100-M10-100-C3-*	100	M 10	100	20	6	28	3	17	14	470
GN 31-100-M10-100-C4-*	100	M 10	100	20	6	28	3	17	14	470
GN 31-100-M12-60-B1-*	100	M 12	60	20	6	28	3	17	17	470
GN 31-100-M12-60-B2-*	100	M 12	60	20	6	28	3	17	14	420
GN 31-100-M12-60-B3-*	100	M 12	60	20	6	28	3	17	17	400
GN 31-100-M12-60-B4-*	100	M 12	60	20	6	28	3	17	14	420
GN 31-100-M12-60-C3-*	100	M 12	60	20	6	28	3	17	17	420
GN 31-100-M12-60-C4-*	100	M 12	60	20	6	28	3	17	14	420
GN 31-100-M12-80-B1-*	100	M 12	80	20	6	28	3	17	17	420
GN 31-100-M12-80-B2-*	100	M 12	80	20	6	28	3	17	14	440
GN 31-100-M12-80-B3-*	100	M 12	80	20	6	28	3	17	17	420
GN 31-100-M12-80-B4-*	100	M 12	80	20	6	28	3	17	14	440
GN 31-100-M12-80-C3-*	100	M 12	80	20	6	28	3	17	17	440
GN 31-100-M12-80-C4-*	100	M 12	80	20	6	28	3	17	14	440
GN 31-100-M12-100-B1-*	100	M 12	100	20	6	28	3	17	17	440
GN 31-100-M12-100-B2-*	100	M 12	100	20	6	28	3	17	14	460
GN 31-100-M12-100-B3-*	100	M 12	100	20	6	28	3	17	17	445
GN 31-100-M12-100-B4-*	100	M 12	100	20	6	28	3	17	14	460
GN 31-100-M12-100-C3-*	100	M 12	100	20	6	28	3	17	17	460
GN 31-100-M12-100-C4-*	100	M 12	100	20	6	28	3	17	14	460
GN 31-100-M12-125-B1-*	100	M 12	125	20	6	28	3	17	17	460
GN 31-100-M12-125-B2-*	100	M 12	125	20	6	28	3	17	14	540
GN 31-100-M12-125-B3-*	100	M 12	125	20	6	28	3	17	17	520
GN 31-100-M12-125-B4-*	100	M 12	125	20	6	28	3	17	14	540
GN 31-100-M12-125-C3-*	100	M 12	125	20	6	6	3	17	17	540
GN 31-100-M12-125-C4-*	100	M 12	125	20	6	6	3	17	17	540

Weight Version S

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*Complete with version of the Levelling feet (Wrench flat at the bottom)

T without nut

TK with nut

GN 31-T/TK

STAINLESS STEEL

Description	d1	d2	l1	h1	h2	h4 +0.4/0	s	A/F 2	Static load in kN	⚖
GN 31-50-M16-75-B1-*	50	M 16	75	16	3.5	29	3	12	28	199
GN 31-50-M16-75-B2-*	50	M 16	75	16	3.5	29	3	12	28	190
GN 31-50-M16-100-B1-*	50	M 16	100	16	3.5	29	3	12	28	199
GN 31-50-M16-100-B2-*	50	M 16	100	16	3.5	29	3	12	28	199
GN 31-50-M16-125-B1-*	50	M 16	125	16	3.5	29	3	12	28	215
GN 31-50-M16-125-B2-*	50	M 16	125	16	3.5	29	3	12	28	205
GN 31-50-M16-150-B1-*	50	M 16	150	16	3.5	29	3	12	28	240
GN 31-50-M16-150-B2-*	50	M 16	150	16	3.5	29	3	12	28	230
GN 31-50-M16-200-B1-*	50	M 16	200	16	3.5	29	3	12	28	260
GN 31-50-M16-200-B2-*	50	M 16	200	16	3.5	29	3	12	28	250
GN 31-60-M16-75-B1-*	60	M 16	75	16	4	30	3	12	28	240
GN 31-60-M16-75-B2-*	60	M 16	75	16	4	30	3	12	25	230
GN 31-60-M16-75-B3-*	60	M 16	75	16	4	30	3	12	28	290
GN 31-60-M16-75-B4-*	60	M 16	75	16	4	30	3	12	25	280
GN 31-60-M16-75-C3-*	60	M 16	75	16	4	30	3	12	28	290
GN 31-60-M16-75-C4-*	60	M 16	75	16	4	30	3	12	25	280
GN 31-60-M16-100-B1-*	60	M 16	100	16	4	30	3	12	28	310
GN 31-60-M16-100-B2-*	60	M 16	100	16	4	30	3	12	25	300
GN 31-60-M16-100-B3-*	60	M 16	100	16	4	30	3	12	28	310
GN 31-60-M16-100-B4-*	60	M 16	100	16	4	30	3	12	25	310
GN 31-60-M16-100-C3-*	60	M 16	100	16	4	30	3	12	28	310
GN 31-60-M16-100-C4-*	60	M 16	100	16	4	30	3	12	25	310
GN 31-60-M16-125-B1-*	60	M 16	125	16	4	30	3	12	28	320
GN 31-60-M16-125-B2-*	60	M 16	125	16	4	30	3	12	25	306
GN 31-60-M16-125-B3-*	60	M 16	125	16	4	30	3	12	28	320
GN 31-60-M16-125-B4-*	60	M 16	125	16	4	30	3	12	25	320
GN 31-60-M16-125-C3-*	60	M 16	125	16	4	30	3	12	28	320
GN 31-60-M16-125-C4-*	60	M 16	125	16	4	30	3	12	25	320

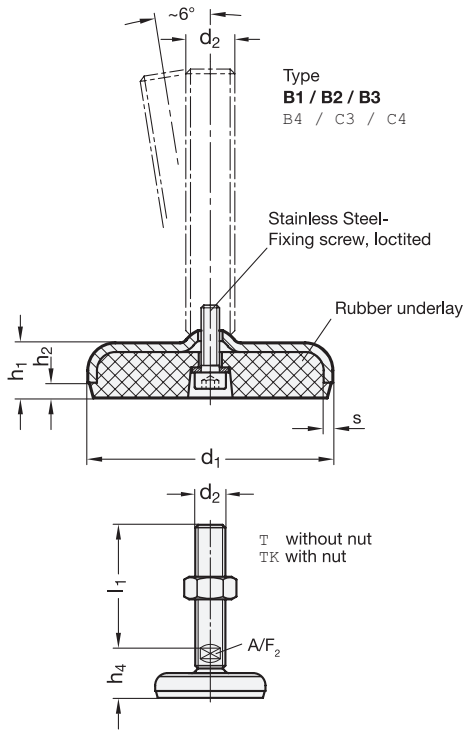
GN 31-T/TK

STAINLESS STEEL

Description	d1	d2	l1	h1	h2	h4 +0.4/0	s	A/F 2	Static load in kN	⚖
GN 31-60-M16-150-B1-*	60	M 16	150	16	4	30	3	12	28	330
GN 31-60-M16-150-B2-*	60	M 16	150	16	4	30	3	12	25	320
GN 31-60-M16-150-B3-*	60	M 16	150	16	4	30	3	12	28	330
GN 31-60-M16-150-B4-*	60	M 16	150	16	4	30	3	12	25	330
GN 31-60-M16-150-C3-*	60	M 16	150	16	4	30	3	12	28	330
GN 31-60-M16-150-C4-*	60	M 16	150	16	4	30	3	12	25	330
GN 31-60-M16-200-B1-*	60	M 16	200	16	4	30	3	12	28	360
GN 31-60-M16-200-B2-*	60	M 16	200	16	4	30	3	12	25	350
GN 31-60-M16-200-B3-*	60	M 16	200	16	4	30	3	12	28	360
GN 31-60-M16-200-B4-*	60	M 16	200	16	4	30	3	12	25	360
GN 31-60-M16-200-C3-*	60	M 16	200	16	4	30	3	12	28	360
GN 31-60-M16-200-C4-*	60	M 16	200	16	4	30	3	12	25	360
GN 31-80-M16-75-B1-*	80	M 16	75	18	5	32	3	12	19	340
GN 31-80-M16-75-B2-*	80	M 16	75	18	5	32	3	12	15	330
GN 31-80-M16-75-B3-*	80	M 16	75	18	5	32	3	12	19	340
GN 31-80-M16-75-B4-*	80	M 16	75	18	5	32	3	12	15	340
GN 31-80-M16-75-C3-*	80	M 16	75	18	5	32	3	12	19	340
GN 31-80-M16-75-C4-*	80	M 16	75	18	5	32	3	12	15	340
GN 31-80-M16-100-B1-*	80	M 16	100	18	5	32	3	12	19	386
GN 31-80-M16-100-B2-*	80	M 16	100	18	5	32	3	12	15	380
GN 31-80-M16-100-B3-*	80	M 16	100	18	5	32	3	12	19	386
GN 31-80-M16-100-B4-*	80	M 16	100	18	5	32	3	12	15	386
GN 31-80-M16-100-C3-*	80	M 16	100	18	5	32	3	12	19	386
GN 31-80-M16-100-C4-*	80	M 16	100	18	5	32	3	12	15	386
GN 31-80-M16-125-B1-*	80	M 16	125	18	5	32	3	12	19	400
GN 31-80-M16-125-B2-*	80	M 16	125	18	5	32	3	12	15	390
GN 31-80-M16-125-B3-*	80	M 16	125	18	5	32	3	12	19	400
GN 31-80-M16-125-B4-*	80	M 16	125	18	5	32	3	12	15	400
GN 31-80-M16-125-C3-*	80	M 16	125	18	5	32	3	12	19	400

Weight Version T

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*Complete with version of the Levelling feet (Wrench flat at the bottom)

T without nut

TK with nut

GN 31-T/TK — **STAINLESS STEEL**

Description	d1	d2	l1	h1	h2	h4 +0.4/0	s	A/F 2	Static load in kN	⚖
GN 31-80-M16-150-B2-*	80	M 16	150	18	5	32	3	12	15	420
GN 31-80-M16-150-B3-*	80	M 16	150	18	5	32	3	12	19	440
GN 31-80-M16-150-B4-*	80	M 16	150	18	5	32	3	12	15	440
GN 31-80-M16-150-C3-*	80	M 16	150	18	5	32	3	12	19	440
GN 31-80-M16-150-C4-*	80	M 16	150	18	5	32	3	12	15	440
GN 31-80-M16-200-B1-*	80	M 16	200	18	5	32	3	12	19	500
GN 31-80-M16-200-B2-*	80	M 16	200	18	5	32	3	12	15	490
GN 31-80-M16-200-B3-*	80	M 16	200	18	5	32	3	12	19	500
GN 31-80-M16-200-B4-*	80	M 16	200	18	5	32	3	12	15	500
GN 31-80-M16-200-C3-*	80	M 16	200	18	5	32	3	12	19	500
GN 31-80-M16-200-C4-*	80	M 16	200	18	5	32	3	12	15	500
GN 31-80-M20-75-B1-*	80	M 20	75	18	5	33	3	15	19	440
GN 31-80-M20-75-B2-*	80	M 20	75	18	5	33	3	15	15	430
GN 31-80-M20-75-B3-*	80	M 20	75	18	5	33	3	15	19	440
GN 31-80-M20-75-B4-*	80	M 20	75	18	5	33	3	15	15	440
GN 31-80-M20-75-C3-*	80	M 20	75	18	5	33	3	15	19	440
GN 31-80-M20-75-C4-*	80	M 20	75	18	5	33	3	15	15	440
GN 31-80-M20-100-B1-*	80	M 20	100	18	5	33	3	15	19	460
GN 31-80-M20-100-B2-*	80	M 20	100	18	5	33	3	15	15	450
GN 31-80-M20-100-B3-*	80	M 20	100	18	5	33	3	15	19	460
GN 31-80-M20-100-B4-*	80	M 20	100	18	5	33	3	15	19	460

GN 31-T/TK — **STAINLESS STEEL**

Description	d1	d2	l1	h1	h2	h4 +0.4/0	s	A/F 2	Static load in kN	⚖
GN 31-80-M16-125-C4-*	80	M 16	125	18	5	32	3	12	15	400
GN 31-80-M16-150-B1-*	80	M 16	150	18	5	32	3	12	19	440
GN 31-80-M20-100-B4-*	80	M 20	100	18	5	33	3	15	15	460
GN 31-80-M20-100-C3-*	80	M 20	100	18	5	33	3	15	19	460
GN 31-80-M20-100-C4-*	80	M 20	100	18	5	33	3	15	15	460
GN 31-80-M20-125-B1-*	80	M 20	125	18	5	33	3	15	19	570
GN 31-80-M20-125-B2-*	80	M 20	125	18	5	33	3	15	15	500
GN 31-80-M20-125-B3-*	80	M 20	125	18	5	33	3	15	19	570
GN 31-80-M20-125-B4-*	80	M 20	125	18	5	33	3	15	15	570
GN 31-80-M20-125-C3-*	80	M 20	125	18	5	33	3	15	19	570
GN 31-80-M20-125-C4-*	80	M 20	125	18	5	33	3	15	15	570
GN 31-80-M20-150-B1-*	80	M 20	150	18	5	33	3	15	19	580
GN 31-80-M20-150-B2-*	80	M 20	150	18	5	33	3	15	15	570
GN 31-80-M20-150-B3-*	80	M 20	150	18	5	33	3	15	19	580
GN 31-80-M20-150-B4-*	80	M 20	150	18	5	33	3	15	15	580
GN 31-80-M20-150-C3-*	80	M 20	150	18	5	33	3	15	19	580
GN 31-80-M20-150-C4-*	80	M 20	150	18	5	33	3	15	15	580
GN 31-80-M20-200-B1-*	80	M 20	200	18	5	33	3	15	19	669
GN 31-80-M20-200-B2-*	80	M 20	200	18	5	33	3	15	15	650
GN 31-80-M20-200-B3-*	80	M 20	200	18	5	33	3	15	19	669
GN 31-80-M20-200-B4-*	80	M 20	200	18	5	33	3	15	15	669
GN 31-80-M20-200-C3-*	80	M 20	200	18	5	33	3	15	19	669
GN 31-80-M20-200-C4-*	80	M 20	200	18	5	33	3	15	15	669
GN 31-80-M24-100-B1-*	80	M 24	100	18	5	36	3	19	19	579
GN 31-80-M24-100-B2-*	80	M 24	100	18	5	36	3	19	15	570
GN 31-80-M24-100-B3-*	80	M 24	100	18	5	36	3	19	19	579
GN 31-80-M24-100-B4-*	80	M 24	100	18	5	36	3	19	15	579
GN 31-80-M24-100-C3-*	80	M 24	100	18	5	36	3	19	19	579
GN 31-80-M24-100-C4-*	80	M 24	100	18	5	36	3	19	15	579
GN 31-80-M24-125-B1-*	80	M 24	125	18	5	36	3	19	19	701
GN 31-80-M24-125-B2-*	80	M 24	125	18	5	36	3	19	15	657
GN 31-80-M24-125-B3-*	80	M 24	125	18	5	36	3	19	19	701
GN 31-80-M24-125-B4-*	80	M 24	125	18	5	36	3	19	15	701
GN 31-80-M24-125-C3-*	80	M 24	125	18	5	36	3	19	19	574
GN 31-80-M24-125-C4-*	80	M 24	125	18	5	36	3	19	15	701
GN 31-80-M24-150-B1-*	80	M 24	150	18	5	36	3	19	19	710
GN 31-80-M24-150-B2-*	80	M 24	150	18	5	36	3	19	15	657
GN 31-80-M24-150-B3-*	80	M 24	150	18	5	36	3	19	19	710
GN 31-80-M24-150-B4-*	80	M 24	150	18	5	36	3	19	15	710
GN 31-80-M24-150-C3-*	80	M 24	150	18	5	36	3	19	19	710
GN 31-80-M24-150-C4-*	80	M 24	150	18	5	36	3	19	15	710
GN 31-80-M24-200-B1-*	80	M 24	200	18	5	36	3	19	19	730
GN 31-80-M24-200-B2-*	80	M 24	200	18	5	36	3	19	15	700
GN 31-80-M24-200-B3-*	80	M 24	200	18	5	36	3	19	19	730
GN 31-80-M24-200-B4-*	80	M 24	200	18	5	36	3	19	15	730
GN 31-80-M24-200-C3-*	80	M 24	200	18	5	36	3	19	19	730
GN 31-80-M24-200-C4-*	80	M 24	200	18	5	36	3	19	15	730

Weight Version T

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*Complete with version of the Levelling feet (Wrench flat at the bottom)

T without nut

TK with nut

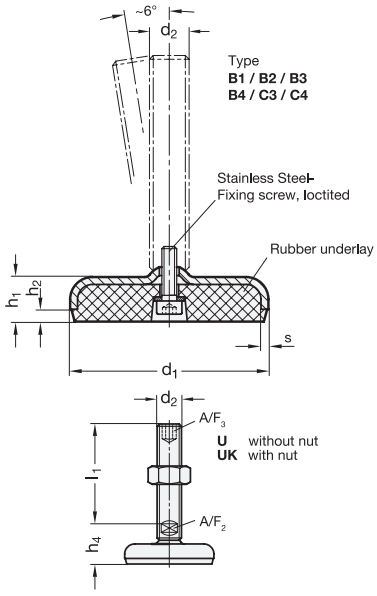
GN 31-T/TK — **STAINLESS STEEL**

Description	d1	d2	l1	h1	h2	h4 +0.4/0	s	A/F 2	Static load in kN	⚖
GN 31-100-M16-75-B1-*	100	M 16	75	20	6	34	3	12	17	483
GN 31-100-M16-75-B2-*	100	M 16	75	20	6	34	3	12	14	360
GN 31-100-M16-75-B3-*	100	M 16	75	20	6	34	3	12	17	483
GN 31-100-M16-75-B4-*	100	M 16	75	20	6	34	3	12	14	483
GN 31-100-M16-75-C3-*	100	M 16	75	20	6	34	3	12	17	483
GN 31-100-M16-75-C4-*	100	M 16	75	20	6	34	3	12	14	483
GN 31-100-M16-100-B1-*	100	M 16	100	20	6	34	3	12	17	520
GN 31-100-M16-100-B2-*	100	M 16	100	20	6	34	3	12	14	480
GN 31-100-M16-100-B3-*	100	M 16	100	20	6	34	3	12	17	520
GN 31-100-M16-100-B4-*	100	M 16	100	20	6	34	3	12	14	520
GN 31-100-M16-100-C3-*	100	M 16	100	20	6	34	3	12	17	520
GN 31-100-M16-100-C4-*	100	M 16	100	20	6	34	3	12	14	520
GN 31-100-M16-125-B1-*	100	M 16	125	20	6	34	3	12	17	570
GN 31-100-M16-125-B2-*	100	M 16	125	20	6	34	3	12	14	550
GN 31-100-M16-125-B3-*	100	M 16	125	20	6	34	3	12	17	570
GN 31-100-M16-125-B4-*	100	M 16	125	20	6	34	3	12	14	570
GN 31-100-M16-125-C3-*	100	M 16	125	20	6	34	3	12	17	570
GN 31-100-M16-125-C4-*	100	M 16	125	20	6	34	3	12	14	570
GN 31-100-M16-150-B1-*	100	M 16	150	20	6	34	3	12	17	600
GN 31-100-M16-150-B2-*	100	M 16	150	20	6	34	3	12	14	580
GN 31-100-M16-150-B3-*	100	M 16	150	20	6	34	3	12	17	600
GN 31-100-M16-150-B4-*	100	M 16	150	20	6	34	3	12	14	600
GN 31-100-M16-150-C3-*	100	M 16	150	20	6	34	3	12	17	600
GN 31-100-M16-150-C4-*	100	M 16	150	20	6	34	3	12	14	600
GN 31-100-M16-200-B1-*	100	M 16	200	20	6	34	3	12	17	630
GN 31-100-M16-200-B2-*	100	M 16	200	20	6	34	3	12	14	610
GN 31-100-M16-200-B3-*	100	M 16	200	20	6	34	3	12	17	630
GN 31-100-M16-200-B4-*	100	M 16	200	20	6	34	3	12	14	630
GN 31-100-M16-200-C3-*	100	M 16	200	20	6	34	3	12	17	630
GN 31-100-M16-200-C4-*	100	M 16	200	20	6	35	3	12	14	630
GN 31-100-M20-75-B1-*	100	M 20	75	20	6	35	3	15	17	707
GN 31-100-M20-75-B2-*	100	M 20	75	20	6	35	3	15	14	620
GN 31-100-M20-75-B3-*	100	M 20	75	20	6	35	3	15	17	707
GN 31-100-M20-75-B4-*	100	M 20	75	20	6	35	3	15	14	707
GN 31-100-M20-75-C3-*	100	M 20	75	20	6	35	3	15	17	707
GN 31-100-M20-75-C4-*	100	M 20	75	20	6	35	3	15	14	707
GN 31-100-M20-100-B1-*	100	M 20	100	20	6	35	3	15	17	740
GN 31-100-M20-100-B2-*	100	M 20	100	20	6	35	3	15	14	700
GN 31-100-M20-100-B3-*	100	M 20	100	20	6	35	3	15	17	740
GN 31-100-M20-100-B4-*	100	M 20	100	20	6	35	3	15	14	740
GN 31-100-M20-100-C3-*	100	M 20	100	20	6	35	3	15	17	740
GN 31-100-M20-100-C4-*	100	M 20	100	20	6	35	3	15	14	740
GN 31-100-M20-125-B1-*	100	M 20	125	20	6	35	3	15	17	816
GN 31-100-M20-125-B2-*	100	M 20	125	20	6	35	3	15	14	729
GN 31-100-M20-125-B3-*	100	M 20	125	20	6	35	3	15	17	816
GN 31-100-M20-125-B4-*	100	M 20	125	20	6	35	3	15	14	816
GN 31-100-M20-125-C3-*	100	M 20	125	20	6	35	3	15	17	816
GN 31-100-M20-125-C4-*	100	M 20	125	20	6	35	3	15	14	816
GN 31-100-M20-150-B1-*	100	M 20	150	20	6	35	3	15	17	830

GN 31-T/TK — **STAINLESS STEEL**

Description	d1	d2	l1	h1	h2	h4 +0.4/0	s	A/F 2	Static load in kN	⚖
GN 31-100-M20-150-B2-*	100	M 20	150	20	6	35	3	15	14	780
GN 31-100-M20-150-B3-*	100	M 20	150	20	6	35	3	15	17	830
GN 31-100-M20-150-B4-*	100	M 20	150	20	6	35	3	15	14	830
GN 31-100-M20-150-C3-*	100	M 20	150	20	6	35	3	15	17	830
GN 31-100-M20-150-C4-*	100	M 20	150	20	6	35	3	15	14	830
GN 31-100-M20-200-B1-*	100	M 20	200	20	6	35	3	15	17	840
GN 31-100-M20-200-B2-*	100	M 20	200	20	6	35	3	15	14	800
GN 31-100-M20-200-B3-*	100	M 20	200	20	6	35	3	15	17	840
GN 31-100-M20-200-B4-*	100	M 20	200	20	6	35	3	15	14	840
GN 31-100-M20-200-C3-*	100	M 20	200	20	6	35	3	15	17	840
GN 31-100-M20-200-C4-*	100	M 20	200	20	6	35	3	15	14	840
GN 31-100-M24-100-B1-*	100	M 24	100	20	6	38	3	19	17	860
GN 31-100-M24-100-B2-*	100	M 24	100	20	6	38	3	19	14	850
GN 31-100-M24-100-B3-*	100	M 24	100	20	6	38	3	19	17	860
GN 31-100-M24-100-B4-*	100	M 24	100	20	6	38	3	19	14	860
GN 31-100-M24-100-C3-*	100	M 24	100	20	6	38	3	19	17	860
GN 31-100-M24-100-C4-*	100	M 24	100	20	6	38	3	19	14	860
GN 31-100-M24-125-B1-*	100	M 24	125	20	6	38	3	19	17	936
GN 31-100-M24-125-B2-*	100	M 24	125	20	6	38	3	19	14	848
GN 31-100-M24-125-B3-*	100	M 24	125	20	6	38	3	19	17	936
GN 31-100-M24-125-B4-*	100	M 24	125	20	6	38	3	19	14	936
GN 31-100-M24-125-C3-*	100	M 24	125	20	6	38	3	19	17	936
GN 31-100-M24-125-C4-*	100	M 24	125	20	6	38	3	19	14	936
GN 31-100-M24-150-B1-*	100	M 24	150	20	6	38	3	19	17	950
GN 31-100-M24-150-B2-*	100	M 24	150	20	6	38	3	19	14	940
GN 31-100-M24-150-B3-*	100	M 24	150	20	6	38	3	19	17	950
GN 31-100-M24-150-B4-*	100	M 24	150	20	6	38	3	19	14	950
GN 31-100-M24-150-C3-*	100	M 24	150	20	6	38	3	19	17	950
GN 31-100-M24-150-C4-*	100	M 24	150	20	6	38	3	19	14	950
GN 31-100-M24-200-B1-*	100	M 24	200	20	6	38	3	19	17	990
GN 31-100-M24-200-B2-*	100	M 24	200	20	6	38	3	19	14	980
GN 31-100-M24-200-B3-*	100	M 24	200	20	6	38	3	19	17	990
GN 31-100-M24-200-B4-*	100	M 24	200	20	6	38	3	19	14	990
GN 31-100-M24-200-C3-*	100	M 24	200	20	6	38	3	19	17	990
GN 31-100-M24-200-C4-*	100	M 24	200	20	6	38	3	19	14	990
GN 31-120-M20-100-B1-*	120	M 20	100	22	6	39	4	15	25	1000
GN 31-120-M20-100-B2-*	120	M 20	100	22	6	39	4	15	22	990
GN 31-120-M20-125-B1-*	120	M 20	125	22	6	39	4	15	25	1000
GN 31-120-M20-125-B2-*	120	M 20	125	22	6	39	4	15	22	1000
GN 31-120-M20-150-B1-*	120	M 20	150	22	6	39	4	15	25	1000
GN 31-120-M20-150-B2-*	120	M 20	150	22	6	39	4	15	22	1000
GN 31-120-M20-200-B1-*	120	M 20	200	22	6	39	4	15	25	1080
GN 31-120-M20-200-B2-*	120	M 20	200	22	6	39	4	15	22	1060
GN 31-120-M24-100-B1-*	120	M 24	100	22	6	42	4	19	25	1080
GN 31-120-M24-100-B2-*	120	M 24	100	22	6	42	4	19	22	1080
GN 31-120-M24-125-B1-*	120	M 24	125	22	6	42	4	19	25	1090
GN 31-120-M24-125-B2-*	120	M 24	125	22	6	42	4	19	22	1070
GN 31-120-M24-150-B1-*	120	M 24	150	22	6	42	4	19	25	1090
GN 31-120-M24-150-B2-*	120	M 24	150	22	6	42	4	19	22	1090
GN 31-120-M24-200-B1-*	120	M 24	200	22	6	42	4	19	25	1280
GN 31-120-M24-200-B2-*	120	M 24	200	22	6	42	4	19	22	1144
GN 31-120-M30-100-B1-*	120	M 30	100	22	6	46	4	24	25	1280
GN 31-120-M30-100-B2-*	120	M 30	100	22	6	46	4	24	22	1280
GN 31-120-M30-125-B1-*	120	M 30	125	22	6	46	4	24	25	1329
GN 31-120-M30-125-B2-*	120	M 30	125	22	6	46	4	24	22	1200
GN 31-120-M30-150-B1-*	120	M 30	150	22	6	46	4	24	25	1329
GN 31-120-M30-150-B2-*	120	M 30	150	22	6	46	4	24	22	1329
GN 31-120-M30-200-B1-*	120	M 30	200	22	6	46	4	24	25	1329
GN 31-120-M30-200-B2-*	120	M 30	200	22	6	46	4	24	22	1329

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*Complete with version of the Levelling feet (Hexagon socket at the top / Wrench at the bottom)

U without nut

UK with nut

GN 31-U/UK

STAINLESS STEEL

Description	d1	d2	l1	h1	h2	h4 +0.4/0	s	A/F2	A/F3	Static load in kN	⚖
GN 31-50-M16-75-B1-*	50	M 16	75	14.5	3.5	29	3	12	8	28	191
GN 31-50-M16-75-B2-*	50	M 16	75	14.5	3.5	29	3	12	8	28	180
GN 31-50-M16-100-B1-*	50	M 16	100	14.5	3.5	29	3	12	8	28	220
GN 31-50-M16-100-B2-*	50	M 16	100	14.5	3.5	29	3	12	8	28	200
GN 31-50-M16-125-B1-*	50	M 16	125	14.5	3.5	29	3	12	8	28	260
GN 31-50-M16-125-B2-*	50	M 16	125	14.5	3.5	29	3	12	8	28	240
GN 31-50-M16-150-B1-*	50	M 16	150	14.5	3.5	29	3	12	8	28	289
GN 31-50-M16-150-B2-*	50	M 16	150	14.5	3.5	29	3	12	8	28	280
GN 31-50-M16-200-B1-*	50	M 16	200	14.5	3.5	29	3	12	8	28	295
GN 31-50-M16-200-B2-*	50	M 16	200	14.5	3.5	29	3	12	8	28	290
GN 31-60-M16-75-B1-*	60	M 16	75	16	4	30	3	12	8	28	280
GN 31-60-M16-75-B2-*	60	M 16	75	16	4	30	3	12	8	25	230
GN 31-60-M16-75-B3-*	60	M 16	75	16	4	30	3	12	8	28	280
GN 31-60-M16-75-B4-*	60	M 16	75	16	4	30	3	12	8	25	280
GN 31-60-M16-75-C3-*	60	M 16	75	16	4	30	3	12	8	28	280
GN 31-60-M16-75-C4-*	60	M 16	75	16	4	30	3	12	8	25	280
GN 31-60-M16-100-B1-*	60	M 16	100	16	4	30	3	12	8	28	290
GN 31-60-M16-100-B2-*	60	M 16	100	16	4	30	3	12	8	25	260
GN 31-60-M16-100-B3-*	60	M 16	100	16	4	30	3	12	8	28	290
GN 31-60-M16-100-B4-*	60	M 16	100	16	4	30	3	12	8	25	290
GN 31-60-M16-100-C3-*	60	M 16	100	16	4	30	3	12	8	28	290
GN 31-60-M16-100-C4-*	60	M 16	100	16	4	30	3	12	8	25	290
GN 31-60-M16-125-B1-*	60	M 16	125	16	4	30	3	12	8	28	310
GN 31-60-M16-125-B2-*	60	M 16	125	16	4	30	3	12	8	25	300
GN 31-60-M16-125-B3-*	60	M 16	125	16	4	30	3	12	8	28	310
GN 31-60-M16-125-B4-*	60	M 16	125	16	4	30	3	12	8	25	310
GN 31-60-M16-125-C3-*	60	M 16	125	16	4	30	3	12	8	28	310
GN 31-60-M16-125-C4-*	60	M 16	125	16	4	30	3	12	8	25	310
GN 31-60-M16-150-B1-*	60	M 16	150	16	4	30	3	12	8	28	340
GN 31-60-M16-150-B2-*	60	M 16	150	16	4	30	3	12	8	25	330
GN 31-60-M16-150-B3-*	60	M 16	150	16	4	30	3	12	8	28	340
GN 31-60-M16-150-B4-*	60	M 16	150	16	4	30	3	12	8	25	340
GN 31-60-M16-150-C3-*	60	M 16	150	16	4	30	3	12	8	28	340
GN 31-60-M16-150-C4-*	60	M 16	150	16	4	30	3	12	8	25	340
GN 31-60-M16-200-B1-*	60	M 16	200	16	4	30	3	12	8	28	360
GN 31-60-M16-200-B2-*	60	M 16	200	16	4	30	3	12	8	25	350
GN 31-60-M16-200-B3-*	60	M 16	200	16	4	30	3	12	8	28	360
GN 31-60-M16-200-B4-*	60	M 16	200	16	4	30	3	12	8	25	360
GN 31-60-M16-200-C3-*	60	M 16	200	16	4	30	3	12	8	28	360

GN 31-U/UK

STAINLESS STEEL

Description	d1	d2	l1	h1	h2	h4 +0.4/0	s	A/F2	A/F3	Static load in kN	⚖
GN 31-60-M16-200-C4-*	60	M 16	200	16	4	30	3	12	8	25	360
GN 31-80-M16-75-B1-*	80	M 16	75	18	5	32	3	12	8	19	390
GN 31-80-M16-75-B2-*	80	M 16	75	18	5	32	3	12	8	15	360
GN 31-80-M16-75-B3-*	80	M 16	75	18	5	32	3	12	8	19	390
GN 31-80-M16-75-B4-*	80	M 16	75	18	5	32	3	12	8	15	390
GN 31-80-M16-75-C3-*	80	M 16	75	18	5	32	3	12	8	19	390
GN 31-80-M16-75-C4-*	80	M 16	75	18	5	32	3	12	8	15	390
GN 31-80-M16-100-B1-*	80	M 16	100	18	5	32	3	12	8	19	410
GN 31-80-M16-100-B2-*	80	M 16	100	18	5	32	3	12	8	15	400
GN 31-80-M16-100-B3-*	80	M 16	100	18	5	32	3	12	8	19	410
GN 31-80-M16-100-B4-*	80	M 16	100	18	5	32	3	12	8	15	410
GN 31-80-M16-100-C3-*	80	M 16	100	18	5	32	3	12	8	19	410
GN 31-80-M16-100-C4-*	80	M 16	100	18	5	32	3	12	8	15	410
GN 31-80-M16-125-B1-*	80	M 16	125	18	5	32	3	12	8	19	419
GN 31-80-M16-125-B2-*	80	M 16	125	18	5	32	3	12	8	15	350
GN 31-80-M16-125-B3-*	80	M 16	125	18	5	32	3	12	8	19	419
GN 31-80-M16-125-B4-*	80	M 16	125	18	5	32	3	12	8	15	419
GN 31-80-M16-125-C3-*	80	M 16	125	18	5	32	3	12	8	19	419
GN 31-80-M16-125-C4-*	80	M 16	125	18	5	32	3	12	8	15	419
GN 31-80-M16-150-B1-*	80	M 16	150	18	5	32	3	12	8	19	455
GN 31-80-M16-150-B2-*	80	M 16	150	18	5	32	3	12	8	15	450
GN 31-80-M16-150-B3-*	80	M 16	150	18	5	32	3	12	8	19	455
GN 31-80-M16-150-B4-*	80	M 16	150	18	5	32	3	12	8	15	455
GN 31-80-M16-150-C3-*	80	M 16	150	18	5	32	3	12	8	19	455
GN 31-80-M16-150-C4-*	80	M 16	150	18	5	32	3	12	8	15	455
GN 31-80-M16-200-B1-*	80	M 16	200	18	5	32	3	12	8	19	515
GN 31-80-M16-200-B2-*	80	M 16	200	18	5	32	3	12	8	15	480
GN 31-80-M16-200-B3-*	80	M 16	200	18	5	32	3	12	8	19	515
GN 31-80-M16-200-B4-*	80	M 16	200	18	5	32	3	12	8	15	515
GN 31-80-M16-200-C3-*	80	M 16	200	18	5	32	3	12	8	19	515
GN 31-80-M16-200-C4-*	80	M 16	200	18	5	32	3	12	8	15	515
GN 31-80-M20-75-B1-*	80	M 20	75	18	5	33	3	15	10	19	400
GN 31-80-M20-75-B2-*	80	M 20	75	18	5	33	3	15	10	15	390
GN 31-80-M20-75-B3-*	80	M 20	75	18	5	33	3	15	10	19	400
GN 31-80-M20-75-B4-*	80	M 20	75	18	5	33	3	15	10	15	400
GN 31-80-M20-75-C3-*	80	M 20	75	18	5	33	3	15	10	19	400
GN 31-80-M20-75-C4-*	80	M 20	75	18	5	33	3	15	10	15	400
GN 31-80-M20-100-B1-*	80	M 20	100	18	5	33	3	15	10	19	460
GN 31-80-M20-100-B2-*	80	M 20	100	18	5	33	3	15	10	15	450
GN 31-80-M20-100-B3-*	80	M 20	100	18	5	33	3	15	10	19	460
GN 31-80-M20-100-B4-*	80	M 20	100	18	5	33	3	15	10	15	460
GN 31-80-M20-100-C3-*	80	M 20	100	18	5	33	3	15	10	19	460
GN 31-80-M20-100-C4-*	80	M 20	100	18	5	33	3	15	10	15	460
GN 31-80-M20-125-B1-*	80	M 20	125	18	5	33	3	15	10	19	520
GN 31-80-M20-125-B2-*	80	M 20	125	18	5	33	3	15	10	15	500
GN 31-80-M20-125-B3-*	80	M 20	125	18	5	33	3	15	10	19	520
GN 31-80-M20-125-B4-*	80	M 20	125	18	5	33	3	15	10	15	520
GN 31-80-M20-125-C3-*	80	M 20	125	18	5	33	3	15	10	19	520
GN 31-80-M20-125-C4-*	80	M 20	125	18	5	33	3	15	10	15	520
GN 31-80-M20-150-B1-*	80	M 20	150	18	5	33	3	15	10	19	494
GN 31-80-M20-150-B2-*	80	M 20	150	18	5	33	3	15	10	15	480
GN 31-80-M20-150-B3-*	80	M 20	150	18	5	33	3	15	10	19	494
GN 31-80-M20-150-B4-*	80	M 20	150	18	5	33	3	15	10	15	494
GN 31-80-M20-150-C3-*	80	M 20	150	18	5	33	3	15	10	19	494
GN 31-80-M20-150-C4-*	80	M 20	150	18	5	33	3	15	10	15	494
GN 31-80-M20-200-B1-*	80	M 20	200	18	5	33	3	15	10	19	660
GN 31-80-M20-200-B2-*	80	M 20	200	18	5	33	3	15	10	15	650
GN 31-80-M20-200-B3-*	80	M 20	200	18	5	33	3	15	10	19	660
GN 31-80-M20-200-B4-*	80	M 20	200	18	5	33	3	15	10	15	660
GN 31-80-M20-200-C3-*	80	M 20	200	18	5	33	3	15	10	19	660
GN 31-80-M20-200-C4-*	80	M 20	200	18	5	33	3	15	10	15	660
GN 31-80-M24-100-B1-*	80	M 24	100	18	5	36	3	19	12	19	630
GN 31-80-M24-100-B2-*	80	M 24	100	18	5	36	3	19	12	15	570
GN 31-80-M24-100-B3-*	80	M 24	100	18	5	36	3	19	12	19	630
GN 31-80-M24-100-B4-*	80	M 24	100	18	5	36	3	19	12	15	630
GN 31-80-M24-100-C3-*	80	M 24	100	18	5	36	3	19	12	19	630
GN 31-80-M24-100-C4-*	80	M 24	100	18	5	36	3	19	12	15	630
GN 31-80-M24-125-B1-*	80	M 24	125	18	5	36	3	19	12	19	640
GN 31-80-M24-125-B2-*	80	M 24	125	18	5	36	3	19	12	15	630
GN 31-80-M24-125-B3-*	80	M 24	125	18	5	36	3	19	12	19	640

Weight Version U

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GN 31 | Stainless Steel-Levelling feet

* Complete with version of the Levelling feet (Hexagon socket at the top / Wrench at the bottom)

U without nut
UK with nut

GN 31-U/UK

STAINLESS STEEL

Description	d1	d2	l1	h1	h2	h4 +0.4/0	s	A/F A/F 2	A/F 3	Static load in kN	⚖
GN 31-80-M24-125-B4-*	80	M 24	125	18	5	36	3	19	12	15	640
GN 31-80-M24-125-C3-*	80	M 24	125	18	5	36	3	19	12	19	640
GN 31-80-M24-125-C4-*	80	M 24	125	18	5	36	3	19	12	15	640
GN 31-80-M24-150-B1-*	80	M 24	150	18	5	36	3	19	12	19	700
GN 31-80-M24-150-B2-*	80	M 24	150	18	5	36	3	19	12	15	650
GN 31-80-M24-150-B3-*	80	M 24	150	18	5	36	3	19	12	19	700
GN 31-80-M24-150-B4-*	80	M 24	150	18	5	36	3	19	12	15	700
GN 31-80-M24-150-C3-*	80	M 24	150	18	5	36	3	19	12	19	700
GN 31-80-M24-150-C4-*	80	M 24	150	18	5	36	3	19	12	15	700
GN 31-80-M24-200-B1-*	80	M 24	200	18	5	36	3	19	12	19	710
GN 31-80-M24-200-B2-*	80	M 24	200	18	5	36	3	19	12	15	751
GN 31-80-M24-200-B3-*	80	M 24	200	18	5	36	3	19	12	19	710
GN 31-80-M24-200-B4-*	80	M 24	200	18	5	36	3	19	12	15	710
GN 31-80-M24-200-C3-*	80	M 24	200	18	5	36	3	19	12	19	710
GN 31-80-M24-200-C4-*	80	M 24	200	18	5	36	3	19	12	15	710
GN 31-100-M16-75-B1-*	100	M 16	75	20	6	34	3	12	8	17	400
GN 31-100-M16-75-B2-*	100	M 16	75	20	6	34	3	12	8	14	390
GN 31-100-M16-75-B3-*	100	M 16	75	20	6	34	3	12	8	17	400
GN 31-100-M16-75-B4-*	100	M 16	75	20	6	34	3	12	8	14	400
GN 31-100-M16-75-C3-*	100	M 16	75	20	6	34	3	12	8	17	400
GN 31-100-M16-75-C4-*	100	M 16	75	20	6	34	3	12	8	14	400
GN 31-100-M16-100-B1-*	100	M 16	100	20	6	34	3	12	8	17	524
GN 31-100-M16-100-B2-*	100	M 16	100	20	6	34	3	12	8	14	524
GN 31-100-M16-100-B3-*	100	M 16	100	20	6	34	3	12	8	17	524
GN 31-100-M16-100-B4-*	100	M 16	100	20	6	34	3	12	8	14	524
GN 31-100-M16-100-C3-*	100	M 16	100	20	6	34	3	12	8	17	524
GN 31-100-M16-100-C4-*	100	M 16	100	20	6	34	3	12	8	14	524
GN 31-100-M16-125-B1-*	100	M 16	125	20	6	34	3	12	8	17	540
GN 31-100-M16-125-B2-*	100	M 16	125	20	6	34	3	12	8	14	500
GN 31-100-M16-125-B3-*	100	M 16	125	20	6	34	3	12	8	17	540
GN 31-100-M16-125-B4-*	100	M 16	125	20	6	34	3	12	8	14	540
GN 31-100-M16-125-C3-*	100	M 16	125	20	6	34	3	12	8	17	540
GN 31-100-M16-125-C4-*	100	M 16	125	20	6	34	3	12	8	14	586
GN 31-100-M16-150-B1-*	100	M 16	150	20	6	34	3	12	8	17	560
GN 31-100-M16-150-B2-*	100	M 16	150	20	6	34	3	12	8	14	586
GN 31-100-M16-150-B3-*	100	M 16	150	20	6	34	3	12	8	17	586
GN 31-100-M16-150-B4-*	100	M 16	150	20	6	34	3	12	8	14	586
GN 31-100-M16-150-C3-*	100	M 16	150	20	6	34	3	12	8	17	586
GN 31-100-M16-150-C4-*	100	M 16	150	20	6	34	3	12	8	14	586
GN 31-100-M16-200-B1-*	100	M 16	200	20	6	34	3	12	8	17	642
GN 31-100-M16-200-B2-*	100	M 16	200	20	6	34	3	12	8	14	630
GN 31-100-M16-200-B3-*	100	M 16	200	20	6	34	3	12	8	17	642
GN 31-100-M16-200-B4-*	100	M 16	200	20	6	34	3	12	8	14	642
GN 31-100-M16-200-C3-*	100	M 16	200	20	6	34	3	12	8	17	642
GN 31-100-M16-200-C4-*	100	M 16	200	20	6	34	3	12	8	14	642
GN 31-100-M20-75-B1-*	100	M 20	75	20	6	35	3	15	10	17	540
GN 31-100-M20-75-B2-*	100	M 20	75	20	6	35	3	15	10	14	530
GN 31-100-M20-75-B3-*	100	M 20	75	20	6	35	3	15	10	17	540
GN 31-100-M20-75-B4-*	100	M 20	75	20	6	35	3	15	10	14	540
GN 31-100-M20-75-C3-*	100	M 20	75	20	6	35	3	15	10	17	540
GN 31-100-M20-75-C4-*	100	M 20	75	20	6	35	3	15	10	14	540
GN 31-100-M20-100-B1-*	100	M 20	100	20	6	35	3	15	10	17	620
GN 31-100-M20-100-B2-*	100	M 20	100	20	6	35	3	15	10	14	600
GN 31-100-M20-100-B3-*	100	M 20	100	20	6	35	3	15	10	17	620
GN 31-100-M20-100-B4-*	100	M 20	100	20	6	35	3	15	10	14	620
GN 31-100-M20-100-C3-*	100	M 20	100	20	6	35	3	15	10	17	620
GN 31-100-M20-100-C4-*	100	M 20	100	20	6	35	3	15	10	14	620
GN 31-100-M20-125-B1-*	100	M 20	125	20	6	35	3	15	10	17	670
GN 31-100-M20-125-B2-*	100	M 20	125	20	6	35	3	15	10	14	650
GN 31-100-M20-125-B3-*	100	M 20	125	20	6	35	3	15	10	17	670
GN 31-100-M20-125-B4-*	100	M 20	125	20	6	35	3	15	10	14	670
GN 31-100-M20-125-C3-*	100	M 20	125	20	6	35	3	15	10	17	670
GN 31-100-M20-125-C4-*	100	M 20	125	20	6	35	3	15	10	14	670
GN 31-100-M20-150-B1-*	100	M 20	150	20	6	35	3	15	10	17	715
GN 31-100-M20-150-B2-*	100	M 20	150	20	6	35	3	15	10	14	700
GN 31-100-M20-150-B3-*	100	M 20	150	20	6	35	3	15	10	17	715
GN 31-100-M20-150-B4-*	100	M 20	150	20	6	35	3	15	10	14	715
GN 31-100-M20-150-C3-*	100	M 20	150	20	6	35	3	15	10	17	715

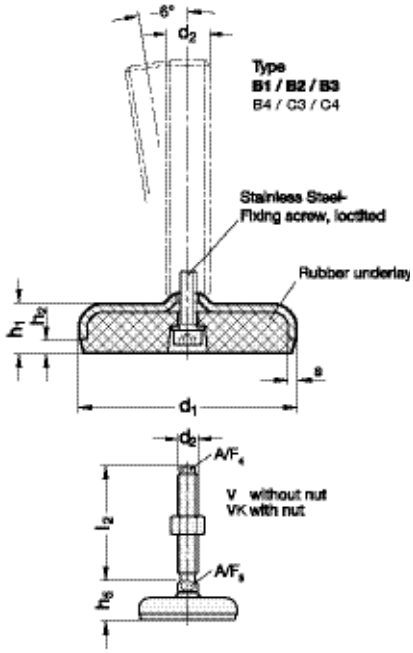
GN 31-U/UK

STAINLESS STEEL

Description	d1	d2	l1	h1	h2	h4 +0.4/0	s	A/F A/F 2	A/F 3	Static load in kN	⚖
GN 31-100-M20-150-C4-*	100	M 20	150	20	6	35	3	15	10	14	715
GN 31-100-M20-200-B1-*	100	M 20	200	20	6	35	3	15	10	17	798
GN 31-100-M20-200-B2-*	100	M 20	200	20	6	35	3	15	10	14	700
GN 31-100-M20-200-B3-*	100	M 20	200	20	6	35	3	15	10	17	798
GN 31-100-M20-200-B4-*	100	M 20	200	20	6	35	3	15	10	14	798
GN 31-100-M20-200-C3-*	100	M 20	200	20	6	35	3	15	10	17	798
GN 31-100-M20-200-C4-*	100	M 20	200	20	6	35	3	15	10	14	798
GN 31-100-M24-100-B1-*	100	M 24	100	20	6	38	3	19	12	17	700
GN 31-100-M24-100-B2-*	100	M 24	100	20	6	38	3	19	12	14	680
GN 31-100-M24-100-B3-*	100	M 24	100	20	6	38	3	19	12	17	700
GN 31-100-M24-100-B4-*	100	M 24	100	20	6	38	3	19	12	14	700
GN 31-100-M24-100-C3-*	100	M 24	100	20	6	38	3	19	12	17	700
GN 31-100-M24-100-C4-*	100	M 24	100	20	6	38	3	19	12	14	700
GN 31-100-M24-125-B1-*	100	M 24	125	20	6	38	3	19	12	17	720
GN 31-100-M24-125-B2-*	100	M 24	125	20	6	38	3	19	12	14	710
GN 31-100-M24-125-B3-*	100	M 24	125	20	6	38	3	19	12	17	720
GN 31-100-M24-125-B4-*	100	M 24	125	20	6	38	3	19	12	14	720
GN 31-100-M24-125-C3-*	100	M 24	125	20	6	38	3	19	12	17	720
GN 31-100-M24-125-C4-*	100	M 24	125	20	6	38	3	19	12	14	720
GN 31-100-M24-150-B1-*	100	M 24	150	20	6	38	3	19	12	17	840
GN 31-100-M24-150-B2-*	100	M 24	150	20	6	38	3	19	12	14	800
GN 31-100-M24-150-B3-*	100	M 24	150	20	6	38	3	19	12	17	840
GN 31-100-M24-150-B4-*	100	M 24	150	20	6	38	3	19	12	14	840
GN 31-100-M24-150-C3-*	100	M 24	150	20	6	38	3	19	12	17	840
GN 31-100-M24-150-C4-*	100	M 24	150	20	6	38	3	19	12	14	840
GN 31-100-M24-200-B1-*	100	M 24	200	20	6	38	3	19	12	17	895
GN 31-100-M24-200-B2-*	100	M 24	200	20	6	38	3	19	12	14	850
GN 31-100-M24-200-B3-*	100	M 24	200	20	6	38	3	19	12	17	895
GN 31-100-M24-200-B4-*	100	M 24	200	20	6	38	3	19	12	14	895
GN 31-100-M24-200-C3-*	100	M 24	200	20	6	38	3	19	12	17	895
GN 31-100-M24-200-C4-*	100	M 24	200	20	6	38	3	19	12	14	895
GN 31-120-M20-100-B1-*	120	M 20	100	22	6	39	4	15	10	25	1000
GN 31-120-M20-100-B2-*	120	M 20	100	22	6	39	4	15	10	22	990
GN 31-120-M20-125-B1-*	120	M 20	125	22	6	39	4	15	10	25	1000
GN 31-120-M20-125-B2-*	120	M 20	125	22	6	39	4	15	10	22	1000
GN 31-120-M20-150-B1-*	120	M 20	150	22	6	39	4	15	10	25	1035
GN 31-120-M20-150-B2-*	120	M 20	150	22	6	39	4	15	10	22	1015
GN 31-120-M20-200-B1-*	120	M 20	200	22	6	39	4	15	10	25	1035
GN 31-120-M20-200-B2-*	120	M 20	200	22	6	39	4	15	10	22	1035
GN 31-120-M24-100-B1-*	120	M 24	100	22	6	42	4	19	12	25	1090
GN 31-120-M24-100-B2-*	120	M 24	100	22	6	42	4	19	12	22	1050
GN 31-120-M24-125-B1-*	120	M 24	125	22	6	42	4	19	12	25	1110
GN 31-120-M24-125-B2-*	120	M 24	125	22	6	42	4	19	12	22	1100
GN 31-120-M24-150-B1-*	120	M 24	150	22	6	42	4	19	12	25	1115
GN 31-120-M24-150-B2-*	120	M 24	150	22	6	42	4	19	12	22	1110
GN 31-120-M24-200-B1-*	120	M 24	200	22	6	42	4	19	12	25	1200
GN 31-120-M24-200-B2-*	120	M 24	200	22	6	42	4	19	12	22	1124
GN 31-120-M30-100-B1-*	120	M 30	100	22	6	46	4	24	12	25	1210
GN 31-120-M30-100-B2-*	120	M 30	100	22	6	46	4	24	12	22	1160
GN 31-120-M30-125-B1-*	120	M 30	125	22	6	46	4	24	12	25	1320
GN 31-120-M30-125-B2-*	120	M 30	125	22	6	46	4	24	12	22	1180
GN 31-120-M30-150-B1-*	120	M 30	150	22	6	46	4	24	12	25	1400
GN 31-120-M30-150-B2-*	120	M 30	150	22	6	46	4	24	12	22	1300
GN 31-120-M30-200-B1-*	120	M 30	200	22	6	46	4	24	12	25	1650
GN 31-120 -M30-200-B2-*	120	M 30	200	22	6	46	4	24	12	22	1500

Weight Version U

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*Complete with version of Levelling feet (External hexagon socket on the top/Wrench flat at the bottom)

V without nut

VK with nut

GN 31-V/VK

STAINLESS STEEL

Description	d1	d2	l2	h1	h2	h5 +4.0/0	s	A/F 4	A/F 5	Static load in kN	⚖
GN 31-60-M16-75-B1-*	60	M 16	75	16	4	27	3	10	12	27	200
GN 31-60-M16-75-B2-*	60	M 16	75	16	4	27	3	10	12	27	156
GN 31-60-M16-75-B3-*	60	M 16	75	16	4	27	3	10	12	27	200
GN 31-60-M16-75-B4-*	60	M 16	75	16	4	27	3	10	12	27	200
GN 31-60-M16-75-C3-*	60	M 16	75	16	4	27	3	10	12	27	200
GN 31-60-M16-75-C4-*	60	M 16	75	16	4	27	3	10	12	27	200
GN 31-60-M16-100-B1-*	60	M 16	100	16	4	27	3	10	12	27	260
GN 31-60-M16-100-B2-*	60	M 16	100	16	4	27	3	10	12	27	250
GN 31-60-M16-100-B3-*	60	M 16	100	16	4	27	3	10	12	27	260
GN 31-60-M16-100-B4-*	60	M 16	100	16	4	27	3	10	12	27	260
GN 31-60-M16-100-C3-*	60	M 16	100	16	4	27	3	10	12	27	260
GN 31-60-M16-100-C4-*	60	M 16	100	16	4	27	3	10	12	27	260
GN 31-60-M16-125-B1-*	60	M 16	125	16	4	27	3	10	12	27	300
GN 31-60-M16-125-B2-*	60	M 16	125	16	4	27	3	10	12	27	290
GN 31-60-M16-125-B3-*	60	M 16	125	16	4	27	3	10	12	27	300
GN 31-60-M16-125-B4-*	60	M 16	125	16	4	27	3	10	12	27	300
GN 31-60-M16-125-C3-*	60	M 16	125	16	4	27	3	10	12	27	300
GN 31-60-M16-125-C4-*	60	M 16	125	16	4	27	3	10	12	27	300
GN 31-60-M16-150-B1-*	60	M 16	150	16	4	27	3	10	12	27	320
GN 31-60-M16-150-B2-*	60	M 16	150	16	4	27	3	10	12	27	310
GN 31-60-M16-150-B3-*	60	M 16	150	16	4	27	3	10	12	27	320
GN 31-60-M16-150-B4-*	60	M 16	150	16	4	27	3	10	12	27	320
GN 31-60-M16-150-C3-*	60	M 16	150	16	4	27	3	10	12	27	320
GN 31-60-M16-150-C4-*	60	M 16	150	16	4	27	3	10	12	27	320
GN 31-80-M16-75-B1-*	80	M 16	75	18	5	29	3	10	12	24	335
GN 31-80-M16-75-B2-*	80	M 16	75	18	5	29	3	10	12	24	330
GN 31-80-M16-75-B3-*	80	M 16	75	18	5	29	3	10	12	24	335
GN 31-80-M16-75-B4-*	80	M 16	75	18	5	29	3	10	12	24	335
GN 31-80-M16-75-C3-*	80	M 16	75	18	5	29	3	10	12	24	335
GN 31-80-M16-75-C4-*	80	M 16	75	18	5	29	3	10	12	24	335
GN 31-80-M16-100-B1-*	80	M 16	100	18	5	29	3	10	12	24	392
GN 31-80-M16-100-B2-*	80	M 16	100	18	5	29	3	10	12	24	350
GN 31-80-M16-100-B3-*	80	M 16	100	18	5	29	3	10	12	24	392
GN 31-80-M16-100-B4-*	80	M 16	100	18	5	29	3	10	12	24	392
GN 31-80-M16-100-C3-*	80	M 16	100	18	5	29	3	10	12	24	392
GN 31-80-M16-100-C4-*	80	M 16	100	18	5	29	3	10	12	24	392
GN 31-80-M16-125-B1-*	80	M 16	125	18	5	29	3	10	12	24	424
GN 31-80-M16-125-B2-*	80	M 16	125	18	5	29	3	10	12	24	382

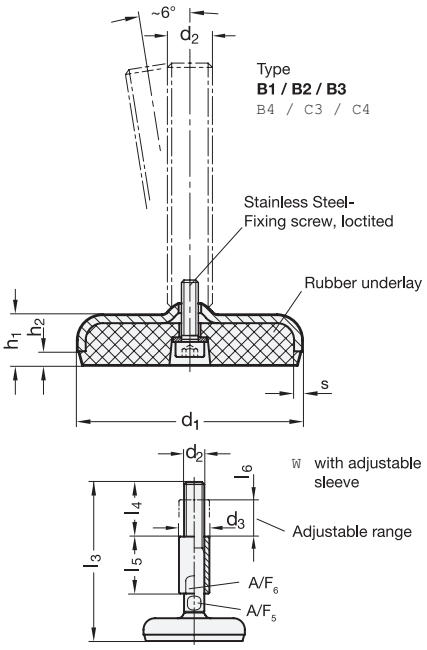
GN 31-V/VK

STAINLESS STEEL

Description	d1	d2	l2	h1	h2	h5 +4.0/0	s	A/F 4	A/F 5	Static load in kN	⚖
GN 31-80-M16-125-B3-*	80	M 16	125	18	5	29	3	10	12	24	424
GN 31-80-M16-125-B4-*	80	M 16	125	18	5	29	3	10	12	24	424
GN 31-80-M16-125-C3-*	80	M 16	125	18	5	29	3	10	12	24	424
GN 31-80-M16-125-C4-*	80	M 16	125	18	5	29	3	10	12	24	424
GN 31-80-M16-150-B1-*	80	M 16	150	18	5	29	3	10	12	24	457
GN 31-80-M16-150-B2-*	80	M 16	150	18	5	29	3	10	12	24	440
GN 31-80-M16-150-B3-*	80	M 16	150	18	5	29	3	10	12	24	457
GN 31-80-M16-150-B4-*	80	M 16	150	18	5	29	3	10	12	24	457
GN 31-80-M16-150-C3-*	80	M 16	150	18	5	29	3	10	12	24	457
GN 31-80-M16-150-C4-*	80	M 16	150	18	5	29	3	10	12	24	457
GN 31-80-M20-100-B1-*	80	M 20	100	18	5	30	3	13	16	24	567
GN 31-80-M20-100-B2-*	80	M 20	100	18	5	30	3	13	16	24	525
GN 31-80-M20-100-B3-*	80	M 20	100	18	5	30	3	13	16	24	567
GN 31-80-M20-100-B4-*	80	M 20	100	18	5	30	3	13	16	24	567
GN 31-80-M20-100-C3-*	80	M 20	100	18	5	30	3	13	16	24	567
GN 31-80-M20-100-C4-*	80	M 20	100	18	5	30	3	13	16	24	567
GN 31-80-M20-125-B1-*	80	M 20	125	18	5	30	3	13	16	24	618
GN 31-80-M20-125-B2-*	80	M 20	125	18	5	30	3	13	16	24	576
GN 31-80-M20-125-B3-*	80	M 20	125	18	5	30	3	13	16	24	618
GN 31-80-M20-125-B4-*	80	M 20	125	18	5	30	3	13	16	24	618
GN 31-80-M20-125-C3-*	80	M 20	125	18	5	30	3	13	16	24	618
GN 31-80-M20-125-C4-*	80	M 20	125	18	5	30	3	13	16	24	618
GN 31-80-M20-150-B1-*	80	M 20	150	18	5	30	3	13	16	24	670
GN 31-80-M20-150-B2-*	80	M 20	150	18	5	30	3	13	16	24	628
GN 31-80-M20-150-B3-*	80	M 20	150	18	5	30	3	13	16	24	670
GN 31-80-M20-150-B4-*	80	M 20	150	18	5	30	3	13	16	24	670
GN 31-80-M20-150-C3-*	80	M 20	150	18	5	30	3	13	16	24	670
GN 31-80-M20-150-C4-*	80	M 20	150	18	5	30	3	13	16	24	670
GN 31-80-M20-200-B1-*	80	M 20	200	18	5	30	3	13	16	24	775
GN 31-80-M20-200-B2-*	80	M 20	200	18	5	30	3	13	16	24	733
GN 31-80-M20-200-B3-*	80	M 20	200	18	5	30	3	13	16	24	775
GN 31-80-M20-200-B4-*	80	M 20	200	18	5	30	3	13	16	24	775
GN 31-80-M20-200-C3-*	80	M 20	200	18	5	30	3	13	16	24	775
GN 31-80-M20-200-C4-*	80	M 20	200	18	5	30	3	13	16	24	775
GN 31-80-M24-100-B1-*	80	M 24	100	18	5	33	3	17	20	24	607
GN 31-80-M24-100-B2-*	80	M 24	100	18	5	33	3	17	20	24	563
GN 31-80-M24-100-B3-*	80	M 24	100	18	5	33	3	17	20	24	607
GN 31-80-M24-100-B4-*	80	M 24	100	18	5	33	3	17	20	24	607
GN 31-80-M24-100-C3-*	80	M 24	100	18	5	33	3	17	20	24	607
GN 31-80-M24-100-C4-*	80	M 24	100	18	5	33	3	17	20	24	607
GN 31-80-M24-150-B1-*	80	M 24	150	18	5	33	3	17	20	24	700
GN 31-80-M24-150-B2-*	80	M 24	150	18	5	33	3	17	20	24	690
GN 31-80-M24-150-B3-*	80	M 24	150	18	5	33	3	17	20	24	700
GN 31-80-M24-150-B4-*	80	M 24	150	18	5	33	3	17	20	24	700
GN 31-80-M24-150-C3-*	80	M 24	150	18	5	33	3	17	20	24	700
GN 31-80-M24-150-C4-*	80	M 24	150	18	5	33	3	17	20	24	700
GN 31-80-M24-200-B1-*	80	M 24	200	18	5	33	3	17	20	24	850
GN 31-80-M24-200-B2-*	80	M 24	200	18	5	33	3	17	20	24	840
GN 31-80-M24-200-B3-*	80	M 24	200	18	5	33	3	17	20	24	850
GN 31-80-M24-200-B4-*	80	M 24	200	18	5	33	3	17	20	24	850
GN 31-80-M24-200-C3-*	80	M 24	200	18	5	33	3	17	20	24	850
GN 31-80-M24-200-C4-*	80	M 24	200	18	5	33	3	17	20	24	850
GN 31-100-M16-75-B1-*	100	M 16	75	20	6	31	3	10	12	21	480
GN 31-100-M16-75-B2-*	100	M 16	75	20	6	31	3	10	12	21	460
GN 31-100-M16-75-B3-*	100	M 16	75	20	6	31	3	10	12	21	480
GN 31-100-M16-75-B4-*	100	M 16	75	20	6	31	3	10	12	21	480
GN 31-100-M16-75-C3-*	100	M 16	75	20	6	31	3	10	12	21	480
GN 31-100-M16-75-C4-*	100	M 16	75	20	6	31	3	10	12	21	480
GN 31-100-M16-100-B1-*	100	M 16	100	20	6	31	3	10	12	21	505
GN 31-100-M16-100-B2-*	100	M 16	100	20	6	31	3	10	12	21	490
GN 31-100-M16-100-B3-*	100	M 16	100	20	6	31	3	10	12	21	505
GN 31-100-M16-100-B4-*	100	M 16	100	20	6	31	3	10	12	21	505
GN 31-100-M16-100-C3-*	100	M 16	100	20	6	31	3	10	12	21	505
GN 31-100-M16-100-C4-*	100	M 16	100	20	6	31	3	10	12	21	505
GN 31-100-M16-125-B1-*	100	M 16	125	20	6	31	3	10	12	21	530
GN 31-100-M16-125-B2-*	100	M 16	125	20	6	31	3	10	12	21	510
GN 31-100-M16-125-B3-*	100	M 16	125	20	6	31	3	10	12	21	530
GN 31-100-M16-125-B4-*	100	M 16	125	20	6	31	3	10	12	21	530

Weight Version V

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*Complete with version of Levelling feet (External hexagon socket on the top/Wrench flat at the bottom)

V without nut

VK with nut

GN 31-V/VK

STAINLESS STEEL

Description	d1	d2	l2	h1	h2	h5 +4.0/0	s	A/F 4	A/F 5	Static load in kN	⚖
GN 31-100-M16-125-C3-*	100	M 16	125	20	6	31	3	10	12	21	530
GN 31-100-M16-125-C4-*	100	M 16	125	20	6	31	3	10	12	21	530
GN 31-100-M16-150-B1-*	100	M 16	150	20	6	31	3	10	12	21	570
GN 31-100-M16-150-B2-*	100	M 16	150	20	6	31	3	10	12	21	555
GN 31-100-M16-150-B3-*	100	M 16	150	20	6	31	3	10	12	21	570
GN 31-100-M16-150-B4-*	100	M 16	150	20	6	31	3	10	12	21	570
GN 31-100-M16-150-C3-*	100	M 16	150	20	6	31	3	10	12	21	570
GN 31-100-M16-150-C4-*	100	M 16	150	20	6	31	3	10	12	21	570
GN 31-100-M20-100-B1-*	100	M 20	100	20	6	32	3	13	16	21	580
GN 31-100-M20-100-B2-*	100	M 20	100	20	6	32	3	13	16	21	575
GN 31-100-M20-100-B3-*	100	M 20	100	20	6	32	3	13	16	21	580
GN 31-100-M20-100-B4-*	100	M 20	100	20	6	32	3	13	16	21	580
GN 31-100-M20-100-C3-*	100	M 20	100	20	6	32	3	13	16	21	580
GN 31-100-M20-100-C4-*	100	M 20	100	20	6	32	3	13	16	21	580
GN 31-100-M20-125-B1-*	100	M 20	125	20	6	32	3	13	16	21	620
GN 31-100-M20-125-B2-*	100	M 20	125	20	6	32	3	13	16	21	600
GN 31-100-M20-125-B3-*	100	M 20	125	20	6	32	3	13	16	21	620
GN 31-100-M20-125-B4-*	100	M 20	125	20	6	32	3	13	16	21	620
GN 31-100-M20-125-C3-*	100	M 20	125	20	6	32	3	13	16	21	620
GN 31-100-M20-125-C4-*	100	M 20	125	20	6	32	3	13	16	21	620
GN 31-100-M20-150-B1-*	100	M 20	150	20	6	32	3	13	16	21	660
GN 31-100-M20-150-B2-*	100	M 20	150	20	6	32	3	13	16	21	650
GN 31-100-M20-150-B3-*	100	M 20	150	20	6	32	3	13	16	21	660
GN 31-100-M20-150-B4-*	100	M 20	150	20	6	32	3	13	16	21	660
GN 31-100-M20-150-C3-*	100	M 20	150	20	6	32	3	13	16	21	660
GN 31-100-M20-150-C4-*	100	M 20	150	20	6	32	3	13	16	21	660
GN 31-100-M20-200-B1-*	100	M 20	200	20	6	32	3	13	16	21	810
GN 31-100-M20-200-B2-*	100	M 20	200	20	6	32	3	13	16	21	804
GN 31-100-M20-200-B3-*	100	M 20	200	20	6	32	3	13	16	21	810
GN 31-100-M20-200-B4-*	100	M 20	200	20	6	32	3	13	16	21	810
GN 31-100-M20-200-C3-*	100	M 20	200	20	6	32	3	13	16	21	810
GN 31-100-M20-200-C4-*	100	M 20	200	20	6	32	3	13	16	21	810
GN 31-100-M24-100-B1-*	100	M 24	100	20	6	35	3	17	20	21	842
GN 31-100-M24-100-B2-*	100	M 24	100	20	6	35	3	17	20	21	754
GN 31-100-M24-100-B3-*	100	M 24	100	20	6	35	3	17	20	21	842
GN 31-100-M24-100-B4-*	100	M 24	100	20	6	35	3	17	20	21	842
GN 31-100-M24-100-C3-*	100	M 24	100	20	6	35	3	17	20	21	842
GN 31-100-M24-100-C4-*	100	M 24	100	20	6	35	3	17	20	21	842
GN 31-100-M24-150-B1-*	100	M 24	150	20	6	35	3	17	20	21	990
GN 31-100-M24-150-B2-*	100	M 24	150	20	6	35	3	17	20	21	902
GN 31-100-M24-150-B3-*	100	M 24	150	20	6	35	3	17	20	21	990
GN 31-100-M24-150-B4-*	100	M 24	150	20	6	35	3	17	20	21	990
GN 31-100-M24-150-C3-*	100	M 24	150	20	6	35	3	17	20	21	990
GN 31-100-M24-150-C4-*	100	M 24	150	20	6	35	3	17	20	21	990
GN 31-100-M24-200-B1-*	100	M 24	200	20	6	35	3	17	20	21	1110
GN 31-100-M24-200-B2-*	100	M 24	200	20	6	35	3	17	20	21	999
GN 31-100-M24-200-B3-*	100	M 24	200	20	6	35	3	17	20	21	1110
GN 31-100-M24-200-B4-*	100	M 24	200	20	6	35	3	17	20	21	1110
GN 31-100-M24-200-C3-*	100	M 24	200	20	6	35	3	17	20	21	1110
GN 31-100-M24-200-C4-*	100	M 24	200	20	6	35	3	17	20	21	1110

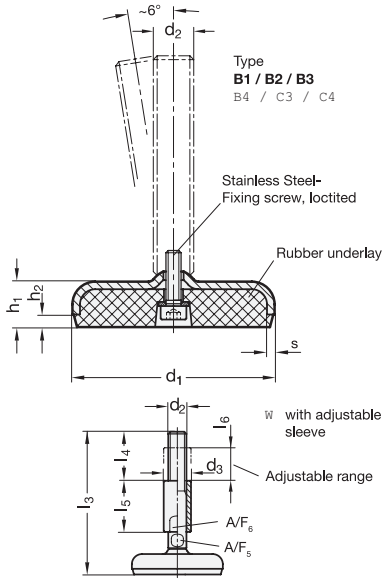
Weight Version V

GN 31-W

STAINLESS STEEL

Description	d1	d2	l3	d3	h1	h2	l4	l5	l6	s	A/F5	A/F6	Static load in kN	⚖
GN 31-60-M16-123-B1-W	60	M 16	123	24	16	4	45	45	29	3	12	20	27	350
GN 31-60-M16-123-B2-W	60	M 16	123	24	16	4	45	45	29	3	12	20	27	330
GN 31-60-M16-123-B3-W	60	M 16	123	24	16	4	45	45	29	3	12	20	27	350
GN 31-60-M16-123-B4-W	60	M 16	123	24	16	4	45	45	29	3	12	20	27	350
GN 31-60-M16-123-C3-W	60	M 16	123	24	16	4	45	45	29	3	12	20	27	350
GN 31-60-M16-123-C4-W	60	M 16	123	24	16	4	45	45	29	3	12	20	27	350
GN 31-60-M16-148-B1-W	60	M 16	148	24	16	4	45	45	29	3	12	20	27	388
GN 31-60-M16-148-B2-W	60	M 16	148	24	16	4	45	45	29	3	12	20	27	350
GN 31-60-M16-148-B3-W	60	M 16	148	24	16	4	45	45	29	3	12	20	27	388
GN 31-60-M16-148-B4-W	60	M 16	148	24	16	4	45	45	29	3	12	20	27	388
GN 31-60-M16-148-C3-W	60	M 16	148	24	16	4	45	45	29	3	12	20	27	388
GN 31-60-M16-148-C4-W	60	M 16	148	24	16	4	45	45	29	3	12	20	27	388
GN 31-60-M16-173-B1-W	60	M 16	173	24	16	4	45	45	29	3	12	20	27	400
GN 31-60-M16-173-B2-W	60	M 16	173	24	16	4	45	45	29	3	12	20	27	369
GN 31-60-M16-173-B3-W	60	M 16	173	24	16	4	45	45	29	3	12	20	27	400
GN 31-60-M16-173-B4-W	60	M 16	173	24	16	4	45	45	29	3	12	20	27	400
GN 31-60-M16-173-C3-W	60	M 16	173	24	16	4	45	45	29	3	12	20	27	400
GN 31-60-M16-173-C4-W	60	M 16	173	24	16	4	45	45	29	3	12	20	27	400
GN 31-60-M16-198-B1-W	60	M 16	198	24	16	4	45	45	29	3	12	20	27	469
GN 31-60-M16-198-B2-W	60	M 16	198	24	16	4	45	45	29	3	12	20	27	450
GN 31-60-M16-198-B3-W	60	M 16	198	24	16	4	45	45	29	3	12	20	27	469
GN 31-60-M16-198-B4-W	60	M 16	198	24	16	4	45	45	29	3	12	20	27	469
GN 31-60-M16-198-C3-W	60	M 16	198	24	16	4	45	45	29	3	12	20	27	469
GN 31-60-M16-198-C4-W	60	M 16	198	24	16	4	45	45	29	3	12	20	27	469
GN 31-80-M16-125-B1-W	80	M 16	125	24	18	5	45	45	29	3	12	20	24	485
GN 31-80-M16-125-B2-W	80	M 16	125	24	18	5	45	45	29	3	12	20	24	443
GN 31-80-M16-125-B3-W	80	M 16	125	24	18	5	45	45	29	3	12	20	24	485
GN 31-80-M16-125-B4-W	80	M 16	125	24	18	5	45	45	29	3	12	20	24	485
GN 31-80-M16-125-C3-W	80	M 16	125	24	18	5	45	45	29	3	12	20	24	485
GN 31-80-M16-125-C4-W	80	M 16	125	24	18	5	45	45	29	3	12	20	24	485
GN 31-80-M16-150-B1-W	80	M 16	150	24	18	5	45	45	29	3	12	20	24	494
GN 31-80-M16-150-B2-W	80	M 16	150	24	18	5	45	45	29	3	12	20	24	480
GN 31-80-M16-150-B3-W	80	M 16	150	24	18	5	45	45	29	3	12	20	24	494
GN 31-80-M16-150-B4-W	80	M 16	150	24	18	5	45	45	29	3	12	20	24	494
GN 31-80-M16-150-C3-W	80	M 16	150	24	18	5	45	45	29	3	12	20	24	494
GN 31-80-M16-150-C4-W	80	M 16	150	24	18	5	45	45	29	3	12	20	24	494
GN 31-80-M16-175-B1-W	80	M 16	175	24	18	5	45	45	29	3	12	20	24	540
GN 31-80-M16-175-B2-W	80	M 16	175	24	18	5	45	45	29	3	12	20	24	521
GN 31-80-M16-175-B3-W	80	M 16	175	24	18	5	45	45	29	3	12	20	24	540
GN 31-80-M16-175-B4-W	80	M 16	175	24	18	5	45	45	29	3	12	20	24	540

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GN 31-W — STAINLESS STEEL

Description	d1	d2	l3	d3	h1	h2	l4	l5	l6	s	A/F5	A/F6	Static load in kN	⚖
GN 31-80-M16-175-B3-W	80	M 16	175	24	18	5	45	45	29	3	12	20	24	540
GN 31-80-M16-175-B4-W	80	M 16	175	24	18	5	45	45	29	3	12	20	24	540
GN 31-80-M16-175-C3-W	80	M 16	175	24	18	5	45	45	29	3	12	20	24	540
GN 31-80-M16-175-C4-W	80	M 16	175	24	18	5	45	45	29	3	12	20	24	540
GN 31-80-M16-200-B1-W	80	M 16	200	24	18	5	45	45	29	3	12	20	24	580
GN 31-80-M16-200-B2-W	80	M 16	200	24	18	5	45	45	29	3	12	20	24	561
GN 31-80-M16-200-B3-W	80	M 16	200	24	18	5	45	45	29	3	12	20	24	580
GN 31-80-M16-200-B4-W	80	M 16	200	24	18	5	45	45	29	3	12	20	24	580
GN 31-80-M16-200-C3-W	80	M 16	200	24	18	5	45	45	29	3	12	20	24	580
GN 31-80-M16-200-C4-W	80	M 16	200	24	18	5	45	45	29	3	12	20	24	580
GN 31-80-M20-149-B1-W	80	M 20	149	30	18	5	56	56	36	3	16	24	24	680
GN 31-80-M20-149-B2-W	80	M 20	149	30	18	5	56	56	36	3	16	24	24	655
GN 31-80-M20-149-B3-W	80	M 20	149	30	18	5	56	56	36	3	16	24	24	680
GN 31-80-M20-149-B4-W	80	M 20	149	30	18	5	56	56	36	3	16	24	24	680
GN 31-80-M20-149-C3-W	80	M 20	149	30	18	5	56	56	36	3	16	24	24	680
GN 31-80-M20-149-C4-W	80	M 20	149	30	18	5	56	56	36	3	16	24	24	680
GN 31-80-M20-174-B1-W	80	M 20	174	30	18	5	56	56	36	3	16	24	24	740
GN 31-80-M20-174-B2-W	80	M 20	174	30	18	5	56	56	36	3	16	24	24	718
GN 31-80-M20-174-B3-W	80	M 20	174	30	18	5	56	56	36	3	16	24	24	740
GN 31-80-M20-174-B4-W	80	M 20	174	30	18	5	56	56	36	3	16	24	24	740
GN 31-80-M20-174-C3-W	80	M 20	174	30	18	5	56	56	36	3	16	24	24	740
GN 31-80-M20-174-C4-W	80	M 20	174	30	18	5	56	56	36	3	16	24	24	740
GN 31-80-M20-199-B1-W	80	M 20	199	30	18	5	56	56	36	3	16	24	24	780
GN 31-80-M20-199-B2-W	80	M 20	199	30	18	5	56	56	36	3	16	24	24	760
GN 31-80-M20-199-B3-W	80	M 20	199	30	18	5	56	56	36	3	16	24	24	780
GN 31-80-M20-199-B4-W	80	M 20	199	30	18	5	56	56	36	3	16	24	24	780
GN 31-80-M20-199-C3-W	80	M 20	199	30	18	5	56	56	36	3	16	24	24	780
GN 31-80-M20-199-C4-W	80	M 20	199	30	18	5	56	56	36	3	16	24	24	780
GN 31-80-M20-249-B1-W	80	M 20	249	30	18	5	56	56	36	3	16	24	24	940
GN 31-80-M20-249-B2-W	80	M 20	249	30	18	5	56	56	36	3	16	24	24	920
GN 31-80-M20-249-B3-W	80	M 20	249	30	18	5	56	56	36	3	16	24	24	940
GN 31-80-M20-249-B4-W	80	M 20	249	30	18	5	56	56	36	3	16	24	24	940
GN 31-80-M20-249-C3-W	80	M 20	249	30	18	5	56	56	36	3	16	24	24	940
GN 31-80-M20-249-C4-W	80	M 20	249	30	18	5	56	56	36	3	16	24	24	940
GN 31-80-M24-174-B1-W	80	M 24	174	35	18	5	67	67	42	3	20	30	24	1000
GN 31-80-M24-174-B2-W	80	M 24	174	35	18	5	67	67	42	3	20	30	24	992
GN 31-80-M24-174-B3-W	80	M 24	174	35	18	5	67	67	42	3	20	30	24	1000
GN 31-80-M24-174-B4-W	80	M 24	174	35	18	5	67	67	42	3	20	30	24	1000
GN 31-80-M24-174-C3-W	80	M 24	174	35	18	5	67	67	42	3	20	30	24	1000
GN 31-80-M24-174-C4-W	80	M 24	174	35	18	5	67	67	42	3	20	30	24	1000
GN 31-80-M24-224-B1-W	80	M 24	224	35	18	5	67	67	42	3	20	30	24	1200
GN 31-80-M24-224-B2-W	80	M 24	224	35	18	5	67	67	42	3	20	30	24	1170
GN 31-80-M24-224-B3-W	80	M 24	224	35	18	5	67	67	42	3	20	30	24	1200
GN 31-80-M24-224-B4-W	80	M 24	224	35	18	5	67	67	42	3	20	30	24	1200
GN 31-80-M24-224-C3-W	80	M 24	224	35	18	5	67	67	42	3	20	30	24	1200
GN 31-80-M24-224-C4-W	80	M 24	224	35	18	5	67	67	42	3	20	30	24	1200

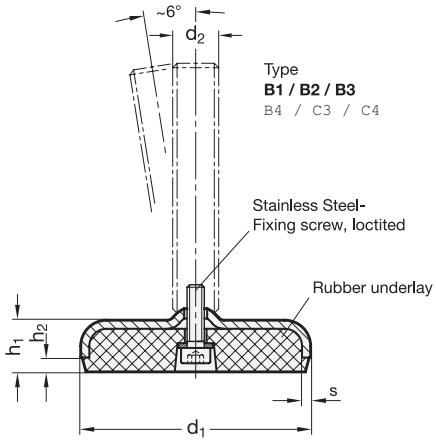
GN 31-W — STAINLESS STEEL

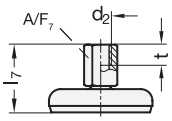
Description	d1	d2	l3	d3	h1	h2	l4	l5	l6	s	A/F5	A/F6	Static load in kN	⚖
GN 31-80-M24-274-B1-W	80	M 24	274	35	18	5	67	67	42	3	20	30	24	1250
GN 31-80-M24-274-B2-W	80	M 24	274	35	18	5	67	67	42	3	20	30	24	1200
GN 31-80-M24-274-B3-W	80	M 24	274	35	18	5	67	67	42	3	20	30	24	1250
GN 31-80-M24-274-B4-W	80	M 24	274	35	18	5	67	67	42	3	20	30	24	1250
GN 31-80-M24-274-C3-W	80	M 24	274	35	18	5	67	67	42	3	20	30	24	1250
GN 31-80-M24-274-C4-W	80	M 24	274	35	18	5	67	67	42	3	20	30	24	1250
GN 31-100-M16-126-B1-W	100	M 16	126	24	20	6	45	45	29	3	12	20	21	633
GN 31-100-M16-126-B2-W	100	M 16	126	24	20	6	45	45	29	3	12	20	21	600
GN 31-100-M16-126-B3-W	100	M 16	126	24	20	6	45	45	29	3	12	20	21	633
GN 31-100-M16-126-B4-W	100	M 16	126	24	20	6	45	45	29	3	12	20	21	633
GN 31-100-M16-126-C3-W	100	M 16	126	24	20	6	45	45	29	3	12	20	21	633
GN 31-100-M16-126-C4-W	100	M 16	126	24	20	6	45	45	29	3	12	20	21	633
GN 31-100-M16-151-B1-W	100	M 16	151	24	20	6	45	45	29	3	12	20	21	725
GN 31-100-M16-151-B2-W	100	M 16	151	24	20	6	45	45	29	3	12	20	21	700
GN 31-100-M16-151-B3-W	100	M 16	151	24	20	6	45	45	29	3	12	20	21	725
GN 31-100-M16-151-B4-W	100	M 16	151	24	20	6	45	45	29	3	12	20	21	725
GN 31-100-M16-151-C3-W	100	M 16	151	24	20	6	45	45	29	3	12	20	21	725
GN 31-100-M16-151-C4-W	100	M 16	151	24	20	6	45	45	29	3	12	20	21	725
GN 31-100-M16-176-B1-W	100	M 16	176	24	20	6	45	45	29	3	12	20	21	800
GN 31-100-M16-176-B2-W	100	M 16	176	24	20	6	45	45	29	3	12	20	21	770
GN 31-100-M16-176-B3-W	100	M 16	176	24	20	6	45	45	29	3	12	20	21	800
GN 31-100-M16-176-B4-W	100	M 16	176	24	20	6	45	45	29	3	12	20	21	800
GN 31-100-M16-176-C3-W	100	M 16	176	24	20	6	45	45	29	3	12	20	21	800
GN 31-100-M16-176-C4-W	100	M 16	176	24	20	6	45	45	29	3	12	20	21	800
GN 31-100-M16-201-B1-W	100	M 16	201	24	20	6	45	45	29	3	12	20	21	700
GN 31-100-M16-201-B2-W	100	M 16	201	24	20	6	45	45	29	3	12	20	21	701
GN 31-100-M16-201-B3-W	100	M 16	201	24	20	6	45	45	29	3	12	20	21	700
GN 31-100-M16-201-B4-W	100	M 16	201	24	20	6	45	45	29	3	12	20	21	700
GN 31-100-M16-201-C3-W	100	M 16	201	24	20	6	45	45	29	3	12	20	21	700
GN 31-100-M16-201-C4-W	100	M 16	201	24	20	6	45	45	29	3	12	20	21	700
GN 31-100-M20-151-B1-W	100	M 20	151	30	20	6	56	56	36	3	16	24	21	987
GN 31-100-M20-151-B2-W	100	M 20	151	30	20	6	56	56	36	3	16	24	21	899
GN 31-100-M20-151-B3-W	100	M 20	151	30	20	6	56	56	36	3	16	24	21	987
GN 31-100-M20-151-B4-W	100	M 20	151	30	20	6	56	56	36	3	16	24	21	987
GN 31-100-M20-151-C3-W	100	M 20	151	30	20	6	56	56	36	3	16	24	21	987
GN 31-100-M20-151-C4-W	100	M 20	151	30	20	6	56	56	36	3	16	24	21	987
GN 31-100-M20-176-B1-W	100	M 20	176	30	20	6	56	56	36	3	16	24	21	1050
GN 31-100-M20-176-B2-W	100	M 20	176	30	20	6	56	56	36	3	16	24	21	962
GN 31-100-M20-176-B3-W	100	M 20	176	30	20	6	56	56	36	3	16	24	21	1050
GN 31-100-M20-176-B4-W	100	M 20	176	30	20	6	56	56	36	3	16	24	21	1050
GN 31-100-M20-176-C3-W	100	M 20	176	30	20	6	56	56	36	3	16	24	21	1050
GN 31-100-M20-176-C4-W	100	M 20	176	30	20	6	56	56	36	3	16	24	21	1050
GN 31-100-M20-201-B1-W	100	M 20	201	30	20	6	56	56	36	3	16	24	21	1113
GN 31-100-M20-201-B2-W	100	M 20	201	30	20	6	56	56	36	3	16	24	21	1025
GN 31-100-M20-201-B3-W	100	M 20	201	30	20	6	56	56	36	3	16	24	21	1113
GN 31-100-M20-201-B4-W	100	M 20	201	30	20	6	56	56	36	3	16	24	21	1113
GN 31-100-M20-201-C3-W	100	M 20	201	30	20	6	56	56	36	3	16	24	21	1113
GN 31-100-M20-201-C4-W	100	M 20	201	30	20	6	56	56	36	3	16	24	21	1113
GN 31-100-M20-251-B1-W	100	M 20	251	30	20	6	56	56	36	3	16	24	21	1190
GN 31-100-M20-251-B2-W	100	M 20	251	30	20	6	56	56	36	3	16	24	21	1140
GN 31-100-M20-251-B3-W	100	M 20	251	30	20	6	56	56	36	3	16	24	21	1190
GN 31-100-M20-251-B4-W	100	M 20	251	30	20	6	56	56	36	3	16	24	21	1190
GN 31-100-M20-251-C3-W	100	M 20	251	30	20	6	56	56	36	3	16	24	21	1190
GN 31-100-M20-251-C4-W	100	M 20	251	30	20	6	56	56	36	3	16	24	21	1190
GN 31-100-M24-176-B1-W	100	M 24	176	35	20	6	67	67	42	3	20	30	21	1271
GN 31-100-M24-176-B2-W	100	M 24	176	35	20	6	67	67	42	3	20	30	21	1183
GN 31-100-M24-176-B3-W	100	M 24	176	35	20	6	67	67	42	3	20	30	21	1271
GN 31-100-M24-176-B4-W	100	M 24	176	35	20	6	67	67	42	3	20	30	21	1271
GN 31-100-M24-176-C3-W	100	M 24	176	35	20	6	67	67	42	3	20	30	21	1271
GN 31-100-M24-176-C4-W	100	M 24	176	35	20	6	67	67	42	3	20	30	21	1271
GN 31-100-M24-226-B1-W	100	M 24	226	35	20	6	67	67	42	3	20	30	21	1370
GN 31-100-M24-226-B2-W	100	M 24	226	35	20	6	67	67	42	3	20	30	21	1361
GN 31-100-M24-226-B3-W	100	M 24	226	35	20	6	67	67	42	3	20	30	21	1370
GN 31-100-M24-226-B4-W	100	M 24	226	35	20	6	67	67	42	3	20	30	21	1370
GN 31-100-M24-226-C3-W	100	M 24	226	35	20	6	67	67	42	3	20	30	21	1370
GN 31-100-M24-226-C4-W	100	M 24	226	35	20	6	67	67	42	3	20	30	21	1370
GN 31-100-M24-276-B1-W	100	M 24	276	35	20	6	67	67	42	3	20	30	21	1528
GN 31-100-M24-276-B2-W	100	M 24	276	35	20	6	67	67	42	3	20	30	21	1510
GN 31-100-M24-276-B3-W	100	M 24	276	35	20	6	67	67	42	3	20	30	21	1528
GN 31-100-M24-276-B4-W	100	M 24	276	35	20	6	67	67	42	3	20	30	21	1528
GN 31-100-M24-276-C3-W	100	M 24	276	35	20	6	67	67	42	3	20	30	21	1528
GN 31-100-M24-276-C4-W	100	M 24	276	35	20	6	67	67	42	3	20	30	21	1528

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GN 31

Stainless Steel-Levelling feet





X with female thread

GN 31-X — **STAINLESS STEEL**

Description	d1	d2	h1	h2	l7 +4.0/0	s	A/F7	t	Static load in kN	⚖
GN 31-50-M8-37-B1-X	50	M 8	14.5	3.5	37	3	14	8	8	110
GN 31-50-M8-37-B2-X	50	M 8	14.5	3.5	37	3	14	8	8	98
GN 31-50-M10-40-B1-X	50	M 10	14.5	3.5	40	3	14	10	13	112
GN 31-50-M10-40-B2-X	50	M 10	14.5	3.5	40	3	14	10	13	100
GN 31-50-M12-43-B1-X	50	M 12	14.5	3.5	43	3	17	12	20	120
GN 31-50-M12-43-B2-X	50	M 12	14.5	3.5	43	3	17	12	20	115
GN 31-50-M16-49-B1-X	50	M 16	14.5	3.5	49	3	22	16	28	140
GN 31-50-M16-49-B2-X	50	M 16	14.5	3.5	49	3	22	16	25	130
GN 31-60-M8-38-B1-X	60	M 8	16	4	38	3	14	8	8	150
GN 31-60-M8-38-B2-X	60	M 8	16	4	38	3	14	8	8	140
GN 31-60-M8-38-B3-X	60	M 8	16	4	38	3	14	8	8	150
GN 31-60-M8-38-B4-X	60	M 8	16	4	38	3	14	8	8	150
GN 31-60-M8-38-C3-X	60	M 8	16	4	38	3	14	8	8	150
GN 31-60-M8-38-C4-X	60	M 8	16	4	38	3	14	8	8	150
GN 31-60-M10-41-B1-X	60	M 10	16	4	41	3	14	10	13	152
GN 31-60-M10-41-B2-X	60	M 10	16	4	41	3	14	10	13	120
GN 31-60-M10-41-B3-X	60	M 10	16	4	41	3	14	10	13	152
GN 31-60-M10-41-B4-X	60	M 10	16	4	41	3	14	10	13	152
GN 31-60-M10-41-C3-X	60	M 10	16	4	41	3	14	10	13	152
GN 31-60-M10-41-C4-X	60	M 10	16	4	41	3	14	10	13	152
GN 31-60-M12-45-B1-X	60	M 12	16	4	45	3	17	12	20	160
GN 31-60-M12-45-B2-X	60	M 12	16	4	45	3	17	12	20	148
GN 31-60-M12-45-B3-X	60	M 12	16	4	45	3	17	12	20	160
GN 31-60-M12-45-B4-X	60	M 12	16	4	45	3	17	12	20	160
GN 31-60-M12-45-C3-X	60	M 12	16	4	45	3	17	12	20	160
GN 31-60-M12-45-C4-X	60	M 12	16	4	45	3	17	12	20	160
GN 31-60-M16-50-B1-X	60	M 16	16	4	50	3	22	16	28	267
GN 31-60-M16-50-B2-X	60	M 16	16	4	50	3	22	16	25	240
GN 31-60-M16-50-B3-X	60	M 16	16	4	50	3	22	16	28	267
GN 31-60-M16-50-B4-X	60	M 16	16	4	50	3	22	16	25	267
GN 31-60-M16-50-C3-X	60	M 16	16	4	50	3	22	16	28	267
GN 31-60-M16-50-C4-X	60	M 16	16	4	50	3	22	16	25	267
GN 31-80-M8-40-B1-X	80	M 8	18	5	40	3	14	8	8	377
GN 31-80-M8-40-B2-X	80	M 8	18	5	40	3	14	8	8	334
GN 31-80-M8-40-B3-X	80	M 8	18	5	40	3	14	8	8	377
GN 31-80-M8-40-B4-X	80	M 8	18	5	40	3	14	8	8	377
GN 31-80-M8-40-C3-X	80	M 8	18	5	40	3	14	8	8	377
GN 31-80-M8-40-C4-X	80	M 8	18	5	40	3	14	8	8	377

GN 31-X — **STAINLESS STEEL**

Description	d1	d2	h1	h2	l7 +4.0/0	s	A/F7	t	Static load in kN	⚖
GN 31-80-M10-43-B1-X	80	M 10	18	5	43	3	14	10	13	390
GN 31-80-M10-43-B2-X	80	M 10	18	5	43	3	14	10	13	380
GN 31-80-M10-43-B3-X	80	M 10	18	5	43	3	14	10	13	390
GN 31-80-M10-43-B4-X	80	M 10	18	5	43	3	14	10	13	390
GN 31-80-M10-43-C3-X	80	M 10	18	5	43	3	14	10	13	390
GN 31-80-M10-43-C4-X	80	M 10	18	5	43	3	14	10	13	390
GN 31-80-M12-47-B1-X	80	M 12	18	5	47	3	17	12	15	410
GN 31-80-M12-47-B2-X	80	M 12	18	5	47	3	17	12	15	385
GN 31-80-M12-47-B3-X	80	M 12	18	5	47	3	17	12	15	410
GN 31-80-M12-47-B4-X	80	M 12	18	5	47	3	17	12	15	410
GN 31-80-M12-47-C3-X	80	M 12	18	5	47	3	17	12	15	410
GN 31-80-M12-47-C4-X	80	M 12	18	5	47	3	17	12	15	410
GN 31-80-M16-52-B1-X	80	M 16	18	5	52	3	22	16	19	430
GN 31-80-M16-52-B2-X	80	M 16	18	5	52	3	22	16	15	390
GN 31-80-M16-52-B3-X	80	M 16	18	5	52	3	22	16	19	430
GN 31-80-M16-52-B4-X	80	M 16	18	5	52	3	22	16	15	430
GN 31-80-M16-52-C3-X	80	M 16	18	5	52	3	22	16	19	430
GN 31-80-M16-52-C4-X	80	M 16	18	5	52	3	22	16	15	430
GN 31-80-M20-60-B1-X	80	M 20	18	5	60	3	27	20	19	460
GN 31-80-M20-60-B2-X	80	M 20	18	5	60	3	27	20	15	440
GN 31-80-M20-60-B3-X	80	M 20	18	5	60	3	27	20	19	460
GN 31-80-M20-60-B4-X	80	M 20	18	5	60	3	27	20	15	460
GN 31-80-M20-60-C3-X	80	M 20	18	5	60	3	27	20	19	460
GN 31-80-M20-60-C4-X	80	M 20	18	5	60	3	27	20	15	460
GN 31-100-M8-42-B1-X	100	M 8	20	6	42	3	14	8	8	500
GN 31-100-M8-42-B2-X	100	M 8	20	6	42	3	14	8	8	480
GN 31-100-M8-42-B3-X	100	M 8	20	6	42	3	14	8	8	500
GN 31-100-M8-42-B4-X	100	M 8	20	6	42	3	14	8	8	500
GN 31-100-M8-42-C3-X	100	M 8	20	6	42	3	14	8	8	500
GN 31-100-M8-42-C4-X	100	M 8	20	6	42	3	14	8	8	500
GN 31-100-M10-45-B1-X	100	M 10	20	6	45	3	14	10	13	520
GN 31-100-M10-45-B2-X	100	M 10	20	6	45	3	14	10	13	490
GN 31-100-M10-45-B3-X	100	M 10	20	6	45	3	14	10	13	520
GN 31-100-M10-45-B4-X	100	M 10	20	6	45	3	14	10	13	520
GN 31-100-M10-45-C3-X	100	M 10	20	6	45	3	14	10	13	520
GN 31-100-M10-45-C4-X	100	M 10	20	6	45	3	14	10	13	520
GN 31-100-M12-49-B1-X	100	M 12	20	6	49	3	17	12	17	550
GN 31-100-M12-49-B2-X	100	M 12	20	6	49	3	17	12	14	530
GN 31-100-M12-49-B3-X	100	M 12	20	6	49	3	17	12	17	550
GN 31-100-M12-49-B4-X	100	M 12	20	6	49	3	17	12	14	550
GN 31-100-M12-49-C3-X	100	M 12	20	6	49	3	17	12	17	550
GN 31-100-M12-49-C4-X	100	M 12	20	6	49	3	17	12	14	550
GN 31-100-M16-54-B1-X	100	M 16	20	6	54	3	22	16	17	590
GN 31-100-M16-54-B2-X	100	M 16	20	6	54	3	22	16	14	580
GN 31-100-M16-54-B3-X	100	M 16	20	6	54	3	22	16	17	590
GN 31-100-M16-54-B4-X	100	M 16	20	6	54	3	22	16	14	590
GN 31-100-M16-54-C3-X	100	M 16	20	6	54	3	22	16	17	590
GN 31-100-M16-54-C4-X	100	M 16	20	6	54	3	22	16	14	590
GN 31-100-M20-62-B1-X	100	M 20	20	6	62	3	27	20	17	600
GN 31-100-M20-62-B2-X	100	M 20	20	6	62	3	27	20	14	585
GN 31-100-M20-62-B3-X	100	M 20	20	6	62	3	27	20	17	600
GN 31-100-M20-62-B4-X	100	M 20	20	6	62	3	27	20	14	600
GN 31-100-M20-62-C3-X	100	M 20	20	6	62	3	27	20	17	600
GN 31-100-M20-62-C4-X	100	M 20	20	6	62	3	27	20	14	600
GN 31-120-M20-65-B1-X	120	M 20	22	6	62	4	27	20	25	800
GN 31-120-M20-65-B2-X	120	M 20	22	6	62	4	27	20	22	680

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Levelling feet

Requirements , design principles

DESIGN REQUIREMENTS FOR HYGIENIC DESIGN

Material

- Non-rusting Stainless Steels
- FDA and EU compliant plastics and elastomers

Surfaces

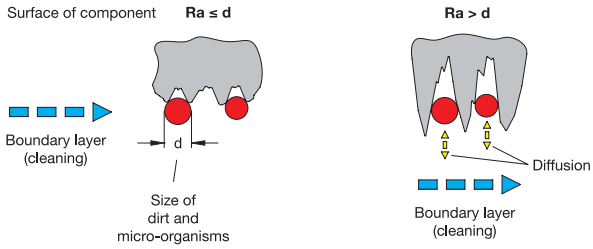
- Surfaces must be able to be cleaned
- Steps due to appliance configurations which are not aligned must be avoided
- Seals must be designed so that no gaps occur
- O-ring grooves must be hygienically designed
- Contact with the product to be manufactured must be ruled out
- Corners should preferably have a radius of 6 mm or more

Design / Geometry

The interior and exterior areas of all appliances, components or piping must be self-draining or be able to be drained and easy to clean.

Surface properties and roughness

Easy to clean with Ra < 0.8 µm



DESIGN PRINCIPLES FOR HYGIENIC DESIGN

EHEDG

- European Hygienic Engineering & Design Group
- non-profit European consortium of machine and food manufacturers
- as well their suppliers, research institutes, universities and government health agencies
- approximately 45 guidelines
- examination of products and issue of certificates

3-A Sanitary Standard, Inc.

- non profit and independent association in the USA
- three interest groups:
  public and governmental health agencies, machine and food manufacturers
- over 70 Sanitary Standards
- examination of designs and processes, issue of certificates

88-00

LEGAL BASIS OF HYGIENIC DESIGN

EN 1672-2:2009 “Food machinery”

Machines must be able to be cleaned, i.e. they must be designed and constructed so that dirt can be removed with the recommended cleaning methods.

Machinery directive 2006/42/EC

Machines must be designed so that
- materials can be easily and fully cleaned before each use and
- no risk of infections or illness is created.

DIN EN ISO 14519:2008-07

Hygiene requirements for the design of machines

DIN EN 1672:2009-07

Food machinery – General design principles – Part 2

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Levelling feet

Mounting example, certification

SEALS

For the standard parts which are listed in Hygienic Design, seals have the central function of protecting dead spaces, gaps and cracks from the penetration of cleaning fluids or product residues.

For this, a defined pre-tension or pressing of the seals and wipers is necessary for a reliable and permanent seal in the installed condition. Within the Hygienic Design product family, seal installation spaces and seal cross sections are calculated and designed with simulation software, so that the necessary surface compression is achieved on installation and the seal material is not subjected to excess pressure.

A fundamental differentiation can be made between static and moving seals:

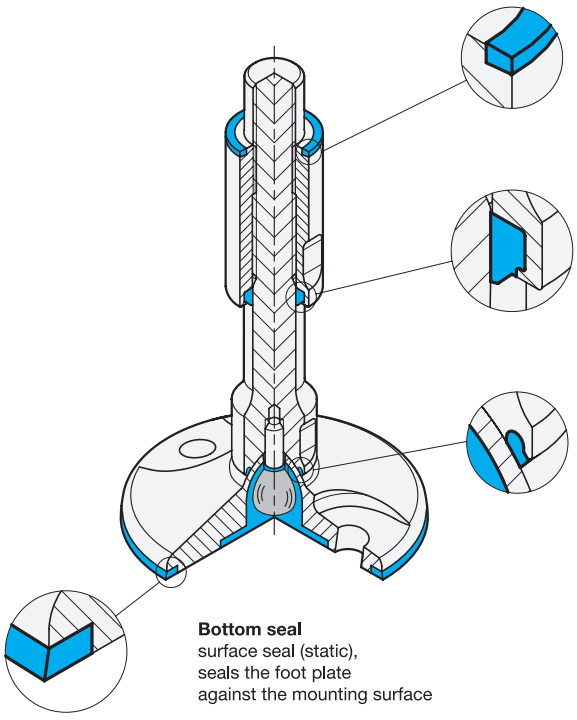
During assembly, the static seals in the design example shown below are tightened to the mounting surface at the top (sealing ring) and to the contact surface at the bottom (bottom seal). It should be ensured that all surfaces which make contact with the seal have a surface finish of al least R_a 0.8 µm.

The moving seals on the adjustable sleeve (wiper) and the ball joint (joint sealing ring) of the foot are designed so that they allow adjustment in both height and angle. With these too, the installation space together with the cross section of the seal ensures a gap-free, pre-tensioned seal.

Depending on the version and the type of use, it may be the case that seals may need to be replaced in case of damage or for preventative maintenance. For this, Elesa and Ganter supplies the relevant seals as spare parts or offers these under GN 7600 (see www.elesa-ganter.com) as standard parts.

DESIGN OF THE LEVELLING FEET GN 20

The illustrated design of the GN 20 Hygienic Design levelling feet shows how the various seal configurations are arranged.



Sealing ring
surface seal (static),
seals the adjustable sleeve
against the mounting surface

Wiper
rotatable and moveable in the axial direction,
the adjustable sleeve is sealed
against the spindle shaft

Joint sealing ring
swivelling (moveable) in two planes,
provides a seal between the ball and the spindle

Bottom seal
surface seal (static),
seals the foot plate
against the mounting surface

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Levelling feet

Hygienic Design, with and without mounting holes



SPECIFICATION

Types

- Type **A**: without mounting holes
- Type **B**: with mounting holes

Spindle, adjustable sleeve, foot plate

- Stainless Steel AISI 304
- turned

Seals, blue, FDA compliant

Sealing ring
NBR, hardness 70 ±5 Shore A

Wiper
TPU, hardness 95 ±5 Shore A

Joint sealing ring
H-NBR, hardness 85 ±5 Shore A

Bottom seal
Silicon, hardness 85 ±5 Shore A

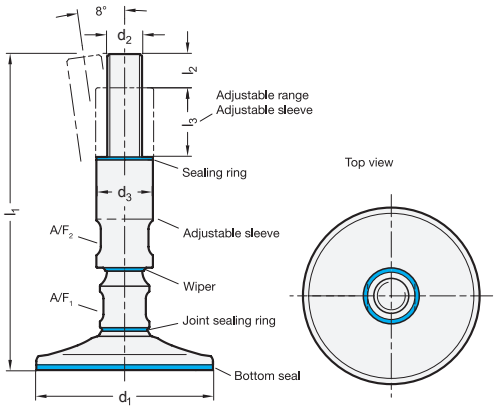
INFORMATION

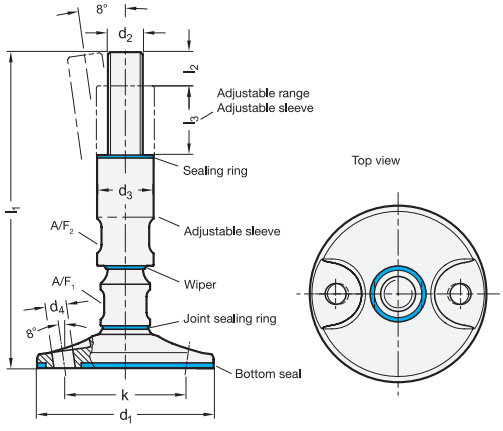
GN 20 hygienic levelling feet are certified according to 3-A Sanitary Standard, Inc. guidelines and are intended for use in hygiene areas. In addition, the version with mounting holes (type B) is certified according to EHEDG guidelines.
The bottom seal protects the area beneath the foot plate from dirt. For this, the foot must be screwed on using the mounting holes and compressed accordingly. Hygienic fastenings and the correct position of the mounting holes are essential. The sealing ring above the adjustment sleeve enables fastening without dead space. Due to the wiper or the ball seal, the moving components are sealed against the environment.
The high quality finish prevents adherence of dirt and facilitates cleaning.
The values listed in the table for static load capacity refer to a purely vertical load in relation to the leveling foot. Under normal operating conditions bending loads or angular loads are not uncommon and result in a reduction of load capacity, which must be taken into consideration.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)

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GN 20-A STAINLESS STEEL

Description	d1	d2	l1	d3	l2	l3	A/F 1	A/F 2	Static load in kN	⚖
GN 20-80-M16-175-A	80	M 16	175	28	19	35	18	22	30	904
GN 20-80-M16-225-A	80	M 16	225	28	19	35	18	22	30	983
GN 20-80-M20-185-A	80	M 20	185	32	24	35	24	27	47	1115
GN 20-80-M20-235-A	80	M 20	235	32	24	35	24	27	47	1243
GN 20-80-M24-185-A	80	M 24	185	36	29	35	24	30	67	1284
GN 20-80-M24-235-A	80	M 24	235	36	29	35	24	30	67	1458
GN 20-100-M16-175-A	100	M 16	175	28	19	35	18	22	30	1171
GN 20-100-M16-225-A	100	M 16	225	28	19	35	18	22	30	1252
GN 20-100-M20-185-A	100	M 20	185	32	24	35	24	27	47	1385
GN 20-100-M20-235-A	100	M 20	235	32	24	35	24	27	47	1513
GN 20-100-M24-185-A	100	M 24	185	36	29	35	24	30	67	1546
GN 20-100-M24-235-A	100	M 24	235	36	29	35	24	30	67	1726
GN 20-120-M16-175-A	120	M 16	175	28	19	35	18	22	30	1465
GN 20-120-M16-225-A	120	M 16	225	28	19	35	18	22	30	1549
GN 20-120-M20-185-A	120	M 20	185	32	24	35	24	27	47	1691
GN 20-120-M20-235-A	120	M 20	235	32	24	35	24	27	47	1818
GN 20-120-M24-185-A	120	M 24	185	36	29	35	24	30	67	1853
GN 20-120-M24-235-A	120	M 24	235	36	29	35	24	30	67	2031

GN 20-B STAINLESS STEEL

Description	d1	d2	l1	d3	d4	l2	l3	k	A/F 1	A/F 2	Static load in kN	⚖
GN 20-100-M16-175-B	100	M 16	175	28	12	19	35	69	18	22	30	1113
GN 20-100-M16-225-B	100	M 16	225	28	12	19	35	69	18	22	30	1193
GN 20-100-M20-185-B	100	M 20	185	32	12	24	35	69	24	27	47	1325
GN 20-100-M20-235-B	100	M 20	235	32	12	24	35	69	24	27	47	1455
GN 20-100-M24-185-B	100	M 24	185	36	12	29	35	69	24	30	67	1487
GN 20-100-M24-235-B	100	M 24	235	36	12	29	35	69	24	30	67	1668
GN 20-120-M16-175-B	120	M 16	175	28	12	19	35	89	18	22	30	1426
GN 20-120-M16-225-B	120	M 16	225	28	12	19	35	89	18	22	30	1508
GN 20-120-M20-185-B	120	M 20	185	32	12	24	35	89	24	27	47	1641
GN 20-120-M20-235-B	120	M 20	235	32	12	24	35	89	24	27	47	1765
GN 20-120-M24-185-B	120	M 24	185	36	12	29	35	89	24	30	67	1805
GN 20-120-M24-235-B	120	M 24	235	36	12	29	35	89	24	30	67	1980

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Stainless Steel-Levelling feet

with turned base plate, without mounting bore



SPECIFICATION

Types (Base plate)

- Type **D0**: fine turned, without rubber underlay
- Type **D1**: fine turned, with rubber underlay, inlaid, black

Versions of threaded stem

- Version **S**: without nut, external hexagon at the bottom
- Version **SK**: with nut, external hexagon at the bottom
- Version **T**: without nut, wrench flat at the bottom, "not dipping" version
- Version **TK**: with nut, wrench flat at the bottom, "not dipping" version
- Version **U**: without nut, hexagon socket at the top, wrench flat at the bottom
- Version **UK**: with nut, hexagon socket at the top, wrench flat at the bottom
- Version **V**: without nut, external hexagon at the top, wrench flat at the bottom
- Version **VK**: with nut, external hexagon at the top, wrench flat at the bottom
- Version **W**: with adjustable sleeve, hygienic version, wrench flat at the bottom
- Version **X**: with female thread, external hexagon

Base plate
Stainless Steel AISI 304

Threaded stem
Stainless Steel AISI 303

Hexagon nut ISO 4032
Stainless Steel AISI 304

Rubber underlay, inlaid
Perbunan® (NBR), 70 Shore A

INFORMATION

Stainless Steel-Levelling feet GN 21 will be delivered mounted and are not removable.

TECHNICAL INFORMATION

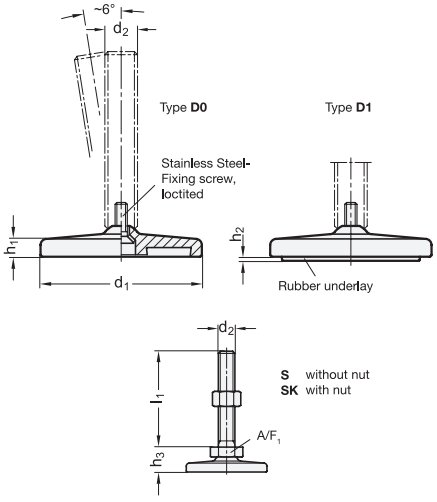
- Stainless Steel characteristics (see page A26)
- Elastomer characteristics (see page A32)

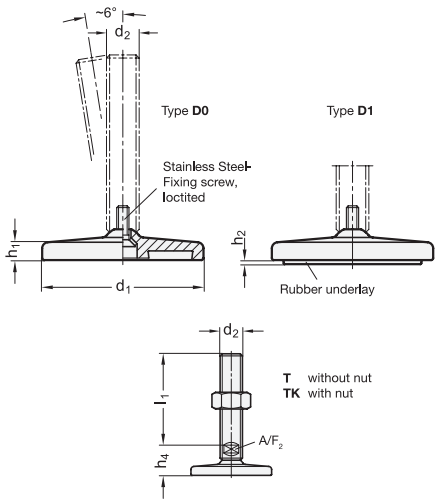
LOAD RATING OF STAINLESS STEEL-LEVELLING FEET

At a spindle thread size M 10 and higher, the static load of the Stainless Steel-Levelling feet GN 21 is limited owing to the permissible contact pressure of the adjustment spindle acting on the base plate (at a spindle strength ≥ 500 N/mm^2). The values given in the table (valid for type D0 without rubber underlay) assume a clean pressure load perpendicular to the base plate. Bending and buckling stress which often occurs in practice results in a lower load-bearing capacity of the adjustment spindle and may have to be taken into account.
The details given on strength are non-binding guide values without any liability. In general, they do not constitute a warranty or quality.
The user must determine from case to case if a product is suitable for the intended purpose or use. Environmental factors may influence the stated values.

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GN 21 | Stainless Steel-Levelling feet





*Complete with version of the Stainless Steel-Levelling feet (External hexagon at the bottom)

S without nut **SK** with nut

*Complete with version of the Stainless Steel-Levelling feet (Wrench flat at the bottom)

T without nut **TK** with nut

GN 21-S/SK

STAINLESS STEEL

Description	d1	d2	l1	h1	h2	h3	A/F 1	Static load in kN	⚖
GN 21-80-M8-40-D0-*	80	M 8	40	8.5	-	19.5	17	6	303
GN 21-80-M8-40-D1-*	80	M 8	40	8.5	2	19.5	17	6	283
GN 21-80-M8-50-D0-*	80	M 8	50	8.5	-	19.5	17	6	306
GN 21-80-M8-50-D1-*	80	M 8	50	8.5	2	19.5	17	6	331
GN 21-80-M8-63-D0-*	80	M 8	63	8.5	-	19.5	17	6	310
GN 21-80-M8-63-D1-*	80	M 8	63	8.5	2	19.5	17	6	310
GN 21-80-M10-50-D0-*	80	M 10	50	8.5	-	19.5	17	11	315
GN 21-80-M10-50-D1-*	80	M 10	50	8.5	2	19.5	17	11	340
GN 21-80-M10-60-D0-*	80	M 10	60	8.5	-	19.5	17	11	320
GN 21-80-M10-60-D1-*	80	M 10	60	8.5	2	19.5	17	11	345
GN 21-80-M10-80-D0-*	80	M 10	80	8.5	-	19.5	17	11	329
GN 21-80-M10-80-D1-*	80	M 10	80	8.5	2	19.5	17	11	354
GN 21-80-M10-100-D0-*	80	M 10	100	8.5	-	19.5	17	11	340
GN 21-80-M10-100-D1-*	80	M 10	100	8.5	2	19.5	17	11	365
GN 21-80-M12-60-D0-*	80	M 12	60	8.5	-	19.5	17	16	340
GN 21-80-M12-60-D1-*	80	M 12	60	8.5	2	19.5	17	16	360
GN 21-80-M12-80-D0-*	80	M 12	80	8.5	-	19.5	17	16	348
GN 21-80-M12-80-D1-*	80	M 12	80	8.5	2	19.5	17	16	373
GN 21-80-M12-100-D0-*	80	M 12	100	8.5	-	19.5	17	16	362
GN 21-80-M12-100-D1-*	80	M 12	100	8.5	2	19.5	17	16	387
GN 21-80-M12-125-D0-*	80	M 12	125	8.5	-	19.5	17	16	379
GN 21-80-M12-125-D1-*	80	M 12	125	8.5	2	19.5	17	16	404
GN 21-100-M8-40-D0-*	100	M 8	40	9	-	20.5	17	6	492
GN 21-100-M8-40-D1-*	100	M 8	40	9	3	20.5	17	6	500
GN 21-100-M8-50-D0-*	100	M 8	50	9	-	20.5	17	6	495
GN 21-100-M8-50-D1-*	100	M 8	50	9	3	20.5	17	6	548
GN 21-100-M8-63-D0-*	100	M 8	63	9	-	20.5	17	6	499
GN 21-100-M8-63-D1-*	100	M 8	63	9	3	20.5	17	6	552
GN 21-100-M10-50-D0-*	100	M 10	50	9	-	20.5	17	11	504
GN 21-100-M10-50-D1-*	100	M 10	50	9	3	20.5	17	11	558
GN 21-100-M10-60-D0-*	100	M 10	60	9	-	20.5	17	11	509
GN 21-100-M10-60-D1-*	100	M 10	60	9	3	20.5	17	11	562
GN 21-100-M10-80-D0-*	100	M 10	80	9	-	20.5	17	11	518
GN 21-100-M10-80-D1-*	100	M 10	80	9	3	20.5	17	11	571
GN 21-100-M10-100-D0-*	100	M 10	100	9	-	20.5	17	11	529
GN 21-100-M10-100-D1-*	100	M 10	100	9	3	20.5	17	11	583
GN 21-100-M12-60-D0-*	100	M 12	60	9	-	20.5	17	16	523
GN 21-100-M12-60-D1-*	100	M 12	60	9	3	20.5	17	16	576
GN 21-100-M12-80-D0-*	100	M 12	80	9	-	20.5	17	16	537
GN 21-100-M12-80-D1-*	100	M 12	80	9	3	20.5	17	16	590
GN 21-100-M12-100-D0-*	100	M 12	100	9	-	20.5	17	16	551
GN 21-100-M12-100-D1-*	100	M 12	100	9	3	20.5	17	16	605
GN 21-100-M12-125-D0-*	100	M 12	125	9	-	20.5	17	16	568
GN 21-100-M12-125-D1-*	100	M 12	125	9	3	20.5	17	16	622

Weight Version S

GN 21-T/TK

STAINLESS STEEL

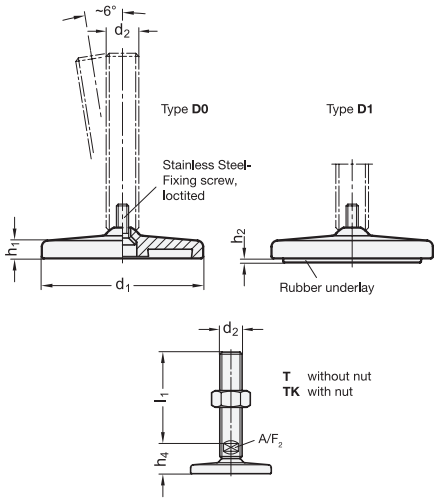
Description	d1	d2	l1	h1	h2	h4	A/F 2	Static load in kN	⚖
GN 21-80-M16-75-D0-*	80	M 16	75	8.5	-	25.5	12	17	400
GN 21-80-M16-75-D1-*	80	M 16	75	8.5	2	25.5	12	17	417
GN 21-80-M16-100-D0-*	80	M 16	100	8.5	-	25.5	12	17	425
GN 21-80-M16-100-D1-*	80	M 16	100	8.5	2	25.5	12	17	450
GN 21-80-M16-125-D0-*	80	M 16	125	8.5	-	25.5	12	17	457
GN 21-80-M16-125-D1-*	80	M 16	125	8.5	2	25.5	12	17	482
GN 21-80-M16-150-D0-*	80	M 16	150	8.5	-	25.5	12	17	489
GN 21-80-M16-150-D1-*	80	M 16	150	8.5	2	25.5	12	17	514
GN 21-80-M16-200-D0-*	80	M 16	200	8.5	-	25.5	12	17	432
GN 21-80-M16-200-D1-*	80	M 16	200	8.5	2	25.5	12	17	437
GN 21-80-M20-75-D0-*	80	M 20	75	8.5	-	27	15	28	454
GN 21-80-M20-75-D1-*	80	M 20	75	8.5	2	27	15	28	479
GN 21-80-M20-100-D0-*	80	M 20	100	8.5	-	27	15	28	513
GN 21-80-M20-100-D1-*	80	M 20	100	8.5	2	27	15	28	538
GN 21-80-M20-125-D0-*	80	M 20	125	8.5	-	27	15	28	564
GN 21-80-M20-125-D1-*	80	M 20	125	8.5	2	27	15	28	589
GN 21-80-M20-150-D0-*	80	M 20	150	8.5	-	27	15	28	614
GN 21-80-M20-150-D1-*	80	M 20	150	8.5	2	27	15	28	639
GN 21-80-M20-200-D0-*	80	M 20	200	8.5	-	27	15	28	714
GN 21-80-M20-200-D1-*	80	M 20	200	8.5	2	27	15	28	739
GN 21-80-M24-100-D0-*	80	M 24	100	8.5	-	30.5	19	46	629
GN 21-80-M24-100-D1-*	80	M 24	100	8.5	2	30.5	19	46	654
GN 21-80-M24-125-D0-*	80	M 24	125	8.5	-	30.5	19	46	709
GN 21-80-M24-125-D1-*	80	M 24	125	8.5	2	30.5	19	46	734
GN 21-80-M24-150-D0-*	80	M 24	150	8.5	-	30.5	19	46	775
GN 21-80-M24-150-D1-*	80	M 24	150	8.5	2	30.5	19	46	800
GN 21-80-M24-200-D0-*	80	M 24	200	8.5	-	30.5	19	46	821
GN 21-80-M24-200-D1-*	80	M 24	200	8.5	2	30.5	19	46	846
GN 21-100-M16-75-D0-*	100	M 16	75	9	-	26.5	12	17	581
GN 21-100-M16-75-D1-*	100	M 16	75	9	3	26.5	12	17	640
GN 21-100-M16-100-D0-*	100	M 16	100	9	-	26.5	12	17	614
GN 21-100-M16-100-D1-*	100	M 16	100	9	3	26.5	12	17	660
GN 21-100-M16-125-D0-*	100	M 16	125	9	-	26.5	12	17	646
GN 21-100-M16-125-D1-*	100	M 16	125	9	3	26.5	12	17	699
GN 21-100-M16-150-D0-*	100	M 16	150	9	-	26.5	12	17	678
GN 21-100-M16-150-D1-*	100	M 16	150	9	3	26.5	12	17	731
GN 21-100-M16-200-D0-*	100	M 16	200	9	-	26.5	12	17	1021
GN 21-100-M16-200-D1-*	100	M 16	200	9	3	26.5	12	17	780
GN 21-100-M20-75-D0-*	100	M 20	75	9	-	28	15	28	635
GN 21-100-M20-75-D1-*	100	M 20	75	9	3	28	15	28	688
GN 21-100-M20-100-D0-*	100	M 20	100	9	-	28	15	28	694
GN 21-100-M20-100-D1-*	100	M 20	100	9	3	28	15	28	747
GN 21-100-M20-125-D0-*	100	M 20	125	9	-	28	15	28	744
GN 21-100-M20-125-D1-*	100	M 20	125	9	3	28	15	28	798

Weight Version T

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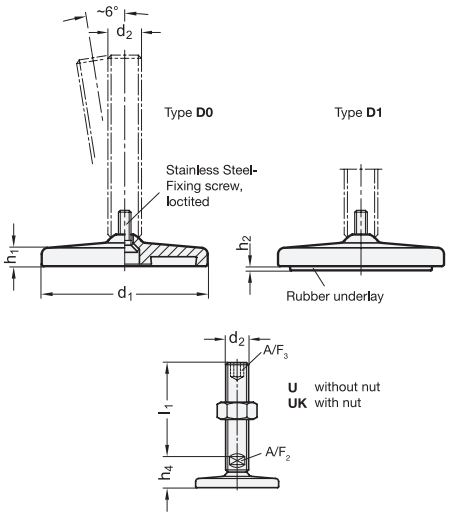
GN 21

Stainless Steel-Levelling feet



*Complete with version of the Stainless Steel-Levelling feet (Wrench flat at the bottom)

T without nut **TK** with nut



*Complete with version of the Levelling feet (Hexagon socket at the top / Wrench at the bottom)

U without nut **UK** with nut

GN 21-T/TK

STAINLESS STEEL

Description	d1	d2	l1	h1	h2	h4	A/F 2	Static load in kN	⚖
GN 21-100-M20-150-D0-*	100	M 20	150	9	-	28	15	28	795
GN 21-100-M20-150-D1-*	100	M 20	150	9	3	28	15	28	848
GN 21-100-M20-200-D0-*	100	M 20	200	9	-	28	15	28	895
GN 21-100-M20-200-D1-*	100	M 20	200	9	3	28	15	28	948
GN 21-100-M24-100-D0-*	100	M 24	100	9	-	31.5	19	46	814
GN 21-100-M24-100-D1-*	100	M 24	100	9	3	31.5	19	46	867
GN 21-100-M24-125-D0-*	100	M 24	125	9	-	31.5	19	46	894
GN 21-100-M24-125-D1-*	100	M 24	125	9	3	31.5	19	46	947
GN 21-100-M24-125-D1-*	100	M 24	125	9	3	31.5	19	46	947
GN 21-100-M24-150-D0-*	100	M 24	150	9	-	31.5	19	46	960
GN 21-100-M24-150-D1-*	100	M 24	150	9	3	31.5	19	46	1013
GN 21-100-M24-200-D0-*	100	M 24	200	9	-	31.5	19	46	1106
GN 21-100-M24-200-D1-*	100	M 24	200	9	3	31.5	19	46	1159
GN 21-120-M20-75-D0-*	120	M 20	75	12	-	32	15	28	988
GN 21-120-M20-75-D1-*	120	M 20	75	12	3.5	32	15	28	1094
GN 21-120-M20-100-D0-*	120	M 20	100	12	-	32	15	28	1050
GN 21-120-M20-100-D1-*	120	M 20	100	12	3.5	32	15	28	1100
GN 21-120-M20-125-D0-*	120	M 20	125	12	-	32	15	28	1097
GN 21-120-M20-125-D1-*	120	M 20	125	12	3.5	32	15	28	1203
GN 21-120-M20-150-D0-*	120	M 20	150	12	-	32	15	28	1148
GN 21-120-M20-150-D1-*	120	M 20	150	12	3.5	32	15	28	1254
GN 21-120-M20-200-D0-*	120	M 20	200	12	-	32	15	28	1248
GN 21-120-M20-200-D1-*	120	M 20	200	12	3.5	32	15	28	1354
GN 21-120-M24-100-D0-*	120	M 24	100	12	-	35.5	19	46	1164
GN 21-120-M24-100-D1-*	120	M 24	100	12	3.5	35.5	19	46	1360
GN 21-120-M24-125-D0-*	120	M 24	125	12	-	35.5	19	46	1244
GN 21-120-M24-125-D1-*	120	M 24	125	12	3.5	35.5	19	46	1380
GN 21-120-M24-150-D0-*	120	M 24	150	12	-	35.5	19	46	1309
GN 21-120-M24-150-D1-*	120	M 24	150	12	3.5	35.5	19	46	1415
GN 21-120-M24-200-D0-*	120	M 24	200	12	-	35.5	19	46	1455
GN 21-120-M24-200-D1-*	120	M 24	200	12	3.5	35.5	19	46	1561
GN 21-120-M30-100-D0-*	120	M 30	100	12	-	39.5	24	43	1401
GN 21-120-M30-100-D1-*	120	M 30	100	12	3.5	39.5	24	43	1507
GN 21-120-M30-125-D0-*	120	M 30	125	12	-	39.5	24	43	1497
GN 21-120-M30-125-D1-*	120	M 30	125	12	3.5	39.5	24	43	1603
GN 21-120-M30-150-D0-*	120	M 30	150	12	-	39.5	24	43	1615
GN 21-120-M30-150-D1-*	120	M 30	150	12	3.5	39.5	24	43	1721
GN 21-120-M30-200-D0-*	120	M 30	200	12	-	39.5	24	43	1852
GN 21-120-M30-200-D1-*	120	M 30	200	12	3.5	39.5	24	43	1958

Weight Version T

GN 21-U/UK

STAINLESS STEEL

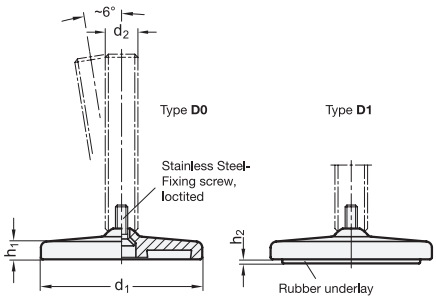
Description	d1	d2	l1	h1	h2	h4	A/F 2	A/F 3	Static load in kN	⚖
GN 21-80-M16-75-D0-*	80	M 16	75	8.5	-	25.5	12	8	17	387
GN 21-80-M16-75-D1-*	80	M 16	75	8.5	2	25.5	12	8	17	412
GN 21-80-M16-100-D0-*	80	M 16	100	8.5	-	25.5	12	8	17	419
GN 21-80-M16-100-D1-*	80	M 16	100	8.5	2	25.5	12	8	17	444
GN 21-80-M16-125-D0-*	80	M 16	125	8.5	-	25.5	12	8	17	452
GN 21-80-M16-125-D1-*	80	M 16	125	8.5	2	25.5	12	8	17	477
GN 21-80-M16-150-D0-*	80	M 16	150	8.5	-	25.5	12	8	17	484
GN 21-80-M16-150-D1-*	80	M 16	150	8.5	2	25.5	12	8	17	509
GN 21-80-M16-200-D0-*	80	M 16	200	8.5	-	25.5	12	8	17	551
GN 21-80-M16-200-D1-*	80	M 16	200	8.5	2	25.5	12	8	17	576
GN 21-80-M20-75-D0-*	80	M 20	75	8.5	-	27	15	10	28	454
GN 21-80-M20-75-D1-*	80	M 20	75	8.5	2	27	15	10	28	479
GN 21-80-M20-100-D0-*	80	M 20	100	8.5	-	27	15	10	28	460
GN 21-80-M20-100-D1-*	80	M 20	100	8.5	2	27	15	10	28	517
GN 21-80-M20-125-D0-*	80	M 20	125	8.5	-	27	15	10	28	555
GN 21-80-M20-125-D1-*	80	M 20	125	8.5	2	27	15	10	28	580
GN 21-80-M20-150-D0-*	80	M 20	150	8.5	-	27	15	10	28	560
GN 21-80-M20-150-D1-*	80	M 20	150	8.5	2	27	15	10	28	608
GN 21-80-M20-200-D0-*	80	M 20	200	8.5	-	27	15	10	28	708
GN 21-80-M20-200-D1-*	80	M 20	200	8.5	2	27	15	10	28	733
GN 21-80-M24-100-D0-*	80	M 24	100	8.5	-	30.5	19	12	46	692
GN 21-80-M24-100-D1-*	80	M 24	100	8.5	2	30.5	19	12	46	717
GN 21-80-M24-125-D0-*	80	M 24	125	8.5	-	30.5	19	12	46	700
GN 21-80-M24-125-D1-*	80	M 24	125	8.5	2	30.5	19	12	46	760
GN 21-80-M24-150-D0-*	80	M 24	150	8.5	-	30.5	19	12	46	765
GN 21-80-M24-150-D1-*	80	M 24	150	8.5	2	30.5	19	12	46	790
GN 21-80-M24-200-D0-*	80	M 24	200	8.5	-	30.5	19	12	46	901
GN 21-80-M24-200-D1-*	80	M 24	200	8.5	2	30.5	19	12	46	926
GN 21-100-M16-75-D0-*	100	M 16	75	9	-	26.5	12	8	17	576
GN 21-100-M16-75-D1-*	100	M 16	75	9	3	26.5	12	8	17	629
GN 21-100-M16-100-D0-*	100	M 16	100	9	-	26.5	12	8	17	610
GN 21-100-M16-100-D1-*	100	M 16	100	9	3	26.5	12	8	17	660
GN 21-100-M16-125-D0-*	100	M 16	125	9	-	26.5	12	8	17	641
GN 21-100-M16-125-D1-*	100	M 16	125	9	3	26.5	12	8	17	694
GN 21-100-M16-150-D0-*	100	M 16	150	9	-	26.5	12	8	17	673
GN 21-100-M16-150-D1-*	100	M 16	150	9	3	26.5	12	8	17	726
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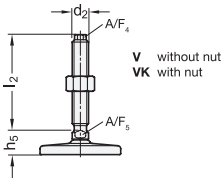
Weight Version U

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GN 21

Stainless Steel-Levelling feet





* Complete with version of the Levelling feet (Hexagon socket at the top / Wrench at the bottom)

U without nut — **UK** with nut

GN 21-U/UK

STAINLESS STEEL

Description	d1	d2	l1	h1	h2	h4	A/F 2	A/F 3	Static load in kN	⚖
GN 21-100-M20-75-D0-*	100	M 20	75	9	-	28	15	10	28	635
GN 21-100-M20-75-D1-*	100	M 20	75	9	3	28	15	10	28	688
GN 21-100-M20-100-D0-*	100	M 20	100	9	-	28	15	10	28	665
GN 21-100-M20-100-D1-*	100	M 20	100	9	3	28	15	10	28	710
GN 21-100-M20-125-D0-*	100	M 20	125	9	-	28	15	10	28	736
GN 21-100-M20-125-D1-*	100	M 20	125	9	3	28	15	10	28	789
GN 21-100-M20-150-D0-*	100	M 20	150	9	-	28	15	10	28	764
GN 21-100-M20-150-D1-*	100	M 20	150	9	3	28	15	10	28	817
GN 21-100-M20-200-D0-*	100	M 20	200	9	-	28	15	10	28	889
GN 21-100-M20-200-D1-*	100	M 20	200	9	3	28	15	10	28	942
GN 21-100-M24-100-D0-*	100	M 24	100	9	-	31.5	19	12	46	877
GN 21-100-M24-100-D1-*	100	M 24	100	9	3	31.5	19	12	46	930
GN 21-100-M24-125-D0-*	100	M 24	125	9	-	31.5	19	12	46	869
GN 21-100-M24-125-D1-*	100	M 24	125	9	3	31.5	19	12	46	950
GN 21-100-M24-150-D0-*	100	M 24	150	9	-	31.5	19	12	46	950
GN 21-100-M24-150-D1-*	100	M 24	150	9	3	31.5	19	12	46	1003
GN 21-100-M24-200-D0-*	100	M 24	200	9	-	31.5	19	12	46	1086
GN 21-100-M24-200-D1-*	100	M 24	200	9	3	31.5	19	12	46	1139
GN 21-120-M20-75-D0-*	120	M 20	75	12	-	32	15	10	28	988
GN 21-120-M20-75-D1-*	120	M 20	75	12	3.5	32	15	10	28	1094
GN 21-120-M20-100-D0-*	120	M 20	100	12	-	32	15	10	28	1226
GN 21-120-M20-100-D1-*	120	M 20	100	12	3.5	32	15	10	28	1332
GN 21-120-M20-125-D0-*	120	M 20	125	12	-	32	15	10	28	1089
GN 21-120-M20-125-D1-*	120	M 20	125	12	3.5	32	15	10	28	1195
GN 21-120-M20-150-D0-*	120	M 20	150	12	-	32	15	10	28	1117
GN 21-120-M20-150-D1-*	120	M 20	150	12	3.5	32	15	10	28	1223
GN 21-120-M20-200-D0-*	120	M 20	200	12	-	32	15	10	28	1242
GN 21-120-M20-200-D1-*	120	M 20	200	12	3.5	32	15	10	28	1348
GN 21-120-M24-100-D0-*	120	M 24	100	12	-	35.5	19	12	46	1227
GN 21-120-M24-100-D1-*	120	M 24	100	12	3.5	35.5	19	12	46	1333
GN 21-120-M24-125-D0-*	120	M 24	125	12	-	35.5	19	12	46	1219
GN 21-120-M24-125-D1-*	120	M 24	125	12	3.5	35.5	19	12	46	1325
GN 21-120-M24-150-D0-*	120	M 24	150	12	-	35.5	19	12	46	1300
GN 21-120-M24-150-D1-*	120	M 24	150	12	3.5	35.5	19	12	46	1406
GN 21-120-M24-200-D0-*	120	M 24	200	12	-	35.5	19	12	46	1436
GN 21-120-M24-200-D1-*	120	M 24	200	12	3.5	35.5	19	12	46	1542
GN 21-120-M30-100-D0-*	120	M 30	100	12	-	39.5	24	12	43	1352
GN 21-120-M30-100-D1-*	120	M 30	100	12	3.5	39.5	24	12	43	1458
GN 21-120-M30-125-D0-*	120	M 30	125	12	-	39.5	24	12	43	1468
GN 21-120-M30-125-D1-*	120	M 30	125	12	3.5	39.5	24	12	43	1574
GN 21-120-M30-150-D0-*	120	M 30	150	12	-	39.5	24	12	43	1582
GN 21-120-M30-150-D1-*	120	M 30	150	12	3.5	39.5	24	12	43	1688
GN 21-120-M30-200-D0-*	120	M 30	200	12	-	39.5	24	12	43	1810
GN 21-120-M30-200-D1-*	120	M 30	200	12	3.5	39.5	24	12	43	1916

Weight Version U

* Complete with version of the Levelling feet (External hexagon socket on the top / Wrench flat at the bottom)

V without nut — **VK** with nut

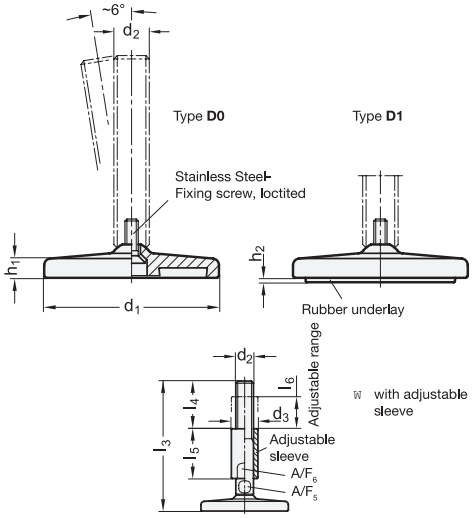
GN 21-V/VK

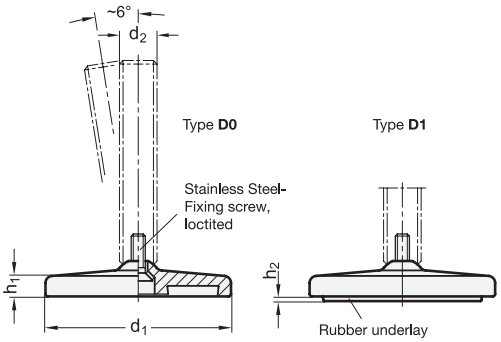
STAINLESS STEEL

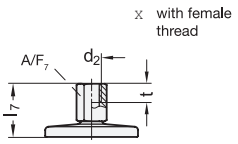
Description	d1	d2	l2	h1	h2	h5	A/F 4	A/F 5	Static load in kN	⚖
GN 21-80-M16-75-D0-*	80	M 16	75	8.5	-	21.5	10	12	21	387
GN 21-80-M16-75-D1-*	80	M 16	75	8.5	2	21.5	10	12	21	412
GN 21-80-M16-100-D0-*	80	M 16	100	8.5	-	21.5	10	12	21	417
GN 21-80-M16-100-D1-*	80	M 16	100	8.5	2	21.5	10	12	21	442
GN 21-80-M16-125-D0-*	80	M 16	125	8.5	-	21.5	10	12	21	449
GN 21-80-M16-125-D1-*	80	M 16	125	8.5	2	21.5	10	12	21	474
GN 21-80-M16-150-D0-*	80	M 16	150	8.5	-	21.5	10	12	21	482
GN 21-80-M16-150-D1-*	80	M 16	150	8.5	2	21.5	10	12	21	507
GN 21-80-M20-100-D0-*	80	M 20	100	8.5	-	23	13	16	35	510
GN 21-80-M20-100-D1-*	80	M 20	100	8.5	2	23	13	16	35	530
GN 21-80-M20-125-D0-*	80	M 20	125	8.5	-	23	13	16	35	555
GN 21-80-M20-125-D1-*	80	M 20	125	8.5	2	23	13	16	35	580
GN 21-80-M20-150-D0-*	80	M 20	150	8.5	-	23	13	16	35	607
GN 21-80-M20-150-D1-*	80	M 20	150	8.5	2	23	13	16	35	632
GN 21-80-M20-200-D0-*	80	M 20	200	8.5	-	23	13	16	35	640
GN 21-80-M20-200-D1-*	80	M 20	200	8.5	2	23	13	16	35	670
GN 21-80-M24-100-D0-*	80	M 24	100	8.5	-	26	17	20	52	680
GN 21-80-M24-100-D1-*	80	M 24	100	8.5	2	26	17	20	52	700
GN 21-80-M24-150-D0-*	80	M 24	150	8.5	-	26	17	20	52	763
GN 21-80-M24-150-D1-*	80	M 24	150	8.5	2	26	17	20	52	788
GN 21-80-M24-200-D0-*	80	M 24	200	8.5	-	26	17	20	52	909
GN 21-80-M24-200-D1-*	80	M 24	200	8.5	2	26	17	20	52	934
GN 21-100-M16-75-D0-*	100	M 16	75	9	-	22.5	10	12	21	576
GN 21-100-M16-75-D1-*	100	M 16	75	9	3	22.5	10	12	21	622
GN 21-100-M16-100-D0-*	100	M 16	100	9	-	22.5	10	12	21	606
GN 21-100-M16-100-D1-*	100	M 16	100	9	3	22.5	10	12	21	659
GN 21-100-M16-125-D0-*	100	M 16	125	9	-	22.5	10	12	21	638
GN 21-100-M16-125-D1-*	100	M 16	125	9	3	22.5	10	12	21	691
GN 21-100-M16-150-D0-*	100	M 16	150	9	-	22.5	10	12	21	671
GN 21-100-M16-150-D1-*	100	M 16	150	9	3	22.5	10	12	21	724
GN 21-100-M20-100-D0-*	100	M 20	100	9	-	24	13	16	35	685
GN 21-100-M20-100-D1-*	100	M 20	100	9	3	24	13	16	35	738
GN 21-100-M20-125-D0-*	100	M 20	125	9	-	24	13	16	35	736
GN 21-100-M20-125-D1-*	100	M 20	125	9	3	24	13	16	35	789
GN 21-100-M20-150-D0-*	100	M 20	150	9	-	24	13	16	35	788
GN 21-100-M20-150-D1-*	100	M 20	150	9	3	24	13	16	35	841
GN 21-100-M20-200-D0-*	100	M 20	200	9	-	24	13	16	35	893
GN 21-100-M20-200-D1-*	100	M 20	200	9	3	24	13	16	35	946
GN 21-100-M24-100-D0-*	100	M 24	100	9	-	27	17	20	52	800
GN 21-100-M24-100-D1-*	100	M 24	100	9	3	27	17	20	52	853
GN 21-100-M24-150-D0-*	100	M 24	150	9	-	27	17	20	52	948
GN 21-100-M24-150-D1-*	100	M 24	150	9	3	27	17	20	52	1001
GN 21-100-M24-200-D0-*	100	M 24	200	9	-	27	17	20	52	1094
GN 21-100-M24-200-D1-*	100	M 24	200	9	3	27	17	20	52	1147

Weight Version V

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GN 21-W

STAINLESS STEEL

Description	d1	d2	d3	l3 ≈	h1	h2	l4	l5	l6	A/F 5	A/F 6	Static load in kN	⚖
GN 21-80-M16-118-D0-W	80	M 16	24	118	8.5	-	45	45	29	12	20	25	520
GN 21-80-M16-118-D1-W	80	M 16	24	118	8.5	2	45	45	29	12	20	25	540
GN 21-80-M16-143-D0-W	80	M 16	24	143	8.5	-	45	45	29	12	20	25	600
GN 21-80-M16-143-D1-W	80	M 16	24	143	8.5	2	45	45	29	12	20	25	620
GN 21-80-M16-168-D0-W	80	M 16	24	168	8.5	-	45	45	29	12	20	25	589
GN 21-80-M16-168-D1-W	80	M 16	24	168	8.5	2	45	45	29	12	20	25	614
GN 21-80-M16-193-D0-W	80	M 16	24	193	8.5	-	45	45	29	12	20	25	628
GN 21-80-M16-193-D1-W	80	M 16	24	193	8.5	2	45	45	29	12	20	25	653
GN 21-80-M20-143-D0-W	80	M 20	30	143	8.5	-	56	56	36	16	24	35	734
GN 21-80-M20-143-D1-W	80	M 20	30	143	8.5	2	56	56	36	16	24	35	759
GN 21-80-M20-168-D0-W	80	M 20	30	168	8.5	-	56	56	36	16	24	35	800
GN 21-80-M20-168-D1-W	80	M 20	30	168	8.5	2	56	56	36	16	24	35	823
GN 21-80-M20-193-D0-W	80	M 20	30	193	8.5	-	56	56	36	16	24	35	860
GN 21-80-M20-193-D1-W	80	M 20	30	193	8.5	2	56	56	36	16	24	35	885
GN 21-80-M20-243-D0-W	80	M 20	30	243	8.5	-	56	56	36	16	24	35	984
GN 21-80-M20-243-D1-W	80	M 20	30	243	8.5	2	56	56	36	16	24	35	1009
GN 21-80-M24-168-D0-W	80	M 24	35	168	8.5	-	67	67	42	20	30	52	1044
GN 21-80-M24-168-D1-W	80	M 24	35	168	8.5	2	67	67	42	20	30	52	1069
GN 21-80-M24-218-D0-W	80	M 24	35	218	8.5	-	67	67	42	20	30	52	1200
GN 21-80-M24-218-D1-W	80	M 24	35	218	8.5	2	67	67	42	20	30	52	1247
GN 21-80-M24-268-D0-W	80	M 24	35	268	8.5	-	67	67	42	20	30	52	1401
GN 21-80-M24-268-D1-W	80	M 24	35	268	8.5	2	67	67	42	20	30	52	1426
GN 21-100-M16-119-D0-W	100	M 16	24	119	9	-	45	45	32	12	20	25	699
GN 21-100-M16-119-D1-W	100	M 16	24	119	9	3	45	45	32	12	20	25	753
GN 21-100-M16-144-D0-W	100	M 16	24	144	9	-	45	45	32	12	20	25	800
GN 21-100-M16-144-D1-W	100	M 16	24	144	9	3	45	45	32	12	20	25	820
GN 21-100-M16-169-D0-W	100	M 16	24	169	9	-	45	45	32	12	20	25	777
GN 21-100-M16-169-D1-W	100	M 16	24	169	9	3	45	45	32	12	20	25	831
GN 21-100-M16-194-D0-W	100	M 16	24	194	9	-	45	45	32	12	20	25	817
GN 21-100-M16-194-D1-W	100	M 16	24	194	9	3	45	45	32	12	20	25	840
GN 21-100-M20-144-D0-W	100	M 20	30	144	9	-	56	56	40	16	24	35	915
GN 21-100-M20-144-D1-W	100	M 20	30	144	9	3	56	56	40	16	24	35	948
GN 21-100-M20-169-D0-W	100	M 20	30	169	9	-	56	56	40	16	24	35	1000
GN 21-100-M20-169-D1-W	100	M 20	30	169	9	3	56	56	40	16	24	35	1032
GN 21-100-M20-194-D0-W	100	M 20	30	194	9	-	56	56	40	16	24	35	1041
GN 21-100-M20-194-D1-W	100	M 20	30	194	9	3	56	56	40	16	24	35	1094
GN 21-100-M20-244-D0-W	100	M 20	30	244	9	-	56	56	40	16	24	35	1165
GN 21-100-M20-244-D1-W	100	M 20	30	244	9	3	56	56	40	16	24	35	1218
GN 21-100-M24-169-D0-W	100	M 24	35	169	9	-	67	67	48	20	30	52	1200
GN 21-100-M24-169-D1-W	100	M 24	35	169	9	3	67	67	48	20	30	52	1282
GN 21-100-M24-219-D0-W	100	M 24	35	219	9	-	67	67	48	20	30	52	1407
GN 21-100-M24-219-D1-W	100	M 24	35	219	9	3	67	67	48	20	30	52	1460
GN 21-100-M24-269-D0-W	100	M 24	35	269	9	-	67	67	48	20	30	52	1580
GN 21-100-M24-269-D1-W	100	M 24	35	269	9	3	67	67	48	20	30	52	1639

GN 21-X

STAINLESS STEEL

Description	d1	d2	l7	h1	h2	A/F 7	t	Static load in kN	⚖
GN 21-80-M8-34-D0-X	80	M 8	34	8.5	-	14	8	17	324
GN 21-80-M8-34-D1-X	80	M 8	34	8.5	2	14	8	17	349
GN 21-80-M10-37-D0-X	80	M 10	37	8.5	-	14	10	17	320
GN 21-80-M10-37-D1-X	80	M 10	37	8.5	2	14	10	17	349
GN 21-80-M12-40-D0-X	80	M 12	40	8.5	-	17	12	17	300
GN 21-80-M12-40-D1-X	80	M 12	40	8.5	2	17	12	17	340
GN 21-80-M16-46-D0-X	80	M 16	46	8.5	-	22	16	17	313
GN 21-80-M16-46-D1-X	80	M 16	46	8.5	2	22	16	17	380
GN 21-80-M20-54-D0-X	80	M 20	54	8.5	-	27	20	28	425
GN 21-80-M20-54-D1-X	80	M 20	54	8.5	2	27	20	28	450
GN 21-100-M8-35-D0-X	100	M 8	35	9	-	14	8	17	493
GN 21-100-M8-35-D1-X	100	M 8	35	9	3	14	8	17	500
GN 21-100-M10-38-D0-X	100	M 10	38	9	-	14	10	17	493
GN 21-100-M10-38-D1-X	100	M 10	38	9	3	14	10	17	546
GN 21-100-M12-41-D0-X	100	M 12	41	9	-	17	12	17	500
GN 21-100-M12-41-D1-X	100	M 12	41	9	3	17	12	17	562
GN 21-100-M16-47-D0-X	100	M 16	47	9	-	22	16	17	500
GN 21-100-M16-47-D1-X	100	M 16	47	9	3	22	16	17	560
GN 21-100-M20-55-D0-X	100	M 20	55	9	-	27	20	28	606
GN 21-100-M20-55-D1-X	100	M 20	55	9	3	27	20	28	660
GN 21-120-M20-59-D0-X	120	M 20	59	12	-	27	20	28	961
GN 21-120-M20-59-D1-X	120	M 20	59	12	3.5	27	20	28	1067

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Stainless Steel-Levelling feet

with turned base plated, with mounting holes

SPECIFICATION

Types (Base plate)

- Type **D0**: fine turned, without rubber underlay
- Type **D1**: fine turned, with rubber underlay, inlaid, black

Version of threaded stem

- Version **S**: without nut, external hexagon at the bottom
- Version **SK**: with nut, external hexagon at the bottom
- Version **T**: without nut, wrench flat at the bottom, "not dipping" version
- Version **TK**: with nut, wrench flat at the bottom, "not dipping" version
- Version **U**: without nut, hexagon socket at the top, wrench flat at the bottom
- Version **UK**: with nut, hexagon socket at the top, wrench flat at the bottom
- Version **V**: without nut, external hexagon at the top, wrench flat at the bottom
- Version **VK**: with nut, external hexagon at the top, wrench flat at the bottom
- Version **W**: with adjustable sleeve, Hygienic Version, wrench flat at the bottom
- Version **X**: with female thread, external hexagon

Base plate
Stainless Steel AISI 304

Threaded stem
Stainless Steel AISI 303

Hexagon nut ISO 4032
Stainless Steel AISI 304

Rubber underlay, inlaid
Perbunan® (NBR), 70 Shore A

INFORMATION

Stainless Steel-Levelling feet GN 23 will be delivered mounted and are not removable.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)
- Elastomer characteristics (see page A32)



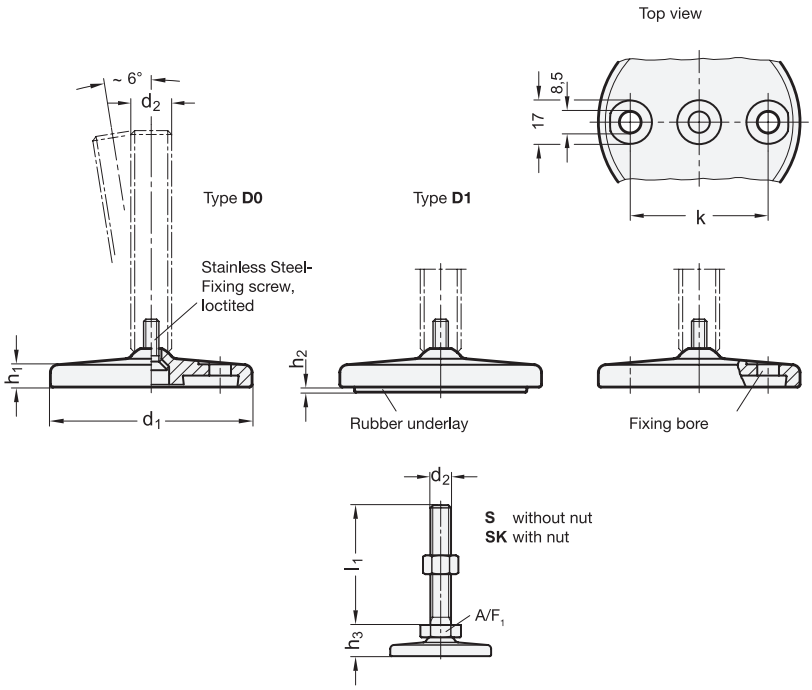
LOAD RATING OF STAINLESS STEEL-LEVELLING FEET

At a spindle thread size M 10 and higher, the static load of the Stainless Steel-Levelling feet GN 23 is limited owing to the permissible contact pressure of the adjustment spindle acting on the base plate (at a spindle strength ≥ 500 N/mm^2). The values given in the table (valid for type D0 without rubber underlay) assume a clean pressure load perpendicular to the base plate. Bending and buckling stress which often occurs in practice results in a lower load-bearing capacity of the adjustment spindle and may have to be taken into account.
The details given on strength are non-binding guide values without any liability. In general, they do not constitute a warranty of quality.
The user must determine from case to case if a product is suitable for the intended purpose or use. Environmental factors may influence the stated values.

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GN 23

Stainless Steel-Levelling feet



*Complete with version of the Stainless Steel-Levelling feet (External hexagon at the bottom)

S without nut **SK** with nut

GN 23-S/SK **STAINLESS STEEL**

Description	d1	d2	l1	k	h1	h2	h3	A/F 1	Static load in kN	⚖
GN 23-80-M8-40-D0-*	80	M 8	40	54.5	8.5	-	19.5	17	6	250
GN 23-80-M8-40-D1-*	80	M 8	40	54.5	8.5	2	19.5	17	6	282
GN 23-80-M8-50-D0-*	80	M 8	50	54.5	8.5	-	19.5	17	6	306
GN 23-80-M8-50-D1-*	80	M 8	50	54.5	8.5	2	19.5	17	6	331
GN 23-80-M8-63-D0-*	80	M 8	63	54.5	8.5	-	19.5	17	6	368
GN 23-80-M8-63-D1-*	80	M 8	63	54.5	8.5	2	19.5	17	6	335
GN 23-80-M10-50-D0-*	80	M 10	50	54.5	8.5	-	19.5	17	11	320
GN 23-80-M10-50-D1-*	80	M 10	50	54.5	8.5	2	19.5	17	11	540
GN 23-80-M10-60-D0-*	80	M 10	60	54.5	8.5	-	19.5	17	11	367
GN 23-80-M10-60-D1-*	80	M 10	60	54.5	8.5	2	19.5	17	11	386
GN 23-80-M10-80-D0-*	80	M 10	80	54.5	8.5	-	19.5	17	11	376
GN 23-80-M10-80-D1-*	80	M 10	80	54.5	8.5	2	19.5	17	11	390
GN 23-80-M10-100-D0-*	80	M 10	100	54.5	8.5	-	19.5	17	11	387
GN 23-80-M10-100-D1-*	80	M 10	100	54.5	8.5	2	19.5	17	11	392
GN 23-80-M12-60-D0-*	80	M 12	60	54.5	8.5	-	19.5	17	16	340
GN 23-80-M12-60-D1-*	80	M 12	60	54.5	8.5	2	19.5	17	16	360
GN 23-80-M12-80-D0-*	80	M 12	80	54.5	8.5	-	19.5	17	16	360
GN 23-80-M12-80-D1-*	80	M 12	80	54.5	8.5	2	19.5	17	16	380
GN 23-80-M12-100-D0-*	80	M 12	100	54.5	8.5	-	19.5	17	16	382
GN 23-80-M12-100-D1-*	80	M 12	100	54.5	8.5	2	19.5	17	16	400
GN 23-80-M12-125-D0-*	80	M 12	125	54.5	8.5	-	19.5	17	16	352
GN 23-80-M12-125-D1-*	80	M 12	125	54.5	8.5	2	19.5	17	16	420

GN 23-S/SK **STAINLESS STEEL**

Description	d1	d2	l1	k	h1	h2	h3	A/F 1	Static load in kN	⚖
GN 23-100-M8-40-D0-*	100	M 8	40	70.5	9	-	20.5	17	6	483
GN 23-100-M8-40-D1-*	100	M 8	40	70.5	9	3	20.5	17	6	536
GN 23-100-M8-50-D0-*	100	M 8	50	70.5	9	-	20.5	17	6	486
GN 23-100-M8-50-D1-*	100	M 8	50	70.5	9	3	20.5	17	6	539
GN 23-100-M8-63-D0-*	100	M 8	63	70.5	9	-	20.5	17	6	490
GN 23-100-M8-63-D1-*	100	M 8	63	70.5	9	3	20.5	17	6	543
GN 23-100-M10-50-D0-*	100	M 10	50	70.5	9	-	20.5	17	11	495
GN 23-100-M10-50-D1-*	100	M 10	50	70.5	9	3	20.5	17	11	549
GN 23-100-M10-60-D0-*	100	M 10	60	70.5	9	-	20.5	17	11	500
GN 23-100-M10-60-D1-*	100	M 10	60	70.5	9	3	20.5	17	11	553
GN 23-100-M10-80-D0-*	100	M 10	80	70.5	9	-	20.5	17	11	509
GN 23-100-M10-80-D1-*	100	M 10	80	70.5	9	3	20.5	17	11	562
GN 23-100-M10-100-D0-*	100	M 10	100	70.5	9	-	20.5	17	11	520
GN 23-100-M10-100-D1-*	100	M 10	100	70.5	9	3	20.5	17	11	574
GN 23-100-M12-60-D0-*	100	M 12	60	70.5	9	-	20.5	17	16	514
GN 23-100-M12-60-D1-*	100	M 12	60	70.5	9	3	20.5	17	16	567
GN 23-100-M12-80-D0-*	100	M 12	80	70.5	9	-	20.5	17	16	528
GN 23-100-M12-80-D1-*	100	M 12	80	70.5	9	3	20.5	17	16	581
GN 23-100-M12-100-D0-*	100	M 12	100	70.5	9	-	20.5	17	16	542
GN 23-100-M12-100-D1-*	100	M 12	100	70.5	9	3	20.5	17	16	596
GN 23-100-M12-125-D0-*	100	M 12	125	70.5	9	-	20.5	17	16	559
GN 23-100-M12-125-D1-*	100	M 12	125	70.5	9	3	20.5	17	16	613

Weight Version S

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GN 23

Stainless Steel-Levelling feet

*Complete with version of the Stainless Steel-Levelling feet (Wrench flat at the bottom)

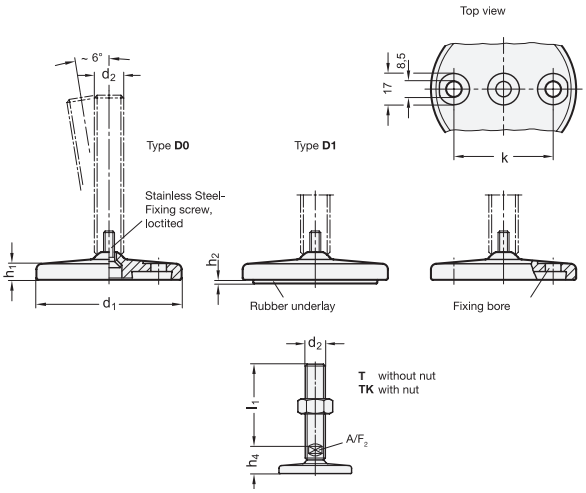
T without nut

TK with nut

GN 23-T/TK

STAINLESS STEEL

Description	d1	d2	l1	k	h1	h2	h4	A/F 2	Static load in kN	⚖
GN 23-80-M16-75-D0-*	80	M 16	75	54.5	8.5	-	25.5	12	17	114
GN 23-80-M16-75-D1-*	80	M 16	75	54.5	8.5	2	25.5	12	17	164
GN 23-80-M16-100-D0-*	80	M 16	100	54.5	8.5	-	25.5	12	17	172
GN 23-80-M16-100-D1-*	80	M 16	100	54.5	8.5	2	25.5	12	17	197
GN 23-80-M16-125-D0-*	80	M 16	125	54.5	8.5	-	25.5	12	17	460
GN 23-80-M16-125-D1-*	80	M 16	125	54.5	8.5	2	25.5	12	17	480
GN 23-80-M16-150-D0-*	80	M 16	150	54.5	8.5	-	25.5	12	17	495
GN 23-80-M16-150-D1-*	80	M 16	150	54.5	8.5	2	25.5	12	17	520
GN 23-80-M16-200-D0-*	80	M 16	200	54.5	8.5	-	25.5	12	17	580
GN 23-80-M16-200-D1-*	80	M 16	200	54.5	8.5	2	25.5	12	17	605
GN 23-80-M20-75-D0-*	80	M 20	75	54.5	8.5	-	27	15	28	448
GN 23-80-M20-75-D1-*	80	M 20	75	54.5	8.5	2	27	15	28	473
GN 23-80-M20-100-D0-*	80	M 20	100	54.5	8.5	-	27	15	28	507
GN 23-80-M20-100-D1-*	80	M 20	100	54.5	8.5	2	27	15	28	532
GN 23-80-M20-125-D0-*	80	M 20	125	54.5	8.5	-	27	15	28	558
GN 23-80-M20-125-D1-*	80	M 20	125	54.5	8.5	2	27	15	28	583
GN 23-80-M20-150-D0-*	80	M 20	150	54.5	8.5	-	27	15	28	608
GN 23-80-M20-150-D1-*	80	M 20	150	54.5	8.5	2	27	15	28	630
GN 23-80-M20-200-D0-*	80	M 20	200	54.5	8.5	-	27	15	28	708
GN 23-80-M20-200-D1-*	80	M 20	200	54.5	8.5	2	27	15	28	733
GN 23-80-M24-100-D0-*	80	M 24	100	54.5	8.5	-	30.5	19	46	607
GN 23-80-M24-100-D1-*	80	M 24	100	54.5	8.5	2	30.5	19	46	632
GN 23-80-M24-125-D0-*	80	M 24	125	54.5	8.5	-	30.5	19	46	687
GN 23-80-M24-125-D1-*	80	M 24	125	54.5	8.5	2	30.5	19	46	712
GN 23-80-M24-150-D0-*	80	M 24	150	54.5	8.5	-	30.5	19	46	753
GN 23-80-M24-150-D1-*	80	M 24	150	54.5	8.5	2	30.5	19	46	778
GN 23-80-M24-200-D0-*	80	M 24	200	54.5	8.5	-	30.5	19	46	899
GN 23-80-M24-200-D1-*	80	M 24	200	54.5	8.5	2	30.5	19	46	924
GN 23-100-M16-75-D0-*	100	M 16	75	70.5	9	-	26.5	12	17	572
GN 23-100-M16-75-D1-*	100	M 16	75	70.5	9	3	26.5	12	17	625
GN 23-100-M16-100-D0-*	100	M 16	100	70.5	9	-	26.5	12	17	605
GN 23-100-M16-100-D1-*	100	M 16	100	70.5	9	3	26.5	12	17	658
GN 23-100-M16-125-D0-*	100	M 16	125	70.5	9	-	26.5	12	17	637
GN 23-100-M16-125-D1-*	100	M 16	125	70.5	9	3	26.5	12	17	680
GN 23-100-M16-150-D0-*	100	M 16	150	70.5	9	-	26.5	12	17	669
GN 23-100-M16-150-D1-*	100	M 16	150	70.5	9	3	26.5	12	17	722
GN 23-100-M16-200-D0-*	100	M 16	200	70.5	9	-	26.5	12	17	740
GN 23-100-M16-200-D1-*	100	M 16	200	70.5	9	3	26.5	12	17	750
GN 23-100-M20-75-D0-*	100	M 20	75	70.5	9	-	28	15	28	653
GN 23-100-M20-75-D1-*	100	M 20	75	70.5	9	3	28	15	28	706
GN 23-100-M20-100-D0-*	100	M 20	100	70.5	9	-	28	15	28	712
GN 23-100-M20-100-D1-*	100	M 20	100	70.5	9	3	28	15	28	765
GN 23-100-M20-125-D0-*	100	M 20	125	70.5	9	-	28	15	28	780
GN 23-100-M20-125-D1-*	100	M 20	125	70.5	9	3	28	15	28	816
GN 23-100-M20-150-D0-*	100	M 20	150	70.5	9	-	28	15	28	800
GN 23-100-M20-150-D1-*	100	M 20	150	70.5	9	3	28	15	28	866
GN 23-100-M20-200-D0-*	100	M 20	200	70.5	9	-	28	15	28	913
GN 23-100-M20-200-D1-*	100	M 20	200	70.5	9	3	28	15	28	966
GN 23-100-M24-100-D0-*	100	M 24	100	70.5	9	-	31.5	19	46	800
GN 23-100-M24-100-D1-*	100	M 24	100	70.5	9	3	31.5	19	46	853
GN 23-100-M24-125-D0-*	100	M 24	125	70.5	9	-	31.5	19	46	880
GN 23-100-M24-125-D1-*	100	M 24	125	70.5	9	3	31.5	19	46	933



GN 23-T/TK

STAINLESS STEEL

Description	d1	d2	l1	k	h1	h2	h4	A/F 2	Static load in kN	⚖
GN 23-100-M24-150-D0-*	100	M 24	150	70.5	9	-	31.5	19	46	946
GN 23-100-M24-150-D1-*	100	M 24	150	70.5	9	3	31.5	19	46	999
GN 23-100-M24-200-D0-*	100	M 24	200	70.5	9	-	31.5	19	46	1092
GN 23-100-M24-200-D1-*	100	M 24	200	70.5	9	3	31.5	19	46	1145
GN 23-120-M20-75-D0-*	120	M 20	75	95.5	12	-	32	15	28	1008
GN 23-120-M20-75-D1-*	120	M 20	75	95.5	12	3.5	32	15	28	1114
GN 23-120-M20-100-D0-*	120	M 20	100	95.5	12	-	32	15	28	1067
GN 23-120-M20-100-D1-*	120	M 20	100	95.5	12	3.5	32	15	28	1173
GN 23-120-M20-125-D0-*	120	M 20	125	95.5	12	-	32	15	28	1117
GN 23-120-M20-125-D1-*	120	M 20	125	95.5	12	3.5	32	15	28	1223
GN 23-120-M20-150-D0-*	120	M 20	150	95.5	12	-	32	15	28	1168
GN 23-120-M20-150-D1-*	120	M 20	150	95.5	12	3.5	32	15	28	1274
GN 23-120-M20-200-D0-*	120	M 20	200	95.5	12	-	32	15	28	1268
GN 23-120-M20-200-D1-*	120	M 20	200	95.5	12	3.5	32	15	28	1374
GN 23-120-M24-100-D0-*	120	M 24	100	95.5	12	-	35.5	19	46	1164
GN 23-120-M24-100-D1-*	120	M 24	100	95.5	12	3.5	35.5	19	46	1270
GN 23-120-M24-125-D0-*	120	M 24	125	95.5	12	-	35.5	19	46	1200
GN 23-120-M24-125-D1-*	120	M 24	125	95.5	12	3.5	35.5	19	46	1300
GN 23-120-M24-150-D0-*	120	M 24	150	95.5	12	-	35.5	19	46	1310
GN 23-120-M24-150-D1-*	120	M 24	150	95.5	12	3.5	35.5	19	46	1416
GN 23-120-M24-200-D0-*	120	M 24	200	95.5	12	-	35.5	19	46	1456
GN 23-120-M24-200-D1-*	120	M 24	200	95.5	12	3.5	35.5	19	46	1520
GN 23-120-M30-100-D0-*	120	M 30	100	95.5	12	-	39.5	24	43	1402
GN 23-120-M30-100-D1-*	120	M 30	100	95.5	12	3.5	39.5	24	43	1508
GN 23-120-M30-125-D0-*	120	M 30	125	95.5	12	-	39.5	24	43	1498
GN 23-120-M30-125-D1-*	120	M 30	125	95.5	12	3.5	39.5	24	43	1604
GN 23-120-M30-150-D0-*	120	M 30	150	95.5	12	-	39.5	24	43	1616
GN 23-120-M30-150-D1-*	120	M 30	150	95.5	12	3.5	39.5	24	43	1722
GN 23-120-M30-200-D0-*	120	M 30	200	95.5	12	-	39.5	24	43	1853
GN 23-120-M30-200-D1-*	120	M 30	200	95.5	12	3.5	39.5	24	43	1959

Weight Version T

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GN 23

Stainless Steel-Levelling feet

*Complete with version of the Levelling feet (Hexagon socket at the top / Wrench at the bottom)

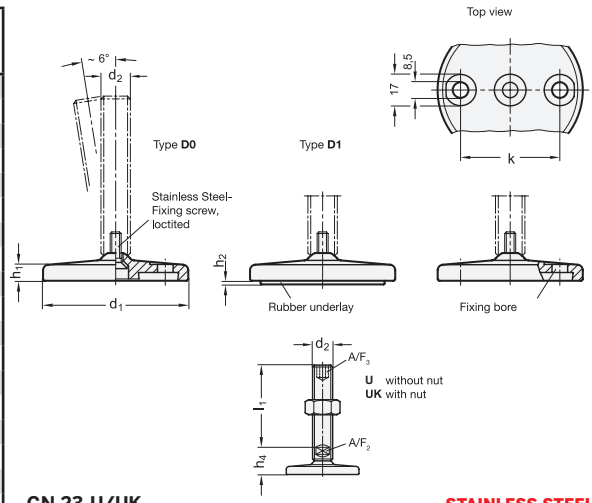
U without nut

UK with nut

GN 23-U/UK

STAINLESS STEEL

Description	d1	d2	l1	k	h1	h2	h4	A/F 2	A/F 3	Static load in kN	⚖
GN 23-80-M16-75-D0-*	80	M 16	75	54.5	8.5	-	25.5	12	8	17	134
GN 23-80-M16-75-D1-*	80	M 16	75	54.5	8.5	2	25.5	12	8	17	159
GN 23-80-M16-100-D0-*	80	M 16	100	54.5	8.5	-	25.5	12	8	17	194
GN 23-80-M16-100-D1-*	80	M 16	100	54.5	8.5	2	25.5	12	8	17	197
GN 23-80-M16-125-D0-*	80	M 16	125	54.5	8.5	-	25.5	12	8	17	199
GN 23-80-M16-125-D1-*	80	M 16	125	54.5	8.5	2	25.5	12	8	17	224
GN 23-80-M16-150-D0-*	80	M 16	150	54.5	8.5	-	25.5	12	8	17	231
GN 23-80-M16-150-D1-*	80	M 16	150	54.5	8.5	2	25.5	12	8	17	256
GN 23-80-M16-200-D0-*	80	M 16	200	54.5	8.5	-	25.5	12	8	17	298
GN 23-80-M16-200-D1-*	80	M 16	200	54.5	8.5	2	25.5	12	8	17	323
GN 23-80-M20-75-D0-*	80	M 20	75	54.5	8.5	-	27	15	10	28	448
GN 23-80-M20-75-D1-*	80	M 20	75	54.5	8.5	2	27	15	10	28	473
GN 23-80-M20-100-D0-*	80	M 20	100	54.5	8.5	-	27	15	10	28	686
GN 23-80-M20-100-D1-*	80	M 20	100	54.5	8.5	2	27	15	10	28	711
GN 23-80-M20-125-D0-*	80	M 20	125	54.5	8.5	-	27	15	10	28	549
GN 23-80-M20-125-D1-*	80	M 20	125	54.5	8.5	2	27	15	10	28	574
GN 23-80-M20-150-D0-*	80	M 20	150	54.5	8.5	-	27	15	10	28	577
GN 23-80-M20-150-D1-*	80	M 20	150	54.5	8.5	2	27	15	10	28	602
GN 23-80-M20-200-D0-*	80	M 20	200	54.5	8.5	-	27	15	10	28	702
GN 23-80-M20-200-D1-*	80	M 20	200	54.5	8.5	2	27	15	10	28	727
GN 23-80-M24-100-D0-*	80	M 24	100	54.5	8.5	-	30.5	19	12	46	664
GN 23-80-M24-100-D1-*	80	M 24	100	54.5	8.5	2	30.5	19	12	46	681
GN 23-80-M24-125-D0-*	80	M 24	125	54.5	8.5	-	30.5	19	12	46	662
GN 23-80-M24-125-D1-*	80	M 24	125	54.5	8.5	2	30.5	19	12	46	695
GN 23-80-M24-150-D0-*	80	M 24	150	54.5	8.5	-	30.5	19	12	46	743
GN 23-80-M24-150-D1-*	80	M 24	150	54.5	8.5	2	30.5	19	12	46	768
GN 23-80-M24-200-D0-*	80	M 24	200	54.5	8.5	-	30.5	19	12	46	879
GN 23-80-M24-200-D1-*	80	M 24	200	54.5	8.5	2	30.5	19	12	46	904
GN 23-100-M16-75-D0-*	100	M 16	75	70.5	9	-	26.5	12	8	17	567
GN 23-100-M16-75-D1-*	100	M 16	75	70.5	9	3	26.5	12	8	17	620
GN 23-100-M16-100-D0-*	100	M 16	100	70.5	9	-	26.5	12	8	17	599
GN 23-100-M16-100-D1-*	100	M 16	100	70.5	9	3	26.5	12	8	17	652
GN 23-100-M16-125-D0-*	100	M 16	125	70.5	9	-	26.5	12	8	17	632
GN 23-100-M16-125-D1-*	100	M 16	125	70.5	9	3	26.5	12	8	17	685
GN 23-100-M16-150-D0-*	100	M 16	150	70.5	9	-	26.5	12	8	17	664
GN 23-100-M16-150-D1-*	100	M 16	150	70.5	9	3	26.5	12	8	17	717
GN 23-100-M16-200-D0-*	100	M 16	200	70.5	9	-	26.5	12	8	17	730
GN 23-100-M16-200-D1-*	100	M 16	200	70.5	9	3	26.5	12	8	17	784
GN 23-100-M20-75-D0-*	100	M 20	75	70.5	9	-	28	15	10	28	653
GN 23-100-M20-75-D1-*	100	M 20	75	70.5	9	3	28	15	10	28	706
GN 23-100-M20-100-D0-*	100	M 20	100	70.5	9	-	28	15	10	28	750
GN 23-100-M20-100-D1-*	100	M 20	100	70.5	9	3	28	15	10	28	760
GN 23-100-M20-125-D0-*	100	M 20	125	70.5	9	-	28	15	10	28	754
GN 23-100-M20-125-D1-*	100	M 20	125	70.5	9	3	28	15	10	28	807
GN 23-100-M20-150-D0-*	100	M 20	150	70.5	9	-	28	15	10	28	782
GN 23-100-M20-150-D1-*	100	M 20	150	70.5	9	3	28	15	10	28	835
GN 23-100-M20-200-D0-*	100	M 20	200	70.5	9	-	28	15	10	28	907
GN 23-100-M20-200-D1-*	100	M 20	200	70.5	9	3	28	15	10	28	960
GN 23-100-M24-100-D0-*	100	M 24	100	70.5	9	-	31.5	19	12	46	863
GN 23-100-M24-100-D1-*	100	M 24	100	70.5	9	3	31.5	19	12	46	916
GN 23-100-M24-125-D0-*	100	M 24	125	70.5	9	-	31.5	19	12	46	855
GN 23-100-M24-125-D1-*	100	M 24	125	70.5	9	3	31.5	19	12	46	908



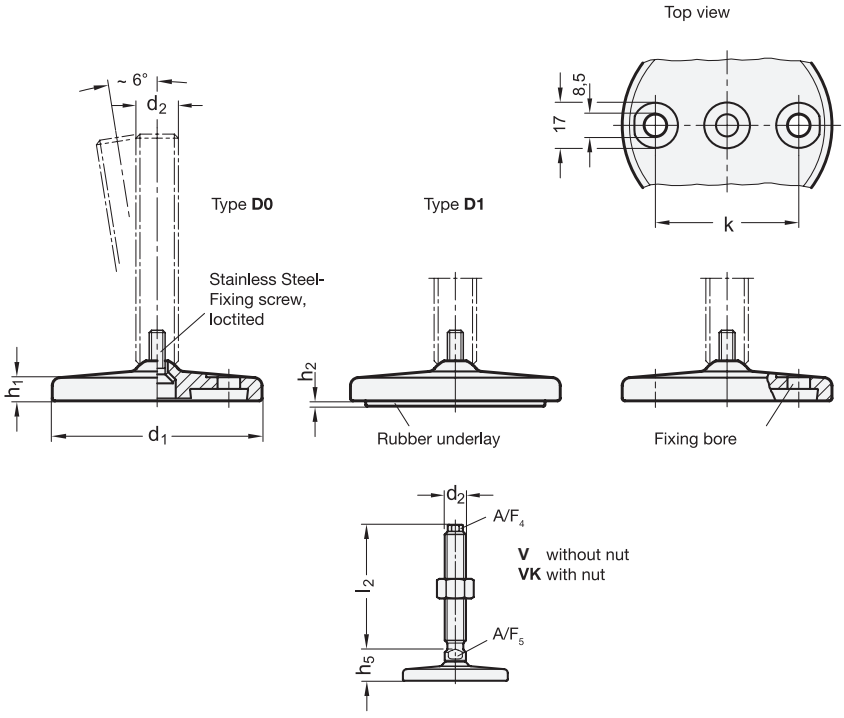
GN 23-U/UK

STAINLESS STEEL

Description	d1	d2	l1	k	h1	h2	h4	A/F 2	A/F 3	Static load in kN	⚖
GN 23-100-M24-150-D0-*	100	M 24	150	70.5	9	-	31.5	19	12	46	936
GN 23-100-M24-150-D1-*	100	M 24	150	70.5	9	3	31.5	19	12	46	989
GN 23-100-M24-200-D0-*	100	M 24	200	70.5	9	-	31.5	19	12	46	1003
GN 23-100-M24-200-D1-*	100	M 24	200	70.5	9	3	31.5	19	12	46	1114
GN 23-120-M20-75-D0-*	120	M 20	75	95.5	12	-	32	15	10	28	1072
GN 23-120-M20-75-D1-*	120	M 20	75	95.5	12	3.5	32	15	10	28	1125
GN 23-120-M20-100-D0-*	120	M 20	100	95.5	12	-	32	15	10	28	1009
GN 23-120-M20-100-D1-*	120	M 20	100	95.5	12	3.5	32	15	10	28	1235
GN 23-120-M20-125-D0-*	120	M 20	125	95.5	12	-	32	15	10	28	1109
GN 23-120-M20-125-D1-*	120	M 20	125	95.5	12	3.5	32	15	10	28	1243
GN 23-120-M20-150-D0-*	120	M 20	150	95.5	12	-	32	15	10	28	1246
GN 23-120-M20-150-D1-*	120	M 20	150	95.5	12	3.5	32	15	10	28	1243
GN 23-120-M20-200-D0-*	120	M 20	200	95.5	12	-	32	15	10	28	1262
GN 23-120-M20-200-D1-*	120	M 20	200	95.5	12	3.5	32	15	10	28	1368
GN 23-120-M24-100-D0-*	120	M 24	100	95.5	12	-	35.5	19	12	46	1219
GN 23-120-M24-100-D1-*	120	M 24	100	95.5	12	3.5	35.5	19	12	46	1333
GN 23-120-M24-125-D0-*	120	M 24	125	95.5	12	-	35.5	19	12	46	1227
GN 23-120-M24-125-D1-*	120	M 24	125	95.5	12	3.5	35.5	19	12	46	1333
GN 23-120-M24-150-D0-*	120	M 24	150	95.5	12	-	35.5	19	12	46	1300
GN 23-120-M24-150-D1-*	120	M 24	150	95.5	12	3.5	35.5	19	12	46	1406
GN 23-120-M24-200-D0-*	120	M 24	200	95.5	12	-	35.5	19	12	46	1436
GN 23-120-M24-200-D1-*	120	M 24	200	95.5	12	3.5	35.5	19	12	46	1542
GN 23-120-M30-100-D0-*	120	M 30	100	95.5	12	-	39.5	24	12	43	1353
GN 23-120-M30-100-D1-*	120	M 30	100	95.5	12	3.5	39.5	24	12	43	1459
GN 23-120-M30-125-D0-*	120	M 30	125	95.5	12	-	39.5	24	12	43	1469
GN 23-120-M30-125-D1-*	120	M 30	125	95.5	12	3.5	39.5	24	12	43	1575
GN 23-120-M30-150-D0-*	120	M 30	150	95.5	12	-	39.5	24	12	43	1583
GN 23-120-M30-150-D1-*	120	M30	150	96.5	12	3.5	38.5	24	12	43	1600
GN 23-120-M30-200-D0-*	120	M30	200	95.5	12	-	38.5	24	12	43	1750
GN 23-120-M30-200-D1-*	120	M30	200	96.5	12	3.5	38.5	24	12	43	1800

Weight Version U

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*Complete with version of the Levelling feet (External hexagon socket on the top / Wrench flat at the bottom)

V without nut

VK with nut

GN 23-V/VK STAINLESS STEEL

Description	d1	d2	l2	k	h1	h2	h5	A/F 4	A/F 5	Static load in kN	⚖
GN 23-80-M16-75-D0-*	80	M 16	75	54.5	8.5	-	21.5	10	12	21	360
GN 23-80-M16-75-D1-*	80	M 16	75	54.5	8.5	2	21.5	10	12	21	380
GN 23-80-M16-100-D0-*	80	M 16	100	54.5	8.5	-	21.5	10	12	21	420
GN 23-80-M16-100-D1-*	80	M 16	100	54.5	8.5	2	21.5	10	12	21	440
GN 23-80-M16-125-D0-*	80	M 16	125	54.5	8.5	-	21.5	10	12	21	496
GN 23-80-M16-125-D1-*	80	M 16	125	54.5	8.5	2	21.5	10	12	21	521
GN 23-80-M16-150-D0-*	80	M 16	150	54.5	8.5	-	21.5	10	12	21	529
GN 23-80-M16-150-D1-*	80	M 16	150	54.5	8.5	2	21.5	10	12	21	554
GN 23-80-M16-200-D0-*	80	M 16	200	54.5	8.5	2	21.5	10	12	21	590
GN 23-80-M16-200-D1-	80	M 16	200	54.5	8.5	2	21.5	10	12	21	595
GN 23-80-M20-100-D0-*	80	M 20	100	54.5	8.5	-	23	13	16	35	498
GN 23-80-M20-100-D1-*	80	M 20	100	54.5	8.5	2	23	13	16	35	523
GN 23-80-M20-125-D0-*	80	M 20	125	54.5	8.5	-	23	13	16	35	549
GN 23-80-M20-125-D1-*	80	M 20	125	54.5	8.5	2	23	13	16	35	574
GN 23-80-M20-150-D0-*	80	M 20	150	54.5	8.5	-	23	13	16	35	601
GN 23-80-M20-150-D1-*	80	M 20	150	54.5	8.5	2	23	13	16	35	626
GN 23-80-M20-200-D0-*	80	M 20	200	54.5	8.5	-	23	13	16	35	706
GN 23-80-M20-200-D1-*	80	M 20	200	54.5	8.5	2	23	13	16	35	731
GN 23-80-M24-100-D0-*	80	M 24	100	54.5	8.5	-	26	17	20	52	593
GN 23-80-M24-100-D1-*	80	M 24	100	54.5	8.5	2	26	17	20	52	618
GN 23-80-M24-150-D0-*	80	M 24	150	54.5	8.5	-	26	17	20	52	741
GN 23-80-M24-150-D1-*	80	M 24	150	54.5	8.5	2	26	17	20	52	766
GN 23-80-M24-200-D0-*	80	M 24	200	54.5	8.5	-	26	17	20	52	887
GN 23-80-M24-200-D1-*	80	M 24	200	54.5	8.5	2	26	17	20	52	912

GN 23-V/VK STAINLESS STEEL

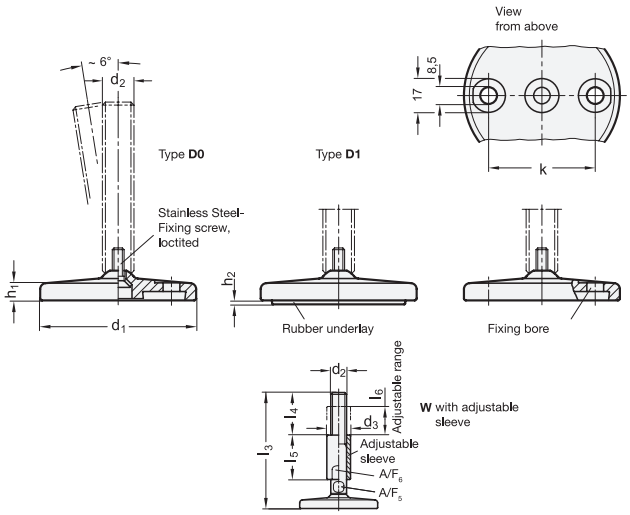
Description	d1	d2	l2	k	h1	h2	h5	A/F 4	A/F 5	Static load in kN	⚖
GN 23-100-M16-75-D0-*	100	M 16	75	70.5	9	-	22.5	10	12	21	436
GN 23-100-M16-75-D1-*	100	M 16	75	70.5	9	3	22.5	10	12	21	489
GN 23-100-M16-100-D0-*	100	M 16	100	70.5	9	-	22.5	10	12	21	597
GN 23-100-M16-100-D1-*	100	M 16	100	70.5	9	3	22.5	10	12	21	650
GN 23-100-M16-125-D0-*	100	M 16	125	70.5	9	-	22.5	10	12	21	629
GN 23-100-M16-125-D1-*	100	M 16	125	70.5	9	3	22.5	10	12	21	682
GN 23-100-M16-150-D0-*	100	M 16	150	70.5	9	-	22.5	10	12	21	662
GN 23-100-M16-150-D1-*	100	M 16	150	70.5	9	3	22.5	10	12	21	715
GN 23-100-M20-100-D0-*	100	M 20	100	70.5	9	-	24	13	16	35	703
GN 23-100-M20-100-D1-*	100	M 20	100	70.5	9	3	24	13	16	35	756
GN 23-100-M20-125-D0-*	100	M 20	125	70.5	9	-	24	13	16	35	754
GN 23-100-M20-125-D1-*	100	M 20	125	70.5	9	3	24	13	16	35	807
GN 23-100-M20-150-D0-*	100	M 20	150	70.5	9	-	24	13	16	35	806
GN 23-100-M20-150-D1-*	100	M 20	150	70.5	9	3	24	13	16	35	859
GN 23-100-M20-200-D0-*	100	M 20	200	70.5	9	-	24	13	16	35	911
GN 23-100-M20-200-D1-*	100	M 20	200	70.5	9	3	24	13	16	35	964
GN 23-100-M24-100-D0-*	100	M 24	100	70.5	9	-	27	17	20	52	786
GN 23-100-M24-100-D1-*	100	M 24	100	70.5	9	3	27	17	20	52	839
GN 23-100-M24-150-D0-*	100	M 24	150	70.5	9	-	27	17	20	52	934
GN 23-100-M24-150-D1-*	100	M 24	150	70.5	9	3	27	17	20	52	987
GN 23-100-M24-200-D0-*	100	M 24	200	70.5	9	-	27	17	20	52	1080
GN 23-100-M24-200-D1-*	100	M 24	200	70.5	9	3	27	17	20	52	1133

Weight Version V

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GN 23

Stainless Steel-Levelling feet

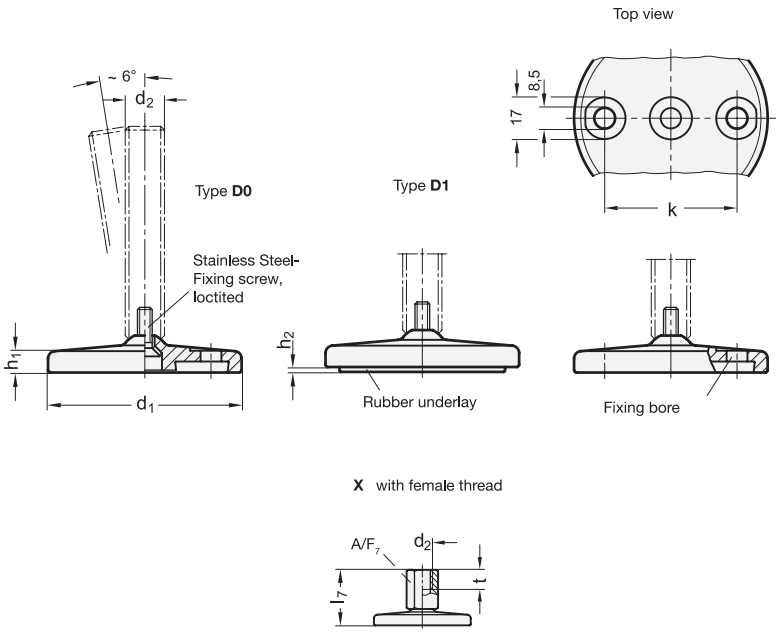


GN 23-W

STAINLESS STEEL

Description	d1	d2	l3 ≈	k	d3	h1	h2	l4	l5	l6	A/F 5	A/F 6	Static load in kN	⚖
GN 23-80-M16-118-D0-W	80	M 16	118	54.5	24	8.5	-	45	45	29	12	20	25	240
GN 23-80-M16-118-D1-W	80	M 16	118	54.5	24	8.5	2	45	45	29	12	20	25	245
GN 23-80-M16-143-D0-W	80	M 16	143	54.5	24	8.5	-	45	45	29	12	20	25	294
GN 23-80-M16-143-D1-W	80	M 16	143	54.5	24	8.5	2	45	45	29	12	20	25	319
GN 23-80-M16-168-D0-W	80	M 16	168	54.5	24	8.5	-	45	45	29	12	20	25	336
GN 23-80-M16-168-D1-W	80	M 16	168	54.5	24	8.5	2	45	45	29	12	20	25	361
GN 23-80-M16-193-D0-W	80	M 16	193	54.5	24	8.5	-	45	45	29	12	20	25	375
GN 23-80-M16-193-D1-W	80	M 16	193	54.5	24	8.5	2	45	45	29	12	20	25	414
GN 23-80-M20-143-D0-W	80	M 20	143	54.5	30	8.5	-	56	56	36	16	24	35	728
GN 23-80-M20-143-D1-W	80	M 20	143	54.5	30	8.5	2	56	56	36	16	24	35	753
GN 23-80-M20-168-D0-W	80	M 20	168	54.5	30	8.5	-	56	56	36	16	24	35	792
GN 23-80-M20-168-D1-W	80	M 20	168	54.5	30	8.5	2	56	56	36	16	24	35	817
GN 23-80-M20-193-D0-W	80	M 20	193	54.5	30	8.5	-	56	56	36	16	24	35	830
GN 23-80-M20-193-D1-W	80	M 20	193	54.5	30	8.5	2	56	56	36	16	24	35	879
GN 23-80-M20-243-D0-W	80	M 20	243	54.5	30	8.5	-	56	56	36	16	24	35	978
GN 23-80-M20-243-D1-W	80	M 20	243	54.5	30	8.5	2	56	56	36	16	24	35	1003
GN 23-80-M24-168-D0-W	80	M 24	168	54.5	35	8.5	-	67	67	42	20	30	52	1022
GN 23-80-M24-168-D1-W	80	M 24	168	54.5	35	8.5	2	67	67	42	20	30	52	1047
GN 23-80-M24-218-D0-W	80	M 24	218	54.5	35	8.5	-	67	67	42	20	30	52	1100
GN 23-80-M24-218-D1-W	80	M 24	218	54.5	35	8.5	2	67	67	42	20	30	52	1225
GN 23-80-M24-268-D0-W	80	M 24	268	54.5	35	8.5	-	67	67	42	20	30	52	1379
GN 23-80-M24-268-D1-W	80	M 24	268	54.5	35	8.5	2	67	67	42	20	30	52	1404
GN 23-100-M16-119-D0-W	100	M 16	119	70.5	24	9	-	45	45	32	12	20	25	690
GN 23-100-M16-119-D1-W	100	M 16	119	70.5	24	9	3	45	45	32	12	20	25	744
GN 23-100-M16-144-D0-W	100	M 16	144	70.5	24	9	-	45	45	32	12	20	25	727
GN 23-100-M16-144-D1-W	100	M 16	144	70.5	24	9	3	45	45	32	12	20	25	780
GN 23-100-M16-169-D0-W	100	M 16	169	70.5	24	9	-	45	45	32	12	20	25	800
GN 23-100-M16-169-D1-W	100	M 16	169	70.5	24	9	3	45	45	32	12	20	25	822
GN 23-100-M16-194-D0-W	100	M 16	194	70.5	24	9	-	45	45	32	12	20	25	808
GN 23-100-M16-194-D1-W	100	M 16	194	70.5	24	9	3	45	45	32	12	20	25	861
GN 23-100-M20-144-D0-W	100	M 20	144	70.5	30	9	-	56	56	40	16	24	35	933
GN 23-100-M20-144-D1-W	100	M 20	144	70.5	30	9	3	56	56	40	16	24	35	986
GN 23-100-M20-169-D0-W	100	M 20	169	70.5	30	9	-	56	56	40	16	24	35	1040
GN 23-100-M20-169-D1-W	100	M 20	169	70.5	30	9	3	56	56	40	16	24	35	1050
GN 23-100-M20-194-D0-W	100	M 20	194	70.5	30	9	-	56	56	40	16	24	3	1111
GN 23-100-M20-194-D1-W	100	M 20	194	70.5	30	9	3	56	56	40	16	24	35	1112
GN 23-100-M20-244-D0-W	100	M 20	244	70.5	30	9	-	56	56	40	16	24	35	1183
GN 23-100-M20-244-D1-W	100	M 20	244	70.5	30	9	3	56	56	40	16	24	35	2500
GN 23-100-M24-169-D0-W	100	M 24	169	70.5	35	9	-	67	67	48	20	30	52	1215
GN 23-100-M24-169-D1-W	100	M 24	169	70.5	35	9	3	67	67	48	20	30	52	1268
GN 23-100-M24-219-D0-W	100	M 24	219	70.5	35	9	-	67	67	48	20	30	52	1400
GN 23-100-M24-219-D1-W	100	M 24	219	70.5	35	9	3	67	67	48	20	30	52	1446
GN 23-100-M24-269-D0-W	100	M 24	269	70.5	35	9	-	67	67	48	20	30	52	1572
GN 23-100-M24-269-D1-W	100	M 24	269	70.5	35	9	3	67	67	48	20	30	52	1625

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GN 23-X STAINLESS STEEL

Description	d1	d2	l7	k	h1	h2	A/F 7	t	Static load in kN	⚖
GN 23-80-M8-34-D0-X	80	M 8	34	54.5	8.5	-	14	8	17	71
GN 23-80-M8-34-D1-X	80	M 8	34	54.5	8.5	2	14	8	17	96
GN 23-80-M10-37-D0-X	80	M 10	37	54.5	8.5	-	14	10	17	71
GN 23-80-M10-37-D1-X	80	M 10	37	54.5	8.5	2	14	10	17	96
GN 23-80-M12-40-D0-X	80	M 12	40	54.5	8.5	-	17	12	17	320
GN 23-80-M12-40-D1-X	80	M 12	40	54.5	8.5	2	17	12	17	364
GN 23-80-M16-46-D0-X	80	M 16	46	54.5	8.5	-	22	16	17	375
GN 23-80-M16-46-D1-X	80	M 16	46	54.5	8.5	2	22	16	17	380
GN 23-80-M20-54-D0-X	80	M 20	54	54.5	8.5	-	27	20	28	419
GN 23-80-M20-54-D1-X	80	M 20	54	54.5	8.5	2	27	20	28	444
GN 23-100-M8-35-D0-X	100	M 8	35	70.5	9	-	14	8	17	484
GN 23-100-M8-35-D1-X	100	M 8	35	70.5	9	3	14	8	17	500
GN 23-100-M10-38-D0-X	100	M 10	38	70.5	9	-	14	10	17	528
GN 23-100-M10-38-D1-X	100	M 10	38	70.5	9	3	14	10	17	540
GN 23-100-M12-41-D0-X	100	M 12	41	70.5	9	-	17	12	17	570
GN 23-100-M12-41-D1-X	100	M 12	41	70.5	9	3	17	12	17	600
GN 23-100-M16-47-D0-X	100	M 16	47	70.5	9	-	22	16	17	680
GN 23-100-M16-47-D1-X	100	M 16	47	70.5	9	3	22	16	17	780
GN 23-100-M20-55-D0-X	100	M 20	55	70.5	9	-	27	20	28	800
GN 23-100-M20-55-D1-X	100	M 20	55	70.5	9	3	27	20	28	878
GN 23-120-M20-59-D0-X	120	M 20	59	95.5	12	-	27	20	28	981
GN 23-120-M20-59-D1-X	120	M 20	59	95.5	12	3.5	27	20	28	1087

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Levelling feet

Steel sheet metal, zinc plated / with fixing lug



SPECIFICATION

Type (Base plate)
- Type **A1**: Steel, zinc plated, rubber, inlaid black

Version
- Version **S**: without nut, external hexagon at the bottom
- Version **SK**: with nut, external hexagon at the bottom
- Version **U**: without nut, internal hexagon socket at the top, wrench flat at the bottom
- Version **UK**: with nut, internal hexagon socket at the top, wrench flat at the bottom
- Version **X**: with female thread, external hexagon

Base plate / lug, sheet metal
Steel, zinc plated, blue passivated

Threaded stem
Steel, zinc plated, blue passivated

Hexagon nut ISO 4032
Steel, zinc plated, blue passivated

Rubber underlay, inlaid
black, Perbunan® (NBR) 80±5 Shore A

INFORMATION

Levelling feet GN 32 will be delivered mounted and are not removable.

TECHNICAL INFORMATION

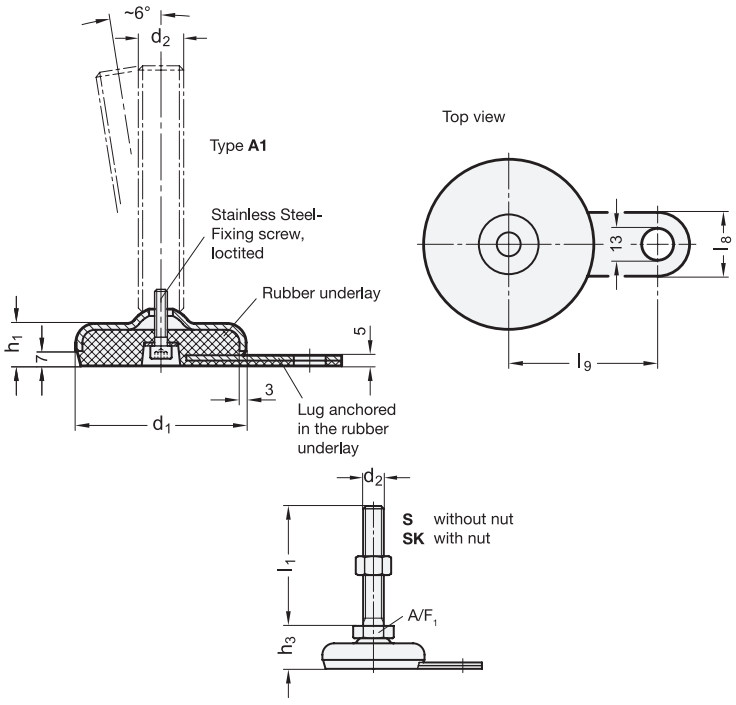
- Elastomer characteristics (see page A32)

LOAD RATING OF LEVELLING FEET

Information

The static load bearing capacity given in the table rests on a test series in which the load has been applied perpendicular to the base plate. For the values given in the table, the strain relief may result in minor deformations of the base plate.
Bending and buckling stress which often occurs in practice results in a lower load bearing capacity of the adjustment spindle and may have to be taken into account.
Also, the spindle strength is assumed to be ≥ 500 N/mm^2.
The details given on strength are nonbinding guide values without any liability. In general, they do not constitute a warranty of quality.
The user must determine from case to case if a product is suitable for the intended purpose or use. Environmental factors may influence the stated values.

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*Complete with version of the Levelling feet (External hexagon at the bottom)

S without nut

SK with nut

GN 32-S/SK

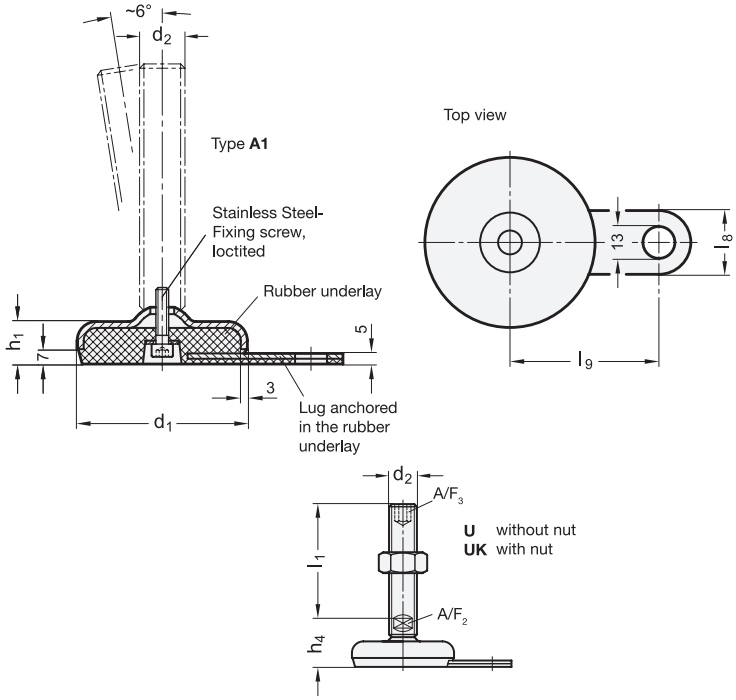
Description	d1	d2	l1	h1	h3	l8	l9	A/F 1	Static load in kN	⚖
GN 32-50-M8-40-A1-*	50	M 8	40	18	26	25	45	17	8	130
GN 32-50-M8-50-A1-*	50	M 8	50	18	26	25	45	17	8	130
GN 32-50-M8-63-A1-*	50	M 8	63	18	26	25	45	17	8	140
GN 32-50-M10-50-A1-*	50	M 10	50	18	26	25	45	17	10	130
GN 32-50-M10-60-A1-*	50	M 10	60	18	26	25	45	17	10	149
GN 32-50-M10-80-A1-*	50	M 10	80	18	26	25	45	17	10	160
GN 32-50-M10-100-A1-*	50	M 10	100	18	26	25	45	17	10	180
GN 32-50-M12-60-A1-*	50	M 12	60	18	26	25	45	17	12	160
GN 32-50-M12-80-A1-*	50	M 12	80	18	26	25	45	17	12	170
GN 32-50-M12-100-A1-*	50	M 12	100	18	26	25	45	17	12	195
GN 32-50-M12-125-A1-*	50	M 12	125	18	26	25	45	17	12	280
GN 32-60-M8-40-A1-*	60	M 8	40	19	27	25	50	17	8	292
GN 32-60-M8-50-A1-*	60	M 8	50	19	27	25	50	17	8	296
GN 32-60-M8-63-A1-*	60	M 8	63	19	27	25	50	17	8	180
GN 32-60-M10-50-A1-*	60	M 10	50	19	27	25	50	17	10	200
GN 32-60-M10-60-A1-*	60	M 10	60	19	27	25	50	17	10	200
GN 32-60-M10-80-A1-*	60	M 10	80	19	27	25	50	17	10	282
GN 32-60-M10-100-A1-*	60	M 10	100	19	27	25	50	17	10	226
GN 32-60-M12-60-A1-*	60	M 12	60	19	27	25	50	17	12	220
GN 32-60-M12-80-A1-*	60	M 12	80	19	27	25	50	17	12	230
GN 32-60-M12-100-A1-*	60	M 12	100	19	27	25	50	17	12	242
GN 32-60-M12-125-A1-*	60	M 12	125	19	27	25	50	17	12	260

GN 32-S/SK

Description	d1	d2	l1	h1	h3	l8	l9	A/F 1	Static load in kN	⚖
GN 32-80-M8-40-A1-*	80	M 8	40	20	28	30	70	17	8	300
GN 32-80-M8-50-A1-*	80	M 8	50	20	28	30	70	17	8	304
GN 32-80-M8-63-A1-*	80	M 8	63	20	28	30	70	17	8	307
GN 32-80-M10-50-A1-*	80	M 10	50	20	28	30	70	17	10	334
GN 32-80-M10-60-A1-*	80	M 10	60	20	28	30	70	17	10	339
GN 32-80-M10-80-A1-*	80	M 10	80	20	28	30	70	17	10	348
GN 32-80-M10-100-A1-*	80	M 10	100	20	28	30	70	17	10	380
GN 32-80-M12-60-A1-*	80	M 12	60	20	28	30	70	17	12	320
GN 32-80-M12-80-A1-*	80	M 12	80	20	28	30	70	17	12	340
GN 32-80-M12-100-A1-*	80	M 12	100	20	28	30	70	17	12	340
GN 32-80-M12-125-A1-*	80	M 12	125	20	28	30	70	17	12	380
GN 32-100-M8-40-A1-*	100	M 8	40	21	29	30	80	17	8	426
GN 32-100-M8-50-A1-*	100	M 8	50	21	29	30	80	17	8	430
GN 32-100-M8-63-A1-*	100	M 8	63	21	29	30	80	17	8	433
GN 32-100-M10-50-A1-*	100	M 10	50	21	29	30	80	17	10	460
GN 32-100-M10-60-A1-*	100	M 10	60	21	29	30	80	17	10	465
GN 32-100-M10-80-A1-*	100	M 10	80	21	29	30	80	17	10	474
GN 32-100-M10-100-A1-*	100	M 10	100	21	29	30	80	17	10	484
GN 32-100-M12-60-A1-*	100	M 12	60	21	29	30	80	17	11	497
GN 32-100-M12-80-A1-*	100	M 12	80	21	29	30	80	17	11	492
GN 32-100-M12-100-A1-*	100	M 12	100	21	29	30	80	17	11	500
GN 32-100-M12-125-A1-*	100	M 12	125	21	29	30	80	17	11	520

Weight Version S

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* Complete with version of the Levelling feet (Hexagon socket at the top / Wrench at the bottom)

U without nut — **UK** with nut

GN 32-U/UK

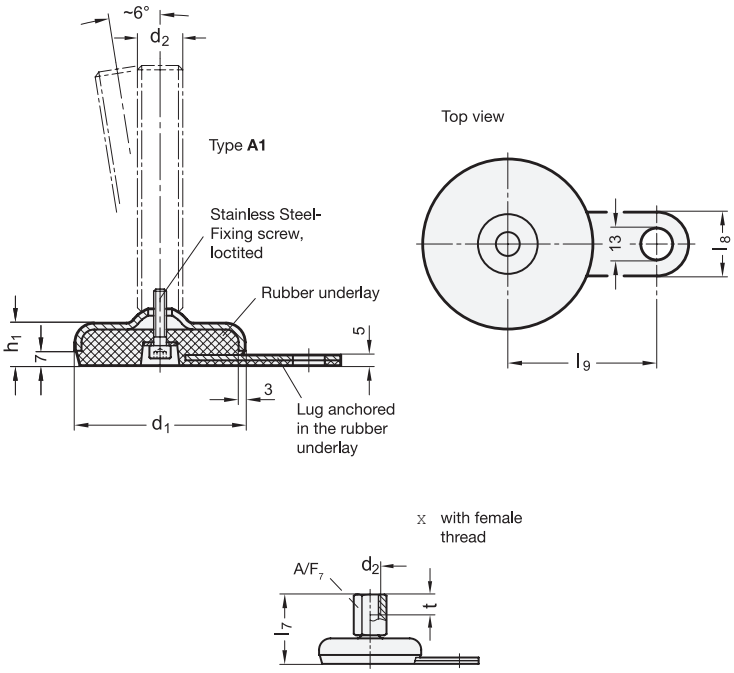
Description	d1	d2	l1	h1	h4	l8	l9	A/F 2	A/F 3	Static load in kN	⚖
GN 32-50-M16-75-A1-*	50	M 16	75	18	32	25	45	12	8	16	214
GN 32-50-M16-100-A1-*	50	M 16	100	18	32	25	45	12	8	16	250
GN 32-50-M16-125-A1-*	50	M 16	125	18	32	25	45	12	8	16	280
GN 32-50-M16-150-A1-*	50	M 16	150	18	32	25	45	12	8	16	330
GN 32-50-M16-200-A1-*	50	M 16	200	18	32	25	45	12	8	16	380
GN 32-60-M16-75-A1-*	60	M 16	75	19	33	25	50	12	8	16	260
GN 32-60-M16-100-A1-*	60	M 16	100	19	33	25	50	12	8	16	280
GN 32-60-M16-125-A1-*	60	M 16	125	19	33	25	50	12	8	16	286
GN 32-60-M16-150-A1-*	60	M 16	150	19	33	25	50	12	8	16	360
GN 32-60-M16-200-A1-*	60	M 16	200	19	33	25	50	12	8	16	430
GN 32-80-M16-75-A1-*	80	M 16	75	20	34	30	70	12	8	12	380
GN 32-80-M16-100-A1-*	80	M 16	100	20	34	30	70	12	8	12	417
GN 32-80-M16-125-A1-*	80	M 16	125	20	34	30	70	12	8	12	440
GN 32-80-M16-150-A1-*	80	M 16	150	20	34	30	70	12	8	12	477
GN 32-80-M16-200-A1-*	80	M 16	200	20	34	30	70	12	8	12	550
GN 32-80-M20-75-A1-*	80	M 20	75	20	35	30	70	15	10	12	450
GN 32-80-M20-100-A1-*	80	M 20	100	20	35	30	70	15	10	12	480
GN 32-80-M20-125-A1-*	80	M 20	125	20	35	30	70	15	10	12	540
GN 32-80-M20-150-A1-*	80	M 20	150	20	35	30	70	15	10	12	600
GN 32-80-M20-200-A1-*	80	M 20	200	20	35	30	70	15	10	12	680

GN 32-U/UK

Description	d1	d2	l1	h1	h4	l8	l9	A/F 2	A/F 3	Static load in kN	⚖
GN 32-80-M24-100-A1-*	80	M 24	100	20	38	30	70	19	12	12	550
GN 32-80-M24-125-A1-*	80	M 24	125	20	38	30	70	19	12	12	660
GN 32-80-M24-150-A1-*	80	M 24	150	20	38	30	70	19	12	12	700
GN 32-80-M24-200-A1-*	80	M 24	200	20	38	30	70	19	12	12	900
GN 32-100-M16-75-A1-*	100	M 16	75	21	35	30	80	12	8	11	520
GN 32-100-M16-100-A1-*	100	M 16	100	21	35	30	80	12	8	11	554
GN 32-100-M16-125-A1-*	100	M 16	125	21	35	30	80	12	8	11	582
GN 32-100-M16-150-A1-*	100	M 16	150	21	35	30	80	12	8	11	600
GN 32-100-M16-200-A1-*	100	M 16	200	21	35	30	80	12	8	11	680
GN 32-100-M20-75-A1-*	100	M 20	75	21	36	30	80	15	10	11	570
GN 32-100-M20-100-A1-*	100	M 20	100	21	36	30	80	15	10	11	600
GN 32-100-M20-125-A1-*	100	M 20	125	21	36	30	80	15	10	11	680
GN 32-100-M20-150-A1-*	100	M 20	150	21	36	30	80	15	10	11	656
GN 32-100-M20-200-A1-*	100	M 20	200	21	36	30	80	15	10	11	680
GN 32-100-M24-100-A1-*	100	M 24	100	21	39	30	80	19	12	11	740
GN 32-100-M24-125-A1-*	100	M 24	125	21	39	30	80	19	12	11	780
GN 32-100-M24-150-A1-*	100	M 24	150	21	39	30	80	19	12	11	861
GN 32-100-M24-200-A1-*	100	M 24	200	21	39	30	80	19	12	11	985

Weight Version U

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GN 32-X

Description	d1	d2	l7	h1	l8	l9	A/F 7	t	Static load in kN	⚖
GN 32-50-M8-40-A1-X	50	M 8	40	18	25	45	14	8	8	182
GN 32-50-M10-43-A1-X	50	M 10	43	18	25	45	14	10	13	198
GN 32-50-M12-47-A1-X	50	M 12	47	18	25	45	17	12	16	233
GN 32-50-M16-52-A1-X	50	M 16	52	18	25	45	22	16	16	252
GN 32-60-M8-41-A1-X	60	M 8	41	19	25	50	14	8	8	236
GN 32-60-M10-44-A1-X	60	M 10	44	19	25	50	14	10	13	255
GN 32-60-M12-48-A1-X	60	M 12	48	19	25	50	17	12	16	280
GN 32-60-M16-53-A1-X	60	M 16	53	19	25	50	22	16	16	306
GN 32-80-M8-42-A1-X	80	M 8	42	20	30	70	14	8	8	340
GN 32-80-M10-45-A1-X	80	M 10	45	20	30	70	14	10	12	375
GN 32-80-M12-49-A1-X	80	M 12	49	20	30	70	17	12	12	390
GN 32-80-M16-54-A1-X	80	M 16	54	20	30	70	22	16	12	400
GN 32-80-M20-62-A1-X	80	M 20	62	20	30	70	27	20	12	420
GN 32-100-M8-43-A1-X	100	M 8	43	21	30	80	14	8	8	450
GN 32-100-M10-46-A1-X	100	M 10	46	21	30	80	14	10	11	448
GN 32-100-M12-50-A1-X	100	M 12	50	21	30	80	17	12	11	464
GN 32-100-M16-55-A1-X	100	M 16	55	21	30	80	22	16	11	499
GN 32-100-M20-63-A1-X	100	M 20	63	21	30	80	27	20	11	500

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Stainless Steel-Levelling feet

with fixing lug

SPECIFICATION

Type (Base plate)

- Type **B1**: matt shot-blasted, rubber inlaid, black

Version of threaded stem

- Version **S**: without nut, external hexagon at the bottom
- Version **SK**: with nut, external hexagon at the bottom
- Version **T**: without nut, wrench flat at the bottom, "not dipping" version
- Version **TK**: with nut, wrench flat at the bottom, "not dipping" version
- Version **U**: without nut, hexagon socket at the top, wrench flat at the bottom
- Version **UK**: with nut, hexagon socket at the top, wrench flat at the bottom
- Version **V**: without nut, external hexagon at the top, wrench flat at the bottom
- Version **VK**: with nut, external hexagon at the top, wrench flat at the bottom
- Version **W**: with adjustable sleeve, wrench flat at the bottom
- Version **X**: with female thread, external hexagon

Base plate / lug, sheet metal
Stainless Steel AISI 304

Threaded stem
Stainless Steel AISI 303

Hexagon nut ISO 4032
Stainless Steel AISI 304

Rubber underlay, inlaid
black, Perbunan® (NBR) 80±5 Shore A

INFORMATION

Stainless Steel-Levelling feet GN 33 will be delivered mounted and are not removable.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)
- Elastomer characteristics (see page A32)



LOAD RATING OF STAINLESS STEEL-LEVELLING FEET

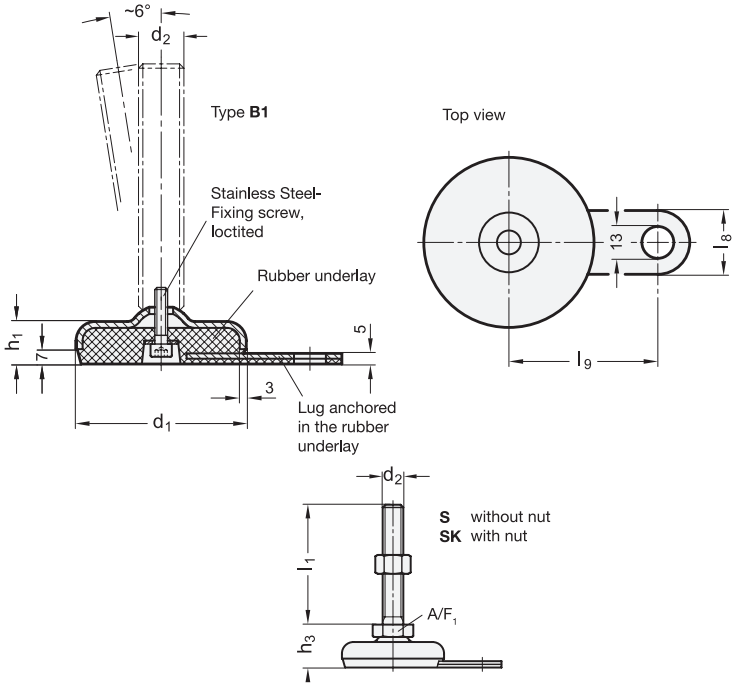
Information

The static load bearing capacity given in the table rests on a test series in which the load has been applied perpendicular to the base plate. For the values given in the table, the strain relief may result in minor deformations of the base plate.
Bending and buckling stress which often occurs in practice results in a lower load bearing capacity of the adjustment spindle and may have to be taken into account.
Also, the spindle strength is assumed to be ≥ 500 N/mm^2.
The details given on strength are nonbinding guide values without any liability. In general, they do not constitute a warranty of quality.
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GN 33

Stainless Steel-Levelling feet



*Complete with version of the Levelling feet (External hexagon at the bottom)

S
without nut

SK
with nut

GN 33-S/SK — **STAINLESS STEEL**

Description	d1	d2	l1	h1	h3	l8	l9	A/F 1	Static load in kN	⚖
GN 33-50-M8-40-B1-*	50	M 8	40	18	26	25	45	17	8	120
GN 33-50-M8-50-B1-*	50	M 8	50	18	26	25	45	17	8	140
GN 33-50-M8-63-B1-*	50	M 8	63	18	26	25	45	17	8	140
GN 33-50-M10-50-B1-*	50	M 10	50	18	26	25	45	17	14	150
GN 33-50-M10-60-B1-*	50	M 10	60	18	26	25	45	17	14	196
GN 33-50-M10-80-B1-*	50	M 10	80	18	26	25	45	17	14	206
GN 33-50-M10-100-B1-*	50	M 10	100	18	26	25	45	17	14	205
GN 33-50-M12-60-B1-*	50	M 12	60	18	26	25	45	17	20	160
GN 33-50-M12-80-B1-*	50	M 12	80	18	26	25	45	17	20	180
GN 33-50-M12-100-B1-*	50	M 12	100	18	26	25	45	17	20	180
GN 33-50-M12-125-B1-*	50	M 12	125	18	26	25	45	17	20	200
GN 33-60-M8-40-B1-*	60	M 8	40	19	27	25	50	17	8	286
GN 33-60-M8-50-B1-*	60	M 8	50	19	27	25	50	17	8	289
GN 33-60-M8-63-B1-*	60	M 8	63	19	27	25	50	17	8	293
GN 33-60-M10-50-B1-*	60	M 10	50	19	27	25	50	17	14	261
GN 33-60-M10-60-B1-*	60	M 10	60	19	27	25	50	17	14	300
GN 33-60-M10-80-B1-*	60	M 10	80	19	27	25	50	17	14	320
GN 33-60-M10-100-B1-*	60	M 10	100	19	27	25	50	17	14	320
GN 33-60-M12-60-B1-*	60	M 12	60	19	27	25	50	17	20	206
GN 33-60-M12-80-B1-*	60	M 12	80	19	27	25	50	17	20	331
GN 33-60-M12-100-B1-*	60	M 12	100	19	27	25	50	17	20	235
GN 33-60-M12-125-B1-*	60	M 12	125	19	27	25	50	17	20	260

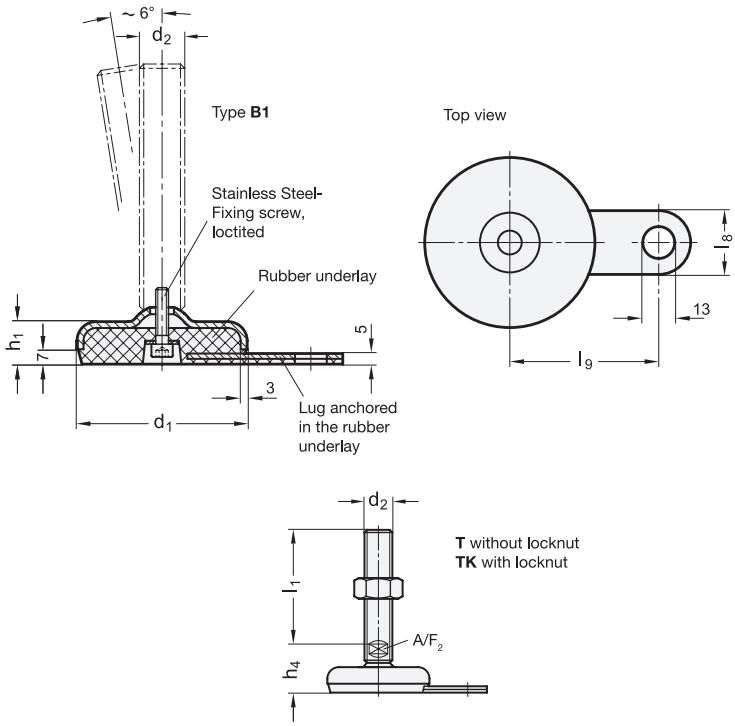
GN 33-S/SK — **STAINLESS STEEL**

Description	d1	d2	l1	h1	h3	l8	l9	A/F 1	Static load in kN	⚖
GN 33-80-M8-40-B1-*	80	M 8	40	20	28	30	70	17	8	393
GN 33-80-M8-50-B1-*	80	M 8	50	20	28	30	70	17	8	406
GN 33-80-M8-63-B1-*	80	M 8	63	20	28	30	70	17	8	400
GN 33-80-M10-50-B1-*	80	M 10	50	20	28	30	70	17	14	320
GN 33-80-M10-60-B1-*	80	M 10	60	20	28	30	70	17	14	331
GN 33-80-M10-80-B1-*	80	M 10	80	20	28	30	70	17	14	350
GN 33-80-M10-100-B1-*	80	M 10	100	20	28	30	70	17	14	355
GN 33-80-M12-60-B1-*	80	M 12	60	20	28	30	70	17	19	345
GN 33-80-M12-80-B1-*	80	M 12	80	20	28	30	70	17	19	360
GN 33-80-M12-100-B1-*	80	M 12	100	20	28	30	70	17	19	340
GN 33-80-M12-125-B1-*	80	M 12	125	20	28	30	70	17	19	360
GN 33-100-M8-40-B1-*	100	M 8	40	21	29	30	80	17	8	557
GN 33-100-M8-50-B1-*	100	M 8	50	21	29	30	80	17	8	560
GN 33-100-M8-63-B1-*	100	M 8	63	21	29	30	80	17	8	564
GN 33-100-M10-50-B1-*	100	M 10	50	21	29	30	80	17	14	590
GN 33-100-M10-60-B1-*	100	M 10	60	21	29	30	80	17	14	594
GN 33-100-M10-80-B1-*	100	M 10	80	21	29	30	80	17	14	604
GN 33-100-M10-100-B1-*	100	M 10	100	21	29	30	80	17	14	615
GN 33-100-M12-60-B1-*	100	M 12	60	21	29	30	80	17	17	500
GN 33-100-M12-80-B1-*	100	M 12	80	21	29	30	80	17	17	623
GN 33-100-M12-100-B1-*	100	M 12	100	21	29	30	80	17	17	637
GN 33-100-M12-125-B1-*	100	M 12	125	21	29	30	80	17	17	650

Weight Version S

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GN 33 | Stainless Steel-Levelling feet



*Complete with version of the Levelling feet (Wrench flat at the bottom)

T	TK
without nut	with nut

GN 33-T/TK — STAINLESS STEEL

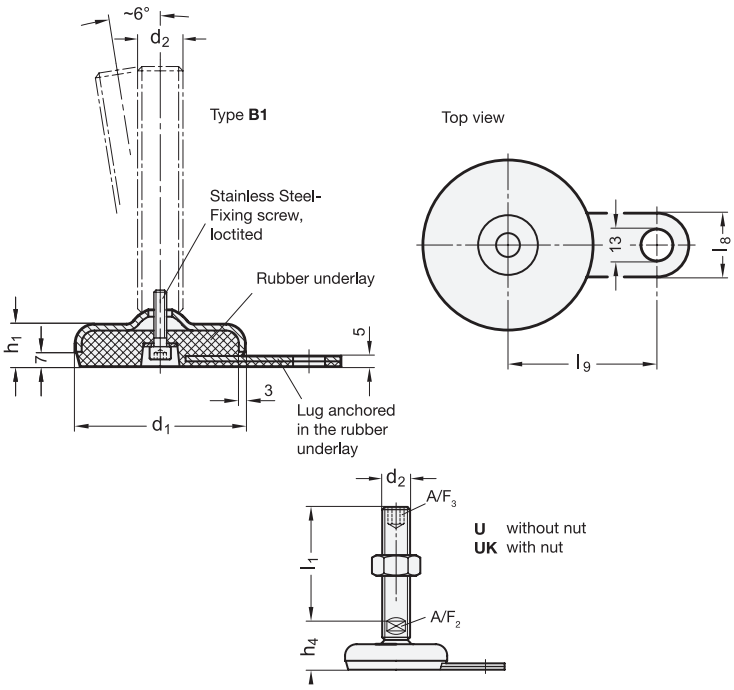
Description	d1	d2	l1	h1	h4	l8	l9	A/F 2	Static load in kN	⚖
GN 33-50-M16-75-B1-*	50	M 16	75	18	32	25	45	12	28	287
GN 33-50-M16-100-B1-*	50	M 16	100	18	32	25	45	12	28	200
GN 33-50-M16-125-B1-*	50	M 16	125	18	32	25	45	12	28	352
GN 33-50-M16-150-B1-*	50	M 16	150	18	32	25	45	12	28	384
GN 33-50-M16-200-B1-*	50	M 16	200	18	32	25	45	12	28	727
GN 33-60-M16-75-B1-*	60	M 16	75	19	33	25	50	12	28	335
GN 33-60-M16-100-B1-*	60	M 16	100	19	33	25	50	12	28	300
GN 33-60-M16-125-B1-*	60	M 16	125	19	33	25	50	12	28	340
GN 33-60-M16-150-B1-*	60	M 16	150	19	33	25	50	12	28	363
GN 33-60-M16-200-B1-*	60	M 16	200	19	33	25	50	12	28	400
GN 33-80-M16-75-B1-*	80	M 16	75	20	34	30	70	12	19	405
GN 33-80-M16-100-B1-*	80	M 16	100	20	34	30	70	12	19	430
GN 33-80-M16-125-B1-*	80	M 16	125	20	34	30	70	12	19	400
GN 33-80-M16-150-B1-*	80	M 16	150	20	34	30	70	12	19	500
GN 33-80-M16-200-B1-*	80	M 16	200	20	34	30	70	12	19	561
GN 33-80-M20-75-B1-*	80	M 20	75	20	35	30	70	15	19	537
GN 33-80-M20-100-B1-*	80	M 20	100	20	35	30	70	15	19	596
GN 33-80-M20-125-B1-*	80	M 20	125	20	35	30	70	15	19	560
GN 33-80-M20-150-B1-*	80	M 20	150	20	35	30	70	15	19	600

GN 33-T/TK — STAINLESS STEEL

Description	d1	d2	l1	h1	h4	l8	l9	A/F 2	Static load in kN	⚖
GN 33-80-M20-200-B1-*	80	M 20	200	20	35	30	70	15	19	770
GN 33-80-M24-100-B1-*	80	M 24	100	20	38	30	70	19	19	659
GN 33-80-M24-125-B1-*	80	M 24	125	20	38	30	70	19	19	739
GN 33-80-M24-150-B1-*	80	M 24	150	20	38	30	70	19	19	805
GN 33-80-M24-200-B1-*	80	M 24	200	20	38	30	70	19	19	951
GN 33-100-M16-75-B1-*	100	M 16	75	21	35	30	80	12	17	664
GN 33-100-M16-100-B1-*	100	M 16	100	21	35	30	80	12	17	620
GN 33-100-M16-125-B1-*	100	M 16	125	21	35	30	80	12	17	500
GN 33-100-M16-150-B1-*	100	M 16	150	21	35	30	80	12	17	650
GN 33-100-M16-200-B1-*	100	M 16	200	21	35	30	80	12	17	650
GN 33-100-M20-75-B1-*	100	M 20	75	21	36	30	80	15	17	701
GN 33-100-M20-100-B1-*	100	M 20	100	21	36	30	80	15	17	550
GN 33-100-M20-125-B1-*	100	M 20	125	21	36	30	80	15	17	660
GN 33-100-M20-150-B1-*	100	M 20	150	21	36	30	80	15	17	740
GN 33-100-M20-200-B1-*	100	M 20	200	21	36	30	80	15	17	900
GN 33-100-M24-100-B1-*	100	M 24	100	21	39	30	80	19	17	868
GN 33-100-M24-125-B1-*	100	M 24	125	21	39	30	80	19	17	948
GN 33-100-M24-150-B1-*	100	M 24	150	21	39	30	80	19	17	1014
GN 33-100-M24-200-B1-*	100	M 24	200	21	39	30	80	19	17	1030

Weight Version T

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*Complete with version of the Levelling feet (Hexagon socket at the top / Wrench at the bottom)

U without nut

UK with nut

GN 33-U/UK STAINLESS STEEL

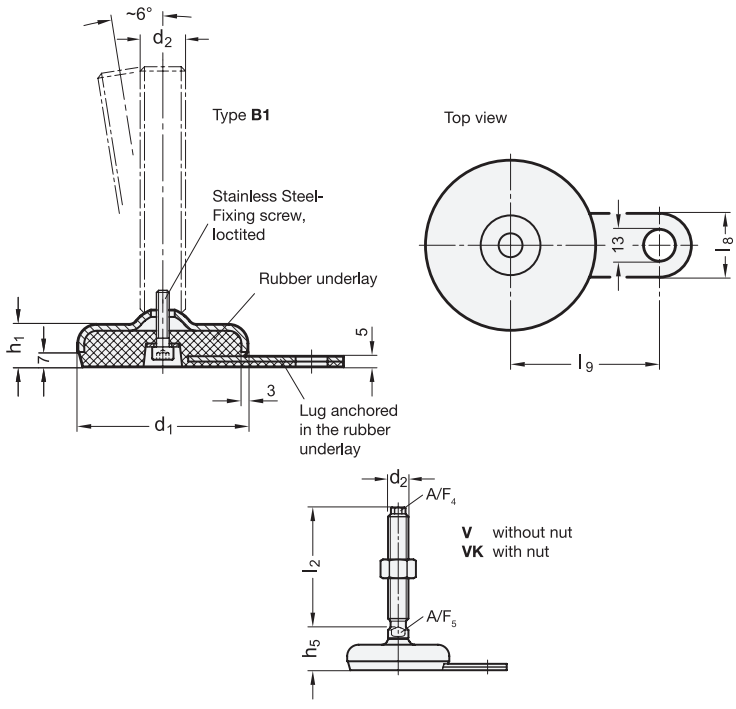
Description	d1	d2	l1	h1	h4	l8	l9	A/F 2	A/F 3	Static load in kN	⚖
GN 33-50-M16-75-B1-*	50	M 16	75	18	32	25	45	12	8	28	213
GN 33-50-M16-100-B1-*	50	M 16	100	18	32	25	45	12	8	28	240
GN 33-50-M16-125-B1-*	50	M 16	125	18	32	25	45	12	8	28	277
GN 33-50-M16-150-B1-*	50	M 16	150	18	32	25	45	12	8	28	320
GN 33-50-M16-200-B1-*	50	M 16	200	18	32	25	45	12	8	28	445
GN 33-60-M16-75-B1-*	60	M 16	75	19	33	25	50	12	8	28	260
GN 33-60-M16-100-B1-*	60	M 16	100	19	33	25	50	12	8	28	300
GN 33-60-M16-125-B1-*	60	M 16	125	19	33	25	50	12	8	28	320
GN 33-60-M16-150-B1-*	60	M 16	150	19	33	25	50	12	8	28	350
GN 33-60-M16-200-B1-*	60	M 16	200	19	33	25	50	12	8	28	420
GN 33-80-M16-75-B1-*	80	M 16	75	20	34	30	70	12	8	19	388
GN 33-80-M16-100-B1-*	80	M 16	100	20	34	30	70	12	8	19	420
GN 33-80-M16-125-B1-*	80	M 16	125	20	34	30	70	12	8	19	447
GN 33-80-M16-150-B1-*	80	M 16	150	20	34	30	70	12	8	19	487
GN 33-80-M16-200-B1-*	80	M 16	200	20	34	30	70	12	8	19	540
GN 33-80-M20-75-B1-*	80	M 20	75	20	35	30	70	15	10	19	440
GN 33-80-M20-100-B1-*	80	M 20	100	20	35	30	70	15	10	19	500
GN 33-80-M20-125-B1-*	80	M 20	125	20	35	30	70	15	10	19	550
GN 33-80-M20-150-B1-*	80	M 20	150	20	35	30	70	15	10	19	600

GN 33-U/UK STAINLESS STEEL

Description	d1	d2	l1	h1	h4	l8	l9	A/F 2	A/F 3	Static load in kN	⚖
GN 33-80-M20-200-B1-*	80	M 20	200	20	35	30	70	15	10	19	670
GN 33-80-M24-100-B1-*	80	M 24	100	20	38	30	70	19	12	19	767
GN 33-80-M24-125-B1-*	80	M 24	125	20	38	30	70	19	12	19	700
GN 33-80-M24-150-B1-*	80	M 24	150	20	38	30	70	19	12	19	760
GN 33-80-M24-200-B1-*	80	M 24	200	20	38	30	70	19	12	19	931
GN 33-100-M16-75-B1-*	100	M 16	75	21	35	30	80	12	8	17	515
GN 33-100-M16-100-B1-*	100	M 16	100	21	35	30	80	12	8	17	550
GN 33-100-M16-125-B1-*	100	M 16	125	21	35	30	80	12	8	17	577
GN 33-100-M16-150-B1-*	100	M 16	150	21	35	30	80	12	8	17	608
GN 33-100-M16-200-B1-*	100	M 16	200	21	35	30	80	12	8	17	860
GN 33-100-M20-75-B1-*	100	M 20	75	21	36	30	80	15	10	17	453
GN 33-100-M20-100-B1-*	100	M 20	100	21	36	30	80	15	10	17	620
GN 33-100-M20-125-B1-*	100	M 20	125	21	36	30	80	15	10	17	680
GN 33-100-M20-150-B1-*	100	M 20	150	21	36	30	80	15	10	17	740
GN 33-100-M20-200-B1-*	100	M 20	200	21	36	30	80	15	10	17	850
GN 33-100-M24-100-B1-*	100	M 24	100	21	39	30	80	19	12	17	740
GN 33-100-M24-125-B1-*	100	M 24	125	21	39	30	80	19	12	17	823
GN 33-100-M24-150-B1-*	100	M 24	150	21	39	30	80	19	12	17	885
GN 33-100-M24-200-B1-*	100	M 24	200	21	39	30	80	19	12	17	950

Weight Version U

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*Complete with version of Levelling feet (External hexagon socket on the top/Wrench flat at the bottom)

V
without nut

VK
with nut

GN 33-V/VK

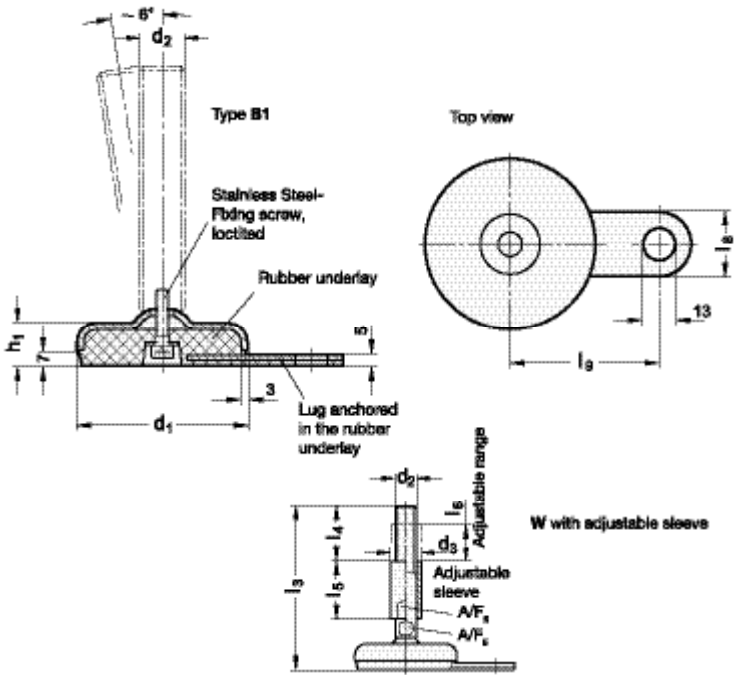
STAINLESS STEEL

Description	d1	d2	l2	h1	h5	l8	l9	A/F 4	A/F 5	Static load in kN	⚖
GN 33-60-M16-75-B1-*	60	M 16	75	19	30	25	50	10	12	27	328
GN 33-60-M16-100-B1-*	60	M 16	100	19	30	25	50	10	12	27	360
GN 33-60-M16-125-B1-*	60	M 16	125	19	30	25	50	10	12	27	392
GN 33-60-M16-150-B1-*	60	M 16	150	19	30	25	50	10	12	27	425
GN 33-80-M16-75-B1-*	80	M 16	75	20	31	30	70	10	12	24	427
GN 33-80-M16-100-B1-*	80	M 16	100	20	31	30	70	10	12	24	430
GN 33-80-M16-125-B1-*	80	M 16	125	20	31	30	70	10	12	24	462
GN 33-80-M16-150-B1-*	80	M 16	150	20	31	30	70	10	12	24	480
GN 33-80-M20-100-B1-*	80	M 20	100	20	32	30	70	13	16	24	587
GN 33-80-M20-125-B1-*	80	M 20	125	20	32	30	70	13	16	24	638
GN 33-80-M20-150-B1-*	80	M 20	150	20	32	30	70	13	16	24	690
GN 33-80-M20-200-B1-*	80	M 20	200	20	32	30	70	13	16	24	795
GN 33-80-M24-100-B1-*	80	M 24	100	20	35	30	70	17	20	24	645
GN 33-80-M24-150-B1-*	80	M 24	150	20	35	30	70	17	20	24	793
GN 33-80-M24-200-B1-*	80	M 24	200	20	35	30	70	17	20	24	939
GN 33-100-M16-75-B1-*	100	M 16	75	21	32	30	80	10	12	21	530
GN 33-100-M16-100-B1-*	100	M 16	100	21	32	30	80	10	12	21	689
GN 33-100-M16-125-B1-*	100	M 16	125	21	32	30	80	10	12	21	721
GN 33-100-M16-150-B1-*	100	M 16	150	21	32	30	80	10	12	21	790
GN 33-100-M20-100-B1-*	100	M 20	100	21	33	30	80	13	16	21	800
GN 33-100-M20-125-B1-*	100	M 20	125	21	33	30	80	13	16	21	802
GN 33-100-M20-150-B1-*	100	M 20	150	21	33	30	80	13	16	21	820
GN 33-100-M20-200-B1-*	100	M 20	200	21	33	30	80	13	16	21	850
GN 33-100-M24-100-B1-*	100	M 24	100	21	36	30	80	17	20	21	854
GN 33-100-M24-150-B1-*	100	M 24	150	21	36	30	80	17	20	21	1002
GN 33-100-M24-200-B1-*	100	M 24	200	21	36	30	80	17	20	21	1148

Weight Version V

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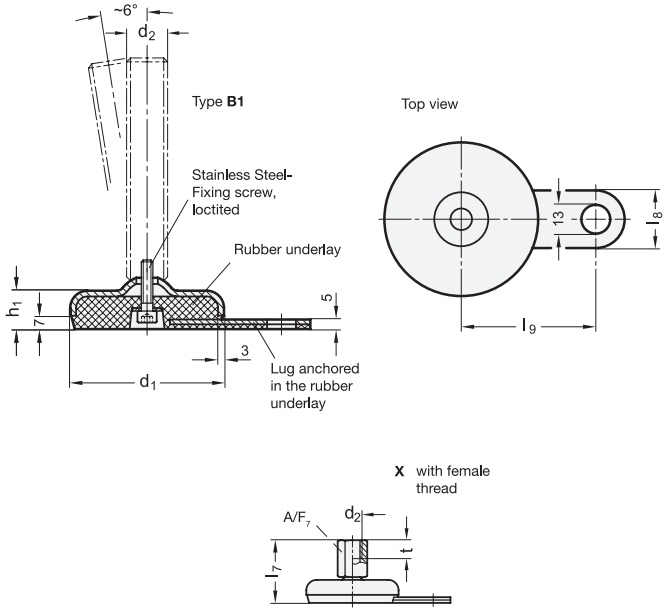
GN 33 | Stainless Steel-Levelling feet



GN 33-W **STAINLESS STEEL**

Description	d1	d2	d3	l3	h1	l4	l5	l6	l8	l9	A/F 5	A/F 6	Static load in kN	⚖
GN 33-60-M16-126-B1-W	60	M 16	24	126	19	45	45	29	25	50	12	20	27	380
GN 33-60-M16-151-B1-W	60	M 16	24	151	19	45	45	29	25	50	12	20	27	392
GN 33-60-M16-176-B1-W	60	M 16	24	176	19	45	45	29	25	50	12	20	27	512
GN 33-60-M16-201-B1-W	60	M 16	24	201	19	45	45	29	25	50	12	20	27	500
GN 33-80-M16-127-B1-W	80	M 16	24	127	20	45	45	29	30	70	12	20	24	620
GN 33-80-M16-152-B1-W	80	M 16	24	152	20	45	45	29	30	70	12	20	24	645
GN 33-80-M16-177-B1-W	80	M 16	24	177	20	45	45	29	30	70	12	20	24	690
GN 33-80-M16-202-B1-W	80	M 16	24	202	20	45	45	29	30	70	12	20	24	699
GN 33-80-M20-151-B1-W	80	M 20	30	151	20	56	56	36	30	70	16	24	24	700
GN 33-80-M20-176-B1-W	80	M 20	30	176	20	56	56	36	30	70	16	24	24	898
GN 33-80-M20-201-B1-W	80	M 20	30	201	20	56	56	36	30	70	16	24	24	961
GN 33-80-M20-251-B1-W	80	M 20	30	251	20	56	56	36	30	70	16	24	24	1085
GN 33-80-M24-176-B1-W	80	M 24	35	176	20	67	67	42	30	70	20	30	24	1074
GN 33-80-M24-226-B1-W	80	M 24	35	226	20	67	67	42	30	70	20	30	24	1300
GN 33-80-M24-276-B1-W	80	M 24	35	276	20	67	67	42	30	70	20	30	24	1431
GN 33-100-M16-128-B1-W	100	M 16	24	128	21	45	45	29	30	80	12	20	21	640
GN 33-100-M16-153-B1-W	100	M 16	24	153	21	45	45	29	30	80	12	20	21	680
GN 33-100-M16-178-B1-W	100	M 16	24	178	21	45	45	29	30	80	12	20	21	720
GN 33-100-M16-203-B1-W	100	M 16	24	203	21	45	45	29	30	80	12	20	21	900
GN 33-100-M20-152-B1-W	100	M 20	30	152	21	56	56	36	30	80	16	24	21	864
GN 33-100-M20-177-B1-W	100	M 20	30	177	21	56	56	36	30	80	16	24	21	1062
GN 33-100-M20-202-B1-W	100	M 20	30	202	21	56	56	36	30	80	16	24	21	1125
GN 33-100-M20-252-B1-W	100	M 20	30	252	21	56	56	36	30	80	16	24	21	1249
GN 33-100-M24-177-B1-W	100	M 24	35	177	21	67	67	42	30	80	20	30	21	1000
GN 33-100-M24-227-B1-W	100	M 24	35	227	21	67	67	42	30	80	20	30	21	1100
GN 33-100-M24-277-B1-W	100	M 24	35	277	21	67	67	42	30	80	20	30	21	1640

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GN 33-X — **STAINLESS STEEL**

Description	d1	d2	l7	h1	l8	l9	A/F 7	t	Static load in kN	⚖
GN 33-50-M8-40-B1-X	50	M 8	40	18	25	45	14	8	8	181
GN 33-50-M10-43-B1-X	50	M 10	43	18	25	45	14	10	13	181
GN 33-50-M12-47-B1-X	50	M 12	47	18	25	45	17	12	20	196
GN 33-50-M16-52-B1-X	50	M 16	52	18	25	45	22	16	28	251
GN 33-60-M8-41-B1-X	60	M 8	41	19	25	50	14	8	8	229
GN 33-60-M10-44-B1-X	60	M 10	44	19	25	50	14	10	13	250
GN 33-60-M12-48-B1-X	60	M 12	48	19	25	50	17	12	20	265
GN 33-60-M16-53-B1-X	60	M 16	53	19	25	50	22	16	28	300
GN 33-80-M8-42-B1-X	80	M 8	42	20	30	70	14	8	8	320
GN 33-80-M10-45-B1-X	80	M 10	45	20	30	70	14	10	13	320
GN 33-80-M12-49-B1-X	80	M 12	49	20	30	70	17	12	15	335
GN 33-80-M16-54-B1-X	80	M 16	54	20	30	70	22	16	19	369
GN 33-80-M20-62-B1-X	80	M 20	62	20	30	70	27	20	19	509
GN 33-100-M8-43-B1-X	100	M 8	43	21	30	80	14	8	8	579
GN 33-100-M10-46-B1-X	100	M 10	46	21	30	80	14	10	13	579
GN 33-100-M12-50-B1-X	100	M 12	50	21	30	80	17	12	17	594
GN 33-100-M16-55-B1-X	100	M 16	55	21	30	80	22	16	17	628
GN 33-100-M20-63-B1-X	100	M 20	63	21	30	80	27	20	17	673

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Levelling feet

Steel zinc plated, without fixing lug

SPECIFICATION

Types (Base plate)

- Type **A0**: Steel, zinc plated, without rubber underlay
- Type **A1**: Steel, zinc plated, rubber clipped on, black
- Type **B0**: without rubber underlay, with 2 fixing holes
- Type **A3**: Stainless Steel, blank, rubber vulcanised, black

Version

- Version **S**: without nut, external hexagon at the bottom
- Version **SK**: with nut, external hexagon at the bottom
- Version **U**: without nut, hexagon socket at the top, wrench flat at the bottom
- Version **UK**: with nut, with hexagon socket at the top, wrench flat at the bottom
- Version **X**: with female thread, external hexagon

Base plate

- Type B0 / A0 / A1: Steel, zinc plated
- Type A3: Stainless Steel AISI 303

Threaded stem
Steel, zinc plated, blue passivated

Hexagon nut ISO 4032
Steel, zinc plated, blue passivated

Rubber cap, clipped on
black, Santoprene® (TPE) 80 ≈ Shore A

Rubber underlay, vulcanised
black, Perbunan® (NBR) 70 ± Shore A

INFORMATION

Levelling feet GN 40 are easy and very reasonably priced foot design variants.
They will be delivered mounted and are not removable.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)
- Elastomer characteristics (see page A32)

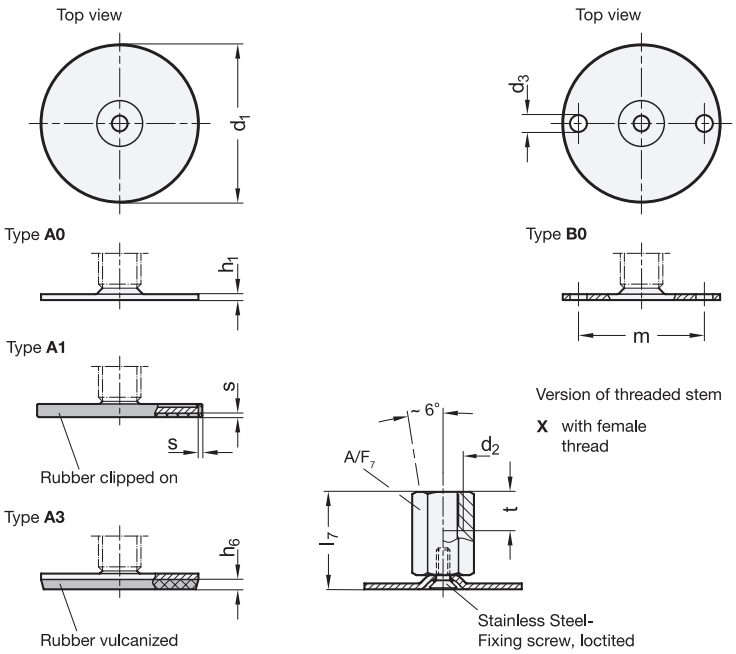


LOAD RATING OF LEVELLING FEET

Information

The static load bearing capacity given in the table rests on a test series in which the load has been applied perpendicular to the base plate (without rubber underlay). For the values given in the table, the strain relief may result in minor deformations of the base plate.
Bending and buckling stress which often occurs in practice results in a lower load bearing capacity of the adjustment spindle and may have to be taken into account.
Also, the spindle strength is assumed to be ≥ 500 N/mm^2.
The details given on strength are nonbinding guide values without any liability. In general, they do not constitute a warranty of quality.
The user must determine from case to case if a product is suitable for the intended purpose or use. Environmental factors may influence the stated values.

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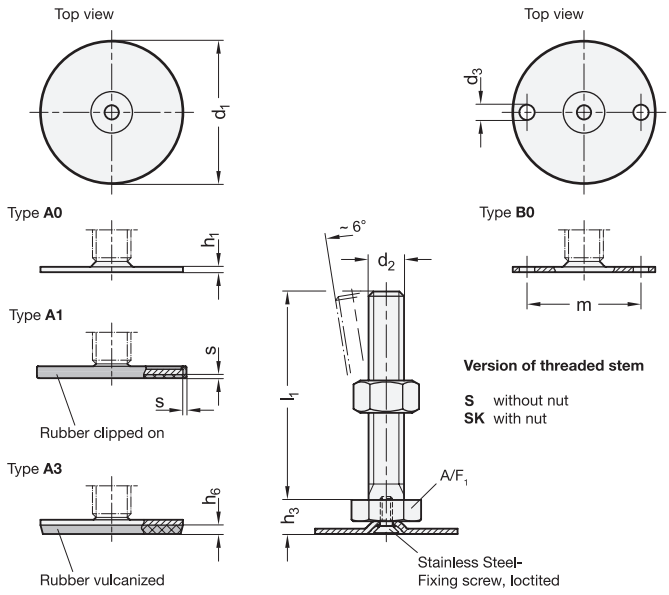
GN 40-X

Description	d1	d2	l7	d3	h1	h6	m	s	A/F 7	t	Static load in kN	⚖
GN 40-40-M8-25-A0-X	40	M 8	25	-	2	-	-	-	14	8	7	50
GN 40-40-M8-25-A1-X	40	M 8	25	-	2	-	-	1.5	14	8	7	50
GN 40-40-M8-25-B0-X	40	M 8	25	5.4	2	-	30	-	14	8	7	63
GN 40-40-M8-25-A3-X	40	M 8	25	-	2	3.5	-	-	14	8	7	91
GN 40-40-M10-28-A0-X	40	M 10	28	-	2	-	-	-	14	10	7	40
GN 40-40-M10-28-A1-X	40	M 10	28	-	2	-	-	1.5	14	10	7	45
GN 40-40-M10-28-B0-X	40	M 10	28	5.4	2	-	30	-	14	10	7	61
GN 40-40-M10-28-A3-X	40	M 10	28	-	2	3.5	-	-	14	10	7	50
GN 40-40-M12-31-A0-X	40	M 12	31	-	2	-	-	-	17	12	7	68
GN 40-40-M12-31-A1-X	40	M 12	31	-	2	-	-	1.5	17	12	7	80
GN 40-40-M12-31-B0-X	40	M 12	31	5.4	2	-	30	-	17	12	7	77
GN 40-40-M12-31-A3-X	40	M 12	31	-	2	3.5	-	-	17	12	7	91
GN 40-40-M16-37-A0-X	40	M 16	37	-	2	-	-	-	22	16	7	91
GN 40-40-M16-37-A1-X	40	M 16	37	-	2	-	-	1.5	22	16	7	91
GN 40-40-M16-37-A3-X	40	M 16	37	-	2	3.5	-	-	22	16	7	91
GN 40-50-M8-25-A0-X	50	M 8	25	-	2.5	-	-	-	14	8	8	91
GN 40-50-M8-25-A1-X	50	M 8	25	-	2.5	-	-	2	14	8	8	91
GN 40-50-M8-25-B0-X	50	M 8	25	6.6	2.5	-	38	-	14	8	8	81
GN 40-50-M8-25-A3-X	50	M 8	25	-	2.5	4	-	-	14	8	8	91
GN 40-50-M10-28-A0-X	50	M 10	28	-	2.5	-	-	-	14	10	8	91
GN 40-50-M10-28-A1-X	50	M 10	28	-	2.5	-	-	2	14	10	8	91
GN 40-50-M10-28-B0-X	50	M 10	28	6.6	2.5	-	38	-	14	10	8	79
GN 40-50-M10-28-A3-X	50	M 10	28	-	2.5	4	-	-	14	10	8	91
GN 40-50-M12-32-A0-X	50	M 12	32	-	2.5	-	-	-	17	12	8	91
GN 40-50-M12-32-A1-X	50	M 12	32	-	2.5	-	-	2	17	12	8	91
GN 40-50-M12-32-B0-X	50	M 12	32	6.6	2.5	-	38	-	17	12	8	90
GN 40-50-M12-32-A3-X	50	M 12	32	-	2.5	4	-	-	17	12	8	91
GN 40-50-M16-37-A0-X	50	M 16	37	-	2.5	-	-	-	22	16	8	91
GN 40-50-M16-37-A1-X	50	M 16	37	-	2.5	-	-	2	22	16	8	91
GN 40-50-M16-37-B0-X	50	M 16	37	6.6	2.5	-	38	-	22	16	8	95
GN 40-50-M16-37-A3-X	50	M 16	37	-	2.5	4	-	-	22	16	8	91
GN 40-60-M8-25-A0-X	60	M 8	25	-	2.5	-	-	-	14	8	8	91
GN 40-60-M8-25-A1-X	60	M 8	25	-	2.5	-	-	2	14	8	8	91

GN 40-X

Description	d1	d2	l7	d3	h1	h6	m	s	A/F 7	t	Static load in kN	⚖
GN 40-60-M8-25-B0-X	60	M 8	25	6.6	2.5	-	48	-	14	8	8	88
GN 40-60-M8-25-A3-X	60	M 8	25	-	2.5	4.5	-	-	14	8	8	91
GN 40-60-M10-28-A0-X	60	M 10	28	-	2.5	-	-	-	14	10	10	91
GN 40-60-M10-28-A1-X	60	M 10	28	-	2.5	-	-	2	14	10	10	91
GN 40-60-M10-28-B0-X	60	M 10	28	6.6	2.5	-	48	-	14	10	10	86
GN 40-60-M10-28-A3-X	60	M 10	28	-	2.5	4.5	-	-	14	10	10	91
GN 40-60-M12-32-A0-X	60	M 12	32	-	2.5	-	-	-	17	12	10	91
GN 40-60-M12-32-A1-X	60	M 12	32	-	2.5	-	-	2	17	12	10	91
GN 40-60-M12-32-B0-X	60	M 12	32	6.6	2.5	-	48	-	17	12	10	88
GN 40-60-M12-32-A3-X	60	M 12	32	-	2.5	4.5	-	-	17	12	10	91
GN 40-60-M16-37-A0-X	60	M 16	37	-	2.5	-	-	-	22	16	10	91
GN 40-60-M16-37-A1-X	60	M 16	37	-	2.5	-	-	2	22	16	10	91
GN 40-60-M16-37-B0-X	60	M 16	37	6.6	2.5	-	48	-	22	16	10	86
GN 40-60-M16-37-A3-X	60	M 16	37	-	2.5	4.5	-	-	22	16	10	91
GN 40-80-M8-26-A0-X	80	M 8	26	-	3	-	-	-	14	8	8	91
GN 40-80-M8-26-A1-X	80	M 8	26	-	3	-	-	2	14	8	8	91
GN 40-80-M8-26-B0-X	80	M 8	26	8.6	3	-	64	-	14	8	8	85
GN 40-80-M8-26-A3-X	80	M 8	26	-	3	5	-	-	14	8	8	91
GN 40-80-M10-29-A0-X	80	M 10	29	-	3	-	-	-	14	10	10	91
GN 40-80-M10-29-A1-X	80	M 10	29	-	3	-	-	2	14	10	10	91
GN 40-80-M10-29-B0-X	80	M 10	29	8.6	3	-	64	-	14	10	10	91
GN 40-80-M10-29-A3-X	80	M 10	29	-	3	5	-	-	14	10	10	91
GN 40-80-M12-32-A0-X	80	M 12	32	-	3	-	-	-	17	12	12	91
GN 40-80-M12-32-A1-X	80	M 12	32	-	3	-	-	2	17	12	12	91
GN 40-80-M12-32-B0-X	80	M 12	32	8.6	3	-	64	-	17	12	12	90
GN 40-80-M12-32-A3-X	80	M 12	32	-	3	5	-	-	17	12	12	191
GN 40-80-M16-38-A0-X	80	M 16	38	-	3	-	-	-	22	16	12	91
GN 40-80-M16-38-A1-X	80	M 16	38	-	3	-	-	2	22	16	12	91
GN 40-80-M16-38-B0-X	80	M 16	38	8.6	3	-	64	-	22	16	12	89
GN 40-80-M16-38-A3-X	80	M 16	38	-	3	5	-	-	22	16	12	91
GN 40-80-M20-45-A0-X	80	M 20	45	-	3	-	-	-	27	20	16	91
GN 40-80-M20-45-A1-X	80	M 20	45	-	3	-	-	2	27	20	16	91
GN 40-80-M20-45-B0-X	80	M 20	45	8.6	3	-	64	-	27	20	16	89
GN 40-80-M20-45-A3-X	80	M 20	45	-	3	5	-	-	27	20	16	91

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*Complete with version of the Levelling feet (External hexagon at the bottom)

S without nut

SK with nut

GN 40-S/SK

Description	d1	d2	l1	d3	h1	h6	m	s	h3	A/F 1	Static load in kN	⚖
GN 40-40-M8-40-A0-*	40	M 8	40	-	2	-	-	-	11	17	7	50
GN 40-40-M8-40-A1-*	40	M 8	40	-	2	-	-	1.5	11	17	7	50
GN 40-40-M8-40-B0-*	40	M 8	40	5.4	2	-	30	-	11	17	7	57
GN 40-40-M8-40-A3-*	40	M 8	40	-	2	3.5	-	-	11	17	7	52
GN 40-40-M8-50-A0-*	40	M 8	50	-	2	-	-	-	11	17	7	51
GN 40-40-M8-50-A1-*	40	M 8	50	-	2	-	-	1.5	11	17	7	53
GN 40-40-M8-50-B0-*	40	M 8	50	5.4	2	-	30	-	11	17	7	43
GN 40-40-M8-50-A3-*	40	M 8	50	-	2	3.5	-	-	11	17	7	54
GN 40-40-M8-63-A0-*	40	M 8	63	-	2	-	-	-	11	17	7	55
GN 40-40-M8-63-A1-*	40	M 8	63	-	2	-	-	1.5	11	17	7	57
GN 40-40-M8-63-B0-*	40	M 8	63	5.4	2	-	30	-	11	17	7	47
GN 40-40-M8-63-A3-*	40	M 8	63	-	2	3.5	-	-	11	17	7	58
GN 40-40-M10-50-A0-*	40	M 10	50	-	2	-	-	-	11	17	7	55
GN 40-40-M10-50-A1-*	40	M 10	50	-	2	-	-	1.5	11	17	7	58
GN 40-40-M10-50-B0-*	40	M 10	50	5.4	2	-	30	-	11	17	7	55
GN 40-40-M10-50-A3-*	40	M 10	50	-	2	3.5	-	-	11	17	7	74
GN 40-40-M10-60-A0-*	40	M 10	60	-	2	-	-	-	11	17	7	60
GN 40-40-M10-60-A1-*	40	M 10	60	-	2	-	-	1.5	11	17	7	73
GN 40-40-M10-60-B0-*	40	M 10	60	5.4	2	-	30	-	11	17	7	60
GN 40-40-M10-60-A3-*	40	M 10	60	-	2	3.5	-	-	11	17	7	77
GN 40-40-M10-80-A0-*	40	M 10	80	-	2	-	-	-	11	17	7	82
GN 40-40-M10-80-A1-*	40	M 10	80	-	2	-	-	1.5	11	17	7	87
GN 40-40-M10-80-B0-*	40	M 10	80	5.4	2	-	30	-	11	17	7	90
GN 40-40-M10-80-A3-*	40	M 10	80	-	2	3.5	-	-	11	17	7	90
GN 40-40-M10-100-A0-*	40	M 10	100	-	2	-	-	-	11	17	7	90
GN 40-40-M10-100-A1-*	40	M 10	100	-	2	-	-	1.5	11	17	7	97
GN 40-40-M10-100-B0-*	40	M 10	100	5.4	2	-	30	-	11	17	7	97
GN 40-40-M10-100-A3-*	40	M 10	100	-	2	3.5	-	-	11	17	7	98
GN 40-40-M12-60-A0-*	40	M 12	60	-	2	-	-	-	11	17	7	90
GN 40-40-M12-60-A1-*	40	M 12	60	-	2	-	-	1.5	11	17	7	90
GN 40-40-M12-60-B0-*	40	M 12	60	5.4	2	-	30	-	11	17	7	90
GN 40-40-M12-60-A3-*	40	M 12	60	-	2	3.5	-	-	11	17	7	91

GN 40-S/SK

Description	d1	d2	l1	d3	h1	h6	m	s	h3	A/F 1	Static load in kN	⚖
GN 40-40-M12-80-A0-*	40	M 12	80	-	2	-	-	-	11	17	7	103
GN 40-40-M12-80-A1-*	40	M 12	80	-	2	-	-	1.5	11	17	7	105
GN 40-40-M12-80-B0-*	40	M 12	80	5.4	2	-	30	-	11	17	7	90
GN 40-40-M12-80-A3-*	40	M 12	80	-	2	3.5	-	-	11	17	7	110
GN 40-40-M12-100-A0-*	40	M 12	100	-	2	-	-	-	11	17	7	118
GN 40-40-M12-100-A1-*	40	M 12	100	-	2	-	-	1.5	11	17	7	120
GN 40-40-M12-100-B0-*	40	M 12	100	5.4	2	-	30	-	11	17	7	119
GN 40-40-M12-100-A3-*	40	M 12	100	-	2	3.5	-	-	11	17	7	120
GN 40-40-M12-125-A0-*	40	M 12	125	-	2	-	-	-	11	17	7	140
GN 40-40-M12-125-A1-*	40	M 12	125	-	2	-	-	1.5	11	17	7	140
GN 40-40-M12-125-B0-*	40	M 12	125	5.4	2	-	30	-	11	17	7	146
GN 40-40-M12-125-A3-*	40	M 12	125	-	2	3.5	-	-	11	17	7	140
GN 40-50-M8-40-A0-*	50	M 8	40	-	2.5	-	-	-	11	17	8	70
GN 40-50-M8-40-A1-*	50	M 8	40	-	2.5	-	-	2	11	17	8	71
GN 40-50-M8-40-B0-*	50	M 8	40	6.6	2.5	-	38	-	11	17	8	58
GN 40-50-M8-40-A3-*	50	M 8	40	-	2.5	4	-	-	11	17	8	95
GN 40-50-M8-50-A0-*	50	M 8	50	-	2.5	-	-	-	11	17	8	69
GN 40-50-M8-50-A1-*	50	M 8	50	-	2.5	-	-	2	11	17	8	72
GN 40-50-M8-50-B0-*	50	M 8	50	6.6	2.5	-	38	-	11	17	8	61
GN 40-50-M8-50-A3-*	50	M 8	50	-	2.5	4	-	-	11	17	8	80
GN 40-50-M8-63-A0-*	50	M 8	63	-	2.5	-	-	-	11	17	8	72
GN 40-50-M8-63-A1-*	50	M 8	63	-	2.5	-	-	2	11	17	8	79
GN 40-50-M8-63-B0-*	50	M 8	63	6.6	2.5	-	38	-	11	17	8	65
GN 40-50-M8-63-A3-*	50	M 8	63	-	2.5	4	-	-	11	17	8	80
GN 40-50-M10-50-A0-*	50	M 10	50	-	2.5	-	-	-	11	17	8	82
GN 40-50-M10-50-A1-*	50	M 10	50	-	2.5	-	-	2	11	17	8	89
GN 40-50-M10-50-B0-*	50	M 10	50	6.6	2.5	-	38	-	11	17	8	91
GN 40-50-M10-50-A3-*	50	M 10	50	-	2.5	4	-	-	11	17	8	91
GN 40-50-M10-60-A0-*	50	M 10	60	-	2.5	-	-	-	11	17	8	90
GN 40-50-M10-60-A1-*	50	M 10	60	-	2.5	-	-	2	11	17	8	88
GN 40-50-M10-60-B0-*	50	M 10	60	6.6	2.5	-	38	-	11	17	8	95
GN 40-50-M10-60-A3-*	50	M 10	60	-	2.5	4	-	-	11	17	8	90
GN 40-50-M10-80-A0-*	50	M 10	80	-	2.5	-	-	-	11	17	8	98
GN 40-50-M10-80-A1-*	50	M 10	80	-	2.5	-	-	2	11	17	8	103

Weight Version S

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*Complete with version of the Levelling feet (External hexagon at the bottom)

S without nut

SK with nut

GN 40-S/SK

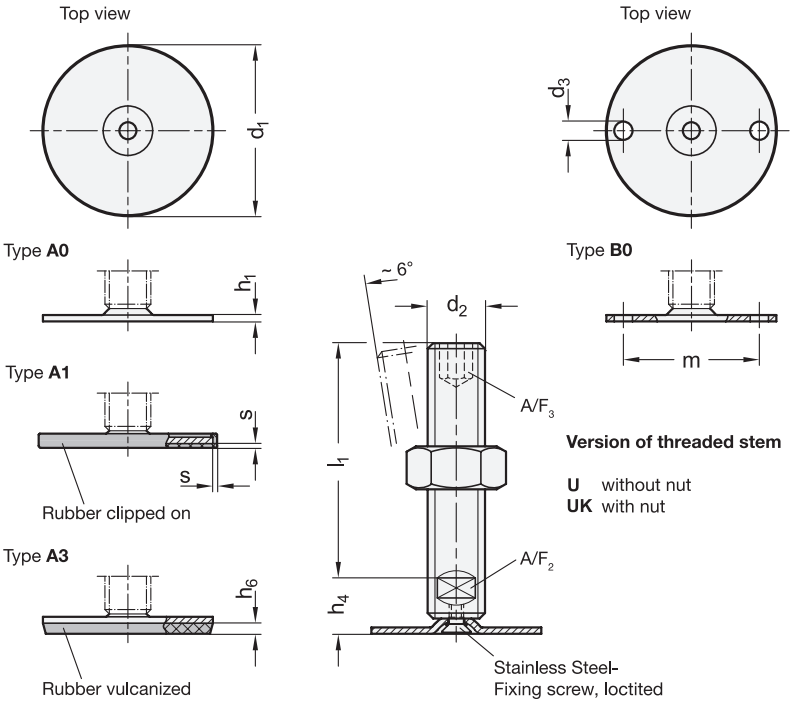
Description	d1	d2	l1	d3	h1	h6	m	s	h3	A/F 1	Static load in kN	⚖
GN 40-50-M10-80-B0-*	50	M 10	80	6.6	2.5	-	38	-	11	17	8	92
GN 40-50-M10-80-A3-*	50	M 10	80	-	2.5	4	-	-	11	17	8	100
GN 40-50-M10-100-A0-*	50	M 10	100	-	2.5	-	-	-	11	17	8	108
GN 40-50-M10-100-A1-*	50	M 10	100	-	2.5	-	-	2	11	17	8	100
GN 40-50-M10-100-B0-*	50	M 10	100	6.6	2.5	-	38	-	11	17	8	115
GN 40-50-M10-100-A3-*	50	M 10	100	-	2.5	4	-	-	11	17	8	120
GN 40-50-M12-60-A0-*	50	M 12	60	-	2.5	-	-	-	11	17	8	106
GN 40-50-M12-60-A1-*	50	M 12	60	-	2.5	-	-	2	11	17	8	112
GN 40-50-M12-60-B0-*	50	M 12	60	6.6	2.5	-	38	-	11	17	8	108
GN 40-50-M12-60-A3-*	50	M 12	60	-	2.5	4	-	-	11	17	8	120
GN 40-50-M12-80-A0-*	50	M 12	80	-	2.5	-	-	-	11	17	8	119
GN 40-50-M12-80-A1-*	50	M 12	80	-	2.5	-	-	2	11	17	8	130
GN 40-50-M12-80-B0-*	50	M 12	80	6.6	2.5	-	38	-	11	17	8	123
GN 40-50-M12-80-A3-*	50	M 12	80	-	2.5	4	-	-	11	17	8	140
GN 40-50-M12-100-A0-*	50	M 12	100	-	2.5	-	-	-	11	17	8	137
GN 40-50-M12-100-A1-*	50	M 12	100	-	2.5	-	-	2	11	17	8	132
GN 40-50-M12-100-B0-*	50	M 12	100	6.6	2.5	-	38	-	11	17	8	137
GN 40-50-M12-100-A3-*	50	M 12	100	-	2.5	4	-	-	11	17	8	140
GN 40-50-M12-125-A0-*	50	M 12	125	-	2.5	-	-	-	11	17	8	184
GN 40-50-M12-125-A1-*	50	M 12	125	-	2.5	-	-	2	11	17	8	140
GN 40-50-M12-125-B0-*	50	M 12	125	6.6	2.5	-	38	-	11	17	8	140
GN 40-50-M12-125-A3-*	50	M 12	125	-	2.5	4.5	-	-	11	17	8	150
GN 40-60-M8-40-A0-*	60	M 8	40	-	2.5	-	-	-	11	17	8	84
GN 40-60-M8-40-A1-*	60	M 8	40	-	2.5	-	-	2	11	17	8	91
GN 40-60-M8-40-B0-*	60	M 8	40	6.6	2.5	-	48	-	11	17	8	75
GN 40-60-M8-40-A3-*	60	M 8	40	-	2.5	4.5	-	-	11	17	8	100
GN 40-60-M8-50-A0-*	60	M 8	50	-	2.5	-	-	-	11	17	8	102
GN 40-60-M8-50-A1-*	60	M 8	50	-	2.5	-	-	2	11	17	8	95
GN 40-60-M8-50-B0-*	60	M 8	50	6.6	2.5	-	48	-	11	17	8	90
GN 40-60-M8-50-A3-*	60	M 8	50	-	2.5	4.5	-	-	11	17	8	102
GN 40-60-M8-63-A0-*	60	M 8	63	-	2.5	-	-	-	11	17	8	92
GN 40-60-M8-63-A1-*	60	M 8	63	-	2.5	-	-	2	11	17	8	94
GN 40-60-M8-63-B0-*	60	M 8	63	6.6	2.5	-	48	-	11	17	8	90
GN 40-60-M8-63-A3-*	60	M 8	63	-	2.5	4.5	-	-	11	17	8	100
GN 40-60-M10-50-A0-*	60	M 10	50	-	2.5	-	-	-	11	17	10	100
GN 40-60-M10-50-A1-*	60	M 10	50	-	2.5	-	-	2	11	17	10	107
GN 40-60-M10-50-B0-*	60	M 10	50	6.6	2.5	-	48	-	11	17	10	107
GN 40-60-M10-50-A3-*	60	M 10	50	-	2.5	4.5	-	-	11	17	10	120
GN 40-60-M10-60-A0-*	60	M 10	60	-	2.5	-	-	-	11	17	10	104
GN 40-60-M10-60-A1-*	60	M 10	60	-	2.5	-	-	2	11	17	10	100
GN 40-60-M10-60-B0-*	60	M 10	60	6.6	2.5	-	48	-	11	17	10	112
GN 40-60-M10-60-A3-*	60	M 10	60	-	2.5	5	-	-	11	17	10	120
GN 40-60-M10-80-A0-*	60	M 10	80	-	2.5	-	-	-	11	17	10	114
GN 40-60-M10-80-A1-*	60	M 10	80	-	2.5	-	-	2	11	17	10	120
GN 40-60-M10-80-B0-*	60	M 10	80	6.6	2.5	-	48	-	11	17	10	114
GN 40-60-M10-80-A3-*	60	M 10	80	-	2.5	5	-	-	11	17	10	130
GN 40-60-M10-100-A0-*	60	M 10	100	-	2.5	-	-	-	11	17	10	120
GN 40-60-M10-100-A1-*	60	M 10	100	-	2.5	-	-	2	11	17	10	125
GN 40-60-M10-100-B0-*	60	M 10	100	6.6	2.5	-	48	-	11	17	10	120
GN 40-60-M10-100-A3-*	60	M 10	100	-	2.5	5	-	-	11	17	10	130
GN 40-60-M12-60-A0-*	60	M 12	60	-	2.5	-	-	-	11	17	10	121

GN 40-S/SK

Description	d1	d2	l1	d3	h1	h6	m	s	h3	A/F 1	Static load in kN	⚖
GN 40-60-M12-60-A1-*	60	M 12	60	-	2.5	-	-	2	11	17	10	120
GN 40-60-M12-60-B0-*	60	M 12	60	6.6	2.5	-	48	-	11	17	10	124
GN 40-60-M12-60-A3-*	60	M 12	60	-	2.5	5	-	-	11	17	10	120
GN 40-60-M12-80-A0-*	60	M 12	80	-	2.5	-	-	-	11	17	10	136
GN 40-60-M12-80-A1-*	60	M 12	80	-	2.5	-	-	2	11	17	10	140
GN 40-60-M12-80-B0-*	60	M 12	80	6.6	2.5	-	48	-	11	17	10	139
GN 40-60-M12-80-A3-*	60	M 12	80	-	2.5	5	-	-	11	17	10	152
GN 40-60-M12-100-A0-*	60	M 12	100	-	2.5	-	-	-	11	17	10	151
GN 40-60-M12-100-A1-*	60	M 12	100	-	2.5	-	-	2	11	17	10	140
GN 40-60-M12-100-B0-*	60	M 12	100	6.6	2.5	-	48	-	11	17	10	153
GN 40-60-M12-100-A3-*	60	M 12	100	-	2.5	5	-	-	11	17	10	160
GN 40-60-M12-125-A0-*	60	M 12	125	-	2.5	-	-	-	11	17	10	167
GN 40-60-M12-125-A1-*	60	M 12	125	-	2.5	-	-	2	11	17	10	180
GN 40-60-M12-125-B0-*	60	M 12	125	6.6	2.5	-	48	-	11	17	10	167
GN 40-60-M12-125-A3-*	60	M 12	125	-	2.5	5	-	-	11	17	10	180
GN 40-80-M8-40-A0-*	80	M 8	40	-	3	-	-	-	12	17	8	170
GN 40-80-M8-40-A1-*	80	M 8	40	-	3	-	-	2	12	17	8	160
GN 40-80-M8-40-B0-*	80	M 8	40	8.6	3	-	64	-	12	17	8	135
GN 40-80-M8-40-A3-*	80	M 8	40	-	3	5	-	-	12	17	8	180
GN 40-80-M8-50-A0-*	80	M 8	50	-	3	-	-	-	12	17	8	150
GN 40-80-M8-50-A1-*	80	M 8	50	-	3	-	-	2	12	17	8	160
GN 40-80-M8-50-B0-*	80	M 8	50	8.6	3	-	64	-	12	17	8	138
GN 40-80-M8-50-A3-*	80	M 8	50	-	3	5	-	-	12	17	8	170
GN 40-80-M8-63-A0-*	80	M 8	63	-	3	-	-	-	12	17	8	380
GN 40-80-M8-63-A1-*	80	M 8	63	-	3	-	-	2	12	17	8	160
GN 40-80-M8-63-B0-*	80	M 8	63	8.6	3	-	64	-	12	17	8	142
GN 40-80-M8-63-A3-*	80	M 8	63	-	3	5	-	-	12	17	8	179
GN 40-80-M10-50-A0-*	80	M 10	50	-	3	-	-	-	12	17	10	166
GN 40-80-M10-50-A1-*	80	M 10	50	-	3	-	-	2	12	17	10	170
GN 40-80-M10-50-B0-*	80	M 10	50	8.6	3	-	64	-	12	17	10	168
GN 40-80-M10-50-A3-*	80	M 10	50	-	3	5	-	-	12	17	10	190
GN 40-80-M10-60-A0-*	80	M 10	60	-	3	-	-	-	12	17	10	180
GN 40-80-M10-60-A1-*	80	M 10	60	-	3	-	-	2	12	17	10	180
GN 40-80-M10-60-B0-*	80	M 10	60	8.6	3	-	64	-	12	17	10	173
GN 40-80-M10-60-A3-*	80	M 10	60	-	3	5	-	-	12	17	10	200
GN 40-80-M10-80-A0-*	80	M 10	80	-	3	-	-	-	12	17	10	181
GN 40-80-M10-80-A1-*	80	M 10	80	-	3	-	-	2	12	17	10	200
GN 40-80-M10-80-B0-*	80	M 10	80	8.6	3	-	64	-	12	17	10	182
GN 40-80-M10-80-A3-*	80	M 10	80	-	3	5	-	-	12	17	10	200
GN 40-80-M10-100-A0-*	80	M 10	100	-	3	-	-	-	12	17	10	189
GN 40-80-M10-100-A1-*	80	M 10	100	-	3	-	-	2	12	17	10	200
GN 40-80-M10-100-B0-*	80	M 10	100	8.6	3	-	64	-	12	17	10	192
GN 40-80-M10-100-A3-*	80	M 10	100	-	3	5	-	-	12	17	10	225
GN 40-80-M12-60-A0-*	80	M 12	60	-	3	-	-	-	12	17	12	180
GN 40-80-M12-60-A1-*	80	M 12	60	-	3	-	-	2	12	17	12	205
GN 40-80-M12-60-B0-*	80	M 12	60	8.6	3	-	64	-	12	17	12	185
GN 40-80-M12-60-A3-*	80	M 12	60	-	3	5	-	-	12	17	12	220
GN 40-80-M12-80-A0-*	80	M 12	80	-	3	-	-	-	12	17	12	201
GN 40-80-M12-80-A1-*	80	M 12	80	-	3	-	-	2	12	17	12	200
GN 40-80-M12-80-B0-*	80	M 12	80	8.6	3	-	64	-	12	17	12	200
GN 40-80-M12-80-A3-*	80	M 12	80	-	3	5	-	-	12	17	12	210
GN 40-80-M12-100-A0-*	80	M 12	100	-	3	-	-	-	12	17	12	215
GN 40-80-M12-100-A1-*	80	M 12	100	-	3	-	-	2	12	17	12	230
GN 40-80-M12-100-B0-*	80	M 12	100	8.6	3	-	64	-	12	17	12	214
GN 40-80-M12-100-A3-*	80	M 12	100	-	3	5	-	-	12	17	12	250
GN 40-80-M12-125-A0-*	80	M 12	125	-	3	-	-	-	12	17	12	233
GN 40-80-M12-125-A1-*	80	M 12	125	-	3	-	-	2	12	17	12	240
GN 40-80-M12-125-B0-*	80	M 12	125	8.6	3	-	64	-	12	17	12	250
GN 40-80-M12-125-A3-*	80	M 12	125	-	3	5	-	-	12	17	12	260

Weight Version S

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*Complete with version of the Levelling feet (Hexagon socket at the top / Wrench at the bottom)

U without nut

UK with nut

GN 40-U/UK

Description	d1	d2	l1	d3	h1	h6	m	s	h4	A/F2	A/F3	Static load in kN	⚖
GN 40-40-M16-75-A0-*	40	M 16	75	-	2	-	-	-	17	12	8	7	153
GN 40-40-M16-75-A1-*	40	M 16	75	-	2	-	-	1.5	17	12	8	7	157
GN 40-40-M16-75-A3-*	40	M 16	75	-	2	3.5	-	-	17	12	8	7	160
GN 40-40-M16-100-A0-*	40	M 16	100	-	2	-	-	-	17	12	8	7	192
GN 40-40-M16-100-A1-*	40	M 16	100	-	2	-	-	1.5	17	12	8	7	180
GN 40-40-M16-100-A3-*	40	M 16	100	-	2	3.5	-	-	17	12	8	7	206
GN 40-40-M16-125-A0-*	40	M 16	125	-	2	-	-	-	17	12	8	7	215
GN 40-40-M16-125-A1-*	40	M 16	125	-	2	-	-	1.5	17	12	8	7	220
GN 40-40-M16-125-A3-*	40	M 16	125	-	2	3.5	-	-	17	12	8	7	220
GN 40-40-M16-150-A0-*	40	M 16	150	-	2	-	-	-	17	12	8	7	251
GN 40-40-M16-150-A1-*	40	M 16	150	-	2	-	-	1.5	17	12	8	7	254
GN 40-40-M16-150-A3-*	40	M 16	150	-	2	3.5	-	-	17	12	8	7	260
GN 40-40-M16-200-A0-*	40	M 16	200	-	2	-	-	-	17	12	8	7	300
GN 40-40-M16-200-A1-*	40	M 16	200	-	2	-	-	1.5	17	12	8	7	300
GN 40-40-M16-200-A3-*	40	M 16	200	-	2	3.5	-	-	17	12	8	7	325
GN 40-50-M16-75-A0-*	50	M 16	75	-	2.5	-	-	-	17	12	8	8	170
GN 40-50-M16-75-A1-*	50	M 16	75	-	2.5	-	-	2	17	12	8	8	177
GN 40-50-M16-75-B0-*	50	M 16	75	6.6	2.5	-	38	-	17	12	8	8	160
GN 40-50-M16-75-A3-*	50	M 16	75	-	2.5	4	-	-	17	12	8	8	180
GN 40-50-M16-100-A0-*	50	M 16	100	-	2.5	-	-	-	17	12	8	8	205
GN 40-50-M16-100-A1-*	50	M 16	100	-	2.5	-	-	2	17	12	8	8	213
GN 40-50-M16-100-B0-*	50	M 16	100	6.6	2.5	-	38	-	17	12	8	8	172
GN 40-50-M16-100-A3-*	50	M 16	100	-	2.5	4	-	-	17	12	8	8	220
GN 40-50-M16-125-A0-*	50	M 16	125	-	2.5	-	-	-	17	12	8	8	243

GN 40-U/UK

Description	d1	d2	l1	d3	h1	h6	m	s	h4	A/F2	A/F3	Static load in kN	⚖
GN 40-50-M16-125-A1-*	50	M 16	125	-	2.5	-	-	2	17	12	8	8	241
GN 40-50-M16-125-B0-*	50	M 16	125	6.6	2.5	-	38	-	17	12	8	8	204
GN 40-50-M16-125-A3-*	50	M 16	125	-	2.5	4	-	-	17	12	8	8	250
GN 40-50-M16-150-A0-*	50	M 16	150	-	2.5	-	-	-	17	12	8	8	268
GN 40-50-M16-150-A1-*	50	M 16	150	-	2.5	-	-	2	17	12	8	8	280
GN 40-50-M16-150-B0-*	50	M 16	150	6.6	2.5	-	38	-	17	12	8	8	236
GN 40-50-M16-150-A3-*	50	M 16	150	-	2.5	4	-	-	17	12	8	8	280
GN 40-50-M16-200-A0-*	50	M 16	200	-	2.5	-	-	-	17	12	8	8	331
GN 40-50-M16-200-A1-*	50	M 16	200	-	2.5	-	-	2	17	12	8	8	340
GN 40-50-M16-200-B0-*	50	M 16	200	6.6	2.5	-	38	-	17	12	8	8	300
GN 40-50-M16-200-A3-*	50	M 16	200	-	2.5	4	-	-	17	12	8	8	320
GN 40-60-M16-75-A0-*	60	M 16	75	-	2.5	-	-	-	17	12	8	10	192
GN 40-60-M16-75-A1-*	60	M 16	75	-	2.5	-	-	2	17	12	8	10	200
GN 40-60-M16-75-B0-*	60	M 16	75	6.6	2.5	-	48	-	17	12	8	10	157
GN 40-60-M16-75-A3-*	60	M 16	75	-	2.5	4.5	-	-	17	12	8	10	250
GN 40-60-M16-100-A0-*	60	M 16	100	-	2.5	-	-	-	17	12	8	10	190
GN 40-60-M16-100-A1-*	60	M 16	100	-	2.5	-	-	2	17	12	8	10	220
GN 40-60-M16-100-B0-*	60	M 16	100	6.6	2.5	-	48	-	17	12	8	10	189
GN 40-60-M16-100-A3-*	60	M 16	100	-	2.5	4.5	-	-	17	12	8	10	240
GN 40-60-M16-125-A0-*	60	M 16	125	-	2.5	-	-	-	17	12	8	10	259
GN 40-60-M16-125-A1-*	60	M 16	125	-	2.5	-	-	2	17	12	8	10	240
GN 40-60-M16-125-B0-*	60	M 16	125	6.6	2.5	-	48	-	17	12	8	10	221
GN 40-60-M16-125-A3-*	60	M 16	125	-	2.5	4.5	-	-	17	12	8	10	250
GN 40-60-M16-150-A0-*	60	M 16	150	-	2.5	-	-	-	17	12	8	10	283
GN 40-60-M16-150-A1-*	60	M 16	150	-	2.5	-	-	2	17	12	8	10	300

Weight Version U

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*Complete with version of the Levelling feet (Hexagon socket at the top / Wrench at the bottom)

U
without nut

UK
with nut

GN 40-U/UK

Description	d1	d2	l1	d3	h1	h6	m	s	h4	A/F 2	A/F 3	Static load in kN	⚖
GN 40-60-M16-150-B0-*	60	M 16	150	6.6	2.5	-	48	-	17	12	8	10	253
GN 40-60-M16-150-A3-*	60	M 16	150	-	2.5	4.5	-	-	17	12	8	10	300
GN 40-60-M16-200-A0-*	60	M 16	200	-	2.5	-	-	-	17	12	8	10	348
GN 40-60-M16-200-A1-*	60	M 16	200	-	2.5	-	-	2	17	12	8	10	340
GN 40-60-M16-200-B0-*	60	M 16	200	6.6	2.5	-	48	-	17	12	8	10	313
GN 40-60-M16-200-A3-*	60	M 16	200	-	2.5	4.5	-	-	17	12	8	10	360
GN 40-80-M16-75-A0-*	80	M 16	75	-	3	-	-	-	18	12	8	12	220
GN 40-80-M16-75-A1-*	80	M 16	75	-	3	-	-	2	18	12	8	12	220
GN 40-80-M16-75-B0-*	80	M 16	75	8.6	3	-	64	-	18	12	8	12	218
GN 40-80-M16-75-A3-*	80	M 16	75	-	3	5	-	-	18	12	8	12	280
GN 40-80-M16-100-A0-*	80	M 16	100	-	3	-	-	-	18	12	8	12	270
GN 40-80-M16-100-A1-*	80	M 16	100	-	3	-	-	2	18	12	8	12	300
GN 40-80-M16-100-B0-*	80	M 16	100	8.6	3	-	64	-	18	12	8	12	250
GN 40-80-M16-100-A3-*	80	M 16	100	-	3	5	-	-	18	12	8	12	320
GN 40-80-M16-125-A0-*	80	M 16	125	-	3	-	-	-	18	12	8	12	300
GN 40-80-M16-125-A1-*	80	M 16	125	-	3	-	-	2	18	12	8	21	331
GN 40-80-M16-125-B0-*	80	M 16	125	8.6	3	-	64	-	18	12	8	12	282
GN 40-80-M16-125-A3-*	80	M 16	125	-	3	5	-	-	18	12	8	21	340
GN 40-80-M16-150-A0-*	80	M 16	150	-	3	-	-	-	18	12	8	12	320
GN 40-80-M16-150-A1-*	80	M 16	150	-	3	-	-	2	18	12	8	12	380
GN 40-80-M16-150-B0-*	80	M 16	150	8.6	3	-	64	-	18	12	8	12	314
GN 40-80-M16-150-A3-*	80	M 16	150	-	3	5	-	-	18	12	8	12	380
GN 40-80-M16-200-A0-*	80	M 16	200	-	3	-	-	-	18	12	8	12	414
GN 40-80-M16-200-A1-*	80	M 16	200	-	3	-	-	2	18	12	8	12	400
GN 40-80-M16-200-B0-*	80	M 16	200	8.6	3	-	64	-	18	12	8	12	374
GN 40-80-M16-200-A3-*	80	M 16	200	-	3	5	-	-	18	12	8	12	440
GN 40-80-M20-75-A0-*	80	M 20	75	-	3	-	-	-	19	15	10	16	347
GN 40-80-M20-75-A1-*	80	M 20	75	-	3	-	-	2	19	15	10	16	360
GN 40-80-M20-75-B0-*	80	M 20	75	8.6	3	-	64	-	19	15	10	16	276
GN 40-80-M20-75-A3-*	80	M 20	75	-	3	5	-	-	19	15	10	16	360
GN 40-80-M20-100-A0-*	80	M 20	100	-	3	-	-	-	19	15	10	16	397
GN 40-80-M20-100-A1-*	80	M 20	100	-	3	-	-	2	19	15	10	16	400

GN 40-U/UK

Description	d1	d2	l1	d3	h1	h6	m	s	h4	A/F 2	A/F 3	Static load in kN	⚖
GN 40-80-M20-100-B0-*	80	M 20	100	8.6	3	-	64	-	19	15	10	16	326
GN 40-80-M20-100-A3-*	80	M 20	100	-	3	5	-	-	19	15	10	16	420
GN 40-80-M20-125-A0-*	80	M 20	125	-	3	-	-	-	19	15	10	16	450
GN 40-80-M20-125-A1-*	80	M 20	125	-	3	-	-	2	19	15	10	16	459
GN 40-80-M20-125-B0-*	80	M 20	125	8.6	3	-	64	-	19	15	10	16	376
GN 40-80-M20-125-A3-*	80	M 20	125	-	3	5	-	-	19	15	10	16	510
GN 40-80-M20-150-A0-*	80	M 20	150	-	3	-	-	-	19	15	10	16	470
GN 40-80-M20-150-A1-*	80	M 20	150	-	3	-	-	2	19	15	10	16	494
GN 40-80-M20-150-B0-*	80	M 20	150	8.6	3	-	64	-	19	15	10	16	425
GN 40-80-M20-150-A3-*	80	M 20	150	-	3	5	-	-	19	15	10	16	520
GN 40-80-M20-200-A0-*	80	M 20	200	-	3	-	-	-	19	15	10	16	595
GN 40-80-M20-200-A1-*	80	M 20	200	-	3	-	-	2	19	15	10	16	600
GN 40-80-M20-200-B0-*	80	M 20	200	8.6	3	-	64	-	19	15	10	16	516
GN 40-80-M20-200-A3-*	80	M 20	200	-	3	5	-	-	19	15	10	16	620
GN 40-80-M24-100-A0-*	80	M 24	100	-	3	-	-	-	21	19	12	16	542
GN 40-80-M24-100-A1-*	80	M 24	100	-	3	-	-	2	21	19	12	16	560
GN 40-80-M24-100-B0-*	80	M 24	100	8.6	3	-	64	-	21	19	12	16	429
GN 40-80-M24-100-A3-*	80	M 24	100	-	3	5	-	-	21	19	12	16	586
GN 40-80-M24-125-A0-*	80	M 24	125	-	3	-	-	-	21	19	12	16	612
GN 40-80-M24-125-A1-*	80	M 24	125	-	3	-	-	2	21	19	12	16	620
GN 40-80-M24-125-B0-*	80	M 24	125	8.6	3	-	64	-	21	19	12	16	501
GN 40-80-M24-125-A3-*	80	M 24	125	-	3	5	-	-	21	19	12	16	600
GN 40-80-M24-150-A0-*	80	M 24	150	-	3	-	-	-	21	19	12	16	685
GN 40-80-M24-150-A1-*	80	M 24	150	-	3	-	-	2	21	19	12	16	660
GN 40-80-M24-150-B0-*	80	M 24	150	8.6	3	-	64	-	21	19	12	16	573
GN 40-80-M24-150-A3-*	80	M 24	150	-	3	5	-	-	21	19	12	16	680
GN 40-80-M24-200-A0-*	80	M 24	200	-	3	-	-	-	21	19	12	16	820
GN 40-80-M24-200-A1-*	80	M 24	200	-	3	-	-	2	21	19	12	16	830
GN 40-80-M24-200-B0-*	80	M 24	200	8.6	3	-	64	-	21	19	12	16	840
GN 40-80-M24-200-A3-*	80	M 24	200	-	3	-5	-	-	21	19	12	16	850

Weight Version U

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Stainless Steel-Levelling feet

without fixing lug

SPECIFICATION

Types (Base plate)

- Type **B0**: without rubber underlay, with 2 fixing bores
- Type **D0**: without rubber underlay
- Type **D1**: rubber clipped on, black
- Type **D3**: rubber vulcanised, black

Version

- Version **S**: without nut, External hexagon at the bottom
- Version **SK**: with nut, External hexagon at the bottom
- Version **T**: without nut, Wrench flat at the bottom, "not dipping" version
- Version **TK**: with nut, Wrench flat at the bottom, "not dipping" version
- Version **U**: without nut, Hexagon socket at the top, Wrench flat at the bottom
- Version **UK**: with nut,Hexagon socket at the top, Wrench flat at the bottom
- Version **V**: without nut, External hexagon at the top, Wrench flat at the bottom
- Version **VK**: with nut, External hexagon at the top, Wrench flat at the bottom
- Version **W**: with adjustable sleeve, Wrench flat at the bottom
- Version **X**: with female thread, External hexagon

Base plate, blank ground
Stainless Steel AISI 304

Threaded stem
Stainless Steel AISI 303

Hexagon nut ISO 4032
Stainless Steel AISI 304

Rubber cap, clipped on
black, Santoprene® (TPE) 80 ≈ Shore A

Rubber underlay, vulcanised
black, Perbunan® (NBR) 70 ± Shore A

INFORMATION

Stainless Steel-Levelling feet GN 41 are easy and very reasonably priced foot design variants.
They will be delivered mounted and are not removable.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)
- Elastomer characteristics (see page A32)

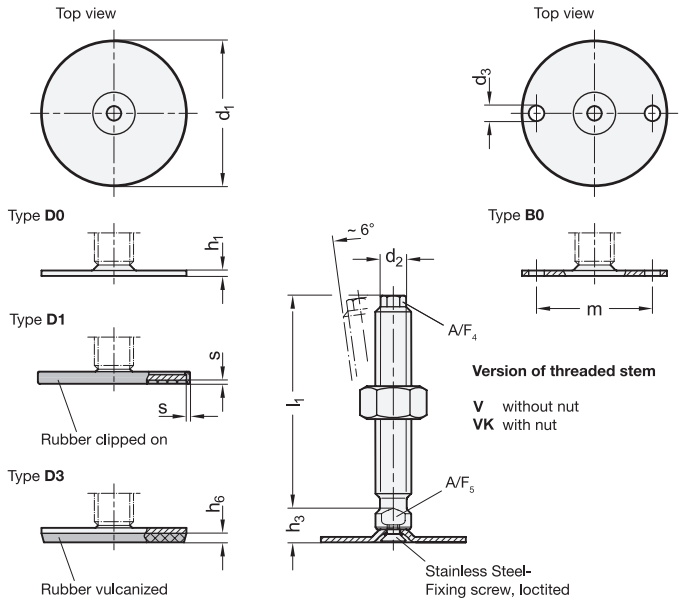


LOAD RATING OF STAINLESS STEEL-LEVELLING FEET

Information

The static load bearing capacity given in the table rests on a test series in which the load has been applied perpendicular to the base plate (without rubber underlay). For the values given in the table, the strain relief may result in minor deformations of the base plate.
Bending and buckling stress which often occurs in practice results in a lower load bearing capacity of the adjustment spindle and may have to be taken into account.
Also, the spindle strength is assumed to be ≥ 500 N/mm^2.
The details given on strength are nonbinding guide values without any liability. In general, they do not constitute a warranty of quality.
The user must determine from case to case if a product is suitable for the intended purpose or use. Environmental factors may influence the stated values.

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* Complete with version of Levelling feet (External hexagon socket on the top/Wrench flat at the bottom)

V without nut

VK with nut

GN 41-V/VK — **STAINLESS STEEL**

Description	d1	d2	l1	d3	m	h1	h3	h6	s	A/F 4	A/F 5	Static load in kN	⚖
GN 41-60-M16-75-B0-*	60	M 16	75	6.6	48	2.5	14	-	-	10	12	16	76
GN 41-60-M16-75-D0-*	60	M 16	75	-	-	2.5	14	-	-	10	12	16	136
GN 41-60-M16-75-D1-*	60	M 16	75	-	-	2.5	14	-	2	10	12	16	138
GN 41-60-M16-75-D3-*	60	M 16	75	-	-	2.5	14	4.5	-	10	12	16	134
GN 41-60-M16-100-B0-*	60	M 16	100	6.6	48	2.5	14	-	-	10	12	16	187
GN 41-60-M16-100-D0-*	60	M 16	100	-	-	2.5	14	-	-	10	12	16	191
GN 41-60-M16-100-D1-*	60	M 16	100	-	-	2.5	14	-	2	10	12	16	195
GN 41-60-M16-100-D3-*	60	M 16	100	-	-	2.5	14	4.5	-	10	12	16	199
GN 41-60-M16-125-B0-*	60	M 16	125	6.6	48	2.5	14	-	-	10	12	16	219
GN 41-60-M16-125-D0-*	60	M 16	125	-	-	2.5	14	-	-	10	12	16	223
GN 41-60-M16-125-D1-*	60	M 16	125	-	-	2.5	14	-	2	10	12	16	227
GN 41-60-M16-125-D3-*	60	M 16	125	-	-	2.5	14	4.5	-	10	12	16	231
GN 41-60-M16-150-B0-*	60	M 16	150	6.6	48	2.5	14	-	-	10	12	16	252
GN 41-60-M16-150-D0-*	60	M 16	150	-	-	2.5	14	-	-	10	12	16	256
GN 41-60-M16-150-D1-*	60	M 16	150	-	-	2.5	14	-	2	10	12	16	260
GN 41-60-M16-150-D3-*	60	M 16	150	-	-	2.5	14	4.5	-	10	12	16	266
GN 41-80-M16-75-B0-*	80	M 16	75	8.5	48	3	15	-	-	10	12	20	109
GN 41-80-M16-75-D0-*	80	M 16	75	-	-	3	15	-	-	10	12	20	109
GN 41-80-M16-75-D1-*	80	M 16	75	-	-	3	15	-	2	10	12	20	114
GN 41-80-M16-75-D3-*	80	M 16	75	-	-	3	15	5	-	10	12	20	114
GN 41-80-M16-100-B0-*	80	M 16	100	8.5	64	3	15	-	-	10	12	20	150
GN 41-80-M16-100-D0-*	80	M 16	100	-	-	3	15	-	-	10	12	20	190
GN 41-80-M16-100-D1-*	80	M 16	100	-	-	3	15	-	2	10	12	20	265
GN 41-80-M16-100-D3-*	80	M 16	100	-	-	3	15	5	-	10	12	20	275
GN 41-80-M16-125-B0-*	80	M 16	125	8.5	64	3	15	-	-	10	12	20	284
GN 41-80-M16-125-D0-*	80	M 16	125	-	-	3	15	-	-	10	12	20	285
GN 41-80-M16-125-D1-*	80	M 16	125	-	-	3	15	-	2	10	12	20	297
GN 41-80-M16-125-D3-*	80	M 16	125	-	-	3	15	5	-	10	12	20	307
GN 41-80-M16-150-B0-*	80	M 16	150	8.5	64	3	15	-	-	10	12	20	317
GN 41-80-M16-150-D0-*	80	M 16	150	-	-	3	15	-	-	10	12	20	319
GN 41-80-M16-150-D1-*	80	M 16	150	-	-	3	15	-	2	10	12	20	330
GN 41-80-M16-150-D3-*	80	M 16	150	-	-	3	15	5	-	10	12	20	340

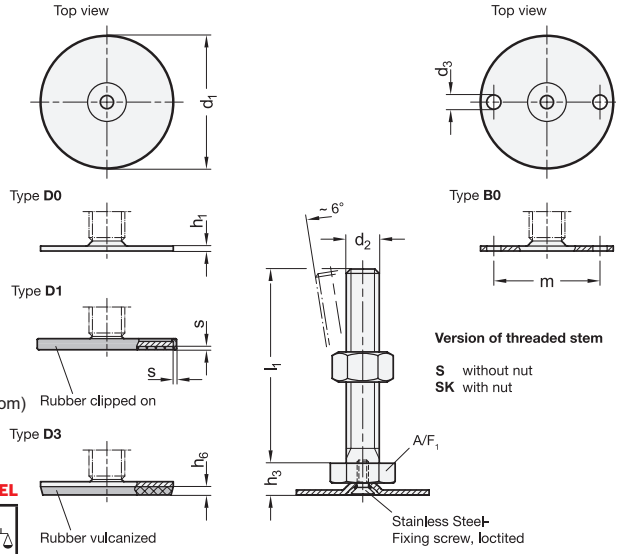
GN 41-V/VK — **STAINLESS STEEL**

Description	d1	d2	l1	d3	m	h1	h3	h6	s	A/F 4	A/F 5	Static load in kN	⚖
GN 41-80-M20-100-B0-*	80	M 20	100	8.5	64	3	15	-	-	13	16	20	331
GN 41-80-M20-100-D0-*	80	M 20	100	-	-	3	15	-	-	13	16	20	331
GN 41-80-M20-100-D1-*	80	M 20	100	-	-	3	15	-	2	13	16	20	345
GN 41-80-M20-100-D3-*	80	M 20	100	-	-	3	15	5	-	13	16	20	355
GN 41-80-M20-125-B0-*	80	M 20	125	8.5	64	3	15	-	-	13	16	20	382
GN 41-80-M20-125-D0-*	80	M 20	125	-	-	3	15	-	-	13	16	20	382
GN 41-80-M20-125-D1-*	80	M 20	125	-	-	3	15	-	2	13	16	20	396
GN 41-80-M20-125-D3-*	80	M 20	125	-	-	3	15	5	-	13	16	20	406
GN 41-80-M20-150-B0-*	80	M 20	150	8.5	64	3	15	-	-	13	16	20	434
GN 41-80-M20-150-D0-*	80	M 20	150	-	-	3	15	-	-	13	16	20	434
GN 41-80-M20-150-D1-*	80	M 20	150	-	-	3	15	-	2	13	16	20	448
GN 41-80-M20-150-D3-*	80	M 20	150	-	-	3	15	5	-	13	16	20	458
GN 41-80-M20-200-B0-*	80	M 20	200	8.5	64	3	15	-	-	13	16	20	539
GN 41-80-M20-200-D0-*	80	M 20	200	-	-	3	15	-	-	13	16	20	539
GN 41-80-M20-200-D1-*	80	M 20	200	-	-	3	15	-	2	13	16	20	553
GN 41-80-M20-200-D3-*	80	M 20	200	-	-	3	15	5	-	13	16	20	563
GN 41-80-M24-100-B0-*	80	M 24	100	8.5	64	3	18	-	-	17	20	22	434
GN 41-80-M24-100-D0-*	80	M 24	100	-	-	3	18	-	-	17	20	22	436
GN 41-80-M24-100-D1-*	80	M 24	100	-	-	3	18	-	2	17	20	22	447
GN 41-80-M24-100-D3-*	80	M 24	100	-	-	3	18	5	-	17	20	22	460
GN 41-80-M24-150-B0-*	80	M 24	150	8.5	64	3	18	-	-	17	20	22	582
GN 41-80-M24-150-D0-*	80	M 24	150	-	-	3	18	-	-	17	20	22	583
GN 41-80-M24-150-D1-*	80	M 24	150	-	-	3	18	-	2	17	20	22	595
GN 41-80-M24-150-D3-*	80	M 24	150	-	-	3	18	5	-	17	20	22	608
GN 41-80-M24-200-B0-*	80	M 24	200	8.5	64	3	18	-	-	17	20	22	728
GN 41-80-M24-200-D0-*	80	M 24	200	-	-	3	18	-	-	17	20	22	729
GN 41-80-M24-200-D1-*	80	M 24	200	-	-	3	18	-	2	17	20	22	741
GN 41-80-M24-200-D3-*	80	M 24	200	-	-	3	18	5	-	17	20	22	754

Weight Version V

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GN 41 | Stainless Steel-Levelling feet



*Complete with version of the Levelling feet (External hexagon at the bottom)

S without nut **SK** with nut

GN 41-S/SK — STAINLESS STEEL

Description	d1	d2	l1	d3	m	h1	h3	h6	s	A/F1	Static load in kN	⚖
GN 41-40-M8-40-B0-*	40	M 8	40	5.4	30	2	11	-	-	17	8	38
GN 41-40-M8-40-D0-*	40	M 8	40	-	-	2	11	-	-	17	8	48
GN 41-40-M8-40-D1-*	40	M 8	40	-	-	2	11	-	1.5	17	8	50
GN 41-40-M8-40-D3-*	40	M 8	40	-	-	2	11	3.5	-	17	8	50
GN 41-40-M8-50-B0-*	40	M 8	50	5.4	30	2	11	-	-	17	8	50
GN 41-40-M8-50-D0-*	40	M 8	50	-	-	2	11	-	-	17	8	50
GN 41-40-M8-50-D1-*	40	M 8	50	-	-	2	11	-	1.5	17	8	53
GN 41-40-M8-50-D3-*	40	M 8	50	-	-	2	11	3.5	-	17	8	55
GN 41-40-M8-63-B0-*	40	M 8	63	5.4	30	2	11	-	-	17	8	55
GN 41-40-M8-63-D0-*	40	M 8	63	-	-	2	11	-	-	17	8	55
GN 41-40-M8-63-D1-*	40	M 8	63	-	-	2	11	-	1.5	17	8	60
GN 41-40-M8-63-D3-*	40	M 8	63	-	-	2	11	3.5	-	17	8	60
GN 41-40-M10-50-B0-*	40	M 10	50	5.4	30	2	11	-	-	17	12	64
GN 41-40-M10-50-D0-*	40	M 10	50	-	-	2	11	-	-	17	12	65
GN 41-40-M10-50-D1-*	40	M 10	50	-	-	2	11	-	1.5	17	12	60
GN 41-40-M10-50-D3-*	40	M 10	50	-	-	2	11	3.5	-	17	12	60
GN 41-40-M10-60-B0-*	40	M 10	60	5.4	30	2	11	-	-	17	12	68
GN 41-40-M10-60-D0-*	40	M 10	60	-	-	2	11	-	-	17	12	68
GN 41-40-M10-60-D1-*	40	M 10	60	-	-	2	11	-	1.5	17	12	75
GN 41-40-M10-60-D3-*	40	M 10	60	-	-	2	11	3.5	-	17	12	80
GN 41-40-M10-80-B0-*	40	M 10	80	5.4	30	2	11	-	-	17	12	80
GN 41-40-M10-80-D0-*	40	M 10	80	-	-	2	11	-	-	17	12	81
GN 41-40-M10-80-D1-*	40	M 10	80	-	-	2	11	-	1.5	17	12	82
GN 41-40-M10-80-D3-*	40	M 10	80	-	-	2	11	3.5	-	17	12	84
GN 41-40-M10-100-B0-*	40	M 10	100	5.4	30	2	11	-	-	17	12	90
GN 41-40-M10-100-D0-*	40	M 10	100	-	-	2	11	-	-	17	12	91
GN 41-40-M10-100-D1-*	40	M 10	100	-	-	2	11	-	1.5	17	12	92
GN 41-40-M10-100-D3-*	40	M 10	100	-	-	2	11	3.5	-	17	12	94
GN 41-40-M12-60-B0-*	40	M 12	60	5.4	30	2	11	-	-	17	12	90
GN 41-40-M12-60-D0-*	40	M 12	60	-	-	2	11	-	-	17	12	96
GN 41-40-M12-60-D1-*	40	M 12	60	-	-	2	11	-	1.5	17	12	100
GN 41-40-M12-60-D3-*	40	M 12	60	-	-	2	11	3.5	-	17	12	102
GN 41-40-M12-80-B0-*	40	M 12	80	5.4	30	2	11	-	-	17	12	102
GN 41-40-M12-80-D0-*	40	M 12	80	-	-	2	11	-	-	17	12	102
GN 41-40-M12-80-D1-*	40	M 12	80	-	-	2	11	-	1.5	17	12	103
GN 41-40-M12-80-D3-*	40	M 12	80	-	-	2	11	3.5	-	17	12	104
GN 41-40-M12-100-B0-*	40	M 12	100	5.4	30	2	11	-	-	17	12	118
GN 41-40-M12-100-D0-*	40	M 12	100	-	-	2	11	-	-	17	12	126
GN 41-40-M12-100-D1-*	40	M 12	100	-	-	2	11	-	1.5	17	12	120
GN 41-40-M12-100-D3-*	40	M 12	100	-	-	2	11	3.5	-	17	12	122
GN 41-40-M12-125-B0-*	40	M 12	125	5.4	30	2	11	-	-	17	12	135

GN 41-S/SK — STAINLESS STEEL

Description	d1	d2	l1	d3	m	h1	h3	h6	s	A/F1	Static load in kN	⚖
GN 41-40-M12-125-D0-*	40	M 12	125	-	-	2	11	-	-	17	12	136
GN 41-40-M12-125-D1-*	40	M 12	125	-	-	2	11	-	1.5	17	12	139
GN 41-40-M12-125-D3-*	40	M 12	125	-	-	2	11	3.5	-	17	12	140
GN 41-50-M8-40-B0-*	50	M 8	40	6.6	38	2.5	11	-	-	17	8	60
GN 41-50-M8-40-D0-*	50	M 8	40	-	-	2.5	11	-	-	17	8	60
GN 41-50-M8-40-D1-*	50	M 8	40	-	-	2.5	11	-	2	17	8	74
GN 41-50-M8-40-D3-*	50	M 8	40	-	-	2.5	11	4	-	17	8	80
GN 41-50-M8-50-B0-*	50	M 8	50	6.6	38	2.5	11	-	-	17	8	60
GN 41-50-M8-50-D0-*	50	M 8	50	-	-	2.5	11	-	-	17	8	60
GN 41-50-M8-50-D1-*	50	M 8	50	-	-	2.5	11	-	2	17	8	80
GN 41-50-M8-50-D3-*	50	M 8	50	-	-	2.5	11	4	-	17	8	80
GN 41-50-M8-63-B0-*	50	M 8	63	6.6	38	2.5	11	-	-	17	8	65
GN 41-50-M8-63-D0-*	50	M 8	63	-	-	2.5	11	-	-	17	8	73
GN 41-50-M8-63-D1-*	50	M 8	63	-	-	2.5	11	-	2	17	8	79
GN 41-50-M8-63-D3-*	50	M 8	63	-	-	2.5	11	4	-	17	8	82
GN 41-50-M10-50-B0-*	50	M 10	50	6.6	38	2.5	11	-	-	17	14	80
GN 41-50-M10-50-D0-*	50	M 10	50	-	-	2.5	11	-	-	17	14	82
GN 41-50-M10-50-D1-*	50	M 10	50	-	-	2.5	11	-	2	17	14	90
GN 41-50-M10-50-D3-*	50	M 10	50	-	-	2.5	11	4	-	17	14	90
GN 41-50-M10-60-B0-*	50	M 10	60	6.6	38	2.5	11	-	-	17	14	90
GN 41-50-M10-60-D0-*	50	M 10	60	-	-	2.5	11	-	-	17	14	94
GN 41-50-M10-60-D1-*	50	M 10	60	-	-	2.5	11	-	2	17	14	98
GN 41-50-M10-60-D3-*	50	M 10	60	-	-	2.5	11	4	-	17	14	100
GN 41-50-M10-80-B0-*	50	M 10	80	6.6	38	2.5	11	-	-	17	14	100
GN 41-50-M10-80-D0-*	50	M 10	80	-	-	2.5	11	-	-	17	14	100
GN 41-50-M10-80-D1-*	50	M 10	80	-	-	2.5	11	-	2	17	14	104
GN 41-50-M10-80-D3-*	50	M 10	80	-	-	2.5	11	4	-	17	14	109
GN 41-50-M10-100-B0-*	50	M 10	100	6.6	38	2.5	11	-	-	17	14	110
GN 41-50-M10-100-D0-*	50	M 10	100	-	-	2.5	11	-	-	17	14	110
GN 41-50-M10-100-D1-*	50	M 10	100	-	-	2.5	11	-	2	17	14	120
GN 41-50-M10-100-D3-*	50	M 10	100	-	-	2.5	11	4	-	17	14	120
GN 41-50-M12-60-B0-*	50	M 12	60	6.6	38	2.5	11	-	-	17	14	108
GN 41-50-M12-60-D0-*	50	M 12	60	-	-	2.5	11	-	-	17	14	109
GN 41-50-M12-60-D1-*	50	M 12	60	-	-	2.5	11	-	2	17	14	110
GN 41-50-M12-60-D3-*	50	M 12	60	-	-	2.5	11	4	-	17	14	117

Weight Version S

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*Complete with version of the Levelling feet (External hexagon at the bottom)

S without nut

SK with nut

GN 41-S/SK STAINLESS STEEL

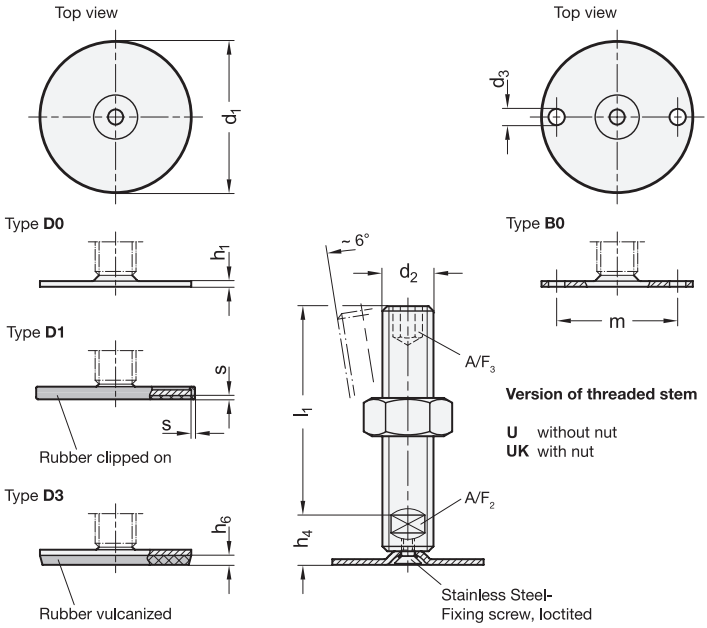
Description	d1	d2	l1	d3	m	h1	h3	h6	s	A/F 1	Static load in kN	⚖
GN 41-50-M12-80-B0-*	50	M 12	80	6.6	38	2.5	11	-	-	17	14	120
GN 41-50-M12-80-D0-*	50	M 12	80	-	-	2.5	11	-	-	17	14	120
GN 41-50-M12-80-D1-*	50	M 12	80	-	-	2.5	11	-	2	17	14	129
GN 41-50-M12-80-D3-*	50	M 12	80	-	-	2.5	11	4	-	17	14	120
GN 41-50-M12-100-B0-*	50	M 12	100	6.6	38	2.5	11	-	-	17	14	137
GN 41-50-M12-100-D0-*	50	M 12	100	-	-	2.5	11	-	-	17	14	137
GN 41-50-M12-100-D1-*	50	M 12	100	-	-	2.5	11	-	2	17	14	145
GN 41-50-M12-100-D3-*	50	M 12	100	-	-	2.5	11	4	-	17	14	145
GN 41-50-M12-125-B0-*	50	M 12	125	6.6	38	2.5	11	-	-	17	14	154
GN 41-50-M12-125-D0-*	50	M 12	125	-	-	2.5	11	-	-	17	14	155
GN 41-50-M12-125-D1-*	50	M 12	125	-	-	2.5	11	-	2	17	14	160
GN 41-50-M12-125-D3-*	50	M 12	125	-	-	2.5	11	4	-	17	14	165
GN 41-60-M8-40-B0-*	60	M 8	40	6.6	48	2.5	11	-	-	17	8	74
GN 41-60-M8-40-D0-*	60	M 8	40	-	-	2.5	11	-	-	17	8	80
GN 41-60-M8-40-D1-*	60	M 8	40	-	-	2.5	11	-	2	17	8	88
GN 41-60-M8-40-D3-*	60	M 8	40	-	-	2.5	11	4.5	-	17	8	100
GN 41-60-M8-50-B0-*	60	M 8	50	6.6	48	2.5	11	-	-	17	8	78
GN 41-60-M8-50-D0-*	60	M 8	50	-	-	2.5	11	-	-	17	8	80
GN 41-60-M8-50-D1-*	60	M 8	50	-	-	2.5	11	-	2	17	8	90
GN 41-60-M8-50-D3-*	60	M 8	50	-	-	2.5	11	4.5	-	17	8	100
GN 41-60-M8-63-B0-*	60	M 8	63	6.6	48	2.5	11	-	-	17	8	82
GN 41-60-M8-63-D0-*	60	M 8	63	-	-	2.5	11	-	-	17	8	100
GN 41-60-M8-63-D1-*	60	M 8	63	-	-	2.5	11	-	2	17	8	100
GN 41-60-M8-63-D3-*	60	M 8	63	-	-	2.5	11	4.5	-	17	8	100
GN 41-60-M10-50-B0-*	60	M 10	50	6.6	48	2.5	11	-	-	17	14	107
GN 41-60-M10-50-D0-*	60	M 10	50	-	-	2.5	11	-	-	17	14	110
GN 41-60-M10-50-D1-*	60	M 10	50	-	-	2.5	11	-	2	17	14	110
GN 41-60-M10-50-D3-*	60	M 10	50	-	-	2.5	11	4.5	-	17	14	114
GN 41-60-M10-60-B0-*	60	M 10	60	6.6	48	2.5	11	-	-	17	14	111
GN 41-60-M10-60-D0-*	60	M 10	60	-	-	2.5	11	-	-	17	14	107
GN 41-60-M10-60-D1-*	60	M 10	60	-	-	2.5	11	-	2	17	14	120
GN 41-60-M10-60-D3-*	60	M 10	60	-	-	2.5	11	4.5	-	17	14	119
GN 41-60-M10-80-B0-*	60	M 10	80	6.6	48	2.5	11	-	-	17	14	121
GN 41-60-M10-80-D0-*	60	M 10	80	-	-	2.5	11	-	-	17	14	118
GN 41-60-M10-80-D1-*	60	M 10	80	-	-	2.5	11	-	2	17	14	120
GN 41-60-M10-80-D3-*	60	M 10	80	-	-	2.5	11	4.5	-	17	14	140
GN 41-60-M10-100-B0-*	60	M 10	100	6.6	48	2.5	11	-	-	17	14	120
GN 41-60-M10-100-D0-*	60	M 10	100	-	-	2.5	11	-	-	17	14	128
GN 41-60-M10-100-D1-*	60	M 10	100	-	-	2.5	11	-	2	17	14	138
GN 41-60-M10-100-D3-*	60	M 10	100	-	-	2.5	11	4.5	-	17	14	140
GN 41-60-M12-60-B0-*	60	M 12	60	6.6	48	2.5	11	-	-	17	16	125
GN 41-60-M12-60-D0-*	60	M 12	60	-	-	2.5	11	-	-	17	16	126
GN 41-60-M12-60-D1-*	60	M 12	60	-	-	2.5	11	-	2	17	16	133
GN 41-60-M12-60-D3-*	60	M 12	60	-	-	2.5	11	4.5	-	17	16	139
GN 41-60-M12-80-B0-*	60	M 12	80	6.6	48	2.5	11	-	-	17	16	139
GN 41-60-M12-80-D0-*	60	M 12	80	-	-	2.5	11	-	-	17	16	140
GN 41-60-M12-80-D1-*	60	M 12	80	-	-	2.5	11	-	2	17	16	148
GN 41-60-M12-80-D3-*	60	M 12	80	-	-	2.5	11	4.5	-	17	16	131
GN 41-60-M12-100-B0-*	60	M 12	100	6.6	48	2.5	11	-	-	17	16	150
GN 41-60-M12-100-D0-*	60	M 12	100	-	-	2.5	11	-	-	17	16	153
GN 41-60-M12-100-D1-*	60	M 12	100	-	-	2.5	11	-	2	17	16	155
GN 41-60-M12-100-D3-*	60	M 12	100	-	-	2.5	11	4.5	-	17	16	160
GN 41-60-M12-125-B0-*	60	M 12	125	6.6	48	2.5	11	-	-	17	16	171
GN 41-60-M12-125-D0-*	60	M 12	125	-	-	2.5	11	-	-	17	16	172
GN 41-60-M12-125-D1-*	60	M 12	125	-	-	2.5	11	-	2	17	16	180
GN 41-60-M12-125-D3-*	60	M 12	125	-	-	2.5	11	4.5	-	17	16	186

GN 41-S/SK STAINLESS STEEL

Description	d1	d2	l1	d3	m	h1	h3	h6	s	A/F 1	Static load in kN	⚖
GN 41-80-M8-40-B0-*	80	M 8	40	8.5	64	3	12	-	-	17	8	138
GN 41-80-M8-40-D0-*	80	M 8	40	-	-	3	12	-	-	17	8	142
GN 41-80-M8-40-D1-*	80	M 8	40	-	-	3	12	-	2	17	8	160
GN 41-80-M8-40-D3-*	80	M 8	40	-	-	3	12	5	-	17	8	180
GN 41-80-M8-50-B0-*	80	M 8	50	8.5	64	3	12	-	-	17	8	150
GN 41-80-M8-50-D0-*	80	M 8	50	-	-	3	12	-	-	17	8	160
GN 41-80-M8-50-D1-*	80	M 8	50	-	-	3	12	-	2	17	8	160
GN 41-80-M8-50-D3-*	80	M 8	50	-	-	3	12	5	-	17	8	150
GN 41-80-M8-63-B0-*	80	M 8	63	8.5	64	3	12	-	-	17	8	146
GN 41-80-M8-63-D0-*	80	M 8	63	-	-	3	12	-	-	17	8	149
GN 41-80-M8-63-D1-*	80	M 8	63	-	-	3	12	-	2	17	8	159
GN 41-80-M8-63-D3-*	80	M 8	63	-	-	3	12	5	-	17	8	180
GN 41-80-M10-50-B0-*	80	M 10	50	8.5	64	3	12	-	-	17	14	151
GN 41-80-M10-50-D0-*	80	M 10	50	-	-	3	12	-	-	17	14	157
GN 41-80-M10-50-D1-*	80	M 10	50	-	-	3	12	-	2	17	14	180
GN 41-80-M10-50-D3-*	80	M 10	50	-	-	3	12	5	-	17	14	180
GN 41-80-M10-60-B0-*	80	M 10	60	8.5	64	3	12	-	-	17	14	175
GN 41-80-M10-60-D0-*	80	M 10	60	-	-	3	12	-	-	17	14	175
GN 41-80-M10-60-D1-*	80	M 10	60	-	-	3	12	-	2	17	14	174
GN 41-80-M10-60-D3-*	80	M 10	60	-	-	3	12	5	-	17	14	196
GN 41-80-M10-80-B0-*	80	M 10	80	8.5	64	3	12	-	-	17	14	185
GN 41-80-M10-80-D0-*	80	M 10	80	-	-	3	12	-	-	17	14	185
GN 41-80-M10-80-D1-*	80	M 10	80	-	-	3	12	-	2	17	14	198
GN 41-80-M10-80-D3-*	80	M 10	80	-	-	3	12	5	-	17	14	211
GN 41-80-M10-100-B0-*	80	M 10	100	8.5	64	3	12	-	-	17	14	196
GN 41-80-M10-100-D0-*	80	M 10	100	-	-	3	12	-	-	17	14	186
GN 41-80-M10-100-D1-*	80	M 10	100	-	-	3	12	-	2	17	14	210
GN 41-80-M10-100-D3-*	80	M 10	100	-	-	3	12	5	-	17	14	216
GN 41-80-M12-60-B0-*	80	M 12	60	8.5	64	3	12	-	-	17	20	150
GN 41-80-M12-60-D0-*	80	M 12	60	-	-	3	12	-	-	17	20	196
GN 41-80-M12-60-D1-*	80	M 12	60	-	-	3	12	-	2	17	20	200
GN 41-80-M12-60-D3-*	80	M 12	60	-	-	3	12	5	-	17	20	214
GN 41-80-M12-80-B0-*	80	M 12	80	8.5	64	3	12	-	-	17	20	203
GN 41-80-M12-80-D0-*	80	M 12	80	-	-	3	12	-	-	17	20	204
GN 41-80-M12-80-D1-*	80	M 12	80	-	-	3	12	-	2	17	20	218
GN 41-80-M12-80-D3-*	80	M 12	80	-	-	3	12	5	-	17	20	220
GN 41-80-M12-100-B0-*	80	M 12	100	8.5	64	3	12	-	-	17	20	218
GN 41-80-M12-100-D0-*	80	M 12	100	-	-	3	12	-	-	17	20	214
GN 41-80-M12-100-D1-*	80	M 12	100	-	-	3	12	-	2	17	20	228
GN 41-80-M12-100-D3-*	80	M 12	100	-	-	3	12	5	-	17	20	245
GN 41-80-M12-125-B0-*	80	M 12	125	8.5	64	3	12	-	-	17	20	235
GN 41-80-M12-125-D0-*	80	M 12	125	-	-	3	12	-	-	17	20	237
GN 41-80-M12-125-D1-*	80	M 12	125	-	-	3	12	-	2	17	20	240
GN 41-80-M12-125-D3-*	80	M 12	125	-	-	3	12	5	-	17	20	250

Weight Version S

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*Complete with version of the Levelling feet (Hexagon socket at the top / Wrench at the bottom)

U without nut — **UK** with nut

GN 41-U/UK

STAINLESS STEEL

Description	d1	d2	l1	d3	m	h1	h4	h6	s	A/F2	A/F3	Static load in kN	⚖
GN 41-40-M16-75-D0-*	40	M 16	75	-	-	2	17	-	-	12	8	12	153
GN 41-40-M16-75-D1-*	40	M 16	75	-	-	2	17	-	1.5	12	8	12	157
GN 41-40-M16-75-D3-*	40	M 16	75	-	-	2	17	3.5	-	12	8	12	158
GN 41-40-M16-100-D0-*	40	M 16	100	-	-	2	17	-	-	12	8	12	180
GN 41-40-M16-100-D1-*	40	M 16	100	-	-	2	17	-	1.5	12	8	12	202
GN 41-40-M16-100-D3-*	40	M 16	100	-	-	2	17	3.5	-	12	8	12	191
GN 41-40-M16-125-D0-*	40	M 16	125	-	-	2	17	-	-	12	8	12	189
GN 41-40-M16-125-D1-*	40	M 16	125	-	-	2	17	-	1.5	12	8	12	220
GN 41-40-M16-125-D3-*	40	M 16	125	-	-	2	17	3.5	-	12	8	12	256
GN 41-40-M16-150-D0-*	40	M 16	150	-	-	2	17	-	-	12	8	12	220
GN 41-40-M16-150-D1-*	40	M 16	150	-	-	2	17	-	1.5	12	8	12	266
GN 41-40-M16-150-D3-*	40	M 16	150	-	-	2	17	3.5	-	12	8	12	256
GN 41-40-M16-200-D0-*	40	M 16	200	-	-	2	17	-	-	12	8	12	322
GN 41-40-M16-200-D1-*	40	M 16	200	-	-	2	17	-	1.5	12	8	12	334
GN 41-40-M16-200-D3-*	40	M 16	200	-	-	2	17	3.5	-	12	8	12	336
GN 41-50-M16-75-B0-*	50	M 16	75	6.6	38	2.5	17	-	-	12	8	14	141
GN 41-50-M16-75-D0-*	50	M 16	75	-	-	2.5	17	-	-	12	8	14	174
GN 41-50-M16-75-D1-*	50	M 16	75	-	-	2.5	17	-	2	12	8	14	181
GN 41-50-M16-75-D3-*	50	M 16	75	-	-	2.5	17	4	-	12	8	14	184
GN 41-50-M16-100-B0-*	50	M 16	100	6.6	38	2.5	17	-	-	12	8	14	173
GN 41-50-M16-100-D0-*	50	M 16	100	-	-	2.5	17	-	-	12	8	14	209
GN 41-50-M16-100-D1-*	50	M 16	100	-	-	2.5	17	-	2	12	8	14	215
GN 41-50-M16-100-D3-*	50	M 16	100	-	-	2.5	17	4	-	12	8	14	277

GN 41-U/UK

STAINLESS STEEL

Description	d1	d2	l1	d3	m	h1	h4	h6	s	A/F2	A/F3	Static load in kN	⚖
GN 41-50-M16-125-D0-*	50	M 16	125	-	-	2.5	17	-	-	12	8	14	240
GN 41-50-M16-125-D1-*	50	M 16	125	-	-	2.5	17	-	2	12	8	14	248
GN 41-50-M16-125-D3-*	50	M 16	125	-	-	2.5	17	4	-	12	8	14	250
GN 41-50-M16-150-B0-*	50	M 16	150	6.6	38	2.5	17	-	-	12	8	14	238
GN 41-50-M16-150-D0-*	50	M 16	150	-	-	2.5	17	-	-	12	8	14	276
GN 41-50-M16-150-D1-*	50	M 16	150	-	-	2.5	17	-	2	12	8	14	280
GN 41-50-M16-150-D3-*	50	M 16	150	-	-	2.5	17	4	-	12	8	14	282
GN 41-50-M16-200-B0-*	50	M 16	200	6.6	38	2.5	17	-	-	12	8	14	304
GN 41-50-M16-200-D0-*	50	M 16	200	-	-	2.5	17	-	-	12	8	14	350
GN 41-50-M16-200-D1-*	50	M 16	200	-	-	2.5	17	-	2	12	8	14	345
GN 41-50-M16-200-D3-*	50	M 16	200	-	-	2.5	17	4	-	12	8	14	340
GN 41-60-M16-75-B0-*	60	M 16	75	6.6	48	2.5	17	-	-	12	8	16	157
GN 41-60-M16-75-D0-*	60	M 16	75	-	-	2.5	17	-	-	12	8	16	192
GN 41-60-M16-75-D1-*	60	M 16	75	-	-	2.5	17	-	2	12	8	16	200
GN 41-60-M16-75-D3-*	60	M 16	75	-	-	2.5	17	4.5	-	12	8	16	202
GN 41-60-M16-100-B0-*	60	M 16	100	6.6	48	2.5	17	-	-	12	8	16	189
GN 41-60-M16-100-D0-*	60	M 16	100	-	-	2.5	17	-	-	12	8	16	222
GN 41-60-M16-100-D1-*	60	M 16	100	-	-	2.5	17	-	2	12	8	16	232
GN 41-60-M16-100-D3-*	60	M 16	100	-	-	2.5	17	4.5	-	12	8	16	238
GN 41-60-M16-125-B0-*	60	M 16	125	6.6	48	2.5	17	-	-	12	8	16	222
GN 41-60-M16-125-D0-*	60	M 16	125	-	-	2.5	17	-	-	12	8	16	259
GN 41-60-M16-125-D1-*	60	M 16	125	-	-	2.5	17	-	2	12	8	16	260
GN 41-60-M16-125-D3-*	60	M 16	125	-	-	2.5	17	4.5	-	12	8	16	272

Weight Version U

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*Complete with version of the Levelling feet (Hexagon socket at the top / Wrench at the bottom)

U
without nut

UK
with nut

GN 41-U/UK

STAINLESS STEEL

Description	d1	d2	l1	d3	m	h1	h4	h6	s	A/F A/F 2	A/F 3	Static load in kN	⚖
GN 41-60-M16-150-D3-*	60	M 16	150	-	-	2.5	17	4.5	-	12	8	16	305
GN 41-60-M16-200-B0-*	60	M 16	200	6.6	48	2.5	17	-	-	12	8	16	354
GN 41-60-M16-200-D0-*	60	M 16	200	-	-	2.5	17	-	-	12	8	16	358
GN 41-60-M16-200-D1-*	60	M 16	200	-	-	2.5	17	-	2	12	8	16	350
GN 41-60-M16-200-D3-*	60	M 16	200	-	-	2.5	17	4.5	-	12	8	16	360
GN 41-80-M16-75-B0-*	80	M 16	75	8.5	64	3	18	-	-	12	8	20	222
GN 41-80-M16-75-D0-*	80	M 16	75	-	-	3	18	-	-	12	8	20	226
GN 41-80-M16-75-D1-*	80	M 16	75	-	-	3	18	-	2	12	8	20	260
GN 41-80-M16-75-D3-*	80	M 16	75	-	-	3	18	5	-	12	8	20	281
GN 41-80-M16-100-B0-*	80	M 16	100	8.5	64	3	18	-	-	12	8	20	254
GN 41-80-M16-100-D0-*	80	M 16	100	-	-	3	18	-	-	12	8	20	255
GN 41-80-M16-100-D1-*	80	M 16	100	-	-	3	18	-	2	12	8	20	300
GN 41-80-M16-100-D3-*	80	M 16	100	-	-	3	18	5	-	12	8	20	320
GN 41-80-M16-125-B0-*	80	M 16	125	8.5	64	3	18	-	-	12	8	20	287
GN 41-80-M16-125-D0-*	80	M 16	125	-	-	3	18	-	-	12	8	20	320
GN 41-80-M16-125-D1-*	80	M 16	125	-	-	3	18	-	2	12	8	20	340
GN 41-80-M16-125-D3-*	80	M 16	125	-	-	3	18	5	-	12	8	20	351
GN 41-80-M16-150-B0-*	80	M 16	150	8.5	64	3	18	-	-	12	8	20	319
GN 41-80-M16-150-D0-*	80	M 16	150	-	-	3	18	-	-	12	8	20	350
GN 41-80-M16-150-D1-*	80	M 16	150	-	-	3	18	-	2	12	8	20	360
GN 41-80-M16-150-D3-*	80	M 16	150	-	-	3	18	5	-	12	8	20	388
GN 41-80-M16-200-B0-*	80	M 16	200	8.5	64	3	18	-	-	12	8	20	385
GN 41-80-M16-200-D0-*	80	M 16	200	-	-	3	18	-	-	12	8	20	420
GN 41-80-M16-200-D1-*	80	M 16	200	-	-	3	18	-	2	12	8	20	440
GN 41-80-M16-200-D3-*	80	M 16	200	-	-	3	18	5	-	12	8	20	460
GN 41-80-M20-75-B0-*	80	M 20	75	8.5	64	3	19	-	-	15	10	20	281
GN 41-80-M20-75-D0-*	80	M 20	75	-	-	3	19	-	-	15	10	20	336
GN 41-80-M20-75-D1-*	80	M 20	75	-	-	3	19	-	2	15	10	20	370
GN 41-80-M20-75-D3-*	80	M 20	75	-	-	3	19	5	-	15	10	20	380
GN 41-80-M20-100-B0-*	80	M 20	100	8.5	64	3	19	-	-	15	10	20	350
GN 41-80-M20-100-D0-*	80	M 20	100	-	-	3	19	-	-	15	10	20	390
GN 41-80-M20-100-D1-*	80	M 20	100	-	-	3	19	-	2	15	10	20	400
GN 41-80-M20-100-D3-*	80	M 20	100	-	-	3	19	5	-	15	10	20	436
GN 41-80-M20-125-B0-*	80	M 20	125	8.5	64	3	19	-	-	15	10	20	382

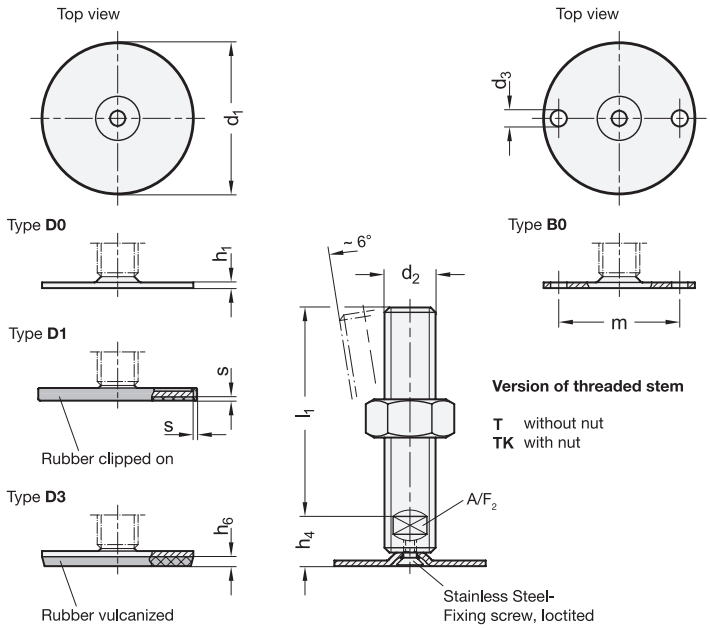
GN 41-U/UK

STAINLESS STEEL

Description	d1	d2	l1	d3	m	h1	h4	h6	s	A/F A/F 2	A/F 3	Static load in kN	⚖
GN 41-80-M20-125-D1-*	80	M 20	125	-	-	3	19	-	2	15	10	20	460
GN 41-80-M20-125-D3-*	80	M 20	125	-	-	3	19	5	-	15	10	20	466
GN 41-80-M20-150-B0-*	80	M 20	150	8.5	64	3	19	-	-	15	10	20	202
GN 41-80-M20-150-D0-*	80	M 20	150	-	-	3	19	-	-	15	10	20	487
GN 41-80-M20-150-D1-*	80	M 20	150	-	-	3	19	-	2	15	10	20	500
GN 41-80-M20-150-D3-*	80	M 20	150	-	-	3	19	5	-	15	10	20	527
GN 41-80-M20-200-B0-*	80	M 20	200	8.5	64	3	19	-	-	15	10	20	500
GN 41-80-M20-200-D0-*	80	M 20	200	-	-	3	19	-	-	15	10	20	535
GN 41-80-M20-200-D1-*	80	M 20	200	-	-	3	19	-	2	15	10	20	586
GN 41-80-M20-200-D3-*	80	M 20	200	-	-	3	19	5	-	15	10	20	586
GN 41-80-M24-100-B0-*	80	M 24	100	8.5	64	3	22	-	-	19	12	22	511
GN 41-80-M24-100-D0-*	80	M 24	100	-	-	3	22	-	-	19	12	22	529
GN 41-80-M24-100-D1-*	80	M 24	100	-	-	3	22	-	2	19	12	22	540
GN 41-80-M24-100-D3-*	80	M 24	100	-	-	3	22	5	-	19	12	22	560
GN 41-80-M24-125-B0-*	80	M 24	125	8.5	64	3	22	-	-	19	12	22	503
GN 41-80-M24-125-D0-*	80	M 24	125	-	-	3	22	-	-	19	12	22	606
GN 41-80-M24-125-D1-*	80	M 24	125	-	-	3	22	-	2	19	12	22	610
GN 41-80-M24-125-D3-*	80	M 24	125	-	-	3	22	5	-	19	12	22	638
GN 41-80-M24-150-B0-*	80	M 24	150	8.5	64	3	22	-	-	19	12	22	584
GN 41-80-M24-150-D0-*	80	M 24	150	-	-	3	22	-	-	19	12	22	685
GN 41-80-M24-150-D1-*	80	M 24	150	-	-	3	22	-	2	19	12	22	700
GN 41-80-M24-150-D3-*	80	M 24	150	-	-	3	22	5	-	19	12	22	710
GN 41-80-M24-200-B0-*	80	M 24	200	8.5	64	3	22	-	-	19	12	22	720
GN 41-80-M24-200-D0-*	80	M 24	200	-	-	3	22	-	-	19	12	22	820
GN 41-80-M24-200-D1-*	80	M 24	200	-	-	3	22	-	2	19	12	22	840
GN 41-80-M24-200-D3-*	80	M 24	200	-	-	3	22	5	-	19	12	22	860

Weight Version U

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* Complete with version of the Levelling feet (Wrench flat at the bottom)

T	**TK**
without nut	with nut

GN 41-T/TK — **STAINLESS STEEL**

Description	d1	d2	l1	d3	m	h1	h4	h6	s	A/F 2	Static load in kN	⚖
GN 41-40-M16-75-D0-*	40	M 16	75	-	-	2	17	-	-	12	12	129
GN 41-40-M16-75-D1-*	40	M 16	75	-	-	2	17	-	1.5	12	12	132
GN 41-40-M16-75-D3-*	40	M 16	75	-	-	2	17	3.5	-	12	12	150
GN 41-40-M16-100-D0-*	40	M 16	100	-	-	2	17	-	-	12	12	171
GN 41-40-M16-100-D1-*	40	M 16	100	-	-	2	17	-	1.5	12	12	200
GN 41-40-M16-100-D3-*	40	M 16	100	-	-	2	17	3.5	-	12	12	174
GN 41-40-M16-125-D0-*	40	M 16	125	-	-	2	17	-	-	12	12	194
GN 41-40-M16-125-D1-*	40	M 16	125	-	-	2	17	-	1.5	12	12	197
GN 41-40-M16-125-D3-*	40	M 16	125	-	-	2	17	3.5	-	12	12	220
GN 41-40-M16-150-D0-*	40	M 16	150	-	-	2	17	-	-	12	12	226
GN 41-40-M16-150-D1-*	40	M 16	150	-	-	2	17	-	1.5	12	12	229
GN 41-40-M16-150-D3-*	40	M 16	150	-	-	2	17	3.5	-	12	12	238
GN 41-40-M16-200-D0-*	40	M 16	200	-	-	2	17	-	-	12	12	569
GN 41-40-M16-200-D1-*	40	M 16	200	-	-	2	17	-	1.5	12	12	572
GN 41-40-M16-200-D3-*	40	M 16	200	-	-	2	17	3.5	-	12	12	581
GN 41-50-M16-75-B0-*	50	M 16	75	6.6	38	2.5	17	-	-	12	14	146
GN 41-50-M16-75-D0-*	50	M 16	75	-	-	2.5	17	-	-	12	14	149
GN 41-50-M16-75-D1-*	50	M 16	75	-	-	2.5	17	-	2	12	14	155
GN 41-50-M16-75-D3-*	50	M 16	75	-	-	2.5	17	4	-	12	14	150
GN 41-50-M16-100-B0-*	50	M 16	100	6.6	38	2.5	17	-	-	12	14	179
GN 41-50-M16-100-D0-*	50	M 16	100	-	-	2.5	17	-	-	12	14	182
GN 41-50-M16-100-D1-*	50	M 16	100	-	-	2.5	17	-	2	12	14	188
GN 41-50-M16-100-D3-*	50	M 16	100	-	-	2.5	17	4	-	12	14	192

GN 41-T/TK — **STAINLESS STEEL**

Description	d1	d2	l1	d3	m	h1	h4	h6	s	A/F 2	Static load in kN	⚖
GN 41-50-M16-125-B0-*	50	M 16	125	6.6	38	2.5	17	-	-	12	14	211
GN 41-50-M16-125-D0-*	50	M 16	125	-	-	2.5	17	-	-	12	14	214
GN 41-50-M16-125-D1-*	50	M 16	125	-	-	2.5	17	-	2	12	14	220
GN 41-50-M16-125-D3-*	50	M 16	125	-	-	2.5	17	4	-	12	14	225
GN 41-50-M16-150-B0-*	50	M 16	150	6.6	38	2.5	17	-	-	12	14	243
GN 41-50-M16-150-D0-*	50	M 16	150	-	-	2.5	17	-	-	12	14	246
GN 41-50-M16-150-D1-*	50	M 16	150	-	-	2.5	17	-	2	12	14	256
GN 41-50-M16-150-D3-*	50	M 16	150	-	-	2.5	17	4	-	12	14	260
GN 41-50-M16-200-B0-*	50	M 16	200	6.6	38	2.5	17	-	-	12	14	286
GN 41-50-M16-200-D0-*	50	M 16	200	-	-	2.5	17	-	-	12	14	300
GN 41-50-M16-200-D1-*	50	M 16	200	-	-	2.5	17	-	2	12	14	320
GN 41-50-M16-200-D3-*	50	M 16	200	-	-	2.5	17	4	-	12	14	324
GN 41-60-M16-75-B0-*	60	M 16	75	6.6	48	2.5	17	-	-	12	16	162
GN 41-60-M16-75-D0-*	60	M 16	75	-	-	2.5	17	-	-	12	16	166
GN 41-60-M16-75-D1-*	60	M 16	75	-	-	2.5	17	-	2	12	16	170
GN 41-60-M16-75-D3-*	60	M 16	75	-	-	2.5	17	4.5	-	12	16	174
GN 41-60-M16-100-B0-*	60	M 16	100	6.6	48	2.5	17	-	-	12	16	195
GN 41-60-M16-100-D0-*	60	M 16	100	-	-	2.5	17	-	-	12	16	199
GN 41-60-M16-100-D1-*	60	M 16	100	-	-	2.5	17	-	2	12	16	207
GN 41-60-M16-100-D3-*	60	M 16	100	-	-	2.5	17	4.5	-	12	16	218
GN 41-60-M16-125-B0-*	60	M 16	125	6.6	48	2.5	17	-	-	12	16	227
GN 41-60-M16-125-D0-*	60	M 16	125	-	-	2.5	17	-	-	12	16	231
GN 41-60-M16-125-D1-*	60	M 16	125	-	-	2.5	17	-	2	12	16	239
GN 41-60-M16-125-D3-*	60	M 16	125	-	-	2.5	17	4.5	-	12	16	255

Weight Version T

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*Complete with version of the Levelling feet (Wrench flat at the bottom)

T without nut

TK with nut

GN 41-T/TK STAINLESS STEEL

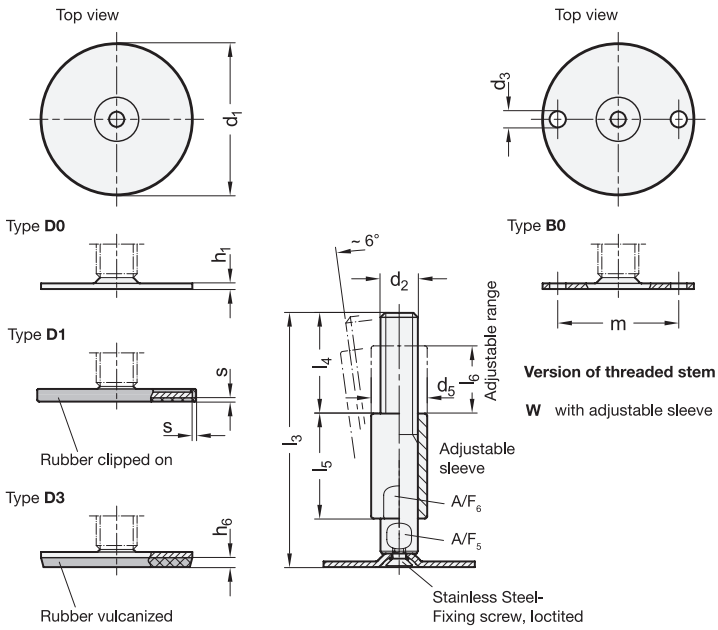
Description	d1	d2	l1	d3	m	h1	h4	h6	s	A/F 2	Static load in kN	⚖
GN 41-60-M16-150-B0-*	60	M 16	150	6.6	48	2.5	17	-	-	12	16	259
GN 41-60-M16-150-D0-*	60	M 16	150	-	-	2.5	17	-	-	12	16	263
GN 41-60-M16-150-D1-*	60	M 16	150	-	-	2.5	17	-	2	12	16	271
GN 41-60-M16-150-D3-*	60	M 16	150	-	-	2.5	17	4.5	-	12	16	282
GN 41-60-M16-200-B0-*	60	M 16	200	6.6	48	2.5	17	-	-	12	16	602
GN 41-60-M16-200-D0-*	60	M 16	200	-	-	2.5	17	-	-	12	16	610
GN 41-60-M16-200-D1-*	60	M 16	200	-	-	2.5	17	-	2	12	16	615
GN 41-60-M16-200-D3-*	60	M 16	200	-	-	2.5	17	4.5	-	12	16	625
GN 41-80-M16-75-B0-*	80	M 16	75	8.5	64	3	18	-	-	12	20	227
GN 41-80-M16-75-D0-*	80	M 16	75	-	-	3	18	-	-	12	20	224
GN 41-80-M16-75-D1-*	80	M 16	75	-	-	3	18	-	2	12	20	240
GN 41-80-M16-75-D3-*	80	M 16	75	-	-	3	18	5	-	12	20	261
GN 41-80-M16-100-B0-*	80	M 16	100	8.5	64	3	18	-	-	12	20	260
GN 41-80-M16-100-D0-*	80	M 16	100	-	-	3	18	-	-	12	20	259
GN 41-80-M16-100-D1-*	80	M 16	100	-	-	3	18	-	2	12	20	260
GN 41-80-M16-100-D3-*	80	M 16	100	-	-	3	18	5	-	12	20	280
GN 41-80-M16-125-B0-*	80	M 16	125	8.5	64	3	18	-	-	12	20	292
GN 41-80-M16-125-D0-*	80	M 16	125	-	-	3	18	-	-	12	20	293
GN 41-80-M16-125-D1-*	80	M 16	125	-	-	3	18	-	2	12	20	305
GN 41-80-M16-125-D3-*	80	M 16	125	-	-	3	18	5	-	12	20	315
GN 41-80-M16-150-B0-*	80	M 16	150	8.5	64	3	18	-	-	12	20	324
GN 41-80-M16-150-D0-*	80	M 16	150	-	-	3	18	-	-	12	20	325
GN 41-80-M16-150-D1-*	80	M 16	150	-	-	3	18	-	2	12	20	347
GN 41-80-M16-150-D3-*	80	M 16	150	-	-	3	18	5	-	12	20	360
GN 41-80-M16-200-B0-*	80	M 16	200	8.5	64	3	18	-	-	12	20	367
GN 41-80-M16-200-D0-*	80	M 16	200	-	-	3	18	-	-	12	20	368
GN 41-80-M16-200-D1-*	80	M 16	200	-	-	3	18	-	2	12	20	400
GN 41-80-M16-200-D3-*	80	M 16	200	-	-	3	18	5	-	12	20	450
GN 41-80-M20-75-B0-*	80	M 20	75	8.5	64	3	19	-	-	15	20	281
GN 41-80-M20-75-D0-*	80	M 20	75	-	-	3	19	-	-	15	20	290
GN 41-80-M20-75-D1-*	80	M 20	75	-	-	3	19	-	2	15	20	295
GN 41-80-M20-75-D3-*	80	M 20	75	-	-	3	19	5	-	15	20	319
GN 41-80-M20-100-B0-*	80	M 20	100	8.5	64	3	19	-	-	15	20	340
GN 41-80-M20-100-D0-*	80	M 20	100	-	-	3	19	-	-	15	20	350
GN 41-80-M20-100-D1-*	80	M 20	100	-	-	3	19	-	2	15	20	354
GN 41-80-M20-100-D3-*	80	M 20	100	-	-	3	19	5	-	15	20	364
GN 41-80-M20-125-B0-*	80	M 20	125	8.5	64	3	19	-	-	15	20	390

GN 41-T/TK STAINLESS STEEL

Description	d1	d2	l1	d3	m	h1	h4	h6	s	A/F 2	Static load in kN	⚖
GN 41-80-M20-125-B0-*	80	M 20	125	8.5	64	3	19	-	-	15	20	390
GN 41-80-M20-125-D0-*	80	M 20	125	-	-	3	19	-	-	15	20	390
GN 41-80-M20-125-D1-*	80	M 20	125	-	-	3	19	-	2	15	20	400
GN 41-80-M20-125-D3-*	80	M 20	125	-	-	3	19	5	-	15	20	414
GN 41-80-M20-150-B0-*	80	M 20	150	8.5	64	3	19	-	-	15	20	441
GN 41-80-M20-150-D0-*	80	M 20	150	-	-	3	19	-	-	15	20	441
GN 41-80-M20-150-D1-*	80	M 20	150	-	-	3	19	-	2	15	20	455
GN 41-80-M20-150-D3-*	80	M 20	150	-	-	3	19	5	-	15	20	465
GN 41-80-M20-200-B0-*	80	M 20	200	8.5	64	3	19	-	-	15	20	541
GN 41-80-M20-200-D0-*	80	M 20	200	-	-	3	19	-	-	15	20	554
GN 41-80-M20-200-D1-*	80	M 20	200	-	-	3	19	-	2	15	20	555
GN 41-80-M20-200-D3-*	80	M 20	200	-	-	3	19	5	-	15	20	574
GN 41-80-M24-100-B0-*	80	M 24	100	8.5	64	3	22	-	-	19	22	448
GN 41-80-M24-100-D0-*	80	M 24	100	-	-	3	22	-	-	19	22	449
GN 41-80-M24-100-D1-*	80	M 24	100	-	-	3	22	-	2	19	22	461
GN 41-80-M24-100-D3-*	80	M 24	100	-	-	3	22	5	-	19	22	474
GN 41-80-M24-125-B0-*	80	M 24	125	8.5	64	3	22	-	-	19	22	528
GN 41-80-M24-125-D0-*	80	M 24	125	-	-	3	22	-	-	19	22	529
GN 41-80-M24-125-D1-*	80	M 24	125	-	-	3	22	-	2	19	22	541
GN 41-80-M24-125-D3-*	80	M 24	125	-	-	3	22	5	-	19	22	554
GN 41-80-M24-150-B0-*	80	M 24	150	8.5	64	3	22	-	-	19	22	594
GN 41-80-M24-150-D0-*	80	M 24	150	-	-	3	22	-	-	19	22	595
GN 41-80-M24-150-D1-*	80	M 24	150	-	-	3	22	-	2	19	22	607
GN 41-80-M24-150-D3-*	80	M 24	150	-	-	3	22	5	-	19	22	620
GN 41-80-M24-200-B0-*	80	M 24	200	8.5	64	3	22	-	-	19	22	740
GN 41-80-M24-200-D0-*	80	M 24	200	-	-	3	22	-	-	19	22	741
GN 41-80-M24-200-D1-*	80	M 24	200	-	-	3	22	-	2	19	22	753
GN 41-80-M24-200-D3-*	80	M 24	200	-	-	3	22	5	-	19	22	766

Weight Version T

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GN 41-W — **STAINLESS STEEL**

Description	d1	d2	l3	d3	d4	m	h1	h6	l4	l5	l6	s	A/F 5	A/F 6	Static load in kN	⚖
GN 41-60-M16-110-B0-W	60	M 16	110	6.6	24	48	2.5	-	45	45	29	-	12	20	16	280
GN 41-60-M16-110-D0-W	60	M 16	110	-	24	-	2.5	-	45	45	29	-	12	20	16	284
GN 41-60-M16-110-D1-W	60	M 16	110	-	24	-	2.5	-	45	45	29	2	12	20	16	292
GN 41-60-M16-110-D3-W	60	M 16	110	-	24	-	2.5	4.5	45	45	29	-	12	20	16	300
GN 41-60-M16-135-B0-W	60	M 16	135	6.6	24	48	2.5	-	45	45	29	-	12	20	16	317
GN 41-60-M16-135-D0-W	60	M 16	135	-	24	-	2.5	-	45	45	29	-	12	20	16	321
GN 41-60-M16-135-D1-W	60	M 16	135	-	24	-	2.5	-	45	45	29	2	12	20	16	329
GN 41-60-M16-135-D3-W	60	M 16	135	-	24	-	2.5	4.5	45	45	29	-	12	20	16	335
GN 41-60-M16-160-B0-W	60	M 16	160	6.6	24	48	2.5	-	45	45	29	-	12	20	16	358
GN 41-60-M16-160-D0-W	60	M 16	160	-	24	-	2.5	-	45	45	29	-	12	20	16	362
GN 41-60-M16-160-D1-W	60	M 16	160	-	24	-	2.5	-	45	45	29	2	12	20	16	376
GN 41-60-M16-160-D3-W	60	M 16	160	-	24	-	2.5	4.5	45	45	29	-	12	20	16	366
GN 41-60-M16-185-B0-W	60	M 16	185	6.6	24	48	2.5	-	45	45	29	-	12	20	16	398
GN 41-60-M16-185-D0-W	60	M 16	185	-	24	-	2.5	-	45	45	29	-	12	20	16	402
GN 41-60-M16-185-D1-W	60	M 16	185	-	24	-	2.5	-	45	45	29	2	12	20	16	410
GN 41-60-M16-185-D3-W	60	M 16	185	-	24	-	2.5	4.5	45	45	29	-	12	20	16	418
GN 41-80-M16-110-B0-W	80	M 16	110	8.5	24	64	3	-	45	45	29	-	12	20	20	345
GN 41-80-M16-110-D0-W	80	M 16	110	-	24	-	3	-	45	45	29	-	12	20	20	350
GN 41-80-M16-110-D1-W	80	M 16	110	-	24	-	3	-	45	45	29	2	12	20	20	358
GN 41-80-M16-110-D3-W	80	M 16	110	-	24	-	3	5	45	45	29	-	12	20	20	364
GN 41-80-M16-135-B0-W	80	M 16	135	8.5	24	64	3	-	45	45	29	-	12	20	20	382
GN 41-80-M16-135-D0-W	80	M 16	135	-	24	-	3	-	45	45	29	-	12	20	20	387
GN 41-80-M16-135-D1-W	80	M 16	135	-	24	-	3	-	45	45	29	2	12	20	20	400
GN 41-80-M16-135-D3-W	80	M 16	135	-	24	-	3	5	45	45	29	-	12	20	20	405
GN 41-80-M16-160-B0-W	80	M 16	160	8.5	24	64	3	-	45	45	29	-	12	20	20	423
GN 41-80-M16-160-D0-W	80	M 16	160	-	24	-	3	-	45	45	29	-	12	20	20	430
GN 41-80-M16-160-D1-W	80	M 16	160	-	24	-	3	-	45	45	29	2	12	20	20	440
GN 41-80-M16-160-D3-W	80	M 16	160	-	24	-	3	5	45	45	29	-	12	20	20	446
GN 41-80-M16-185-B0-W	80	M 16	185	8.5	24	64	3	-	45	45	29	-	12	20	20	463

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GN 41-W

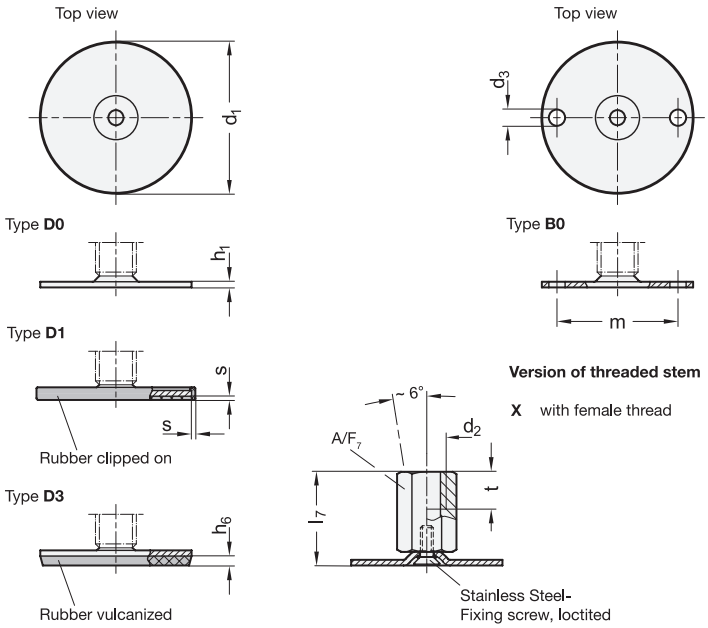
STAINLESS STEEL

Description	d1	d2	l3	d3	d4	m	h1	h6	l4	l5	l6	s	A/F 5	A/F 6	Static load in kN	⚖
GN 41-80-M16-185-D0-W	80	M 16	185	-	24	-	3	-	45	45	29	-	12	20	20	469
GN 41-80-M16-185-D1-W	80	M 16	185	-	24	-	3	-	45	45	29	2	12	20	20	475
GN 41-80-M16-185-D3-W	80	M 16	185	-	24	-	3	5	45	45	29	-	12	20	20	486
GN 41-80-M20-134-B0-W	80	M 20	134	8.5	30	64	3	-	56	56	37	-	16	24	20	561
GN 41-80-M20-134-D0-W	80	M 20	134	-	30	-	3	-	56	56	37	-	16	24	20	561
GN 41-80-M20-134-D1-W	80	M 20	134	-	30	-	3	-	56	56	37	2	16	24	20	575
GN 41-80-M20-134-D3-W	80	M 20	134	-	30	-	3	5	56	56	37	-	16	24	20	580
GN 41-80-M20-159-B0-W	80	M 20	159	8.5	30	64	3	-	56	56	37	-	16	24	20	624
GN 41-80-M20-159-D0-W	80	M 20	159	-	30	-	3	-	56	56	37	-	16	24	20	624
GN 41-80-M20-159-D1-W	80	M 20	159	-	30	-	3	-	56	56	37	2	16	24	20	638
GN 41-80-M20-159-D3-W	80	M 20	159	-	30	-	3	5	56	56	37	-	16	24	20	645
GN 41-80-M20-184-B0-W	80	M 20	184	8.5	30	64	3	-	56	56	37	-	16	24	20	687
GN 41-80-M20-184-D0-W	80	M 20	184	-	30	-	3	-	56	56	37	-	16	24	20	687
GN 41-80-M20-184-D1-W	80	M 20	184	-	30	-	3	-	56	56	37	2	16	24	20	701
GN 41-80-M20-184-D3-W	80	M 20	184	-	30	-	3	5	56	56	37	-	16	24	20	710
GN 41-80-M20-234-B0-W	80	M 20	234	8.5	30	64	3	-	56	56	37	-	16	24	20	810
GN 41-80-M20-234-D0-W	80	M 20	234	-	30	-	3	-	56	56	37	-	16	24	20	811
GN 41-80-M20-234-D1-W	80	M 20	234	-	30	-	3	-	56	56	37	2	16	24	20	825
GN 41-80-M20-234-D3-W	80	M 20	234	-	30	-	3	5	56	56	37	-	16	24	20	840
GN 41-80-M24-159-B0-W	80	M 24	159	8.5	35	64	3	-	67	67	42	-	20	30	22	863
GN 41-80-M24-159-D0-W	80	M 24	159	-	35	-	3	-	67	67	42	-	20	30	22	870
GN 41-80-M24-159-D1-W	80	M 24	159	-	35	-	3	-	67	67	42	2	20	30	22	876
GN 41-80-M24-159-D3-W	80	M 24	159	-	35	-	3	5	67	67	42	-	20	30	22	889
GN 41-80-M24-209-B0-W	80	M 24	209	8.5	35	64	3	-	67	67	42	-	20	30	22	1041
GN 41-80-M24-209-D0-W	80	M 24	209	-	35	-	3	-	67	67	42	-	20	30	22	1045
GN 41-80-M24-209-D1-W	80	M 24	209	-	35	-	3	-	67	67	42	2	20	30	22	1054
GN 41-80-M24-209-D3-W	80	M 24	209	-	35	-	3	5	67	67	42	-	20	30	22	1067
GN 41-80-M24-259-B0-W	80	M 24	259	8.5	35	64	3	-	67	67	42	-	20	30	22	1220
GN 41-80-M24-259-D0-W	80	M 24	259	-	35	-	3	-	67	67	42	-	20	30	22	1225
GN 41-80-M24-259-D1-W	80	M 24	259	-	35	-	3	-	67	67	42	2	20	30	22	1233
GN 41-80-M24-259-D3-W	80	M 24	259	-	35	-	3	5	67	67	42	-	20	30	22	1246

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GN 41

Stainless Steel-Levelling feet



GN 41-X — **STAINLESS STEEL**

Description	d1	d2	l7	d3	m	h1	h6	s	A/F 7	t	Static load in kN	
GN 41-40-M8-25-B0-X	40	M 8	25	5.4	30	2	-	-	14	8	8	90
GN 41-40-M8-25-D0-X	40	M 8	25	-	-	2	-	-	14	8	8	40
GN 41-40-M8-25-D1-X	40	M 8	25	-	-	2	-	1.5	14	8	8	41
GN 41-40-M8-25-D3-X	40	M 8	25	-	-	2	3.5	-	14	8	8	47
GN 41-40-M10-28-B0-X	40	M 10	28	5.4	30	2	-	-	14	10	12	40
GN 41-40-M10-28-D0-X	40	M 10	28	-	-	2	-	-	14	10	12	43
GN 41-40-M10-28-D1-X	40	M 10	28	-	-	2	-	1.5	14	10	12	47
GN 41-40-M10-28-D3-X	40	M 10	28	-	-	2	3.5	-	14	10	12	47
GN 41-40-M12-31-B0-X	40	M 12	31	5.4	30	2	-	-	17	12	12	68
GN 41-40-M12-31-D0-X	40	M 12	31	-	-	2	-	-	17	12	12	69
GN 41-40-M12-31-D1-X	40	M 12	31	-	-	2	-	1.5	17	12	12	70
GN 41-40-M12-31-D3-X	40	M 12	31	-	-	2	3.5	-	17	12	12	78
GN 41-40-M16-37-D0-X	40	M 16	37	-	-	2	-	-	22	16	12	100
GN 41-40-M16-37-D1-X	40	M 16	37	-	-	2	-	1.5	22	16	12	101
GN 41-40-M16-37-D3-X	40	M 16	37	-	-	2	3.5	-	22	16	12	102
GN 41-50-M8-25-B0-X	50	M 8	25	6.6	38	2.5	-	-	14	8	8	70
GN 41-50-M8-25-D0-X	50	M 8	25	-	-	2.5	-	-	14	8	8	70
GN 41-50-M8-25-D1-X	50	M 8	25	-	-	2.5	-	2	14	8	8	75
GN 41-50-M8-25-D3-X	50	M 8	25	-	-	2.5	4	-	14	8	8	75
GN 41-50-M10-28-B0-X	50	M 10	28	6.6	38	2.5	-	-	14	10	14	79
GN 41-50-M10-28-D0-X	50	M 10	28	-	-	2.5	-	-	14	10	14	70
GN 41-50-M10-28-D1-X	50	M 10	28	-	-	2.5	-	2	14	10	14	73
GN 41-50-M10-28-D3-X	50	M 10	28	-	-	2.5	4	-	14	10	14	74
GN 41-50-M12-32-B0-X	50	M 12	32	6.6	38	2.5	-	-	17	12	14	81
GN 41-50-M12-32-D0-X	50	M 12	32	-	-	2.5	-	-	17	12	14	84
GN 41-50-M12-32-D1-X	50	M 12	32	-	-	2.5	-	2	17	12	14	80
GN 41-50-M12-32-D3-X	50	M 12	32	-	-	2.5	4	-	17	12	14	90
GN 41-50-M16-37-B0-X	50	M 16	37	6.6	38	2.5	-	-	22	16	14	110
GN 41-50-M16-37-D0-X	50	M 16	37	-	-	2.5	-	-	22	16	14	120
GN 41-50-M16-37-D1-X	50	M 16	37	-	-	2.5	-	2	22	16	14	120
GN 41-50-M16-37-D3-X	50	M 16	37	-	-	2.5	4	-	22	16	14	130
GN 41-60-M8-25-B0-X	60	M 8	25	6.6	48	2.5	-	-	14	8	8	90
GN 41-60-M8-25-D0-X	60	M 8	25	-	-	2.5	-	-	14	8	8	90

GN 41-X — **STAINLESS STEEL**

Description	d1	d2	l7	d3	m	h1	h6	s	A/F 7	t	Static load in kN	
GN 41-60-M8-25-D1-X	60	M 8	25	-	-	2.5	-	2	14	8	8	90
GN 41-60-M8-25-D3-X	60	M 8	25	-	-	2.5	4.5	-	14	8	8	95
GN 41-60-M10-28-B0-X	60	M 10	28	6.6	48	2.5	-	-	14	10	14	96
GN 41-60-M10-28-D0-X	60	M 10	28	-	-	2.5	-	-	14	10	14	79
GN 41-60-M10-28-D1-X	60	M 10	28	-	-	2.5	-	2	14	10	14	88
GN 41-60-M10-28-D3-X	60	M 10	28	-	-	2.5	4.5	-	14	10	14	100
GN 41-60-M12-32-B0-X	60	M 12	32	6.6	48	2.5	-	-	17	12	16	111
GN 41-60-M12-32-D0-X	60	M 12	32	-	-	2.5	-	-	17	12	16	97
GN 41-60-M12-32-D1-X	60	M 12	32	-	-	2.5	-	2	17	12	16	100
GN 41-60-M12-32-D3-X	60	M 12	32	-	-	2.5	4.5	-	17	12	16	100
GN 41-60-M16-37-B0-X	60	M 16	37	6.6	48	2.5	-	-	22	16	16	126
GN 41-60-M16-37-D0-X	60	M 16	37	-	-	2.5	-	-	22	16	16	130
GN 41-60-M16-37-D1-X	60	M 16	37	-	-	2.5	-	2	22	16	16	138
GN 41-60-M16-37-D3-X	60	M 16	37	-	-	2.5	4.5	-	22	16	16	140
GN 41-80-M8-26-B0-X	80	M 8	26	8.5	64	3	-	-	14	8	8	160
GN 41-80-M8-26-D0-X	80	M 8	26	-	-	3	-	-	14	8	8	141
GN 41-80-M8-26-D1-X	80	M 8	26	-	-	3	-	2	14	8	8	155
GN 41-80-M8-26-D3-X	80	M 8	26	-	-	3	5	-	14	8	8	180
GN 41-80-M10-29-B0-X	80	M 10	29	8.5	64	3	-	-	14	10	14	160
GN 41-80-M10-29-D0-X	80	M 10	29	-	-	3	-	-	14	10	14	140
GN 41-80-M10-29-D1-X	80	M 10	29	-	-	3	-	2	14	10	14	160
GN 41-80-M10-29-D3-X	80	M 10	29	-	-	3	5	-	14	10	14	172
GN 41-80-M12-32-B0-X	80	M 12	32	8.5	64	3	-	-	17	12	20	175
GN 41-80-M12-32-D0-X	80	M 12	32	-	-	3	-	-	17	12	20	160
GN 41-80-M12-32-D1-X	80	M 12	32	-	-	3	-	2	17	12	20	180
GN 41-80-M12-32-D3-X	80	M 12	32	-	-	3	5	-	17	12	20	180
GN 41-80-M16-38-B0-X	80	M 16	38	8.5	64	3	-	-	22	16	20	191
GN 41-80-M16-38-D0-X	80	M 16	38	-	-	3	-	-	22	16	20	194
GN 41-80-M16-38-D1-X	80	M 16	38	-	-	3	-	2	22	16	20	220
GN 41-80-M16-38-D3-X	80	M 16	38	-	-	3	5	-	22	16	20	221
GN 41-80-M20-45-B0-X	80	M 20	45	8.5	64	3	-	-	27	20	20	253
GN 41-80-M20-45-D0-X	80	M 20	45	-	-	3	-	-	27	20	20	260
GN 41-80-M20-45-D1-X	80	M 20	45	-	-	3	-	2	27	20	20	300
GN 41-80-M20-45-D3-X	80	M 20	45	-	-	3	5	-	27	20	20	270

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Levelling feet

Steel, zinc plated, with fixing lug

SPECIFICATION

Types (Base plate)

- Type **A0**: Steel, zinc plated, without rubber underlay
- Type **A1**: Steel, zinc plated, rubber clipped on, black
- Type **A3**: Stainless Steel, blank, rubber vulcanised, black

Version of threaded stem

- Version **S**: without nut, external hexagon at the bottom
- Version **SK**: with nut, external hexagon at the bottom
- Version **U**: without nut, hexagon socket at the top, wrench flat at the bottom
- Version **UK**: hexagon socket at the top, wrench flat at the bottom
- Version **X**: with female thread, external hexagon

Base plate

- Type A0 / A1: Steel, zinc plated
- Type A3: Stainless Steel AISI 303

Threaded stem
Steel, zinc plated, blue passivated

Hexagon nut ISO 4032
Steel, zinc plated, blue passivated

Rubber cap, clipped on
black, Santoprene® (TPE) 80 ≈ Shore A

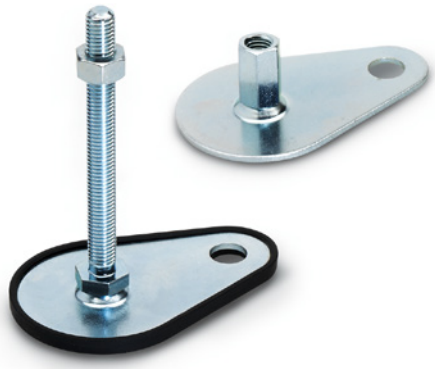
Rubber underlay, vulcanised
black, Perbunan® (NBR) 70 ± Shore A

INFORMATION

Levelling feet GN 42 will be delivered mounted and are not removable.

TECHNICAL INFORMATION

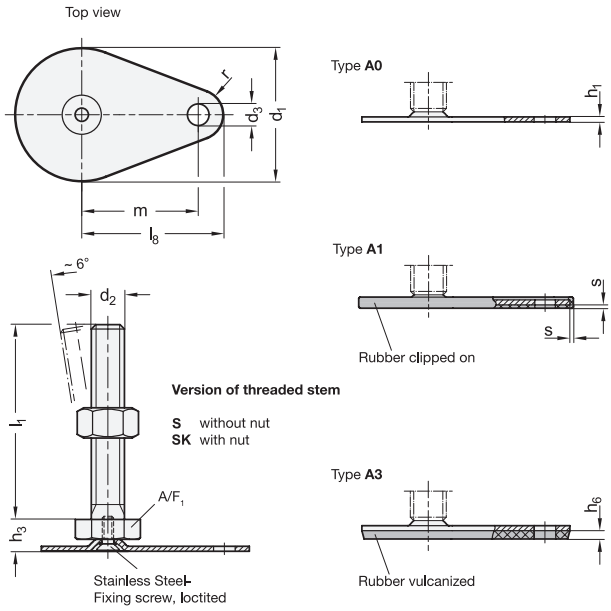
- Stainless Steel characteristics (see page A26)
- Elastomer characteristics (see page A32)



LOAD RATING OF LEVELLING FEET

Information

The static load bearing capacity given in the table rests on a test series in which the load has been applied perpendicular to the base plate (without rubber underlay). For the values given in the table, the strain relief may result in minor deformations of the base plate.
Bending and buckling stress which often occurs in practice results in a lower load bearing capacity of the adjustment spindle and may have to be taken into account.
Also, the spindle strength is assumed to be ≥ 500 N/mm^2.
The details given on strength are nonbinding guide values without any liability. In general, they do not constitute a warranty of quality.
The user must determine from case to case if a product is suitable for the intended purpose or use. Environmental factors may influence the stated values.



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GN 42 | Levelling feet

*Complete with version of the Levelling feet (External hexagon at the bottom)

S without nut

SK with nut

GN 42-S/SK

Description	d1	d2	l1	d3	h1	h6	m	s	h3	r	A/F 1	Static load in kN	⚖
GN 42-50-M8-40-A0-*	50	M 8	40	13	2.5	-	45	-	11	15	17	8	90
GN 42-50-M8-40-A1-*	50	M 8	40	13	2.5	-	45	2	11	15	17	8	90
GN 42-50-M8-40-A3-*	50	M 8	40	13	2.5	4	45	-	11	15	17	8	100
GN 42-50-M8-50-A0-*	50	M 8	50	13	2.5	-	45	-	11	15	17	8	90
GN 42-50-M8-50-A1-*	50	M 8	50	13	2.5	-	45	2	11	15	17	8	90
GN 42-50-M8-50-A3-*	50	M 8	50	13	2.5	4	45	-	11	15	17	8	100
GN 42-50-M8-63-A0-*	50	M 8	63	13	2.5	-	45	-	11	15	17	8	95
GN 42-50-M8-63-A1-*	50	M 8	63	13	2.5	-	45	2	11	15	17	8	100
GN 42-50-M8-63-A3-*	50	M 8	63	13	2.5	4	45	-	11	15	17	8	110
GN 42-50-M10-50-A0-*	50	M 10	50	13	2.5	-	45	-	11	15	17	8	105
GN 42-50-M10-50-A1-*	50	M 10	50	13	2.5	-	45	2	11	15	17	8	100
GN 42-50-M10-50-A3-*	50	M 10	50	13	2.5	4	45	-	11	15	17	8	117
GN 42-50-M10-60-A0-*	50	M 10	60	13	2.5	-	45	-	11	15	17	8	125
GN 42-50-M10-60-A1-*	50	M 10	60	13	2.5	-	45	2	11	15	17	8	110
GN 42-50-M10-60-A3-*	50	M 10	60	13	2.5	4	45	-	11	15	17	8	150
GN 42-50-M10-80-A0-*	50	M 10	80	13	2.5	-	45	-	11	15	17	8	120
GN 42-50-M10-80-A1-*	50	M 10	80	13	2.5	-	45	2	11	15	17	8	120
GN 42-50-M10-80-A3-*	50	M 10	80	13	2.5	4	45	-	11	15	17	8	134
GN 42-50-M10-100-A0-*	50	M 10	100	13	2.5	-	45	-	11	15	17	8	130
GN 42-50-M10-100-A1-*	50	M 10	100	13	2.5	-	45	2	11	15	17	8	130
GN 42-50-M10-100-A3-*	50	M 10	100	13	2.5	4	45	-	11	15	17	8	140
GN 42-50-M12-60-A0-*	50	M 12	60	13	2.5	-	45	-	11	15	17	8	125
GN 42-50-M12-60-A1-*	50	M 12	60	13	2.5	-	45	2	11	15	17	8	130
GN 42-50-M12-60-A3-*	50	M 12	60	13	2.5	4	45	-	11	15	17	8	140
GN 42-50-M12-80-A0-*	50	M 12	80	13	2.5	-	45	-	11	15	17	8	140
GN 42-50-M12-80-A1-*	50	M 12	80	13	2.5	-	45	2	11	15	17	8	140
GN 42-50-M12-80-A3-*	50	M 12	80	13	2.5	4	45	-	11	15	17	8	160
GN 42-50-M12-100-A0-*	50	M 12	100	13	2.5	-	45	-	11	15	17	8	158
GN 42-50-M12-100-A1-*	50	M 12	100	13	2.5	-	45	2	11	15	17	8	150
GN 42-50-M12-100-A3-*	50	M 12	100	13	2.5	4	45	-	11	15	17	8	170
GN 42-50-M12-125-A0-*	50	M 12	125	13	2.5	-	45	-	11	15	17	8	175
GN 42-50-M12-125-A1-*	50	M 12	125	13	2.5	-	45	2	11	15	17	8	170
GN 42-50-M12-125-A3-*	50	M 12	125	13	2.5	4	45	-	11	15	17	8	195
GN 42-60-M8-40-A0-*	60	M 8	40	13	2.5	-	50	-	11	15	17	8	105
GN 42-60-M8-40-A1-*	60	M 8	40	13	2.5	-	50	2	11	15	17	8	110
GN 42-60-M8-40-A3-*	60	M 8	40	13	2.5	4.5	50	-	11	15	17	8	123
GN 42-60-M8-50-A0-*	60	M 8	50	13	2.5	-	50	-	11	15	17	8	110
GN 42-60-M8-50-A1-*	60	M 8	50	13	2.5	-	50	2	11	15	17	8	120
GN 42-60-M8-50-A3-*	60	M 8	50	13	2.5	4.5	50	-	11	15	17	8	130
GN 42-60-M8-63-A0-*	60	M 8	63	13	2.5	-	50	-	11	15	17	8	115
GN 42-60-M8-63-A1-*	60	M 8	63	13	2.5	-	50	2	11	15	17	8	120
GN 42-60-M8-63-A3-*	60	M 8	63	13	2.5	4.5	50	-	11	15	17	8	140
GN 42-60-M10-50-A0-*	60	M 10	50	13	2.5	-	50	-	11	15	17	10	125
GN 42-60-M10-50-A1-*	60	M 10	50	13	2.5	-	50	2	11	15	17	10	130
GN 42-60-M10-50-A3-*	60	M 10	50	13	2.5	4.5	50	-	11	15	17	10	140
GN 42-60-M10-60-A0-*	60	M 10	60	13	2.5	-	50	-	11	15	17	10	130
GN 42-60-M10-60-A1-*	60	M 10	60	13	2.5	-	50	2	11	15	17	10	140
GN 42-60-M10-60-A3-*	60	M 10	60	13	2.5	4.5	50	-	11	15	17	10	140
GN 42-60-M10-80-A0-*	60	M 10	80	13	2.5	-	50	-	11	15	17	10	140

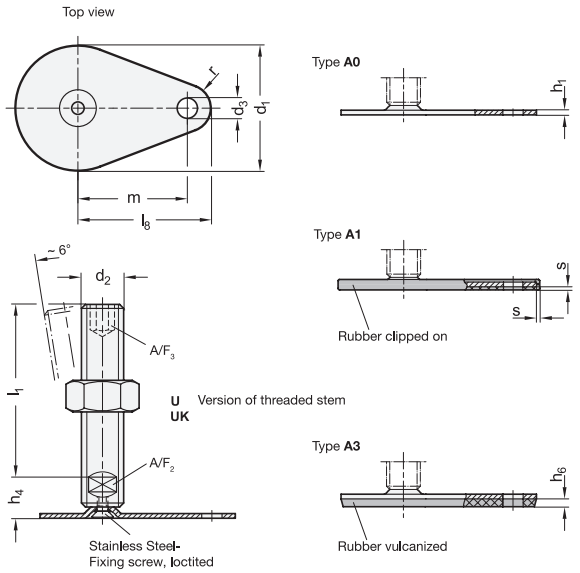
GN 42-S/SK

Description	d1	d2	l1	d3	h1	h6	m	s	h3	r	A/F 1	Static load in kN	⚖
GN 42-60-M10-80-A1-*	60	M 10	80	13	2.5	-	50	2	11	15	17	10	150
GN 42-60-M10-80-A3-*	60	M 10	80	13	2.5	4.5	50	-	11	15	17	10	140
GN 42-60-M10-100-A0-*	60	M 10	100	13	2.5	-	50	-	11	15	17	10	150
GN 42-60-M10-100-A1-*	60	M 10	100	13	2.5	-	50	2	11	15	17	10	160
GN 42-60-M10-100-A3-*	60	M 10	100	13	2.5	4.5	50	-	11	15	17	10	160
GN 42-60-M12-60-A0-*	60	M 12	60	13	2.5	-	50	-	11	15	17	10	140
GN 42-60-M12-60-A1-*	60	M 12	60	13	2.5	-	50	2	11	15	17	10	150
GN 42-60-M12-60-A3-*	60	M 12	60	13	2.5	4.5	50	-	11	15	17	10	200
GN 42-60-M12-80-A0-*	60	M 12	80	13	2.5	-	50	-	11	15	17	10	160
GN 42-60-M12-80-A1-*	60	M 12	80	13	2.5	-	50	2	11	15	17	10	160
GN 42-60-M12-80-A3-*	60	M 12	80	13	2.5	4.5	50	-	11	15	17	10	200
GN 42-60-M12-100-A0-*	60	M 12	100	13	2.5	-	50	-	11	15	17	10	175
GN 42-60-M12-100-A1-*	60	M 12	100	13	2.5	-	50	2	11	15	17	10	190
GN 42-60-M12-100-A3-*	60	M 12	100	13	2.5	4.5	50	-	11	15	17	10	210
GN 42-60-M12-125-A0-*	60	M 12	125	13	2.5	-	50	-	11	15	17	10	200
GN 42-60-M12-125-A1-*	60	M 12	125	13	2.5	-	50	2	11	15	17	10	210
GN 42-60-M12-125-A3-*	60	M 12	125	13	2.5	4.5	50	-	11	15	17	10	220
GN 42-80-M8-40-A0-*	80	M 8	40	13	3	-	70	-	11	15	17	8	190
GN 42-80-M8-40-A1-*	80	M 8	40	13	3	-	70	2	11	15	17	8	200
GN 42-80-M8-40-A3-*	80	M 8	40	13	3	5	70	-	11	15	17	8	225
GN 42-80-M8-50-A0-*	80	M 8	50	13	3	-	70	-	11	15	17	8	195
GN 42-80-M8-50-A1-*	80	M 8	50	13	3	-	70	2	11	15	17	8	200
GN 42-80-M8-50-A3-*	80	M 8	50	13	3	5	70	-	11	15	17	8	230
GN 42-80-M8-63-A0-*	80	M 8	63	13	3	-	70	-	11	15	17	8	195
GN 42-80-M8-63-A1-*	80	M 8	63	13	3	-	70	2	11	15	17	8	220
GN 42-80-M8-63-A3-*	80	M 8	63	13	3	5	70	-	11	15	17	8	235
GN 42-80-M10-50-A0-*	80	M 10	50	13	3	-	70	-	11	15	17	10	200
GN 42-80-M10-50-A1-*	80	M 10	50	13	3	-	70	2	11	15	17	10	230
GN 42-80-M10-50-A3-*	80	M 10	50	13	3	5	70	-	11	15	17	10	240
GN 42-80-M10-60-A0-*	80	M 10	60	13	3	-	70	-	11	15	17	10	211
GN 42-80-M10-60-A1-*	80	M 10	60	13	3	-	70	2	11	15	17	10	240
GN 42-80-M10-60-A3-*	80	M 10	60	13	3	5	70	-	11	15	17	10	260
GN 42-80-M10-80-A0-*	80	M 10	80	13	3	-	70	-	11	15	17	10	220
GN 42-80-M10-80-A1-*	80	M 10	80	13	3	-	70	2	11	15	17	10	240
GN 42-80-M10-80-A3-*	80	M 10	80	13	3	5	70	-	11	15	17	10	260
GN 42-80-M10-100-A0-*	80	M 10	100	13	3	-	70	-	11	15	17	10	235
GN 42-80-M10-100-A1-*	80	M 10	100	13	3	-	70	2	11	15	17	10	250
GN 42-80-M10-100-A3-*	80	M 10	100	13	3	5	70	-	11	15	17	10	280
GN 42-80-M12-60-A0-*	80	M 12	60	13	3	-	70	-	11	15	17	12	240
GN 42-80-M12-60-A1-*	80	M 12	60	13	3	-	70	2	11	15	17	12	250
GN 42-80-M12-60-A3-*	80	M 12	60	13	3	5	70	-	11	15	17	12	270
GN 42-80-M12-80-A0-*	80	M 12	80	13	3	-	70	-	11	15	17	12	245
GN 42-80-M12-80-A1-*	80	M 12	80	13	3	-	70	2	11	15	17	12	260
GN 42-80-M12-80-A3-*	80	M 12	80	13	3	5	70	-	11	15	17	12	300
GN 42-80-M12-100-A0-*	80	M 12	100	13	3	-	70	-	11	15	17	12	250
GN 42-80-M12-100-A1-*	80	M 12	100	13	3	-	70	2	11	15	17	12	280
GN 42-80-M12-100-A3-*	80	M 12	100	13	3	5	70	-	11	15	17	12	300
GN 42-80-M12-125-A0-*	80	M 12	125	13	3	-	70	-	11	15	17	12	276
GN 42-80-M12-125-A1-*	80	M 12	125	13	3	-	70	2	11	15	17	12	290
GN 42-80-M12-125-A3-*	80	M 12	125	13	3	5	70	-	11	15	17	12	345

Weight Version S

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GN 42 | Levelling feet



*Complete with version of the Levelling feet (Hexagon socket at the top / Wrench at the bottom)

U without nut — **UK** with nut

GN 42-U/UK

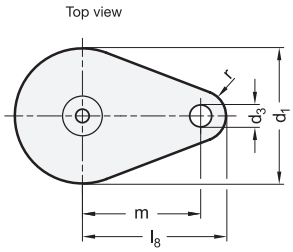
Description	d1	d2	l1	d3	h1	h6	m	s	h4	r	A/F 2	A/F 3	Static load in kN	⚖
GN 42-50-M16-75-A0-*	50	M 16	75	13	2.5	-	45	-	17	15	12	8	8	195
GN 42-50-M16-75-A1-*	50	M 16	75	13	2.5	-	45	2	17	15	12	8	8	170
GN 42-50-M16-75-A3-*	50	M 16	75	13	2.5	4	45	-	17	15	12	8	8	180
GN 42-50-M16-100-A0-*	50	M 16	100	13	2.5	-	45	-	17	15	12	8	8	225
GN 42-50-M16-100-A1-*	50	M 16	100	13	2.5	-	45	2	17	15	12	8	8	200
GN 42-50-M16-100-A3-*	50	M 16	100	13	2.5	4	45	-	17	15	12	8	8	240
GN 42-50-M16-125-A0-*	50	M 16	125	13	2.5	-	45	-	17	15	12	8	8	255
GN 42-50-M16-125-A1-*	50	M 16	125	13	2.5	-	45	2	17	15	12	8	8	260
GN 42-50-M16-125-A3-*	50	M 16	125	13	2.5	4	45	-	17	15	12	8	8	270
GN 42-50-M16-150-A0-*	50	M 16	150	13	2.5	-	45	-	17	15	12	8	8	260
GN 42-50-M16-150-A1-*	50	M 16	150	13	2.5	-	45	2	17	15	12	8	8	300
GN 42-50-M16-150-A3-*	50	M 16	150	13	2.5	4	45	-	17	15	12	8	8	305
GN 42-50-M16-200-A0-*	50	M 16	200	13	2.5	-	45	-	17	15	12	8	8	320
GN 42-50-M16-200-A1-*	50	M 16	200	13	2.5	-	45	2	17	15	12	8	8	300
GN 42-50-M16-200-A3-*	50	M 16	200	13	2.5	4	45	-	17	15	12	8	8	360
GN 42-60-M16-75-A0-*	60	M 16	75	13	2.5	-	50	-	17	15	12	8	10	210
GN 42-60-M16-75-A1-*	60	M 16	75	13	2.5	-	50	2	17	15	12	8	10	225
GN 42-60-M16-75-A3-*	60	M 16	75	13	2.5	4.5	50	-	17	15	12	8	10	230
GN 42-60-M16-100-A0-*	60	M 16	100	13	2.5	-	50	-	17	15	12	8	10	247
GN 42-60-M16-100-A1-*	60	M 16	100	13	2.5	-	50	2	17	15	12	8	10	260
GN 42-60-M16-100-A3-*	60	M 16	100	13	2.5	4.5	50	-	17	15	12	8	10	210
GN 42-60-M16-125-A0-*	60	M 16	125	13	2.5	-	50	-	17	15	12	8	10	280
GN 42-60-M16-125-A1-*	60	M 16	125	13	2.5	-	50	2	17	15	12	8	10	290
GN 42-60-M16-125-A3-*	60	M 16	125	13	2.5	4.5	50	-	17	15	12	8	10	300
GN 42-60-M16-150-A0-*	60	M 16	150	13	2.5	-	50	-	17	15	12	8	10	300
GN 42-60-M16-150-A1-*	60	M 16	150	13	2.5	-	50	2	17	15	12	8	10	325
GN 42-60-M16-150-A3-*	60	M 16	150	13	2.5	4.5	50	-	17	15	12	8	10	330
GN 42-60-M16-200-A0-*	60	M 16	200	13	2.5	-	50	-	17	15	12	8	10	400
GN 42-60-M16-200-A1-*	60	M 16	200	13	2.5	-	50	2	17	15	12	8	10	347
GN 42-60-M16-200-A3-*	60	M 16	200	13	2.5	4.5	50	-	17	15	12	8	10	360
GN 42-80-M16-75-A0-*	80	M 16	75	13	3	-	70	-	17	15	12	8	12	300
GN 42-80-M16-75-A1-*	80	M 16	75	13	3	-	70	2	17	15	12	8	12	315
GN 42-80-M16-75-A3-*	80	M 16	75	13	3	5	70	-	17	15	12	8	12	337
GN 42-80-M16-100-A0-*	80	M 16	100	13	3	-	70	-	17	15	12	8	12	333
GN 42-80-M16-100-A1-*	80	M 16	100	13	3	-	70	2	17	15	12	8	12	351
GN 42-80-M16-100-A3-*	80	M 16	100	13	3	5	70	-	17	15	12	8	12	367

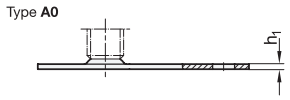
GN 42-U/UK

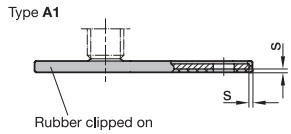
Description	d1	d2	l1	d3	h1	h6	m	s	h4	r	A/F 2	A/F 3	Static load in kN	⚖
GN 42-80-M16-125-A0-*	80	M 16	125	13	3	-	70	-	17	15	12	8	12	364
GN 42-80-M16-125-A1-*	80	M 16	125	13	3	-	70	2	17	15	12	8	2	360
GN 42-80-M16-125-A3-*	80	M 16	125	13	3	5	70	-	17	15	12	8	12	402
GN 42-80-M16-150-A0-*	80	M 16	150	13	3	-	70	-	17	15	12	8	12	390
GN 42-80-M16-150-A1-*	80	M 16	150	13	3	-	70	2	17	15	12	8	12	593
GN 42-80-M16-150-A3-*	80	M 16	150	13	3	5	70	-	17	15	12	8	12	435
GN 42-80-M16-200-A0-*	80	M 16	200	13	3	-	70	-	17	15	12	8	12	464
GN 42-80-M16-200-A1-*	80	M 16	200	13	3	-	70	2	17	15	12	8	12	481
GN 42-80-M16-200-A3-*	80	M 16	200	13	3	5	70	-	17	15	12	8	12	450
GN 42-80-M20-75-A0-*	80	M 20	75	13	3	-	70	-	17	15	15	10	16	320
GN 42-80-M20-75-A1-*	80	M 20	75	13	3	-	70	2	17	15	15	10	16	340
GN 42-80-M20-75-A3-*	80	M 20	75	13	3	5	70	-	17	15	15	10	16	400
GN 42-80-M20-100-A0-*	80	M 20	100	13	3	-	70	-	17	15	15	10	16	440
GN 42-80-M20-100-A1-*	80	M 20	100	13	3	-	70	2	17	15	15	10	16	400
GN 42-80-M20-100-A3-*	80	M 20	100	13	3	5	70	-	17	15	15	10	16	480
GN 42-80-M20-125-A0-*	80	M 20	125	13	3	-	70	-	17	15	15	10	16	490
GN 42-80-M20-125-A1-*	80	M 20	125	13	3	-	70	2	17	15	15	10	16	500
GN 42-80-M20-125-A3-*	80	M 20	125	13	3	5	70	-	17	15	15	10	16	540
GN 42-80-M20-150-A0-*	80	M 20	150	13	3	-	70	-	17	15	15	10	16	500
GN 42-80-M20-150-A1-*	80	M 20	150	13	3	-	70	2	17	15	15	10	16	550
GN 42-80-M20-150-A3-*	80	M 20	150	13	3	5	70	-	17	15	15	10	16	600
GN 42-80-M20-200-A0-*	80	M 20	200	13	3	-	70	-	17	15	15	10	16	640
GN 42-80-M20-200-A1-*	80	M 20	200	13	3	-	70	2	17	15	15	10	16	650
GN 42-80-M20-200-A3-*	80	M 20	200	13	3	5	70	-	17	15	15	10	16	660
GN 42-80-M24-100-A0-*	80	M 24	100	13	3	-	70	-	20	15	19	12	16	582
GN 42-80-M24-100-A1-*	80	M 24	100	13	3	-	70	2	20	15	19	12	16	600
GN 42-80-M24-100-A3-*	80	M 24	100	13	3	5	70	-	20	15	19	12	16	620
GN 42-80-M24-125-A0-*	80	M 24	125	13	3	-	70	-	20	15	19	12	16	655
GN 42-80-M24-125-A1-*	80	M 24	125	13	3	-	70	2	20	15	19	12	16	670
GN 42-80-M24-125-A3-*	80	M 24	125	13	3	5	70	-	20	15	19	12	16	700
GN 42-80-M24-150-A0-*	80	M 24	150	13	3	-	70	-	20	15	19	12	16	730
GN 42-80-M24-150-A1-*	80	M 24	150	13	3	-	70	2	20	15	19	12	16	740
GN 42-80-M24-150-A3-*	80	M 24	150	13	3	5	70	-	20	15	19	12	16	766
GN 42-80-M24-200-A0-*	80	M 24	200	13	3	-	70	-	20	15	19	12	16	860
GN 42-80-M24-200-A1-*	80	M 24	200	13	3	-	70	2	20	15	19	12	16	877
GN 42-80-M24-200-A3-*	80	M 24	200	13	3	5	70	-	20	15	19	12	16	897

Weight Version U

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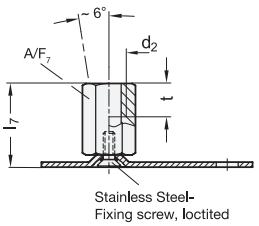


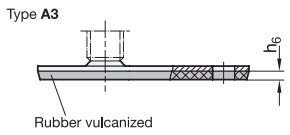




Version of threaded stem

X with female thread





GN 42-X

Description	d1	d2	l7	d3	h1	h6	m1	s	r	A/F 7	t	Static load in kN	⚖
GN 42-50-M8-25-A0-X	50	M 8	25	13	2.5	-	45	-	15	14	8	8	83
GN 42-50-M8-25-A1-X	50	M 8	25	13	2.5	-	45	2	15	14	8	8	90
GN 42-50-M8-25-A3-X	50	M 8	25	13	2.5	4	45	-	15	14	8	8	90
GN 42-50-M10-28-A0-X	50	M 10	28	13	2.5	-	45	-	15	14	10	8	90
GN 42-50-M10-28-A1-X	50	M 10	28	13	2.5	-	45	2	15	14	10	8	90
GN 42-50-M10-28-A3-X	50	M 10	28	13	2.5	4	45	-	15	14	10	8	90
GN 42-50-M12-32-A0-X	50	M 12	32	13	2.5	-	45	-	15	17	12	8	97
GN 42-50-M12-32-A1-X	50	M 12	32	13	2.5	-	45	2	15	17	12	8	110
GN 42-50-M12-32-A3-X	50	M 12	32	13	2.5	4	45	-	15	17	12	8	159
GN 42-50-M16-37-A0-X	50	M 16	37	13	2.5	-	45	-	15	22	16	8	130
GN 42-50-M16-37-A1-X	50	M 16	37	13	2.5	-	45	2	15	22	16	8	150
GN 42-50-M16-37-A3-X	50	M 16	37	13	2.5	4	45	-	15	22	16	8	146
GN 42-60-M8-25-A0-X	60	M 8	25	13	2.5	-	50	-	15	14	8	8	100
GN 42-60-M8-25-A1-X	60	M 8	25	13	2.5	-	50	2	15	14	8	8	110
GN 42-60-M8-25-A3-X	60	M 8	25	13	2.5	4.5	50	-	15	14	8	8	120
GN 42-60-M10-28-A0-X	60	M 10	28	13	2.5	-	50	-	15	14	10	10	100
GN 42-60-M10-28-A1-X	60	M 10	28	13	2.5	-	50	2	15	14	10	10	110
GN 42-60-M10-28-A3-X	60	M 10	28	13	2.5	4.5	50	-	15	14	10	10	120
GN 42-60-M12-32-A0-X	60	M 12	32	13	2.5	-	50	-	15	17	12	10	120
GN 42-60-M12-32-A1-X	60	M 12	32	13	2.5	-	50	2	15	17	12	10	130
GN 42-60-M12-32-A3-X	60	M 12	32	13	2.5	4.5	50	-	15	17	12	10	130

GN 42-X

Description	d1	d2	l7	d3	h1	h6	m1	s	r	A/F 7	t	Static load in kN	⚖
GN 42-60-M12-32-A1-X	60	M 12	32	13	2.5	-	50	2	15	17	12	10	130
GN 42-60-M12-32-A3-X	60	M 12	32	13	2.5	4.5	50	-	15	17	12	10	130
GN 42-60-M16-37-A0-X	60	M 16	37	13	2.5	-	50	-	15	22	16	10	152
GN 42-60-M16-37-A1-X	60	M 16	37	13	2.5	-	50	2	15	22	16	10	170
GN 42-60-M16-37-A3-X	60	M 16	37	13	2.5	4.5	50	-	15	22	16	10	150
GN 42-80-M8-26-A0-X	80	M 8	26	13	3	-	70	-	15	14	8	8	184
GN 42-80-M8-26-A1-X	80	M 8	26	13	3	-	70	2	15	14	8	8	200
GN 42-80-M8-26-A3-X	80	M 8	26	13	3	5	70	-	15	14	8	8	223
GN 42-80-M10-29-A0-X	80	M 10	29	13	3	-	70	-	15	14	10	10	180
GN 42-80-M10-29-A1-X	80	M 10	29	13	3	-	70	2	15	14	10	10	200
GN 42-80-M10-29-A3-X	80	M 10	29	13	3	5	70	-	15	14	10	10	220
GN 42-80-M12-32-A0-X	80	M 12	32	13	3	-	70	-	15	17	12	12	205
GN 42-80-M12-32-A1-X	80	M 12	32	13	3	-	70	2	15	17	12	12	220
GN 42-80-M12-32-A3-X	80	M 12	32	13	3	5	70	-	15	17	12	12	240
GN 42-80-M16-38-A0-X	80	M 16	38	13	3	-	70	-	15	22	16	12	230
GN 42-80-M16-38-A1-X	80	M 16	38	13	3	-	70	2	15	22	16	12	255
GN 42-80-M16-38-A3-X	80	M 16	38	13	3	5	70	-	15	22	16	12	273
GN 42-80-M20-45-A0-X	80	M 20	45	13	3	-	70	-	15	27	20	16	200
GN 42-80-M20-45-A1-X	80	M 20	45	13	3	-	70	2	15	27	20	16	320
GN 42-80-M20-45-A3-X	80	M 20	45	13	3	5	70	-	15	27	20	16	335

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Stainless Steel-Levelling feet

with fixing lug

SPECIFICATION

Types (Base plate)

- Type **D0**: blank, ground without rubber underlay
- Type **D1**: blank, ground rubber, clipped on, black
- Type **D3**: blank, ground rubber vulcanised, black

Version

- Version **S**: without nut, external hexagon at the bottom
- Version **SK**: with nut, external hexagon at the bottom
- Version **T**: without nut, wrench flat at the bottom, "not dipping" version
- Version **TK**: with nut, wrench flat at the bottom, "not dipping" version
- Version **U**: without nut, hexagon socket at the top, wrench flat at the bottom
- Version **UK**: with nut, hexagon socket at the top, wrench flat at the bottom
- Version **V**: without nut, external hexagon at the top, wrench flat at the bottom
- Version **VK**: with nut, external hexagon at the top, wrench flat at the bottom
- Version **W**: with adjustable sleeve, wrench flat at the bottom
- Version **X**: with female thread, external hexagon

Base plate
Stainless Steel AISI 304

Threaded stem
Stainless Steel AISI 303

Hexagon nut ISO 4032
Stainless Steel AISI 304

Rubber cap, clipped on
black, Santoprene® (TPE) 80 ≈ Shore A

Rubber underlay, vulcanised
black, Perbunan® (NBR) 70 ± Shore A

INFORMATION

Stainless Steel-Levelling feet GN 43 will be delivered mounted and are not removable.

TECHNICAL INFORMATION

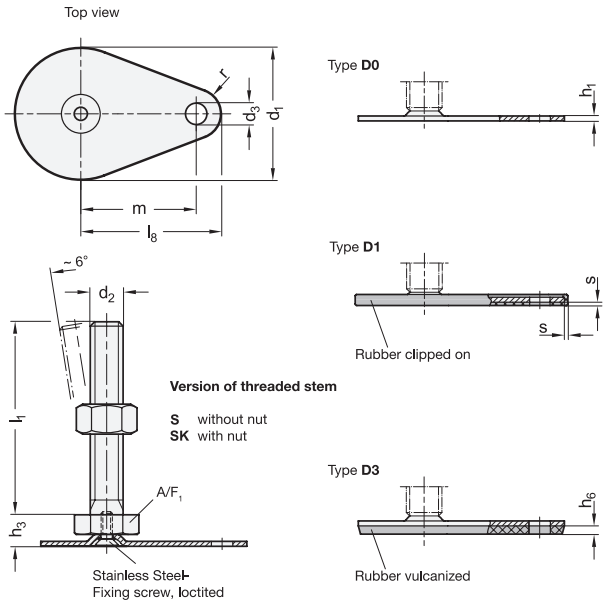
- Stainless Steel characteristics (see page A26)
- Elastomer characteristics (see page A32)



LOAD RATING OF STAINLESS STEEL-LEVELLING FEET

Information

The static load bearing capacity given in the table rests on a test series in which the load has been applied perpendicular to the base plate (without rubber underlay). For the values given in the table, the strain relief may result in minor deformations of the base plate.
Bending and buckling stress which oftenoccurs in practice results in a lower load bearing capacity of the adjustment spindle and may have to be taken into account.
Also, the spindle strength is assumed to be ≥ 500 N/mm^2.
The details given on strength are nonbinding guide values without any liability. In general, they do not constitute a warranty of quality.
The user must determine from case to case if a product is suitable for the intended purpose or use. Environmental factors may influence the stated values.



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GN 43 | Stainless Steel-Levelling feet

*Complete with version of the Levelling feet (External hexagon at the bottom)

S without nut

SK with nut

GN 43-S/SK STAINLESS STEEL

Description	d1	d2	l1	d3	h1	h3	h6	s	r	A/F 1	Static load in kN	⚖
GN 43-50-M8-40-D0-*	50	M 8	40	13	2	11	-	2	15	17	8	90
GN 43-50-M8-40-D1-*	50	M 8	40	13	2.5	11	-	2	15	17	8	100
GN 43-50-M8-40-D3-*	50	M 8	40	13	2.5	11	4	2	15	17	8	100
GN 43-50-M8-50-D0-*	50	M 8	50	13	2.5	11	-	2	15	17	8	92
GN 43-50-M8-50-D1-*	50	M 8	50	13	2.5	11	-	2	15	17	8	100
GN 43-50-M8-50-D3-*	50	M 8	50	13	2.5	11	4	2	15	17	8	103
GN 43-50-M8-63-D0-*	50	M 8	63	13	2.5	11	-	2	15	17	8	100
GN 43-50-M8-63-D1-*	50	M 8	63	13	2.5	11	-	2	15	17	8	100
GN 43-50-M8-63-D3-*	50	M 8	63	13	2.5	11	4	2	15	17	8	120
GN 43-50-M10-50-D0-*	50	M 10	50	13	2.5	11	-	2	15	17	14	100
GN 43-50-M10-50-D1-*	50	M 10	50	13	2.5	11	-	2	15	17	14	100
GN 43-50-M10-50-D3-*	50	M 10	50	13	2.5	11	4	2	15	17	14	120
GN 43-50-M10-60-D0-*	50	M 10	60	13	2.5	11	-	2	15	17	14	115
GN 43-50-M10-60-D1-*	50	M 10	60	13	2.5	11	-	2	15	17	14	120
GN 43-50-M10-60-D3-*	50	M 10	60	13	2.5	11	4	2	15	17	14	120
GN 43-50-M10-80-D0-*	50	M 10	80	13	2.5	11	-	2	15	17	14	120
GN 43-50-M10-80-D1-*	50	M 10	80	13	2.5	11	-	2	15	17	14	128
GN 43-50-M10-80-D3-*	50	M 10	80	13	2.5	11	4	2	15	17	14	140
GN 43-50-M10-100-D0-*	50	M 10	100	13	2.5	11	-	2	15	17	14	110
GN 43-50-M10-100-D1-*	50	M 10	100	13	2.5	11	-	2	15	17	14	140
GN 43-50-M10-100-D3-*	50	M 10	100	13	2.5	11	4	2	15	17	14	140
GN 43-50-M12-60-D0-*	50	M 12	60	13	2.5	11	-	2	15	17	14	129
GN 43-50-M12-60-D1-*	50	M 12	60	13	2.5	11	-	2	15	17	14	140
GN 43-50-M12-60-D3-*	50	M 12	60	13	2.5	11	4	2	15	17	14	140
GN 43-50-M12-80-D0-*	50	M 12	80	13	2.5	11	-	2	15	17	14	143
GN 43-50-M12-80-D1-*	50	M 12	80	13	2.5	11	-	2	15	17	14	143
GN 43-50-M12-80-D3-*	50	M 12	80	13	2.5	11	4	2	15	17	14	160
GN 43-50-M12-100-D0-*	50	M 12	100	13	2.5	11	-	2	15	17	14	160
GN 43-50-M12-100-D1-*	50	M 12	100	13	2.5	11	-	2	15	17	14	166
GN 43-50-M12-100-D3-*	50	M 12	100	13	2.5	11	4	2	15	17	14	170
GN 43-50-M12-125-D0-*	50	M 12	125	13	2.5	11	-	2	15	17	14	180
GN 43-50-M12-125-D1-*	50	M 12	125	13	2.5	11	-	2	15	17	14	200
GN 43-50-M12-125-D3-*	50	M 12	125	13	2.5	11	4	2	15	17	14	200
GN 43-60-M8-40-D0-*	60	M 8	40	13	2.5	11	-	2	15	17	8	102
GN 43-60-M8-40-D1-*	60	M 8	40	13	2.5	11	-	2	15	17	8	108
GN 43-60-M8-40-D3-*	60	M 8	40	13	2.5	11	4.5	2	15	17	8	120
GN 43-60-M8-50-D0-*	60	M 8	50	13	2.5	11	-	2	15	17	8	100
GN 43-60-M8-50-D1-*	60	M 8	50	13	2.5	11	-	2	15	17	8	120
GN 43-60-M8-50-D3-*	60	M 8	50	13	2.5	11	4.5	2	15	17	8	130
GN 43-60-M8-63-D0-*	60	M 8	63	13	2.5	11	-	2	15	17	8	109
GN 43-60-M8-63-D1-*	60	M 8	63	13	2.5	11	-	2	15	17	8	116
GN 43-60-M8-63-D3-*	60	M 8	63	13	2.5	11	4.5	2	15	17	8	148
GN 43-60-M10-50-D0-*	60	M 10	50	13	2.5	11	-	2	15	17	14	120
GN 43-60-M10-50-D1-*	60	M 10	50	13	2.5	11	-	2	15	17	14	130
GN 43-60-M10-50-D3-*	60	M 10	50	13	2.5	11	4.5	2	15	17	14	140
GN 43-60-M10-60-D0-*	60	M 10	60	13	2.5	11	-	2	15	17	14	130
GN 43-60-M10-60-D1-*	60	M 10	60	13	2.5	11	-	2	15	17	14	140
GN 43-60-M10-60-D3-*	60	M 10	60	13	2.5	11	4.5	2	15	17	14	164
GN 43-60-M10-80-D0-*	60	M 10	80	13	2.5	11	-	2	15	17	14	140

GN 43-S/SK STAINLESS STEEL

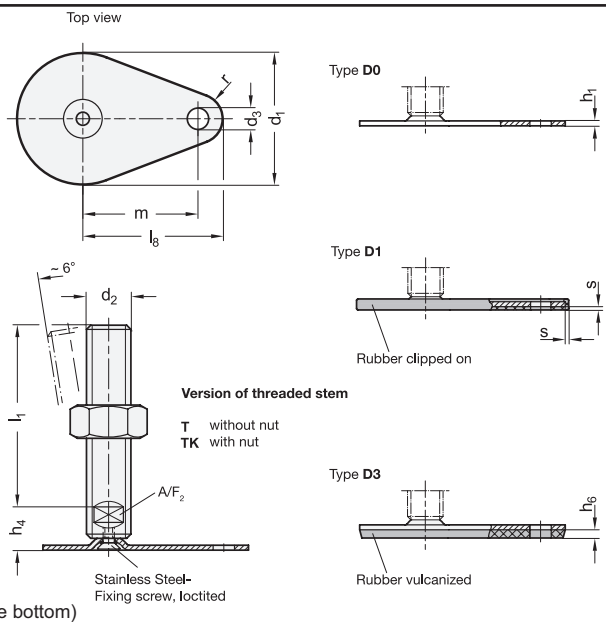
Description	d1	d2	l1	d3	h1	h3	h6	s	r	A/F 1	Static load in kN	⚖
GN 43-60-M10-80-D0-*	60	M 10	80	13	2.5	11	-	2	15	17	14	140
GN 43-60-M10-80-D1-*	60	M 10	80	13	2.5	11	-	2	15	17	14	150
GN 43-60-M10-80-D3-*	60	M 10	80	13	2.5	11	4.5	2	15	17	14	170
GN 43-60-M10-100-D0-*	60	M 10	100	13	2.5	11	-	2	15	17	14	140
GN 43-60-M10-100-D1-*	60	M 10	100	13	2.5	11	-	2	15	17	14	160
GN 43-60-M10-100-D3-*	60	M 10	100	13	2.5	11	4.5	2	15	17	14	180
GN 43-60-M12-60-D0-*	60	M 12	60	13	2.5	11	-	2	15	17	16	150
GN 43-60-M12-60-D1-*	60	M 12	60	13	2.5	11	-	2	15	17	16	159
GN 43-60-M12-60-D3-*	60	M 12	60	13	2.5	11	4.5	2	15	17	16	181
GN 43-60-M12-80-D0-*	60	M 12	80	13	2.5	11	-	2	15	17	16	160
GN 43-60-M12-80-D1-*	60	M 12	80	13	2.5	11	-	2	15	17	16	180
GN 43-60-M12-80-D3-*	60	M 12	80	13	2.5	11	4.5	2	15	17	16	180
GN 43-60-M12-100-D0-*	60	M 12	100	13	2.5	11	-	2	15	17	16	180
GN 43-60-M12-100-D1-*	60	M 12	100	13	2.5	11	-	2	15	17	6	190
GN 43-60-M12-100-D3-*	60	M 12	100	13	2.5	11	4.5	2	15	17	16	200
GN 43-60-M12-125-D0-*	60	M 12	125	13	2.5	11	-	2	15	17	16	200
GN 43-60-M12-125-D1-*	60	M 12	125	13	2.5	11	-	2	15	17	16	210
GN 43-60-M12-125-D3-*	60	M 12	125	13	2.5	11	4.5	2	15	17	16	210
GN 43-80-M8-40-D0-*	80	M 8	40	13	3	12	-	2	15	17	8	195
GN 43-80-M8-40-D1-*	80	M 8	40	13	3	12	-	2	15	17	8	212
GN 43-80-M8-40-D3-*	80	M 8	40	13	3	12	5	2	15	17	8	225
GN 43-80-M8-50-D0-*	80	M 8	50	13	3	12	-	2	15	17	8	184
GN 43-80-M8-50-D1-*	80	M 8	50	13	3	12	-	2	15	17	8	230
GN 43-80-M8-50-D3-*	80	M 8	50	13	3	12	5	2	15	17	8	230
GN 43-80-M8-63-D0-*	80	M 8	63	13	3	12	-	2	15	17	8	192
GN 43-80-M8-63-D1-*	80	M 8	63	13	3	12	-	2	15	17	8	205
GN 43-80-M8-63-D3-*	80	M 8	63	13	3	12	5	2	15	17	8	232
GN 43-80-M10-50-D0-*	80	M 10	50	13	3	12	-	2	15	17	14	222
GN 43-80-M10-50-D1-*	80	M 10	50	13	3	12	-	2	15	17	14	230
GN 43-80-M10-50-D3-*	80	M 10	50	13	3	12	5	2	15	17	14	262
GN 43-80-M10-60-D0-*	80	M 10	60	13	3	12	-	2	15	17	14	230
GN 43-80-M10-60-D1-*	80	M 10	60	13	3	12	-	2	15	17	14	227
GN 43-80-M10-60-D3-*	80	M 10	60	13	3	12	5	2	15	17	14	266
GN 43-80-M10-80-D0-*	80	M 10	80	13	3	12	-	2	15	17	14	236
GN 43-80-M10-80-D1-*	80	M 10	80	13	3	12	-	2	15	17	14	240
GN 43-80-M10-80-D3-*	80	M 10	80	13	3	12	5	2	15	17	14	270
GN 43-80-M10-100-D0-*	80	M 10	100	13	3	12	-	2	15	17	14	240
GN 43-80-M10-100-D1-*	80	M 10	100	13	3	12	-	2	15	17	14	257
GN 43-80-M10-100-D3-*	80	M 10	100	13	3	12	5	2	15	17	14	273
GN 43-80-M12-60-D0-*	80	M 12	60	13	3	12	-	2	15	17	20	250
GN 43-80-M12-60-D1-*	80	M 12	60	13	3	12	-	2	15	17	20	265
GN 43-80-M12-60-D3-*	80	M 12	60	13	3	12	5	2	15	17	20	283
GN 43-80-M12-80-D0-*	80	M 12	80	13	3	12	-	2	15	17	20	250
GN 43-80-M12-80-D1-*	80	M 12	80	13	3	12	-	2	15	17	20	267
GN 43-80-M12-80-D3-*	80	M 12	80	13	3	12	5	2	15	17	20	290
GN 43-80-M12-100-D0-*	80	M 12	100	13	3	12	-	2	15	17	20	260
GN 43-80-M12-100-D1-*	80	M 12	100	13	3	12	-	2	15	17	20	270
GN 43-80-M12-100-D3-*	80	M 12	100	13	3	12	5	2	15	17	20	300
GN 43-80-M12-125-D0-*	80	M 12	125	13	3	12	-	2	15	17	20	270
GN 43-80-M12-125-D1-*	80	M 12	125	13	3	12	-	2	15	17	20	280
GN 43-80-M12-125-D3-*	80	M 12	125	13	3	12	5	2	15	17	20	320

Weight Version S

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GN 43

Stainless Steel-Levelling feet



*Complete with version of the Levelling feet (Wrench flat at the bottom)

T without nut

TK with nut

GN 43-T/TK

STAINLESS STEEL

Description	d1	d2	l1	d3	h1	h4	h6	s	r	A/F 2	Static load in kN	⚖
GN 43-50-M16-75-D0-*	50	M 16	75	13	2.5	17	-	2	15	12	14	168
GN 43-50-M16-75-D1-*	50	M 16	75	13	2.5	17	-	2	15	12	14	177
GN 43-50-M16-75-D3-*	50	M 16	75	13	2.5	17	4	2	15	12	14	181
GN 43-50-M16-100-D0-*	50	M 16	100	13	2.5	17	-	2	15	12	14	200
GN 43-50-M16-100-D1-*	50	M 16	100	13	2.5	17	-	2	15	12	14	210
GN 43-50-M16-100-D3-*	50	M 16	100	13	2.5	17	4	2	15	12	14	220
GN 43-50-M16-125-D0-*	50	M 16	125	13	2.5	17	-	2	15	12	14	233
GN 43-50-M16-125-D1-*	50	M 16	125	13	2.5	17	-	2	15	12	14	242
GN 43-50-M16-125-D3-*	50	M 16	125	13	2.5	17	4	2	15	12	14	246
GN 43-50-M16-150-D0-*	50	M 16	150	13	2.5	17	-	2	15	12	14	265
GN 43-50-M16-150-D1-*	50	M 16	150	13	2.5	17	-	2	15	12	14	274
GN 43-50-M16-150-D3-*	50	M 16	150	13	2.5	17	4	2	15	12	14	278
GN 43-50-M16-200-D0-*	50	M 16	200	13	2.5	17	-	2	15	12	14	297
GN 43-50-M16-200-D1-*	50	M 16	200	13	2.5	17	-	2	15	12	14	300
GN 43-50-M16-200-D3-*	50	M 16	200	13	2.5	17	4	2	15	12	14	317
GN 43-60-M16-75-D0-*	60	M 16	75	13	2.5	17	-	2	15	12	16	185
GN 43-60-M16-75-D1-*	60	M 16	75	13	2.5	17	-	2	15	12	16	196
GN 43-60-M16-75-D3-*	60	M 16	75	13	2.5	17	4.5	2	15	12	16	206
GN 43-60-M16-100-D0-*	60	M 16	100	13	2.5	17	-	2	15	12	16	218
GN 43-60-M16-100-D1-*	60	M 16	100	13	2.5	17	-	2	15	12	16	229
GN 43-60-M16-100-D3-*	60	M 16	100	13	2.5	17	4.5	2	15	12	16	239
GN 43-60-M16-125-D0-*	60	M 16	125	13	2.5	17	-	2	15	12	16	260
GN 43-60-M16-125-D1-*	60	M 16	125	13	2.5	17	-	2	15	12	16	261
GN 43-60-M16-125-D3-*	60	M 16	125	13	2.5	17	4.5	2	15	12	16	271
GN 43-60-M16-150-D0-*	60	M 16	150	13	2.5	17	-	2	15	12	16	282
GN 43-60-M16-150-D1-*	60	M 16	150	13	2.5	17	-	2	15	12	16	293
GN 43-60-M16-150-D3-*	60	M 16	150	13	2.5	17	4.5	2	15	12	16	303
GN 43-60-M16-200-D0-*	60	M 16	200	13	2.5	17	-	2	15	12	16	625
GN 43-60-M16-200-D1-*	60	M 16	200	13	2.5	17	-	2	15	12	16	636
GN 43-60-M16-200-D3-*	60	M 16	200	13	2.5	17	4.5	2	15	12	16	646
GN 43-80-M16-75-D0-*	80	M 16	75	13	3	18	-	2	15	12	20	267
GN 43-80-M16-75-D1-*	80	M 16	75	13	3	18	-	2	15	12	20	284
GN 43-80-M16-75-D3-*	80	M 16	75	13	3	18	5	2	15	12	20	308
GN 43-80-M16-100-D0-*	80	M 16	100	13	3	18	-	2	15	12	20	309
GN 43-80-M16-100-D1-*	80	M 16	100	13	3	18	-	2	15	12	20	317
GN 43-80-M16-100-D3-*	80	M 16	100	13	3	18	5	2	15	12	20	350

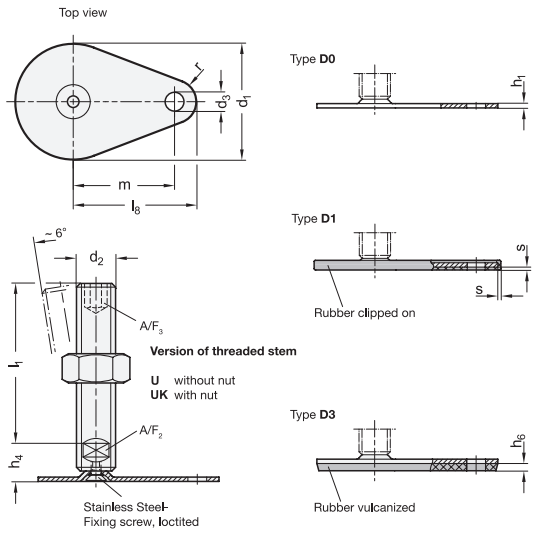
GN 43-T/TK

STAINLESS STEEL

Description	d1	d2	l1	d3	h1	h4	h6	s	r	A/F 2	Static load in kN	⚖
GN 43-80-M16-125-D0-*	80	M 16	125	13	3	18	-	2	15	12	20	350
GN 43-80-M16-125-D1-*	80	M 16	125	13	3	18	-	2	15	12	20	370
GN 43-80-M16-125-D3-*	80	M 16	125	13	3	18	5	2	15	12	20	373
GN 43-80-M16-150-D0-*	80	M 16	150	13	3	18	-	2	15	12	20	370
GN 43-80-M16-150-D1-*	80	M 16	150	13	3	18	-	2	15	12	20	381
GN 43-80-M16-150-D3-*	80	M 16	150	13	3	18	5	2	15	12	20	400
GN 43-80-M16-200-D0-*	80	M 16	200	13	3	18	-	2	15	12	20	430
GN 43-80-M16-200-D1-*	80	M 16	200	13	3	18	-	2	15	12	20	440
GN 43-80-M16-200-D3-*	80	M 16	200	13	3	18	5	2	15	12	20	450
GN 43-80-M20-75-D0-*	80	M 20	75	13	3	19	-	2	15	15	20	300
GN 43-80-M20-75-D1-*	80	M 20	75	13	3	19	-	2	15	15	20	340
GN 43-80-M20-75-D3-*	80	M 20	75	13	3	19	5	2	15	15	20	362
GN 43-80-M20-100-D0-*	80	M 20	100	13	3	19	-	2	15	15	20	382
GN 43-80-M20-100-D1-*	80	M 20	100	13	3	19	-	2	15	15	20	399
GN 43-80-M20-100-D3-*	80	M 20	100	13	3	19	5	2	15	15	20	421
GN 43-80-M20-125-D0-*	80	M 20	125	13	3	19	-	2	15	15	20	500
GN 43-80-M20-125-D1-*	80	M 20	125	13	3	19	-	2	15	15	20	449
GN 43-80-M20-125-D3-*	80	M 20	125	13	3	19	5	2	15	15	20	471
GN 43-80-M20-150-D0-*	80	M 20	150	13	3	19	-	2	15	15	20	500
GN 43-80-M20-150-D1-*	80	M 20	150	13	3	19	-	2	15	15	20	500
GN 43-80-M20-150-D3-*	80	M 20	150	13	3	19	5	2	15	15	20	522
GN 43-80-M20-200-D0-*	80	M 20	200	13	3	19	-	2	15	15	20	600
GN 43-80-M20-200-D1-*	80	M 20	200	13	3	19	-	2	15	15	20	600
GN 43-80-M20-200-D3-*	80	M 20	200	13	3	19	5	2	15	15	20	622
GN 43-80-M24-100-D0-*	80	M 24	100	13	3	22	-	2	15	18	22	490
GN 43-80-M24-100-D1-*	80	M 24	100	13	3	22	-	2	15	18	22	507
GN 43-80-M24-100-D3-*	80	M 24	100	13	3	22	5	2	15	18	22	527
GN 43-80-M24-125-D0-*	80	M 24	125	13	3	22	-	2	15	18	22	570
GN 43-80-M24-125-D1-*	80	M 24	125	13	3	22	-	2	15	18	22	587
GN 43-80-M24-125-D3-*	80	M 24	125	13	3	22	5	2	15	18	22	607
GN 43-80-M24-150-D0-*	80	M 24	150	13	3	22	-	2	15	18	22	636
GN 43-80-M24-150-D1-*	80	M 24	150	13	3	22	-	2	15	18	22	653
GN 43-80-M24-150-D3-*	80	M 24	150	13	3	22	5	2	15	18	22	673
GN 43-80-M24-200-D0-*	80	M 24	200	13	3	22	-	2	15	18	22	782
GN 43-80-M24-200-D1-*	80	M 24	200	13	3	22	-	2	15	18	22	799
GN 43-80-M24-200-D3-*	80	M 24	200	13	3	22	5	2	15	18	22	819

Weight Version T

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*Complete with version of the Levelling feet (Hexagon socket at the top / Wrench at the bottom)

U without nut **UK** with nut

GN 43-U/UK — STAINLESS STEEL

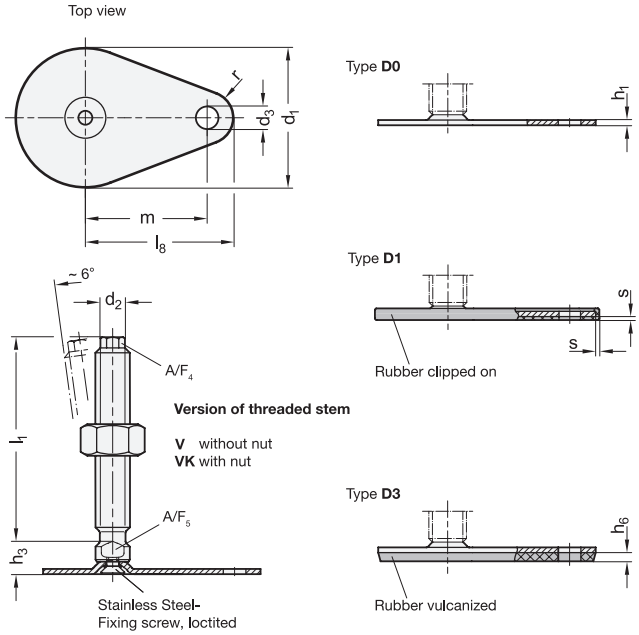
Description	d1	d2	l1	d3	h1	h4	h6	s	r	A/F 2	A/F 3	Static load in kN	⚖
GN 43-50-M16-75-D0-*	50	M 16	75	13	2.5	17	-	2	15	12	8	14	200
GN 43-50-M16-75-D1-*	50	M 16	75	13	2.5	17	-	2	15	12	8	14	209
GN 43-50-M16-75-D3-*	50	M 16	75	13	2.5	17	4	2	15	12	8	14	220
GN 43-50-M16-100-D0-*	50	M 16	100	13	2.5	17	-	2	15	12	8	14	230
GN 43-50-M16-100-D1-*	50	M 16	100	13	2.5	17	-	2	15	12	8	14	230
GN 43-50-M16-100-D3-*	50	M 16	100	13	2.5	17	4	2	15	12	8	14	240
GN 43-50-M16-125-D0-*	50	M 16	125	13	2.5	17	-	2	15	12	8	14	260
GN 43-50-M16-125-D1-*	50	M 16	125	13	2.5	17	-	2	15	12	8	14	270
GN 43-50-M16-125-D3-*	50	M 16	125	13	2.5	17	4	2	15	12	8	14	270
GN 43-50-M16-150-D0-*	50	M 16	150	13	2.5	17	-	2	15	12	8	14	289
GN 43-50-M16-150-D1-*	50	M 16	150	13	2.5	17	-	2	15	12	8	14	285
GN 43-50-M16-150-D3-*	50	M 16	150	13	2.5	17	4	2	15	12	8	14	300
GN 43-50-M16-200-D0-*	50	M 16	200	13	2.5	17	-	2	15	12	8	14	361
GN 43-50-M16-200-D1-*	50	M 16	200	13	2.5	17	-	2	15	12	8	14	370
GN 43-50-M16-200-D3-*	50	M 16	200	13	2.5	17	4	2	15	12	8	14	374
GN 43-60-M16-75-D0-*	60	M 16	75	13	2.5	17	-	2	15	12	8	16	210
GN 43-60-M16-75-D1-*	60	M 16	75	13	2.5	17	-	2	15	12	8	16	221
GN 43-60-M16-75-D3-*	60	M 16	75	13	2.5	17	4.5	2	15	12	8	16	222
GN 43-60-M16-100-D0-*	60	M 16	100	13	2.5	17	-	2	15	12	8	16	220
GN 43-60-M16-100-D1-*	60	M 16	100	13	2.5	17	-	2	15	12	8	16	260
GN 43-60-M16-100-D3-*	60	M 16	100	13	2.5	17	4.5	2	15	12	8	16	270
GN 43-60-M16-125-D0-*	60	M 16	125	13	2.5	17	-	2	15	12	8	16	280
GN 43-60-M16-125-D1-*	60	M 16	125	13	2.5	17	-	2	15	12	8	16	256
GN 43-60-M16-125-D3-*	60	M 16	125	13	2.5	17	4.5	2	15	12	8	16	300
GN 43-60-M16-150-D0-*	60	M 16	150	13	2.5	17	-	2	15	12	8	16	300
GN 43-60-M16-150-D1-*	60	M 16	150	13	2.5	17	-	2	15	12	8	16	320
GN 43-60-M16-150-D3-*	60	M 16	150	13	2.5	17	4.5	2	15	12	8	16	320
GN 43-60-M16-200-D0-*	60	M 16	200	13	2.5	17	-	2	15	12	8	16	378
GN 43-60-M16-200-D1-*	60	M 16	200	13	2.5	17	-	2	15	12	8	16	402
GN 43-60-M16-200-D3-*	60	M 16	200	13	2.5	17	4.5	2	15	12	8	16	420
GN 43-80-M16-75-D0-*	80	M 16	75	13	3	18	-	2	15	12	8	20	300
GN 43-80-M16-75-D1-*	80	M 16	75	13	3	18	-	2	15	12	8	20	317
GN 43-80-M16-75-D3-*	80	M 16	75	13	3	18	5	2	15	12	8	20	337
GN 43-80-M16-100-D0-*	80	M 16	100	13	3	18	-	2	15	12	8	20	340
GN 43-80-M16-100-D1-*	80	M 16	100	13	3	18	-	2	15	12	8	20	360
GN 43-80-M16-100-D3-*	80	M 16	100	13	3	18	5	2	15	12	8	20	368

GN 43-U/UK — STAINLESS STEEL

Description	d1	d2	l1	d3	h1	h4	h6	s	r	A/F 2	A/F 3	Static load in kN	⚖
GN 43-80-M16-125-D0-*	80	M 16	125	13	3	18	-	2	15	12	8	20	370
GN 43-80-M16-125-D1-*	80	M 16	125	13	3	18	-	2	15	12	8	20	380
GN 43-80-M16-125-D3-*	80	M 16	125	13	3	18	5	2	15	12	8	20	400
GN 43-80-M16-150-D0-*	80	M 16	150	13	3	18	-	2	15	12	8	20	397
GN 43-80-M16-150-D1-*	80	M 16	150	13	3	18	-	2	15	12	8	20	420
GN 43-80-M16-150-D3-*	80	M 16	150	13	3	18	5	2	15	12	8	20	450
GN 43-80-M16-200-D0-*	80	M 16	200	13	3	18	-	2	15	12	8	20	460
GN 43-80-M16-200-D1-*	80	M 16	200	13	3	18	-	2	15	12	8	20	480
GN 43-80-M16-200-D3-*	80	M 16	200	13	3	18	5	2	15	12	8	20	500
GN 43-80-M20-75-D0-*	80	M 20	75	13	3	18	-	2	15	15	10	20	375
GN 43-80-M20-75-D1-*	80	M 20	75	13	3	18	-	2	15	15	10	20	400
GN 43-80-M20-75-D3-*	80	M 20	75	13	3	18	5	2	15	15	10	20	440
GN 43-80-M20-100-D0-*	80	M 20	100	13	3	18	-	2	15	15	10	20	400
GN 43-80-M20-100-D1-*	80	M 20	100	13	3	18	-	2	15	15	10	20	453
GN 43-80-M20-100-D3-*	80	M 20	100	13	3	18	5	2	15	15	10	20	460
GN 43-80-M20-125-D0-*	80	M 20	125	13	3	18	-	2	15	15	10	20	480
GN 43-80-M20-125-D1-*	80	M 20	125	13	3	18	-	2	15	15	10	20	500
GN 43-80-M20-125-D3-*	80	M 20	125	13	3	18	5	2	15	15	10	20	520
GN 43-80-M20-150-D0-*	80	M 20	150	13	3	18	-	2	15	15	10	20	540
GN 43-80-M20-150-D1-*	80	M 20	150	13	3	18	-	2	15	15	10	20	557
GN 43-80-M20-150-D3-*	80	M 20	150	13	3	18	5	2	15	15	10	20	560
GN 43-80-M20-200-D0-*	80	M 20	200	13	3	18	-	2	15	15	10	20	580
GN 43-80-M20-200-D1-*	80	M 20	200	13	3	18	-	2	15	15	10	20	600
GN 43-80-M20-200-D3-*	80	M 20	200	13	3	18	5	2	15	15	10	20	626
GN 43-80-M24-100-D0-*	80	M 24	100	13	3	21	-	2	15	19	12	22	600
GN 43-80-M24-100-D1-*	80	M 24	100	13	3	21	-	2	15	19	12	22	617
GN 43-80-M24-100-D3-*	80	M 24	100	13	3	21	5	2	15	19	12	22	685
GN 43-80-M24-125-D0-*	80	M 24	125	13	3	21	-	2	15	19	12	22	640
GN 43-80-M24-125-D1-*	80	M 24	125	13	3	21	-	2	15	19	12	22	660
GN 43-80-M24-125-D3-*	80	M 24	125	13	3	21	5	2	15	19	12	22	680
GN 43-80-M24-150-D0-*	80	M 24	150	13	3	21	-	2	15	19	12	22	720
GN 43-80-M24-150-D1-*	80	M 24	150	13	3	21	-	2	15	19	12	22	737
GN 43-80-M24-150-D3-*	80	M 24	150	13	3	21	5	2	15	19	12	22	756
GN 43-80-M24-200-D0-*	80	M 24	200	13	3	21	-	2	15	19	12	22	762
GN 43-80-M24-200-D1-*	80	M 24	200	13	3	21	-	2	15	19	12	22	799
GN 43-80-M24-200-D3-*	80	M 24	200	13	3	21	5	2	15	19	12	22	900

Weight Version U

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*Complete with version of Levelling feet (External hexagon socket on the top/Wrench flat at the bottom)

V without nut

VK with nut

GN 43-V/VK — **STAINLESS STEEL**

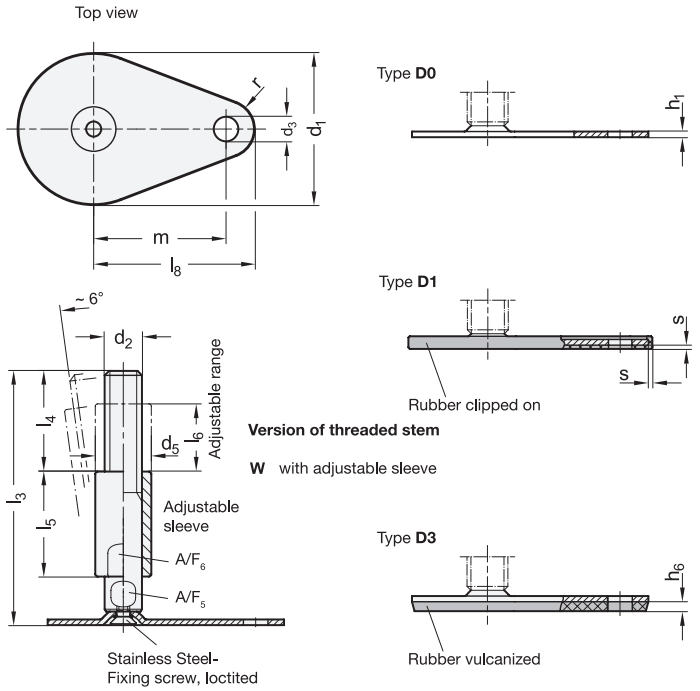
Description	d1	d2	l2	d3	h1	h5	h6	s	r	A/F 4	A/F 5	Static load in kN	⚖
GN 43-60-M16-75-D0-*	60	M 16	75	13	2.5	14	-	2	15	10	12	16	178
GN 43-60-M16-75-D1-*	60	M 16	75	13	2.5	14	-	2	15	10	12	16	199
GN 43-60-M16-75-D3-*	60	M 16	75	13	2.5	14	4.5	2	15	10	12	16	205
GN 43-60-M16-100-D0-*	60	M 16	100	13	2.5	14	-	2	15	10	12	16	210
GN 43-60-M16-100-D1-*	60	M 16	100	13	2.5	14	-	2	15	10	12	16	221
GN 43-60-M16-100-D3-*	60	M 16	100	13	2.5	14	4.5	2	15	10	12	16	231
GN 43-60-M16-125-D0-*	60	M 16	125	13	2.5	14	-	2	15	10	12	16	242
GN 43-60-M16-125-D1-*	60	M 16	125	13	2.5	14	-	2	15	10	12	16	253
GN 43-60-M16-125-D3-*	60	M 16	125	13	2.5	14	4.5	2	15	10	12	16	263
GN 43-60-M16-150-D0-*	60	M 16	150	13	2.5	14	-	2	15	10	12	16	275
GN 43-60-M16-150-D1-*	60	M 16	150	13	2.5	14	-	2	15	10	12	16	286
GN 43-60-M16-150-D3-*	60	M 16	150	13	2.5	14	4.5	2	15	10	12	16	296
GN 43-80-M16-75-D0-*	80	M 16	75	13	3	15	-	2	15	10	12	20	131
GN 43-80-M16-75-D1-*	80	M 16	75	13	3	15	-	2	15	10	12	20	148
GN 43-80-M16-75-D3-*	80	M 16	75	13	3	15	5	2	15	10	12	20	172
GN 43-80-M16-100-D0-*	80	M 16	100	13	3	15	-	2	15	10	12	20	292
GN 43-80-M16-100-D1-*	80	M 16	100	13	3	15	-	2	15	10	12	20	309
GN 43-80-M16-100-D3-*	80	M 16	100	13	3	15	5	2	15	10	12	20	333
GN 43-80-M16-125-D0-*	80	M 16	125	13	3	15	-	2	15	10	12	20	324
GN 43-80-M16-125-D1-*	80	M 16	125	13	3	15	-	2	15	10	12	20	341
GN 43-80-M16-125-D3-*	80	M 16	125	13	3	15	5	2	15	10	12	20	365
GN 43-80-M16-150-D0-*	80	M 16	150	13	3	15	-	2	15	10	12	20	357
GN 43-80-M16-150-D1-*	80	M 16	150	13	3	15	-	2	15	10	12	20	374

GN 43-V/VK — **STAINLESS STEEL**

Description	d1	d2	l2	d3	h1	h5	h6	s	r	A/F 4	A/F 5	Static load in kN	⚖
GN 43-80-M16-150-D3-*	80	M 16	150	13	3	15	5	2	15	10	12	20	398
GN 43-80-M20-100-D0-*	80	M 20	100	13	3	15	-	2	15	13	16	20	373
GN 43-80-M20-100-D1-*	80	M 20	100	13	3	15	-	2	15	13	16	20	390
GN 43-80-M20-100-D3-*	80	M 20	100	13	3	15	5	2	15	13	16	20	412
GN 43-80-M20-125-D0-*	80	M 20	125	13	3	15	-	2	15	13	16	20	424
GN 43-80-M20-125-D1-*	80	M 20	125	13	3	15	-	2	15	13	16	20	441
GN 43-80-M20-125-D3-*	80	M 20	125	13	3	15	5	2	15	13	16	20	463
GN 43-80-M20-150-D0-*	80	M 20	150	13	3	15	-	2	15	13	16	20	476
GN 43-80-M20-150-D1-*	80	M 20	150	13	3	15	-	2	15	13	16	20	493
GN 43-80-M20-150-D3-*	80	M 20	150	13	3	15	5	2	15	13	16	20	515
GN 43-80-M20-200-D0-*	80	M 20	200	13	3	15	-	2	15	13	16	20	581
GN 43-80-M20-200-D1-*	80	M 20	200	13	3	15	-	2	15	13	16	20	598
GN 43-80-M20-200-D3-*	80	M 20	200	13	3	15	5	2	15	13	16	20	620
GN 43-80-M24-100-D0-*	80	M 24	100	13	3	18	-	2	15	17	20	22	476
GN 43-80-M24-100-D1-*	80	M 24	100	13	3	18	-	2	15	17	20	22	493
GN 43-80-M24-100-D3-*	80	M 24	100	13	3	18	5	2	15	17	20	22	513
GN 43-80-M24-150-D0-*	80	M 24	150	13	3	18	-	2	15	17	20	22	624
GN 43-80-M24-150-D1-*	80	M 24	150	13	3	18	-	2	15	17	20	22	641
GN 43-80-M24-150-D3-*	80	M 24	150	13	3	18	5	2	15	17	20	22	661
GN 43-80-M24-200-D0-*	80	M 24	200	13	3	18	-	2	15	17	20	22	770
GN 43-80-M24-200-D1-*	80	M 24	200	13	3	18	-	2	15	17	20	22	787
GN 43-80-M24-200-D3-*	80	M 24	200	13	3	18	5	2	15	17	20	22	807

Weight Version V

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GN 43-W **STAINLESS STEEL**

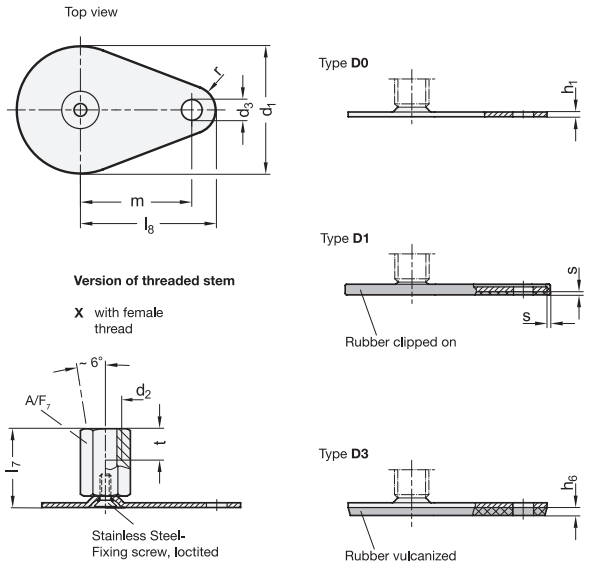
Description	d1	d2	l3	d3	h1	h6	l4	l5	l6	s	r	A/F 5	A/F 6	Static load in kN	⚖
GN 43-60-M16-110-D0-W	60	M 16	110	13	2.5	-	45	45	29	2	15	12	20	16	300
GN 43-60-M16-110-D1-W	60	M 16	110	13	2.5	-	45	45	29	2	15	12	20	16	314
GN 43-60-M16-110-D3-W	60	M 16	110	13	2.5	4.5	45	45	29	2	15	12	20	16	324
GN 43-60-M16-135-D0-W	60	M 16	135	13	2.5	-	45	45	29	2	15	12	20	16	340
GN 43-60-M16-135-D1-W	60	M 16	135	13	2.5	-	45	45	29	2	15	12	20	16	351
GN 43-60-M16-135-D3-W	60	M 16	135	13	2.5	4.5	45	45	29	2	15	12	20	16	361
GN 43-60-M16-160-D0-W	60	M 16	160	13	2.5	-	45	45	29	2	15	12	20	16	381
GN 43-60-M16-160-D1-W	60	M 16	160	13	2.5	-	45	45	29	2	15	12	20	16	392
GN 43-60-M16-160-D3-W	60	M 16	160	13	2.5	4.5	45	45	29	2	15	12	20	16	402
GN 43-60-M16-185-D0-W	60	M 16	185	13	2.5	-	45	45	29	2	15	12	20	16	421
GN 43-60-M16-185-D1-W	60	M 16	185	13	2.5	-	45	45	29	2	15	12	20	16	432
GN 43-60-M16-185-D3-W	60	M 16	185	13	2.5	4.5	45	45	29	2	15	12	20	16	442
GN 43-80-M16-110-D0-W	80	M 16	110	13	3	-	45	45	29	2	15	12	20	20	385
GN 43-80-M16-110-D1-W	80	M 16	110	13	3	-	45	45	29	2	15	12	20	20	402
GN 43-80-M16-110-D3-W	80	M 16	110	13	3	5	45	45	29	2	15	12	20	20	426
GN 43-80-M16-135-D0-W	80	M 16	135	13	3	-	45	45	29	2	15	12	20	20	400
GN 43-80-M16-135-D1-W	80	M 16	135	13	3	-	45	45	29	2	15	12	20	20	439
GN 43-80-M16-135-D3-W	80	M 16	135	13	3	5	45	45	29	2	15	12	20	20	463
GN 43-80-M16-160-D0-W	80	M 16	160	13	3	-	45	45	29	2	15	12	20	20	430
GN 43-80-M16-160-D1-W	80	M 16	160	13	3	-	45	45	29	2	15	12	20	20	480
GN 43-80-M16-160-D3-W	80	M 16	160	13	3	5	45	45	29	2	15	12	20	20	500
GN 43-80-M16-185-D0-W	80	M 16	185	13	3	-	45	45	29	2	15	12	20	20	503
GN 43-80-M16-185-D1-W	80	M 16	185	13	3	-	45	45	29	2	15	12	20	20	520

GN 43-W **STAINLESS STEEL**

Description	d1	d2	l3	d3	h1	h6	l4	l5	l6	s	r	A/F 5	A/F 6	Static load in kN	⚖
GN 43-80-M16-185-D3-W	80	M 16	185	13	3	5	45	45	29	2	15	12	20	20	544
GN 43-80-M20-134-D0-W	80	M 20	134	13	3	-	56	56	37	2	15	16	24	20	603
GN 43-80-M20-134-D1-W	80	M 20	134	13	3	-	56	56	37	2	15	16	24	20	620
GN 43-80-M20-134-D3-W	80	M 20	134	13	3	5	56	56	37	2	15	16	24	20	642
GN 43-80-M20-159-D0-W	80	M 20	159	13	3	-	56	56	37	2	15	16	24	20	666
GN 43-80-M20-159-D1-W	80	M 20	159	13	3	-	56	56	37	2	15	16	24	20	683
GN 43-80-M20-159-D3-W	80	M 20	159	13	3	5	56	56	37	2	15	16	24	20	705
GN 43-80-M20-184-D0-W	80	M 20	184	13	3	-	56	56	37	2	15	16	24	20	729
GN 43-80-M20-184-D1-W	80	M 20	184	13	3	-	56	56	37	2	15	16	24	20	746
GN 43-80-M20-184-D3-W	80	M 20	184	13	3	5	56	56	37	2	15	16	24	20	768
GN 43-80-M20-234-D0-W	80	M 20	234	13	3	-	56	56	37	2	15	16	24	20	852
GN 43-80-M20-234-D1-W	80	M 20	234	13	3	-	56	56	37	2	15	16	24	20	869
GN 43-80-M20-234-D3-W	80	M 20	234	13	3	5	56	56	37	2	15	16	24	20	892
GN 43-80-M24-159-D0-W	80	M 24	159	13	3	-	67	67	42	2	15	20	30	22	905
GN 43-80-M24-159-D1-W	80	M 24	159	13	3	-	67	67	42	2	15	20	30	22	922
GN 43-80-M24-159-D3-W	80	M 24	159	13	3	5	67	67	42	2	15	20	30	22	942
GN 43-80-M24-209-D0-W	80	M 24	209	13	3	-	67	67	42	2	15	20	30	22	1083
GN 43-80-M24-209-D1-W	80	M 24	209	13	3	-	67	67	42	2	15	20	30	22	1100
GN 43-80-M24-209-D3-W	80	M 24	209	13	3	5	67	67	42	2	15	20	30	22	1120
GN 43-80-M24-259-D0-W	80	M 24	259	13	3	-	67	67	42	2	15	20	30	22	1262
GN 43-80-M24-259-D1-W	80	M 24	259	13	3	-	67	67	42	2	15	20	30	22	1279
GN 43-80-M24-259-D3-W	80	M 24	259	13	3	5	67	67	42	2	15	20	30	22	1360

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GN 43 | Stainless Steel-Levelling feet



GN 43-X

STAINLESS STEEL

Description	d1	d2	l7	d3	h1	h6	r	A/F 7	t	s	Static load in kN	⚖
GN 43-50-M8-25-D0-X	50	M 8	25	13	2.5	-	15	14	8	2	8	85
GN 43-50-M8-25-D1-X	50	M 8	25	13	2.5	-	15	14	8	2	8	95
GN 43-50-M8-25-D3-X	50	M 8	25	13	2.5	4	15	14	8	2	8	97
GN 43-50-M10-28-D0-X	50	M 10	28	13	2.5	-	15	14	10	2	14	99
GN 43-50-M10-28-D1-X	50	M 10	28	13	2.5	-	15	14	10	2	14	100
GN 43-50-M10-28-D3-X	50	M 10	28	13	2.5	4	15	14	10	2	14	110
GN 43-50-M12-32-D0-X	50	M 12	32	13	2.5	-	15	17	12	2	14	117
GN 43-50-M12-32-D1-X	50	M 12	32	13	2.5	-	15	17	12	2	14	110
GN 43-50-M12-32-D3-X	50	M 12	32	13	2.5	4	15	17	12	2	14	120
GN 43-50-M16-37-D0-X	50	M 16	37	13	2.5	-	15	22	16	2	14	120
GN 43-50-M16-37-D1-X	50	M 16	37	13	2.5	-	15	22	16	2	14	129
GN 43-50-M16-37-D3-X	50	M 16	37	13	2.5	4	15	22	16	2	14	160
GN 43-60-M8-25-D0-X	60	M 8	25	13	2.5	-	15	14	8	2	8	99
GN 43-60-M8-25-D1-X	60	M 8	25	13	2.5	-	15	14	8	2	8	109
GN 43-60-M8-25-D3-X	60	M 8	25	13	2.5	4.5	15	14	8	2	8	120
GN 43-60-M10-28-D0-X	60	M 10	28	13	2.5	-	15	14	10	2	14	100
GN 43-60-M10-28-D1-X	60	M 10	28	13	2.5	-	15	14	10	2	14	110
GN 43-60-M10-28-D3-X	60	M 10	28	13	2.5	4.5	15	14	10	2	14	125
GN 43-60-M12-32-D0-X	60	M 12	32	13	2.5	-	15	17	12	2	16	134
GN 43-60-M12-32-D1-X	60	M 12	32	13	2.5	-	15	17	12	2	16	145
GN 43-60-M12-32-D3-X	60	M 12	32	13	2.5	4.5	15	17	12	2	16	150
GN 43-60-M16-37-D0-X	60	M 16	37	13	2.5	-	15	22	16	2	16	155
GN 43-60-M16-37-D1-X	60	M 16	37	13	2.5	-	15	22	16	2	16	160
GN 43-60-M16-37-D3-X	60	M 16	37	13	2.5	4.5	15	22	16	2	16	170
GN 43-80-M8-26-D0-X	80	M 8	26	13	3	-	15	14	8	2	8	182
GN 43-80-M8-26-D1-X	80	M 8	26	13	3	-	15	14	8	2	8	199
GN 43-80-M8-26-D3-X	80	M 8	26	13	3	5	15	14	8	2	8	222
GN 43-80-M10-29-D0-X	80	M 10	29	13	3	-	15	14	10	2	14	182
GN 43-80-M10-29-D1-X	80	M 10	29	13	3	-	15	14	10	2	14	199
GN 43-80-M10-29-D3-X	80	M 10	29	13	3	5	15	14	10	2	14	230
GN 43-80-M12-32-D0-X	80	M 12	32	13	3	-	15	17	12	2	20	200
GN 43-80-M12-32-D1-X	80	M 12	32	13	3	-	15	17	12	2	20	220
GN 43-80-M12-32-D3-X	80	M 12	32	13	3	5	15	17	12	2	20	240
GN 43-80-M16-38-D0-X	80	M 16	38	13	3	-	15	22	16	2	20	240
GN 43-80-M16-38-D1-X	80	M 16	38	13	3	-	15	22	16	2	20	257
GN 43-80-M16-38-D3-X	80	M 16	38	13	3	5	15	22	16	2	20	300
GN 43-80-M20-45-D0-X	80	M 20	45	13	3	-	15	27	20	2	20	300
GN 43-80-M20-45-D1-X	80	M 20	45	13	3	-	15	27	20	2	20	320
GN 43-80-M20-45-D3-X	80	M 20	45	13	3	5	15	27	20	2	20	340

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Vibration-damping levelling elements

Steel base and stem

BASE
Zinc-plated steel.

DAMPING ELEMENT
NR rubber, hardness 80 Shore A, black colour, matte finish.

LEVELLING PLATE
Zinc-plated steel.

PACKING RING
NBR synthetic rubber O-Ring.

THREADED STEM
Zinc-plated steel, supplied not assembled.

NUT AND WASHER
Zinc-plated steel.

FEATURES
ELESA vibration-damping levelling elements have been designed to damp vibrations, shocks and noises produced by moving bodies or non-balanced vibrating masses of equipment and machines which can cause:
- malfunctioning and reduction of the machine lifespan and/or of the adjacent ones;
- damage to operator's health;
- noise.
- Put the base of the vibration-damping element under the machine and insert the stem through the hole (not threaded) in the frame of the machine (fig.1)
- Turn the square end of the stem to take the levelling plate in contact with the machine thus obtaining the levelling required. Then lock with nut and washer (fig.2)



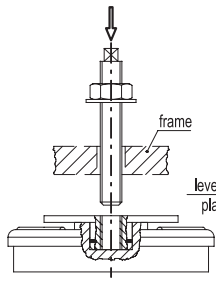


Fig.1

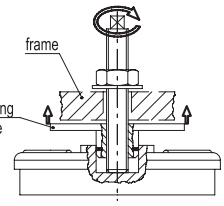
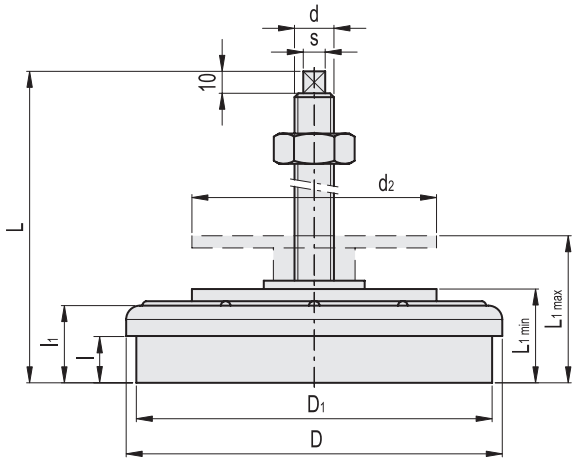


Fig.2



Code	Description	D	d	D1	L	L1 min÷max	l	l1	d2	s	Max. limit static load [N]	Stiffness [N/mm]	Max. deflection [mm]	⚖
415111	LW.A-80-M12x1.25x120	80	M12x1.25	72	133	35÷46	18.5	32	60	7x7	5000	2500	2	530
415121	LW.A-120-M16x1.5x130	120	M16x1.5	109	144	40÷51	23	36.5	80	9x9	10000	4000	2.5	1200
415131	LW.A-160-M20x1.5x170	160	M20x1.5	150	188	50÷63	29	43.5	130	12x12	20000	9000	2.2	2650
415141	LW.A-200-M20x1.5x170	200	M20x1.5	186	198	60÷73	36	54.5	130	12x12	40000	15000	2.7	4500

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TECHNICAL DATA AND GUIDELINES FOR THE CHOICE

1. Basic data required:
- disturbing frequency: the frequency of the disturbing vibration produced by a on-duty machine. In general, it is obtained by the number of rotations of the engine [Hz=r.p.m./60];
- the load applied to every single vibration-damping element [N];
- the isolation degree required [%];
- the deflection value of the vibration-damping element under a given load [mm];
- the rigidity, that is to say the load that applied to the vibration-damping element produces a deflection of 1.0 mm [N/mm].

2. How to choose the vibration-damping element:
- with reference to the diagram for checking the isolation degree, intersect the disturbing frequency value with the isolation degree required (each isolation degree corresponds to a line in the diagram) and define the deflection [in mm];
- divide the load applied onto the vibration-damping element by the deflection value to obtain the required rigidity of the vibration-damping element;
- compare the rigidity obtained with the rigidity shown in the table and choose the vibration-damping element which presents the nearest value (lower) to the calculated one.

3. Check:
- the deflection of the vibration-damping element chosen can be obtained in the graph on the basis of the load;
- intersect the disturbing frequency value with the vibration-damping element deflection value in the diagram to obtain the isolation degree offered by the vibration-damping element chosen;
- compare the obtained value with the isolation degree required.

4. Example:
- Conditions of use: disturbing frequency = 50 Hz (3,000 r.p.m.); load applied to every levelling element = 4,000 N; a 80% isolation degree is required;
- diagram shows that with a 50 Hz disturbing frequency and an isolation degree of 80%, the deflection obtained is 0.6 mm;
- divide the load applied by the deflection obtained to define the rigidity required, which is 4,000/0.6= 6,666 N/mm;
- compare the rigidity value obtained (6,666 N/mm) with the values reported in the table. This value is within the rigidity value reported in the table for LW.A-120 (4,000 N/mm) and LW.A-160 (9,000 N/mm). Choose the vibration-damping element with the lower value that is LW.A-120.
- graph shows that LW.A-120 (4,000 N/mm) deflection is 1mm.
- by intersecting the deflection value with the disturbing frequency of 50 Hz in the diagram, the isolation degree obtained is 90%.

This value is even greater than the required one; your choice has proved to be correct.

Graph

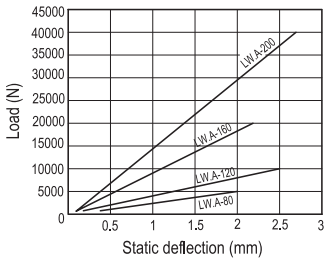
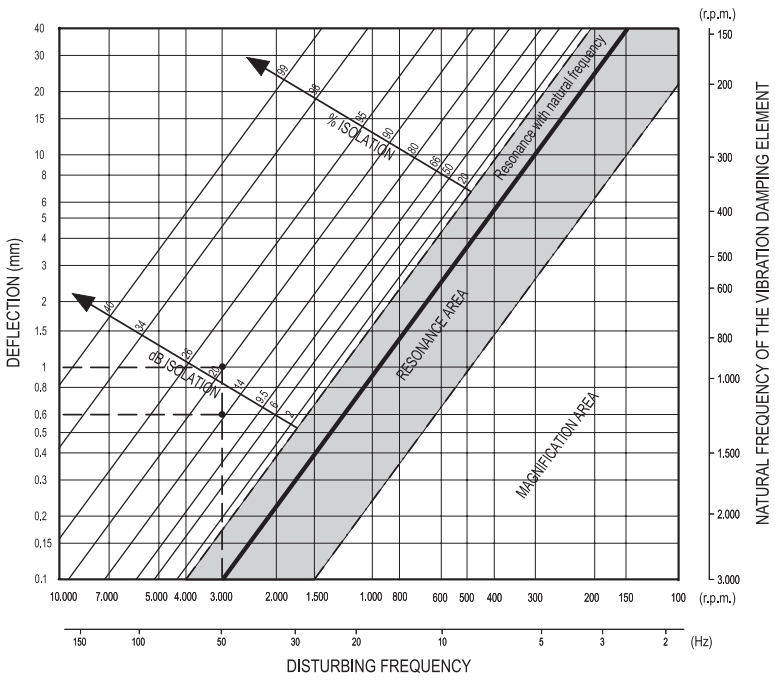


Diagram for checking the isolation degree of the vibration-damping element



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GN 148

Levelling feet with vibration damping element

SPECIFICATION

Types

- Type **A**: with two-hole flange (d_1 = 60 / 90 / 113)
- Type **B**: with four-hole flange (d_1 = 113 / 126)

Identification no.

- No. **1**: without tear-off lock
- No. **2**: with tear-off lock

Vibration damping element
Natural rubber (NR)

vulcanized
temperature resistant up to 80 °C
Hardness Shore A ±5 °

soft* 43
medium 57
hard* 68
* not available from stock, requires a minimum order quantity

Sheet metal
zinc plated, blue passivated

Threaded insert
Steel
zinc plated, blue passivated

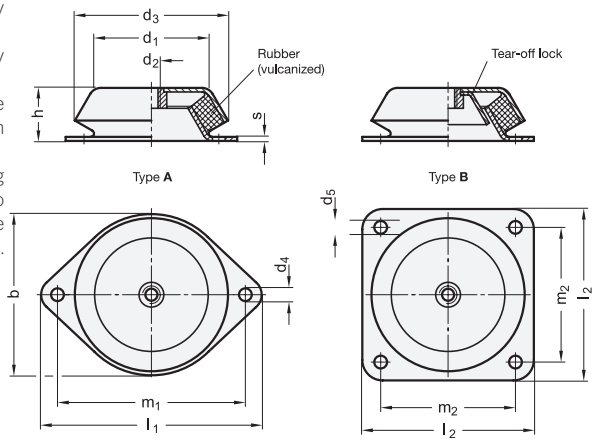


ACCESSORY

- Rubber pads GN 148.2 (see page 1307)

INFORMATION

Levelling feet GN 148 are designed for setting up heavy machinery and units with insulation against vibrations.
This has a positive impact on the lifetime of machines and additionally reduces the noise pollution.
The structure is such that horizontal forces are also absorbed. The design with tear-off lock (Type 2) protects the levelling feet from destruction caused by tear-off under excessive tension loads.
The details relating to the load bearing capacity are non-binding recommended values and rule out any liability. They constitute no general warranty of quality and condition. The user must determine from case to case whether a product is suitable for the intended use.



*Complete with Identification no. of the Levelling feet (1 or 2)

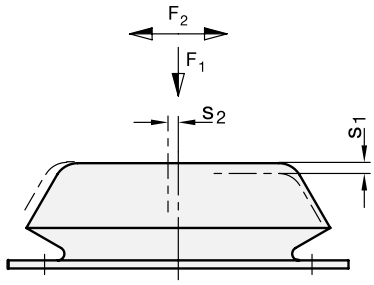
1	2
without tear-off lock	with tear-off lock

GN 148

Description	d1	d2	d3	d4	d5	h	s	b	l1	l2	m1	m2	⚖
GN 148-60-M10-A-*-43	60	M 10	78	9	-	30	2	78	128	-	110	-	238
GN 148-60-M10-A-*-57	60	M 10	78	9	-	30	2	78	128	-	110	-	250
GN 148-60-M10-A-*-68	60	M 10	78	9	-	30	2	78	128	-	110	-	245
GN 148-90-M12-A-*-43	90	M 12	106	13	-	39	3	110	170	-	140	-	717
GN 148-90-M12-A-*-57	90	M 12	106	13	-	39	3	110	170	-	140	-	725
GN 148-90-M12-A-*-68	90	M 12	106	13	-	39	3	110	170	-	140	-	730
GN 148-113-M16-A-*-43	113	M 16	150	12.5	-	52	4	150	216	-	184	-	1643
GN 148-113-M16-A-*-57	113	M 16	150	12.5	-	52	4	150	216	-	184	-	1641
GN 148-113-M16-A-*-68	113	M 16	150	12.5	-	52	4	150	216	-	184	-	1713
GN 148-113-M16-B-*-43	113	M 16	150	-	12.5	52	4	-	-	168	-	132	1878
GN 148-113-M16-B-*-57	113	M 16	150	-	12.5	52	4	-	-	168	-	132	1830
GN 148-113-M16-B-*-68	113	M 16	150	-	12.5	52	4	-	-	168	-	132	1870
GN 148-126-M20-B-*-43	126	M 20	177	-	13	63	4	-	-	184	-	150	2613
GN 148-126-M20-B-*-57	126	M 20	177	-	13	63	4	-	-	184	-	150	2623
GN 148-126-M20-B-*-68	126	M 20	177	-	13	63	4	-	-	184	-	150	2680

Weight identification no. 1

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TECHNICAL INFORMATION (TERMS)

F_1 = static load in vertical direction (pressure)
F_2 = static load in horizontal direction (lateral thrust)
s_1 = Compression in vertical direction (spring excursion) under load thorugh F_1
s_2 = Compression in vertical direction (spring excursion) under load through F_2

Stiffness R:
is the load which causes the damping elements to be compressed by 1 mm (spring rate)

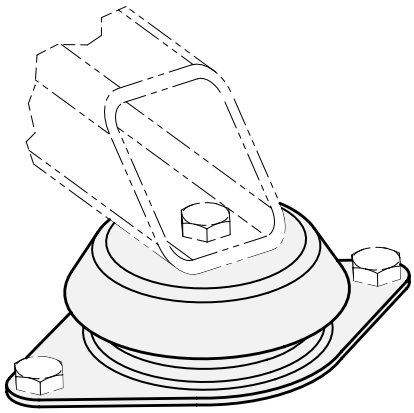
Equation for calculating the stiffness: R = F / S

The table below gives details on the maximum static load F, the maximum rated compression and the resulting stiffness R.
The method shown and the values given below allow the maximum degree of insulation of the vibration to be determined as a factor of the interference frequency.

d1	Hardness in Shore	max. static load F1 in N	Stiffness R1 in N/mm	max. compression s1, in mm	max. static load F2 in N	Stiffness R2 in N/mm	max. compression s2 in mm
60	43*	1100	340	3.2	2300	770	3
60	57	1750	550	3.2	3400	1130	3
60	68*	2800	930	3	4000	1330	3
90	43*	1500	430	3.5	3000	750	4
90	57	2800	800	3.5	5000	1330	3.75
90	68*	4500	1290	3.5	7000	1870	3.75
113	43*	3500	1000	3.5	4500	1290	3.5
113	57	6500	1860	3.5	7500	2140	3.5
113	68*	10000	2860	3.5	11000	3140	3.5
126	43*	7500	2140	3.5	9000	2570	3.5
126	57	12500	3570	3.5	15000	4290	3.5
126	68*	19000	5340	3.5	22500	6430	3.5

* not available from stock, requires a minimum order quantity

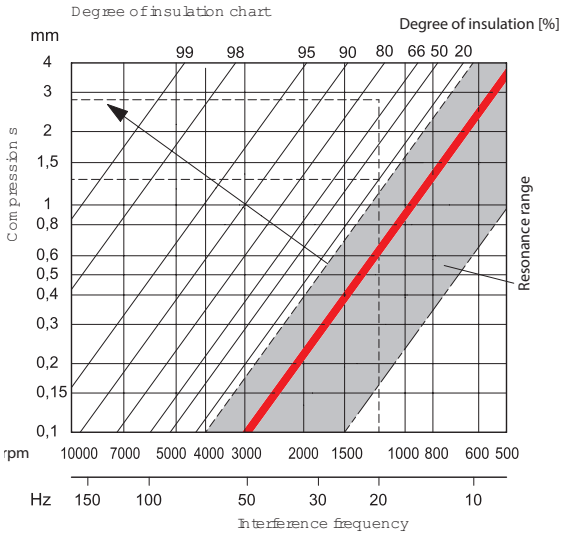
EXAMPLE OF APPLICATION



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GN 148

Levelling feet with vibration damping element



Terms

Interference frequency [Hz]:
is the frequency emanating from a machine, e.g. the machine main shaft speed [rpm].

Static load F [N]:
is the load acting on each vibration-damping element (levelling foot).

Degree of insulation [%]:
is the measure for absorbing the interference frequency (damping).

Compression s [mm]:
is the change in height of the damping element (spring excursion).

Stiffness R [N/mm]:
is the load which causes a damping element to be compressed by 1 mm (spring rate).

Determining the suitable levelling foot and the maximum degree of insulation

First, the static load F for each levelling foot must be determined. For well arranged levelling feet and the resulting even distribution of the load F, the static load is calculated using the following equation:

Weight force of the machine [N] / Number of levelling feet = Static load F [N] / per levelling foot

Once the static load F has been calculated, select a levelling foot from the table. Please note that the static load F should be as close as possible to the static load capacity, but without exceeding it. The associated stiffness R of the selected leg is also shown in the table.
The actual compression is then calculated using the equation below.

Static load F[N] / per levelling foot / Stiffness R [N/mm] = actual compression s [mm]

Starting from the actual compression s calculated, the maximum degree of insulation as factor of the interference frequency can now be read in the above chart.
To optimise the maximum degree of insulation, change the number of feet such that the static load F of each levelling foot is as close as possible below a static load capacity value given in the table. This will increase the compression s which, in turn, improves the degree of insulation.
In general, medium and high frequencies can be very well insulated with an adequate compression.

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GN 148.2

Rubber pads

for levelling feet GN 148

SPECIFICATION

Types

- Type **A**: for two-hole flange (d_1 = 60 / 90 / 113)
- Type **B**: for four-hole flange (d_1 = 113 / 126)

Rubber (NBR)

- Hardness 68 Shore A ±5, black
- oil resistant

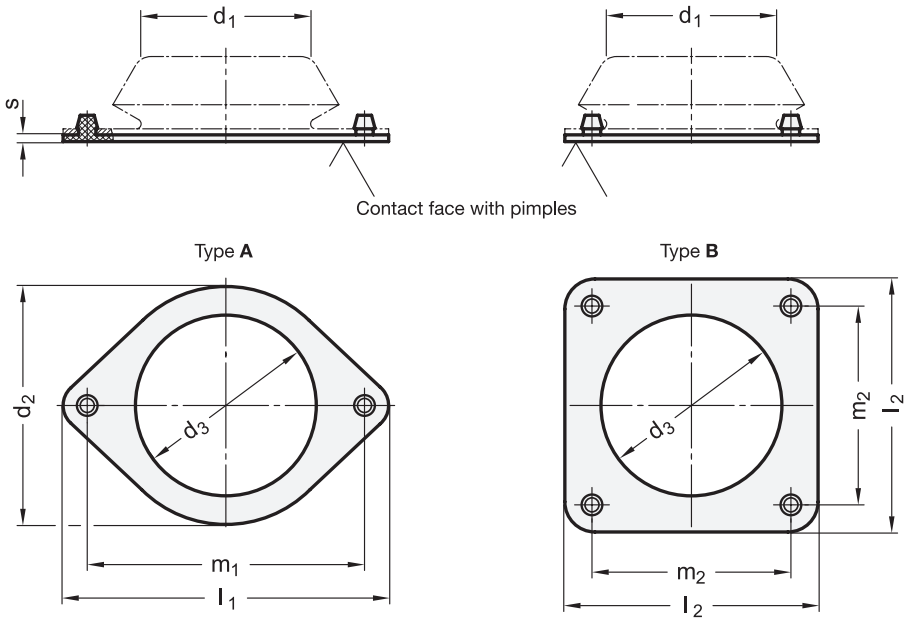
INFORMATION

Rubber pads GN 148.2 in connection with GN 148 (see page 1304) levelling feet are used for setting up machines and units if no firm bolt connection to the ground is required.
To be fixed to the levelling foot, they are snapped into the attachment bore holes of the flanges. Small pimples at the bottom face of the rubber pads enhance the stability.

TECHNICAL INFORMATION

- Elastomer characteristics (see page A32)





GN 148.2

Description	d1	l1	l2	d2	d3	m1	m2	s	⚖
GN 148.2-128-A	60	128	-	78	65	110	-	3	15
GN 148.2-170-A	90	170	-	110	90	140	-	3	29
GN 148.2-216-A	113	216	-	150	120	184	-	4	55
GN 148.2-168-B	113	-	168	-	120	-	132	4	88
GN 148.2-184-B	126	-	184	-	150	-	150	4	88

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GN 342.1

Levelling feet

with vibration damping / female thread



SPECIFICATION

Type

- Type **SV**: with damping element

Steel

- Tensile strength class 5.8
- zinc plated, blue passivated

Damping element
Elastomer (PUR)

- Sylomer SR 450-12
- anti-slip, glued
- grey
- oil resistant
- Operating range form -30 °C up to 70 °C

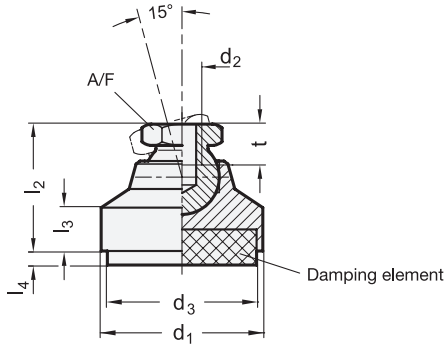
Hexagon nut ISO 4032
Steel zinc plated, blue passivated

INFORMATION

The specified load in the table of the levelling feet GN 342.1 is a recommendation up to which the damping element can be **permanently** subjected.
This static load equals a thrust on the area of 0.4 N/mm^2 at which the damping material reaches its optimum dynamic damping ability. This also takes into account an additional load up to 0.6 N/mm^2 in the event of a dynamic load.
Levelling feet GN 342.1 cannot be disassembled.
Vibration absorption of Levelling feets GN 342.1.

TECHNICAL INFORMATION

- Elastomer characteristics (see page A32)
- Strength values (see page A20)



GN 342.1

Description	d1	d2	d3	l2	l3	l4 Compression in N/mm^2 0	l4 Compression in N/mm^2 0.4	l4 Compression in N/mm^2 0.6	A/F	t	Area damping element in mm^2	Load in N by compression 0.4 N/mm^2	⚖
GN 342.1-32-M10-SV	32	M 10	30	29	11	5.5	3.8	2.7	15	10.5	707	280	65
GN 342.1-40-M12-SV	40	M 12	38	30	9.5	6	4.3	3.3	17	11.5	1134	450	92
GN 342.1-50-M12-SV	50	M 12	48	30.5	9	6.5	4.9	3.9	17	11.5	1809	720	137
GN 342.1-60-M16-SV	60	M 16	58	37.5	10	7	5.5	4.4	24	16	2641	1050	275

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GN 342.2

Levelling feet

with vibration damping / threaded stud



SPECIFICATION

Type

- Type **SV**: with damping element

Steel

- Tensile strength class 5.8
- zinc plated, blue passivated

Damping element
Elastomer (PUR)

- Sylomer SR 450-12
- anti-slip, glued
- grey
- oil resistant
- Operating range form -30 °C up to 70 °C

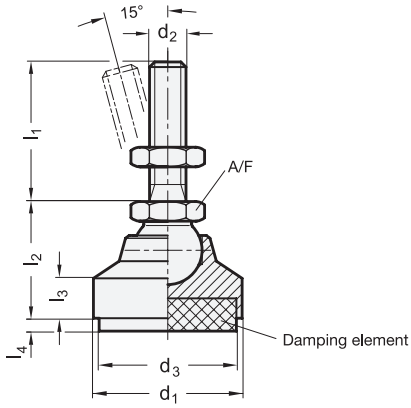
Hexagon nut ISO 4032
Steel zinc plated, blue passivated

INFORMATION

The specified load in the above table of the levelling feet GN 342.2 is a recommendation up to which the damping element can be **permanently** subjected.
This static load equals a thrust on the area of 0.4 N/mm^2 at which the damping material reaches its optimum dynamic damping ability. This also takes into account an additional load up to 0.6 N/mm^2 in the event of a dynamic load.
Levelling feet GN 342.1 cannot be disassembled.

TECHNICAL INFORMATION

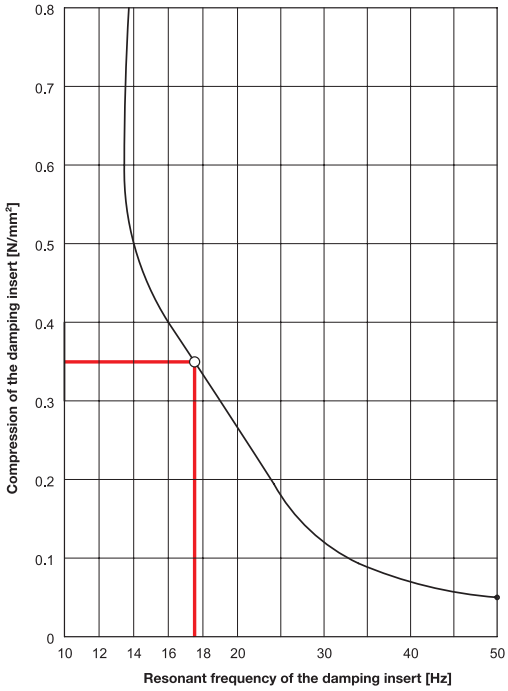
- Elastomer characteristics (see page A32)
- Strength values (see page A20)



GN 342.2

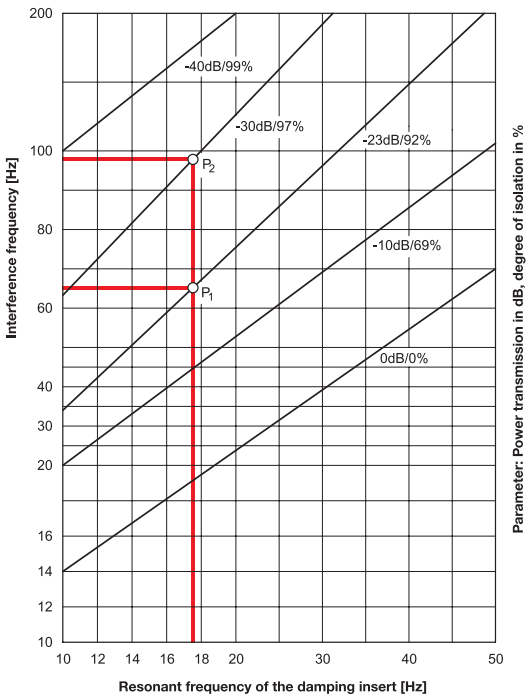
Description	d1	d2	l1	d3	l2	l3	l4 Compression in N/mm^2 0	l4 Compression in N/mm^2 0.4	l4 Compression in N/mm^2 0.6	A/F	Area damping element in mm^2	Load in N by compression 0.4 N/mm^2	⚖
GN 342.2-32-M10-50-SV	32	M 10	50	30	29	11	5.5	3.8	2.7	15	707	280	107
GN 342.2-32-M10-80-SV	32	M 10	80	30	29	11	5.5	3.8	2.7	15	707	280	122
GN 342.2-40-M12-63-SV	40	M 12	63	38	30	9.5	6	4.3	3.3	17	1134	450	170
GN 342.2-40-M12-100-SV	40	M 12	100	38	30	9.5	6	4.3	3.3	17	1134	450	189
GN 342.2-50-M12-63-SV	50	M 12	63	48	30.5	9	6.5	4.9	3.9	17	1809	720	208
GN 342.2-50-M12-100-SV	50	M 12	100	48	30.5	9	6.5	4.9	3.9	17	1809	720	233
GN 342.2-60-M16-80-SV	60	M 16	80	58	37.5	10	7	5.5	4.4	24	2641	1050	430
GN 342.2-60-M16-125-SV	60	M 16	125	58	37.5	10	7	5.5	4.4	24	2641	1050	495

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Vibration absorption - Performance graph

When using levelling feets GN 342.1 (see page 1308) and GN 342.2 the following differentiation in vibration absorption is made:
Active vibrations:
Vibrations transmitted to surroundings or associated equipment from working machinery for example.
Passive vibrations:
Vibrations transmitted to equipment or parts from vibrating surroundings or bases.
The efficiency of vibration absorption is dependent upon the interference frequency of the vibration to be absorbed as well as on the resonant frequency of the damping element itself.
A vibration absorbing effect is only achieved when the interference frequency is greater than √2-times the resonant frequency of the damping element. The greater the difference [Δ] between the two, the better the damping effect.
The resonant frequency of the damping pad is dependant upon type (composition) of the material cross section and the static load.
The graphs on the left show all the required data of the standard material (SR 450-12) of the damping element. Damping elements with other absorption properties are available on request.



Example

Assume a load per levelling foot: 400 N
Compression levelling foot $d_1 = 32$
400 N / 707 mm² = 0.57 N/mm²
Compression levelling foot $d_1 = 40$
400 N / 11340 mm²= 0.34 N/mm²
Therefore levelling feet with $d_1 = 40$, that exert a pressure of 0.4 N/mm² should be preferred.
The above graph shows:
Resonant frequency with compression 0.34 N/mm²:17.5 Hz
The lower graph shows:
Degree of isolation at 66 Hz interference frequency (P1): 92 %
Degree of isolation at 98 Hz interference frequency (P2): 97 %
At approximately 200 Hz interference frequency the degree of isolation is 100 %.

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GN 6311.3

Foot plates

for grub screws DIN 6332 / tommy screws DIN 6304 / DIN 6306



SPECIFICATION

Types

- Type **OS**: without plastic cap
- Type **KS**: with plastic cap, gliding
- Type **KR**: with plastic cap, non-gliding

Steel
zinc plated, blue passivated

Snap ring
Spring steel wire
zinc plated, blue passivated

Plastic caps

Type KS
Technopolymer (Polyacetal POM)
white (natural colour) RAL 9001

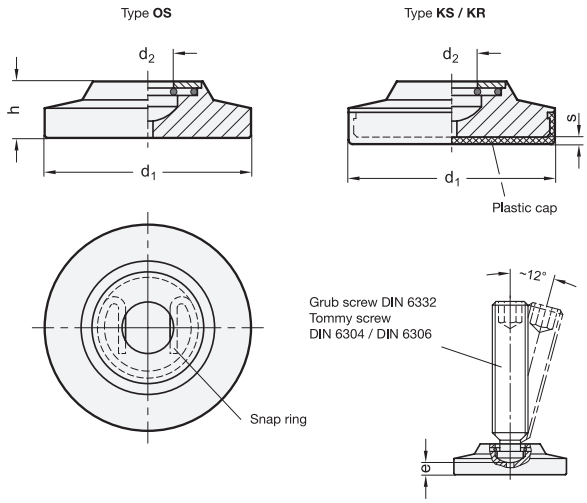
Type KR
Elastomer (TPE)
78 Shore A ≈
black

INFORMATION

Foot plates GN 6311.3 are used in connection with screws with pivots (grub screws DIN 6332, see page 912), tommy screws DIN 6304 (see page 407), DIN 6306 (see page 409).
Owing to the special shape of immovable retaining ring, the foot plate is easily plugged into and removed from, the pivot.

TECHNICAL INFORMATION

- Plastic characteristics (see page A2)
- Elastomer characteristics (see page A32)



GN 6311.3

Description	d1	h	d2 +0.2	e ≈	s	Grub screw DIN 6332	⚖
GN 6311.3-50-11,5-KR	50	11.5	9.2	2.5	1.7	M 12	115
GN 6311.3-50-11,5-KS	50	11.5	9.2	2.5	1.7	M 12	126
GN 6311.3-50-11,5-OS	50	11.5	9.2	2.5	-	M 12	133
GN 6311.3-50-13,5-KR	50	13.5	12.5	4	1.7	M 16	122
GN 6311.3-50-13,5-KS	50	13.5	12.5	4	1.7	M 16	133
GN 6311.3-50-13,5-OS	50	13.5	12.5	4	-	M 16	140
GN 6311.3-60-13,5-KR	60	13.5	12.5	4	1.7	M 16	197
GN 6311.3-60-13,5-KS	60	13.5	12.5	4	1.7	M 16	217
GN 6311.3-60-13,5-OS	60	13.5	12.5	4	-	M 16	227
GN 6311.3-60-15,5-KR	60	15.5	16.5	4.3	1.7	M 20	207
GN 6311.3-60-15,5-KS	60	15.5	16.5	4.3	1.7	M 20	227
GN 6311.3-60-15,5-OS	60	15.5	16.5	4.3	-	M 20	237

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GN 6311.4

Levelling feet

Steel, zinc plated



SPECIFICATION

Types

- Type **OS**: without plastic cap
- Type **KS**: with plastic cap, gliding
- Type **KR**: with plastic cap, non-gliding

Steel

- Tensile strength class 5.8
- zinc plated, blue passivated

Plastic caps:

Type KS
Technopolymer (Polyacetal POM)
white (natural colour) RAL 9001

Type KR
Elastomer (TPE)
78 Shore A ≈, black

INFORMATION

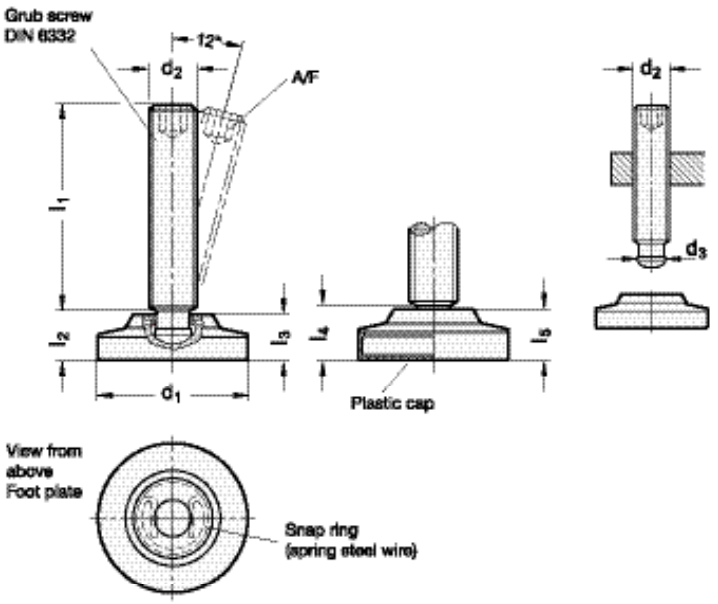
Levelling feet GN 6311.4 are normally used when a thread is present at the machine side to adjust the height.
The pin diameter d_3 is smaller than the core diameter of the thread, with the effect that the screw can be turned in at the pin. The pressure pin is easily inserted into the plate, with the retaining ring ensuring that the assembly is secure in axial direction.
The static load of the levelling feet GN 6311.4 is limited by the laod capacity of the grub screw (Tensile strength class 5.8). The static load values (only valid for Type OS/KS) in the table refer to a net vertical load in relation to the ball socket. Under normal operating conditions side loading or angular loading is not uncommon and the load capacity would be considerable reduced which must be taken into consideration.

TECHNICAL INFORMATION

- Elastomer characteristics (see page A32)
- Plastic characteristics (see page A2)
- Strength values (see page A20)

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GN 6311.4 | Levelling feet



*Complete with Type index of the Levelling feet

OS KS KR

GN 6311.4

Description	d1	d2	l1 ≈	d3	l2	l3	l4	l5	A/F	Static load in kN	⚖
GN 6311.4-50-M10-37-*	50	M 10	37	8	12.5	11.5	14	13	5	13	140
GN 6311.4-50-M10-47*	50	M 10	47	8	12.5	11.5	14	13	5	13	140
GN 6311.4-50-M10-57-*	50	M 10	57	8	12.5	11.5	14	13	5	13	140
GN 6311.4-50-M10-72-*	50	M 10	72	8	12.5	11.5	14	13	5	13	140
GN 6311.4-50-M12-41-*	50	M 12	41	8	12.5	11.5	14	13	6	13	140
GN 6311.4-50-M12-51-*	50	M 12	51	8	12.5	11.5	14	13	6	13	160
GN 6311.4-50-M12-61-*	50	M 12	61	8	12.5	11.5	14	13	6	13	160
GN 6311.4-50-M12-71-*	50	M 12	71	8	12.5	11.5	14	13	6	13	150
GN 6311.4-50-M12-91-*	50	M 12	91	8	12.5	11.5	14	13	6	13	180
GN 6311.4-50-M16-59-*	50	M 16	59	12	14.5	13.5	16	15	8	30	200
GN 6311.4-50-M16-69-*	50	M 16	69	12	14.5	13.5	16	15	8	30	220
GN 6311.4-50-M16-89-*	50	M 16	89	12	14.5	13.5	16	15	8	30	240
GN 6311.4-50-M16-114-*	50	M 16	114	12	14.5	13.5	16	15	8	30	280
GN 6311.4-60-M16-59-*	60	M 16	59	12	14.5	13.5	16	15	8	30	282
GN 6311.4-60-M16-69-*	60	M 16	69	12	14.5	13.5	16	15	8	30	280
GN 6311.4-60-M16-89-*	60	M 16	89	12	14.5	13.5	16	15	8	30	320
GN 6311.4-60-M16-114-*	60	M 16	114	12	14.5	13.5	16	15	8	30	340
GN 6311.4-60-M20-78-*	60	M 20	78	15.5	16.5	15.5	18	17	10	50	380
GN 6311.4-60-M20-88-*	60	M 20	88	15.5	16.5	15.5	18	17	10	50	396
GN 6311.4-60-M20-113-*	60	M 20	113	15.5	16.5	15.5	18	17	10	50	450
GN 6311.4-60-M20-138-*	60	M 20	138	15.5	16.5	15.5	18	17	10	50	440

Weight OS

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Levelling parts

Steel / Stainless Steel

SPECIFICATION

Version in Steel ST
blackened

Spherical washer
Steel, case-hardened

Version in Stainless Steel NI
AISI 303

Spherical washer
AISI 303

Cylinder head screw DIN 912
Stainless Steel A2-70

Washer DIN 433
Stainless Steel AISI 304

INFORMATION

Levelling parts GN 355 are used for levelling and adjustment in machines and equipment.
They consist of a levelling screw, a cylinder screw with disk and a spherical washer. After making the adjustment using the assembly tools GN 355.1 (see page 1315) available as accessory, the screw is tightened firmly causing the levelling screw and the spherical washer DIN 6319 underneath to spread and is so secured against twisting in the taphole.
The values for w and x given in the table and for the static load capacity are to be seen as reference values which may differ depending on the prevailing situation. In general, they do not constitute a warranty of condition. The user must determine whether the product is suitable for the intended purpose.

ACCESSORY

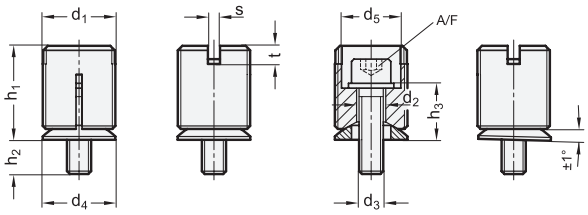
- Assembly tools GN 355.1 (Code no. see table)

TECHNICAL INFORMATION

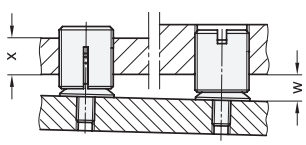
- Stainless Steel characteristics (see page A26)







Application example



GN 355

Description	d1	d2	d3	d4	d5	h1	h2	h3	s	A/F	t	w max.	x min.	Static load F in kN	Code no. assembly tool	⚖
GN 355-M12x1-4,5-ST	M 12 x 1	4.5	M 4	12	9.1	19.1	10.9	9.1	2	3	3	8	8	4.4	GN 355.1-12	20
GN 355-M18x1-7-ST	M 18 x 1	7	M 6	17	12.6	26.8	10.1	14.9	2	5	3	13	12	10	GN 355.1-18	36
GN 355-M24x1,5-9-ST	M 24 x 1.5	9	M 8	24	19.6	31.1	11.3	18.7	4	6	6	17	16	29.5	GN 355.1-24	68
GN 355-M30x1,5-13-ST	M 30 x 1.5	13	M 12	30	25.6	32.6	20.4	19.6	4	10	6	17	20	43	GN 355.1-30	130
GN 355-M36x1,5-18-ST	M 36 x 1.5	18	M 16	36	31.6	45.7	15.8	24.2	4	14	6	21	24	91	GN 355.1-36	228

GN 355-NI STAINLESS STEEL

Description	d1	d2	d3	d4	d5	h1	h2	h3	s	A/F	t	w max.	x min.	Static load F in kN	Code no. assembly tool	⚖
GN 355-M12x1-4,5-NI	M 12 x 1	4.5	M 4	12	9.1	19.1	10.9	9.1	2	3	3	8	8	4.4	GN 355.1-12	21
GN 355-M18x1-7-NI	M 18 x 1	7	M 6	17	12.6	26.8	10.1	14.9	2	5	3	13	12	10	GN 355.1-18	36
GN 355-M24x1,5-9-NI	M 24 x 1.5	9	M 8	24	19.6	31.1	11.3	18.7	4	6	6	17	16	29.5	GN 355.1-24	63
GN 355-M30x1,5-13-NI	M 30 x 1.5	13	M 12	30	25.6	32.6	20.4	19.6	4	10	6	17	20	43	GN 355.1-30	124
GN 355-M36x1,5-18-NI	M 36 x 1.5	18	M 16	36	31.6	45.7	15.8	24.2	4	14	6	21	24	91	GN 355.1-36	227

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GN 355.1

Assembly tools

for levelling parts GN 355

SPECIFICATION

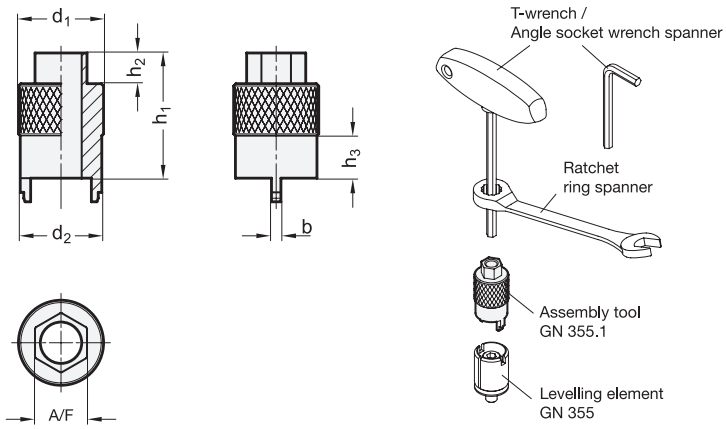
Steel

- surface hardened
- blackened

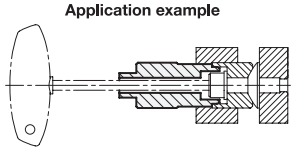
INFORMATION

GN 355.1 assembly tools serve to adjust GN 355 levelling elements. They are used in connection with a T-wrench or a hexagonal angle socket spanner. To ease levelling, the top end of the assembly tool has an external hexagon head which is used for turning the levelling screw with a ring spanner, ideally with a ratchet function.
For adjustment, first use the assembly tool to turn the levelling screw of the levelling element into the desired position and at the same time tighten the screw to secure the levelling element. To ensure that the setting found does not change, the assembly tool may be used to counterhold.





Application example



GN 355.1

Description	d1	b	d2	h1	h2	h3	A/F	Max. permissible torque in Nm	⚖
GN 355.1-12	12	2	11	35	7	6	8	20	22
GN 355.1-18	18	2	17	39	8	9	11	50	57
GN 355.1-24	24	4	22.5	43	9	12	13	75	68
GN 355.1-30	30	4	28.5	48	11	15	17	100	155
GN 355.1-36	36	4	34.5	53	13	18	22	150	255

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Square end-caps for tubes

Technopolymer



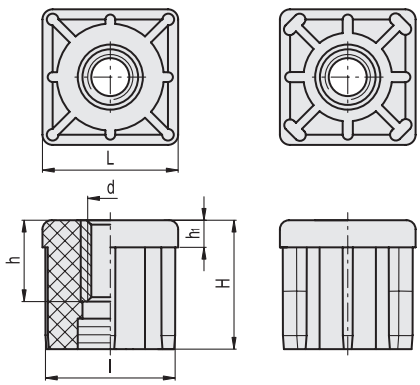
MATERIAL

Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

STANDARD EXECUTION

Nickel-plated brass boss with threaded pass-through hole.

NDX.Q - 20 - 25 - 30 - 35 - 40 **NDX.Q - 50 - 60**



Code	Description	L	d	h	H	h1	l	External tube diameter	Internal tube diameter	Thickness	Max. static load* [N]	⚖
320011	NDX.Q-20x1.5-M8	20	M8	10	23	5	17	20	17	1.5	4000	13
320016	NDX.Q-20x2-M8	20	M8	10	23	5	16	20	16	2	4000	13
320021	NDX.Q-25x1.5-M8	25	M8	10	26	6	22	25	22	1.5	4500	20
320022	NDX.Q-25x1.5-M10	25	M10	10	26	6	22	25	22	1.5	4500	20
320023	NDX.Q-25x1.5-M12	25	M12	10	26	6	22	25	22	1.5	4500	20
320026	NDX.Q-25x2-M8	25	M8	10	26	6	21	25	21	2	4500	20
320027	NDX.Q-25x2-M10	25	M10	10	26	6	21	25	21	2	4500	20
320031	NDX.Q-30x1.5-M8	30	M8	10	31	6	27	30	27	1.5	4500	28
320032	NDX.Q-30x1.5-M10	30	M10	10	31	6	27	30	27	1.5	4500	28
320033	NDX.Q-30x1.5-M12	30	M12	10	31	6	27	30	27	1.5	4500	28
320034	NDX.Q-30x1.5-M14	30	M14	15	31	6	27	30	27	1.5	4500	30
320035	NDX.Q-30x1.5-M16	30	M16	15	31	6	27	30	27	1.5	4500	30
320041	NDX.Q-30x2.0-M8	30	M8	10	31	6	26	30	26	2	4500	28
320042	NDX.Q-30x2.0-M10	30	M10	10	31	6	26	30	26	2	4500	28
320043	NDX.Q-30x2.0-M12	30	M12	10	31	6	26	30	26	2	4500	28
320044	NDX.Q-30x2.0-M14	30	M14	15	31	6	26	30	26	2	4500	30
320045	NDX.Q-30x2.0-M16	30	M16	15	31	6	26	30	26	2	4500	30
320051	NDX.Q-35x1.5-M8	35	M8	10	38	8	32	35	32	1.5	6000	40
320052	NDX.Q-35x1.5-M10	35	M10	10	38	8	32	35	32	1.5	6000	40
320053	NDX.Q-35x1.5-M12	35	M12	10	38	8	32	35	32	1.5	6000	40
320054	NDX.Q-35x1.5-M14	35	M14	15	38	8	32	35	32	1.5	6000	42
320055	NDX.Q-35x1.5-M16	35	M16	15	38	8	32	35	32	1.5	6000	42
320056	NDX.Q-35x1.5-M20	35	M20	20	38	8	32	35	32	1.5	6000	41
320061	NDX.Q-35x2-M8	35	M8	10	38	8	31	35	31	2	6000	40
320062	NDX.Q-35x2-M10	35	M10	10	38	8	31	35	31	2	6000	40
320063	NDX.Q-35x2-M12	35	M12	10	38	8	31	35	31	2	6000	40
320064	NDX.Q-35x2-M14	35	M14	15	38	8	31	35	31	2	6000	42
320065	NDX.Q-35x2-M16	35	M16	15	38	8	31	35	31	2	6000	42
320066	NDX.Q-35x2-M20	35	M20	20	38	8	31	35	31	2	6000	40
320071	NDX.Q-40x1.2-M8	40	M8	10	38	8	37.6	40	37.6	1.2	6000	47
320072	NDX.Q-40x1.2-M10	40	M10	10	38	8	37.6	40	37.6	1.2	6000	47
320073	NDX.Q-40x1.2-M12	40	M12	10	38	8	37.6	40	37.6	1.2	6000	47
320074	NDX.Q-40x1.2-M14	40	M14	15	38	8	37.6	40	37.6	1.2	6000	49
320075	NDX.Q-40x1.2-M16	40	M16	15	38	8	37.6	40	37.6	1.2	6000	49

***** The max static load is the value above which the load applied to the element may cause some plastic material breakage, in particular conditions of use. Obviously, a factor that takes into consideration the importance and the safety level of the specific application must be applied to this value.

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NDX.Q

Square end-caps for tubes

Code	Description	L	d	h	H	h1	l	External tube diameter	Internal tube diameter	Thickness	Max. static load* [N]	⚖
320076	NDX.Q-40x1.2-M20	40	M20	20	38	8	37.6	40	37.6	1.2	8000	48
320081	NDX.Q-40x1.5-M8	40	M8	10	38	8	37	40	37	1.5	6000	47
320082	NDX.Q-40x1.5-M10	40	M10	10	38	8	37	40	37	1.5	6000	47
320083	NDX.Q-40x1.5-M12	40	M12	10	38	8	37	40	37	1.5	6000	47
320084	NDX.Q-40x1.5-M14	40	M14	15	38	8	37	40	37	1.5	6000	49
320085	NDX.Q-40x1.5-M16	40	M16	15	38	8	37	40	37	1.5	6000	49
320086	NDX.Q-40x1.5-M20	40	M20	20	38	8	37	40	37	1.5	8000	48
320091	NDX.Q-40x2-M8	40	M8	10	38	8	36	40	36	2	6000	47
320092	NDX.Q-40x2-M10	40	M10	10	38	8	36	40	36	2	6000	47
320093	NDX.Q-40x2-M12	40	M12	10	38	8	36	40	36	2	6000	47
320094	NDX.Q-40x2-M14	40	M14	15	38	8	36	40	36	2	6000	49
320095	NDX.Q-40x2-M16	40	M16	15	38	8	36	40	36	2	6000	49
320096	NDX.Q-40x2-M20	40	M20	20	38	8	36	40	36	2	8000	48
320101	NDX.Q-40x2.5-M8	40	M8	10	38	8	35	40	35	2.5	6000	47
320102	NDX.Q-40x2.5-M10	40	M10	10	38	8	35	40	35	2.5	6000	47
320103	NDX.Q-40x2.5-M12	40	M12	10	38	8	35	40	35	2.5	6000	47
320104	NDX.Q-40x2.5-M14	40	M14	15	38	8	35	40	35	2.5	6000	49
320105	NDX.Q-40x2.5-M16	40	M16	15	38	8	35	40	35	2.5	6000	49
320106	NDX.Q-40x2.5-M20	40	M20	20	38	8	35	40	35	2.5	8000	50
320098	NDX.Q-40x3-M10	40	M10	10	38	8	34	40	34	3	6000	49
320099	NDX.Q-40x3-M12	40	M12	10	38	8	34	40	34	3	6000	48
320108	NDX.Q-45x3-M12	45	M12	10	38	8	39	45	39	3	6000	47
320109	NDX.Q-45x3-M16	45	M16	15	38	8	39	45	39	3	6000	46
320111	NDX.Q-50x1.2-M8	50	M8	10	45	10	47.6	50	47.6	1.2	6000	72
320112	NDX.Q-50x1.2-M10	50	M10	10	45	10	47.6	50	47.6	1.2	6000	72
320113	NDX.Q-50x1.2-M12	50	M12	10	45	10	47.6	50	47.6	1.2	6000	72
320114	NDX.Q-50x1.2-M14	50	M14	15	45	10	47.6	50	47.6	1.2	6000	74
320115	NDX.Q-50x1.2-M16	50	M16	15	45	10	47.6	50	47.6	1.2	6000	74
320116	NDX.Q-50x1.2-M20	50	M20	20	45	10	47.6	50	47.6	1.2	8500	75
320121	NDX.Q-50x1.5-M8	50	M8	10	45	10	47	50	47	1.5	6000	72
320122	NDX.Q-50x1.5-M10	50	M10	10	45	10	47	50	47	1.5	6000	72
320123	NDX.Q-50x1.5-M12	50	M12	10	45	10	47	50	47	1.5	6000	72
320124	NDX.Q-50x1.5-M14	50	M14	15	45	10	47	50	47	1.5	6000	74
320125	NDX.Q-50x1.5-M16	50	M16	15	45	10	47	50	47	1.5	6000	74
320126	NDX.Q-50x1.5-M20	50	M20	20	45	10	47	50	47	1.5	8500	75
320131	NDX.Q-50x2-M8	50	M8	10	45	10	46	50	46	2	6000	72
320132	NDX.Q-50x2-M10	50	M10	10	45	10	46	50	46	2	6000	72
320133	NDX.Q-50x2-M12	50	M12	10	45	10	46	50	46	2	6000	72
320134	NDX.Q-50x2-M14	50	M14	15	45	10	46	50	46	2	6000	74
320135	NDX.Q-50x2-M16	50	M16	15	45	10	46	50	46	2	6000	74
320136	NDX.Q-50x2-M20	50	M20	20	45	10	46	50	46	2	8500	75
320141	NDX.Q-50x2.5-M8	50	M8	10	45	10	45	50	45	2.5	6000	72
320142	NDX.Q-50x2.5-M10	50	M10	10	45	10	45	50	45	2.5	6000	72
320143	NDX.Q-50x2.5-M12	50	M12	10	45	10	45	50	45	2.5	6000	72
320144	NDX.Q-50x2.5-M14	50	M14	15	45	10	45	50	45	2.5	6000	74
320145	NDX.Q-50x2.5-M16	50	M16	15	45	10	45	50	45	2.5	6000	74
320146	NDX.Q-50x2.5-M20	50	M20	20	45	10	45	50	45	2.5	8500	74
320152	NDX.Q-50x3.0-M10	50	M10	10	45	10	44	50	44	3	6000	72
320153	NDX.Q-50x3.0-M12	50	M12	10	45	10	44	50	44	3	6000	72
320154	NDX.Q-50x3.0-M14	50	M14	15	45	10	44	50	44	3	6000	74
320155	NDX.Q-50x3.0-M16	50	M16	15	45	10	44	50	44	3	6000	74
320156	NDX.Q-50x3.0-M20	50	M20	20	45	10	44	50	44	3	8500	75
320162	NDX.Q-60x2.0-M10	60	M10	10	45	10	56	60	56	2	6000	98
320163	NDX.Q-60x2.0-M12	60	M12	10	45	10	56	60	56	2	6000	98
320164	NDX.Q-60x2.0-M14	60	M14	15	45	10	56	60	56	2	6000	98
320165	NDX.Q-60x2.0-M16	60	M16	15	45	10	56	60	56	2	6000	97
320166	NDX.Q-60x2.0-M20	60	M20	20	45	10	56	60	56	2	8500	97
320172	NDX.Q-60x3.0-M10	60	M10	10	45	10	54	60	54	3	6000	98
320173	NDX.Q-60x3.0-M12	60	M12	10	45	10	54	60	54	3	6000	98
320174	NDX.Q-60x3.0-M14	60	M14	15	45	10	54	60	54	3	6000	98
320175	NDX.Q-60x3.0-M16	60	M16	15	45	10	54	60	54	3	6000	97
320176	NDX.Q-60x3.0-M20	60	M20	20	45	10	54	60	54	3	8500	97

***** The max static load is the value above which the load applied to the element may cause some plastic material breakage, in particular conditions of use. Obviously, a factor that takes into consideration the importance and the safety level of the specific application must be applied to this value.

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Round end-caps for tubes

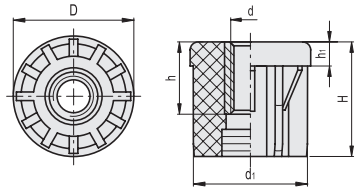
Technopolymer

MATERIAL

Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

STANDARD EXECUTION

Nickel-plated brass boss with threaded pass-through hole.





Code	Description	D	d	h	d1	H	h1	External tube diameter	Internal tube diameter	Thickness	Max. static load* [N]	⚖
320211	NDX.T-20x2-M8	20	M8	5	16	23	5	20	16	2	4000	23
320221	NDX.T-25x2-M8	25	M8	5.5	21	26	5.5	25	21	2	4500	24
320222	NDX.T-25x2-M10	25	M10	5.5	21	26	5.5	25	21	2	4500	24
320231	NDX.T-30x1-M8	30	M8	10	28	31	6	30	28	1	4500	24
320232	NDX.T-30x1-M10	30	M10	10	28	31	6	30	28	1	4500	24
320233	NDX.T-30x1-M12	30	M12	10	28	31	6	30	28	1	4500	24
320234	NDX.T-30x1-M14	30	M14	15	28	31	6	30	28	1	4500	26
320235	NDX.T-30x1-M16	30	M16	15	28	31	6	30	28	1	4500	26
320241	NDX.T-30x1.5-M8	30	M8	10	27	31	6	30	27	1.5	4500	24
320242	NDX.T-30x1.5-M10	30	M10	10	27	31	6	30	27	1.5	4500	24
320243	NDX.T-30x1.5-M12	30	M12	10	27	31	6	30	27	1.5	4500	24
320244	NDX.T-30x1.5-M14	30	M14	15	27	31	6	30	27	1.5	4500	26
320245	NDX.T-30x1.5-M16	30	M16	15	27	31	6	30	27	1.5	4500	26
320251	NDX.T-30x2-M8	30	M8	10	26	31	6	30	26	2	4500	24
320252	NDX.T-30x2-M10	30	M10	10	26	31	6	30	26	2	4500	24
320253	NDX.T-30x2-M12	30	M12	10	26	31	6	30	26	2	4500	24
320254	NDX.T-30x2-M14	30	M14	15	26	31	6	30	26	2	4500	26
320255	NDX.T-30x2-M16	30	M16	15	26	31	6	30	26	2	4500	26
320261	NDX.T-30x2.5-M8	30	M8	10	25	31	6	30	25	2.5	4500	24
320262	NDX.T-30x2.5-M10	30	M10	10	25	31	6	30	25	2.5	4500	24
320263	NDX.T-30x2.5-M12	30	M12	10	25	31	6	30	25	2.5	4500	24
320264	NDX.T-30x2.5-M14	30	M14	15	25	31	6	30	25	2.5	4500	26
320265	NDX.T-30x2.5-M16	30	M16	15	25	31	6	30	25	2.5	4500	26
320266	NDX.T-32x2-M8	32	M8	10	28	31	6	32	28	2	4500	28
320267	NDX.T-32x2-M10	32	M10	10	28	31	6	32	28	2	4500	28
320268	NDX.T-35x2-M10	35	M10	10	31	31	6	35	31	2	4500	30
320269	NDX.T-35x2-M12	35	M12	10	31	31	6	35	31	2	4500	30
320271	NDX.T-38x1.5-M8	38	M8	10	35	38	8	38	35	1.5	5000	32
320272	NDX.T-38x1.5-M10	38	M10	10	35	38	8	38	35	1.5	5000	32
320273	NDX.T-38x1.5-M12	38	M12	10	35	38	8	38	35	1.5	5000	32
320274	NDX.T-38x1.5-M14	38	M14	15	35	38	8	38	35	1.5	5000	34
320275	NDX.T-38x1.5-M16	38	M16	15	35	38	8	38	35	1.5	5000	34
320282	NDX.T-38x2-M10	38	M10	10	34	38	8	38	34	2	5000	32
320283	NDX.T-38x2-M12	38	M12	10	34	38	8	38	34	2	5000	32
320284	NDX.T-38x2-M14	38	M14	15	34	38	8	38	34	2	5000	34
320285	NDX.T-38x2-M16	38	M16	15	34	38	8	38	34	2	5000	34
320292	NDX.T-38x2.5-M10	38	M10	10	33	38	8	38	33	2.5	5000	32
320293	NDX.T-38x2.5-M12	38	M12	10	33	38	8	38	33	2.5	5000	32
320294	NDX.T-38x2.5-M14	38	M14	15	33	38	8	38	33	2.5	5000	34
320295	NDX.T-38x2.5-M16	38	M16	15	33	38	8	38	33	2.5	5000	34
320297	NDX.T-40x3-M10	40	M10	10	34	38	7.5	40	34	3	5000	40
320298	NDX.T-40x3-M12	40	M12	10	34	38	7.5	40	34	3	5000	40
320301	NDX.T-42.4x1.5-M8	42	M8	10	39.4	38	8	42.4	39.4	1.5	5000	44
320302	NDX.T-42.4x1.5-M10	42	M10	10	39.4	38	8	42.4	39.4	1.5	5000	44
320303	NDX.T-42.4x1.5-M12	42	M12	10	39.4	38	8	42.4	39.4	1.5	5000	44
320304	NDX.T-42.4x1.5-M14	42	M14	15	39.4	38	8	42.4	39.4	1.5	5000	46
320305	NDX.T-42.4x1.5-M16	42	M16	15	39.4	38	8	42.4	39.4	1.5	5000	46
320306	NDX.T-42.4x1.5-M20	42	M20	20	39.4	38	8	42.4	39.4	1.5	8000	42

***** The max static load is the value above which the load applied to the element may cause some plastic material breakage, in particular conditions of use. Obviously, a factor that takes into consideration the importance and the safety level of the specific application must be applied to this value.

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Code	Description	D	d	h	d1	H	h1	External tube diameter	Internal tube diameter	Thickness	Max. static load* [N]	⚖
320312	NDX.T-42.4x2-M10	42	M10	10	38.4	38	8	42.4	38.4	2	5000	44
320313	NDX.T-42.4x2-M12	42	M12	10	38.4	38	8	42.4	38.4	2	5000	44
320314	NDX.T-42.4x2-M14	42	M14	15	38.4	38	8	42.4	38.4	2	5000	46
320315	NDX.T-42.4x2-M16	42	M16	15	38.4	38	8	42.4	38.4	2	5000	46
320316	NDX.T-42.4x2-M20	42	M20	20	38.4	38	8	42.4	38.4	2	8000	42
320322	NDX.T-42.4x2.5-M10	42	M10	10	37.4	38	8	42.4	37.4	2.5	5000	44
320323	NDX.T-42.4x2.5-M12	42	M12	10	37.4	38	8	42.4	37.4	2.5	5000	44
320324	NDX.T-42.4x2.5-M14	42	M14	15	37.4	38	8	42.4	37.4	2.5	5000	46
320325	NDX.T-42.4x2.5-M16	42	M16	15	37.4	38	8	42.4	37.4	2.5	5000	46
320326	NDX.T-42.4x2.5-M20	42	M20	20	37.4	38	8	42.4	37.4	2.5	8000	42
320327	NDX.T-42x3-M10	42	M10	10	36	38	8	42	36	3	5000	44
320328	NDX.T-42x3-M12	42	M12	10	36	38	8	42	36	3	5000	44
320329	NDX.T-45x3-M12	45	M12	10	39	38	8.5	45	39	3	5000	46
320330	NDX.T-45x3-M16	45	M16	10	39	38	8.5	45	39	3	5000	46
320331	NDX.T-48.3x1.5-M8	48	M8	10	45.3	45	10	48.3	45.3	1.5	5500	50
320332	NDX.T-48.3x1.5-M10	48	M10	10	45.3	45	10	48.3	45.3	1.5	5500	50
320333	NDX.T-48.3x1.5-M12	48	M12	10	45.3	45	10	48.3	45.3	1.5	5500	50
320334	NDX.T-48.3x1.5-M14	48	M14	15	45.3	45	10	48.3	45.3	1.5	5500	52
320335	NDX.T-48.3x1.5-M16	48	M16	15	45.3	45	10	48.3	45.3	1.5	5500	52
320336	NDX.T-48.3x1.5-M20	48	M20	20	45.3	45	10	48.3	45.3	1.5	8500	48
320343	NDX.T-48.3x2-M12	48	M12	10	44.3	38	10	48.3	44.3	2	5500	50
320344	NDX.T-48.3x2-M14	48	M14	15	44.3	45	10	48.3	44.3	2	5500	52
320345	NDX.T-48.3x2-M16	48	M16	15	44.3	45	10	48.3	44.3	2	5500	52
320346	NDX.T-48.3x2-M20	48	M20	20	44.3	45	10	48.3	44.3	2	8500	48
320353	NDX.T-48.3x2.5-M12	48	M12	10	43.3	45	10	48.3	43.3	2.5	5500	50
320354	NDX.T-48.3x2.5-M14	48	M14	15	43.3	45	10	48.3	43.3	2.5	5500	52
320355	NDX.T-48.3x2.5-M16	48	M16	15	43.3	45	10	48.3	43.3	2.5	5500	52
320356	NDX.T-48.3x2.5-M20	48	M20	20	43.3	45	10	48.3	43.3	2.5	8500	48
320358	NDX.T-48x3-M12	48	M12	10	42	45	10	48	42	3	5500	50
320359	NDX.T-48x3-M16	48	M16	15	42	45	10	48	42	3	5500	52
320363	NDX.T-50.9x1.5-M12	50.5	M12	10	47.9	45	10	50.9	47.9	1.5	5500	64
320364	NDX.T-50.9x1.5-M14	50.5	M14	15	47.9	45	10	50.9	47.9	1.5	5500	64
320365	NDX.T-50.9x1.5-M16	50.5	M16	15	47.9	45	10	50.9	47.9	1.5	5500	63
320366	NDX.T-50.9x1.5-M20	50.5	M20	20	47.9	45	10	50.9	47.9	1.5	8500	63
320373	NDX.T-50.9x2-M12	50.5	M12	10	46.9	45	10	50.9	46.9	2	5500	63
320374	NDX.T-50.9x2-M14	50.5	M14	15	46.9	45	10	50.9	46.9	2	5500	63
320375	NDX.T-50.9x2-M16	50.5	M16	15	46.9	45	10	50.9	46.9	2	5500	63
320376	NDX.T-50.9x2-M20	50.5	M20	20	46.9	45	10	50.9	46.9	2	8500	62
320383	NDX.T-50.9x2.5-M12	50.5	M12	10	45.9	45	10	50.9	45.9	2.5	5500	64
320384	NDX.T-50.9x2.5-M14	50.5	M14	15	45.9	45	10	50.9	45.9	2.5	5500	64
320385	NDX.T-50.9x2.5-M16	50.5	M16	15	45.9	45	10	50.9	45.9	2.5	5500	63
320386	NDX.T-50.9x2.5-M20	50.5	M20	20	45.9	45	10	50.9	45.9	2.5	8500	63
320388	NDX.T-50x3-M12	50.5	M12	10	44.5	45	10	50.5	44.5	3	5500	64
320389	NDX.T-50x3-M16	50.5	M16	15	44.5	45	10	50.5	44.5	3	5500	63
320391	NDX.T-60.3x1.5-M8	60	M8	10	57.3	52	12	60.3	57.3	1.5	5500	92
320392	NDX.T-60.3x1.5-M10	60	M10	10	57.3	52	12	60.3	57.3	1.5	5500	92
320393	NDX.T-60.3x1.5-M12	60	M12	10	57.3	52	12	60.3	57.3	1.5	5500	92
320394	NDX.T-60.3x1.5-M14	60	M14	15	57.3	52	12	60.3	57.3	1.5	5500	94
320395	NDX.T-60.3x1.5-M16	60	M16	15	57.3	52	12	60.3	57.3	1.5	5500	94
320396	NDX.T-60.3x1.5-M20	60	M20	20	57.3	52	12	60.3	57.3	1.5	8500	92
320397	NDX.T-60.3x1.5-M24	60	M24	20	57.3	52	12	60.3	57.3	1.5	8500	92
320401	NDX.T-60.3x2-M8	60	M8	10	56.3	52	12	60.3	56.3	2	5500	92
320402	NDX.T-60.3x2-M10	60	M10	10	56.3	52	12	60.3	56.3	2	5500	92
320403	NDX.T-60.3x2-M12	60	M12	10	56.3	52	12	60.3	56.3	2	5500	92
320404	NDX.T-60.3x2-M14	60	M14	15	56.3	52	12	60.3	56.3	2	5500	94
320405	NDX.T-60.3x2-M16	60	M16	15	56.3	52	12	60.3	56.3	2	5500	94
320406	NDX.T-60.3x2-M20	60	M20	20	56.3	52	12	60.3	56.3	2	8500	94
320407	NDX.T-60.3x2-M24	60	M24	20	56.3	52	12	60.3	56.3	2	8500	92
320411	NDX.T-60.3x2.5-M8	60	M8	10	55.3	52	12	60.3	55.3	2.5	5500	92
320412	NDX.T-60.3x2.5-M10	60	M10	10	55.3	52	12	60.3	55.3	2.5	5500	92
320413	NDX.T-60.3x2.5-M12	60	M12	10	55.3	52	12	60.3	55.3	2.5	5500	92
320414	NDX.T-60.3x2.5-M14	60	M14	15	55.3	52	12	60.3	55.3	2.5	5500	94
320415	NDX.T-60.3x2.5-M16	60	M16	15	55.3	52	12	60.3	55.3	2.5	5500	94
320416	NDX.T-60.3x2.5-M20	60	M20	20	55.3	52	12	60.3	55.3	2.5	8500	92
320417	NDX.T-60.3x2.5-M24	60	M24	20	55.3	52	12	60.3	55.3	2.5	8500	92

***** The max static load is the value above which the load applied to the element may cause some plastic material breakage, in particular conditions of use. Obviously, a factor that takes into consideration the importance and the safety level of the specific application must be applied to this value.

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Square end-caps for tubes

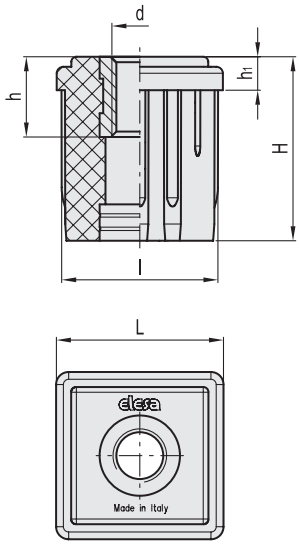
heavy loads, technopolymer

MATERIAL
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

STANDARD EXECUTION
Nickel-plated brass boss with threaded pass-through hole.

FEATURES
They can also bear slipping loads contrariwise.





ELESA Original design

Code	Description	L	d	h	H	h1	l	External tube diameter	Internal tube diameter	Thickness	Max. static load* [N]	⚖
319102	ND.Q-30x1.5-M8	30	M8	15	33	6	27.5	30	27	1.5	17000	57
319103	ND.Q-30x1.5-M10	30	M10	15	33	6	27.5	30	27	1.5	17000	56
319104	ND.Q-30x1.5-M12	30	M12	18	33	6	27.5	30	27	1.5	17000	51
319106	ND.Q-30x1.5-M16	30	M16	20	33	6	27.5	30	27	1.5	17000	38
319262	ND.Q-40x2-M8	40	M8	15	43	8	36.5	40	36	2	18000	86
319263	ND.Q-40x2-M10	40	M10	15	43	8	36.5	40	36	2	18000	85
319264	ND.Q-40x2-M12	40	M12	18	43	8	36.5	40	36	2	18000	80
319266	ND.Q-40x2-M16	40	M16	20	43	8	36.5	40	36	2	18000	67
319352	ND.Q-50x2-M12	50	M12	18	55	10	46.5	50	46	2	20000	157
319354	ND.Q-50x2-M16	50	M16	20	55	10	46.5	50	46	2	20000	156
319356	ND.Q-50x2-M20	50	M20	30	55	10	46.5	50	46	2	20000	132
319362	ND.Q-50x2.5-M12	50	M12	18	55	10	45.5	50	45	2.5	20000	153
319364	ND.Q-50x2.5-M16	50	M16	20	55	10	45.5	50	45	2.5	20000	152
319366	ND.Q-50x2.5-M20	50	M20	30	55	10	45.5	50	45	2.5	20000	128

***** The max static load is the value above which the load applied to the element may cause some plastic material breakage, in particular conditions of use. Obviously, a factor that takes into consideration the importance and the safety level of the specific application must be applied to this value.

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End-caps for square tubes

Technopolymer



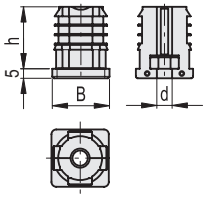
MATERIAL
Polyamide based (PA) technopolymer, black colour, matte finish.

STANDARD EXECUTION
DIN 934 zinc-plated steel nut (included in the supply).

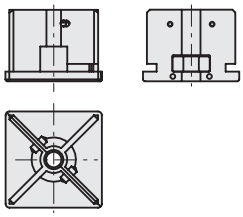
FEATURES AND APPLICATIONS
The two end-cap parts are connected together by means of two pins which are housed in special counter-seats. A cavity inside the end-cap is provided for housing an hexagonal nut DIN 934.
The assembly can be performed simply by positioning the end-cap inside the tube, with no need of screws or other fasteners.

SPECIAL EXECUTIONS ON REQUEST
End-cap without nut.

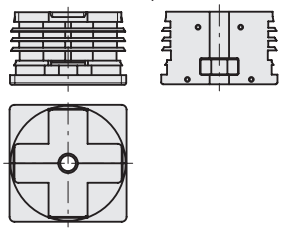
NDL.Q-20 ÷ NDL.Q-40



NDL.Q-50 M8÷M10



NDL.Q-50x3-M12
NDL.Q-60



The geometry of the end-cap in the part that is inserted into the tube may vary for the different dimensions.

Code	Description	B	d	h	External tube diameter	Internal tube diameter min-max	Thickness min-max	Max. static load* [N]	⚖
430551	NDL.Q-20x1.5-2-M6	20	M6	34	20	17-16	1.5-2	3000	10
430553	NDL.Q-20x1.5-2-M8	20	M8	34	20	17-16	1.5-2	3000	11
430555	NDL.Q-20x1.5-2-M10	20	M10	33	20	17-16	1.5-2	3000	16
430557	NDL.Q-20x2-M8	20	M8	34	20	16	2	3000	11
430561	NDL.Q-25x1-1.5-M8	25	M8	34	25	23-22	1-1.5	3000	17
430563	NDL.Q-25x1.5-M10	25	M10	33	25	22	1.5	3000	21
430565	NDL.Q-25x2-M8	25	M8	34	25	21	2	3000	16
430567	NDL.Q-25x2-M10	25	M10	34	25	21	2	3000	20
430571	NDL.Q-30x1.5-2-M8	30	M8	34	30	27-26	1.5-2	3000	20
430573	NDL.Q-30x1.5-2-M10	30	M10	34	30	27-26	1.5-2	3000	24
430575	NDL.Q-30x2.5-M10	30	M10	33	30	25	2.5	3000	24
430581	NDL.Q-35x1-2-M10	35	M10	34	35	33-31	1-2	3000	30
430583	NDL.Q-35x1.5-M12	35	M12	34	35	32	1.5	3000	37
430585	NDL.Q-35x1.5-2-M8	35	M8	34	35	32-31	1.5-2	3000	26
430587	NDL.Q-35x1.5-2-M12	35	M12	34	35	32-31	1.5-2	3000	36
430591	NDL.Q-40x1.5-2-M8	40	M8	33	40	37-36	1.5-2	3000	38
430593	NDL.Q-40x1.2-1.5-M10	40	M10	33	40	37.6-37	1.2-1.5	3000	42
430595	NDL.Q-40x1.5-2-M10	40	M10	33	40	37-36	1.5-2	3000	41
430597	NDL.Q-40x1.5-2-M12	40	M12	33	40	37-36	1.5-2	3000	44
430599	NDL.Q-40x1.5-2-M16	40	M16	33	40	37-36	1.5-2	3000	55
430601	NDL.Q-40x2-M8	40	M8	34	40	36	2	3000	26
430603	NDL.Q-40x3-M10	40	M10	33	40	34	3	3000	41
430611	NDL.Q-50x1.5-M10	50	M10	34	50	47	1.5	3000	42
430613	NDL.Q-50x2-M8	50	M8	34	50	46	2	3000	37
430615	NDL.Q-50x2-M10	50	M10	32	50	46	2	3000	41
430617	NDL.Q-50x2.5-M10	50	M10	33	50	45	2.5	3000	41
430619	NDL.Q-50x3-M12	50	M12	34	50	44	3	3000	50
430621	NDL.Q-60x1.5-2-M10	60	M10	34	60	57-56	1.5-2	3000	70
430623	NDL.Q-60x1.5-2-M12	60	M12	34	60	57-56	1.5-2	3000	74

***** The max limit static load is the value above which the load applied to the element may cause some plastic material breakage, under particular conditions of use. Obviously, a factor that takes into consideration the importance and the safety level of the specific application must be applied to this value. The values shown in the table refer to the use of the end-cap in combination with a steel tube. The use of an aluminum tube may cause a decrease in the max limit static load equal to 25% due to possible deformations of the tube section under load.

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End-caps for round tubes

Technopolymer





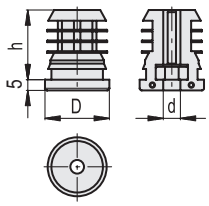
MATERIAL
Polyamide based (PA) technopolymer, black colour, matte finish.

STANDARD EXECUTION
DIN 934 zinc-plated steel nut (included in the supply).

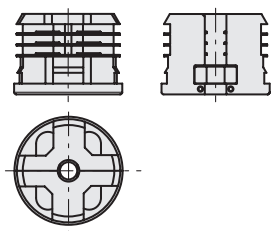
FEATURES AND APPLICATIONS
The two end-cap parts are connected together by means of two pins which are housed in special counter-seats. A cavity inside the end-cap is provided for housing an hexagonal nut DIN 934.
The assembly can be performed simply by positioning the end-cap inside the tube, with no need of screws or other fasteners.

SPECIAL EXECUTIONS ON REQUEST
End-cap without nut.

NDL.T-20 ÷ 40



NDL.T-50



The geometry of the end-cap in the part that is inserted into the tube may vary for the different dimensions.

Code	Description	D	d	h	External tube diameter	Internal tube diameter min-max	Thickness min-max	Max. static load* [N]	⚖
430651	NDL.T-20x1-1.5-M8	20	M8	34	20	18-17	1-1.5	3000	10
430653	NDL.T-20x2-M8	20	M8	34	20	16	2	3000	9
430661	NDL.T-25x1.5-2-M6	25	M6	34	25	22-21	1.5-2	3000	12
430663	NDL.T-25x1.5-2-M8	25	M8	34	25	22-21	1.5-2	3000	14
430665	NDL.T-25x1.5-2-M10	25	M10	33	25	22-21	1.5-2	3000	18
430667	NDL.T-25x2.5-M8	25	M8	34	25	20	2.5	3000	12
430671	NDL.T-28x1.5-2-M10	28	M6	34	28	25-24	1.5-2	3000	16
430673	NDL.T-28x1-1.5-M8	28	M8	34	28	26-25	1-1.5	3000	17
430675	NDL.T-28x1-1.5-M10	28	M10	34	28	26-25	1-1.5	3000	21
430677	NDL.T-28x2-M8	28	M8	34	28	24	2	3000	16
430679	NDL.T-28x2-M10	28	M10	34	28	24	2	3000	20
430681	NDL.T-30x1-M8	30	M8	34	30	28	1	3000	19
430683	NDL.T-30x1-M10	30	M10	34	30	28	1	3000	22
430685	NDL.T-30x1.5-2-M8	30	M8	34	30	27-26	1.5-2	3000	18
430687	NDL.T-30x1.5-2-M10	30	M10	34	30	27-26	1.5-2	3000	22
430691	NDL.T-32x1.5-2-M8	32	M8	34	32	29-28	1.5-2	3000	22
430693	NDL.T-32x1.5-2-M10	32	M10	34	32	29-28	1.5-2	3000	26
430701	NDL.T-35x1-M10	35	M10	34	35	33	1	3000	29
430703	NDL.T-35x1.5-2-M8	35	M8	34	35	32-31	1.5-2	3000	25
430705	NDL.T-35x1.5-2-M10	35	M10	34	35	32-31	1.5-2	3000	29
430707	NDL.T-35x2.5-M8	35	M8	34	35	30	2.5	3000	23
430709	NDL.T-35x2.5-M10	35	M10	34	35	30	2.5	3000	27
430711	NDL.T-40x1.5-2-M8	40	M8	34	40	37-36	1.5-2	3000	33
430713	NDL.T-40x1.5-2-M10	40	M10	34	40	37-36	1.5-2	3000	37
430715	NDL.T-40x1.5-2-M12	40	M12	34	40	37-36	1.5-2	3000	40
430721	NDL.T-50x1.5-M8	50	M8	34	50	47	1.5	3000	45
430723	NDL.T-50x1.5-M10	50	M10	34	50	47	1.5	3000	48
430725	NDL.T-50x2-M8	50	M8	34	50	46	2	3000	43
430727	NDL.T-50x2-M10	50	M10	34	50	46	2	3000	46
430729	NDL.T-50x2.5-M12	50	M12	34	50	45	2.5	3000	49

***** The max limit static load is the value above which the load applied to the element may cause some plastic material breakage, under particular conditions of use. Obviously, a factor that takes into consideration the importance and the safety level of the specific application must be applied to this value. The values shown in the table refer to the use of the end-cap in combination with a steel tube. The use of an aluminum tube may cause a decrease in the max limit static load equal to 25% due to possible deformations of the tube section under load.

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GN 992

Insert bushings

Aluminium / for round tube and square tube

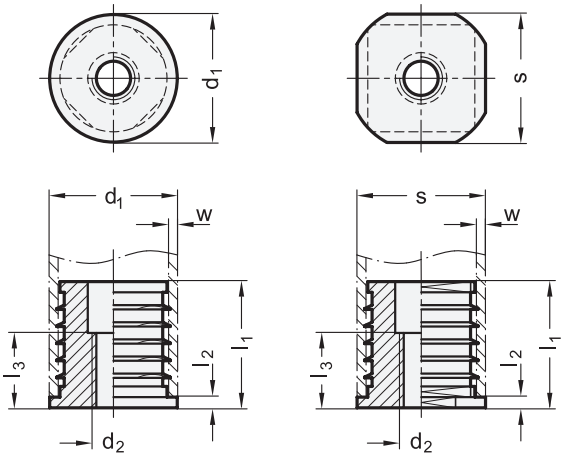
SPECIFICATION

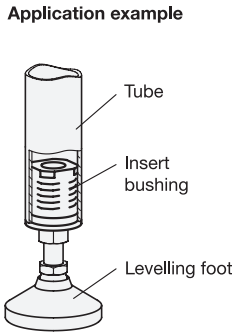
Aluminium
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INFORMATION

Drive the insert bushings GN 992 in by using a soft-head mallet. Their lamellas bridge a production tolerance of the internal diameter or of the internal square of ±0.5 mm, allowing screws to be mounted in tubes.
The dimensions match those of the construction tubes GN 990 (see page 1902), but checking the tolerance position of the tube is recommended.







GN 992-D

Description	d1	d2	l1	l2	l3 +0.5	w	For tube GN 990	⚖
GN 992-D20-M8	D 20	M 8	29.5	2.5	16	2	D 20	10
GN 992-D25-M8	D 25	M 8	33.5	2.5	16	2	D 25	22
GN 992-D25-M10	D 25	M 10	33.5	2.5	16	2	D 25	22
GN 992-D30-M8	D 30	M 8	33.5	2.5	18	2	D 30	34
GN 992-D30-M10	D 30	M 10	33.5	2.5	18	2	D 30	45
GN 992-D32-M8	D 32	M 8	33.5	2.5	18	2	D 32	50
GN 992-D32-M10	D 32	M 10	33.5	2.5	18	2	D 32	50
GN 992-D35-M10	D 35	M 10	37.5	2.5	24	2	D 35	55
GN 992-D35-M12	D 35	M 12	37.5	2.5	24	2	D 35	55
GN 992-D40-M10	D 40	M 10	41.5	2.5	24	2	D 40	78
GN 992-D40-M12	D 40	M 12	41.5	2.5	24	2	D 40	78
GN 992-D42-M10	D 42	M 10	41.5	2.5	24	2	D 42	90
GN 992-D42-M12	D 42	M 12	41.5	2.5	24	2	D 42	90
GN 992-D45-M12	D 45	M 12	45.5	2.5	30	2	D 45	110
GN 992-D45-M16	D 45	M 16	45.5	2.5	30	2	D 45	110
GN 992-D48-M12	D 48	M 12	45.5	2.5	30	2	D 48	130
GN 992-D48-M16	D 48	M 16	45.5	2.5	30	2	D 48	130
GN 992-D50-M12	D 50	M 12	45.5	2.5	30	2	D 50	145
GN 992-D50-M16	D 50	M 16	45.5	2.5	30	2	D 50	145

GN 992-V

Description	s	d2	l1	l2	l3 +0.5	w	For tube GN 990	⚖
GN 992-V20-M8	V 20	M 8	29.5	2.5	16	2	V 20	11
GN 992-V25-M8	V 25	M 8	33.5	2.5	16	2	V 25	22
GN 992-V25-M10	V 25	M 10	33.5	2.5	16	2	V 25	22
GN 992-V30-M8	V 30	M 8	33.5	2.5	18	2	V 30	41
GN 992-V30-M10	V 30	M 10	33.5	2.5	18	2	V 30	52
GN 992-V35-M10	V 35	M 10	37.5	2.5	24	2	V 35	60
GN 992-V35-M12	V 35	M 12	37.5	2.5	24	2	V 35	60
GN 992-V40-M10	V 40	M 10	41.5	2.5	24	2	V 40	90
GN 992-V40-M12	V 40	M 12	41.5	2.5	24	2	V 40	88
GN 992-V45-M12	V 45	M 12	45.5	2.5	30	2	V 45	165
GN 992-V45-M16	V 45	M 16	45.5	2.5	30	2	V 45	120
GN 992-V50-M12	V 50	M 12	45.5	2.5	30	2	V 50	165
GN 992-V50-M16	V 50	M 16	45.5	2.5	30	2	V 50	160

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GN 992.5

Stainless Steel-Insert bushings

for round tube and square tube

SPECIFICATION

Stainless Steel AISI 303

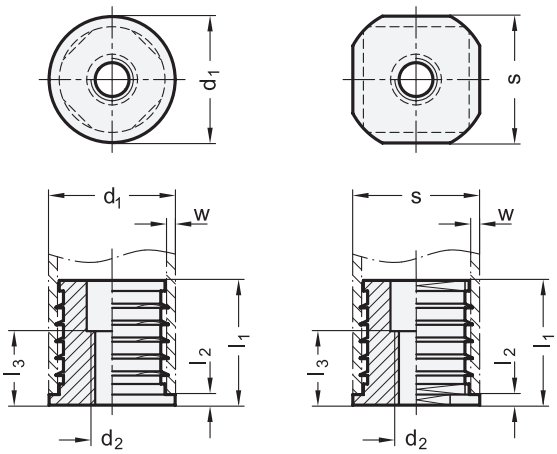
INFORMATION

Drive the Stainless Steel-Insert bushings GN 992.5 in by using a soft-head mallet. Their lamellas bridge a production tolerance of the internal diameter or of the internal square of ±0.5 mm, allowing screws to be mounted in tubes.
The dimensions match those of the construction tubes GN 990 (see page 1902), but checking the tolerance position of the tube is recommended.

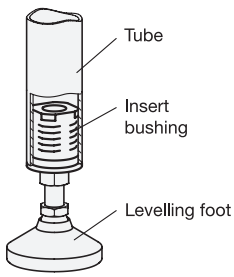
TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)





Application example



GN 992.5-D — STAINLESS STEEL

Description	d1	d2	l1	l2	l3 +0.5	w	For tube GN 990	⚖
GN 992.5-D20-M8	D 20	M 8	29.5	2.5	16	2	D 20	28
GN 992.5-D25-M8	D 25	M 8	33.5	2.5	16	2	D 25	80
GN 992.5-D25-M10	D 25	M 10	33.5	2.5	16	2	D 25	50
GN 992.5-D30-M8	D 30	M 8	33.5	2.5	18	2	D 30	93
GN 992.5-D30-M10	D 30	M 10	33.5	2.5	18	2	D 30	90
GN 992.5-D40-M10	D 40	M 10	41.5	2.5	24	2	D 40	186
GN 992.5-D40-M12	D 40	M 12	41.5	2.5	24	2	D 40	180
GN 992.5-D50-M12	D 50	M 12	45.5	2.5	30	2	D 50	350
GN 992.5-D50-M16	D 50	M 16	45.5	2.5	30	2	D 50	330

GN 992.5-V — STAINLESS STEEL

Description	s1	d2	l1	l2	l3 +0.5	w	For tube GN 990	⚖
GN 992.5-V20-M8	V 20	M 8	29.5	2.5	16	2	V 20	32
GN 992.5-V25-M8	V 25	M 8	29.5	2.5	16	2	V 25	61
GN 992.5-V25-M10	V 25	M 10	29.5	2.5	16	2	V 25	58
GN 992.5-V30-M8	V 30	M 8	29.5	2.5	18	2	V 30	106
GN 992.5-V30-M10	V 30	M 10	29.5	2.5	18	2	V 30	103
GN 992.5-V40-M10	V 40	M 10	33.5	2.5	24	2	V 40	216
GN 992.5-V40-M12	V 40	M 12	33.5	2.5	24	2	V 40	211
GN 992.5-V50-M12	V 50	M 12	37.5	2.5	30	2	V 50	420
GN 992.5-V50-M16	V 50	M 16	37.5	2.5	30	2	V 50	390

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Square tube connectors

Technopolymer and steel



CONNECTOR
It consists of two parts made out of polyamide (PA) based technopolymer, black or grey colour, matte finish.

REINFORCEMENT
Zinc-plated steel or stainless steel (STC-SST).

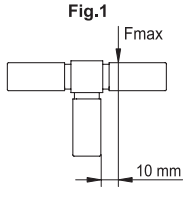
COLOR
Black or grey, matte finish.

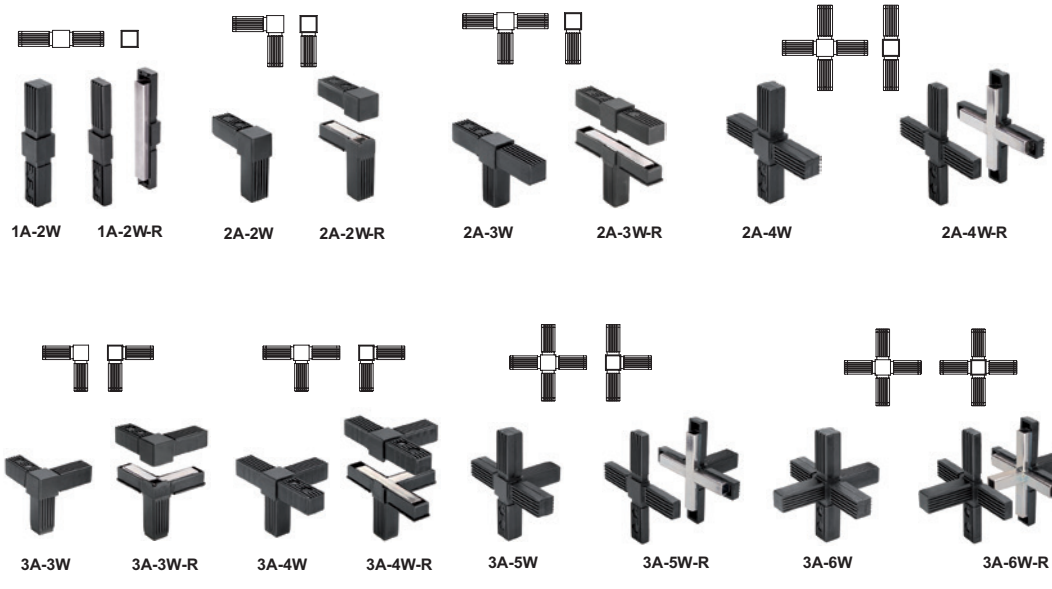
STANDARD EXECUTIONS
- **1A-2W**: monodimensional two-way connector.
- **2A-2W**: bidimensional two-way connector.
- **2A-3W**: bidimensional three-way connector.
- **2A-4W**: bidimensional four-way connector.
- **3A-3W**: tridimensional three-way connector.
- **3A-4W**: tridimensional four-way connector.
- **3A-5W**: tridimensional five-way connector.
- **3A-6W**: tridimensional six-way connector.

Index for connectors with reinforcement:
- **R**: zinc-plated steel reinforcement.
- **R-M10**: zinc-plated steel reinforcement with threaded hole.
- **R-SST**: stainless steel reinforcement.

FEATURES AND APPLICATIONS
Suitable for creating structures composed by square profiles. The assembly can be performed simply by positioning the connector, forcing it, inside the profile, with no need of screws or other fasteners. The maximum limit static load for each arm of the connectors with steel reinforcement (STC-R and STC-R-SST) is shown in Fig. 1. The maximum limit static load is the value above which, under particular conditions of use, the load applied to the element may cause breakage. As a consequence, a suitable factor must be applied to this value, according to the importance and safety level of the specific application.

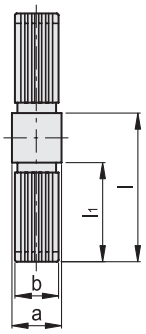
Fig.1



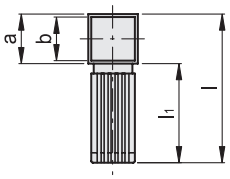


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STC-1A



STC-2A



C9 RAL9005 C33 RAL7040

The drawing shows the assembled connector. The two tecnopolymer pieces composing it may have different shapes depending on the dimensions and / or executions.

STC-1A

Code	Description	Code	Description	a	b	l	l1	External tube diameter	Internal tube diameter	Thickness	Fmax [N]	⚖
430001	STC.20-1A-2W-C9	430004	STC.20-1A-2W-C33	20	17	50	45	20	17	1.5	-	46
430051	STC.25-1A-2W-C9	430049	STC.25-1A-2W-C33	25	22	70	54	25	22	1.5	-	100
430101	STC.30-1A-2W-C9	430104	STC.30-1A-2W-C33	30	26	76	46	30	26	2	-	107
430002	STC.20-1A-2W-R-C9	430005	STC.20-1A-2W-R-C33	20	17	50	45	20	17	1.5	2000	46
430052	STC.25-1A-2W-R-C9	430050	STC.25-1A-2W-R-C33	25	22	70	54	25	22	1.5	4000	100
430102	STC.30-1A-2W-R-C9	430105	STC.30-1A-2W-R-C33	30	26	76	46	30	26	2	4000	107

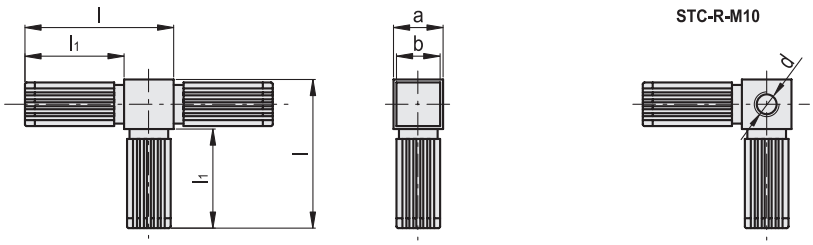
STC-2A

Code	Description	Code	Description	a	b	l	l1	External tube diameter	Internal tube diameter	Thickness	Fmax [N]	⚖
430011	STC.20-2A-2W-C9	430012	STC.20-2A-2W-C33	20	17	56	36	20	17	1.5	-	15
430061	STC.25-2A-2W-C9	430062	STC.25-2A-2W-C33	25	22	77	52	25	22	1.5	-	31
430111	STC.30-2A-2W-C9	430112	STC.30-2A-2W-C33	30	26	77	47	30	26	2	-	51
430016	STC.20-2A-3W-C9	430017	STC.20-2A-3W-C33	20	17	56	36	20	17	1.5	-	20
430066	STC.25-2A-3W-C9	430067	STC.25-2A-3W-C33	25	22	76	51	25	22	1.5	-	42
430116	STC.30-2A-3W-C9	430117	STC.30-2A-3W-C33	30	26	77	47	30	26	2	-	68
430021	STC.20-2A-4W-C9	430022	STC.20-2A-4W-C33	20	17	56	36	20	17	1.5	-	26
430071	STC.25-2A-4W-C9	430072	STC.25-2A-4W-C33	25	22	79	54	25	22	1.5	-	57
430121	STC.30-2A-4W-C9	430122	STC.30-2A-4W-C33	30	26	77	47	30	26	2	-	80
430013	STC.20-2A-2W-R-C9	430014	STC.20-2A-2W-R-C33	20	17	56	36	20	17	1.5	2000	89
430063	STC.25-2A-2W-R-C9	430064	STC.25-2A-2W-R-C33	25	22	77	52	25	22	1.5	4000	120
430113	STC.30-2A-2W-R-C9	430114	STC.30-2A-2W-R-C33	30	26	77	47	30	26	2	4000	139
430018	STC.20-2A-3W-R-C9	430019	STC.20-2A-3W-R-C33	20	17	56	36	20	17	1.5	2000	151
430068	STC.25-2A-3W-R-C9	430069	STC.25-2A-3W-R-C33	25	22	76	51	25	22	1.5	4000	162
430118	STC.30-2A-3W-R-C9	430119	STC.30-2A-3W-R-C33	30	26	77	47	30	26	2	4000	180
430023	STC.20-2A-4W-R-C9	430024	STC.20-2A-4W-R-C33	20	17	56	36	20	17	1.5	2000	205
430073	STC.25-2A-4W-R-C9	430074	STC.25-2A-4W-R-C33	25	22	79	54	25	22	1.5	4000	95
430123	STC.30-2A-4W-R-C9	430124	STC.30-2A-4W-R-C33	30	26	77	47	30	26	2	4000	130

STC-2A-SST **STAINLESS STEEL**

Code	Description	Code	Description	a	b	l	l1	External tube diameter	Internal tube diameter	Thickness	Fmax [N]	⚖
430151	STC.25-2A-2W-R-SST-C9	430152	STC.25-2A-2W-R-SST-C33	25	22	77	52	25	22	1.5	4000	95
430171	STC.30-2A-2W-R-SST-C9	430172	STC.30-2A-2W-R-SST-C33	30	26	77	47	30	26	2	4000	115
430153	STC.25-2A-3W-R-SST-C9	430154	STC.25-2A-3W-R-SST-C33	25	22	76	51	25	22	1.5	4000	130
430173	STC.30-2A-3W-R-SST-C9	430174	STC.30-2A-3W-R-SST-C33	30	26	77	47	30	26	2	4000	156
430155	STC.25-2A-4W-R-SST-C9	430156	STC.25-2A-4W-R-SST-C33	25	22	79	54	25	22	1.5	4000	174
430175	STC.30-2A-4W-R-SST-C9	430176	STC.30-2A-4W-R-SST-C33	30	26	77	47	30	26	2	4000	196

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C9 RAL9005 C33 RAL7040

The drawing shows the assembled connector. The two tecnopolymer pieces composing it may have different shapes depending on the dimensions and / or executions.

STC-3A

Code	Description	Code	Description	d	a	b	l	l1	External tube diameter	Internal tube diameter	Thickness	Fmax [N]	⚖
430026	STC.20-3A-3W-C9	430027	STC.20-3A-3W-C33	-	20	17	56	36	20	17	1.5	-	19
430076	STC.25-3A-3W-C9	430077	STC.25-3A-3W-C33	-	25	22	77	52	25	22	1.5	-	46
430126	STC.30-3A-3W-C9	430127	STC.30-3A-3W-C33	-	30	26	77	47	30	26	2	-	68
430031	STC.20-3A-4W-C9	430032	STC.20-3A-4W-C33	-	20	17	56	36	20	17	1.5	-	25
430081	STC.25-3A-4W-C9	430082	STC.25-3A-4W-C33	-	25	22	77	52	25	22	1.5	-	56
430131	STC.30-3A-4W-C9	430132	STC.30-3A-4W-C33	-	30	26	77	47	30	26	2	-	86
430036	STC.20-3A-5W-C9	430037	STC.20-3A-5W-C33	-	20	17	56	36	20	17	1.5	-	30
430086	STC.25-3A-5W-C9	430087	STC.25-3A-5W-C33	-	25	22	79	54	25	22	1.5	-	69
430136	STC.30-3A-5W-C9	430137	STC.30-3A-5W-C33	-	30	26	77	47	30	26	2	-	96
430041	STC.20-3A-6W-C9	430042	STC.20-3A-6W-C33	-	20	17	56	36	20	17	1.5	-	41
430091	STC.25-3A-6W-C9	430092	STC.25-3A-6W-C33	-	25	22	77	52	25	22	1.5	-	87
430141	STC.30-3A-6W-C9	430142	STC.30-3A-6W-C33	-	30	26	77	47	30	26	2	-	113
430028	STC.20-3A-3W-R-C9	430029	STC.20-3A-3W-R-C33	-	20	17	56	36	20	17	1.5	2000	160
430078	STC.25-3A-3W-R-C9	430079	STC.25-3A-3W-R-C33	-	25	22	77	52	25	22	1.5	4000	174
430128	STC.30-3A-3W-R-C9	430129	STC.30-3A-3W-R-C33	-	30	26	77	47	30	26	2	4000	180
430033	STC.20-3A-4W-R-C9	430034	STC.20-3A-4W-R-C33	-	20	17	56	36	20	17	1.5	2000	212
430083	STC.25-3A-4W-R-C9	430084	STC.25-3A-4W-R-C33	-	25	22	77	52	25	22	1.5	4000	259
430133	STC.30-3A-4W-R-C9	430134	STC.30-3A-4W-R-C33	-	30	26	77	47	30	26	2	4000	115
430038	STC.20-3A-5W-R-C9	430039	STC.20-3A-5W-R-C33	-	20	17	56	36	20	17	1.5	2000	156
430088	STC.25-3A-5W-R-C9	430089	STC.25-3A-5W-R-C33	-	25	22	79	54	25	22	1.5	4000	196
430138	STC.30-3A-5W-R-C9	430139	STC.30-3A-5W-R-C33	-	30	26	77	47	30	26	2	4000	158
430043	STC.20-3A-6W-R-C9	430044	STC.20-3A-6W-R-C33	-	20	17	56	36	20	17	1.5	2000	204
430093	STC.25-3A-6W-R-C9	430094	STC.25-3A-6W-R-C33	-	25	22	77	52	25	22	1.5	4000	240
430143	STC.30-3A-6W-R-C9	430144	STC.30-3A-6W-R-C33	-	30	26	77	47	30	26	2	4000	285
430096	STC.25-3A-3W-R-M10-C9	430097	STC.25-3A-3W-R-M10-C33	M10x25	25	22	77	52	25	22	1.5	4000	136
430146	STC.30-3A-3W-R-M10-C9	430147	STC.30-3A-3W-R-M10-C33	M10x30	30	26	77	47	30	26	2	4000	158
430098	STC.25-3A-4W-R-M10-C9	430099	STC.25-3A-4W-R-M10-C33	M10x25	25	22	77	52	25	22	1.5	4000	174
430148	STC.30-3A-4W-R-M10-C9	430149	STC.30-3A-4W-R-M10-C33	M10x30	30	26	77	47	30	26	2	4000	204

STC-3A-SST **STAINLESS STEEL**

Code	Description	Code	Description	a	b	l	l1	External tube diameter	Internal tube diameter	Thickness	Fmax [N]	⚖
430157	STC.25-3A-3W-R-SST-C9	430158	STC.25-3A-3W-R-SST-C33	25	22	77	52	25	22	1.5	4000	136
430177	STC.30-3A-3W-R-SST-C9	430178	STC.30-3A-3W-R-SST-C33	30	26	77	47	30	26	2	4000	158
430159	STC.25-3A-4W-R-SST-C9	430160	STC.25-3A-4W-R-SST-C33	25	22	77	52	25	22	1.5	4000	174
430179	STC.30-3A-4W-R-SST-C9	430180	STC.30-3A-4W-R-SST-C33	30	26	77	47	30	26	2	4000	204
430161	STC.25-3A-5W-R-SST-C9	430162	STC.25-3A-5W-R-SST-C33	25	22	79	54	25	22	1.5	4000	212
430181	STC.30-3A-5W-R-SST-C9	430182	STC.30-3A-5W-R-SST-C33	30	26	77	47	30	26	2	4000	240
430163	STC.25-3A-6W-R-SST-C9	430164	STC.25-3A-6W-R-SST-C33	25	22	77	52	25	22	1.5	4000	259
430183	STC.30-3A-6W-R-SST-C9	430184	STC.30-3A-6W-R-SST-C33	30	26	77	47	30	26	2	4000	285

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Square tube connectors

with adjustable angle, technopolymer



CONNECTOR

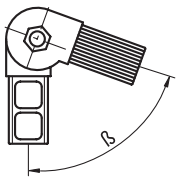
Polyamide based (PA) technopolymer, black colour, matte finish.

STANDARD EXECUTIONS

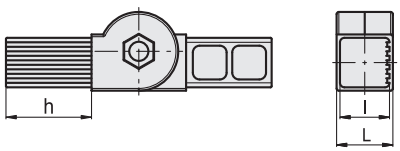
- **2A-2W**: bidimensional two-way connector.
- **3A-3W**: tridimensional three-way connector.

FEATURES AND APPLICATIONS

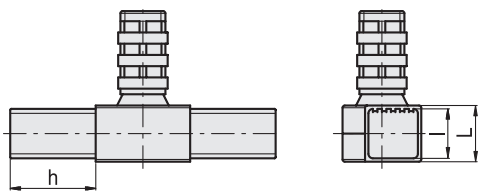
Suitable for creating structures composed by square profiles. The assembly can be performed simply by positioning the connector, forcing it, inside the profile, with no need of screws or other fasteners.



2A-2W



3A-3W



Code	Description	L	h	l	ß min-max	External tube diameter	Internal tube diameter	Thickness	⚖
430003	STC.20-2A-2W-A-C9	20	35	17	0-190	20	17	1.5	54
430053	STC.25-2A-2W-A-C9	25	38	22	45-195	25	22	1.5	64
430103	STC.25-3A-3W-A-C9	25	38	22	45-195	25	22	1.5	85

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End-caps for square tubes

with adjustable height levelling element, technopolymer

MATERIAL

Polyamide based (PA) technopolymer, black colour, matte finish.

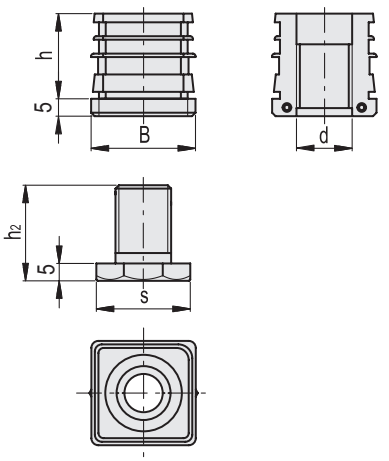
FEATURES AND APPLICATIONS

End-caps for square tubes with adjustable height levelling element. The assembly can be performed simply by positioning the end-cap, forcing it, inside the tube, with no need of screws or other fasteners.

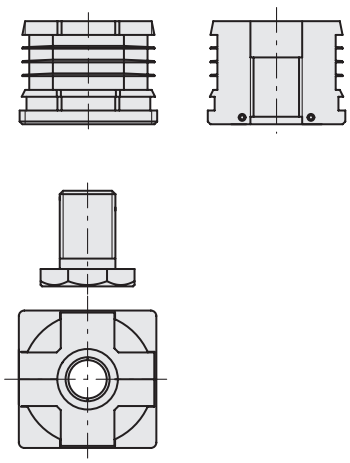




NDA.Q-20 ÷ NDA.Q-25



NDA.Q-30 ÷ NDA.Q-50



The geometry of the end-cap in the part that is inserted into the tube may vary for the different dimensions.

Code	Description	B	d	h	h2	s	External tube diameter	Internal tube diameter min-max	Thickness min-max	Max. static load* [N]	⚖
430401	NDA.Q-20-M12x30	20	M12	34	32	SW19	20	17-16	1.5-2	1000	9
430406	NDA.Q-22-M12x30	22	M12	34	32	SW19	22	19-18	1.5-2	1000	11
430411	NDA.Q-25-M12x30	25	M12	34	32	SW19	25	22-21	1.5-2	1000	14
430416	NDA.Q-25-M16x30	25	M16	34	37	SW27	25	22-21	1.5-2	1500	15
430421	NDA.Q-30-M16x30	30	M16	25	37	SW27	30	27-26	1.5-2	1500	20
430426	NDA.Q-30-M22x30	30	M22	26	35	SW27	30	27-26	1.5-2	2500	16
430431	NDA.Q-35-M22x30	35	M22	34	35	SW27	35	32-31	1.5-2	2500	21
430436	NDA.Q-40-M22x30	40	M22	33	35	SW27	40	37-36	1.5-2	2500	30
430441	NDA.Q-45-M22x30	45	M22	34	35	SW27	45	42-41	1.5-2	2500	34
430446	NDA.Q-50-M22x30	50	M22	34	35	SW27	50	48-47	1-1.5	2500	42

***** The value refers to laboratory tests carried out with a load applied vertically to the leveling element unscrewed from the end-cap of 10 mm and leaning on a flat surface. The max limit static load is the value above which the load applied to the element may cause some plastic material breakage, under particular conditions of use. Obviously, a factor that takes into consideration the importance and the safety level of the specific application must be applied to this value.

End-caps for round tubes

with adjustable height levelling element, technopolymer

MATERIAL

Polyamide based (PA) technopolymer, black colour, matte finish.

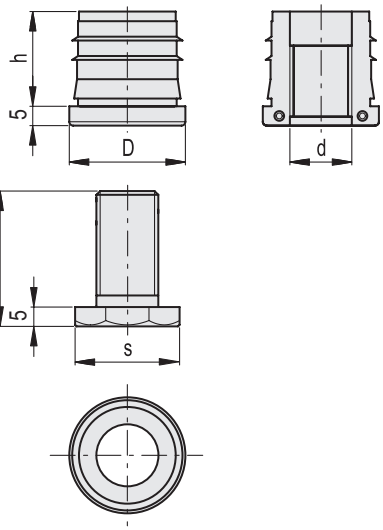
FEATURES AND APPLICATIONS

End-caps for round tubes with adjustable height levelling element. The assembly can be performed simply by positioning the end-cap, forcing it, inside the tube, with no need of screws or other fasteners.

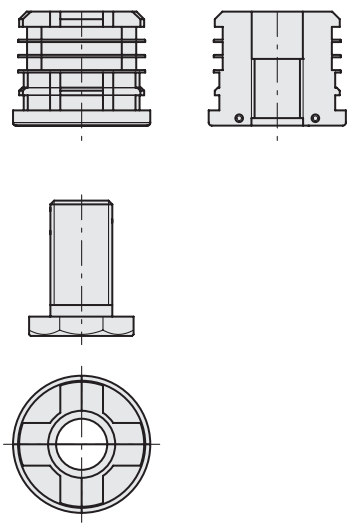




NDA.T-20 ÷ NDA.T-40



NDA.T-45 ÷ NDA.T-50



The geometry of the end-cap in the part that is inserted into the tube may vary for the different dimensions.

Code	Description	D	d	h	h2	s	External tube diameter	Internal tube diameter min-max	Thickness min-max	Max. static load* [N]	⚖
430471	NDA.T-20-M12x30	20	M12	34	32	SW19	20	18-17	1-1.5	1000	8
430476	NDA.T-22-M12x30	22	M12	34	32	SW19	22	20-19	1-1.5	1000	9
430481	NDA.T-25-M12x30	25	M12	34	32	SW19	25	23-21	1-2	1000	11
430486	NDA.T-28-M16x30	28	M16	34	37	SW27	28	26-24	1-2	1500	15
430491	NDA.T-30-M16x30	30	M16	27	37	SW27	30	27-26	1.5-2	1500	18
430496	NDA.T-30-M22x30	30	M22	27	35	SW27	30	27-26	1.5-2	2500	14
430501	NDA.T-32-M22x30	32	M22	34	35	SW27	32	30-28	1-2	2500	17
430506	NDA.T-35-M22x30	35	M22	34	35	SW27	35	32.6-31	1.2-2	2500	21
430511	NDA.T-38-M22x30	38	M22	34	35	SW27	38	35-34	1.5-2	2500	23
430516	NDA.T-40-M22x30	40	M22	34	35	SW27	40	38-36	1-2	2500	28
430521	NDA.T-45-M22x30	45	M22	34	35	SW27	45	42-41	1.5-2	2500	31
430526	NDA.T-50-M22x30	50	M22	34	35	SW27	50	47-46	1.5-2	2500	36

***** The value refers to laboratory tests carried out with a load applied vertically to the leveling element unscrewed from the end-cap of 10 mm and leaning on a flat surface. The max limit static load is the value above which the load applied to the element may cause some plastic material breakage, under particular conditions of use. Obviously, a factor that takes into consideration the importance and the safety level of the specific application must be applied to this value.

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Square tube expander end-caps

Technopolymer



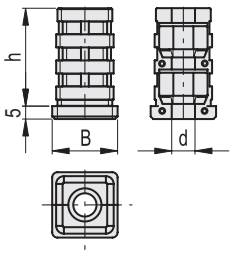


END-CAP
Polyamide based (PA) technopolymer, black colour, matte finish.

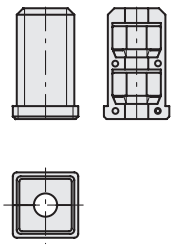
STANDARD EXECUTION
DIN 934 zinc-plated steel nuts (included in the supply).

FEATURES AND APPLICATIONS
The two end-cap parts have some reference pins which are housed in special counter-seats. Two cavities inside the end-cap are provided for housing two hexagonal nuts DIN 934.
Thanks to the tapered shape of the cavity, the end-cap exerts a pressure on the inner walls of the tube, due to the tightening of the nuts, thus ensuring the tensile strength of the connection.
The level of the tensile strength depends on the tube dimensional tolerances, the condition of the tube inner surfaces and the tightening torque applied.
The end-cap enables the joining of square tubes with other elements or the installation of wheels or levelling elements with locking nut.
The installation of a simple levelling element does not enable the expansion of the end-cap: for this kind of applications the use of NDL.Q (see page 1321) end-caps is a more proper alternative.
The assembly can be performed simply by positioning the end-cap inside the tube, with no need of screws or other fasteners.

SPECIAL EXECUTIONS ON REQUEST
End-cap without nuts or assembled with only one nut DIN 934.



NDE.Q



NDE.Q-25x1.5-M10
NDE.Q-25x1.5-M12
NDE.Q-30x1.5-M10

The geometry of the end-cap in the part that is inserted into the tube may vary for the different dimensions.

Code	Description	B	d	h	External tube diameter	Internal tube diameter	Thickness	Max. static load* [N]	⚖
430751	NDE.Q-20x1.5-M8	20	M8	37	20	17	1.5	3000	17
430761	NDE.Q-25x1.5-M8	25	M8	36	25	22	1.5	3000	23
430763	NDE.Q-25x1.5-M10	25	M10	37	25	22	1.5	3000	33
430765	NDE.Q-25x1.5-M12	25	M12	37	25	22	1.5	3000	41
430771	NDE.Q-30x1.5-M8	30	M8	37	30	27	1.5	3000	32
430773	NDE.Q-30x1.5-M10	30	M10	37	30	27	1.5	3000	44
430775	NDE.Q-30x2-M8	30	M8	37	30	26	2	3000	31
430777	NDE.Q-30x2-M10	30	M10	37	30	26	2	3000	42
430781	NDE.Q-35x1.6-M10	35	M10	37	35	31.8	1.6	3000	49
430783	NDE.Q-35x2-M10	35	M10	37	35	31	2	3000	49
430791	NDE.Q-40x1.5-M10	40	M10	37	40	37	1.5	3000	58
430793	NDE.Q-40x2-M10	40	M10	37	40	36	2	3000	59
430795	NDE.Q-40x2-M12	40	M12	37	40	36	2	3000	65
430797	NDE.Q-40x3-M10	40	M10	37	40	34	3	3000	55
430801	NDE.Q-50x1.5-M10	50	M10	37	50	47	1.5	3000	86
430803	NDE.Q-50x1.5-M12	50	M12	37	50	47	1.5	3000	93
430805	NDE.Q-50x2-M12	50	M12	37	50	46	2	3000	90
430811	NDE.Q-60x2-M10	60	M10	33	60	56	2	3000	115
430813	NDE.Q-60x2.5-M10	60	M10	36	60	55	2.5	3000	107

***** The max limit static load is the value above which the load applied to the element may cause some plastic material breakage, under particular conditions of use. Obviously, a factor that takes into consideration the importance and the safety level of the specific application must be applied to this value. The values shown in the table refer to the use of the end-cap in combination with a steel tube. The use of an aluminum tube may cause a decrease in the max limit static load equal to 25% due to possible deformations of the tube section under load.

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Round tube expander end-caps

Technopolymer

MATERIAL
Polyamide based (PA) technopolymer, black colour, matte finish.

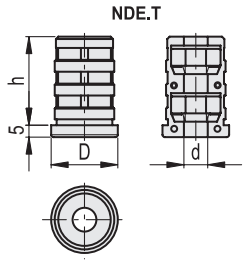
STANDARD EXECUTION
DIN 934 zinc-plated steel nuts (included in the supply).

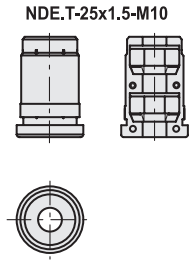
FEATURES AND APPLICATIONS
The two end-cap parts have some reference pins which are housed in special counter-seats. Two cavities inside the end-cap are provided for housing two hexagonal nuts DIN 934.
Thanks to the tapered shape of the cavity, the end-cap exerts a pressure on the inner walls of the tube, due to the tightening of the nuts, thus ensuring the tensile strength of the connection.
The level of the tensile strength depends on the tube dimensional tolerances, the condition of the tube inner surfaces and the tightening torque applied.
The end-cap enables the joining of round tubes with other elements or the installation of wheels or levelling elements with locking nut.
The installation of a simple levelling element does not enable the expansion of the end-cap: for this kind of applications the use of NDL.T (see page 1322) end-caps is a more proper alternative.
The assembly can be performed simply by positioning the end-cap inside the tube, with no need of screws or other fasteners.

SPECIAL EXECUTIONS ON REQUEST
End-cap without nuts or assembled with only one nut DIN 934.









The geometry of the end-cap in the part that is inserted into the tube may vary for the different dimensions.

Code	Description	D	d	h	External tube diameter	Internal tube diameter	Thickness	Max. static load* [N]	⚖
430851	NDE.T-20x1.5-M8	20	M8	37	20	17	1.5	3000	14
430861	NDE.T-25x1-M10	25	M10	37	25	23	1	3000	30
430863	NDE.T-25x1.5-M8	25	M8	37	25	22	1.5	3000	19
430865	NDE.T-25x1.5-M10	25	M10	37	25	22	1.5	3000	29
430871	NDE.T-28x1.5-M8	28	M8	37	28	25	1.5	3000	26
430873	NDE.T-28x1.5-M10	28	M10	42	28	25	1.5	3000	33
430875	NDE.T-28x2-M10	28	M10	37	28	24	2	3000	31
430881	NDE.T-30x1.5-M10	30	M10	36.5	30	27	1.5	3000	36
430883	NDE.T-30x2-M8	30	M8	36	30	26	2	3000	26
430885	NDE.T-30x2-M10	30	M10	36	30	26	2	3000	34
430891	NDE.T-32x1.5-M8	32	M8	37	32	29	1.5	3000	31
430893	NDE.T-32x1.5-M10	32	M10	37	32	29	1.5	3000	39
430901	NDE.T-35x1.5-M10	35	M10	36	35	32	1.5	3000	43
430903	NDE.T-35x2-M10	35	M10	37	35	31	2	3000	42
430905	NDE.T-35x2.5-M10	35	M10	37	35	30	2.5	3000	41
430911	NDE.T-40x2-M8	40	M8	36	40	36	2	3000	41
430913	NDE.T-40x2-M10	40	M10	37	40	36	2	3000	50
430921	NDE.T-50x1.5-M10	50	M10	37	50	47	1.5	3000	71
430923	NDE.T-50x1.5-M12	50	M12	37	50	47	1.5	3000	71
430925	NDE.T-50x2-M10	50	M10	37	50	46	2	3000	64

***** The max limit static load is the value above which the load applied to the element may cause some plastic material breakage, under particular conditions of use. Obviously, a factor that takes into consideration the importance and the safety level of the specific application must be applied to this value. The values shown in the table refer to the use of the end-cap in combination with a steel tube. The use of an aluminum tube may cause a decrease in the max limit static load equal to 25% due to possible deformations of the tube section under load.

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Round tube expander connectors

Technopolymer

MATERIAL

Polyamide based (PA) technopolymer, black colour, matte finish.

FEATURES AND APPLICATIONS

The two connector parts are connected together by means of pins which are housed in special counter-seats. Two cavities inside the connector are provided for housing an hexagonal-head screw or an hexagonal nut. Thanks to the tapered shape of the cavity, the connector exerts a pressure on the inner walls of the tube, due to the tightening of the screw or of the nut, thus ensuring the tensile strength of the connection. The level of the tensile strength depends on the tube dimensional tolerances, the roughness of the tube inner surfaces and the tightening torque applied.
The connector allows the joining of round tubes to one another or to other elements.
The assembly can be performed simply by positioning the connector, forcing it, inside the profile, with no need of screws or other fasteners.

ASSEMBLY OF THE TUBE TO THE CONNECTOR

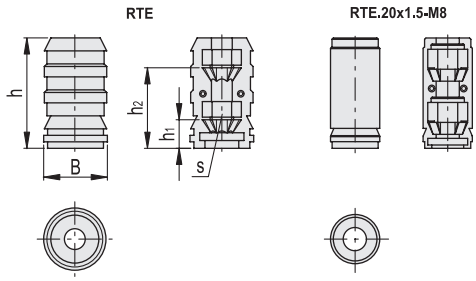
It can be made as an alternative with:
- Hexagonal-head screw DIN 933 of dimension as shown in the table.
- Hexagonal nut DIN 934 of dimension as shown in the table.
- Self-locking hexagonal nut DIN 985 of dimension as shown in the table.

SPECIAL EXECUTIONS ON REQUEST

Connector assembled with nut or screw.







The geometry of the end-cap in the part that is inserted into the tube may vary for the different dimensions.

Code	Description	B	h	h1	h2	s	External tube diameter	Internal tube diameter	Thickness	⚖
430301	RTE.20x1.0-M8	18	42	10	30	13	20	18	1	6
430303	RTE.20x1.5-M6	17	42	12	32	10	20	17	1.5	7
430305	RTE.20x1.5-M8	17	42	10	30	13	20	17	1.5	5
430311	RTE.22x1.0-M6	20	42	12	32	10	22	20	1	9
430313	RTE.22x1.0-M8	20	42	10	30	13	22	20	1	7
430321	RTE.22x1.2-M8	19.6	42	10	30	13	22	19.6	1.2	7
430323	RTE.22x1.5-M6	19	42	12	32	10	22	19	1.5	9
430325	RTE.22x1.5-M8	19	42	10	30	13	22	19	1.5	6
430331	RTE.25x1.0-M6	23	42	12	32	10	25	23	1	12
430333	RTE.25x1.5-M6	22	42	12	32	10	25	22	1.5	11
430335	RTE.25x1.5-M8	22	42	10	30	13	25	22	1.5	9
430341	RTE.28x1.5-M6	25	41	12	32	10	28	25	1.5	17
430343	RTE.28x1.5-M8	25	42	10	30	13	28	25	1.5	15
430345	RTE.28x2.0-M8	24	42	10	30	13	28	24	2	14
430351	RTE.30x1.0-M8	28	42	10	30	13	30	28	1	17
430353	RTE.30x1.5-M8	27	42	10	30	13	30	27	1.5	17
430355	RTE.30x1.5-M10	27	42	10	30	17	30	27	1.5	14
430357	RTE.30x2.0-M8	26	42	10	30	13	30	26	2	15
430359	RTE.30x2.0-M10	26	42	10	30	17	30	26	2	13
430361	RTE.32x1.2-M6	29.6	42	12	32	10	32	29.6	1.2	23
430363	RTE.32x1.5-M10	29	42	10	30	17	32	29	1.5	18
430365	RTE.32x2.0-M6	28	41.5	12	32	10	32	28	2	22
430367	RTE.32x2.0-M10	28	42	10	30	17	32	28	2	16
430369	RTE.32x2.5-M10	27	42	10	30	17	32	27	2.5	15
430371	RTE.35x1.5-M6	32	40	12	32	10	35	32	1.5	27
430373	RTE.35x1.5-M10	32	42	10	29	17	35	32	1.5	22
430375	RTE.35x2.0-M10	31	42	10	30	17	35	31	2	20
430377	RTE.35x2.5-M6	30	42	12	32	10	35	30	2.5	20
430381	RTE.40x1.5-M8	37	42	10	30	13	40	37	1.5	33
430383	RTE.40x1.5-M10	37	42	10	30	17	40	37	1.5	31
430385	RTE.40x2.0-M10	36	42	10	30	17	40	36	2	28
430387	RTE.40x2.5-M6	35	43	12	32	10	40	35	2.5	21

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Square tube expander connectors

Technopolymer



MATERIAL

Polyamide based (PA) technopolymer, black colour, matte finish.

FEATURES AND APPLICATIONS

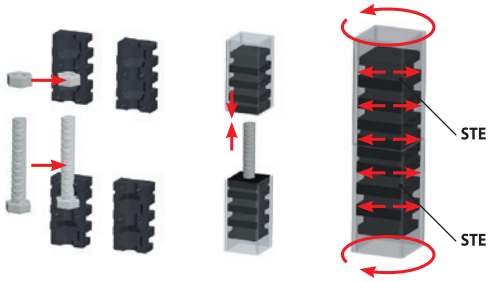
The two connector parts are connected together by means of pins which are housed in special counter-seats. Two cavities inside the connector are provided for housing an hexagonal-head screw or an hexagonal nut. Thanks to the tapered shape of the cavity, the connector exerts a pressure on the inner walls of the tube, due to the tightening of the screw or of the nut, thus ensuring the tensile strength of the connection. The level of the tensile strength depends on the tube dimensional tolerances, the roughness of the tube inner surfaces and the tightening torque applied. The connector has no collar and allows the joining of square tubes to other elements.
The assembly can be performed simply by positioning the connector inside the tube, with no need of screws or other fasteners.

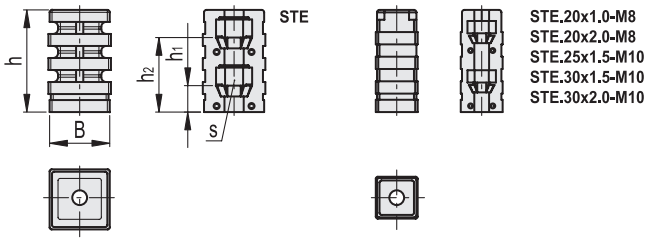
ASSEMBLY OF THE TUBE TO THE CONNECTOR

It can be made as an alternative with:
- Hexagonal-head screw DIN 933 of dimension as shown in the table.
- Hexagonal nut DIN 934 of dimension as shown in the table.
- Self-locking hexagonal nut DIN 985 of dimension as shown in the table.

SPECIAL EXECUTIONS ON REQUEST

Connector assembled with nut or screw.





The geometry of the end-cap in the part that is inserted into the tube may vary for the different dimensions.

Code	Description	B	h	h1	h2	s	External tube diameter	Internal tube diameter	Thickness	⚖
430201	STE.20x1.0-M6	18	42	12	32	10	20	18	1	9
430203	STE.20x1.0-M8	18	43	10	30	13	20	18	1	9
430205	STE.20x1.5-M6	17	42	12	32	10	20	17	1.5	10
430207	STE.20x1.5-M8	17	42	10	30	13	20	17	1.5	8
430209	STE.20x2.0-M8	16	43	10	30	13	20	16	2	6
430215	STE.22x1.5-M6	19	41	12	32	10	22	19	1.5	12
430217	STE.22x1.5-M8	19	42	10	30	13	22	19	1.5	10
430223	STE.25x1.5-M8	22	42	10	30	13	25	22	1.5	13
430225	STE.25x1.5-M10	22	42	10	30	17	25	22	1.5	12
430227	STE.25x2.0-M8	21	43	10	30	13	25	21	2	12
430233	STE.30x1.5-M10	27	42	10	30	17	30	27	1.5	22
430235	STE.30x2.0-M8	26	41	10	30	13	30	26	2	20
430237	STE.30x2.0-M10	26	41	10	30	17	30	26	2	20
430241	STE.35x2.0-M10	31	42	10	30	17	35	31	2	27
430251	STE.40x1.2-M10	37.6	40	10	30	17	40	37.6	1.2	41
430253	STE.40x1.2-M12	37.6	40	8	28	19	40	37.6	1.2	39
430255	STE.40x2.0-M10	36	42	10	30	17	40	36	2	36
430257	STE.40x3.0-M8	34	42	11	30	13	40	34	3	35
430259	STE.40x3.0-M10	34	41	10	30	17	40	34	3	32

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Ribbed tube end plugs

Polyethylene



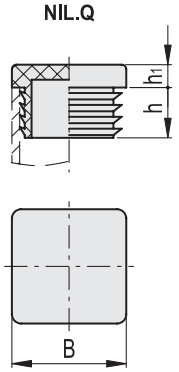
MATERIAL
Polyethylene (PE), RAL 9005 (C9) black colour or RAL 7042 (C34) grey colour, satin finish.

STANDARD EXECUTIONS
- **NIL.Q**: for square tubes.
- **NIL.R**: for rectangular tubes.
- **NIL.T**: for round tubes.

FITTING
Their fitting to the round, square or rectangular section tube or profile ends can be made either by hand or by a mallet.

SPECIAL EXECUTIONS ON REQUEST
RAL 9003 white coloured inserts.

NIL.Q



* Complete with colour index, example: 435210-C9 NIL.Q-10-C9

C9 RAL9005 C34 RAL7042

NIL.Q

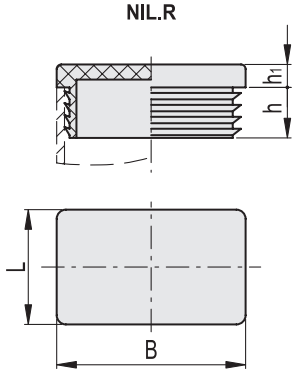
Code	Description	B	h	h1	External tube diameter	Thickness
435210-*	NIL.Q-10-*	10	12	4	10	0,8÷2,5
435212-*	NIL.Q-12-*	12	12	4	12	1÷2
435213-*	NIL.Q-13-*	13	12	4	13	0,5÷2
435215-*	NIL.Q-15-*	15	14	3	15	1÷2
435216-*	NIL.Q-16-*	16	11.5	5	16	1÷2,5
435218-*	NIL.Q-18-*	18	11.5	5	18	1,5÷3
435220-*	NIL.Q-20-*	20	11.5	5	20	1÷3
435222-*	NIL.Q-22-*	22	12	5	22	1÷3,5
435225-*	NIL.Q-25-*	25	11.5	5	25	1÷3
435228-*	NIL.Q-28-*	28	11.5	5	28	1÷3
435230-*	NIL.Q-30-*	30	11.5	5	30	1÷3
435232-*	NIL.Q-32-*	32	11.5	5	32	1÷3,5
435234-*	NIL.Q-34-*	34	14.5	5	34	1÷3
435235-*	NIL.Q-35-*	35	14.5	5	35	1÷3
435238-*	NIL.Q-38-*	38	14.5	5	38	1÷3,5
435240-*	NIL.Q-40-*	40	14.5	5	40	1÷3
435245-*	NIL.Q-45-*	45	14.5	5	45	1÷3

NIL.Q

Code	Description	B	h	h1	External tube diameter	Thickness
435250-*	NIL.Q-50-*	50	14.5	5	50	1÷2,5
435370-*	NIL.Q-50-2.6-*	50	25	6.5	50	2.6÷4
435255-*	NIL.Q-55-*	55	14.5	5	55	2÷4,5
435260-*	NIL.Q-60-*	60	24	5	60	1,5÷3,5
435265-*	NIL.Q-65-*	65	21	5	65	1÷3
435270-*	NIL.Q-70-*	70	19	5	70	2÷5
435275-*	NIL.Q-75-*	75	21	6	75	2÷4,5
435276-*	NIL.Q-76,2-*	76.2	21	6	76.2	2,5÷5
435280-*	NIL.Q-80-*	80	21	6	80	1,5÷4
435290-*	NIL.Q-90-*	90	25	6	90	3÷5
435295-*	NIL.Q-95-*	95	21.5	6	95	3,5÷5,5
435300-*	NIL.Q-100-*	100	24	7	100	1÷4
435310-*	NIL.Q-110-*	110	24	6	110	3÷5
435320-*	NIL.Q-120-*	120	25	5	120	2,5÷6
435340-*	NIL.Q-140-*	140	34	6	140	4÷7
435350-*	NIL.Q-150-*	150	27	6	150	5÷8

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NIL.R



* Complete with colour index, example: 435410-C9 NIL.R-20x10-C9

C9 RAL9005

C34 RAL7042

NIL.R

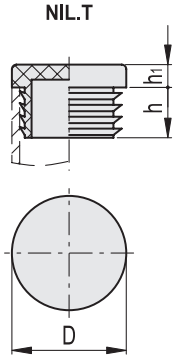
Code	Description	B	L	h	h1	External tube diameter	Thickness
435410-*	NIL.R-20x10-*	20	10	11	3	20x10	0,8÷2
435411-*	NIL.R-20x15-*	20	15	11.5	5	20x15	1÷2
435430-*	NIL.R-25x10-*	25	10	11.5	3	25x10	0,8÷2
435431-*	NIL.R-25x15-*	25	15	11.5	5	25x15	1÷2,5
435432-*	NIL.R-25x20-*	25	20	11.5	5	25x20	1÷3
435450-*	NIL.R-30x10-*	30	10	11.5	5	30x10	1÷2
435451-*	NIL.R-30x15-*	30	15	11.5	5	30x15	1÷2,5
435452-*	NIL.R-30x20-*	30	20	11.5	5	30x20	1÷3
435470-*	NIL.R-35x10-*	35	10	11.5	5	35x10	1÷2
435471-*	NIL.R-35x20-*	35	20	11.5	5	35x20	1÷2,5
435472-*	NIL.R-35x25-*	35	25	11.5	5	35x25	1÷3
435490-*	NIL.R-40x15-*	40	15	12	5	40x15	1÷2
435491-*	NIL.R-40x20-*	40	20	12	5	40x20	1÷3
435492-*	NIL.R-40x25-*	40	25	11.5	5	40x25	1÷3
435493-*	NIL.R-40x30-*	40	30	12	5	40x30	1÷3
435494-*	NIL.R-40x35-*	40	35	12	5	40x35	1÷3
435510-*	NIL.R-45x15-*	45	15	11	5	45x15	1,5÷2
435511-*	NIL.R-45x20-*	45	20	11.5	5	45x20	1÷3
435512-*	NIL.R-45x25-*	45	25	12	5	45x25	1÷3
435513-*	NIL.R-45x30-*	45	30	12	5	45x30	1÷2,5
435514-*	NIL.R-45x35-*	45	35	12	5	45x35	1÷3,5
435530-*	NIL.R-50x20-*	50	20	14	5	50x20	1÷3
435531-*	NIL.R-50x25-*	50	25	14.5	5	50x25	1÷3
435532-*	NIL.R-50x30-*	50	30	13.5	5	50x30	1÷3
435533-*	NIL.R-50x35-*	50	35	14.5	5	50x35	1÷3,5

NIL.R

Code	Description	B	L	h	h1	External tube diameter	Thickness
435534-*	NIL.R-50x40-*	50	40	15	5	50x40	1,5÷3
435550-*	NIL.R-60x20-*	60	20	14.5	5	60x20	1÷3
435551-*	NIL.R-60x25-*	60	25	15	5	60x25	1÷3
435552-*	NIL.R-60x30-*	60	30	15	5	60x30	1÷2,5
435553-*	NIL.R-60x35-*	60	35	15	5	60x35	1,5÷3,5
435554-*	NIL.R-60x40-*	60	40	14	5	60x40	1÷3
435555-*	NIL.R-60x45-*	60	45	15	5	60x45	1,5÷4
435556-*	NIL.R-60x50-*	60	50	14.5	5	60x50	1,5÷3,5
435570-*	NIL.R-70x20-*	70	20	19	5	70x20	1÷3,5
435571-*	NIL.R-70x25-*	70	25	18	5	70x25	1,5÷2,5
435572-*	NIL.R-70x30-*	70	30	15	5	70x30	1÷3
435573-*	NIL.R-70x35-*	70	35	15	5	70x35	1,5÷3,5
435574-*	NIL.R-70x40-*	70	40	20	5	70x40	1,5÷3
435590-*	NIL.R-80x20-*	80	20	18	5	80x20	1÷3
435591-*	NIL.R-80x30-*	80	30	14.5	5	80x30	1÷2,5
435592-*	NIL.R-80x40-*	80	40	14.5	5	80x40	1÷3
435593-*	NIL.R-80x50-*	80	50	22	5	80x50	1,5÷4
435594-*	NIL.R-80x60-*	80	60	25	5	80x60	1,5÷3,5
435610-*	NIL.R-90x20-*	90	20	14.5	5	90x20	1÷2,5
435611-*	NIL.R-90x40-*	90	40	15	5	90x40	2÷4
435612-*	NIL.R-90x50-*	90	50	22	5	90x50	2÷4,5
435630-*	NIL.R-100x30-*	100	30	15	5	100x30	1,5÷3,5
435631-*	NIL.R-100x40-*	100	40	14.5	5	100x40	1,5÷4
435632-*	NIL.R-100x50-*	100	50	24	5	100x50	1,5÷4,5
435633-*	NIL.R-100x60-*	100	60	25	6	100x60	1,5÷4,5

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NIL.T



* Complete with colour index, example: 435010-C9 NIL.T-10-C9

C9 RAL9005 C34 RAL7042

NIL.T

Code	Description	D	h	h1	External tube diameter	Thickness
435010-*	NIL.T-10-*	10	11	3.5	10	1÷2
435012-*	NIL.T-12-*	12	11	3.5	12	1÷2
435013-*	NIL.T-13-*	13	11	4	13	1÷2
435014-*	NIL.T-14-*	14	11.5	5	14	1÷2
435015-*	NIL.T-15-*	15	11.5	3	15	1÷2
435016-*	NIL.T-16-*	16	11	5	16	1÷2
435018-*	NIL.T-18-*	18	11.5	5	18	1÷2
435019-*	NIL.T-19-*	19	11.5	5	19	1÷2,5
435020-*	NIL.T-20-*	20	11.5	5	20	1÷2,5
435022-*	NIL.T-22-*	22	11.5	5	22	1÷2
435023-*	NIL.T-23-*	23	11.5	5	23	1÷2,5
435024-*	NIL.T-24-*	24	11.5	5	24	1÷2,5
435025-*	NIL.T-25-*	25	11.5	5	25	1÷3
435026-*	NIL.T-26-*	26	11.5	5	26	1÷3
435027-*	NIL.T-27-*	27	11.5	5	27	1÷3
435028-*	NIL.T-28-*	28	11.5	5	28	1÷3
435030-*	NIL.T-30-*	30	11.5	5	30	1÷2,5
435032-*	NIL.T-32-*	32	12	5	32	1÷3
435034-*	NIL.T-34-*	34	11.5	5	34	1÷3
435035-*	NIL.T-35-*	35	11.5	5	35	1÷3
435036-*	NIL.T-36-*	36	11.5	5	36	1÷3
435037-*	NIL.T-37-*	37	11.5	5	37	1÷3

NIL.T

Code	Description	D	h	h1	External tube diameter	Thickness
435040-*	NIL.T-40-*	40	11.5	5	40	1÷3
435042-*	NIL.T-42-*	42	11.5	5	42	1÷3
435045-*	NIL.T-45-*	45	11	5	45	1÷3
435046-*	NIL.T-46-*	46	11.5	5	46	1,5÷3,5
435048-*	NIL.T-48-*	48	11.5	5	48	1,2÷3,6
435050-*	NIL.T-50-*	50	14.5	5	50	1÷2,5
435150-*	NIL.T-50-2.5-*	50	11.5	5	50	2,5÷4.5
435052-*	NIL.T-52-*	52	14.5	5	52	1,5÷3,5
435055-*	NIL.T-55-*	55	11.5	5	55	1÷3
435155-*	NIL.T-55-3-*	55	14.5	5	55	3÷5
435060-*	NIL.T-60-*	60	14.5	5	60	1,5÷3
435160-*	NIL.T-60-3-*	60	17.5	5	60	3÷5
435065-*	NIL.T-65-*	65	14.5	5	65	1,5÷3,5
435070-*	NIL.T-70-*	70	21	5	70	1,5÷3,5
435075-*	NIL.T-75-*	75	21.5	6	75	1÷3,5
435076-*	NIL.T-76-*	76	21.5	6	76	1,6÷4
435080-*	NIL.T-80-*	80	22	5	80	1,5÷3
435085-*	NIL.T-85-*	85	21	6	85	1,5÷4
435088-*	NIL.T-88-*	88	21.5	6	88	1,5÷4
435090-*	NIL.T-90-*	90	21	6	90	1,5÷5
435095-*	NIL.T-95-*	95	21	6	95	1,5÷4
435110-*	NIL.T-100-*	100	28.5	6	100	2÷4,5

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GN 349

Mounts for levelling feet

SPECIFICATION

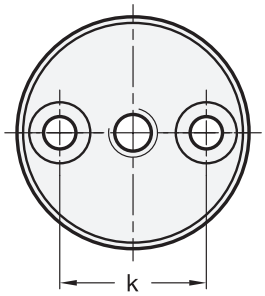
Steel

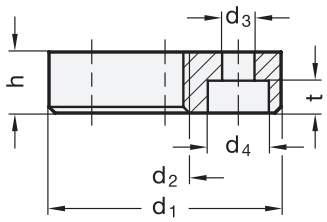
- weldable
- blackened

INFORMATION

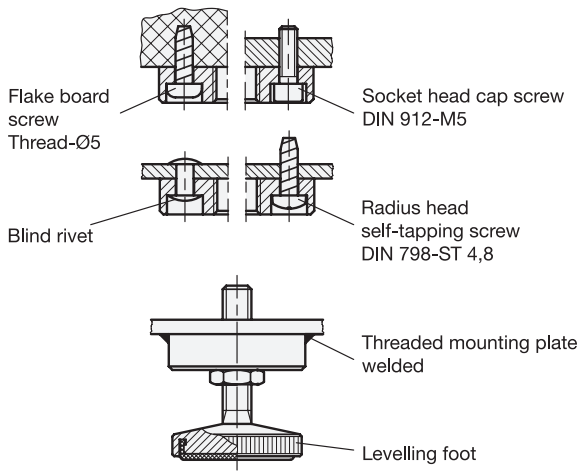
GN 349 mounts are used on levelling feet particularly in such cases where a machine shrouding is made of very thin sheet metal.







Installation example/
Mounting possibilities



GN 349

Description	d1	d2	d3	d4	h	k	t	⚖
GN 349-36-M8	36	M 8	5.3	10	10	24	5.3	67
GN 349-36-M10	36	M 10	5.3	10	10	24	5.3	65
GN 349-36-M12	36	M 12	5.3	10	10	24	5.3	63

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Adapter for PC support clamp for round tubes

Technopolymer

MATERIAL

Glass-fibre reinforced polyamide based (PA) technopolymer, RAL 7042 grey colour, matte finish.

FEATURES AND APPLICATIONS

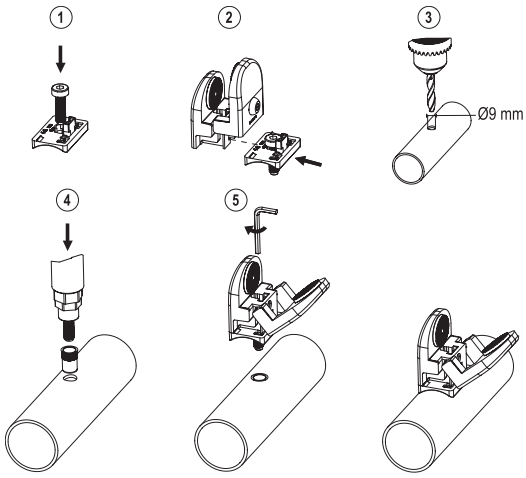
Kit for installation of PC support clamp on round tubes (thickness max. = 2 mm). The kit includes a technopolymer adapter, a M6 zinc-plated steel threaded insert to install with a normal riveter on the tube and a M6 cylindrical head screw.
The adapters give the best aesthetic result for panels of thickness between 4 and 6 mm and tubes with diameters as follows:
- 30÷34 mm
- 40÷43 mm
- 48÷52 mm.

ASSEMBLY INSTRUCTIONS

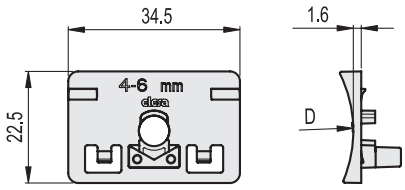
- Insert the M6 shorted cylindrical head screw with DIN 7984 hexagon socket into the plastic adapter.
- Insert the adapter into the slot of PC until the catch bracket clicks into position.
- Drill a hole in the tube of 9 mm.
- Fit the threaded insert on the tube with a riveter.
- Install the support clamp on the tube by tightening the screw into the threaded insert.



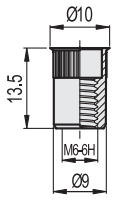
ELESA Original design



Adapter



Threaded insert



Code	Description	D	For tubes Ø	⚖
49291	APC.30-34	34	30 ÷ 34	5
49293	APC.40-43	43	40 ÷ 43	5
49295	APC.48-52	52	48 ÷ 52	5

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Panel support clamp

Technopolymer

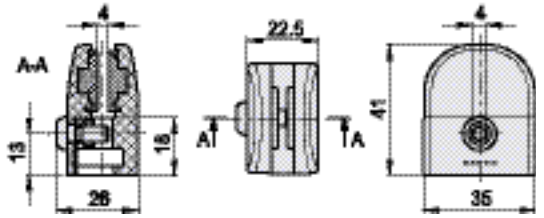
MATERIAL
Glass-fibre reinforced polyamide based (PA) technopolymer, RAL 7042 grey colour, matte finish.

PADS
Thermoplastic elastomer, hardness 80, Shore A, overmoulded.

ADJUSTING SPACERS (INCLUDED IN THE SUPPLY)
Polyamide based (PA) technopolymer, RAL 7042 grey colour clamp, for fastening panels with thickness higher than 4 mm.
Once it is engaged in the housing, the spacer is constrained to the clamp by means of an undercut.

FEATURES AND APPLICATIONS
- The product is in compliance with the Machine Directive (2006/42/CE) that provides for the retention of all the clamping elements in the open position too. (ELESA patent) The two parts of the tightening clamp are connected thanks to an articulated joint and they have got a seat for housing a screw and a M5 nut, which are retaining as well.
- The special dimensions of the clamp allow its assembly on profiles with a width of 25 mm or higher.
- The panel assembly into the clamp does not require any drilling which may cause cracks in the panel.
- The pads deform upon tightening to guarantee the perfect fastening of the inserted panel.
- The chemical bond of the overmoulded pads makes them a single body with the clamp. The embossed surface avoid any possible sticking of the pad to the panel over the time.
- The tightening clamp allows a direct assembly of panels with thickness from 3.1 mm to 4 mm. The assembly of panels with higher thicknesses, up to a maximum of 8 mm, is possible by inserting the spacers into a specific cavity provided in the clamp.
- To prevent machine danger zones being reached through any opening in the machine protection structure made of panels fixed with the PC clamp, it is necessary to keep a safety distance (Fig. 4) according to ISO 13857, section 4.2.4 (the safety distance is the minimum distance required between a protection structure and a potentially dangerous component of the machine).

TECHNICAL DATA
If the clamp is opened, the tightening screw does not yield below an extraction force of 250 N, without coming out from its housing.
During the tests carried out in our laboratories under controlled temperature and humidity (23°C-50% R.H.), under given conditions of use and for a limited period of time, the maximum load of each clamp is of 100 N (Fig. 5).
The tightening screw of the panel and the assembly screws of the clamp on the profile have got the same hexagonal seat. Thus, it is possible to make the assembly by using only one hexagonal key (Key 4). Maximum tightening torque for the screw = 3.5 Nm.



Code	Description	⚖
49301	PC.35	31



ERGOSTYLE®

ASSEMBLY OF THE CLAMP ON THE PROFILE
- M6 shorted cylindrical head screw with DIN 7984 hexagon socket (Fig.1).
- DIN 933 M6 hexagonal head screw (Fig. 2).
- DIN 439B or DIN 934 M6 hexagonal nut (Fig. 3).

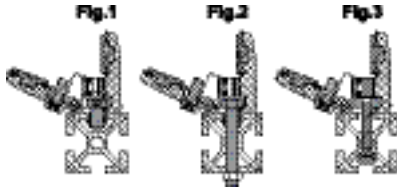


Fig. 4

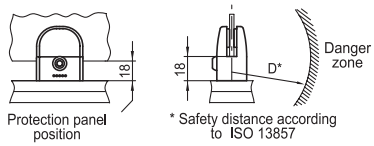
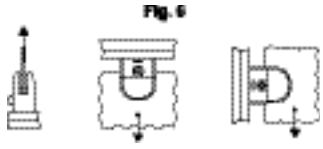
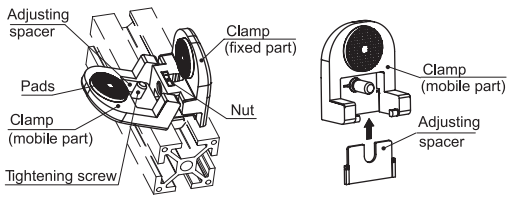


Fig. 5







s panel thickness [mm]	Adjusting spacer to be used
3.1 < s < 4.1	-
4.1 < s < 5.1	5mm
5.1 < s < 6.1	6mm
6.1 < s < 7.1	7mm
7.1 < s < 8.0	8mm

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Support clamp for panels and electro-welded mesh

mounting of the panel without drilling



ELESA Original design

MATERIAL
Glass-fibre reinforced polyamide (PA) SUPER-technopolymer, matte finish, RAL 9005 (C9) black colour or RAL 7040 (C33) grey colour.

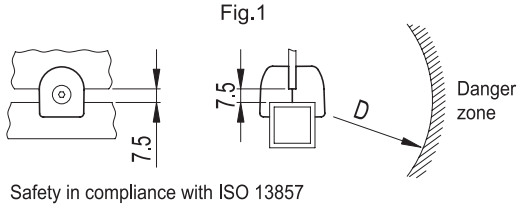
VIBRATION-DAMPING PADS
Made out of NBR rubber, hardness 90 Shore A, supplied assembled.

SCREW AND NUT
AISI 304 stainless steel countersunk head screw (UNI 5933) and M5 nut.

STANDARD EXECUTIONS
- **PPR**: for the mounting of panels, without vibration-damping elements.
- **PPR-A**: for the mounting of panels, with vibration-damping elements.
- **PPR-R**: for the mounting of electro-welded mesh type TEC® (max thread diameter 3 mm), without vibration-damping elements.

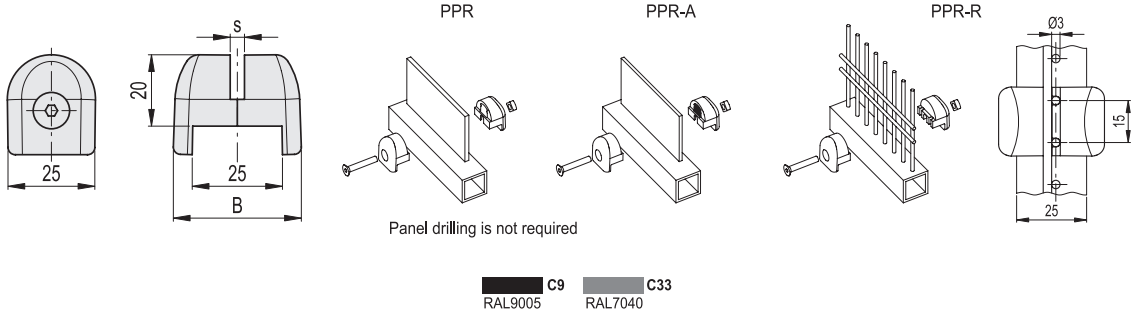
FEATURES AND APPLICATIONS
- Assembly on square-section profiles of 25 mm
- Panel drilling is not required for mounting.
- Rubber vibration-damping elements to ensure perfect locking of the panel even if not perfectly in tolerance or in the presence of strong vibrations.
- The distance of 7.5mm of the panel with respect to the profile avoids areas of dirt accumulation.
- Safety in compliance with ISO 13857, paragraph 4.2.4.
- The safety distance (D) is the minimum required distance between the protection structure and the potentially dangerous element of the machine (Fig.1).

Fig.1



Safety in compliance with ISO 13857

ASSEMBLY OF THE CLAMP ON THE PROFILE
- Tighten the clamp against the profile and the panel or the electro-welded mesh using the screw and the nut included in the package.

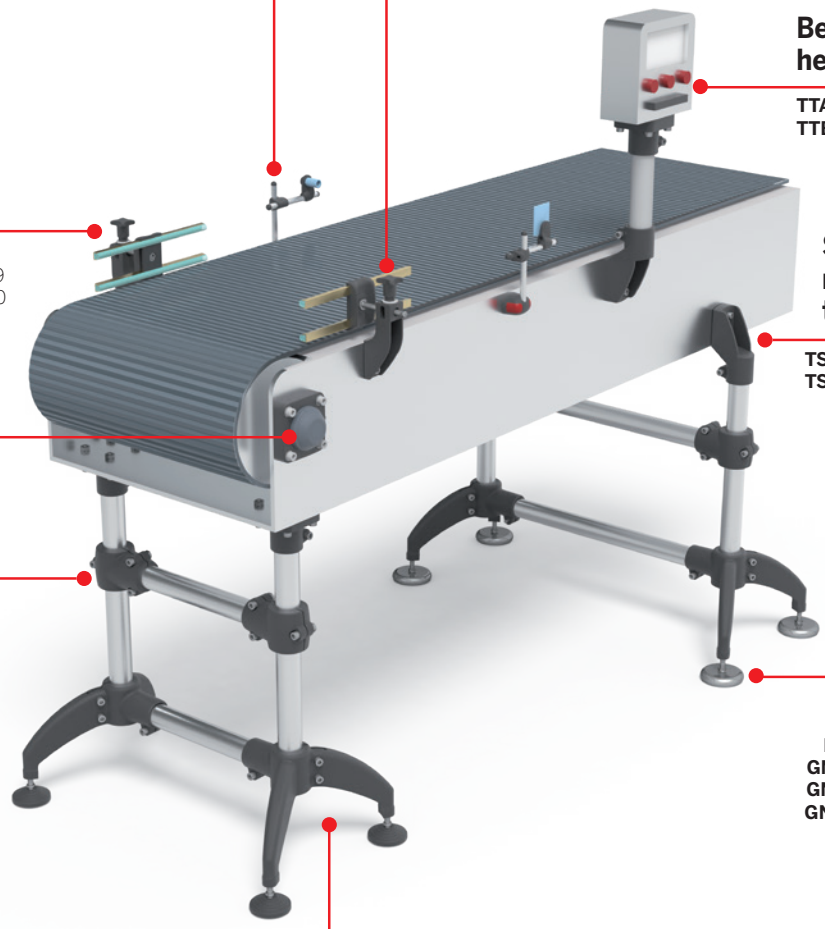


STAINLESS STEEL

Code	Description	Code	Description	B	s* Panel thickness	s1** Panel thickness	C# [Nm]	⚖
49354-C9	PPR-4-C9	49354-C33	PPR-4-C33	36	4	3/16	2.5	23
49355-C9	PPR-5-C9	49355-C33	PPR-5-C33	37	5	-	2.5	24
49356-C9	PPR-6-C9	49356-C33	PPR-6-C33	38	6	1/4	2.5	25
49363-C9	PPR-A-3-C9	49363-C33	PPR-A-3-C33	36	2.5÷3.4	2.9÷3.9	2.5	23
49364-C9	PPR-A-4-C9	49364-C33	PPR-A-4-C33	37	3.5÷4.4	4.0÷4.6	2.5	24
49365-C9	PPR-A-5-C9	49365-C33	PPR-A-5-C33	38	4.5÷5.4	4.7÷5.9	2.5	25
49375-C9	PPR-R-5-C9	49375-C33	PPR-R-5-C33	37	5	-	2.5	25
49376-C9	PPR-R-6-C9	49376-C33	PPR-R-6-C33	38	6	-	2.5	26

Maximum tightening torque for the screw. **s*** For square profiles of 25 mm **s1**** For square profiles of 1"

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Connecting clamps

MSX see page 1906
MSR see page 1908
GN 475 see page 1882
GN 479 see page 1895
GN 480.1 see page 1904

Guide rail brackets

SPR.V see page 1351
SPR. see page 1352
SPF. see page 1353

Bearing heads

TTA. see page 1355
TTB. see page 1355

Guide rail clamps

MPG see page 1348
MPG-2 see page 1349
MPG-S see page 1350

Side mounting top brackets

TSLA. see page 1354
TSLB. see page 1354

Self-aligning brackets

UCF see page 1356
UCFB see page1357
UCFL see page 1358
UCP see page 1359

Connection joints

GC. see page 1347

Levelling elements

LS.A see page 1174
LV.A see page 1192
LV.F see page 1206
GN 21 see page 1250
GN 31 see page 1234
GN 40 see page 1274

Support bases

BAG2-120 see page 1343
BAG2-180 see page 1344
BAS2 see page 1345
BAS3 see page 1346

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BAG2-120

Bipod supports

Technopolymer

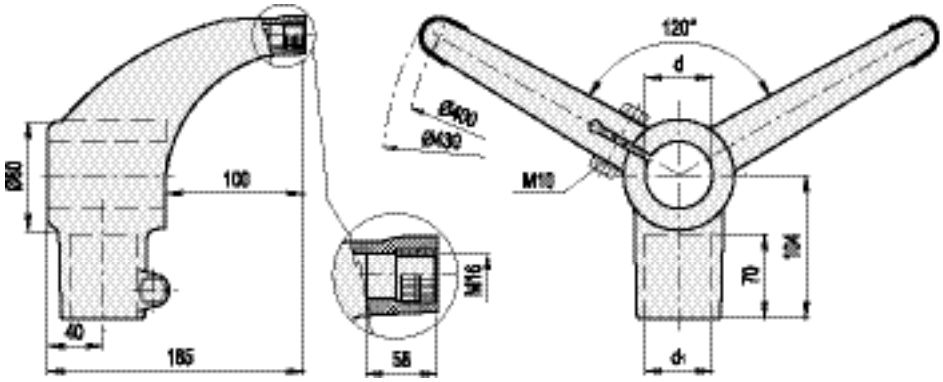
MATERIAL
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

STANDARD EXECUTIONS
- **BAG2-120-A**: zinc-plated steel M10 screws, nuts and washers.
- **BAG2-120-SST**: AISI 304 stainless steel M10 screws, nuts and washers.

ASSEMBLY ON LEVELLING ELEMENTS
The bipod support bases are supplied with brass bosses, threaded pass-through hole for the assembly of the stem of the levelling element series LS.A, LV.A, LV.F.

FEATURES AND APPLICATIONS
The absence of cavities and the slightly round shapes offer modern and elegant aesthetics and guarantee the easy cleaning.





BAG2-120-A

Code	Description	d Tube	d Tube (BSP/GAS)	d1	d1 Tube (BSP/GAS)	⚖
419620	BAG2-120-42-42-A	42.4	1"1/4	42.4	1"1/4	740
419618	BAG2-120-48-42-A	48.3	1"1/2	42.4	1"1/4	730
419616	BAG2-120-48-48-A	48.3	1"1/2	48.3	1"1/2	720
419614	BAG2-120-60-42-A	60.3	2"	42.4	1"1/4	710
419612	BAG2-120-60-48-A	60.3	2"	48.3	1"1/2	700

BAG2-120-SST **STAINLESS STEEL**

Code	Description
419621	BAG2-120-42-42-SST
419619	BAG2-120-48-42-SST
419617	BAG2-120-48-48-SST
419615	BAG2-120-60-42-SST
419613	BAG2-120-60-48-SST

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BAG2-180

Bipod supports

Technopolymer

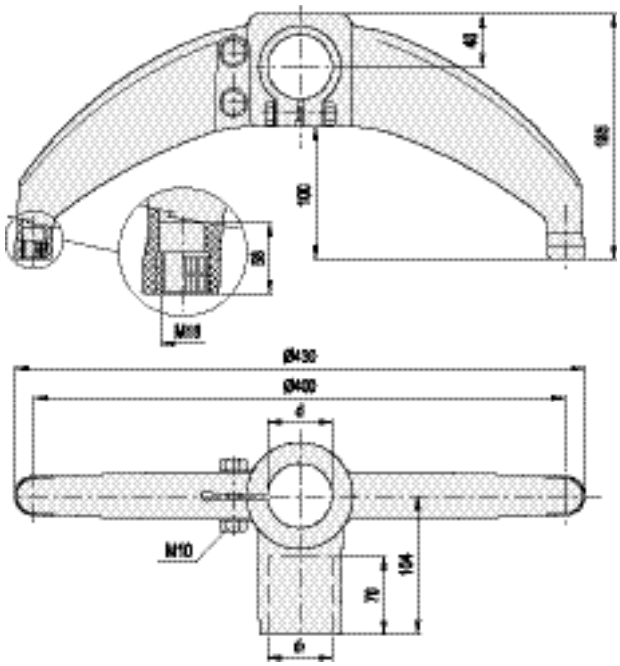
MATERIAL
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

STANDARD EXECUTIONS
- **BAG2-180-A**: zinc-plated steel M10 screws, nuts and washers.
- **BAG2-180-SST**: AISI 304 stainless steel M10 screws, nuts and washers.

ASSEMBLY ON LEVELLING ELEMENTS
The bipod support bases are supplied with brass bosses, threaded pass-through hole for the assembly of the stem of the levelling element series LS.A, LV.A, LV.F.

FEATURES AND APPLICATIONS
The absence of cavities and the slightly round shapes offer modern and elegant aesthetics and guarantee the easy cleaning.





BAG2-180-A

Code	Description	d Tube	d Tube (BSP/GAS)	d1	d1 Tube (BSP/GAS)	⚖
419630	BAG2-180-42-42-A	42.4	1"1/4	42.4	1"1/4	720
419628	BAG2-180-48-42-A	48.3	1"1/2	42.4	1"1/4	710
419626	BAG2-180-48-48-A	48.3	1"1/2	48.3	1"1/2	700
419624	BAG2-180-60-42-A	60.3	2"	42.4	1"1/4	690
419622	BAG2-180-60-48-A	60.3	2"	48.3	1"1/2	680

BAG2-180-SST **STAINLESS STEEL**

Code	Description
419631	BAG2-180-42-42-SST
419629	BAG2-180-48-42-SST
419627	BAG2-180-48-48-SST
419625	BAG2-180-60-42-SST
419623	BAG2-180-60-48-SST

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Bipod supports

Technopolymer

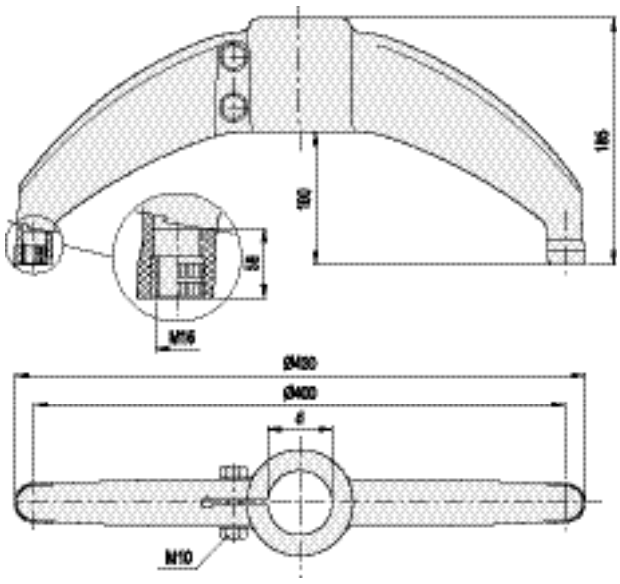
MATERIAL
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

STANDARD EXECUTIONS
- **BAS2-A**: zinc-plated steel M10 screws, nuts and washers.
- **BAS2-SST**: AISI 304 stainless steel M10 screws, nuts and washers.

ASSEMBLY ON LEVELLING ELEMENTS
The bipod support bases are supplied with brass bosses, threaded pass-through hole for the assembly of the stem of the levelling element series LS.A, LV.A, LV.F.

FEATURES AND APPLICATIONS
The absence of cavities and the slightly round shapes offer modern and elegant aesthetics and guarantee the easy cleaning.





BAS2-A

Code	Description	d Tube	d Tube (BSP/GAS)	⚖
419636	BAS2-42-A	42.4	1"1/4	680
419634	BAS2-48-A	48.3	1"1/2	670
419632	BAS2-60-A	60.3	2"	650

BAS2-SST **STAINLESS STEEL**

Code	Description
419637	BAS2-42-SST
419635	BAS2-48-SST
419633	BAS2-60-SST

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Tripod supports

Technopolymer

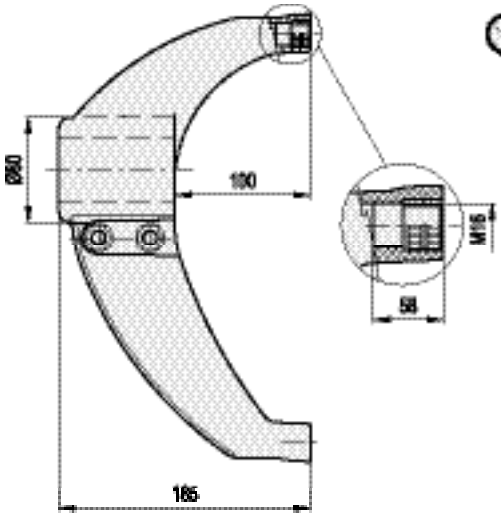
MATERIAL
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

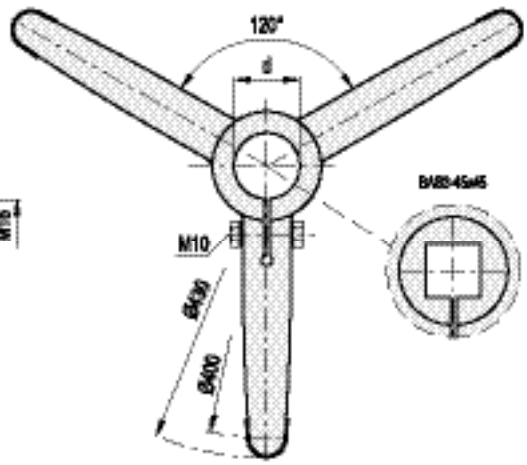
STANDARD EXECUTIONS
- **BAS3-A**: zinc-plated steel M10 screws, nuts and washers.
- **BAS3-SST**: AISI 304 stainless steel M10 screws, nuts and washers

ASSEMBLY ON LEVELLING ELEMENTS
The three bearings of the base are supplied with brass bosses, threaded pass-through hole for the assembly of the stem of the levelling element series LS.A, LV.A, LV.F.

FEATURES AND APPLICATIONS
The absence of cavities and the slightly round shapes offer modern and elegant aesthetics and guarantee the easy cleaning.







BAS3-A

Code	Description	d Tube	d Tube (BSP/GAS)	d Tube (inch)	⚖
419592	BAS3-42-A	42.4	1"1/4	-	800
419590	BAS3-48-A	48.3	1"1/2	-	790
419594	BAS3-50-A	50.8	-	2"	780
419588	BAS3-60-A	60.3	2"	-	770
419752	BAS3-45x45-A	45	-	-	795

BAS3-SST **STAINLESS STEEL**

Code	Description
419593	BAS3-42-SST
419591	BAS3-48-SST
419595	BAS3-50-SST
419589	BAS3-60-SST
419753	BAS3-45x45-SST

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Connection joints

Technopolymer

MATERIAL

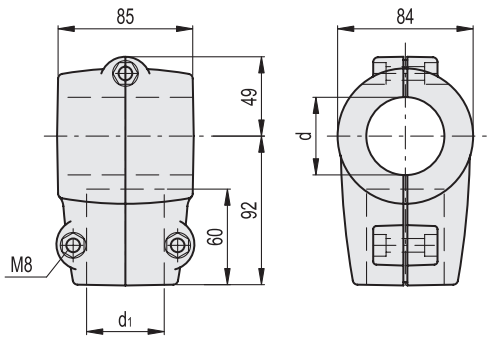
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

STANDARD EXECUTIONS

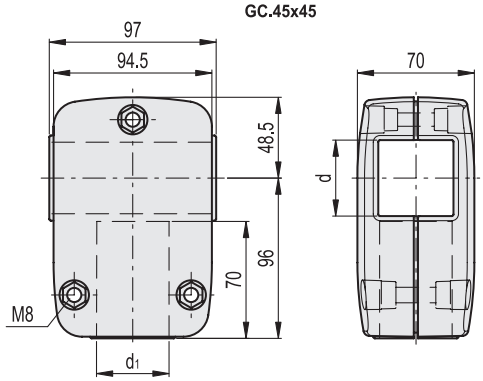
- **GC-A**: zinc-plated steel M8 cylindrical-head screws with hexagon socket and nuts.
- **GC-SST**: AISI 304 stainless steel M8 cylindrical-head screws with hexagon socket and nuts.



GC.



GC.45x45



GC.

Code	Description	d Tube	d Tube (BSP/GAS)	d1	d1 Tube (BSP/GAS)	⚖
419646	GC.42-42-A	42.4	1"1/4	42.4	1"1/4	410
419644	GC.48-42-A	48.3	1"1/2	42.4	1"1/4	400
419642	GC.48-48-A	48.3	1"1/2	48.3	1"1/2	390
419640	GC.60-42-A	60.3	2"	42.4	1"1/4	380
419638	GC.60-48-A	60.3	2"	48.3	1"1/2	370
419661	GC.45x45-A	45x45	-	45x45	-	387

GC-SST **STAINLESS STEEL**

Code	Description	d Tube	d Tube (BSP/GAS)	d1	d1 Tube (BSP/GAS)	⚖
419647	GC.42-42-SST	42.4	1"1/4	42.4	1"1/4	410
419645	GC.48-42-SST	48.3	1"1/2	42.4	1"1/4	400
419643	GC.48-48-SST	48.3	1"1/2	48.3	1"1/2	390
419641	GC.60-42-SST	60.3	2"	42.4	1"1/4	380
419639	GC.60-48-SST	60.3	2"	48.3	1"1/2	370
419662	GC.45x45-SST	45x45	-	45x45	-	387

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Guide rail clamps

Technopolymer

MATERIAL

Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

STANDARD EXECUTIONS

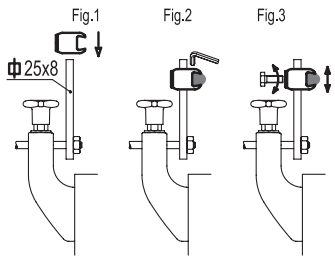
AISI 304 stainless steel cylindrical head screws with hexagon socket, nickel-plated brass nuts.

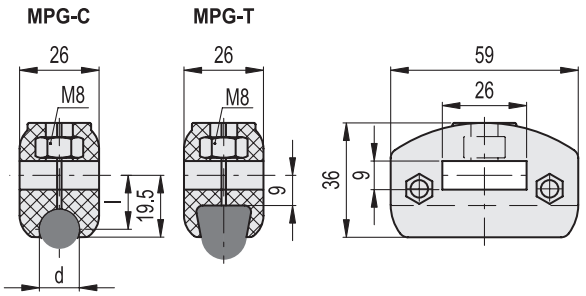
- **MPG-C**: for round guide.
- **MPG-T**: for both the standard trapezoidal guides.
- **MPG-R**: for rectangular guide.

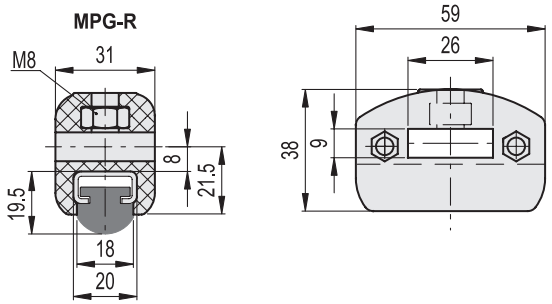
ASSEMBLY INSTRUCTIONS

- Mount the guide rail clamp on the support bar (dimension 25x8 mm), the assembly consists in inserting the bar into the specific clamp slot (Fig.1).
- Insert the guide into the clamp housing and then clamp the screws (Fig.2).
- Set the height of the clamp and clamp by means of a M8 screw, not supplied (Fig.3).









STAINLESS STEEL

Code	Description	d	l	⚖
419749	MPG-C-8	8	16	44
419788	MPG-C-10	10	15	45
419687	MPG-C-12	12	15	46
419787	MPG-C-14	14	15	47
419688	MPG-T	-	-	46
419698	MPG-R	-	-	50

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Guide rail clamps

Technopolymer and stainless steel



MATERIAL

Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

STANDARD EXECUTIONS

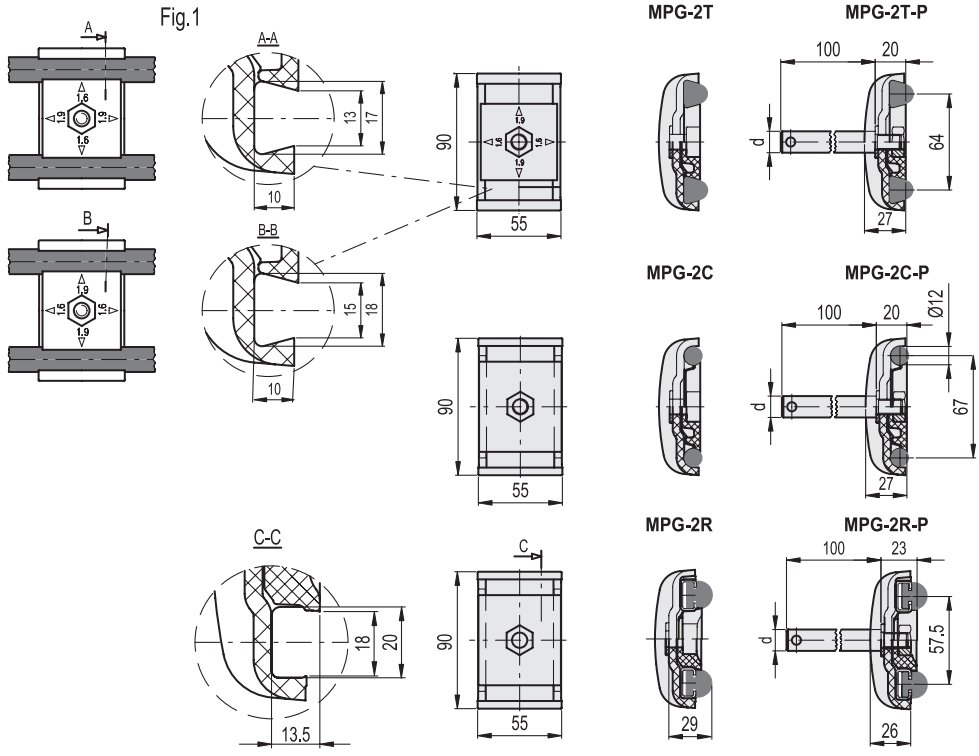
AISI 304 stainless steel washers.

- **MPG-2C**: housings for round guides, without pin.
- **MPG-2C-P**: housings for round guides, with AISI 304 stainless steel pin and clamping nut.
- **MPG-2T**: housings for standard trapezoidal guides, without pin.
- **MPG-2T-P**: housings for standard trapezoidal guides, with AISI 304 stainless steel pin and clamping nut.
- **MPG-2R**: housings for rectangular guides, without pin.
- **MPG-2R-P**: housings for rectangular guides, with AISI 304 stainless steel pin and clamping nut.

ASSEMBLY INSTRUCTIONS

- Insert the guides into their housings in the rear part of the clamp.
- Couple the front part of the clamp to the rear part. Only for the trapezoidal guide the rear part must be coupled according to the trapezoidal guide dimensions (Fig.1).
- Insert the nut into the housing in the front part of the clamp.
- Screw the nut to clamp.

Fig.1



MPG-2C
MPG-2C-P — **STAINLESS STEEL**

Code	Description	d	⚖
419609	MPG-2C	-	68
419681	MPG-2C-P12	12	205
419682	MPG-2C-P14	14	204
419683	MPG-2C-P16	16	203

MPG-2T
MPG-2T-P — **STAINLESS STEEL**

Code	Description	d	⚖
419611	MPG-2T	-	67
419684	MPG-2T-P12	12	204
419685	MPG-2T-P14	14	203
419686	MPG-2T-P16	16	202

MPG-2R
MPG-2R-P — **STAINLESS STEEL**

Code	Description	d	⚖
419610	MPG-2R	-	72
419694	MPG-2R-P12	12	212
419695	MPG-2R-P14	14	210
419696	MPG-2R-P16	16	208

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Guide rail clamps

Technopolymer and stainless steel

MATERIAL

Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

STANDARD EXECUTIONS

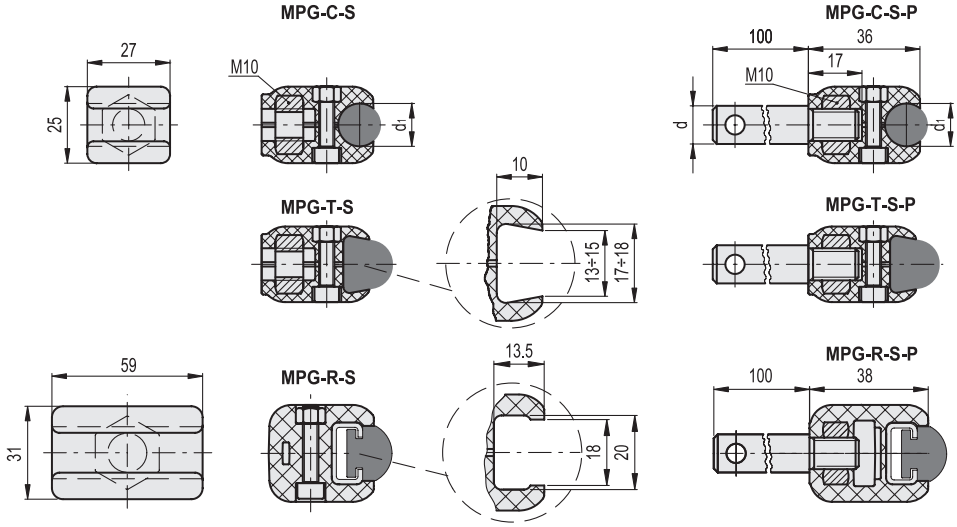
AISI 304 stainless steel screws and nuts.

- **MPG-C-S**: housings for round guides, without pin.
- **MPG-C-S-P**: housings for round guides with AISI 304 stainless steel pin.
- **MPG-T-S**: housings for standard trapezoidal guides, without pin.
- **MPG-T-S-P**: housings for standard trapezoidal guides with AISI 304 stainless steel pin.
- **MPG-R-S**: housings for rectangular guides, without pin.
- **MPG-R-S-P**: housings for rectangular guides with AISI 304 stainless steel pin.



ASSEMBLY INSTRUCTIONS

- Insert the guide into the housing of the clamp.
- Fasten the clamp by means of the screw.
- For version P screw the pin.



MPG-C-S
MPG-T-S
MPG-R-S

STAINLESS STEEL

Code	Description	d1	⚖
419810	MPG-C-S-8	8	37
419811	MPG-C-S-10	10	36
419812	MPG-C-S-12	12	35
419813	MPG-C-S-14	14	34
419817	MPG-T-S	-	34
419827	MPG-R-S	-	47

MPG-C-S-P
MPG-T-S-P
MPG-R-S-P

STAINLESS STEEL

Code	Description	d	d1	⚖
419798	MPG-C-S-P12-8	12	8	128
419799	MPG-C-S-P12-10	12	10	127
419800	MPG-C-S-P12-12	12	12	126
419801	MPG-C-S-P12-14	12	14	125
419802	MPG-C-S-P14-8	14	8	162
419803	MPG-C-S-P14-10	14	10	161
419804	MPG-C-S-P14-12	14	12	160
419805	MPG-C-S-P14-14	14	14	159
419806	MPG-C-S-P16-8	16	8	198
419807	MPG-C-S-P16-10	16	10	197
419808	MPG-C-S-P16-12	16	12	196
419809	MPG-C-S-P16-14	16	14	195
419814	MPG-T-S-P12	12	-	125
419815	MPG-T-S-P14	14	-	158
419816	MPG-T-S-P16	16	-	195
419824	MPG-R-S-P12	12	-	201
419825	MPG-R-S-P14	14	-	235
419826	MPG-R-S-P16	16	-	262

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Guide rail brackets

for linear and angular positioning, technopolymer



BRACKET
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

GUIDE RAIL CYLINDER
Glass-fibre reinforced technopolymer. Black colour, matte finish.

STANDARD EXECUTIONS
Nickel-plated AISI 431 stainless steel eye screw.
Glass-fibre reinforced technopolymer clamping knob, black colour, matte finish, with nickel-plated brass hexagonal end for clamping by means of a key, threaded hole.
AISI 304 stainless steel screw, nut and washer for the fixing of guide rail cylinder to the bracket.
- **SPR.V-A**: with lower lip.
- **SPR.V-B**: without lower lip.

FEATURES AND APPLICATIONS
Particularly suitable when the angular and linear positioning needs to be executed in two different moments, for example when the distance between the guides has to be set more frequently than the angulation.

ACCESSORIES ON REQUEST
Spacer for guide rail bracket DSG-A (code 419676) or DSG-B (code 419677) in glass-fibre reinforced technopolymer, black colour, matte finish.

SPECIAL EXECUTIONS ON REQUEST
AISI 304 stainless steel guide rail cylinder.

ASSEMBLY INSTRUCTIONS
- Fit the guide rail bracket (Fig. 1).
- Assemble the guide rail cylinder to the support, with screw, nut and washer (Fig. 2).
- Insert the washer on the eye screw and assemble the knob (Fig. 3).
- Insert the eye in the guide rail cylinder housing (Fig. 4).
- Insert the guide pin in the guide rail cylinder hole. Set its linear and angular position and then clamp the knob (linear positioning) and the fixing nut of guide rail cylinder (angular positioning) (Fig. 5).

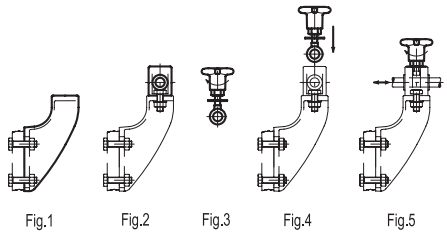
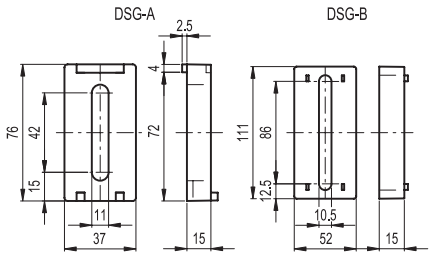
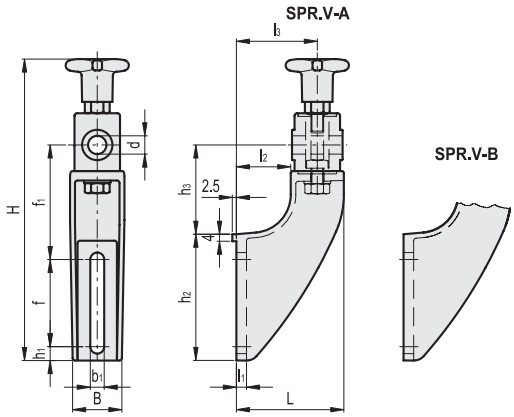


Fig.1 Fig.2 Fig.3 Fig.4 Fig.5





SPR.V-A **STAINLESS STEEL**

Code	Description	H	L	B	f	f1	b1	h1	h2	h3	l1	l2	l3	Guide assembly hole d	⚖
419755	SPR.V-12-A	203	70	37	42	79	11	15	76	60	8	30	50	12	255
419756	SPR.V-14-A	203	70	37	42	79	11	15	76	60	8	30	50	14	250
419757	SPR.V-16-A	203	70	37	42	79	11	15	76	60	8	30	50	16	245

SPR.V-B **STAINLESS STEEL**

Code	Description	H	L	B	f	f1	b1	h1	h2	h3	l1	l2	l3	Guide assembly hole d	⚖
419658	SPR.V-12-B	238	85	41	69	90	11	11	100	70	8	43	64	12	270
419659	SPR.V-14-B	238	85	41	69	90	11	11	100	70	8	43	64	14	265
419660	SPR.V-16-B	238	85	41	69	90	11	11	100	70	8	43	64	16	260

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Guide rail brackets

for linear and angular positioning, technopolymer



BRACKET
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

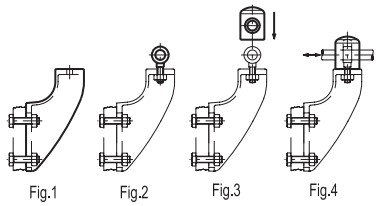
GUIDE RAIL CYLINDER
Glass-fibre reinforced technopolymer. Black colour, matte finish.

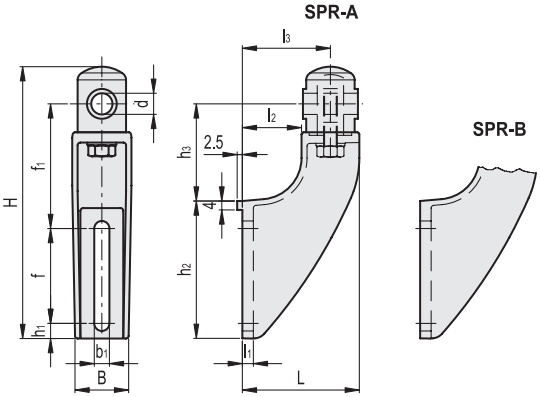
STANDARD EXECUTION
Nickel-plated AISI 431 stainless steel eye screw, AISI 304 stainless steel nut and washer.
- **SPR-A**: with lower lip.
- **SPR-B**: without lower lip.

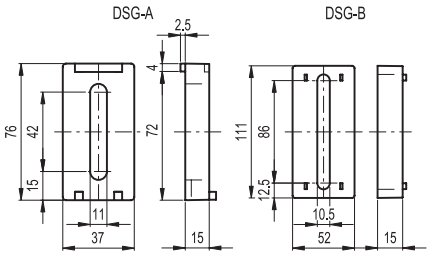
FEATURES AND APPLICATIONS
Particularly suitable when linear and angular positioning of the guide rail is required.

ACCESSORIES ON REQUEST
Spacer for guide rail bracket DSG-A (code 419676) or DSG-B (code 419677) in glass-fibre reinforced technopolymer, black colour, matte finish.

ASSEMBLY INSTRUCTIONS
- Fit the guide rail bracket (Fig. 1).
- Insert the eye screw in the guide rail support hole and screw the relevant nut and washer (Fig. 2).
- Assemble the guide rail cylinder on the eye (Fig. 3).
- Insert the guide pin in the guide rail cylinder hole. Set its linear and angular position and then fasten the nut (Fig. 4).







SPR-A — **STAINLESS STEEL**

Code	Description	H	L	B	f	f1	b1	h1	h2	h3	l1	l2	l3	Guide assembly hole d	⚖
419760	SPR.12-A	158	70	37	42	79	11	15	76	60	8	30	50	12	176
419761	SPR.14-A	158	70	37	42	79	11	15	76	60	8	30	50	14	175
419762	SPR.16-A	158	70	37	42	79	11	15	76	60	8	30	50	16	174

SPR-B — **STAINLESS STEEL**

Code	Description	H	L	B	f	f1	b1	h1	h2	h3	l1	l2	l3	Guide assembly hole d	⚖
419664	SPR.12-B	193	85	41	69	90	11	11	100	70	8	43	64	12	196
419665	SPR.14-B	193	85	41	69	90	11	11	100	70	8	43	64	14	195
419666	SPR.16-B	193	85	41	69	90	11	11	100	70	8	43	64	16	194

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Guide rail brackets

for linear positioning, technopolymer

BRACKET
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

STANDARD EXECUTIONS
Nickel-plated AISI 431 stainless steel eye screw and AISI 304 stainless steel washer.
- **SPF.V**: with glass-fibre reinforced technopolymer clamping knob, black colour, matte finish, nickel-plated brass hexagonal end for clamping by means of a key, threaded hole.
- **SPF.D**: without knob, with AISI 304 stainless steel clamping nut.

FEATURES AND APPLICATIONS
Particularly suitable when a linear positioning of the guide rail is required.
The vertical or horizontal positioning of the eye screw improves the assembly where necessary.

ACCESSORIES ON REQUEST
Spacer for guide rail bracket DSG-A (code 419676), in glass-fibre reinforced technopolymer, black colour, matte finish.

ASSEMBLY INSTRUCTIONS
- Fit the guide rail bracket (Fig. 1).
- Insert the washer into the eye screw and screw either the knob or the nut (Fig. 2).
- Insert the eye in its housing either in the horizontal or vertical position (Fig. 3).
- Insert the guide pin in its clamping hole, set the linear positioning and then fasten (Fig. 4).



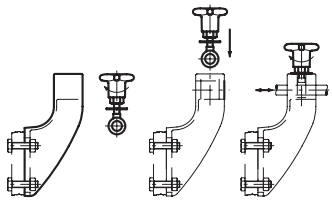
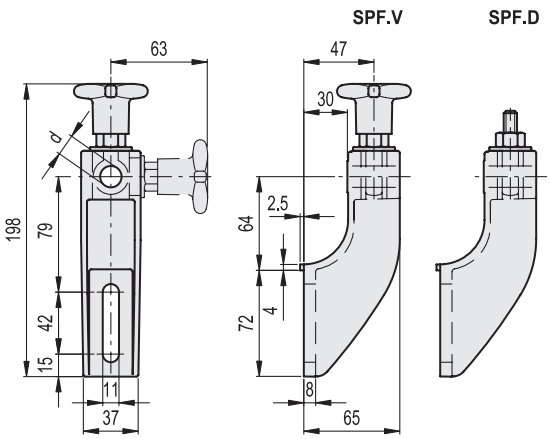
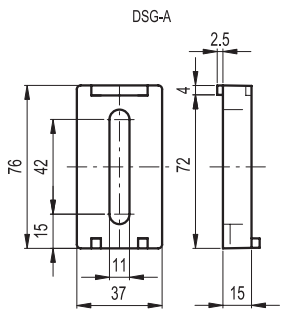


Fig.1 Fig.2 Fig.3 Fig.4





SPF.V **STAINLESS STEEL**

Code	Description	Guide assembly hole d	⚖
419652	SPF.V-12	12	195
419654	SPF.V-14	14	190
419656	SPF.V-16	16	185

SPF.D **STAINLESS STEEL**

Code	Description	Guide assembly hole d	⚖
419653	SPF.D-12	12	175
419655	SPF.D-14	14	170
419657	SPF.D-16	16	165

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TSLA.

INOX STAINLESS STEEL · RoHS · PA · +100° -30°

Side mounting top brackets

Technopolymer

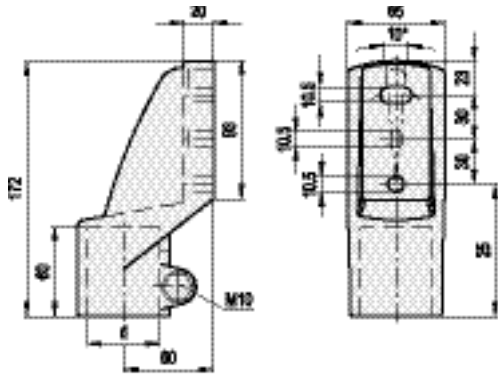
MATERIAL

Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

STANDARD EXECUTIONS

- **TSLA-A**: zinc-plated steel M10 screw, nut and washer.
- **TSLA-SST**: AISI 304 stainless steel M10 screw, nut and washer.





TSLA-A

Code	Description	d Tube	d Tube (BSP/GAS)	⚖
419648	TSLA-48-A	48.3	1"1/2	320

TSLA-SST — STAINLESS STEEL

Code	Description	d Tube	d Tube (BSP/GAS)	⚖
419649	TSLA-48-SST	48.3	1"1/2	320

TSLB.

INOX STAINLESS STEEL · RoHS · PA · +100° -30°

Side mounting top brackets

Technopolymer

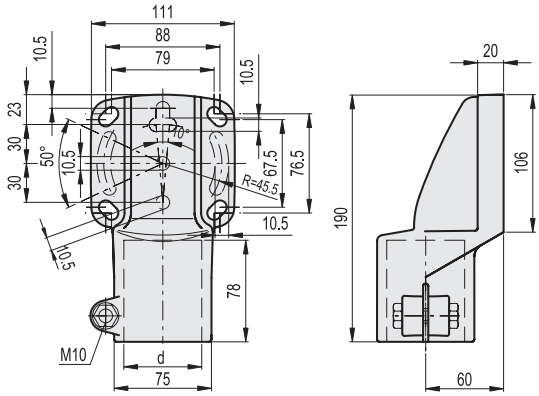
MATERIAL

Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

STANDARD EXECUTIONS

- **TSLB-A**: zinc-plated steel M10 screw, nut and washer.
- **TSLB-SST**: AISI 304 stainless steel M10 screw, nut and washer.





TSLB-A

Code	Description	d Tube	d Tube (BSP/GAS)	⚖
419794	TSLB-42-A	42.4	1"1/4	435
419792	TSLB-48-A	48.3	1"1/2	430
419790	TSLB-60-A	60.3	2"	425
419796	TSLB-45x45-A	45	-	430

TSLB-SST — STAINLESS STEEL

Code	Description	d Tube	d Tube (BSP/GAS)	⚖
419795	TSLB-42-SST	42.4	1"1/4	435
419793	TSLB-48-SST	48.3	1"1/2	430
419791	TSLB-60-SST	60.3	2"	425
419797	TSLB-45x45-SST	45	-	430

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TTA.

Support bases

Technopolymer

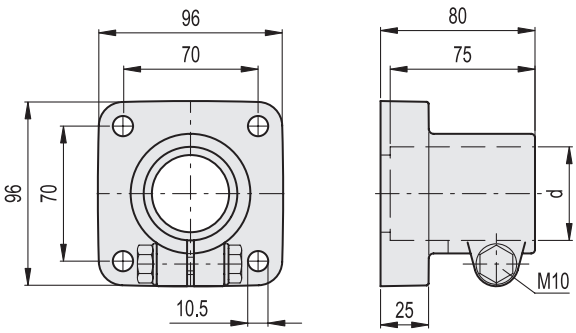
MATERIAL

Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

STANDARD EXECUTIONS

- **TTA-A**: zinc-plated steel M10 screw, nut and washer.
- **TTA-SST**: AISI 304 stainless steel M10 screw, nut and washer.





TTA-A

Code	Description	d Tube	d Tube (BSP/GAS)	⚖
419650	TTA.48-A	48.3	1"1/2	260

TTA-SST STAINLESS STEEL

Code	Description	d Tube	d Tube (BSP/GAS)	⚖
419651	TTA.48-SST	48.3	1"1/2	260

TTB.

Support bases

Technopolymer

MATERIAL

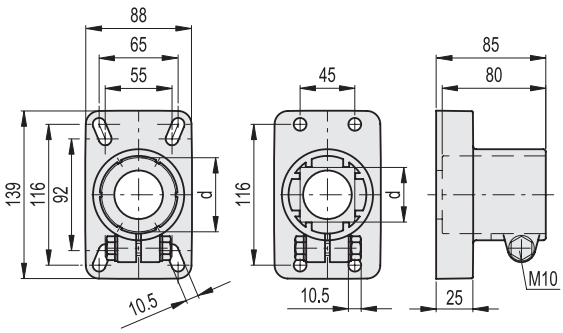
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

STANDARD EXECUTIONS

- **TTB-A**: zinc-plated steel M10 screw, nut and washer.
- **TTB-SST**: AISI 304 stainless steel M10 screw, nut and washer.



TTB. TTB.45x45



TTB-A

Code	Description	d Tube	d Tube (BSP/GAS)	d Tube (inch)	⚖
419768	TTB.42-A	42.4	1"1/4	-	345
419766	TTB.48-A	48.3	1"1/2	-	340
419772	TTB.50-A	50.8	-	2"	337
419764	TTB.60-A	60.3	2"	-	335
419770	TTB.45x45-A	45	-	-	340

TTB-SST STAINLESS STEEL

419769	TTB.42-SST	42.4	1"1/4	-	345
419767	TTB.48-SST	48.3	1"1/2	-	340
419773	TTB.50-SST	50.8	-	2"	337
419765	TTB.60-SST	60.3	2"	-	335
419771	TTB.45x45-SST	45	-	-	340

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RoHS PA PP +60° -20°

Self-aligning brackets

square flanged, technopolymer



BRACKET
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

BUSHINGS AND WASHERS
AISI 304 stainless steel.

BEARING
High quality with traceability codes. Chrome steel.

LUBRICATOR
Nickel-plated brass.

PACKING RINGS
NBR rubber.

COVER
Glass-fibre reinforced polypropylene based (PP) technopolymer, RAL 7015 grey colour, matte finish.
Closed cap for head bracket or for pass-through shafts.

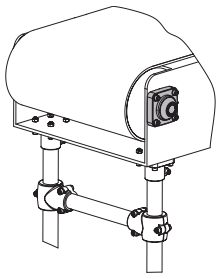
STANDARD EXECUTIONS
- **UCF-T**: head bracket with closed cover.
- **UCF-P**: bracket for pass-through shaft with drilled cover and NBR rubber packing ring for rotating shafts.

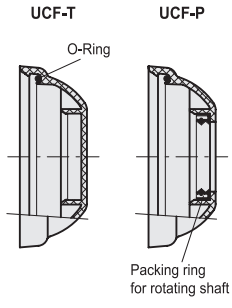
FEATURES AND APPLICATIONS
Overall dimensions are in compliance with ISO 3228.
A system of completely sealed packing rings assures the protection of the bearing from dirt ingress.
Max shaft misalignment = 2,5°.

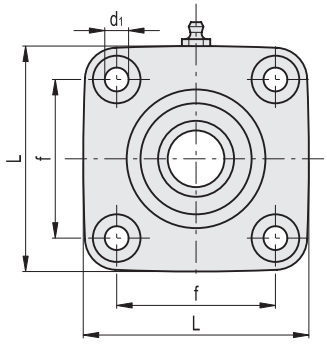
INSTRUCTIONS OF USE
Assembly with shafts without end stops. For optimum operation, we recommend periodic lubrication with a common grease resistant to high temperatures and oxidation.

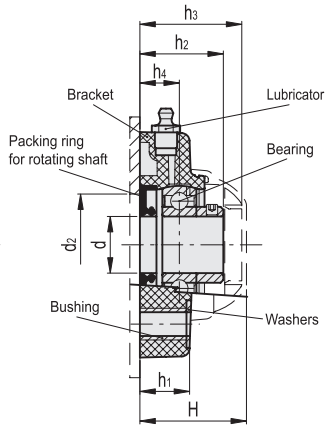
SPECIAL EXECUTIONS ON REQUEST
- AISI 440C stainless steel bearing.
- Bearing in inch sizes.
- Brackets for shafts with diameters in different sizes.
- Brackets in polypropylene based (PP) technopolymer, packing rings and oil seal type VITON®*.

*** Registered trademark by DuPont Dow Elastomers.**









Code	Description	d	d1	d2 min	d2 max	H	L	f	h1	h2	h3	h4	Bearing static load [N]	Bearing dynamic load [N]	Bracket load [N]	⚖
419551	UCF.205-A-25-T	25	10.5	45	50	49	99	70	22	36	47	17	7000	14000	17000	445
419561	UCF.206-A-30-T	30	10.5	50	60	56	113	83	26	41	54	20	11000	19000	17000	511
419531	UCF.205-A-25-P	25	10.5	45	50	49	99	70	22	36	-	17	7000	14000	17000	452
419541	UCF.206-A-30-P	30	10.5	50	60	56	113	83	26	41	-	20	11000	19000	17000	518

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Self-aligning brackets

side flanged, technopolymer



BRACKET
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

BUSHINGS AND WASHERS
AISI 304 stainless steel.

BEARING
High quality with traceability codes. Chrome steel.

LUBRICATOR
Nickel-plated brass.

PACKING RINGS
NBR rubber.

COVER
Glass-fibre reinforced polypropylene based (PP) technopolymer, RAL 7015 grey colour, matte finish.
Closed cap for head bracket or for pass-through shafts.

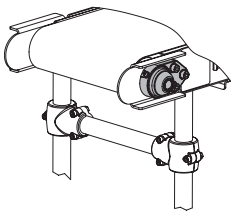
STANDARD EXECUTIONS
- **UCFB-T**: head bracket with closed cover.
- **UCFB-P**: bracket for pass-through shaft with drilled cover and NBR rubber packing ring for rotating shafts.

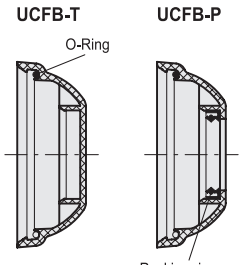
FEATURES AND APPLICATIONS
Overall dimensions are in compliance with ISO 3228.
A system of completely sealed packing rings assures the protection of the bearing from dirt ingress.
Max shaft misalignment = 2,5°.

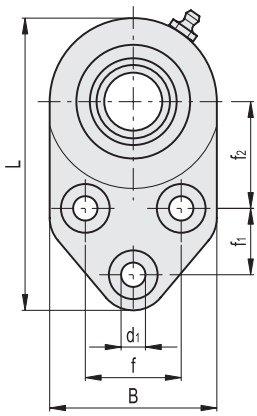
INSTRUCTIONS OF USE
Assembly with shafts without end stops. For optimum operation, we recommend periodic lubrication with a common grease resistant to high temperatures and oxidation.

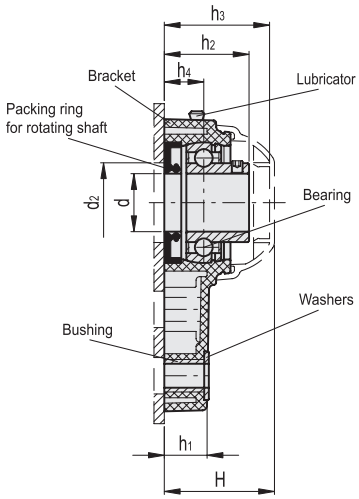
SPECIAL EXECUTIONS ON REQUEST
- AISI 440C stainless steel bearing.
- Bearing in inch sizes.
- Brackets for shafts with diameters in different sizes.
- Brackets in polypropylene based (PP) technopolymer, packing rings and oil seal type VITON®*.

*** Registered trademark by DuPont Dow Elastomers.**









Code	Description	d	d1	d2 min	d2 max	H	L	B	f	f1	f2	h1	h2	h3	h4	Bearing static load [N]	Bearing dynamic load [N]	Bracket load [N]	⚖
419554	UCFB.205-D-25-T	25	10.5	45	50	49.5	126	72	41.3	28.6	46	19	36.5	47	17	7000	14000	9000	353
419564	UCFB.206-D-30-T	30	10.5	50	60	55.7	142	85	47.6	32	52.4	26.3	41.7	53.2	20.7	11000	19000	11000	469
419534	UCFB.205-D-25-P	25	10.5	45	50	49.5	126	72	41.3	28.6	46	19	36.5	-	17	7000	14000	9000	359
419544	UCFB.206-D-30-P	30	10.5	50	60	55.7	142	85	47.6	32	52.4	26.3	41.7	-	20.7	11000	19000	11000	476

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RoHS PA PP +60° -20°

Self-aligning brackets

oval flanged, technopolymer



BRACKET
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

BUSHINGS AND WASHERS
AISI 304 stainless steel.

BEARING
High quality with traceability codes. Chrome steel.

LUBRICATOR
Nickel-plated brass.

PACKING RINGS
NBR rubber

COVER
Glass-fibre reinforced polypropylene based (PP) technopolymer, RAL 7015 grey colour, matte finish.
Closed cap for head bracket or for pass-through shafts.

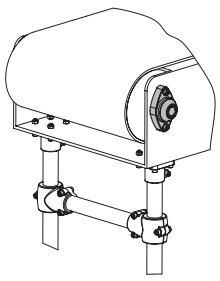
STANDARD EXECUTION
- **UCFL-T**: head bracket with closed cover.
- **UCFL-P**: bracket for pass-through shaft with drilled cover and NBR rubber packing ring for rotating shafts.

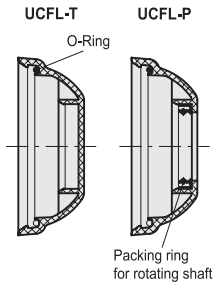
FEATURES AND APPLICATIONS
Overall dimensions are in compliance with ISO 3228.
A system of completely sealed packing rings assures the protection of the bearing from dirt ingress.
Max shaft misalignment = 2,5°.

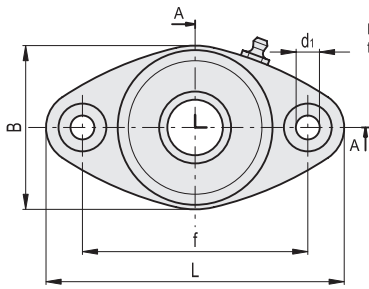
INSTRUCTIONS OF USE
Assembly with shafts without end stops. For optimum operation, we recommend periodic lubrication with a common grease resistant to high temperatures and oxidation.

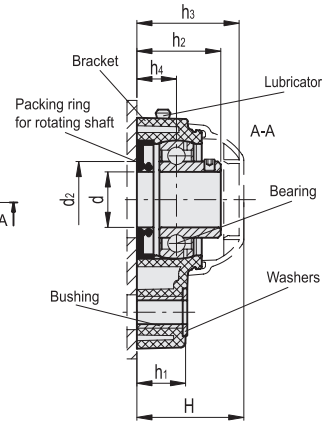
SPECIAL EXECUTIONS ON REQUEST
- AISI 440C stainless steel bearing.
- Bearing in inch sizes.
- Brackets for shafts with diameters in different sizes.
- Brackets in polypropylene based (PP) technopolymer, packing rings and oil seal type VITON®*.

*** Registered trademark by DuPont Dow Elastomers.**









Code	Description	d	d1	d2 min	d2 max	H	L	B	f	h1	h2	h3	h4	Bearing static load [N]	Bearing dynamic load [N]	Bracket load [N]	⚖
419552	UCFL.205-B-25-T	25	10.5	45	50	49	131	72	99	22	36	47	17	7000	14000	10000	294
419562	UCFL.206-B-30-T	30	10.5	50	60	56	149	86	117	26	41	54	20	11000	19000	13000	397
419532	UCFL.205-B-25-P	25	10.5	45	50	49	131	72	99	22	36	-	17	7000	14000	10000	300
419542	UCFL.206-B-30-P	30	10.5	50	60	56	149	86	117	26	41	-	20	11000	19000	13000	404

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RoHS PA PP +60° -20°

Self-aligning brackets

for shafts at 90°, technopolymer



BRACKET
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

BUSHINGS, WASHERS AND STOP RING
AISI 304 stainless steel.

BEARING
High quality with traceability codes. Chrome steel.

LUBRICATOR
Nickel-plated brass.

PACKING RINGS
NBR rubber.

COVER
Glass-fibre reinforced polypropylene based (PP) technopolymer, RAL 7015 grey colour, matte finish.
Closed cap for head bracket or for pass-through shafts.

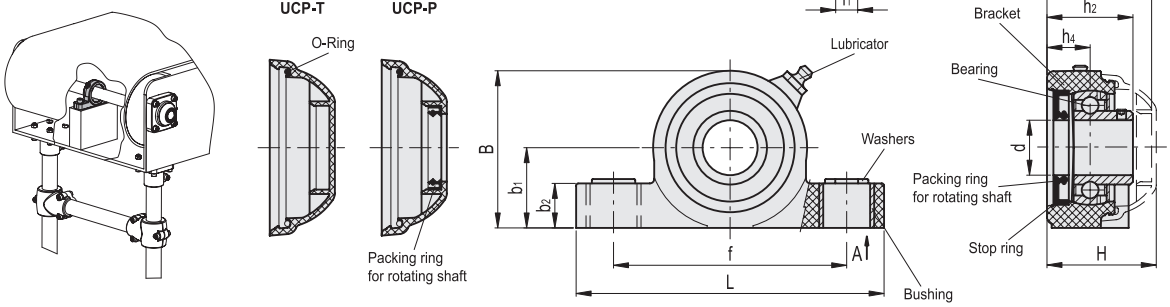
STANDARD EXECUTIONS
- **UCP-T**: head bracket with closed cover.
- **UCP-P**: bracket for pass-through shaft with drilled cover and NBR rubber packing ring for rotating shafts.

FEATURES AND APPLICATIONS
Overall dimensions are in compliance with ISO 3228.
A system of completely sealed packing rings assures the protection of the bearing from dirt ingress.
Max shaft misalignment = 2,5°.

INSTRUCTIONS OF USE
Assembly with shafts without end stops. For optimum operation, we recommend periodic lubrication with a common grease resistant to high temperatures and oxidation.

SPECIAL EXECUTIONS ON REQUEST
- AISI 440C stainless steel bearing.
- Bearing in inch sizes.
- Brackets for shafts with diameters in different sizes.
- Brackets in polypropylene based (PP) technopolymer, packing rings and oil seal type VITON®*.

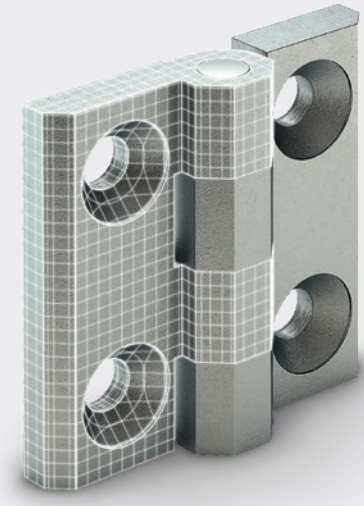
*** Registered trademark by DuPont Dow Elastomers.**



Code	Description	d	d1	f1	H	L	B	f	b1	b2	h1	h2	h3	h4	Bearing static load [N]	Bearing dynamic load [N]	Bracket load [N]	⚖
419553	UCP.205-C-25-T	25	13	10	51.7	140	71.5	106	36.5	20	35	39	49	19.6	7000	14000	6000	333
419563	UCP.206-C-30-T	30	13	10	55.7	163	84.5	121	43	20	36	41.7	53	20.7	11000	19000	9000	456
419533	UCP.205-C-25-P	25	13	10	51.7	140	71.5	106	36.5	20	35	39	-	19.6	7000	14000	6000	339
419543	UCP.206-C-30-P	30	13	10	55.7	163	84.5	121	43	20	36	41.7	-	20.7	11000	19000	9000	463

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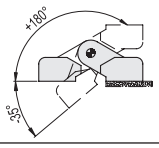
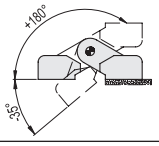
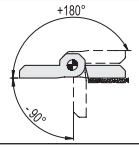
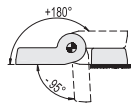
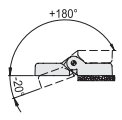
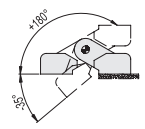
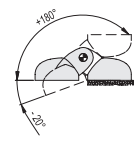
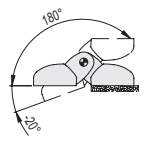
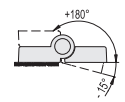
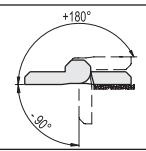
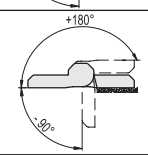
12 Hinges



Plastic hinges

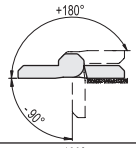
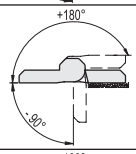
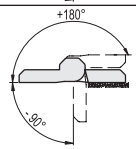
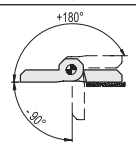
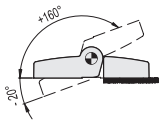
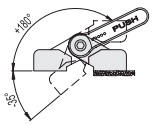
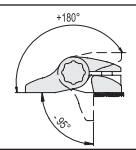
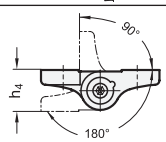
Metal hinges

Hinges

Series	Features	Rotation angle	Material
CFA. page 1370 	Assembly by means of bosses with threaded hole, pass-through holes for countersunk or cylindrical head screws, threaded studs.		Polyamide based (PA) technopolymer
CFAX. page 1374 	Technopolymer rotating pin. Assembly by means of bosses with threaded hole, pass-through holes for countersunk or cylindrical head screws.		Polyamide based (PA) technopolymer
CFM. page 1382 	Assembly by means of pass-through holes for countersunk or cylindrical head screws, slots for shortened cylindrical head screws, threaded studs.		Polyamide based (PA) SUPER-technopolymer
CFH. page 1385 	Assembly by means of pass-through holes for cylindrical head screws.		Polyamide based (PA) technopolymer.
CFL. page 1381 	Assembly by means of pass-through holes for cylindrical head screws.		Polyamide based (PA) technopolymer.
CFA-SL page 1373 	Hinges with slotted holes. Assembly by means of pass-through slotted holes for cylindrical head screws.		Polyamide based (PA) technopolymer.
CFT. page 1378 	Hinges with screw-covers. Assembly by means of pass-through holes for countersunk, cylindrical or hexagonal head screws.		Polyamide based (PA) technopolymer.
CFTX. page 1379 	Assembly by means of pass-through holes for countersunk, cylindrical or hexagonal head screws.		Polyamide based (PA) technopolymer.
CFQ. page 1380 	Hinges with screw-covers. Assembly by means of pass-through holes for countersunk, cylindrical or hexagonal head screws.		Acetal based (POM) technopolymer
GN 237 page 1386 	Assembly by means of pass-through holes for countersunk head screws, with threaded studs.		Zinc die casting
GN 237 page 1386 	Assembly by means of pass-through holes for countersunk head screws, with threaded studs.		Stainless Steel AISI CF-8 Stainless Steel A4

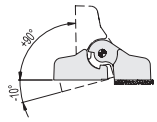
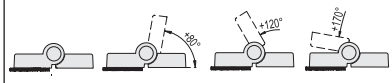
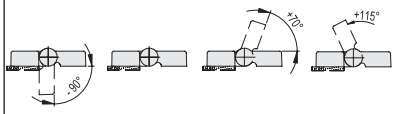
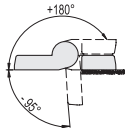
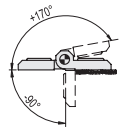
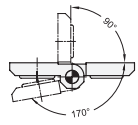
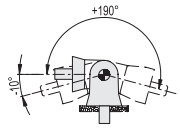
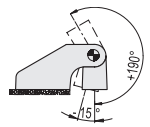
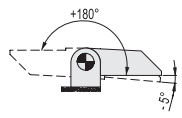
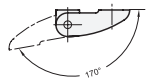
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Hinges

Series	Features	Rotation angle	Material
GN 237 page 1386 	Assembly by means of pass-through holes for countersunk head screws, with threaded studs.		Aluminium
GN 237 page 1388 	Extended hinge wings. Assembly by means of pass-through holes for countersunk head screws, with threaded studs.		Zinc die casting
GN 237 page 1388 	Extended hinge wings. Assembly by means of pass-through holes for countersunk head screws, with threaded studs.		Stainless Steel
CMM-AL page 1389 	Assembly by means of pass-through holes for countersunk head screws.		Anodised aluminium
GN 238 page 1390 	Adjustable hinges with screw-covers. Assembly by means of pass-through holes for countersunk head screws.		Zinc die casting
GN 2370 page 1392 	Spacer plates. Designed for hinges GN 237, GN 337, CFMY, CFM and GN 437 to ensure the appropriate height compensation during mounting.	-	Stainless Steel
GN 2372 page 1393 	Plates with tapped holes. Designed as accessories for hinges GN 237, GN 337, CFMY and CFM, eliminate the need of nuts and washers for mounting.	-	Stainless Steel
GN 2374 page 1393 	Rubber bumper stops. Designed as extras for hinges GN 237, GN 237.1, GN 337 and CFMY.	-	Perbunan® (NBR)
CFA-ERS page 1377 	Hinges with friction brake. Assembly by means of pass-through holes for countersunk head screws.		Polyamide based (PA) technopolymer.
CFU. page 1426 	Hinges with adjustable friction. Assembly by means of pass-through holes for cylindrical head screws.		Acetal based (POM) technopolymer
GN 437 page 1427 	Hinges with adjustable friction. Assembly by means of pass-through holes for countersunk head screws.		Zinc die casting

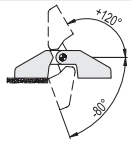
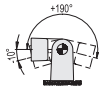
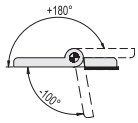
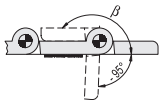
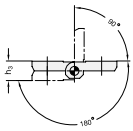
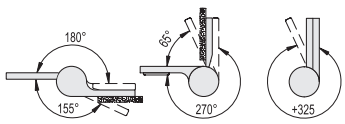
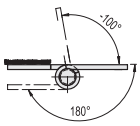
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Hinges

Series	Features	Rotation angle	Material
CFA-F page 1376 	Hinges with detent position at 90°. Assembly by means of bosses with threaded hole.		Polyamide based (PA) technopolymer.
CFP. page 1424 	Detent position hinges with screw-covers. Assembly by means of pass-through holes for countersunk, cylindrical or hexagonal head screws.		Acetal based (POM) technopolymer
CFV. page 1425 	Detent position hinges. Assembly by means of pass-through holes for countersunk or hexagonal head screws.		Polyamide based (PA) technopolymer.
CFJ. page 1394 	Tamperproof hinges. Assembly by means of bosses with threaded hole, pass-through holes for countersunk, cylindrical head screws, threaded studs.		Polyamide based (PA) technopolymer.
CFMR. page 1384 	Spring hinges for automatic return. Assembly by means of pass-through holes for cylindrical head screws.		Polyamide based (PA) SUPER-technopolymer
CFR. page 1396 	Hinge with adjusting inserts. Assembly by means of pass-through holes for countersunk head screws.		Polyamide based (PA) SUPER-technopolymer
GN 127 page 1397 	Hinges with adjusting inserts. Assembly by means of pass-through holes for countersunk head screws.		Zinc die casting
CFB. page 1412 	Hinge for thin doors. Assembly by means of pass-through holes for countersunk head screws.		Polyamide based (PA) technopolymer.
CFD. page 1398 	Hinges for thin doors. Assembly by means of bosses with threaded hole, pass-through holes for cylindrical head screws, threaded studs.		Polyamide based (PA) technopolymer.
CMDX-AL page 1400 	Hinge for thin doors. Assembly by means of self-tapping screws.		Aluminium
GN 138 page 1401 	Hinges for thin doors. Assembly by means of threaded blind bores.		Zinc die casting

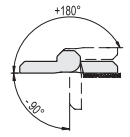
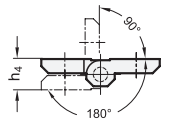
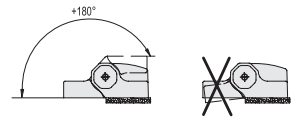
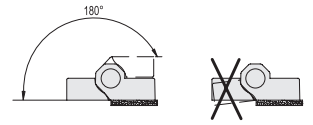
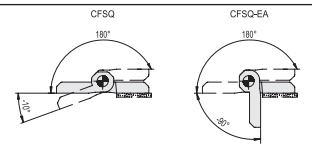
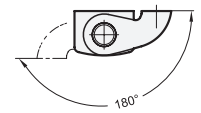
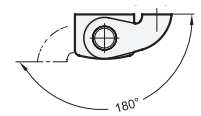
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Hinges

Series	Features	Rotation angle	Material
CFE. page 1402 	Assembly by means of bosses with threaded hole, pass-through holes for cylindrical head screws, threaded studs.		Polyamide based (PA) technopolymer.
CFF. page 1404 	Hinges for thin doors. Assembly by means of bosses with threaded hole, threaded studs.		Polyamide based (PA) technopolymer.
CFG. page 1406 	Hinges for profiles. Assembly by means of pass-through holes for countersunk head screws.		Polyamide based (PA) technopolymer.
CFI. page 1408 	Double hinges for profiles. Assembly by means of pass-through holes for countersunk head screws.		Polyamide based (PA) technopolymer.
GN 161 page 1410 	Hinges for profiles. Assembly by means of pass-through holes for countersunk head screws.		Zinc die casting
CFC. page 1413 	Thin hinge. Assembly by means of pass-through holes for self-tapping countersunk head screws.		Polyamide based (PA) technopolymer.
GN 136 page 1395 	Thin sheet metal hinges. Assembly by means of pass-through holes for cylindrical or countersunk head screws for welding.		Steel / Stainless Steel
CFN. page 1414 	In line detachable hinge. Assembly by means of bosses with threaded hole, threaded studs.	360°	Polyamide based (PA) technopolymer.
CFO. page 1416 	Offset detachable hinge, with screw-covers. Assembly by means of pass-through holes for hexagonal, cylindrical head screws or nuts.	360°	Polyamide based (PA) technopolymer.
GN 161.1 page 1418 	In line detachable hinges. Assembly by means of threaded holes.	360°	Zinc die casting
GN 161.2 page 1419 	Detachable hinges. Assembly by means of threaded holes.	180°	Zin die casting

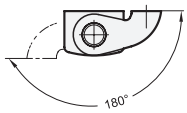
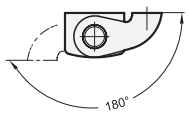
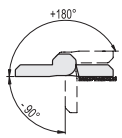
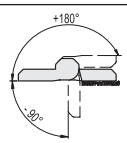
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Hinges

Series	Features	Rotation angle	Material
GN 128 page 1420 	In line detachable hinges for welding.	360°	Steel
GN 128.2 page 1421 	In line detachable hinges for welding.	360°	Stainless Steel / Alluminium
CFMY page 1422 	Detachable hinges. Assembly by means of pass-through holes for countersunk head screws.		Polyamide based (PA) SUPER-technopolymer.
GN 337 page 1423 	Detachable hinge. Assembly by means of pass-through holes for countersunk head screws.		Zinc die casting / Stainless Steel
CFSW. page 1428 	Hinges with built-in safety multiple switch. Assembly by means of pass-through holes for countersunk head screws.		Polyamide based (PA) SUPER-technopolymer
CFMW. page 1434 	CFSW. complementary hinges. Assembly by means of pass-through holes for countersunk head screws.		Polyamide based (PA) SUPER-technopolymer
PMW. page 1433 	CFSW. and CFMW. assembly kit on profiles.	-	Polyamide based (PA) SUPER-technopolymer
FC-M12x1 page 1428 	Extensions with M12x1 connector for CFSQ, CFSW. and EBR-SW.	-	-
CFSQ page 1436 	Hinges with built-in safety switch. Assembly by means of pass-through holes for countersunk head screws.		Polyamide based (PA) SUPER-technopolymer
GN 139.1 page 1440 	Hinges with bulit-in safety switch. Assembly by means of threaded blind bores.		Zinc die casting
GN 139.2 page 1443 	Hinges without safety switch. Assembly by means of threaded blind bores.		Zinc die casting

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Hinges

Series	Features	Rotation angle	Material
GN 139.3 page 1444 	Mounting plates for hinges GN 139.1 and GN 139.2.	-	Steel
GN 139.4 page 1444 	Mounting plates for hinges GN 139.1 and GN 139.2.	-	Zinc die casting
GN 139.5 page 1445 	Hinges with bulit-in safety switch. Assembly by means of threaded blind bores.		Stainless Steel
GN 139.6 page 1447 	Hinges without safety switch. Assembly by means of threaded blind bores.		Stainless Steel
GN 330 page 1448 	Cable with connector coupling M12x1 for the GN 139.1 and GN 139.5.	-	-
GN 129 page 1450 	Two or three parts hinges. Corner mounted. Screw fastening from the rear.	360°	Steel
GN 129.2 page 1451 	Three parts extended hinges. Corner mounted. Screw fastening from the rear.	360°	Steel / Stainless Steel
GN 129.3 page 1452 	Three parts extended hinges. Corner mounted. Assembly by means of cylinder screws.		Steel
GN 129.5 page 1453 	Three parts hinges. Corner mounted. Screw fastening from the rear.		Stainless Steel

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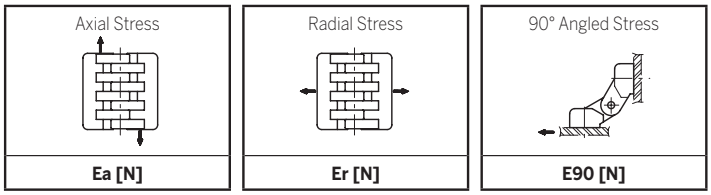
Guidelines for the correct application of plastic hinges

Materials of different type are used in accordance with the different structure and functionality of the hinges:

- High-resilience elastomer based technopolymer.
- Glass-fibre reinforced polyamide based or acetal based technopolymer.
- High-rigidity SUPER-technopolymer.

Resistance tests: two values are supplied for each product code:

- **Maximum working load (Ea, Er, E90)** is the value under which any elastic deformation that may occur is not permanent thus ensuring the hinge functionality.
- **Load at breakage (Ra, Rr, R90)** above which the plastic material can break.



For materials with high rigidity (SUPER-technopolymer) which are not significantly deformed even with loads very close to loads at breakage, only the max limit static load is given (Sa, Sr, S90). Therefore, the technical designer, when calculating the admissible load, will have to use a suitable factor according to the importance and the safety level of the specific situation.

All the values shown in the tables **(Ea, Er, E90 e Sa, Sr, S90)** are the result of tests for the corresponding stresses carried out in our laboratories under controlled temperature and humidity (23° C - 50% R.H.) under given conditions of use and for a limited period of time.
When assessing the safety factor to apply, the technical designer shall take into consideration the actual conditions of use if they are different from the laboratory ones.
In order to help the technical designer to choose the right hinge and check its suitability to the specific application, we suggest asking for test samples and submitting the chosen product to tests in order to check its suitability.

The methods for calculating and interpreting the resistance values described in this catalogue have been updated in accordance with the latest improvements achieved.

Hinges CFN. and CFO. series: **E90** stress is not applicable, due to their geometry and structure.
CFSQ. and CFSW. hinges with built-in safety switch: being safety devices with specific properties, they require a specific argumentation which is illustrated in the product datasheet.

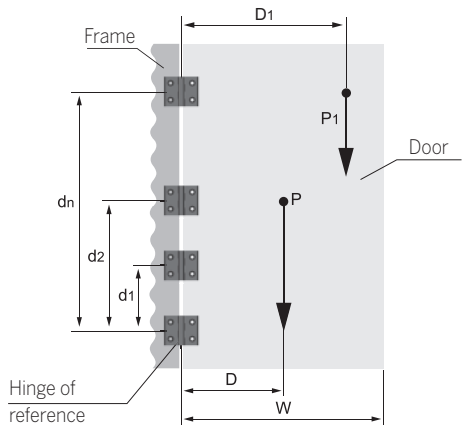
LOAD SUITABILITY CHECK
Hinged door on a vertical axis

P = weight of the door [Newton]
P1 = additional extra load [Newton]
W = width of the door
D = distance [metres] between the centre of gravity of the door and the hinge axis. In normal conditions D = W/2
D1 = distance [metres] between the hinge axis and the additional extra load application point
N = number of hinges
dT = sum of the distances in metres of all the hinges from the hinge of reference (dT = d1+d2+...+dn).
In case of only two hinges assembled, dT is simply the distance between them.
The three conditions must be satisfied.

$$\frac{(P+P1)}{N} \leq Ea$$

$$\frac{[(P \cdot D) + (P1 \cdot D1)]}{dT} \leq Er \text{ (closed door)}$$

$$\frac{[(P \cdot D) + (P1 \cdot D1)]}{dT} \leq E90 \text{ (90° open door°)}$$



Suggestions for a correct assembly
The correct assembly of the hinges requires a drilling on the mounting wall with diameter not wider than 0.5 mm of the diameter of the assembling screw in order to leave the least clearance possible. The suggested tightening torque should not be exceeded.

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EXAMPLE

P = 10 Kg = **98 N** (10•9.81) weight of the door
P1 = 2 Kg = **20 N** (2•9.81) weight of the additional extra load applied (for example: handle, lock, machine control panel fitted onto the door)
W = 1 m width of the door
D = W/2 = 1/2 = **0.5 m** distance between the centre of gravity of the door and the hinge axis
D1 = **0.90 m** distance between the hinge axis and the additional extra load application point
N = **2** (evaluating use of two hinges)
dT = **1.3 m** (in this case it is simply the distance between the two hinges)

$$\frac{(P+P1)}{N} = \frac{(98+20)}{2} = 59N \leq Ea$$

$$\frac{[(P \cdot D) + (P1 \cdot D1)]}{d_T} = \frac{[(98 \cdot 0.5) + (20 \cdot 0.9)]}{1.3} = 51N \leq Er$$

$$\frac{[(P \cdot D) + (P1 \cdot D1)]}{dT} = \frac{[(98 \cdot 0.5) + (20 \cdot 0.9)]}{1.3} = 51N \leq E90$$

The suitable hinge can be chosen among those which present Ea, Er, E90 values higher than the calculated ones.
Take CFD., series for example, the suitable hinges are CFD.30 B-M3 and CFD.30 CH-B-M3, CFD.40 B-M4, CFD.40 CH-4-B-M4 and CFD.40 CH-4-p-M4x18, all CFD.48 and CFD.66.

Hinges CFD series satisfying the three conditions indicated in the example above.

Resistance tests		Axial stress		Radial stress		90° Angled Stress	
		Maximum working load	Load at breakage	Maximum working load	Load at breakage	Maximum working load	Load at breakage
Code	**Description**	**Ea [N]**	**Ra [N]**	**Er [N]**	**Rr [N]**	**E90 [N]**	**R90 [N]**
422711	CFD.30 B-M3	60	690	70	490	60	500
422721	CFD.30 p-M3x13	70	750	40	340	30	390
422731	CFD.30 p-M3x13-B-M3	60	690	40	340	30	390
422741	CFD.30 B-M3-p-M3x13	60	690	40	340	30	390
422751	CFD.30 CH-3-B-M3	100	830	110	720	70	670
422761	CFD.30 CH-3-p-M3x13	60	730	50	450	30	350
422811	CFD.40 B-M4	160	1710	150	1340	100	700
422821	CFD.40 p-M4x18	110	1230	140	880	50	730
422831	CFD.40 p-M4x18-B-M4	110	1230	140	880	50	700
422841	CFD.40 B-M4-p-M4x18	110	1230	140	880	50	700
422851	CFD.40 CH-4-B-M4	120	162	150	1220	130	1110
422861	CFD.40 CH-4-p-M4x18	150	1480	140	820	100	860
422911	CFD.48 B-M5	260	2440	260	1700	120	1640
422921	CFD.48 p-M5x17	290	1770	240	1840	110	1740
422931	CFD.48 p-M5x17-B-M5	260	1770	240	1700	110	1640
422941	CFD.48 B-M5-p-M5x17	260	1770	240	1700	110	1640
422951	CFD.48 CH-5-B-M5	330	2530	240	1890	290	1870
422961	CFD.48 CH-5-p-M5x17	150	2170	120	1200	110	970
423011	CFD.66 B-M6	450	4130	320	2520	220	2250
423021	CFD.66 p-M6x16	470	3260	260	1700	240	1580
423031	CFD.66 p-M6x16-B-M6	450	3260	260	1700	220	1580
423041	CFD.66 B-M6-p-M6x16	450	3260	260	1700	220	1580
423051	CFD.66 CH-6-B-M6	430	3660	410	2610	310	2830
423061	CFD.66 CH-6-p-M6x16	350	3090	280	1770	180	1610

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Hinges

Technopolymer

MATERIAL
High-resilience polyamide based (PA) technopolymer, black colour, matte finish. Grey RAL 7040 (C33) only for CFA-SH execution.

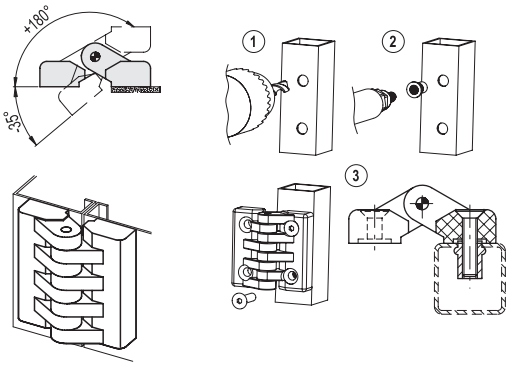
ROTATING PIN
AISI 303 stainless steel.

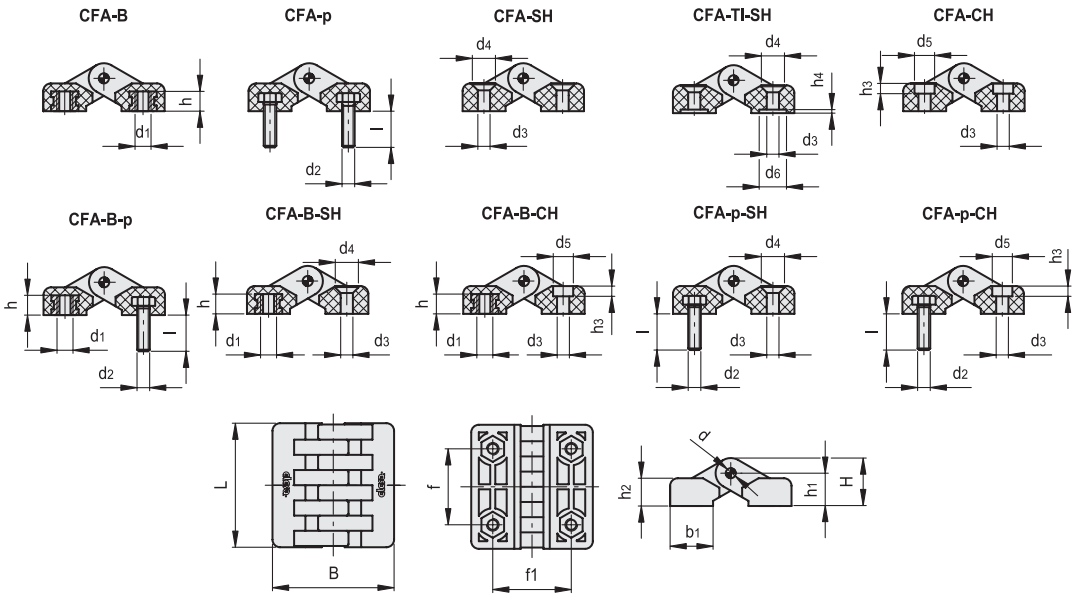
STANDARD EXECUTIONS
- **CFA-B**: nickel-plated brass bosses with threaded hole.
- **CFA-p**: nickel-plated steel threaded studs.
- **CFA-SH**: pass-through holes for countersunk head screws.
- **CFA-TI-SH**: pass-through holes for countersunk head screws and rear housing to accommodate the head of threaded inserts.
- **CFA-CH**: pass-through holes for cylindrical head screws.
- **CFA-B-p**: nickel-plated brass bosses with threaded hole and nickel-plated steel threaded studs.
- **CFA-B-SH**: nickel-plated brass bosses with threaded hole and pass-through holes for countersunk head screws.
- **CFA-B-CH**: nickel-plated brass bosses with threaded hole and pass-through holes for cylindrical head screws.
- **CFA-p-SH**: nickel-plated steel threaded studs pass-through holes for countersunk head screws.
- **CFA-p-CH**: nickel-plated steel threaded studs and pass-through holes for cylindrical head screws.

ROTATION ANGLE (APPROXIMATE VALUE)
Max 215° (-35° and +180° being 0° the condition where the two interconnected surfaces are on the same plane).
Do not exceed the rotation angle limit so as not to prejudice the hinge mechanical performance.
To choose the convenient type and the right number of hinges for your application, see the Guidelines (on page 1368).

ASSEMBLY INSTRUCTIONS FOR CFA-TI-SH
1. Drill a hole in the door/doorframe with a diameter corresponding to the threaded insert used.
2. Fix the threaded insert on the door/doorframe with a riveter.
3. Fit the hinge on the door/doorframe tightening the screw into the threaded insert.







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CFA-B

Code	Description	L	B	d1	h	f±0.25	f1 ±0.25	H	h1	h2	b1	d	C# [Nm]	⚖
422391	CFA.40 B-M4	39.5	38.5	M4	6.5	25	25	14	9.5	9.5	14	3	5	23
422111	CFA.49 B-M5	49.5	48	M5	8.5	30	31	19	13	11	17	4	5	39
422113	CFA.49 B-M6	49.5	48	M6	8	30	31	19	13	11	17	4	5	38
422211	CFA.65 B-M6	65	64	M6	9	40	40	23	15	13.5	24	5	5	85
422311	CFA.97 B-M10	96.5	97.5	M10	15	59.5	62.5	35	23	20.5	35	8	5	306

CFA-p

Code	Description	L	B	d2	l	f±0.25	f1 ±0.25	H	h1	h2	b1	d	C# [Nm]	⚖
422121	CFA.49 p-M5x14	49.5	48	M5	14	30	31	19	13	11	17	4	5	45
422221	CFA.65 p-M6x18	65	64	M6	18	40	40	23	15	13.5	24	5	5	90
422321	CFA.97 p-M10x20	96.5	97.5	M10	20	59.5	62.5	35	23	20.5	35	8	5	330

CFA-SH

Code	Description	L	B	f±0.25	f1 ±0.25	H	h1	h2	b1	d	d3	d4	C# [Nm]	⚖
422411	CFA.40 SH-4	39.5	38.5	25	25	14	9.5	9.5	14	3	4.5	8.5	1	14
422131	CFA.49 SH-5	49.5	48	30	31	19	13	11	17	4	5.5	10	2	29
422231	CFA.65 SH-6	65	64	40	40	23	15	13.5	24	5	6.5	12.5	3	62
422331	CFA.97 SH-10	96.5	97.5	59.5	62.5	35	23	20.5	35	8	10.5	20	5	221

CFA-TI-SH

Code	Description	L	B	d6	f±0.25	f1 ±0.25	H	h1	h2	h4	b1	d	d3	d4	d6	C# [Nm]	⚖
422416	CFA.40 TI-SH-4	39.5	38.5	10	25	25	14	9.5	9.5	1.3	14	3	4.5	8.5	-	1	14
422136	CFA.49 TI-SH-5	49.5	48	11	30	31	19	13	11	1.5	17	4	5.5	10	11	2	29
422237	CFA.65 TI-SH-6	65	64	13	40	40	23	15	13.5	1.8	24	5	6.5	12.5	13	3	62

CFA-CH

Code	Description	L	B	f±0.25	f1 ±0.25	H	h1	h2	h3	b1	d	d3	d5	C# [Nm]	⚖
422412	CFA.40 CH-4	39.5	38.5	25	25	14	9.5	9.5	4.5	14	3	4.5	8.5	1	14
422132	CFA.49 CH-5	49.5	48	30	31	19	13	11	5.5	17	4	5.5	10	2	29
422232	CFA.65 CH-6	65	64	40	40	23	15	13.5	6.5	24	5	6.5	11	5	62
422332	CFA.97 CH-10	96.5	97.5	59.5	62.5	35	23	20.5	10.5	35	8	10.5	17	5	221

CFA-B-p

Code	Description	L	B	d1	h	d2	l	f±0.25	f1 ±0.25	H	h1	h2	b1	d	C# [Nm]	⚖
422141	CFA.49 B-M5-p-M5x14	49.5	48	M5	8.5	M5	14	30	31	19	13	11	17	4	5	42
422241	CFA.65 B-M6-p-M6x18	65	64	M6	10.5	M6	18	40	40	23	15	13.5	24	5	5	88
422341	CFA.97 B-M10-p-M10x20	96.5	97.5	M10	15	M10	20	59.5	62.5	35	23	20.5	35	8	5	318

CFA-B-SH

Code	Description	L	B	d1	h	f±0.25	f1 ±0.25	H	h1	h2	b1	d	d3	d4	C [Nm] B#	C [Nm] SH#	⚖
422151	CFA.49 B-M5-SH-5	49.5	48	M5	8.5	30	31	19	13	11	17	4	5.5	10	5	2	34
422251	CFA.65 B-M6-SH-6	65	64	M6	10.5	40	40	23	15	13.5	24	5	6.5	12.5	5	3	74
422351	CFA.97 B-M10-SH-10	96.5	97.5	M10	15	59.5	62.5	35	23	20.5	35	8	10.5	20	5	5	264

CFA-B-CH

Code	Description	L	B	d1	h	f±0.25	f1 ±0.25	H	h1	h2	h3	b1	d	d3	d5	C [Nm] B#	C [Nm] CH#	⚖
422152	CFA.49 B-M5-CH-5	49.5	48	M5	8.5	30	31	19	13	11	5.5	17	4	5.5	10	5	2	34
422252	CFA.65 B-M6-CH-6	65	64	M6	10.5	40	40	23	15	13.5	6.5	24	5	6.5	11	5	5	74
422352	CFA.97 B-M10-CH-10	96.5	97.5	M10	15	59.5	62.5	35	23	20.5	10.5	35	8	10.5	17	5	5	264

Suggested tightening torque for assembly screws.

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CFA-p-SH

Code	Description	L	B	d2	l	f±0.25	f1 ±0.25	H	h1	h2	b1	d	d3	d4	C [Nm] p#	C [Nm] SH#	⚖
422161	CFA.49 p-M5x14-SH-5	49.5	48	M5	14	30	31	19	13	11	17	4	5.5	10	5	2	37
422261	CFA.65 p-M6x18-SH-6	65	64	M6	18	40	40	23	15	13.5	24	5	6.5	12.5	5	3	76
422361	CFA.97 p-M10x20-SH-10	96.5	97.5	M10	20	59.5	62.5	35	23	20.5	35	8	10.5	20	5	5	276

CFA-p-CH

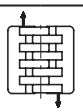
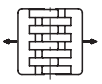
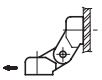
Code	Description	L	B	d2	l	f±0.25	f1 ±0.25	H	h1	h2	h3	b1	d	d3	d5	C [Nm] p#	C [Nm] CH#	⚖
422162	CFA.49 p-M5x14-CH-5	49.5	48	M5	14	30	31	19	13	11	5.5	17	4	5.5	10	5	2	37
422262	CFA.65 p-M6x18-CH-6	65	64	M6	18	40	40	23	15	13.5	6.5	24	5	6.5	11	5	5	76
422362	CFA.97 p-M10x20-CH-10	96.5	97.5	M10	20	59.5	62.5	35	23	20.5	10.5	35	8	10.5	17	5	5	276

CFA-SH-C33

Code	Description	L	B	f±0.25	f1 ±0.25	H	h1	h2	b1	d	d3	d4	C# [Nm]	⚖
422411-C33	CFA.40 SH-4-C33	39.5	38.5	25	25	14	9.5	9.5	14	3	4.5	8.5	1	14
422131-C33	CFA.49 SH-5-C33	49.5	48	30	31	19	13	11	17	4	5.5	10	2	29
422231-C33	CFA.65 SH-6-C33	65	64	40	40	23	15	13.5	24	5	6.5	12.5	3	62
422331-C33	CFA.97 SH-10-C33	96.5	97.5	59.5	62.5	35	23	20.5	35	8	10.5	20	5	221

Suggested tightening torque for assembly screws.

Index C33: hinge RAL 7040 grey colour.

Resistance tests	AXIAL STRESS		RADIAL STRESS		90° ANGLED STRESS	
						
Description	Maximum working load Ea [N]	Load at breakage Ra [N]	Maximum working load Er [N]	Load at breakage Rr [N]	Maximum working load E90 [N]	Load at breakage R90 [N]
CFA.40 B-M4	200	2050	240	2220	100	730
CFA.40 SH-4	130	2080	290	2030	280	1520
CFA.40 CH-4	137	1800	230	1760	180	1330
CFA.49 B-M5	400	3770	440	3070	170	1470
CFA.49 B-M6	330	3250	470	3250	110	1540
CFA.49 p-M5x14	370	3070	360	1970	200	1680
CFA.49 SH-5	300	2960	310	2880	320	2490
CFA.49 CH-5	360	3080	310	2530	250	1620
CFA.49 B-M5-p-M5x14	370	3070	360	1970	200	1470
CFA.49 B-M5-SH-5	400	2960	280	2880	170	1470
CFA.49 B-M5-CH-5	360	3080	320	2530	170	1470
CFA.49 p-M5x14-SH-5	370	2960	280	1970	200	1680
CFA.49 p-M5x14-CH-5	360	3070	320	1970	200	1620
CFA.65 B-M6	640	4570	690	5670	220	2280
CFA.65 p-M6x18	510	5890	460	6620	220	3190
CFA.65 SH-6	520	4760	720	6270	240	4180
CFA.65 CH-6	510	5280	490	5790	260	3190
CFA.65 B-M6-p-M6x18	510	4570	460	5670	220	2280
CFA.65 B-M6-SH-6	640	4570	690	5670	220	2280
CFA.65 B-M6-CH-6	510	4570	490	5670	220	2280
CFA.65 p-M6x18-SH-6	510	4760	460	6270	220	3190
CFA.65 p-M6x18-CH-6	510	5280	460	5790	220	3190
CFA.97 B-M10	970	7660	2120	17940	590	5210
CFA.97 p-M10x20	890	5950	1730	16190	460	3690
CFA.97 SH-10	1110	6730	1230	10460	510	4100
CFA.97 CH-10	1050	4860	2060	13670	540	4760
CFA.97 B-M10-p-M10x20	890	5950	1730	16190	460	3690
CFA.97 B-M10-SH-10	970	6730	1230	10460	510	4110
CFA.97 B-M10-CH-10	970	4860	2060	13670	540	4760
CFA.97 p-M10x20-SH-10	890	5950	1230	10460	460	3690
CFA.97 p-M10x20-CH-10	890	4860	1730	13670	460	3690

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Hinges with slotted holes of adjustment

Technopolymer



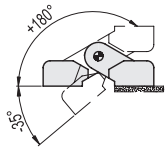
FMdesign

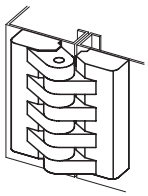
MATERIAL
High-resilience polyamide based (PA) technopolymer, black colour, matte finish.

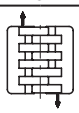
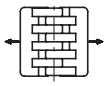
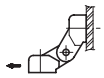
ROTATING PIN
AISI 303 stainless steel.

STANDARD EXECUTIONS
Pass-through slotted holes for cylindrical head screws which allow the adjustment during assembly.
- **CFA-SL-H**: for horizontal adjustments.
- **CFA-SL-V**: for vertical adjustments.
- **CFA-SL-HV**: for both horizontal and vertical adjustments.

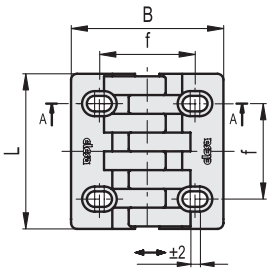
ROTATION ANGLE (APPROXIMATE VALUE)
Max 215° (-35° and +180° being 0° the condition where the two interconnected surfaces are on the same plane).
Do not exceed the rotation angle limit so as not to prejudice the hinge mechanical performance.
To choose the convenient type and the right number of hinges for your application, see the Guidelines (on page 1368).



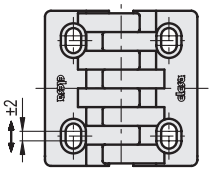


Resistance tests	AXIAL STRESS		RADIAL STRESS		90° ANGLED STRESS	
						
Description	Maximum working load Ea [N]	Load at breakage Ra [N]	Maximum working load Er [N]	Load at breakage Rr [N]	Maximum working load E90 [N]	Load at breakage R90 [N]
CFA.65-SL	510	5280	490	5790	260	3190

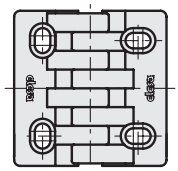
CFA-SL-H



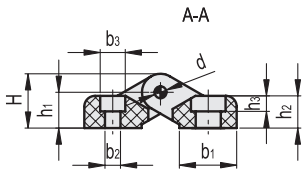
CFA-SL-V



CFA-SL-HV



A-A



Code	Description	L	B	f	H	h1	h2	h3	b1	b2	b3	d	C# [Nm]	⚖
422272	CFA.65-SL-H	65	64	40	23	15	13.5	6.5	24	6.5	10.5	5	3	60
422276	CFA.65-SL-V	65	64	40	23	15	13.5	6.5	24	6.5	10.5	5	3	60
422280	CFA.65-SL-HV	65	64	40	23	15	13.5	6.5	24	6.5	10.5	5	3	60

Suggested tightening torque for assembly screws.

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Hinges

Technopolymer rotating pin

MATERIAL
High-resilience polyamide based (PA) technopolymer, black colour, matte finish.

ROTATING PIN
Acetal based (POM) technopolymer, black colour.

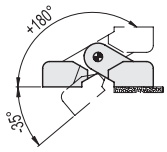
STANDARD EXECUTIONS
- **CFAX-B**: nickel-plated brass bosses with threaded hole.
- **CFAX-SH**: pass-through holes for countersunk head screws.
- **CFAX-CH**: pass-through holes for cylindrical head screws.

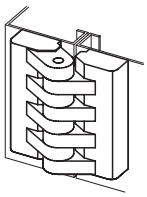
ROTATION ANGLE (APPROXIMATE VALUE)
Max 215° (-35° and + 180° being 0° the condition where the two interconnected surfaces are on the same plane).
Do not exceed the rotation angle limit so as not to prejudice the hinge mechanical peformance.
To choose the convenient type and the right number of hinges for your application, see the Guidelines (on page 1368).

EXECUTION CFK.
False hinge made up of a single body without rotation pin. It can be used for blocking fixed panels, when you want to obtain the same general aesthetical effect.



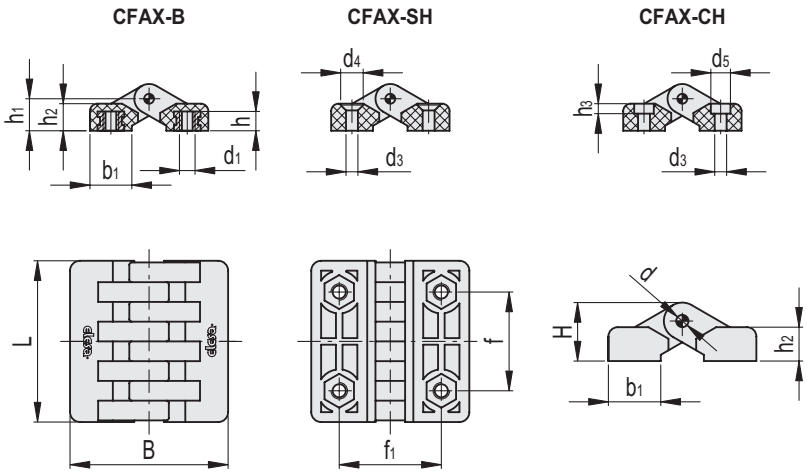
FM design





Resistance tests	AXIAL STRESS		RADIAL STRESS		90° ANGLED STRESS	
Description	Maximum working load Ea [N]	Load at breakage Ra [N]	Maximum working load Er [N]	Load at breakage Rr [N]	Maximum working load E90 [N]	Load at breakage R90 [N]
CFAX.40 B-M4	200	1850	240	2000	100	560
CFAX.40 SH-4	130	1870	290	1800	280	1370
CFAX.40 CH-4	137	1340	230	1580	180	1200
CFAX.49 B-M5	400	2400	440	2760	170	1320
CFAX.49 SH-5	300	2660	310	2600	320	2240
CFAX.49 CH-5	360	2480	310	2270	250	1460
CFAX.65 B-M6	640	4000	690	4400	220	1400
CFAX.65 SH-6	520	4300	720	4800	240	3760
CFAX.65 CH-6	510	3700	490	5200	260	2870

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CFAX-B

Code	Description	L	B	d1	h	f±0.25	f1 ±0.25	H	h1	h2	b1	d	C# [Nm]	⚖
422421	CFAX.40 B-M4	39.5	38.5	M4	6.5	25	25	14	9.5	9.5	14	3	5	23
422431	CFAX.49 B-M5	49.5	48	M5	8.5	30	31	19	13	11	17	4	5	39
422441	CFAX.65 B-M6	65	64	M6	9	40	40	23	15	13.5	24	5	5	85

CFAX-SH

Code	Description	L	B	f±0.25	f1 ±0.25	H	h1	h2	b1	d	d3	d4	C# [Nm]	⚖
422423	CFAX.40 SH-4	39.5	38.5	25	25	14	9.5	9.5	14	3	4.5	8.5	1	14
422433	CFAX.49 SH-5	49.5	48	30	31	19	13	11	17	4	5.5	10	2	29
422443	CFAX.65 SH-6	65	64	40	40	23	15	13.5	24	5	6.5	12.5	3	62

CFAX-CH

Code	Description	L	B	f±0.25	f1 ±0.25	H	h1	h2	h3	b1	d	d3	d5	C# [Nm]	⚖
422425	CFAX.40 CH-4	39.5	38.5	25	25	14	9.5	9.5	4.5	14	3	4.5	8.5	1	14
422435	CFAX.49 CH-5	49.5	48	30	31	19	13	11	5.5	17	4	5.5	10	2	29
422445	CFAX.65 CH-6	65	64	40	40	23	15	13.5	6.5	24	5	6.5	11	5	62

Suggested tightening torque for assembly screws.

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Hinges with detent position at 90°

Technopolymer

MATERIAL
High-resilience polyamide based (PA) technopolymer, black colour, matte finish.

ROTATING PIN
AISI 303 stainless steel.

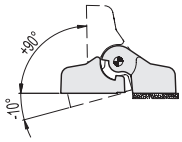
STANDARD EXECUTIONS
- **CFA-F-B**: nickel-plated brass bosses with threaded hole.
- **CFA-F-CH**: pass-through holes for cylindrical head screws.
- **CFA-F-SH**: pass-through holes for countersunk head screws.

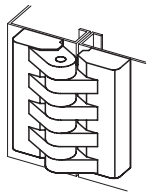
FEATURES AND APPLICATIONS
CFA-F hinges are recommended when the opening of the door must not exceed the limit of 90°.
Once the hinge is fitted onto the machine/door, the teeth of the detent system remain inside the hinge. Thus the operator cannot reach them for the safety of his hands.

ROTATION ANGLE (APPROXIMATE VALUE)
Max 100° (-10° and +90° being 0° the condition where the two interconnected surfaces are on the same plane).
To choose the convenient type and the right number of hinges for your application, see the Guidelines (on page 1368).



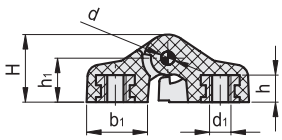
FM design



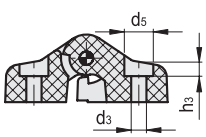


Resistance tests	AXIAL STRESS		RADIAL STRESS		90° ANGLED STRESS	
Description	Maximum working load Ea [N]	Load at breakage Ra [N]	Maximum working load Er [N]	Load at breakage Rr [N]	Maximum working load E90 [N]	Load at breakage R90 [N]
CFA.49-F-B-M6	330	3250	470	3250	110	1540
CFA.49-F-CH-5	380	3600	370	3300	320	2490
CFA.49-F-SH-5	300	2960	310	2880	320	2490
CFA.65-F-B-M6	1150	5780	1550	7780	760	3820
CFA.65-F-CH-6	810	5410	1000	6550	720	3980
CFA.65-F-SH-6	840	5680	1010	7010	790	3960

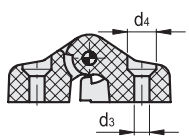
CFA-F-B

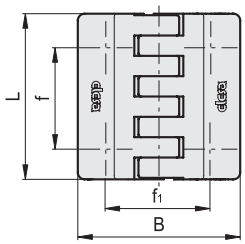


CFA-F-CH



CFA-F-SH





Code	Description	L	B	d1	h	f±0.25	f1±0.25	H	h1	h3	b1	d	d3	d4	d5	C# [Nm]	⚖
422114	CFA.49-F-B-M6	49.5	48	M6	8	30.2	31	20	13	-	18	4	-	-	-	5	42
422135	CFA.49-F-CH-5	49.5	48	-	-	30.2	31	20	13	5.5	18	4	5.5	-	10	2	29
422133	CFA.49-F-SH-5	49.5	48	-	-	30.2	31	20	13	-	18	4	5.5	10	-	2	29
422212	CFA.65-F-B-M6	65	63.5	M6	9	40	40	25	16	-	24	5	-	-	-	5	84
422235	CFA.65-F-CH-6	65	63.5	-	-	40	40	25	16	6.5	24	5	6.5	-	11	3	62
422236	CFA.65-F-SH-6	65	63.5	-	-	40	40	25	16	-	24	5	6.5	12.5	-	3	62

Suggested tightening torque for assembly screws.

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CFA-ERS

Hinges with friction brake

Technopolymer

MATERIAL
High-resilience polyamide based (PA) technopolymer, black colour, matte finish.

ROTATING PIN
Black-oxide steel.

STANDARD EXECUTION
Pass-through holes for countersunk head screws.

ADJUSTABLE HANDLE FOR CLAMPING
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.
Red writing "PUSH" tampoprinted on the lever body (avoid contact with solvents, alcohol or detergents containing alcohol).
Black-oxide steel retaining screw, AISI 302 stainless steel return spring.
Boss with threaded blind hole in black-oxide steel (CFA.49 and CFA.65) or brass (CFA.97).

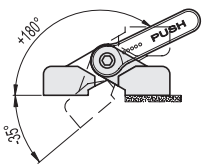
ROTATION ANGLE (APPROXIMATE VALUE)
Max 215° (-35° and +180° being 0° the condition where the two interconnected surfaces are on the same plane).
Do not exceed the rotation angle limit so as not to prejudice the hinge mechanical peformance.

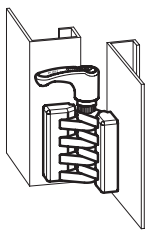
FEATURES AND APPLICATIONS
CFA-ERS hinge with friction brake allows to adjust the door open and close desired positions, and also the door clamping in any position within the rotation angle of 215°.

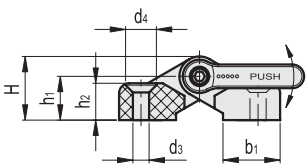
INSTRUCTIONS OF USE
The friction effect is obtained by clamping the two hinged bodies using the special adjustable handle.
To operate the adjusting mechanism, push down the lever (PUSH). By releasing the lever, the spring releases the toothing, thus the handle can return to its starting position and the lever can rotate freely together with the door without obstructing the movement, even in case of accidental shock.
The high number of teeth within the adjustable handle guarantees rotation even in case of very limited movement of the lever arm.
To choose the convenient type and the right number of hinges for your application, see the Guidelines (on page 1368).
For strength data, see the correspondent products of the series CFA. (see page 1370).

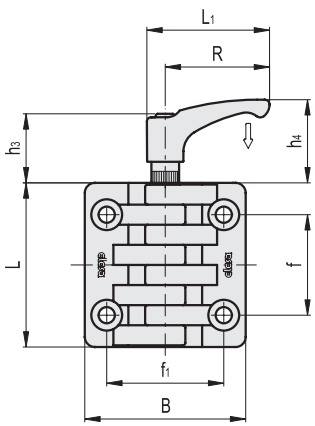


FAMdesign









Code	Description	L	B	L1	f±0.25	f1 ±0.25	H	h1	h2	h3	h4	b1	R	d3	d4	⚖
422134	CFA.49-ERS-SH-5	49.5	48	52	30	31	19	13	11	29	36	17	44	5.5	10	40
422234	CFA.65-ERS-SH-6	65	64	52	40	40	23	15	13.5	29	36	24	44	6.5	11.5	75
422334	CFA.97-ERS-SH-10	96.5	97.5	73.5	59.5	62.5	35	23	20.5	37	48	35	63	10.5	20	240

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Hinges with screw-covers

Technopolymer

MATERIAL
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

ROTATING PIN
Acetal based (POM) technopolymer, black colour.

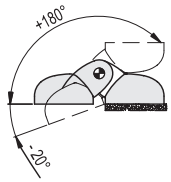
SCREW-COVERS
Polyester based (PBT) technopolymer, black colour, glossy finish, snap-in assembly.

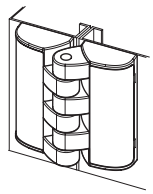
STANDARD EXECUTIONS
- **CFT-SH**: pass-through holes for countersunk head screws.
- **CFT-EH**: hexagonal pass-through holes for cylindrical head screws, hexagonal head nuts or screws. CFT. hinge with boss or stud can be obtained by means of hexagonal head nuts or screws fitted into the assembly hole.

ROTATION ANGLE (APPROXIMATE VALUE)
Max 200° (-20° and +180° being 0° the condition where the interconnected surfaces are on the same plane).
Do not exceed the rotation angle limit so as not to prejudice the hinge mechanical performance.
To choose the convenient type and the right number of hinges for your application, see the Guidelines (on page 1368).
Screw-covers in different RAL colours.



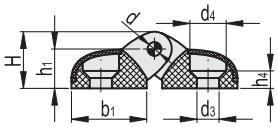
ELESA Original design 2009



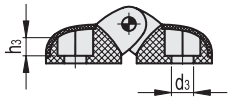


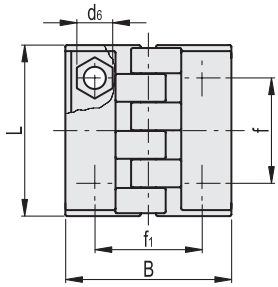
Resistance tests	AXIAL STRESS		RADIAL STRESS		90° ANGLED STRESS	
Description	Maximum working load Ea [N]	Load at breakage Ra [N]	Maximum working load Er [N]	Load at breakage Rr [N]	Maximum working load E90 [N]	Load at breakage R90 [N]
CFT.40	300	1500	300	1500	200	750
CFT.49	500	2900	400	3000	300	1600
CFT.65	800	4500	800	4400	500	2200

CFT-SH



CFT-EH





Code	Description	L	B	f±0.25	f1±0.25	H	h1	h3	h4	b1	d	d3	d4	d6	C# [Nm]	⚖
427112-C9	CFT.40 SH-4-C9	39.5	38	25	25	13	9	-	4.5	17.5	3	4.5	8.5	-	2	11
427132-C9	CFT.49 SH-5-C9	49.5	48	30.5	31	16.5	11.5	-	5	21.5	4	5.5	10.5	-	2	24
427152-C9	CFT.65 SH-6-C9	65	63	40	40	21.5	15	-	10	29	5	6.5	12.5	-	2	50
427111-C9	CFT.40 EH-4-C9	39.5	38	25	25	13	9	4	-	17.5	3	4.5	-	7	2	11
427131-C9	CFT.49 EH-5-C9	49.5	48	30.5	31	16.5	11.5	5	-	21.5	4	5.5	-	8.5	2	24
427133-C9	CFT.49 EH-6-C9 *	49.5	48	30.5	31	16.5	11.5	5	-	21.5	4	6.5	-	10	2	24
427151-C9	CFT.65 EH-6-C9	65	63	40	40	21.5	15	7	-	29	5	6.5	-	10	2	50

***** In case of assembly with cylindrical screw, use a shorted head screw.

Suggested tightening torque for assembly screws.

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Hinges

Technopolymer

MATERIAL
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

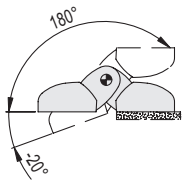
ROTATING PIN
Acetal resin based (POM) technopolymer, black colour.

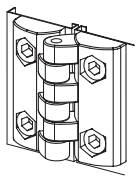
STANDARD EXECUTIONS
- **CFTX-SH**: pass-through holes for countersunk head screws.
- **CFTX-EH**: hexagonal pass-through holes for cylindrical head screws. This hinge with boss or stud can be obtained by means of hexagonal head nuts or screws fitted into the assembly hole.

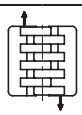
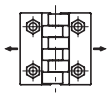
ROTATION ANGLE (APPROXIMATE VALUE)
Max 200° (-20° and +180° being 0° the condition where the interconnected surfaces are on the same plane).
Do not exceed the rotation angle limit so as not to prejudice the hinge mechanical performance.
To choose the convenient type and the right number of hinges for your application, see the Guidelines (on page 1368).



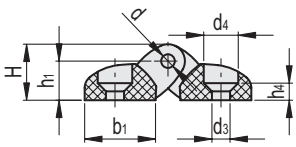
ELESA Original design



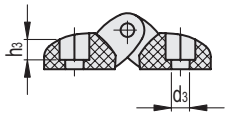


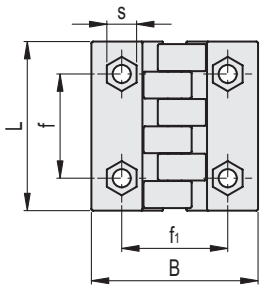
Resistance tests	AXIAL STRESS		RADIAL STRESS		90° ANGLED STRESS	
						
Description	Maximum working load Ea [N]	Load at breakage Ra [N]	Maximum working load Er [N]	Load at breakage Rr [N]	Maximum working load E90 [N]	Load at breakage R90 [N]
CFTX.40	300	1500	300	1500	200	750
CFTX.49	500	2900	400	3000	300	1600
CFTX.65	800	4500	800	4400	500	2200

CFTX-SH



CFTX-EH





Code	Description	L	B	f±0.25	f1 ±0.25	H	h1	h3	h4	b1	d	d3	d4	s	C# [Nm]	⚖
427211	CFTX.40 SH-4	39.5	38.5	25	25	13	9	-	4.5	16.5	3	4.5	8.5	-	2	9
427231	CFTX.49 SH-5	49.5	49	30.5	31	16.5	11.5	-	5	21	4	5.5	10.5	-	2	22
427251	CFTX.65 SH-6	65	64	40	40	21.5	15	-	9	27.5	5	6.5	12.5	-	2	48
427201	CFTX.40 EH-4	39.5	39.5	25	25	13	9	4.5	-	16.5	3	4.5	-	7	2	9
427221	CFTX.49 EH-5	49.5	49	30.5	31	16.5	11.5	6	-	21	4	5.5	-	8	2	22
427222	CFTX.49 EH-6	49.5	49	30.5	31	16.5	11.5	6	-	21	4	6.5	-	10	2	22
427241	CFTX.65 EH-6	65	64	40	40	21.5	15	7.5	-	27.5	5	6.5	-	10	2	48

Suggested torque for screw assembly.

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Hinges with screw-covers

Technopolymer

MATERIAL
Acetal resin based (POM) technopolymer, black colour, matte finish.

ROTATING PIN
Acetal based (POM) technopolymer, black colour.

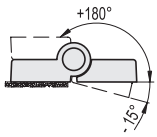
SCREW-COVERS
Polyester based (PBT) technopolymer, black colour, matte finish, snap-in assembly.

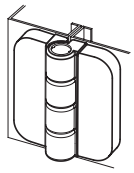
STANDARD EXECUTIONS
- **CFQ-SH**: pass-through holes for countersunk head screws.
- **CFQ-CH**: pass-through holes for cylindrical head screws.
- **CFQ-EH**: pass-through holes for hexagonal head screws.

ROTATION ANGLE (APPROXIMATE VALUE)
Max 195° (-15° and +180° being 0° the condition where the interconnected surfaces are on the same plane).
Do not exceed the rotation angle limit so as not to prejudice the hinge mechanical performance.
To choose the convenient type and the right number of hinges for your application, see the Guidelines (on page 1368).

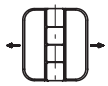


FIMdesign

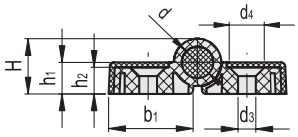




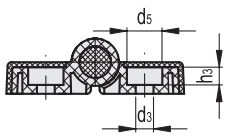


Resistance tests					
AXIAL STRESS		RADIAL STRESS		90° ANGLED STRESS	
					
Maximum working load Ea [N]	Load at breakage Ra [N]	Maximum working load Er [N]	Load at breakage Rr [N]	Maximum working load E90 [N]	Load at breakage R90 [N]
300	1220	350	1970	290	720

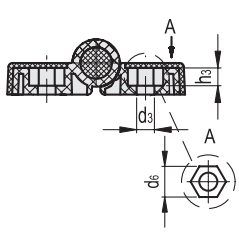
CFQ-SH

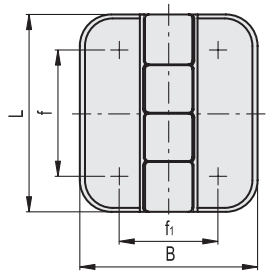


CFQ-CH



CFQ-EH





Code	Description	L	B	f	f1	H	h1	h2	h3	b1	d	d3	d4	d5	d6	C# [Nm]	⚖
426331-C9	CFQ.50 SH-4-C9	50	45	32	25	14	8	7	-	21.5	8	4.5	8.5	-	-	1.5	17
426332-C9	CFQ.50 CH-4-C9	50	45	32	25	14	8	7	4.5	21.5	8	4.5	-	8.5	-	1.5	17
426333-C9	CFQ.50 EH-4-C9	50	45	32	25	14	8	7	4.5	21.5	8	4.5	-	-	7	1.5	17

Suggested tightening torque for assembly screws.

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Hinges

Technopolymer

MATERIAL
High-resilience polyamide based (PA) technopolymer, black colour, matte finish.

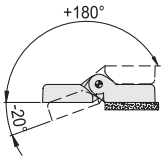
ROTATING PIN
AISI 303 stainless steel.

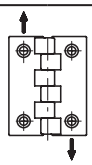
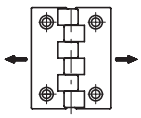
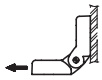
STANDARD EXECUTIONS
Pass-through holes for cylindrical head screws.

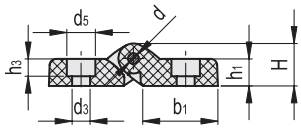
ROTATION ANGLE (APPROXIMATE VALUE)
Max 200° (-20° and +180° being 0° the condition where the interconnected surfaces are on the same plane).
Do not exceed the rotation angle limit so as not to prejudice the hinge mechanical performance.
To choose the convenient type and the right number of hinges for your application, see the Guidelines (on page 1368).

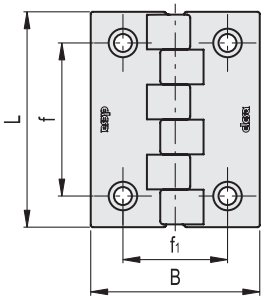


ELESA Original design



Resistance tests	AXIAL STRESS		RADIAL STRESS		90° ANGLED STRESS	
						
Description	Maximum working load Ea [N]	Load at breakage Ra [N]	Maximum working load Er [N]	Load at breakage Rr [N]	Maximum working load E90 [N]	Load at breakage R90 [N]
CFL.102 CH-6	4000	10000	4500	10000	2000	4000
CFL.102 CH-8	3500	9000	4500	10000	2000	4000





Code	Description	L	B	f±0.25	f1 ±0.25	H	h1	h3	b1	d	d3	d5	C# [Nm]	⚖
425201	CFL.102 CH-6	102	80	72.5	49.5	20.5	13	6.5	35.5	5	6.5	10.5	5	110
425202	CFL.102 CH-8	102	80	72.5	49.5	20.5	13	8	35.5	5	8.5	13.5	5	106

Suggested tightening torque for assembly screws.

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Hinges

SUPER-technopolymer

MATERIAL
Glass-fibre reinforced polyamide based (PA) SUPER-technopolymer.

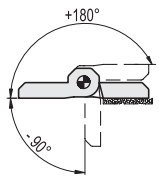
COLOUR
- CFM.: black, matte finish.
- CFM-CLEAN: white similar to RAL 9002, matte finish.

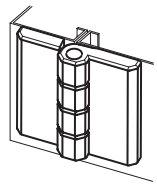
ROTATING PIN
AISI 303 stainless steel.

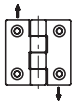
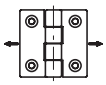
STANDARD EXECUTIONS
- **CFM-p**: nickel-plated steel threaded studs.
- **CFM-SH**: pass-through holes for countersunk head screws.
- **CFM-CH**: pass-through holes for cylindrical head screws with washer type UNI 6592.
- **CFM-p-SH**: nickel-plated steel threaded studs and pass-through holes for countersunk head screws.
- **CFM-p-CH**: nickel-plated steel threaded studs and pass-through holes for cylindrical head screws with UNI 6592 washer.
- **CFM.60-SL-CH**: pass-through slotted hole for shorted cylindrical head screws UNI 9327 which allow adjustment during clamping.



ROTATION ANGLE (APPROXIMATE VALUE)
Max 270° (-90° and +180° being 0° the condition where the two interconnected surfaces are on the same plane).
Do not exceed the rotation angle limit so as not to prejudice the hinge mechanical performance.
To choose the convenient type and the right number of hinges for your application, see the Guidelines (on page 1368).



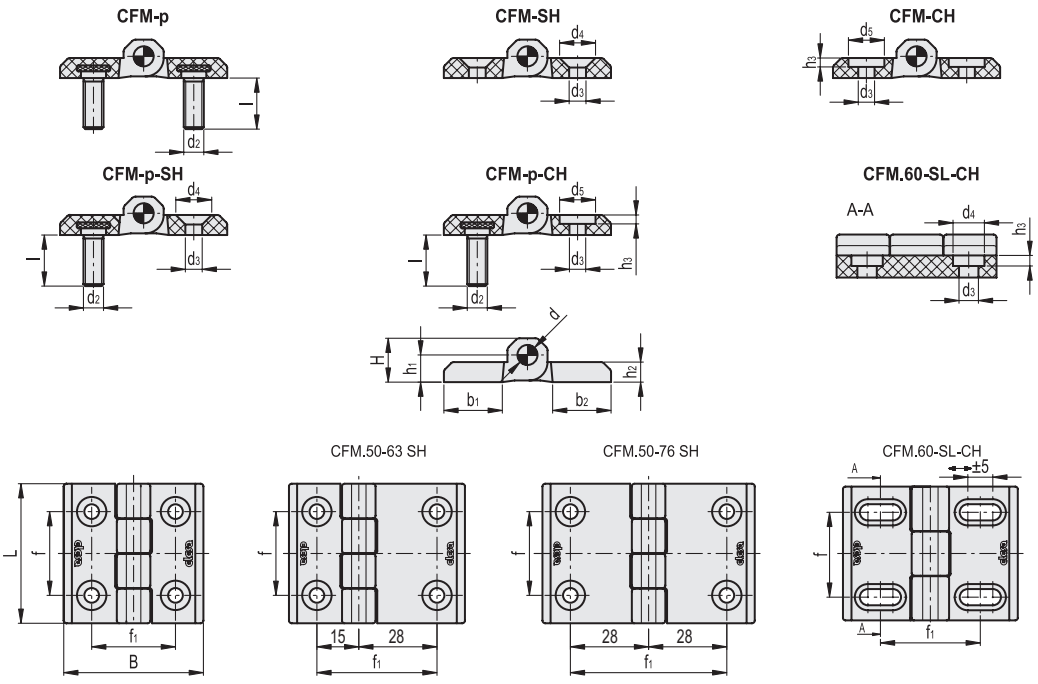


Resistance tests	AXIAL STRESS	RADIAL STRESS	90° ANGLED STRESS
			
Description	Max limit static load Sa [N]	Max limit static load Sr [N]	Max limit static load S90 [N]
CFM.30 SH-4	1400	1700	1000
CFM.30 CH-4	1300	1700	850
CFM.40 p-M5x12	2000	1900	1000
CFM.40 SH-5	1900	1900	1280
CFM.40 CH-5	1900	1600	1000
CFM.40 p-M5x12-SH-5	1900	1900	1000
CFM.40 p-M5x12-CH-5	1900	1600	1000
CFM.50 p-M6x12	2340	2560	2100
CFM.50 SH-6	2630	2400	1720
CFM.50-63 SH-6	800	1600	1000
CFM.50-76 SH-6	600	1500	1000
CFM.50 CH-6	2860	2410	1360
CFM.50 p-M6x12-SH-6	2340	2400	1720
CFM.50 p-M6x12-CH-6	2340	2410	1360
CFM.60 p-M8x14.5	3000	3940	2130
CFM.60 SH-8	3320	2960	3070
CFM.60 CH-8	3440	2810	2170
CFM.60 p-M8x14.5-SH-8	3000	2960	2130
CFM.60 p-M8x14.5-CH-8	3000	2810	2130
CFM.60-45-SH-6	2920	3010	1310
CFM.60-SL-CH-6	960	1200	1360

The max static load is the value above which the material may break thus prejudicing the hinge functionality use. Obviously, a suitable factor, according to the importance and the safety level of the specific application must be applied to this value.

Valid values also for CFM-CLEAN.

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CFM.

Code	Description	L	B	d2	l	f±0.25	f1 ±0.25	H	h1	h2	h3	b1	b2	d	d3	d4	d5	C [Nm] p#	C [Nm] SH/ CH#	⚖
425411	CFM.30-SH-4	30	30	-	-	18	18	7	4	3.5	-	10.5	10.5	2.5	4.5	8.5	-	-	3	11
425412	CFM.30-CH-4	30	30	-	-	18	18	7	4	3.5	1.3	10.5	10.5	2.5	4.5	-	8.5	-	3	11
425521	CFM.40-p-M5x12	40	40	M5	12	25	25	9	5.5	5	-	14	14	4	-	-	-	5	-	26
425511	CFM.40-SH-5	40	40	-	-	25	25	9	5.5	5	-	14	14	4	5.5	10.5	-	-	3	14
425512	CFM.40-CH-5	40	40	-	-	25	25	9	5.5	5	1.7	14	14	4	5.5	-	10.5	-	5	14
425531	CFM.40-p-M5x12-SH-5	40	40	M5	12	25	25	9	5.5	5	-	14	14	4	5.5	10.5	-	5	3	20
425532	CFM.40-p-M5x12-CH-5	40	40	M5	12	25	25	9	5.5	5	1.7	14	14	4	5.5	-	10.5	5	5	20
425621	CFM.50-p-M6x12	50	50	M6	12	30	30	11.5	6.5	6	-	18	18	6	-	-	-	5	-	50
425611	CFM.50-SH-6	50	50	-	-	30	30	11.5	6.5	6	-	18	18	6	6.5	12.5	-	-	5	30
425851	CFM.50-63-SH-6	50	63	-	-	30	43	11.5	6.5	6	-	18	31	6	6.5	12.5	-	-	5	37
425856	CFM.50-76-SH-6	50	76	-	-	30	56	11.5	6.5	6	-	31	31	6	6.5	12.5	-	-	5	42
425612	CFM.50-CH-6	50	50	-	-	30	30	11.5	6.5	6	3	18	18	6	6.5	-	12.5	-	5	30
425631	CFM.50-p-M6x12-SH-6	50	50	M6	12	30	30	11.5	6.5	6	-	18	18	6	6.5	12.5	-	5	5	40
425632	CFM.50-p-M6x12-CH-6	50	50	M6	12	30	30	11.5	6.5	6	3	18	18	6	6.5	-	12.5	5	5	40
425721	CFM.60-p-M8x14.5	60	60	M8	14.5	36	36	15	8.5	8	-	21	21	8	-	-	-	5	-	101
425711	CFM.60-SH-8	60	60	-	-	36	36	15	8.5	8	-	21	21	8	8.5	16.5	-	-	5	57
425712	CFM.60-CH-8	60	60	-	-	36	36	15	8.5	8	4	21	21	8	8.5	-	16.5	-	5	57
425731	CFM.60-p-M8x14.5-SH-8	60	60	M8	14.5	36	36	15	8.5	8	-	21	21	8	8.5	16.5	-	5	5	79
425732	CFM.60-p-M8x14.5-CH-8	60	60	M8	14.5	36	36	15	8.5	8	4	21	21	8	8.5	-	16.5	5	5	79
425812	CFM.60-45-SH-6	60	70	-	-	34	45	14.5	8	7.5	-	26	26	8	6.5	12.5	-	-	5	62
425822	CFM.60-SL-CH-6	60	70	-	-	34	40	14.5	8	7.5	4	26	26	8	6.5	10.5	-	-	4	61

CFM-CLEAN

Code	Description	L	B	f±0.25	f1 ±0.25	H	h1	h2	b1	b2	d	d3	d4	C# [Nm]	⚖
425441	CFM.30-SH-4-CLEAN	30	30	18	18	7	4	3.5	10.5	10.5	2.5	4.5	8.5	3	11
425541	CFM.40-SH-5-CLEAN	40	40	25	25	9	5.5	5	14	14	4	5.5	10.5	3	14
425641	CFM.50-SH-6-CLEAN	50	50	30	30	11.5	6.5	6	18	18	6	6.5	12.5	5	30
425741	CFM.60-SH-8-CLEAN	60	60	36	36	15	8.5	8	21	21	8	8.5	16.5	5	57

Suggested tightening torque for assembly screws.

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Spring hinges

for automatic return, SUPER-technopolymer

MATERIAL
Glass-fibre reinforced polyamide (PA) SUPER-technopolymer body, black colour, matte finish.

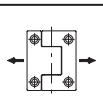
ROTATING PIN
Aluminium.
Pin housing end caps made out of acetal based (POM) technopolymer, black colour.

RETURN SPRING
Stainless steel.

STANDARD EXECUTIONS
Pass-through holes for M6 cylindrical head screws.
- **CFMR-NC-035**: max return torque 0.35Nm (at 180°), holding torque 0.12Nm (at 0°).
- **CFMR-NC-070**: max return torque 0.70Nm (at 180°), holding torque 0.25Nm (at 0°).
- **CFMR-NO-035**: max return torque 0.35Nm (at 0°), holding torque 0.12Nm (at 180°).
- **CFMR-NO-070**: max return torque 0.70Nm (at 0°), holding torque 0.25Nm (at 180°).
- **CFMR-NS**: complementary hinge, no return spring.

ROTATION ANGLE (APPROXIMATE VALUE)
Max 270° (-90° and +180° being 0° the condition where the two interconnected surfaces are on the same plane).
The hinge can reach -90 ° but this condition must not be used for CFMR-NO execution.
Do not exceed the rotation limit angle so as not to prejudice the correct operation of the return spring.
To choose the convenient type and the right number of hinges for your application, see the Guidelines (on page 1368).

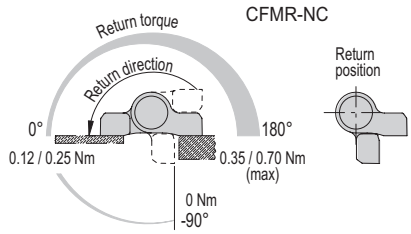
FEATURES AND PERFORMANCES
CFMR hinge is used for the automatic re-closing or re-opening of the door by the return spring.
The torque varies progressively with the opening/closing angle of the hinge.
In special stress resistance tests, the return spring has exceeded 100,000 cycles while keeping the torque values unchanged.

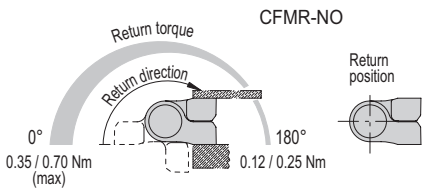
	AXIAL STRESS	RADIAL STRESS	90° ANGLED STRESS
Resistance tests			
	Max limit static load Sa [N]	Max limit static load Sr [N]	Max limit static load S90 [N]
CFMR.	2100	3500	1900

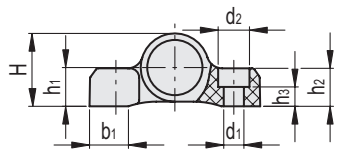
The max static load is the value above which the material may break thus prejudicing the hinge functionality. Obviously, a suitable factor, according to the importance and the safety level of the specific application must be applied to this value.

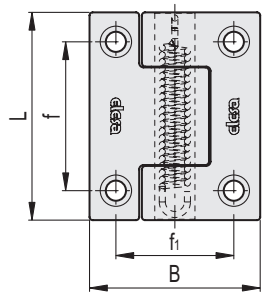


ELESA Original design









Code	Description	L	B	d1	d2	f	f1	H	h1	h2	h3	b1	C# [Nm]	⚖
425841	CFMR.67-NC-035	67	55	6.5	10	48	38	24	12.5	12.5	6.3	12.5	6	67
425845	CFMR.67-NC-070	67	55	6.5	10	48	38	24	12.5	12.5	6.3	12.5	6	67
425852	CFMR.67-NO-035	67	55	6.5	10	48	38	24	12.5	12.5	6.3	12.5	6	67
425855	CFMR.67-NO-070	67	55	6.5	10	48	38	24	12.5	12.5	6.3	12.5	6	67
425840	CFMR.67-NS	67	55	6.5	10	48	38	24	12.5	12.5	6.3	12.5	6	61

Suggested torque for screw assembly.

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Hinges

Technopolymer

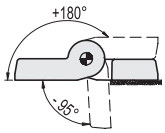
MATERIAL
High-resilience polyamide based (PA) technopolymer, black colour, matte finish.

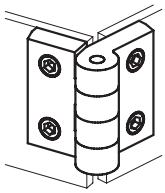
ROTATING PIN
AISI 303 stainless steel.

STANDARD EXECUTION
Pass-through holes for cylindrical head screws.

ROTATION ANGLE (APPROXIMATE VALUE)
Max 275° (-95° and +180° being 0° the condition where the two interconnected surfaces are on the same plane).
Do not exceed the rotation angle limit so as not to prejudice the hinge mechanical performance.
To choose the convenient type and the right number of hinges for your application, see the Guidelines (on page 1368).

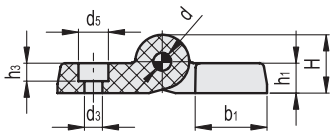


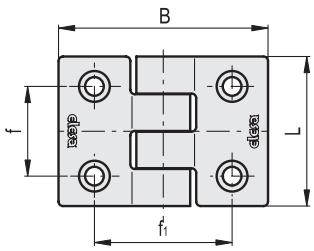




FM design

Resistance tests	AXIAL STRESS		RADIAL STRESS		90° ANGLED STRESS	
Description	Maximum working load Ea [N]	Load at breakage Ra [N]	Maximum working load Er [N]	Load at breakage Rr [N]	Maximum working load E90 [N]	Load at breakage R90 [N]
CFH.50	200	2440	380	3830	190	1950





Code	Description	L	B	f±0.25	f1 ±0.25	H	h1	h3	b1	d	d3	d5	C# [Nm]	⚖
424021	CFH.50 CH-6	50	69.5	30	45.5	19.5	10	6.5	24	6	6.5	10	3	46
424031	CFH.50 CH-8	50	69.5	30	45.5	19.5	10	4.5	24	6	8.5	13	3	42

Suggested tightening torque for assembly screws.

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GN 237

Hinges

Zinc die casting / Stainless Steel / Aluminium



SPECIFICATION

Types

- Type **A**: 2x2 bores for countersunk screws
- Type **C**: 2x2 threaded studs

Version in Zinc die casting

Zinc die casting **ZD**

plastic coated

- black, RAL 9005, textured finish **SW**
- silver, RAL 9006, textured finish **SR**
- chrome-plated **CR**

Pin, Stainless Steel AISI 303

Threaded stud (Type C), Stainless Steel AISI 316

Version in Stainless Steel

- AISI CF-8 **NI**
- German Material No. 1.4408 **A4**
- matt shot-blasted **GS**

Pin, Stainless Steel AISI 316Ti

Threaded stud (Type C), Stainless Steel AISI 316 for ZD and AL Stainless Steel AISI CF-8, casted "in one piece"

Version in Aluminium

Aluminium **AL**
anodized, natural colour **EL**

Pin, Stainless Steel AISI 316Ti

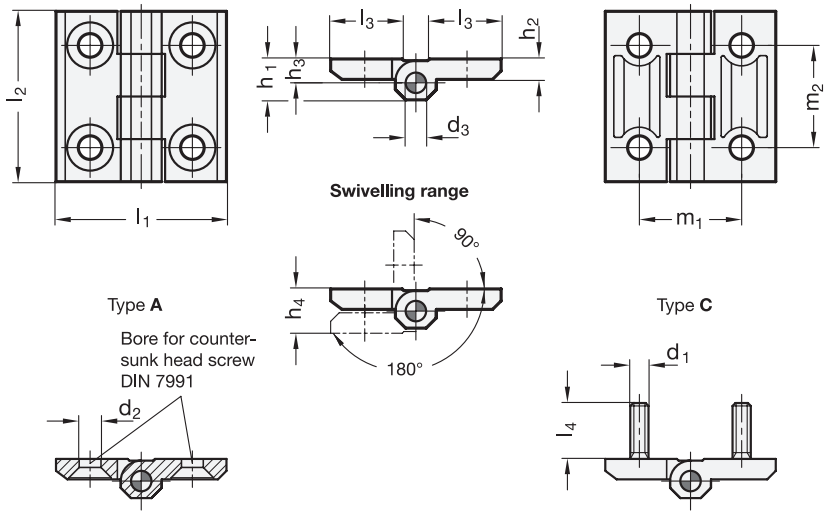
Threaded stud (Type C), Stainless Steel AISI 316

INFORMATION

GN 237 hinges are characterized by their compact and stable design. The various material and surface choices in combination with two mounting types enable very specific applications.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)
- Load rating information of hinges (see page A40)
- List of hinges types (see page 1362)



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GN 237-ZD

Description	l1	l2	d1	d2	d3	h1	h2	h3	h4 +0.5	l3	l4	m1	m2	⚖
GN 237-ZD-30-30-A-SW	30	30	-	4.3	3	7.5	4	4.5	8.5	10.7	-	18	18	19
GN 237-ZD-30-30-A-SR	30	30	-	4.3	3	7.5	4	4.5	8.5	10.7	-	18	18	19
GN 237-ZD-30-30-A-CR	30	30	-	4.3	3	7.5	4	4.5	8.5	10.7	-	18	18	19
GN 237-ZD-40-40-A-SW	40	40	-	5.3	4	9	5	5.5	11	14	-	25	25	42
GN 237-ZD-40-40-A-SR	40	40	-	5.3	4	9	5	5.5	11	14	-	25	25	45
GN 237-ZD-40-40-A-CR	40	40	-	5.3	4	9	5	5.5	11	14	-	25	25	50
GN 237-ZD-40-40-C-SW	40	40	M 5	-	4	9	5	5.5	11	14	12	25	25	59
GN 237-ZD-40-40-C-SR	40	40	M 5	-	4	9	5	5.5	11	14	12	25	25	59
GN 237-ZD-40-40-C-CR	40	40	M 5	-	4	9	5	5.5	11	14	12	25	25	69
GN 237-ZD-50-50-A-SW	50	50	-	6.4	6	11.5	6	6.5	13	18.5	-	30	30	87
GN 237-ZD-50-50-A-SR	50	50	-	6.4	6	11.5	6	6.5	13	18.5	-	30	30	89
GN 237-ZD-50-50-A-CR	50	50	-	6.4	6	11.5	6	6.5	13	18.5	-	30	30	87
GN 237-ZD-50-50-C-SW	50	50	M 6	-	6	11.5	6	6.5	13	18.5	12	30	30	102
GN 237-ZD-50-50-C-SR	50	50	M 6	-	6	11.5	6	6.5	13	18.5	12	30	30	103
GN 237-ZD-50-50-C-CR	50	50	M 6	-	6	11.5	6	6.5	13	18.5	12	30	30	102
GN 237-ZD-60-60-A-SW	60	60	-	8.3	8	15	8	8.5	17	21.5	-	36	36	160
GN 237-ZD-60-60-A-SR	60	60	-	8.3	8	15	8	8.5	17	21.5	-	36	36	160
GN 237-ZD-60-60-A-CR	60	60	-	8.3	8	15	8	8.5	17	21.5	-	36	36	164
GN 237-ZD-60-60-C-SW	60	60	M 8	-	8	15	8	8.5	17	21.5	14	36	36	200
GN 237-ZD-60-60-C-SR	60	60	M 8	-	8	15	8	8.5	17	21.5	14	36	36	190
GN 237-ZD-60-60-C-CR	60	60	M 8	-	8	15	8	8.5	17	21.5	14	36	36	194

GN 237-AL

Description	l1	l2	d2	d3	h1	h2	h3	h4 +0.5	l3	m1	m2	⚖
GN 237-AL-30-30-A-EL	30	30	4.3	3	7.5	4	4.5	8.5	10.7	18	18	11
GN 237-AL-40-40-A-EL	40	40	5.3	4	9	5	5.5	11	14	25	25	24
GN 237-AL-50-50-A-EL	50	50	6.4	6	11.5	6	6.5	13	18.5	30	30	48
GN 237-AL-60-60-A-EL	60	60	8.3	8	15	8	8.5	17	21.5	36	36	90

GN 237-A4

STAINLESS STEEL

Description	l1	l2	d2	d3	h1	h2	h3	h4 +0.5	l3	m1	m2	⚖
GN 237-A4-30-30-A-GS	30	30	4.3	3	7.5	4	4.5	8.5	10.7	18	18	23
GN 237-A4-40-40-A-GS	40	40	5.3	4	9	5	5.5	11	16	25	25	57
GN 237-A4-50-50-A-GS	50	50	6.4	6	11.5	6	6.5	13	21	30	30	110
GN 237-A4-60-60-A-GS	60	60	8.3	8	15	8	8.5	17	26	36	36	200

GN 237-NI

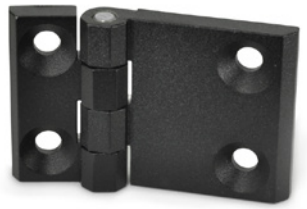
STAINLESS STEEL

Description	l1	l2	d1	d2	d3	h1	h2	h3	h4 +0.5	l3	l4	m1	m2	⚖
GN 237-NI-30-30-A-GS	30	30	-	4.3	3	7.5	4	4.5	8.5	10.7	-	18	18	25
GN 237-NI-40-40-A-GS	40	40	-	5.3	4	9	5	5.5	11	16	-	25	25	57
GN 237-NI-40-40-C-GS	40	40	M 5	-	4	9	5	5.5	11	16	11	25	25	69
GN 237-NI-50-50-A-GS	50	50	-	6.4	6	11.5	6	6.5	13	21	-	30	30	100
GN 237-NI-50-50-C-GS	50	50	M 6	-	6	11.5	6	6.5	13	21	13	30	30	128
GN 237-NI-60-60-A-GS	60	60	-	8.3	8	15	8	8.5	17	26	-	36	36	180
GN 237-NI-60-60-C-GS	60	60	M 8	-	8	15	8	8.5	17	26	17	36	36	200

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Hinges

Zinc die casting / Stainless Steel, extended, horizontally elongated





SPECIFICATION

Types

- Type **A**: 2x2 bores for countersunk screws
- Type **C**: 2x2 threaded studs

Version in Zinc die casting ZD

Zinc die casting
plastic coated
black, RAL 9005, textured finish **SW**
silver, RAL 9006, textured finish **SR**

Pin, Stainless Steel AISI 303 (A2)

Threaded stud (type C)
Stainless Steel AISI 316

Version in Stainless Steel (only type A) NI

- AISI CF-8
- matt shot-blasted **GS**

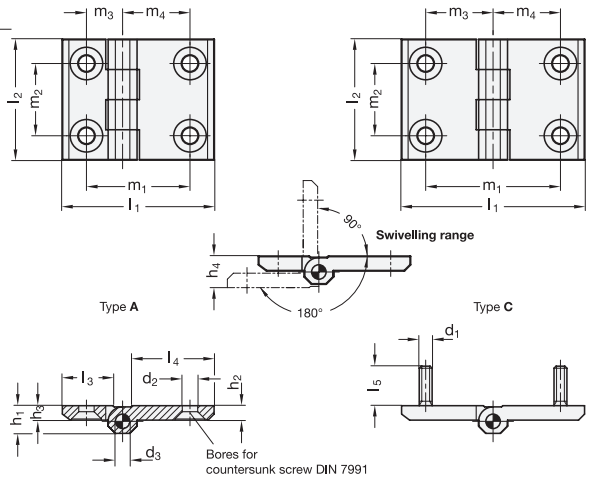
Pin, Stainless Steel AISI 316Ti (A4)

INFORMATION

Hinges GN 237 with extended hinge wings are made in a compact and sturdy design. They are used when larger spacings are required for the attachment bore holes.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)
- Load rating information of hinges (see page A40)
- List of hinges types (see page 1362)



*Complete with colour index of the Hinges (SW or SR)

SW RAL9005 SR RAL9006

GN 237-ZD

Description	l1	l2	d1	d2	d3	h1	h2	h3	h4 +0.5	l3	l4	l5	m1	m2	m3	m4	⚖
GN 237-ZD-63-50-A-*	63	50	-	6.3	6	11.5	6	6.5	13	18.5	31.5	-	43	30	15	28	100
GN 237-ZD-63-50-C-*	63	50	M 6	-	6	11.5	6	6.5	13	18.5	-	12	43	30	15	28	119
GN 237-ZD-76-50-A-*	76	50	-	6.3	6	11.5	6	6.5	13	31.5	31.5	-	56	30	28	28	130
GN 237-ZD-76-50-C-*	76	50	M 6	-	6	11.5	6	6.5	13	31.5	-	12	56	30	28	28	145
GN 237-ZD-90-60-A-*	90	60	-	8.4	8	15	8	8.5	17	21.5	51.5	-	63	36	18	45	240
GN 237-ZD-90-60-C-*	90	60	M 8	-	8	15	8	8.5	17	21.5	-	14	63	36	18	45	277
GN 237-ZD-120-60-A-*	120	60	-	8.4	8	15	8	8.5	17	51.5	51.5	-	90	36	45	45	313
GN 237-ZD-120-60-C-*	120	60	M 8	-	8	15	8	8.5	17	51.5	-	14	90	36	45	45	364

GN 237-NI

STAINLESS STEEL

Description	l1	l2	d2	d3	h1	h2	h3	h4 +0.5	l3	l4	m1	m2	m3	m4	⚖
GN 237-NI-63-50-A-GS	63	50	6.3	6	11.5	6	6.5	13	18.5	31.5	43	30	15	28	132
GN 237-NI-76-50-A-GS	76	50	6.3	6	11.5	6	6.5	13	31.5	31.5	56	30	28	28	154
GN 237-NI-90-60-A-GS	90	60	8.4	8	15	8	8.5	17	21.5	51.5	63	36	18	45	287
GN 237-NI-120-60-A-GS	120	60	8.4	8	15	8	8.5	17	51.5	51.5	90	36	45	45	369

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Hinges

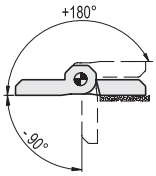
Aluminium

MATERIAL
Anodised aluminium, natural colour, matte finish.

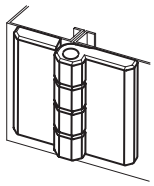
ROTATING PIN
AISI 304 stainless steel.

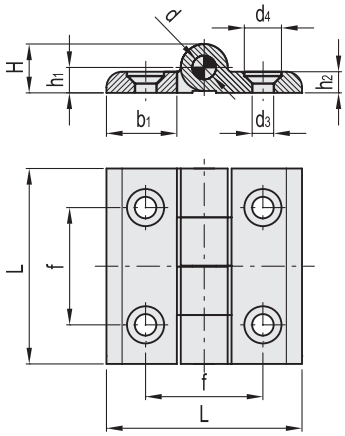
STANDARD EXECUTION
Pass-through holes for countersunk head screws.

ROTATION ANGLE (APPROXIMATE VALUE)
Max 270° (-90° and +180° being 0° the condition where the two interconnected surfaces are on the same plane).
Do not exceed the rotation angle limit so as not to prejudice the hinge mechanical performance.









Code	Description	L	d3	d4	f	H	h1	h2	b1	d	⚖
428649	CMM-AL-40-SH-5	40	5.5	10.5	25	10.5	5.5	5	17	4	25
428651	CMM-AL-50-SH-5	50	5.5	10.5	30	12.5	6.5	6	22	6	50
428652	CMM-AL-50-SH-6	50	6.5	12.5	30	12.5	6.5	6	22	6	47
428655	CMM-AL-60-SH-8	60	8.5	16.5	36	16.5	8.5	8	25	8	94

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Hinges

adjustable / with cover / zinc die casting

SPECIFICATION

Types

- Type **BJ**: adjustable on both sides
- Type **EJ**: one-sided adjustable
- Type **NJ**: not adjustable

Zinc die casting
plastic coated
black, RAL 9005, textured finish **SW**
silver, RAL 9006, textured finish **SR**

Adjusting disc
Steel, hardened

Cover
Plastic

- black grey for type SW
- light grey for type SR

Pin
Stainless Steel AISI 303



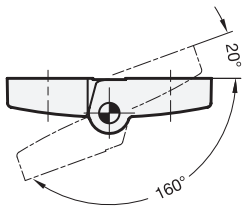
INFORMATION

The adjustable hinges GN 238 allow the technically and visually perfect positioning and alignment of a door in its frame.
The steel adjusting disc has a cutting ring in its underside which cuts into the radial fins of the zinc die-cast wings when the countersunk screw is tightened, virtually creating a form-lock that prevents adjusting the hinge after mounting.
The covers conceal the fixing elements and lend the hinge an attractive optical appearance.

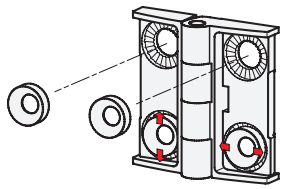
TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)
- Load rating information of hinges (see page A40)
- List of hinges types (see page 1362)

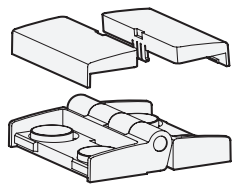
Swivelling range



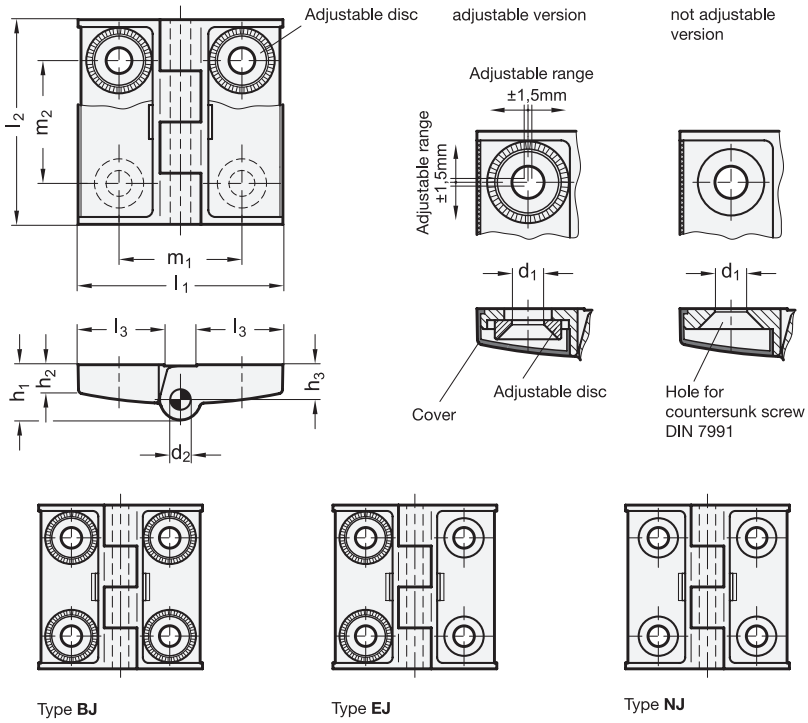
Function (Type BJ)



Assembly instruction



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GN 238

Description	l1	l2	d1	d2	h1 ≈	h2 ≈	h3	l3	m1	m2	⚖
GN 238-42-42-BJ-SR	42	42	5.3	4	11	6.5	7.5	17	25	25	52
GN 238-42-42-BJ-SW	42	42	5.3	4	11	6.5	7.5	17	25	25	60
GN 238-50-50-BJ-SR	50	50	6.3	5	13.5	7	8.5	21	30	30	91
GN 238-50-50-BJ-SW	50	50	6.3	5	13.5	7	8.5	21	30	30	91
GN 238-60-60-BJ-SR	60	60	6.3	6	16.5	8.5	11	26	36	36	160
GN 238-60-60-BJ-SW	60	60	6.3	6	16.5	8.5	11	26	36	36	160
GN 238-42-42-EJ-SR	42	42	5.3	4	11	6.5	7.5	17	25	25	54
GN 238-42-42-EJ-SW	42	42	5.3	4	11	6.5	7.5	17	25	25	54
GN 238-50-50-EJ-SR	50	50	6.3	5	13.5	7	8.5	21	30	30	92
GN 238-50-50-EJ-SW	50	50	6.3	5	13.5	7	8.5	21	30	30	90
GN 238-60-60-EJ-SR	60	60	6.3	6	16.5	8.5	11	26	36	36	160
GN 238-60-60-EJ-SW	60	60	6.3	6	16.5	8.5	11	26	36	36	172
GN 238-42-42-NJ-SR	42	42	5.3	4	11	6.5	7.5	17	25	25	54
GN 238-42-42-NJ-SW	42	42	5.3	4	11	6.5	7.5	17	25	25	54
GN 238-50-50-NJ-SR	50	50	6.3	5	13.5	7	8.5	21	30	30	88
GN 238-50-50-NJ-SW	50	50	6.3	5	13.5	7	8.5	21	30	30	91
GN 238-60-60-NJ-SR	60	60	6.3	6	16.5	8.5	11	26	36	36	170
GN 238-60-60-NJ-SW	60	60	6.3	6	16.5	8.5	11	26	36	36	172

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Stainless Steel-Spacer plates

for hinges GN 237, GN 337, CFMY CFM and GN 437

SPECIFICATION

Stainless Steel **NI**

- AISI 304
- plain, matt tumbled finish **MT**

INFORMATION

Chamfers, different sheet metal thicknesses, or seals could mean that the mounting surfaces of hinges to frame and door are not on the same level.
Stainless Steel-Spacer plates GN 2370, as accessories of the GN 237 (see page 1386) and 337 (see page 1423) family of hinges, are designed dimensionally so that they ensure the appropriate height compensation during mounting by shimming, either individually or in combination.

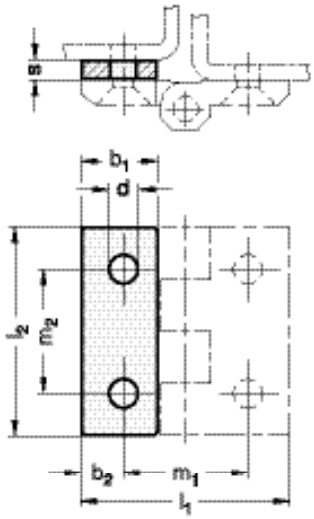
TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)

The table includes a number of potential compensation heights which can be accomplished by shimming with one or two spacer plates.

Height compensation	Plate thickness s
1	1
1.5	1.5
2	1 + 1
2.5	1 + 1.5
3	3
4	3 + 1
4.5	3 + 1.5
5	5
6	3 + 3
6.5	5 + 1.5
8	5 + 3
10	5 + 5





GN 2370 **STAINLESS STEEL**

Description	l2	s	b1	b2	d	l1	m1	m2	⚖
GN 2370-NI-30-1-MT	30	1	10.8	6	4	30	18	18	2
GN 2370-NI-30-1.5-MT	30	1.5	10.8	6	4	30	18	18	3
GN 2370-NI-30-3-MT	30	3	10.8	6	4	30	18	18	6
GN 2370-NI-30-5-MT	30	5	10.8	6	4	30	18	18	10
GN 2370-NI-40-1-MT	40	1	14.5	7.5	5	40	25	25	4
GN 2370-NI-40-1.5-MT	40	1.5	14.5	7.5	5	40	25	25	6
GN 2370-NI-40-3-MT	40	3	14.5	7.5	5	40	25	25	12
GN 2370-NI-40-5-MT	40	5	14.5	7.5	5	40	25	25	20
GN 2370-NI-50-1-MT	50	1	18	10	6	50	30	30	6
GN 2370-NI-50-1.5-MT	50	1.5	18	10	6	50	30	30	10
GN 2370-NI-50-3-MT	50	3	18	10	6	50	30	30	19
GN 2370-NI-50-5-MT	50	5	18	10	6	50	30	30	31
GN 2370-NI-60-1-MT	60	1	21.5	12.5	8	60	36	36	9
GN 2370-NI-60-1.5-MT	60	1.5	21.5	12.5	8	60	36	36	14
GN 2370-NI-60-3-MT	60	3	21.5	12.5	8	60	36	36	27
GN 2370-NI-60-5-MT	60	5	21.5	12.5	8	60	36	36	44

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GN 2372

Stainless Steel-Plates with tapped holes

for hinges GN 237, GN 337, CFMY and CFM

SPECIFICATION

Stainless Steel **NI**

- AISI 304
- plain, matt tumbled finish **MT**

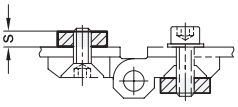
INFORMATION

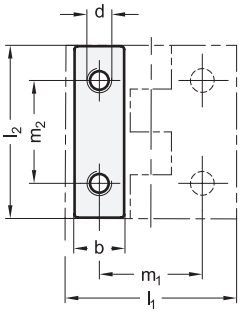
Dimensionally, Stainless Steel plates GN 2372 are designed as accessories for the GN 237 (see page 1386) family of hinges, eliminating the need for nuts and washers for mounting.
Meanwhile, there is no need for the time-consuming pre-assembly of washer and nuts or for counterholding during tightening. Mounted to the top side of the hinge, the plate offers entirely new assembly options.

TECHNICAL INFORMATION

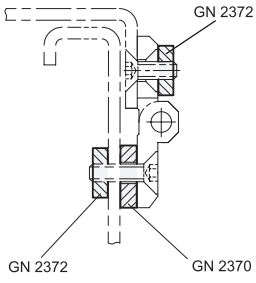
- Stainless Steel characteristics (see page A26)







Application example



GN 2372 **STAINLESS STEEL**

Description	l2	b	d	l1	m1	m2	s	⚖
GN 2372-NI-30-MT	30	9	M 4	30	18	18	3	5
GN 2372-NI-40-MT	40	12	M 5	40	25	25	3	10
GN 2372-NI-50-MT	50	15	M 6	50	30	30	4	21
GN 2372-NI-60-MT	60	18	M 8	60	36	36	4	29

GN 2374

Rubber bumper stops

for hinges GN 237, GN 237.1, GN 337 and CFMY.

SPECIFICATION

Steel precision casting **ST**
zinc plated, plastic coated
black, RAL 9005, textured finish **SW**

Elastomer element

- Perbunan® (NBR)
- temperature resistant up to 120 °C
- Hardness 85±5 Shore A

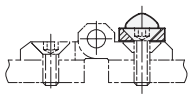
INFORMATION

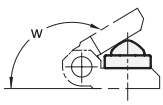
In terms of their dimensions, limit stops GN 2374 have been designed as extras for the GN 237 (see page 1386) and GN 337 (see page 1423) family of hinges. They can also be bolt-attached when mounting the hinge, with an elastomer element limiting the angle of rotation to the value w.
They are mainly used for lighter traps and gates, or when the limit stop is not expected to be exposed to dynamic loads.

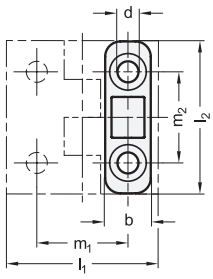
TECHNICAL INFORMATION

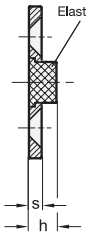
- Elastomer characteristics (see page A32)



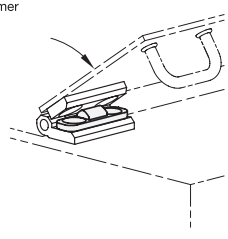








Application example



GN 2374

Description	l2	w	b	d	h	l1	m1	m2	s	⚖
GN 2374-ST-40-150-SW	40	150	12	5.3	7.8	40	25	25	3.5	10
GN 2374-ST-50-150-SW	50	150	15	6.3	9.2	50	30	30	4	12
GN 2374-ST-60-150-SW	60	150	18	8.3	10.9	60	36	36	5	21

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Tamperproof hinges

Technopolymer

MATERIAL
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

ROTATING PIN
AISI 303 stainless steel, totally moulded in the hinge body.

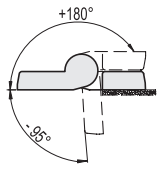
STANDARD EXECUTIONS
- **CFJ-B**: nickel-plated brass bosses with threaded hole.
- **CFJ-p**: nickel-plated steel threaded studs.
- **CFJ-EH**: pass-through holes for hexagonal head screws.
- **CFJ-B-SH**: nickel-plated brass bosses with threaded hole and pass-through holes for countersunk head screws.

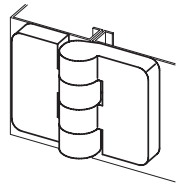
FEATURES AND APPLICATIONS
The pin is totally moulded in the hinge body (ELESA patent) thus it cannot be extracted, preventing any hinge tampering.
This charatcteristic makes the hinge particularly suitable for mounting on structures or equipments requiring protection against intrusion.

ROTATION ANGLE (APPROXIMATE VALUE)
Max 275° (-95° and +180° being 0° the condition where the two interconnected surfaces are on the same plane).
Do not exceed the rotation angle limit so as not to prejudice the hinge mechanical performance.
To choose the convenient type and the right number of hinges for your application, see the Guidelines (on page 1368).

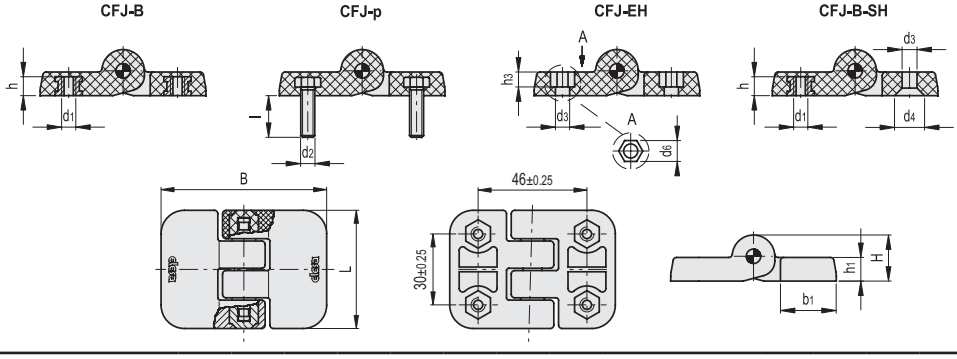


FM design





Resistance tests	AXIAL STRESS		RADIAL STRESS		90° ANGLED STRESS	
Description	Maximum working load Ea [N]	Load at breakage Ra [N]	Maximum working load Er [N]	Load at breakage Rr [N]	Maximum working load E90 [N]	Load at breakage R90 [N]
CFJ.50 B-M6	730	4170	2220	4450	710	2250
CFJ.50 p-M6x17	1420	4410	2180	4350	510	2220
CFJ.50 EH-6	1740	3470	1490	2970	460	2120
CFJ.50-R B-M6-SH-6	1480	2780	1310	2490	390	1900



Code	Description	L	B	d1	h	d2	l	H	h1	h3	b1	d3	d4	d6	C [Nm] B#	C [Nm] p#	C [Nm] EH/ SH#	⚖
424611	CFJ.50 B-M6	50	70	M6	8	-	-	19.5	10	-	23.5	-	-	-	5	-	-	66
424621	CFJ.50 p-M6x17	50	70	-	-	M6	17	19.5	10	-	23.5	-	-	-	-	4	-	71
424631	CFJ.50 EH-6	50	70	-	-	-	-	19.5	10	5.5	23.5	6.5	-	10	-	-	5	46
424671	CFJ.50-R B-M6-SH-6	50	70	M6	8	-	-	19.5	10	-	23.5	6.5	12.5	-	5	-	3	54

Suggested tightening torque for assembly screws.

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GN 136

Sheet metal hinges

Stainless Steel / Steel, square or vertically elongated

SPECIFICATION

Types

- Type **A**: without bores, for welding (only in Stainless Steel NI)
- Type **B**: with bores for cylinder head screws / lens head screws
- Type **C**: with bore, for countersunk screws

Version in Steel

Steel **ST**

- only types B and C
- zinc plated, blue passivated

Pin
Stainless Steel AISI 304
riveted

Version in Stainless Steel

Stainless Steel AISI 304 **NI**
all types

Pin
Stainless Steel AISI 304
riveted

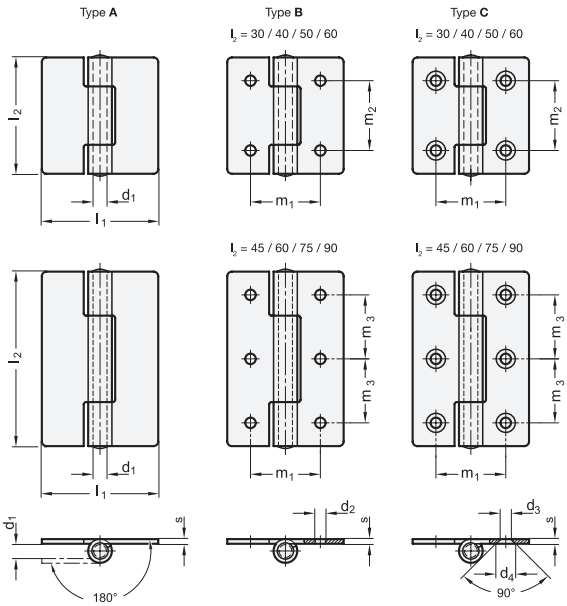


INFORMATION

Sheet metal hinges GN 136 are low-cost designs for low-load applications.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)
- Load rating information of hinges (see page A40)
- List of hinge types (see page 1362)



*Complete with type index of the Sheet metal hinges
B C

*Complete with type index of the Sheet metal hinges
A B C

GN 136

Description	l1	l2	d1	d2	d3	d4	m1	m2	m3	s	⚖
GN 136-ST-30-30-*	30	30	3	3.2	4	6.4	18	18	-	1.5	22
GN 136-ST-30-45-*	30	45	3	3.2	4	6.4	18	-	16.5	1.5	22
GN 136-ST-40-40-*	40	40	4	4.2	5	8.3	25	25	-	2	33
GN 136-ST-40-60-*	40	60	4	4.2	5	8.3	25	-	22.5	2	33
GN 136-ST-50-50-*	50	50	6	5.2	5	8.3	30	30	-	2	60
GN 136-ST-50-75-*	50	75	6	5.2	5	8.3	30	-	27.5	2	60
GN 136-ST-60-60-*	60	60	6	5.2	5	8.3	36	36	-	2	82
GN 136-ST-60-90-*	60	90	6	5.2	5	8.3	36	-	33	2	82

GN 136-NI

STAINLESS STEEL

Description	l1	l2	d1	d2	d3	d4	m1	m2	m3	s	⚖
GN 136-NI-30-30-*	30	30	3	3.2	4	6.4	18	18	-	1.5	34
GN 136-NI-30-45-*	30	45	3	3.2	4	6.4	18	-	16.5	1.5	34
GN 136-NI-40-40-*	40	40	4	4.2	5	8.3	25	25	-	2	34
GN 136-NI-40-60-*	40	60	4	4.2	5	8.3	25	-	22.5	2	34
GN 136-NI-50-50-*	50	50	6	5.2	5	8.3	30	30	-	2	62
GN 136-NI-50-75-*	50	75	6	5.2	5	8.3	30	-	27.5	2	62
GN 136-NI-60-60-*	60	60	6	5.2	5	8.3	36	36	-	2	83
GN 136-NI-60-90-*	60	90	6	5.2	5	8.3	36	-	33	2	83

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Hinge with adjusting inserts

SUPER-technopolymer

MATERIAL
Glass-fibre reinforced polyamide based (PA) SUPER-technopolymer, black colour, matte finish.

ADJUSTING INSERTS
Technopolymer, black colour.

ROTATING PIN
AISI 303 stainless steel.

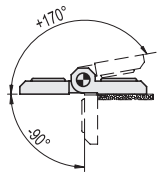
STANDARD EXECUTION
Pass-through holes for M6 countersunk-head screws.

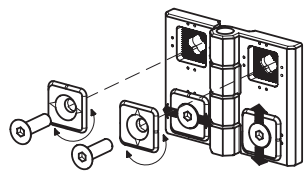
FEATURES AND APPLICATIONS
The adjusting inserts (ELESA patent) are designed to compensate limited misalignments of doors. Vertical and horizontal adjustments are both possible by simply setting the orientation of the inserts, thus obtaining the perfect alignment between the door and the frame.
The knurling on the hinge body and on the rear of the inserts keep the precise position during the assembly of the hinge.
This hinge can be used to compensate vertical, horizontal or both misalignments.

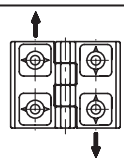
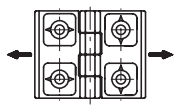
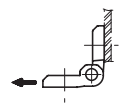


FM design

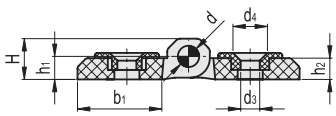
ROTATION ANGLE (APPROXIMATE VALUE)
Max 260° (-90° and +170° being 0° the condition where the two interconnected surfaces are on the same plane).
Do not exceed the rotation angle limit so as not to prejudice the hinge mechanical performance.
To choose the convenient type and the right number of hinges for your application, see the Guidelines (on page 1368).

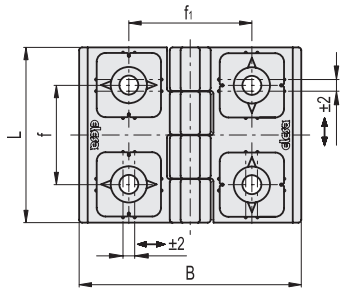




Resistance tests	AXIAL STRESS	RADIAL STRESS	90° ANGLED STRESS
			
	Max. limit stati load	Max. limit stati load	Max. limit stati load
Description	Sa [N]	Sr [N]	S90 [N]
CFR.60 SH-6	1800	2700	2130

The max static load is the value above which the material may break thus prejudicing the hinge functionality use. Obviously, a suitable factor, according to the importance and the safety level of the specific application must be applied to this value.





Code	Description	L	B	f	f1	H	h1	h2	b1	d	d3	d4	C# [Nm]	⚖
426431	CFR.60 SH-6	60	75	34	42	16	9.5	8	29.5	8	6.5	12.5	5	72

Suggested tightening torque for assembly screws.

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Hinges

adjustable / zinc die casting



SPECIFICATION

Types

- Type **H**: horizontal adjustable
- Type **B**: vertical adjustable
- Type **HB**: vertical and/or horizontal adjustable

Zinc die casting
plastic coated
black, textured finish

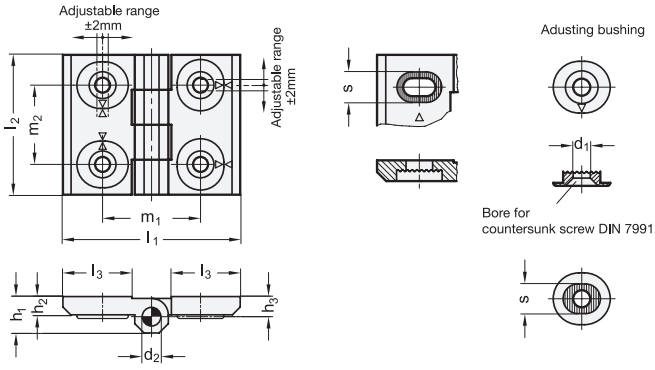
Pin
Stainless Steel AISI 303

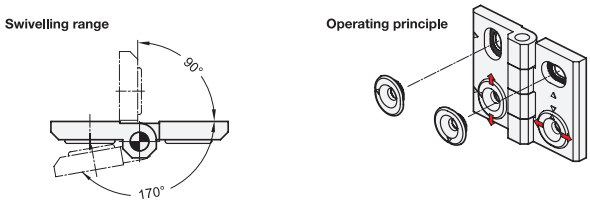
INFORMATION

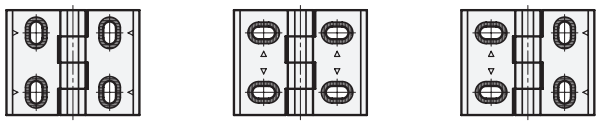
Hinges GN 127 allow technically and visually perfect positioning and alignment of a door in its frame.
The serrations at the wings of the hinge and at the adjusting bushings create a form lock which prevents the hinge from moving after installation. The tips of the arrows mark the 0 reference point for easier installation.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)
- Load rating information of hinges (see page A40)
- List of hinges types (see page 1362)







GN 127

Description	l1	l2	d1	d2	h1 ≈	h2	h3	l3	m1	m2	s	⚖
GN 127-76-60-B	76	60	6.5	8	15	8	8.5	30	42	34	12	200
GN 127-76-60-H	76	60	6.5	8	15	8	8.5	30	42	34	12	201
GN 127-76-60-HB	76	60	6.5	8	15	8	8.5	30	42	34	12	201

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Hinges for thin doors

Technopolymer

MATERIAL
High-resilience polyamide based (PA) technopolymer, black colour, matte finish.

ROTATING PIN
AISI 303 stainless steel.

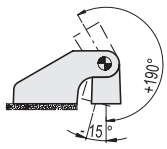
STANDARD EXECUTIONS
- **CFD-B**: nickel-plated brass bosses with threaded hole.
- **CFD-p**: nickel-plated brass threaded studs in the wide body, nickel-plated steel threaded studs in the narrow body.
- **CFD-p-B**: nickel-plated brass threaded studs and nickel-plated brass bosses with threaded hole.
- **CFD-B-p**: nickel-plated brass bosses with threaded hole and nickel-plated steel threaded studs.
- **CFD-CH-B**: pass-through holes for cylindrical head screws and nickel-plated brass bosses with threaded hole.
- **CFD-CH-p**: pass-through holes for cylindrical head screws and nickel-plated steel threaded studs.

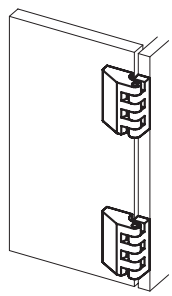
FEATURES AND APPLICATIONS
The hinge is made up of two bodies with different dimensions (a narrow one and a larger one) and can be assembled for example on structures with thin frame or door.

ROTATION ANGLE (APPROXIMATE VALUE)
Max 205° (-15° and +190° being 0° the condition where the two interconnected surfaces are on the same plane).
Do not exceed the rotation angle limit so as not to prejudice the hinge mechanical performance.
To choose the convenient type and the right number of hinges for your application, see the Guidelines (on page 1368).



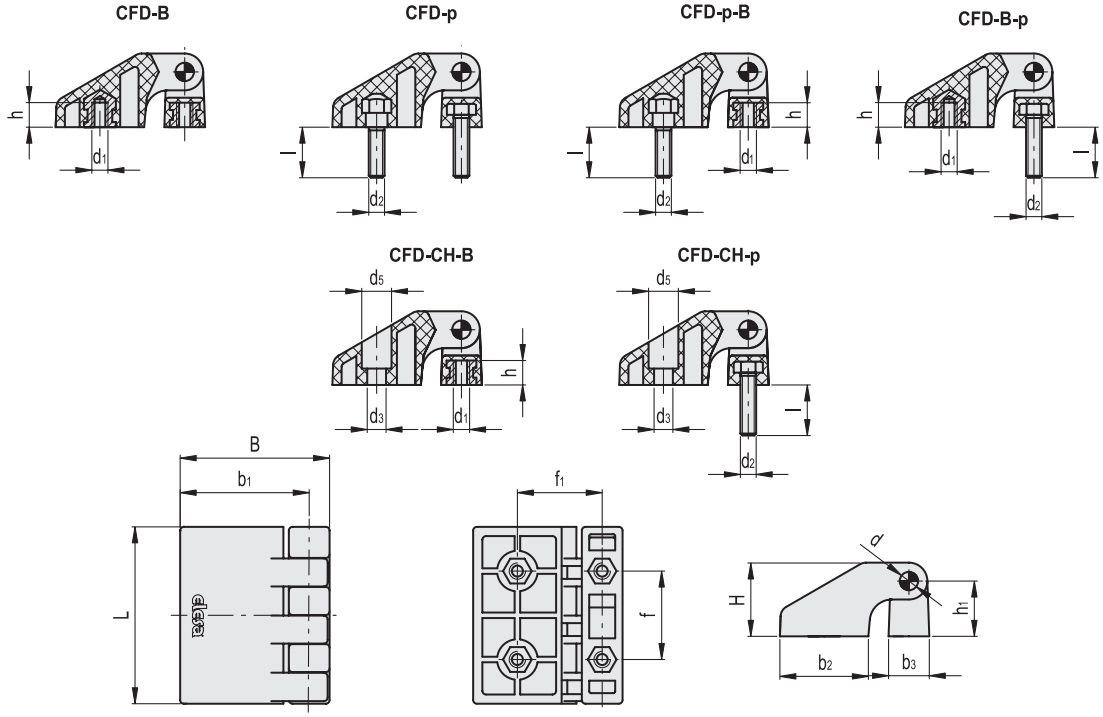
FM design





Resistance tests	AXIAL STRESS		RADIAL STRESS		90° ANGLED STRESS	
Description	Maximum working load Ea [N]	Load at breakage Ra [N]	Maximum working load Er [N]	Load at breakage Rr [N]	Maximum working load E90 [N]	Load at breakage R90 [N]
CFD.30 B-M3	60	690	70	490	60	500
CFD.30 p-M3x13	70	750	40	340	30	390
CFD.30 p-M3x13-B-M3	60	690	40	340	30	390
CFD.30 B-M3-p-M3x13	60	690	40	340	30	390
CFD.30 CH-3-B-M3	100	830	110	720	70	670
CFD.30 CH-3-p-M3x13	60	730	50	450	30	350
CFD.40 B-M4	160	1710	150	1340	100	700
CFD.40 p-M4x18	110	1230	140	880	50	730
CFD.40 p-M4x18-B-M4	110	1230	140	880	50	700
CFD.40 B-M4-p-M4x18	110	1230	140	880	50	700
CFD.40 CH-4-B-M4	120	1620	150	1220	130	1110
CFD.40 CH-4-p-M4x18	150	1480	140	820	100	860
CFD.48 B-M5	260	2440	260	1700	120	1640
CFD.48 p-M5x17	290	1770	240	1840	110	1740
CFD.48 p-M5x17-B-M5	260	1770	240	1700	110	1640
CFD.48 B-M5-p-M5x17	260	1770	240	1700	110	1640
CFD.48 CH-5-B-M5	330	2530	240	1890	290	1870
CFD.48 CH-5-p-M5x17	150	2170	120	1200	110	970
CFD.66 B-M6	450	4130	320	2520	220	2250
CFD.66 p-M6x16	470	3260	260	1700	240	1580
CFD.66 p-M6x16-B-M6	450	3260	260	1700	220	1580
CFD.66 B-M6-p-M6x16	450	3260	260	1700	220	1580
CFD.66 CH-6-B-M6	430	3660	410	2610	310	2830
CFD.66 CH-6-p-M6x16	350	3090	280	1770	180	1610

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Code	Description	L	B	d1	h	d2	l	f±0.25	f1 ±0.25	H	h1	b1	b2	b3	d	d3	d5	C [Nm] B#	C [Nm] p#	C [Nm] CH#	⚖
422711	CFD.30 B-M3	30.5	26.5	M3	4	-	-	15	15	12.5	9.5	22.5	15	7	2.5	-	-	1	-	-	8
422721	CFD.30 p-M3x13	30.5	26.5	-	-	M3	13	15	15	12.5	9.5	22.5	15	7	2.5	-	-	-	1	-	11
422731	CFD.30 p-M3x13-B-M3	30.5	26.5	M3	4	-	13	15	15	12.5	9.5	22.5	15	7	2.5	-	-	1	1	-	10
422741	CFD.30 B-M3-p-M3x13	30.5	26.5	-	4	M3	13	15	15	12.5	9.5	22.5	15	7	2.5	-	-	1	1	-	9
422751	CFD.30 CH-3-B-M3	30.5	26.5	M3	4	-	-	15	15	12.5	9.5	22.5	15	7	2.5	3.5	6	1	-	0.5	7
422761	CFD.30 CH-3-p-M3x13	30.5	26.5	-	-	M3	13	15	15	12.5	9.5	22.5	15	7	2.5	3.5	6	-	1	0.5	8
422811	CFD.40 B-M4	40.5	34	M4	5.5	-	-	20	20.2	16.5	12.5	29.5	20	9.5	4	-	-	4	-	-	19
422821	CFD.40 p-M4x18	40.5	34	-	-	M4	18	20	20.2	16.5	12.5	29.5	20	9.5	4	-	-	-	1.5	-	26
422831	CFD.40 p-M4x18-B-M4	40.5	34	M4	5.5	M4	18	20	20.2	16.5	12.5	29.5	20	9.5	4	-	-	4	1.5	-	23
422841	CFD.40 B-M4-p-M4x18	40.5	34	-	5.5	M4	18	20	20.2	16.5	12.5	29.5	20	9.5	4	-	-	4	1.5	-	21
422851	CFD.40 CH-4-B-M4	40.5	34	M4	5.5	-	-	20	20.2	16.5	12.5	29.5	20	9.5	4	4.5	7.5	4	-	1	16
422861	CFD.40 CH-4-p-M4x18	40.5	34	-	-	M4	18	20	20.2	16.5	12.5	29.5	20	9.5	4	4.5	7.5	-	1.5	1	19
422911	CFD.48 B-M5	48.5	40.5	M5	6.5	-	-	24	23	20	15	35	24	11.5	5	-	-	5	-	-	33
422921	CFD.48 p-M5x17	48.5	40.5	-	-	M5	17	24	23	20	15	35	24	11.5	5	-	-	-	3	-	46
422931	CFD.48 p-M5x17-B-M5	48.5	40.5	M5	6.5	M5	17	24	23	20	15	35	24	11.5	5	-	-	5	3	-	41
422941	CFD.48 B-M5-p-M5x17	48.5	40.5	-	6.5	M5	17	24	23	20	15	35	24	11.5	5	-	-	5	3	-	38
422951	CFD.48 CH-5-B-M5	48.5	40.5	M5	6.5	-	-	24	23	20	15	35	24	11.5	5	5.5	9	-	-	2	27
422961	CFD.48 CH-5-p-M5x17	48.5	40.5	-	-	M5	17	24	23	20	15	35	24	11.5	5	5.5	9	-	3	2	31
423011	CFD.66 B-M6	66	56	M6	9	-	-	33	31.8	27.5	21	48.5	33	15	6	-	-	5	-	-	76
423021	CFD.66 p-M6x16	66	56	-	-	M6	16	33	31.8	27.5	21	48.5	33	15	6	-	-	-	5	-	95
423031	CFD.66 p-M6x16-B-M6	66	56	M6	9	M6	16	33	31.8	27.5	21	48.5	33	15	6	-	-	5	5	-	90
423041	CFD.66 B-M6-p-M6x16	66	56	-	9	M6	16	33	31.8	27.5	21	48.5	33	15	6	-	-	5	5	-	82
423051	CFD.66 CH-6-B-M6	66	56	M6	9	-	-	33	31.8	27.5	21	48.5	33	15	6	6.5	10.5	5	-	5	66
423061	CFD.66 CH-6-p-M6x16	66	56	-	-	M6	16	33	31.8	27.5	21	48.5	33	15	6	6.5	10.5	-	5	5	71

Suggested tightening torque for assembly screws.

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Hinges for thin doors

Aluminium

MATERIAL
Anodized aluminium, black or natural colour, matte finish.

ROTATING PIN
AISI 304 stainless steel.

GUIDE BUSHINGS FOR PIN
Polyamide based (PA) technopolymer.

ASSEMBLY SCREWS
Stainless steel self-tapping screws 4.8x15.9 DIN 7982 (frame side) and stainless steel M5x10 semi-rounded head screws (door side). Included in the supply.

STANDARD EXECUTIONS
- **CMDX-AL-P**: with bodies on the same plane.
- **CMDX-AL-R**: with raised body.
- **CMDX-AL-PS**: with bodies on the same plane, opening to the left side.
- **CMDX-AL-RS**: with raised body, opening to the left side.
- **CMDX-AL-PD**: with bodies on the same plane, opening to the right side.
- **CMDX-AL-RD**: with raised body, opening on the right side.

Index for finish:
- **AN**: anodised in natural colour.
- **AB**: anodised in black colour.

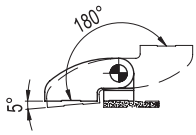
FEATURES AND APPLICATIONS
The hinge is made up of two bodies with different dimensions (a narrow one and a larger one) and can be assembled for example on structures with thin frame or door. Supplied not assembled for an easy fixing.

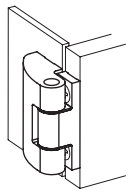




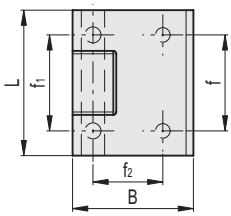
ELESA Original design

ROTATION ANGLE (APPROXIMATE VALUE)
Max 185° (-5° and +180° being 0° the condition where the two hinged surfaces are on the same plane).
Do not exceed the rotation angle limit so as not to damage the hinge.

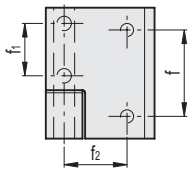




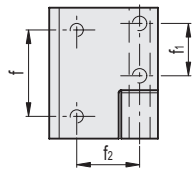
CMDX-AL-P
CMDX-AL-R



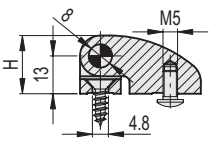
CMDX-AL-PS
CMDX-AL-RS



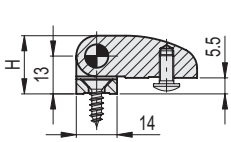
CMDX-AL-PD
CMDX-AL-RD



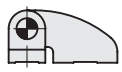
CMDX-AL-P



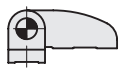
CMDX-AL-R



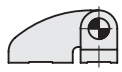
CMDX-AL-PS



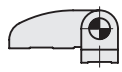
CMDX-AL-RS



CMDX-AL-PD



CMDX-AL-RD



Code	Description	Code	Description	L	B	f	f1	f2	H	⚖
428321	CMDX-AL-P-50-AN	428322	CMDX-AL-P-50-AB	50	41.5	33	33	24	20	94
428325	CMDX-AL-P-70-AN	428326	CMDX-AL-P-70-AB	70	41.5	50	50	24	20	132
428329	CMDX-AL-P-90-AN	428330	CMDX-AL-P-90-AB	90	41.5	70	70	24	20	170
428341	CMDX-AL-R-50-AN	428342	CMDX-AL-R-50-AB	50	41.5	33	33	24	20	85
428345	CMDX-AL-R-70-AN	428346	CMDX-AL-R-70-AB	70	41.5	50	50	24	20	120
428349	CMDX-AL-R-90-AN	428350	CMDX-AL-R-90-AB	90	41.5	70	70	24	20	154
428366	CMDX-AL-PS-50-AN	428367	CMDX-AL-PS-50-AB	50	41.5	33	20	24	20	92
428376	CMDX-AL-RS-50-AN	428377	CMDX-AL-RS-50-AB	50	41.5	33	20	24	20	83
428361	CMDX-AL-PD-50-AN	428362	CMDX-AL-PD-50-AB	50	41.5	33	20	24	20	92
428371	CMDX-AL-RD-50-AN	428372	CMDX-AL-RD-50-AB	50	41.5	33	20	24	20	83

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GN 138

Hinges

Zinc die casting

SPECIFICATION

Type

Type **A**: 2x2 threaded blind bores

Zinc die casting **ZD**
plastic coated
black, RAL 9005, textured finish **SW**
silver, RAL 9006, textured finish **SR**

Pin
Stainless Steel AISI 303

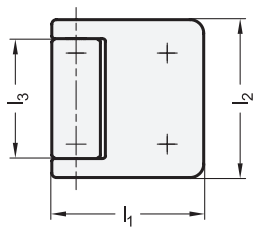


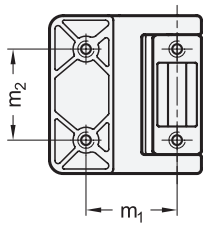
INFORMATION

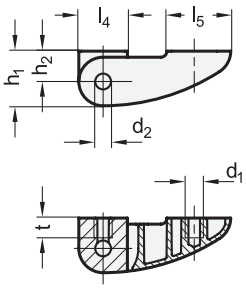
With their attractive design, hinges GN 138 are suitable for use in plant and machinery where a well-designed and stylish appearance is important.
The concealed and tamper-proof mounting from the rear highlights and enhances the special appearance of the hinge.
The dimensions l_1 / l_2 and the drill hole spacings m_1 / m_2 match the usual hinges GN 237 (see page 1386) / CFM. (see page 1382) and can replace these.

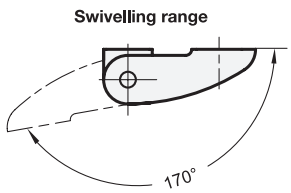
TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)
- Load rating information of hinges (see page A40)
- List of hinges types (see page 1362)









GN 138

Description	l1	l2	d1	d2	h1	h2	l3	l4	l5	m1	m2	t	⚖
GN 138-ZD-40-42-A-SR	40	42	M 5	6	14	8	34	12	18	25	25	5	50
GN 138-ZD-40-42-A-SW	40	42	M 5	6	14	8	34	12	18	25	25	5	72
GN 138-ZD-50-52-A-SR	50	52	M 6	6	18	10	39	16	21	30	30	6.5	130
GN 138-ZD-50-52-A-SW	50	52	M 6	6	18	10	39	16	21	30	30	6.5	131
GN 138-ZD-60-62-A-SR	60	62	M 6	8	22	12	47	20	24	36	36	7.5	210
GN 138-ZD-60-62-A-SW	60	62	M 6	8	22	12	47	20	24	36	36	7.5	210

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Hinges

Technopolymer

MATERIAL
High-resilience polyamide based (PA) technopolymer, black colour, matte finish.

ROTATING PIN
AISI 303 stainless steel.

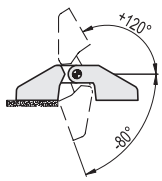
STANDARD EXECUTIONS
- **CFE-B**: nickel-plated brass bosses with threaded hole.
- **CFE-p**: nickel-plated brass threaded studs.
- **CFE-CH**: pass-through holes for cylindrical head screws.
- **CFE-B-p**: nickel-plated brass bosses with threaded hole and nickel-plated brass threaded studs.
- **CFE-B-CH**: nickel-plated brass bosses with threaded hole and pass-through holes for cylindrical head screws.
- **CFE-p-CH**: nickel-plated brass threaded studs and pass-through holes for cylindrical head screws.

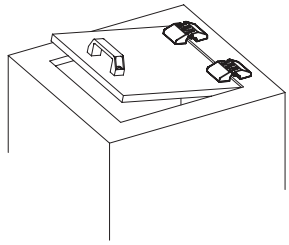
APPLICATIONS
This hinge has been developed in particular for doors provided with gaskets.

ROTATION ANGLE (APPROXIMATE VALUE)
Max 200° (-80° and +120° being 0° the condition where the two interconnected surfaces are on the same plane).
Do not exceed the rotation angle limit so as not to prejudice the hinge mechanical performance.
To choose the convenient type and the right number of hinges for your application, see the Guidelines (on page 1368).



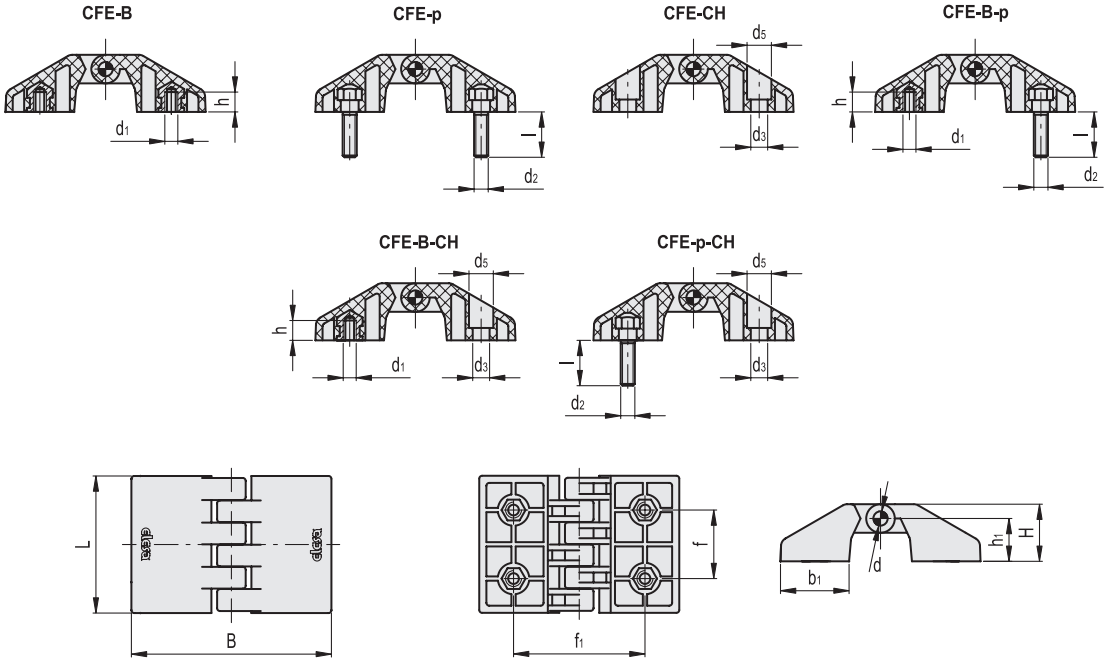
FM design





Resistance tests	AXIAL STRESS		RADIAL STRESS		90° ANGLED STRESS	
Description	Maximum working load Ea [N]	Load at breakage Ra [N]	Maximum working load Er [N]	Load at breakage Rr [N]	Maximum working load E90 [N]	Load at breakage R90 [N]
CFE.30 B-M3	50	660	140	1040	50	310
CFE.30 p-M3x13	40	460	110	1040	60	560
CFE.30 CH-3	50	640	120	980	20	300
CFE.30 B-M3-p-M3x13	40	460	110	1040	50	310
CFE.30 B-M3-CH-3	50	640	120	980	20	300
CFE.30 p-M3x13-CH-3	40	460	110	980	20	300
CFE.40 B-M4	90	1110	230	1920	60	590
CFE.40 p-M4x18	90	1110	300	2440	60	590
CFE.40 CH-4	150	1580	370	2460	80	1210
CFE.40 B-M4-p-M4x18	90	1110	230	1920	60	590
CFE.40 B-M4-CH-4	90	1110	230	1920	60	590
CFE.40 p-M4x18-CH-4	90	1110	300	2440	60	590
CFE.48 B-M5	160	1260	440	2890	190	1290
CFE.48 p-M5x17	190	1900	310	2870	160	1190
CFE.48 CH-5	300	2160	410	2850	150	1440
CFE.48 B-M5-p-M5x17	160	1260	310	2870	160	1190
CFE.48 B-M5-CH-5	160	1260	410	2850	150	1290
CFE.48 p-M5x17-CH-5	190	1900	310	2850	150	1190
CFE.66 B-M6	530	4160	500	2480	310	2250
CFE.66 p-M6x16	240	2670	700	3490	270	1830
CFE.66 CH-6	440	3160	690	3450	260	2920
CFE.66 B-M6-p-M6x16	240	2670	500	2480	270	1830
CFE.66 B-M6-CH-6	440	3160	500	2480	260	2250
CFE.66 p-M6x16-CH-6	240	2670	690	3450	260	1830

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Code	Description	L	B	d1	h	d2	l	f±0.25	f1 ±0.25	H	h1	b1	d	d3	d5	C [Nm] B#	C [Nm] p#	C [Nm] CH#	⚖
423111	CFE.30 B-M3	30.5	45.5	M3	4	-	-	15	30	12.5	9.5	15	2.5	-	-	1	-	-	11
423121	CFE.30 p-M3x13	30.5	45.5	-	-	M3	13	15	30	12.5	9.5	15	2.5	-	-	-	1	-	14
423131	CFE.30 CH-3	30.5	45.5	-	-	-	-	15	30	12.5	9.5	15	2.5	3.5	6	-	-	0.5	8
423141	CFE.30 B-M3-p-M3x13	30.5	45.5	M3	4	M3	13	15	30	12.5	9.5	15	2.5	-	-	1	1	-	13
423151	CFE.30 B-M3-CH-3	30.5	45.5	M3	4	-	-	15	30	12.5	9.5	15	2.5	3.5	6	1	-	0.5	10
423161	CFE.30 p-M3x13-CH-3	30.5	45.5	-	-	M3	13	15	30	12.5	9.5	15	2.5	3.5	6	-	1	0.5	11
423211	CFE.40 B-M4	40.5	59	M4	5.5	-	-	20	40.4	16.5	12.5	20	4	-	-	4	-	-	26
423221	CFE.40 p-M4x18	40.5	59	-	-	M4	18	20	40.4	16.5	12.5	20	4	-	-	-	2	-	34
423231	CFE.40 CH-4	40.5	59	-	-	-	-	20	40.4	16.5	12.5	20	4	4.5	7.5	-	-	1	19
423241	CFE.40 B-M4-p-M4x18	40.5	59	M4	5.5	M4	18	20	40.4	16.5	12.5	20	4	-	-	4	2	-	30
423251	CFE.40 B-M4-CH-4	40.5	59	M4	5.5	-	-	20	40.4	16.5	12.5	20	4	4.5	7.5	4	-	1	21
423261	CFE.40 p-M4x18-CH-4	40.5	59	-	-	M4	18	20	40.4	16.5	12.5	20	4	4.5	7.5	-	2	1	26
423311	CFE.48 B-M5	48.5	70	M5	6.5	-	-	24	46	20	15	24	5	-	-	5	-	-	44
423321	CFE.48 p-M5x17	48.5	70	-	-	M5	17	24	46	20	15	24	5	-	-	-	5	-	58
423331	CFE.48 CH-5	48.5	70	-	-	-	-	24	46	20	15	24	5	5.5	9	-	-	2	31
423341	CFE.48 B-M5-p-M5x17	48.5	70	M5	6.5	M5	17	24	46	20	15	24	5	-	-	5	5	-	51
423351	CFE.48 B-M5-CH-5	48.5	70	M5	6.5	-	-	24	46	20	15	24	5	5.5	9	5	-	2	38
423361	CFE.48 p-M5x17-CH-5	48.5	70	-	-	M5	17	24	46	20	15	24	5	5.5	9	-	5	2	45
423411	CFE.66 B-M6	66	97	M6	10	-	-	33	63.7	27.5	21	33	6	-	-	5	-	-	103
423421	CFE.66 p-M6x16	66	97	-	-	M6	16	33	63.7	27.5	21	33	6	-	-	-	5	-	124
423431	CFE.66 CH-6	66	97	-	-	-	-	33	63.7	27.5	21	33	6	6.5	10.5	-	-	5	77
423441	CFE.66 B-M6-p-M6x16	66	97	M6	10	M6	16	33	63.7	27.5	21	33	6	-	-	5	5	-	115
423451	CFE.66 B-M6-CH-6	66	97	M6	10	-	-	33	63.7	27.5	21	33	6	6.5	10.5	5	-	5	90
423461	CFE.66 p-M6x16-CH-6	66	97	-	-	M6	16	33	63.7	27.5	21	33	6	6.5	10.5	-	5	5	100

Suggested tightening torque for assembly screws.

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Hinges for thin doors

Technopolymer

MATERIAL
High-resilience polyamide based (PA) technopolymer, black colour, matte finish.

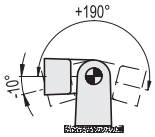
ROTATING PIN
AISI 303 stainless steel.

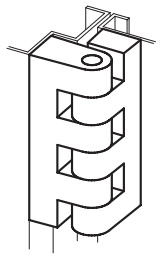
STANDARD EXECUTIONS
- **CFF-B**: nickel-plated brass bosses with threaded hole.
- **CFF-p**: nickel-plated steel threaded studs.
- **CFF-B-p**: nickel-plated brass bosses with threaded hole and nickel-plated steel threaded studs.

ROTATION ANGLE (APPROXIMATE VALUE)
Max 200° (-10° and +190° being 0° the condition where the two interconnected surfaces are on the same plane).
Do not exceed the rotation angle limit so as not to prejudice the hinge mechanical performance.
To choose the convenient type and the right number of hinges for your application, see the Guidelines (on page 1368).



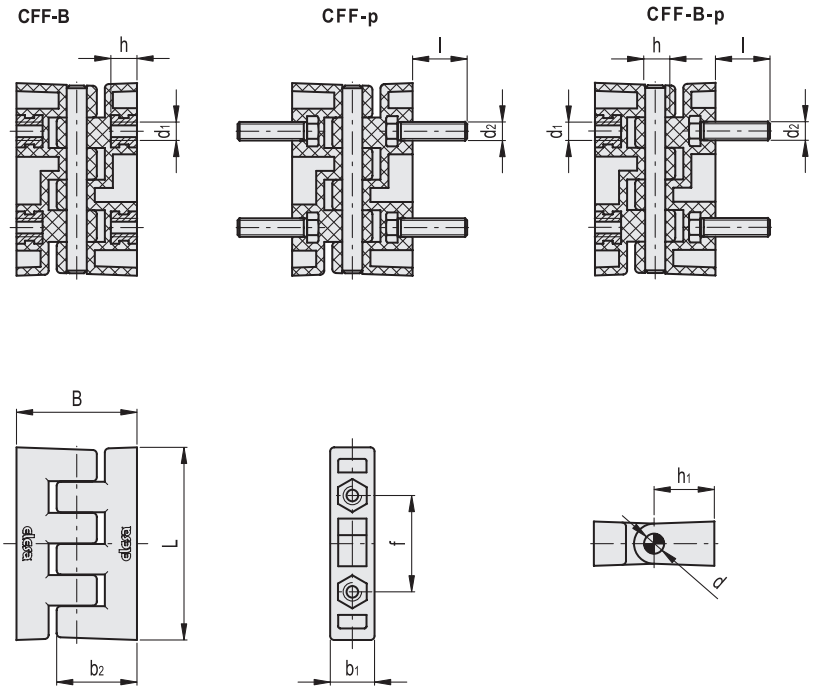
FM design





Resistance tests	AXIAL STRESS		RADIAL STRESS		RADIAL STRESS	
Description	Maximum working load Ea [N]	Load at breakage Ra [N]	Maximum working load Er [N]	Load at breakage Rr [N]	Maximum working load E90 [N]	Load at breakage R90 [N]
CFF.30 B-M3	100	1030	150	1190	90	600
CFF.30 p-M3x13	120	900	160	1020	80	560
CFF.30 B-M3-p-M3x13	100	900	150	1020	80	560
CFF.40 B-M4	180	1780	290	1950	150	1160
CFF.40 p-M4x18	170	1490	140	1220	120	710
CFF.40 B-M4-p-M4x18	170	1490	140	1220	120	710
CFF.48 B-M5	370	3250	480	2890	150	1870
CFF.48 p-M5x17	220	2200	370	2480	140	1200
CFF.48 B-M5-p-M5x17	220	2200	370	2480	140	1200
CFF.66 B-M6	310	4660	860	4880	340	2770
CFF.66 p-M6x16	310	2410	590	3520	220	1420
CFF.66 B-M6-p-M6x16	310	2410	590	3520	220	1420

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Code	Description	L	B	d1	h	d2	l	f±0.25	h1	b1	b2	d	C [Nm] B#	C [Nm] p#	⚖
423511	CFF.30 B-M3	30.5	19	M3	4	-	-	15	9	7	12.5	2.5	1	-	6
423521	CFF.30 p-M3x13	30.5	19	-	-	M3	13	15	9	7	12.5	2.5	-	0.5	8
423531	CFF.30 B-M3-p-M3x13	30.5	19	M3	4	M3	13	15	9	7	12.5	2.5	1	0.5	7
423611	CFF.40 B-M4	40.5	24	M4	5.5	-	-	20	12	9.5	16.5	4	4	-	14
423621	CFF.40 p-M4x18	40.5	24	-	-	M4	18	20	12	9.5	16.5	4	-	1.5	20
423631	CFF.40 B-M4-p-M4x18	40.5	24	M4	5.5	M4	18	20	12	9.5	16.5	4	4	1.5	17
423711	CFF.48 B-M5	48.5	30	M5	6.5	-	-	24	15	11.5	20	5	5	-	23
423721	CFF.48 p-M5x17	48.5	30	-	-	M5	17	24	15	11.5	20	5	-	4	33
423731	CFF.48 B-M5-p-M5x17	48.5	30	M5	6.5	M5	17	24	15	11.5	20	5	5	4	28
423811	CFF.66 B-M6	66	42	M6	9	-	-	33	21	15	27.5	6	5	-	54
423821	CFF.66 p-M6x16	66	42	-	-	M6	16	33	21	15	27.5	6	-	4	64
423831	CFF.66 B-M6-p-M6x16	66	42	M6	9	M6	18	33	21	15	27.5	6	5	4	59

Suggested tightening torque for assembly screws.

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Hinges for profiles

Technopolymer

MATERIAL
Glass-fibre reinforced polyamide based (PA) technopolymer, black or grey colour RAL 7040 (C33), matte finish.

ROTATING PIN
Nickel-plated steel.

STANDARD EXECUTION
Pass-through holes for M6 countersunk head screws.

TECHNOPOLYMER CENTERING INSERTS (SUPPLIED)
For profiles with slot dimensions from 6 to 12 mm.

FEATURES AND APPLICATIONS
This type of hinge can be used with aluminium profiles from 30 up to 60 mm, also combining different dimensions.

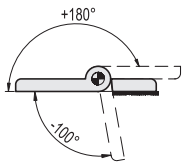
ROTATION ANGLE (APPROXIMATE VALUE)
Max 280° (-100° and +180° being 0° the condition where the two interconnected surfaces are on the same plane).
Do not exceed the rotation angle limit so as not to prejudice the hinge mechanical performance.
To choose the convenient type and the right number of hinges for your application, see the Guidelines (on page 1368).

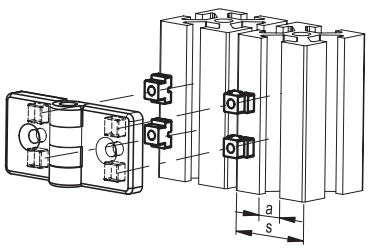




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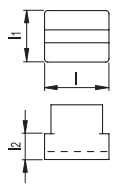




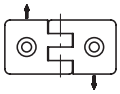
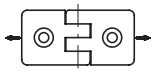
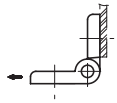


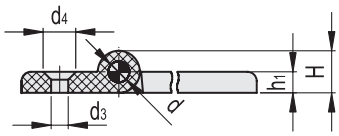
Profile dimension		Insert orientation	Insert colour
s	a		
30	6		Light grey
	8		
40÷45	8		Dark grey
	10		
50÷60	10		Black
	12		

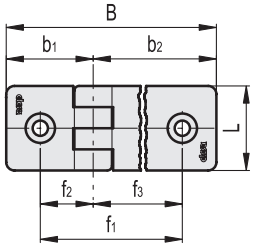
Centering inserts			
Dimensions			Colour
l	l_1	l_2	
8	6	2	Light grey
10	8	4	Dark grey
12	10	5	Black

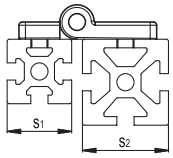


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Resistance tests	AXIAL STRESS		RADIAL STRESS		90° ANGLED STRESS	
						
Description	Maximum working load Ea [N]	Load at breakage Ra [N]	Maximum working load Er [N]	Load at breakage Rr [N]	Maximum working load E90 [N]	Load at breakage R90 [N]
CFG.30/30 SH-6	440	2570	1850	3710	300	1700
CFG.30/40 SH-6	320	2280	1750	3490	590	870
CFG.30/45 SH-6	240	2150	1760	3520	190	780
CFG.30/60 SH-6	280	1510	1600	3190	180	850
CFG.40/40 SH-6	320	2280	1750	3490	220	870
CFG.40/45 SH-6	240	2150	1750	3490	390	780
CFG.40/60 SH-6	280	1510	1600	3190	180	850
CFG.45/45 SH-6	240	2150	1760	3520	190	780
CFG.45/60 SH-6	240	1510	1600	3190	180	780
CFG.60/60 SH-6	280	1510	1600	3190	180	850







CFG.

Code	Description	s1	s2	L	B	f1 ±0.25	f2	f3	H	h1	b1	b2	d	d3	d4	C# [Nm]	⚖
423911	CFG.30/30 SH-6	30	30	36	54	35	17.5	17.5	16	8	27	27	8	6.5	12.5	5	32
423912	CFG.30/40 SH-6	30	40	36	64	40	17.5	22.5	16	8	27	37	8	6.5	12.5	5	34
423913	CFG.30/45 SH-6	30	45	36	69	42.5	17.5	25	16	8	27	42	8	6.5	12.5	5	35
423914	CFG.30/60 SH-6	30	60	36	84	50	17.5	32.5	16	8	27	57	8	6.5	12.5	5	38
423921	CFG.40/40 SH-6	40	40	36	74	45	22.5	22.5	16	8	37	37	8	6.5	12.5	5	36
423922	CFG.40/45 SH-6	40	45	36	79	47.5	22.5	25	16	8	37	42	8	6.5	12.5	5	37
423923	CFG.40/60 SH-6	40	60	36	94	55	22.5	32.5	16	8	37	57	8	6.5	12.5	5	40
423931	CFG.45/45 SH-6	45	45	36	84	50	25	25	16	8	42	42	8	6.5	12.5	5	38
423932	CFG.45/60 SH-6	45	60	36	99	57.5	25	32.5	16	8	42	57	8	6.5	12.5	5	41
423941	CFG.60/60 SH-6	60	60	36	114	65	32.5	32.5	16	8	57	57	8	6.5	12.5	5	45

CFG-C33

Code	Description	s1	s2	L	B	f1 ±0.25	f2	f3	H	h1	b1	b2	d	d3	d4	C# [Nm]	⚖
423911-C33	CFG.30/30 SH-6-C33	30	30	36	54	35	17.5	17.5	16	8	27	27	8	6.5	12.5	5	32
423912-C33	CFG.30/40 SH-6-C33	30	40	36	64	40	17.5	22.5	16	8	27	37	8	6.5	12.5	5	34
423913-C33	CFG.30/45 SH-6-C33	30	45	36	69	42.5	17.5	25	16	8	27	42	8	6.5	12.5	5	35
423914-C33	CFG.30/60 SH-6-C33	30	60	36	64	50	17.5	32.5	16	8	27	57	8	6.5	12.5	5	38
423921-C33	CFG.40/40 SH-6-C33	40	40	36	74	45	22.5	22.5	16	8	37	37	8	6.5	12.5	5	36
423922-C33	CFG.40/45 SH-6-C33	40	45	36	79	47.5	22.5	22.5	16	8	37	42	8	6.5	12.5	5	37
423923-C33	CFG.40/60 SH-6-C33	40	60	36	94	55	22.5	32.5	16	8	37	57	8	6.5	12.5	5	40
423931-C33	CFG.45/45 SH-6-C33	45	45	36	94	50	25	25	16	8	42	42	8	6.5	12.5	5	38
423932-C33	CFG.45/60 SH-6-C33	45	60	36	99	57.5	25	32.5	16	8	42	57	8	6.5	12.5	5	41
423941-C33	CFG.60/60 SH-6-C33	60	60	36	114	65	32.5	32.5	16	8	57	57	8	6.5	12.5	5	45

Suggested tightening torque for assembly screws.

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Double hinges for profiles

Technopolymer

MATERIAL
Glass-fibre reinforced polyamide based (PA) technopolymer, black or grey colour RAL 7040 (C33), matte finish.

ROTATING PINS
Nickel-plated steel.

STANDARD EXECUTION
Pass-through holes for M6 countersunk head screws.

TECHNOPOLYMER CENTERING INSERTS (SUPPLIED)
For profiles with slot dimensions from 6 to 12 mm.

FEATURES AND APPLICATIONS
This type of hinge is recommended when, for example, one central frame is connected with two lateral doors. It can be used with aluminium profiles from 30 up to 60 mm, also combining different dimensions.

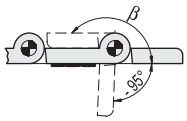
ROTATION ANGLE (APPROXIMATE VALUE)
Max 260°/275° (-95° and +165°/180° being 0° the condition where the two interconnected surfaces are on the same plane).
Do not exceed the rotation angle limit so as not to prejudice the hinge mechanical performance.
To choose the convenient type and the right number of hinges for your application, see the Guidelines (on page 1368).

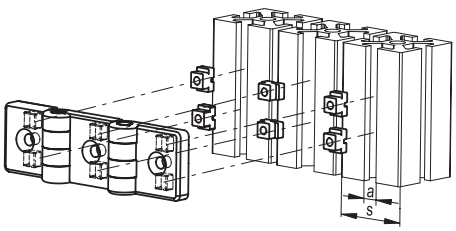




FM design

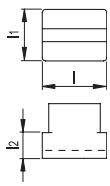






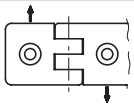
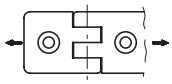
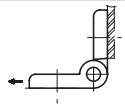
Profile dimension		Insert orientation	Insert colour
s	a		
30	6		Light grey
	8		
40÷45	8		Dark grey
	10		
50÷60	10		Black
	12		

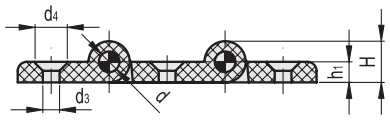
Centering inserts			
Dimensions			Colour
l	l1	l2	
8	6	2	Light grey
10	8	4	Dark grey
12	10	5	Black

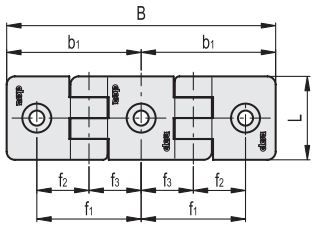


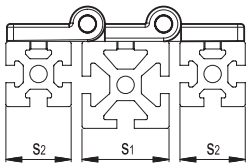
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CFI. Double hinges for profiles

Resistance tests	AXIAL STRESS		RADIAL STRESS		90° ANGLED STRESS	
						
Description	Maximum working load Ea [N]	Load at breakage Ra [N]	Maximum working load Er [N]	Load at breakage Rr [N]	Maximum working load E90 [N]	Load at breakage R90 [N]
CFI.30-30/30 SH-6	440	2570	1850	3710	300	1700
CFI.30-40/40 SH-6	320	2280	1750	3490	220	870
CFI.40-30/30 SH-6	320	2280	1750	3490	220	870
CFI.40-40/40 SH-6	320	2280	1750	3490	220	870
CFI.45-30/30 SH-6	240	2150	1760	3520	190	780
CFI.45-40/40 SH-6	240	2150	1750	3490	190	780
CFI.45-45/45 SH-6	240	2150	1760	3520	190	780
CFI.60-30/30 SH-6	280	1510	1600	3190	180	850
CFI.60-40/40 SH-6	280	1510	1600	3190	180	850
CFI.60-45/45 SH-6	240	1510	1600	3190	180	780







CFI.

Code	Description	s1	s2	L	B	f1 ±0.25	f2	f3	H	h1	b1	d	d3	d4	ß	C# [Nm]	⚖
424111	CFI.30-30/30 SH-6	30	30	36	89	35	17.5	17.5	16	8	44.5	8	6.5	12.5	180°	5	59
424121	CFI.30-40/40 SH-6	30	40	36	109	40	22.5	17.5	16	8	54.5	8	6.5	12.5	165°	5	63
424211	CFI.40-30/30 SH-6	40	30	36	99	40	17.5	22.5	16	8	49.5	8	6.5	12.5	180°	5	62
424221	CFI.40-40/40 SH-6	40	40	36	119	45	22.5	22.5	16	8	59.5	8	6.5	12.5	180°	5	66
424311	CFI.45-30/30 SH-6	45	30	36	104	42.5	17.5	25	16	8	52	8	6.5	12.5	180°	5	63
424321	CFI.45-40/40 SH-6	45	40	36	124	47.5	22.5	25	16	8	62	8	6.5	12.5	180°	5	67
424331	CFI.45-45/45 SH-6	45	45	36	134	50	25	25	16	8	67	8	6.5	12.5	180°	5	69
424411	CFI.60-30/30 SH-6	60	30	36	119	50	17.5	32.5	16	8	59.5	8	6.5	12.5	180°	5	67
424421	CFI.60-40/40 SH-6	60	40	36	139	55	22.5	32.5	16	8	69.5	8	6.5	12.5	180°	5	71
424431	CFI.60-45/45 SH-6	60	45	36	149	57.5	25	32.5	16	8	74.5	8	6.5	12.5	180°	5	73

CFI-C33

Code	Description	s1	s2	L	B	f1 ±0.25	f2	f3	H	h1	b1	d	d3	d4	ß	C# [Nm]	⚖
424111-C33	CFI.30-30/30 SH-6-C33	30	30	36	89	35	17.5	17.5	16	8	44.5	8	6.5	12.5	180°	5	59
424121-C33	CFI.30-40/40 SH-6-C33	30	40	36	109	40	22.5	17.5	16	8	54.5	8	6.5	12.5	180°	5	63
424211-C33	CFI.40-30/30 SH-6-C33	40	30	36	99	40	17.5	22.5	16	8	49.5	8	6.5	12.5	180°	5	62
424221-C33	CFI.40-40/40 SH-6-C33	40	40	36	119	45	22.5	22.5	16	8	59.5	8	6.5	12.5	180°	5	66
424311-C33	CFI.45-30/30 SH-6-C33	45	30	36	104	42.5	17.5	25	16	8	52	8	6.5	12.5	180°	5	63
424321-C33	CFI.45-40/40 SH-6-C33	45	40	36	124	47.5	22.5	25	16	8	52	8	6.5	12.5	180°	5	67
424331-C33	CFI.45-45/45 SH-6-C33	45	45	36	134	50	25	25	16	8	67	8	6.5	12.5	180°	5	69
424411-C33	CFI.60-30/30 SH-6-C33	60	30	36	119	50	17.5	32.5	16	8	59.5	8	6.5	12.5	180°	5	67
424421-C33	CFI.60-40/40 SH-6-C33	60	40	36	139	55	22.5	32.5	16	8	69.5	8	6.5	12.5	180°	5	71
424431-C33	CFI.60-45/45 SH-6-C33	60	45	36	149	57.5	25	32.5	16	8	74.5	8	6.5	12.5	180°	5	73

Suggested tightening torque for assembly screws.

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Hinges

Accessory for profile systems / Zinc die casting

SPECIFICATION

Zinc die casting
plastic coated
black, textured finish

Pin
Stainless Steel AISI 303

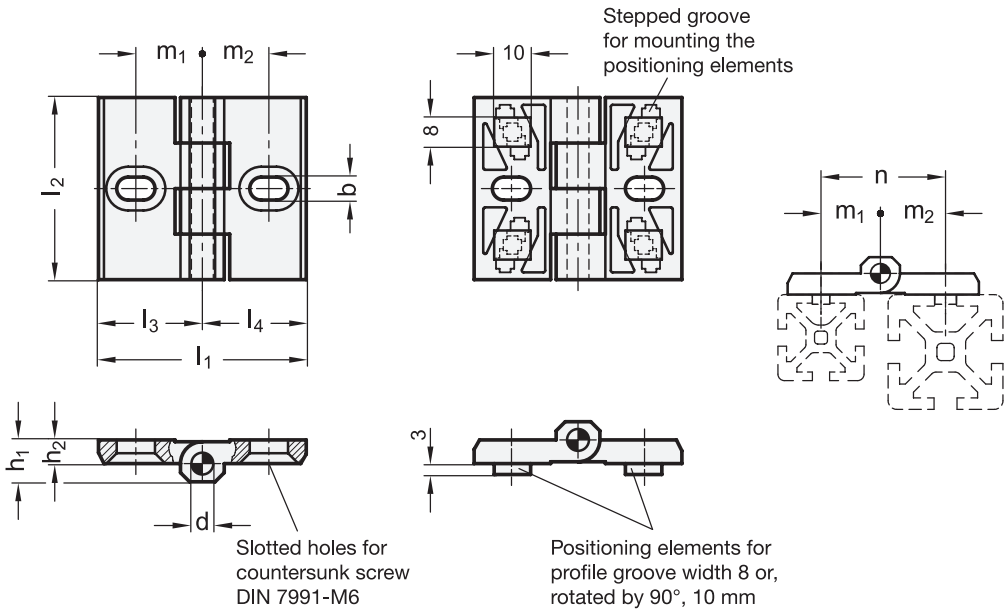


INFORMATION

Hinges GN 161 have been designed for commercially available profile rails.
With three different types of hinges only, 66 different groove distances „n" can be accommodated. To achieve this the positioning elements are set in specially marked recesses in the hinge wings.
The rectangular (8x10 mm) positioning elements, two pieces per hinge wing, will prevent a misalignment. They will also carry the weight of the door.
For screwing the hinges onto the profile rails, special T-Nuts are used.

TECHNICAL INFORMATION

- Load rating information (see page A40)
- Stainless Steel characteristics (see page A26)
- List of hinges types (see page 1362)



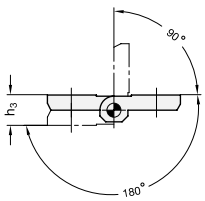
GN 161

Description	l1	b	d	h1	h2	h3	l2	l3	l4	⚖
GN 161-57	57	6.3	6	12	6.5	13	50	28.5	28.5	107
GN 161-68	68	6.3	6	12	6.5	13	50	28.5	40	128
GN 161-80	80	6.3	6	12	6.5	13	50	40	40	144

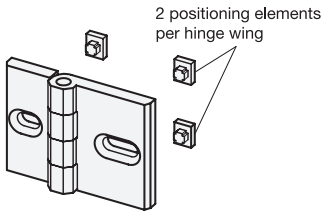
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GN 161-57 n Groove distance	m1	m2	GN 161-68 n Groove distance	m1	m2	GN 161-80 n Groove distance	m1	m2
33	16.5	16.5	37.5	16.5	21	42	21	21
34	16.5	17.5	38	16.5	21.5	42.5	21	21.5
35	16.5	18.5	39	16.5	22.5	43.5	21	22.5
35.5	16.5	19	40	16.5	23.5	44.5	21	23.5
36.5	16.5	20	42.5	16.5	26	47	21	26
35	17.5	17.5	44	16.5	27.5	48.5	21	27.5
36	17.5	18.5	47.5	16.5	31	52	21	31
36.5	17.5	19	38.5	17.5	21	43	21.5	21.5
37.5	17.5	20	39	17.5	21.5	44	21.5	22.5
37	18.5	18.5	40	17.5	22.5	45	21.5	23.5
37.5	18.5	19	41	17.5	23.5	47.5	21.5	26
38.5	18.5	20	43.5	17.5	26	49	21.5	27.5
38	19	19	45	17.5	27.5	52.5	21.5	31
39	19	20	48.5	17.5	31	45	22.5	22.5
40	20	20	39,5	18.5	21	46	22.5	23.5
-	-	-	40	18.5	21.5	48.5	22.5	26
-	-	-	41	18.5	22.5	50	22.5	27.5
-	-	-	42	18.5	23.5	-	22.5	31
-	-	-	44.5	18.5	26	47	23.5	23.5
-	-	-	46	18.5	27.5	49.5	23.5	26
-	-	-	49.5	18.5	31	51	23.5	27.5
-	-	-	40	19	21	54.5	23.5	31
-	-	-	40.5	19	21.5	52	26	26
-	-	-	41.5	19	22.5	53.5	26	27.5
-	-	-	42.5	19	23.5	57	26	31
-	-	-	45	19	26	55	27.5	27.5
-	-	-	46.5	19	27.5	58.5	27.5	31
-	-	-	50	19	31	62	31	31
-	-	-	41	20	21	-	-	-
-	-	-	41.5	20	21.5	-	-	-
-	-	-	43.5	20	23.5	-	-	-
-	-	-	46	20	26	-	-	-
-	-	-	47.5	20	27.5	-	-	-
-	-	-	51	20	31	-	-	-

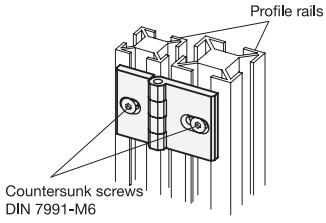
Swivelling range



Assembly instruction



Application example



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Hinge for thin doors

Technopolymer

MATERIAL
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

ROTATING PIN
AISI 303 stainless steel.

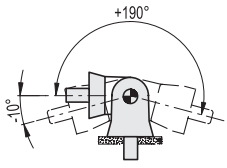
STANDARD EXECUTION
Pass-through holes for M6 countersunk head screws and referring pins for an accurate positioning of the hinge body.

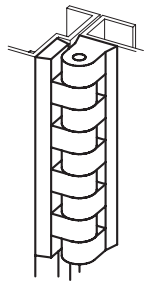
ROTATION ANGLE (APPROXIMATE VALUE)
Max 200° (-10° and +190° being 0° the condition where the two interconnected surfaces are on the same plane).
Do not exceed the rotation angle limit so as not to prejudice the hinge mechanical performance.
To choose the convenient type and the right number of hinges for your application, see the Guidelines (on page 1368).

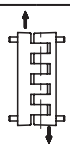
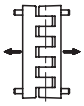
ASSEMBLY INSTRUCTIONS
1. Remove the rotation pin and fit the two separated bodies of the hinge on the door and on the frame.
2. Assembly the two elements together matching the right alignment of the hinge and insert the rotation pin.

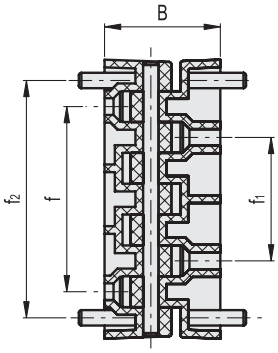


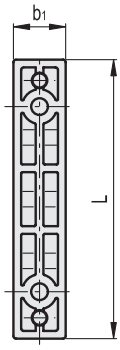
FM design

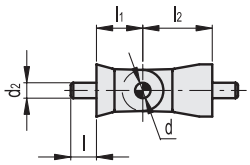




Resistance tests	AXIAL STRESS		RADIAL STRESS		90° ANGLED STRESS	
						
Description	Maximum working load Ea [N]	Load at breakage Ra [N]	Maximum working load Er [N]	Load at breakage Rr [N]	Maximum working load E90 [N]	Load at breakage R90 [N]
CFB.108 SH-6	610	6020	640	5020	520	2200







Code	Description	L	B	d2	l	f±0.25	f1 ±0.25	f2 ±0.25	l1	l2	b1	d	Th-rough holes	C# [Nm]	⚖
422511	CFB.108 SH-6	109	45	6	10	72.5	48.2	92.7	18	27	20.5	6	6.5	3	85

Suggested tightening torque for assembly screws.

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Thin hinge

Technopolymer

MATERIAL
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

ROTATION PIN AND END-CAPS
Acetal resin based (POM) technopolymer.

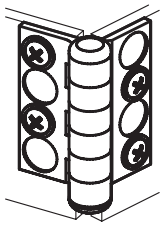
STANDARD EXECUTION
Pass-through holes for self-tapping countersunk head screws diameter 4.8 mm.

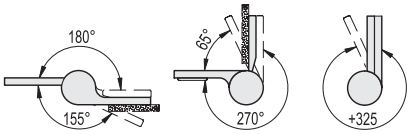
FEATURES AND APPLICATIONS
Completely made of technopolymer and without metal parts, the hinge is suitable for application on machines and equipment in those sectors where laws or particular hygienic, climatic and environmental factors make it mandatory to use corrosion resistant materials.
By replacing the technopolymer rotation pin with a metal one with an appropriate form, the hinge is suitable to control a safety micro switch mounted on the structure where the hinge is situated.

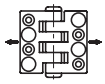
ROTATION ANGLE (APPROXIMATE VALUE)
CFC. hinges have a max rotation angle of 325°. Depending on the type of assembly, the rotation angle of the door can be lower.
Do not exceed the rotation angle limit so as not to prejudice the hinge mechanical performance.
To choose the convenient type and the right number of hinges for your application, see the Guidelines (on page 1368).

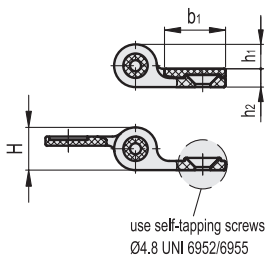


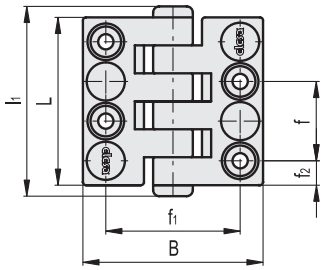
FAMdesign





Resistance tests	AXIAL STRESS		RADIAL STRESS		90° ANGLED STRESS	
						
Description	Maximum working load Ea [N]	Load at breakage Ra [N]	Maximum working load Er [N]	Load at breakage Rr [N]	Maximum working load E90 [N]	Load at breakage R90 [N]
CFC.55 SH-5	750	1500	890	1770	180	270





Code	Description	L	B	f±0.25	f1 ±0.25	f2	H	h1	h2	l1	b1	Through holes	C# [Nm]	⚖
422611	CFC.55 SH-5	55	59	26.1	43.7	8	14	8	6	62	20	4.8	5	20

Suggested tightening torque for assembly screws.

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In line lift-off hinges

Technopolymer

MATERIAL
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

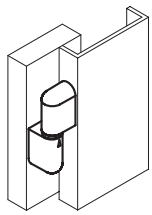
AJUSTABLE PIN WITH OCTAGONAL SLOT
Acetal based (POM) technopolymer, black colour.

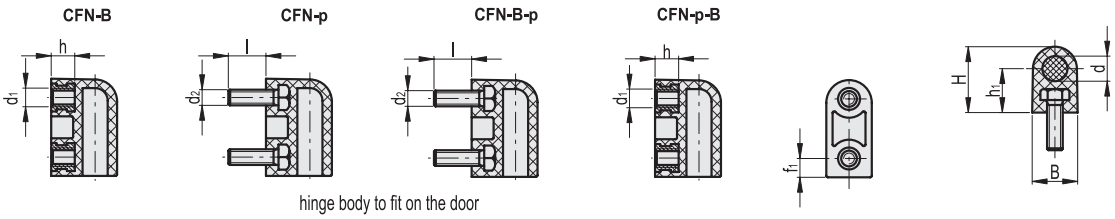
STANDARD EXECUTIONS
- **CFN-B**: nickel-plated brass bosses with threaded hole.
- **CFN-p**: nickel-plated steel threaded studs.
- **CFN-B-p**: nickel-plated brass bosses with threaded hole and nickel-plated steel threaded studs.
- **CFN-p-B**: nickel-plated steel threaded studs and nickel-plated brass bosses with threaded hole.

FEATURES
CFN. in line lift-off hinges (ELESA patent) have been designed to adjust possible misalignments between the door and the frame.
To choose the convenient type and the right number of hinges for your application, see the Guidelines (on page 1368).



FMdesign

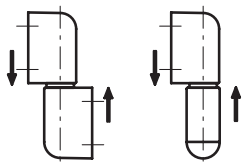
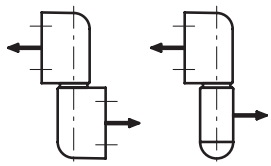




Code	Description	L	B	d1	h	d2	l	f	f1	H	h1	l1	l2	l3	d	C# [Nm]	⚖
426111	CFN.65 B-M5	64	14.5	M5	8	-	-	19	6	21	14	31	2	24	8	5	24
426121	CFN.65 p-M5x12	64	14.5	-	-	M5	12	19	6	21	14	31	2	24	8	5	30
426131	CFN.65 B-M5-p-M5x12	64	14.5	M5	8	M5	12	19	6	21	14	31	2	24	8	5	27
426141	CFN.65 p-M5x12-B-M5	64	14.5	M5	8	M5	12	19	6	21	14	31	2	24	8	5	27

Suggested tightening torque for assembly screws.

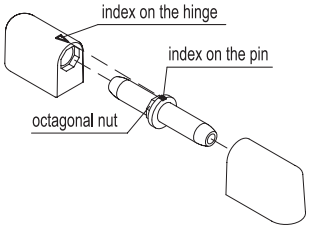
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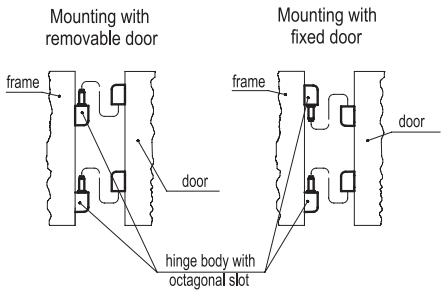
Resistance tests			
AXIAL STRESS		RADIAL STRESS	
			
Parallel planes	Perpendicular planes	Parallel planes	Perpendicular planes
Maximum working load Ea [N]		Maximum working load Er [N]	
590		200	

The elastic deformation, which occurs on the hinge for values of load exceeding the ones indicated in the table, makes the load at breakage meaningless.

ASSEMBLY INSTRUCTIONS

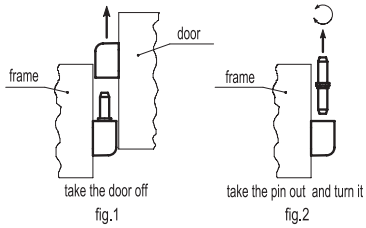
1. Fit the hinge bodies with octagonal slot on the frame and the other two bodies with cylindrical slot on the door.
2. Insert the pins with octagonal slot in the two bodies fitted on the frame by matching the indexes engraved on the pin and on the hinge.
3. Mount the door by matching the hinge bodies on the pins.

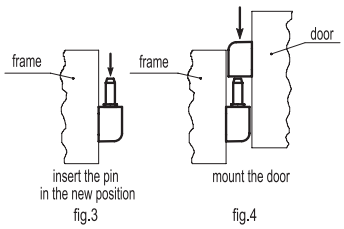




OFF LINE ADJUSTMENTS

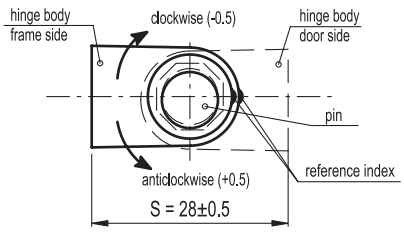
The pin has an octagonal slot which allows different positions for the adjustment of off line door (fig. 1-2-3-4). To have the door in line with the frame, it can be necessary to adjust the pins of both hinges.





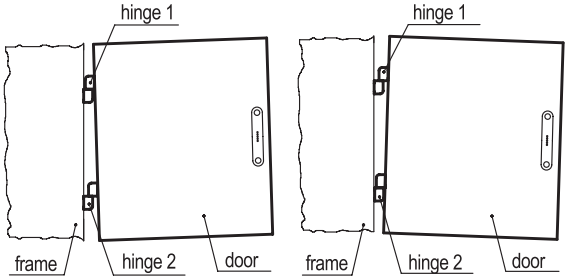
ADJUSTMENT OF THE DOOR

In case the door is off line with the frame, the inclination of the door can be adjusted by turning the octagonal slot of the pins clockwise or anticlockwise.
By turning the pin anticlockwise, the distance S increases (+0.5) while by turning the pin clockwise, it decreases (-0.5).



ADJUSTMENT EXAMPLES

If the door is off line on the bottom side.
In order to have the door in line with the frame, turn the pin of hinge 1 anticlockwise by 45° or 90° and the pin of hinge 2 clockwise.
If the door is off line on the top side.
In order to have the door in line with the frame, turn the pin of hinge 1 clockwise by 45° or 90° and the pin of hinge 2 anticlockwise.



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Offset lift-off hinge

Technopolymer

MATERIAL
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

AJUSTABLE PIN WITH OCTAGONAL SLOT
Acetal based (POM) technopolymer, black colour.

SCREW-COVERS
Polyester based (PBT) technopolymer, black colour, glossy finish, snap-in assembly.

COVERS FOR PIN SLOT
Technopolymer, black colour, matte finish; to be fitted after assembly.

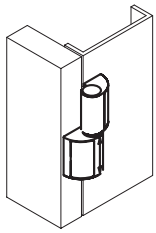
HINGE ASSEMBLY ON FRAME AND DOOR
Pass-through holes for hexagonal head screws, cylindrical head screws with hexagon socket or M5 hexagonal nuts (UNI 5588).

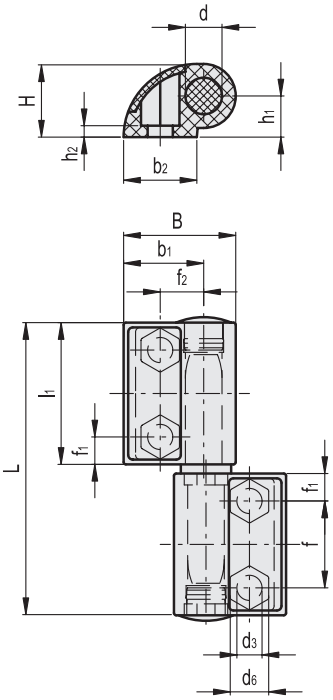
FEATURES AND APPLICATIONS
CFO. offset lift-off hinges (ELESA patent) have been designed to adjust possible misalignments between the door and the frame.
They can be mounted on doors which open on the right or on the left side. Each body of the hinge has a slot for fitting the pin: the opposite side can be closed with the supplied cover.
To choose the convenient type and the right number of hinges for your application, see the Guidelines (on page 1368).

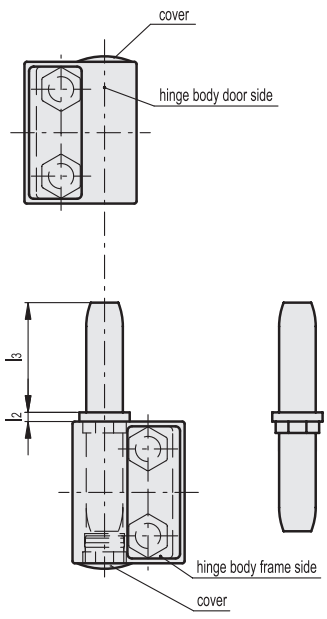
SPECIAL EXECUTIONS ON REQUEST
Screw-covers in different RAL colours.



FM design



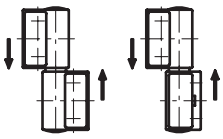
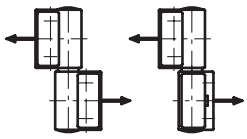




Code	Description	L	B	f	f1	f2	H	h1	h2	l1	l2	l3	b1	b2	d	d3	d6	C# [Nm]	⚖
426211-C9	CFO.65 EH-5-C9	64	24.5	19	6	9.5	16	9	2.5	31	2	24	17.5	16	8	5.5	8.5	5	25

Suggested tightening torque for assembly screws.

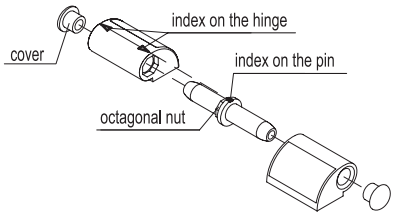
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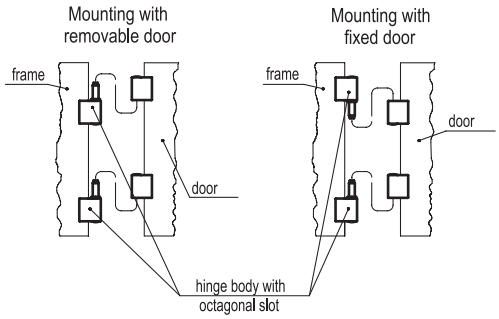
Resistance tests			
AXIAL STRESS		RADIAL STRESS	
			
Parallel planes	Perpendicular planes	Parallel planes	Perpendicular planes
Maximum working load Ea [N]		Maximum working load Er [N]	
290		200	

The elastic deformation, which occurs on the hinge for values of load exceeding the ones indicated in the table, makes the load at breakage meaningless.

ASSEMBLY INSTRUCTIONS

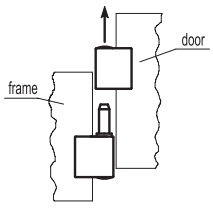
1. Fit the hinge bodies with octagonal slot on the frame and the other two bodies with cylindrical slot on the door.
2. Insert the pins with octagonal slot in the two bodies fitted on the frame by matching the indexes engraved on the pin and on the hinge.
3. Mount the door by matching the hinge bodies on the pins.

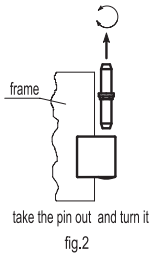


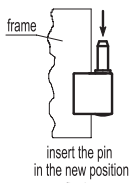


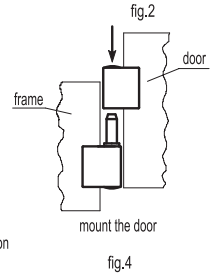
OFF LINE ADJUSTMENTS

The pin has an octagonal slot which allows different positions for the adjustment of off line door (fig. 1-2-3-4). To have the door in line with the frame, it can be necessary to adjust the pins of both hinges.



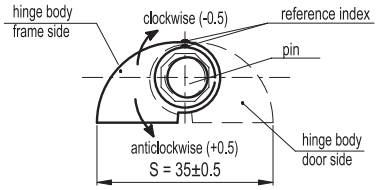






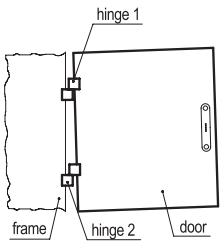
ADJUSTMENT OF THE DOOR

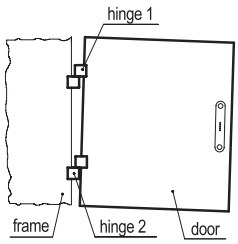
In case the door is off line with the frame, the inclination of the door can be adjusted by turning the octagonal slot of the pins clockwise or anticlockwise.
By turning the pin anticlockwise, the distance S increases (+0.5) while by turning the pin clockwise, it decreases (-0.5).



ADJUSTMENT EXAMPLES

If the door is off line on the bottom side.
In order to have the door in line with the frame, turn the pin of hinge 1 anticlockwise by 45° or 90° and the pin of hinge 2 clockwise.
If the door is off line on the top side.
In order to have the door in line with the frame, turn the pin of hinge 1 anticlockwise by 45° or 90° and the pin of hinge 2 clockwise.





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Hinges

detachable / zinc die casting



SPECIFICATION

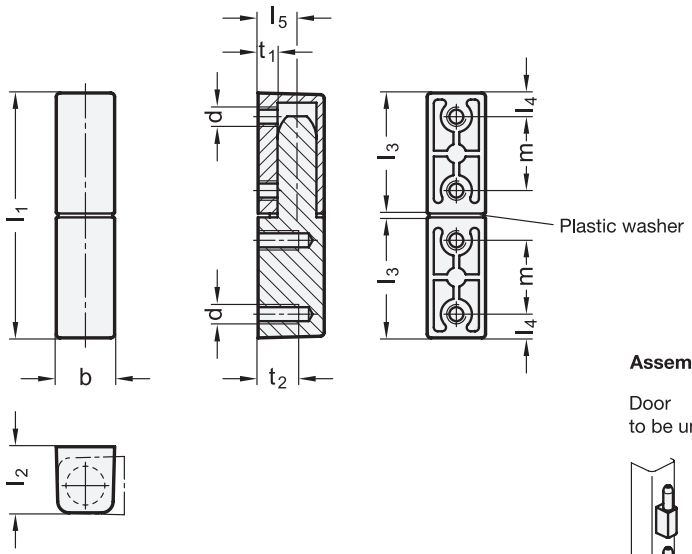
Zinc die casting
plastic coated
black, RAL 9005, textured finish **SW**
silver, RAL 9006, textured finish **SR**

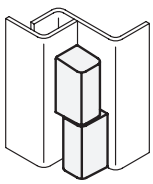
INFORMATION

Hinges GN 161.1 are a variant with highly attractive design. The fixing screws are invisible.
During the load tests, the hinges were gradually loaded and relieved at room temperature with incrementally increasing force.
For the specified values, an insignificant permanent deformation remained after relieving the load which had no effect on the function and appearance. In most cases, the failure loads are multiples of the specified value.
The details relating to the load bearing capacity are non-binding recommended values and rule out any liability. They constitute no general warranty of quality and condition.
The user must determine from case to case whether a product is suitable for the intended use. Environmental influences and aging may influence these values.

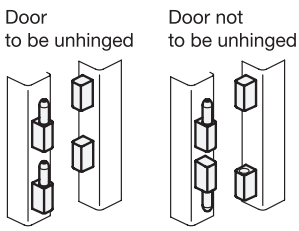
TECHNICAL INFORMATION

- List of hinges types (see page 1362)





Assembly possibilities



GN 161.1

Description	b	l1	d	l2	l3	l4	l5	m	t1	t2	Radial load in N	Axial load in N	⚖
GN 161.1-15-63-SR	15	63	M 5	17	31	6.1	10	19	5	10	2300	1500	73
GN 161.1-15-63-SW	15	63	M 5	17	31	6.1	10	19	5	10	2300	1500	72

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GN 161.2

Hinges

detachable / zinc die casting

SPECIFICATION

Types

- Type **R**: fixed bearing (pin) right
- Type **L**: fixed bearing (pin) left

Zinc die casting
plastic coated
black, RAL 9005, textured finish **SW**
silver, RAL 9006, textured finish **SR**

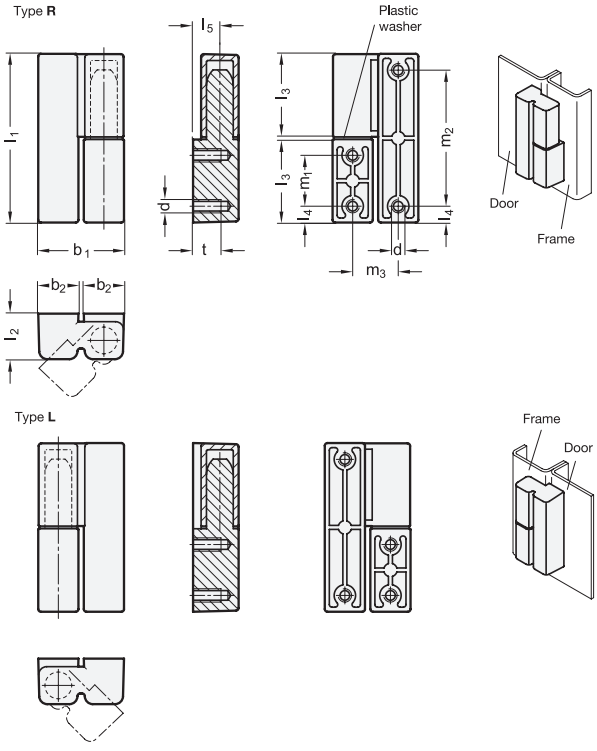
INFORMATION

Hinges GN 161.2 are a variant with highly attractive design. The fixing screws are invisible.
During the load tests, the hinges were gradually loaded and relieved at room temperature with incrementally increasing force. For the specified values, an insignificant permanent deformation remained after relieving the load which had no effect on the function and appearance. In most cases, the failure loads are multiples of the specified value.
The details relating to the load bearing capacity are non-binding recommended values and rule out any liability. They constitute no general warranty of quality and condition. The user must determine from case to case whether a product is suitable for the intended use. Environmental influences and aging may influence these values.

TECHNICAL INFORMATION

- List of hinges types (see page 1362)





GN 161.2

Description	b1	l1	b2	d	l2	l3	l4	l5	m1	m2	m3	t	Radial load in N	Axial load in N	⚖
GN 161.2-32-63-R-SR	32	63	15	M 5	17	31	6.1	10	19	50.8	17	10	700	2000	125
GN 161.2-32-63-R-SW	32	63	15	M 5	17	31	6.1	10	19	50.8	17	10	700	2000	125
GN 161.2-32-63-L-SR	32	63	15	M 5	17	31	6.1	10	19	50.8	17	10	700	2000	125
GN 161.2-32-63-L-SW	32	63	15	M 5	17	31	6.1	10	19	50.8	17	10	700	2000	124

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GN 128

Hinges

detachable, for welding / Steel



SPECIFICATION

Types

- Type **ST**: with fixed steel pin
- Type **MS**: with fixed brass pin
- Type **STL**: with loose steel pin
- Type **STS**: with fixed steel pin and lubricating nipple

Steel, blank

Pin

- Steel, blank (Types ST / STS / STL)
- Brass, turned, blank (Type MS)

Washer
Brass

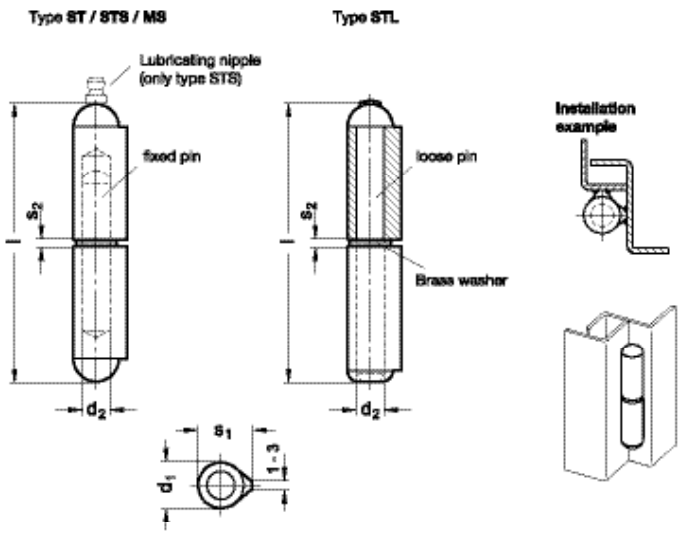
Lubricating nipple DIN 71412-D
Steel, zinc plated

INFORMATION

Hinges GN 128 are produced from drawn weldable profiled steel extrusions.
Types ST, STS and MS feature a hinge pin fixed in the lower half of hinge. Type STL with loose steel pin allows the easy installation when attaching several hinges in parallel or if the door is very heavy.
The upper half of Type STS hinge has an additional lubricating nipple DIN 71412-D which allows the hinges to be lubricated without dismantling the hinges.

TECHNICAL INFORMATION

- List of hinges types (see page 1362)



*Complete with type index of the Hinges

ST	MS	STL	STS

GN 128

Description	l	d1	d2	s1	s2	⚖
GN 128-40-*	40**	8	5	10	2	15
GN 128-50-*	50**	8	5	10	2	19
GN 128-60-*	60**	10	6	12	2	35
GN 128-80-*	80	13	8	15.5	2	83
GN 128-100-*	100	16	10	20	3	167
GN 128-120-*	120	16	11	20	3	202
GN 128-135-*	135	18	12	23	3	286
GN 128-150-*	150	20	13	25.5	3	393
GN 128-180-*	180	20	14	25.5	3	472
GN 128-200-*	200	23	16	28.5	3	680

** only in Type ST/MS available | Weight type MS

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GN 128.2

Hinges

detachable, for welding, Stainless Steel / Aluminium



SPECIFICATION

Version in Stainless Steel

AISI 304 **NI**
Pin / Washer
Stainless Steel AISI 303

AISI 316 **A4**
Pin / Washer
Stainless Steel AISI 316

Version in Aluminium

weldable, 3.3206 **AL**

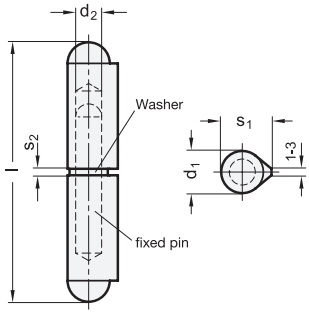
Pin / Washer
Stainless Steel AISI 303

INFORMATION

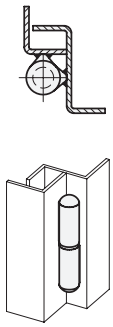
Hinges GN 128.2 are produced from drawn weldable profiled Stainless Steel or Aluminium extrusions.
The pin is fixed in the lower half.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)
- List of hinges types (see page 1362)



Example of installation



GN 128.2-AL

Description	l	d1	d2	s1	s2	⚖
GN 128.2-60-AL	60	10	6	12	2	17
GN 128.2-80-AL	80	13	8	15.5	2	38
GN 128.2-100-AL	100	16	10	20	3	75
GN 128.2-120-AL	120	16	11	20	3	90
GN 128.2-150-AL	150	20	13	25.5	3	180
GN 128.2-180-AL	180	20	14	25.5	3	221

GN 128.2-A4 STAINLESS STEEL

Description	l	d1	d2	s1	s2	⚖
GN 128.2-80-A4	80	13	8	15.5	2	86
GN 128.2-100-A4	100	16	10	20	3	150
GN 128.2-120-A4	120	16	11	20	3	204

GN 128.2-NI STAINLESS STEEL

Description	l	d1	d2	s1	s2	⚖
GN 128.2-60-NI	60	10	6	12	2	36
GN 128.2-80-NI	80	13	8	15.5	2	85
GN 128.2-100-NI	100	16	10	20	3	164
GN 128.2-120-NI	120	16	11	20	3	199
GN 128.2-150-NI	150	20	13	25.5	3	394
GN 128.2-180-NI	180	20	14	25.5	3	400

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Hinges for removable doors

SUPER-technopolymer

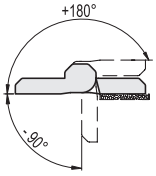
MATERIAL
Glass-fibre reinforced polyamide based (PA) SUPER-technopolymer, black colour, matte finish.

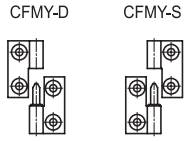
ROTATING PIN
Self-lubricating glass-fibre reinforced polyamide based (PA) technopolymer, black colour.

STANDARD EXECUTIONS
Pass-through holes for countersunk head screws.
- **CFMY-D**: rotation pin fitted on the right hinge body.
- **CFMY-S**: rotation pin fitted on the left hinge body.

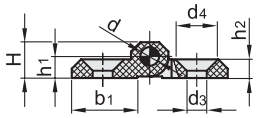
ROTATION ANGLE (APPROXIMATE VALUE)
Max 270° (-90° and +180° being 0° the condition where the two interconnected surfaces are on the same plane).
Do not exceed the rotation angle limit so as not to prejudice the hinge mechanical performance.
To choose the convenient type and the right number of hinges for your application, see the Guidelines (on page 1368).

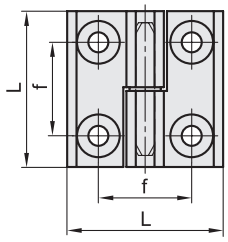






Resistance tests	AXIAL STRESS	RADIAL STRESS	90° ANGLED STRESS
Description	Max limit static load Sa [N]	Max limit static load Sr [N]	Max limit static load S90 [N]
CFMY.60	2050	1600	1250





Code	Description	L	f±0.25	H	h1	h2	b1	d	d3	d4	C# [Nm]	⚖
425981	CFMY.40 SH-4-D	40	25	9	5.5	5	14	4	4.5	8.5	3	14
425982	CFMY.40 SH-4-S	40	25	9	5.5	5	14	4	4.5	8.5	3	14
425971	CFMY.50 SH-6-D	50	30	11.5	6.5	6	18	6	6.5	12.5	5	30
425972	CFMY.50 SH-6-S	50	30	11.5	6.5	6	18	6	6.5	12.5	5	30
425965	CFMY.60 SH-6-D	60	36	15	8.5	8	26	6	6.5	12.5	5	41
425966	CFMY.60 SH-6-S	60	36	15	8.5	8	26	6	6.5	12.5	5	41
425961	CFMY.60-SH-8-D	60	36	15	8.5	8	26	8	8.5	16.5	5	41
425962	CFMY.60-SH-8-S	60	36	15	8.5	8	26	8	8.5	16.5	5	41

Suggested tightening torque for assembly screws.

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GN 337

Hinges

Detachable, Zinc die casting / Stainless Steel



SPECIFICATION

Type

- Type **A**: 2x2 bores for countersunk screws

Identification no.

- Version **1**: fixed bearing (pin) right
- Version **2**: fixed bearing (pin) left

Version in Zinc die casting ZD

Zinc die casting
plastic coated
black, RAL 9005, textured finish **SW**
silver, RAL 9006, textured finish **SR**

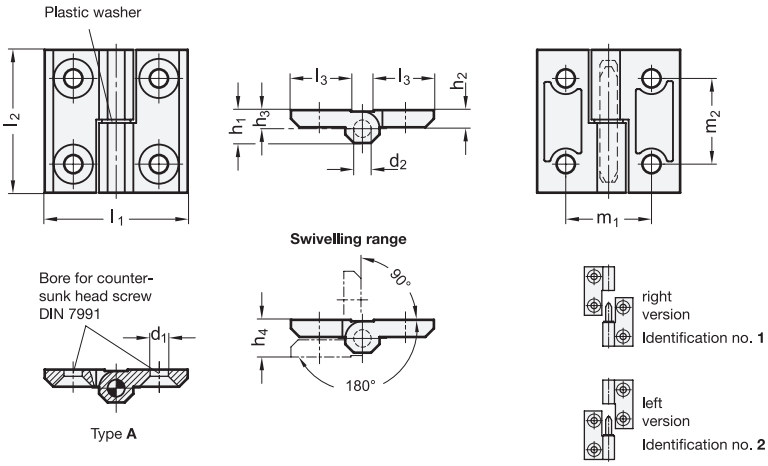
Version in Stainless Steel NI

Stainless Steel AISI CF-8
matt shot-blasted **GS**

Pin
Stainless Steel AISI 303

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)
- Load rating information (see page A40)
- List of hinges types (see page 1362)



*Complete with colour index of the Hinges (SW or SR)

SW RAL9005 SR RAL9006

GN 337-ZD

Description	l1	l2	d1	d2	h1	h2	h3	h4 +0.5	l3	m1	m2	⚖
GN 337-ZD-40-40-A-1-*	40	40	5.3	4	9	5	5.5	11	16	25	25	43
GN 337-ZD-50-50-A-1-*	50	50	6.4	6	11.5	6	6.5	13	21	30	30	40
GN 337-ZD-60-60-A-1-*	60	60	8.3	8	15	8	8.5	17	26	36	36	80
GN 337-ZD-40-40-A-2-*	40	40	5.3	4	9	5	5.5	11	16	25	25	80
GN 337-ZD-50-50-A-2-*	50	50	6.4	6	11.5	6	6.5	13	21	30	30	150
GN 337-ZD-60-60-A-2-*	60	60	8.3	8	15	8	8.5	17	26	36	36	155

GN 337-NI

STAINLESS STEEL

Description	l1	l2	d1	d2	h1	h2	h3	h4 +0.5	l3	m1	m2	⚖
GN 337-NI-40-40-A-1-GS	40	40	5.3	4	9	5	5.5	11	16	25	25	50
GN 337-NI-50-50-A-1-GS	50	50	6.4	6	11.5	6	6.5	13	21	30	30	100
GN 337-NI-60-60-A-1-GS	60	60	8.3	8	15	8	8.5	17	26	36	36	200
GN 337-NI-40-40-A-2-GS	40	40	5.3	4	9	5	5.5	11	16	25	25	60
GN 337-NI-50-50-A-2-GS	50	50	6.4	6	11.5	6	6.5	13	21	30	30	100
GN 337-NI-60-60-A-2-GS	60	60	8.3	8	15	8	8.5	17	26	36	36	200

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Hinges with snap-in positions

screw-covers, technopolymer

MATERIAL
Acetal resin based (POM) technopolymer, black colour, matte finish.

ROTATING PIN
Acetal based (POM) technopolymer, black colour.

SCREW-COVERS
Polyester based (PBT) technopolymer, black colour, matte finish, snap-in assembly.

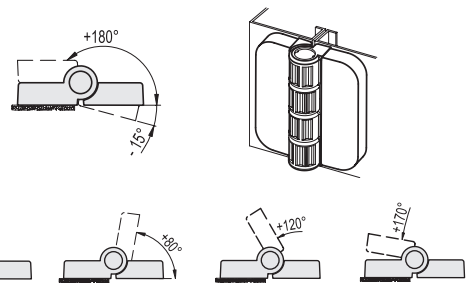
STANDARD EXECUTIONS
- **CFP-SH**: pass-through holes for countersunk head screws.
- **CFP-CH**: pass-through holes for cylindrical head screws.
- **CFP-EH**: pass-through holes for hexagonal head screws.

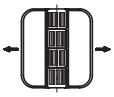
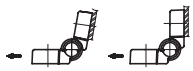
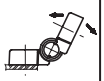
ROTATION ANGLE (APPROXIMATE VALUE)
- Max 195° (-15° and +180° being 0° the condition where the interconnected surfaces are on the same plane).
- Do not exceed the rotation angle limit so as not to prejudice the hinge mechanical performance.
- This hinge can be used combined with the hinge type CFQ. with the same design, without detent position.
- The detent device (ELESA patent) allows four different detent positions of the door (0°, +80°, +120°, +170°).
- To choose the convenient type and the right number of hinges for your application, see the Guidelines (on page 1368).

RESISTANT TORQUE
All detent positions guarantee a resistant torque of about 1.1 Nm (which is the torque that must be applied to free the detent device of the hinge).
The hinge had been tested with more than 10.000 opening and closing cycles and the value of the resistant torque was unchanged.

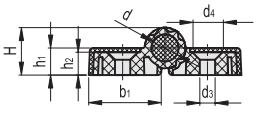


FM design

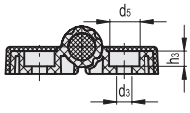


AXIAL STRESS		RADIAL STRESS		80° AND 90° ANGLED STRESS		120° ANGLED STRESS		170° ANGLED STRESS		Resistant torque
										
Maximum working load Ea [N]	Load at breakage Ra [N]	Maximum working load Er [N]	Load at breakage Rr [N]	Maximum working load E80 e E90 [N]	Load at breakage R80 e R90 [N]	Maximum working load E120 [N]	Load at breakage R120 [N]	Maximum working load E170 [N]	Load at breakage R170 [N]	[Nm]
300	1220	350	1970	345	620	285	855	400	1410	1.1

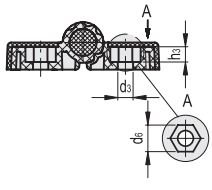
CFP-SH

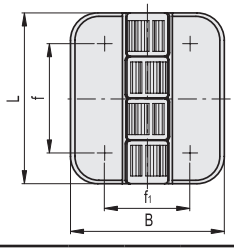


CFP-CH



CFP-EH





Code	Description	L	B	f	f1	H	h1	h2	h3	b1	d	d3	d4	d5	d6	C# [Nm]	⚖
426311-C9	CFP.50 SH-4-C9	50	45	32	25	14	8	7	-	21.5	8	4.5	8.5	-	-	1.5	17
426312-C9	CFP.50 CH-4-C9	50	45	32	25	14	8	7	4.5	21.5	8	4.5	-	8.5	-	1.5	17
426313-C9	CFP.50 EH-4-C9	50	45	32	25	14	8	7	4.5	21.5	8	4.5	-	-	7	1.5	17

Suggested tightening torque for assembly screws.

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Hinges with snap-in positions

Technopolymer

MATERIAL
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

ROTATING PIN
AISI 303 stainless steel.

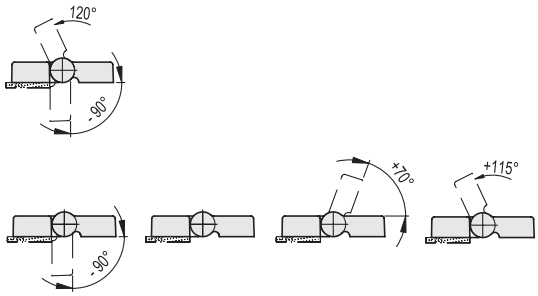
STANDARD EXECUTIONS
- **CFV-SH**: pass-through holes for countersunk head screws.
- **CFV-EH**: pass-through holes for hexagonal head screws.

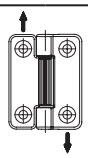
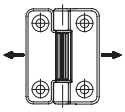
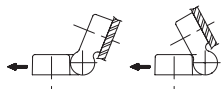
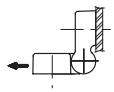
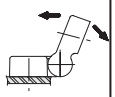
ROTATION ANGLE (APPROXIMATE VALUE)
Max 210° (-90° and +120° being 0° the condition where the interconnected surfaces are on the same plane).
Do not exceed the rotation angle limit so as not to prejudice the hinge mechanical performance.
The detent device (ELESA patent) allows four different detent positions of the door (-90°, 0°, +70°, +115°).
To choose the convenient type and the right number of hinges for your application, see the Guidelines (on page 1368).

RESISTANT TORQUE
All detent positions guarantee a resistant torque of about 3 Nm (which is the torque that must be applied to free the detent device of the hinge).
The hinge had been tested with more than 20.000 opening and closing cycles and the value of the resistant torque was unchanged.

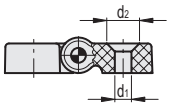


FM design

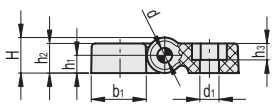


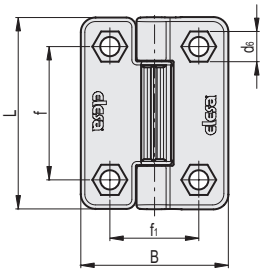
Resistance tests	AXIAL STRESS		RADIAL STRESS		70° e 115° ANGLED STRESS		90° ANGLED STRESS		Resistant torque
									
Description	Maximum working load Ea [N]	Load at breakage Ra [N]	Maximum working load Er [N]	Load at breakage Rr [N]	Maximum working load E70 E115 [N]	Load at breakage R70 R115 [N]	Maximum working load E90 [N]	Load at breakage R90 [N]	[Nm]
CFV.65 SH-6	1320	4480	2070	5060	2150	3170	1630	3380	3
CFV.65 EH-6	1520	3840	1940	4900	1430	3660	970	3140	3

CFV-SH



CFV-EH





Code	Description	L	B	f	f1	H	h1	h2	h3	b1	d	d1	d2	d6	C# [Nm]	⚖
427626	CFV.65 SH-6	65	49.5	45	30	12	6	10	-	18.5	5	6.5	12.5	-	4	38
427621	CFV.65 EH-6	65	49.5	45	30	12	6	10	5	18.5	5	6.5	-	10	4	38

Suggested tightening torque for assembly screws.

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Hinges with adjustable friction

Technopolymer

MATERIAL
Acetal based (POM) technopolymer. Flammability class UL94-HB.

PIN
Polycarbonate based (PC) technopolymer, black colour (white for CLEAN execution). Flammability class UL94-V2.

ADJUSTING BOSS AND SCREW
AISI 304 stainless steel screw.
AISI 303 stainless steel adjusting boss.

STANDARD EXECUTIONS
Assembly by means of pass-through holes for cylindrical head screws.
- **CFU**: black colour, matte finish.
- **CFU-CLEAN**: white colour similar to RAL 9002, matte finish.

FEATURES AND APPLICATIONS
The main feature of CFU. hinge is the possibility to adjust the resistant torque of the door on which it is assembled, facilitating the door clamping in the various positions of opening, partial opening and closing.
To adjust the friction force, simply turn the screw on the hinge body, clockwise to increase the friction and anti-clockwise to reduce it.

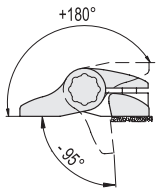
ROTATION ANGLE (APPROXIMATE VALUE)
Max 275° (-95° and +180° being 0° the condition where the two interconnected surfaces are on the same plane).
Do not exceed the rotation angle limit so as not to prejudice the hinge mechanical performance.

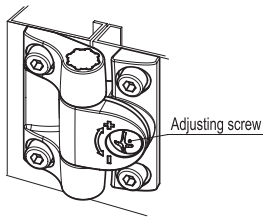
RESISTANT TORQUE
The resistant torque values of 1.4 and 4 Nm can be obtained by applying a maximum tightening torque of 0.8 Nm (CFU.40) and 4 Nm (CFU.60) on the adjusting screw.
The hinge had been tested with more than 60.000 opening and closing cycles and the values of the resistant torque was unchanged.
To choose the convenient type and the right number of hinges for your application, see the Guidelines (on page 1368).

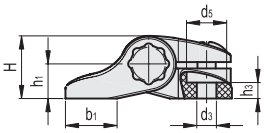


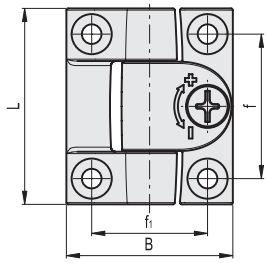


ELESA Original design



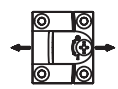
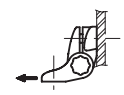






Code	Description	Code	Description	L	B	f±0.25	f1±0.25	H	h1	h3	b1	d3	d5	C# [Nm]	⚖
427512	CFU.40 CH-4	427513	CFU.40 CH-4 CLEAN	43	36.5	31.7	25.5	14	7.5	3.5	11.5	4.5	9	1	26
427522	CFU.60 CH-6	427523	CFU.60 CH-6 CLEAN	63.5	56.5	47.5	38	21	11.5	6.5	17.5	6.5	12.5	3	49

Suggested tightening torque for assembly screws.

Resistance tests	AXIAL STRESS		RADIAL STRESS		90° ANGLED STRESS		Resistant torque
							
Description	Maximum working load Ea [N]	Load at breakage Ra [N]	Maximum working load Er [N]	Load at breakage Rr [N]	Maximum working load E90 [N]	Load at breakage R90 [N]	[Nm]
CFU.40 CH-4	700	1100	1400	1800	500	1000	1.4
CFU.60 CH-6	1500	2350	2250	3200	1500	2500	4

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GN 437

Hinges

with adjustable friction / zinc die casting



SPECIFICATION

Type

Type **A**: 2x2 bores for countersunk screws

Zinc die casting **ZD**
plastic coated
black, RAL 9005, textured finish **SW**
silver, RAL 9006, textured finish **SR**

Friction cone
Plastic (Polyacetal POM)
temperature resistant up to 80 °C

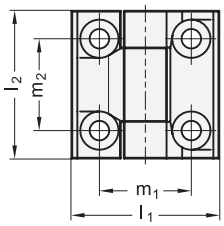
Set screw / Hexagon nut
Steel zinc plated, blue passivated

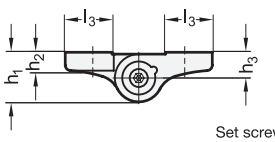
INFORMATION

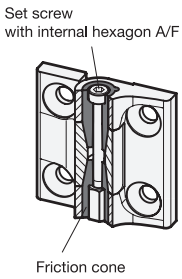
The setscrew in the hinges GN 437 allows the mobility of the hinge to be changed. This also generates a constant braking torque adjustable across the whole of the rotating range. The rotation of doors and flaps is so inhibited, also preventing the inadvertent movement.
The friction torque is accomplished by interlocking two slim friction cones. The large friction surface and the hard-wearing plastic of the friction cones guarantee a long service life with virtually constant stiffness.
Owing to the structure and the prestress of the friction cones, the hinge has virtually no radial play and no play at all in axial direction.

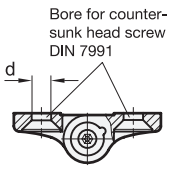
TECHNICAL INFORMATION

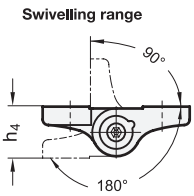
- Load rating information of hinges (see page A40)
- Plastic characteristics (see page A2)
- List of hinges types (see page 1362)

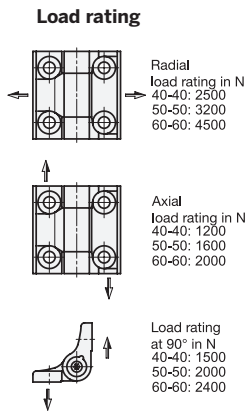












GN 437

Description	l1	l2	d	h1	h2	h3	h4	l3	m1	m2	A/F	Max. recommended tightening torque of the set screw in Nm	Friction torque in Nm ≈	⚖
GN 437-ZD-40-40-A-SR	40	40	5.3	13.5	5	7	14	13	25	25	2.5	0.5	2	53
GN 437-ZD-40-40-A-SW	40	40	5.3	13.5	5	7	14	13	25	25	2.5	0.5	2	50
GN 437-ZD-50-50-A-SR	50	50	6.5	15.5	6	8	16	16.5	30	30	3	0.75	4	91
GN 437-ZD-50-50-A-SW	50	50	6.5	15.5	6	8	16	16.5	30	30	3	0.75	4	90
GN 437-ZD-60-60-A-SR	60	60	8.3	18.5	7.5	9.5	19	20	36	36	4	1.5	6.5	161
GN 437-ZD-60-60-A-SW	60	60	8.3	18.5	7.5	9.5	19	20	36	36	4	1.5	6.5	161

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Hinges
with built-in safety switch

SUPER-technopolymer

MATERIAL

- **Hinge body**: self-extinguish high-rigidity SUPER-technopolymer, black or grey colour RAL 7040 (C33).
- **Rotation pin**: glass-fibre reinforced polyamide-based tecnopolymer (PA), black or grey colour RAL 7040 (C33).
- **Assembly kit** (see assembly instructions):
  - n°4 technopolymer covers (fig.3).
  - n°4 technopolymer bushings (fig.4 and fig.5).
  - n°2 thermoplastic elastomer safety plugs (fig.7) to guarantee IP67 protection class.
- **Switch**: four slow action electrical contacts with double interruption Zb shaped (see IEC EN 60947-5-1) wich can be set in normally open (NO) or normally closed (NC) mode in production.

Positive opening in compliance with IEC EN 60947-5-1 annex K: the separation of the electrical contacts is the direct result of an actuator action on which an action force is applied by means of non elastic elements, that is to say not dependant on, for example, spring-like elements.

The contact elements guarantee a self-cleaning action of the silver-alloy pastes.

Thanks to its housing made out of SUPER-technopolymer, the CFSW hinge guarantees the double insulation of the internal circuits, therefore there is no need of grounding connection. Furthermore, the housing protects the electric contacts from shocks, atmospheric agents and accidental penetration of tools.

STANDARD EXECUTIONS

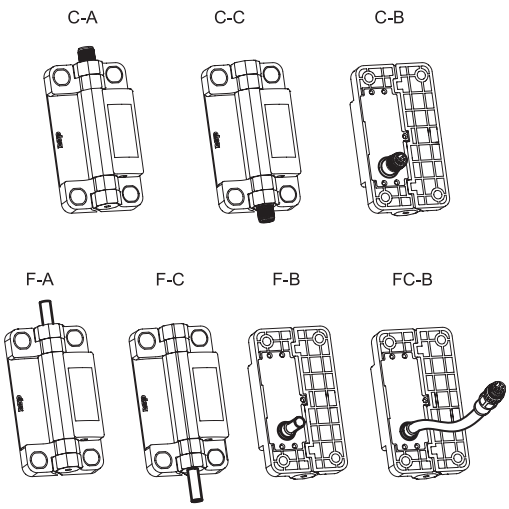
CFSW. hinge must be mounted with the side containing the microswitch on the fixed part (frame structure) and the other side on the movable part (door). The executions shown below refer to the hinges with the micro-switch on the right side.

- **C-A**: 8 pole male connector, top axial output.
- **C-C**: 8 pole male connector, bottom axial output.
- **C-B**: 8 pole male connector, back output.
- **F-A**: 2 or 5 m cable, 8 conductors, top axial output.
- **F-C**: 2 or 5 m cable, 8 conductors, bottom axial output.
- **F-B**: 2 or 5 m cable, 8 conductors, back output.
- **FC-B**: 0,2 m cable, with 8 pole male connector, back output.

Cable type: UL/CSA STYLE 2587 8 X AWG 22.

Contact blocks in the standard execution:

- **NO-NC-NO-NC**: 2 NO contacts + 2 NC contacts.
- **NO-NC-NC-NC**: 1 NO contact + 3 NC contacts.

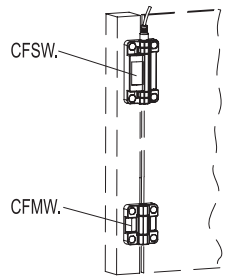




ELESA Original design

FEATURES AND APPLICATIONS

- Hinge with built-in multiple switch (ELESA patent) is a safety device because in case of accidental opening of doors, machine protections, or safety doors on machines and production equipment, it automatically breaks off the power supply hence protecting the operators.
- This hinge can be subject to frequent cleaning cycles and can be used in any situation or environment where a special attention to cleaning and hygiene is requested, thanks to the IP67 protection class and the use of stainless steel elements for closing the hinge body.
- Limited size, different assembly and output options (cable/connector) make this product easy to install on the most common aluminium profiles (30 mm minimum wide).
- Easy to assemble: the built-in safety multiple switch and the hinge come in one piece offering a very easy and fast assembly. This is a big advantage in comparison with some traditional systems which require to set up separately a hinge and a safety switch connected by a special pin to replace the standard pin of the hinge.
- Universal usage: CFSW. hinges can be assembled on the most common aluminium profiles.
- By using a redundant system, the CFSW hinges allow to have a system design up to SIL3 in compliance with IEC 62061, PLe in compliance with EN ISO 13849-1 or security category 4 in compliance with EN 954-1 with redundant structure.



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ACCESSORIES ON REQUEST
- FC.M12x1: extensions with 8 pole M12 female axial connector.
- PMW. (see page 1433): assembly plate on T-slot profiles.

SPECIAL EXECUTIONS ON REQUEST
- Operating angle of the hinge other than from 0° to 180°, every 15°, where the system frame/door requires a special execution.
- NC and NO contact blocks setting (up to 4 NC).
- NO and NC ovelapping contacts.

ASSEMBLY INSTRUCTIONS
CFSW. hinge can be assembled in three different modes:
- With M6 UNI 5933 ISO 10642 countersunk-head screw (not supplied) and screw cover supplied in the kit (fig. 3) to avoid free access to screws.
- With cylindrical-head screw with hexagon socket M6 UNI 5931 ISO 4762 (not supplied) to set with the bushing supplied in the kit (fig.4).
- With M6 UNI 5588 ISO 4032 nut (not supplied) and the bushing supplied in the kit (fig.5). This kind of assembly makes the hinge totally tamper-proof preventing any tampering.
- Fit the hinge side with the built-in microswitch on the fixed part (the frame) and the other side on the door.
- Leave the least clearance between the holes in the mounting walls and the diameter of the setscrews (Max 0.5 mm). The suggested tightening torque should not be exceeded: 5 Nm.
- The hinge must not be used as a mechanical end-stroke either for door maximum opening or for closed door. For this purpose we recommend using external mechanical stops to prevent the door from opening completely against the hinge body assembled on the frame (fig.1) or exceeding the angle where the two interconnected surfaces are on the same plane (fig.2).
- CFSW. hinge is generally assembled with one or more complementary hinges CFMW. (on page 1434) . In case of horizontal door opening or of a limited weight it is possible to use one hinge only.
- The connection cables must always be protected against mechanical damages.

CONTACTS AND CABLES
The built-in safety switch is available with 4 contacts which can be set in production in the normally closed NC or normally open NO mode.
- NC contact with positive opening is mainly used for safety applications. The use of more than one NC switches reduces the risk of error of the single commutation.
- NO contact can be used simultaneously with the NC contact thanks to their electrical separation. The use of NO together with NC contacts guarantees a safety diversification.
- Cable with M12x1 connector following the shown circuit scheme.

ROTATION ANGLE (APPROXIMATE VALUE)
Max 180° (0° and +180° being 0° the condition where the two interconnected surfaces are on the same plane fig.1). The switching angle (see Built-in safety multiple switch functioning and maintenance) is guaranteed from this position. The condition where the two interconnected surfaces are on the same plane is to be strictly verified because the hinge must not be stressed by any negative angle (fig. 2).

Cable/connector/extension* wiring
*(see accessory on request)

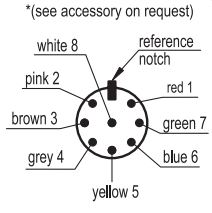


Fig.1

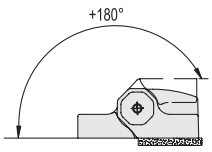


Fig.2

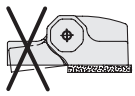
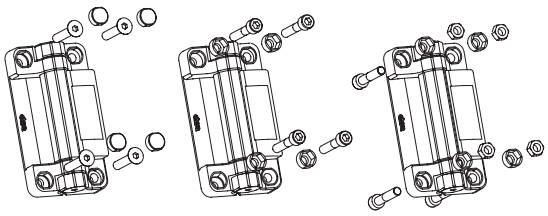


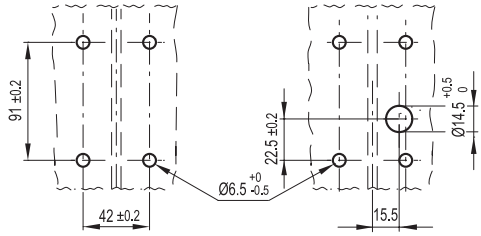
Fig.3 Fig.4 Fig.5



Drilling template

CFSW-C-A
CFSW-C-C
CFSW-F-A
CFSW-F-C

CFSW-F-B
CFSW-C-B
CFSW-FC-B



Approved by IMQ CA02.04800
In compliance with: EN 60947-1/2007+ EN 60947-5-1 : 2004 + A1/2009
Low voltage control auxiliaries
Approved by UL: E360222

Double insulation

Positive opening in compliance with EN 60947-5-1

Category of usage (values approved by IMQ)		**CFSW-C..** (connector)	**CFSW-F..** (cable)
AC15 standard IEC 60947-5-1 Typical applications: electromagnetic load controls in alternating current	24 V	-	4 A
	120 V	-	4 A
	250 V	-	4 A
	400 V	-	4 A
DC13 standard IEC 60947-5-2 Typical applications: electromagnet controls in direct current	24 V	2 A	2 A
	125 V	-	0.4 A
	250 V	-	0.3 A

Remark: the category of usage AC 15 2A 24V may be applied to CFSW-C.., even though this category is not certified by IMQ, since it is not provided for the standards in use.

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BUILT-IN SAFETY MULTIPLE SWITCH FUNCTIONING AND MAINTENANCE

- The operating angle (see travel diagram) is set at 5° (we suggest to check it according to UNI EN ISO 13857).
- To guarantee the safety protection function, the hinge must be able to turn at least by 11° (see travel diagram), equivalent to the forced opening of the NC contacts by the actuator (positive opening).
- The adjustment of the operating angle can be modified, in case of doors with large dimensions, till 1° of width before the start up of the hinge by means of a screwdriver turning the assembly screw clockwise (fig.6).

After the adjustment is done, the safety plug must be fit (not removable) to guarantee protection class IP67 (fig.7).
The functioning points shown in the travel diagram undergo the same variation as the operating angle (ex: operating angle 1°, positive operating angle 7°).
Under normal conditions of use, when the mechanical life of the device is over, the operating angle can get to 3° from the starting angle.

- We suggest to check prior to the start up and then periodically the proper functioning of the CFSW. hinge.

When the protection is opened the machine must immediately stop. When the protection is opened at any degrees, the machine must not be able to start.

WARNINGS

- The choice and use of CFSW. hinge is the responsibility of the customer who will check that the relevant application is compliant to the safety regulations in force in the actual operating conditions.
- Using CFSW. hinges always implies a full knowledge of and compliance with the safety regulations in force, including UNI EN ISO 13849-1, IEC EN 60204-1, UNI EN ISO 14119 and EN ISO 12100.
- The hinge must always be assembled and connected by qualified operators who have to check regularly the hinge perfect functioning.
- The hinge with built-in safety switch CFSW. must not be used in environments with frequent temperature changes which can cause condensation, in the presence of explosive or flammable gasses and must always be protected by a proper fuse (see Electrical features table).
- The structure of CFSW hinge must not be modified and the back cover has never to be removed: an improper installation or tampering of the hinge with built-in safety switch can make the protection ineffective and cause serious damages.
- During handling and storage the shown environmental conditions have to be observed.

Category of usage (values approved by UL)	**CFSW-F-A CFSW-F-C CFSW-F-B** (cable)			**CFSW-C-A CFSW-C-C CFSW-C-B** (connector)
C 300 AC control	120 V	1.5 A	Therm. current 2.5 A	24 V / 2 A limited voltage-limited current / class 2 circuit
	240 V	0.75 A		
Q 300 DC control	125 V	0.55 A	Therm. current 2.5 A	
	250 V	0.27 A		

Fig.6

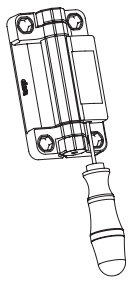
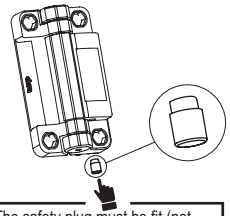
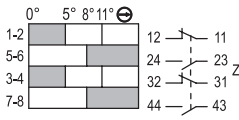


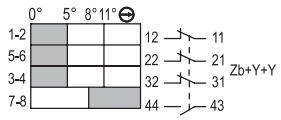
Fig.7



Stroke diagram **2NO+2NC** (production setting)

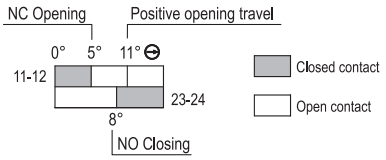


Stroke diagram **1NO+3NC** (production setting)



The diagrams refer to the hinge with the operating angle set in production.
The operating angle can be reduced (max. adjustment: 4°).

How to read the diagram



Mechanical features (values approved by IMQ)	**Electrical features** (values approved by IMQ)	
Type of contacts: Ag 999	Thermic power Ith	Cable 4 A
		Connector 2.5 A
Maximum working frequence: 600 cycles/hour *	Short-circuit protection: 4A 500V gG	
Mechanical life-span (test carried in compliance with IEC EN 60947-5-1 regulation): 10^6	Seal voltage at nominal pulse	Cable 4 Kv
		Connector 2.5 Kv
	Insulation nominal UI voltage	Cable: 400 Vac
		Connector: 30 Vac/Vdc
Protection class of the housing EN60529: IP67 *	Minimum force (torque for positive opening of contact): 0.5 Nm	
Speed of operation: minimum 2° / sec., maximum 90° / sec.	Short circuit conditioned current: 1000 A	
	Pollution degree: 3	
	B10d = 2000000	
	Tm = 20 years	

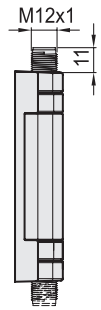
* A cycle of operations is equivalent to one closure and one opening as required by the standard EN60947-5-1.

** Fit the safety plug to guarantee IP67 protection (fig.7)

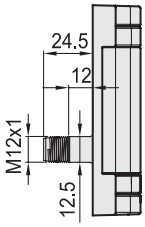
For CFSW-C..(connector) it is the customer's responsibility to check the protection class guaranteed by the connector of the cable used.

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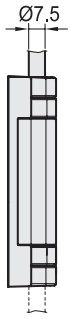
CFSW-C-A
CFSW-C-C



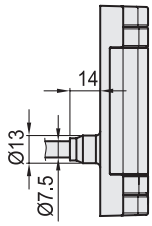
CFSW-C-B



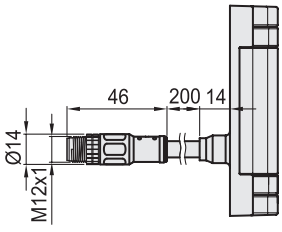
CFSW-F-A
CFSW-F-C

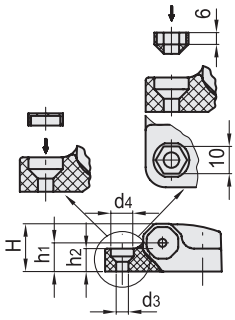


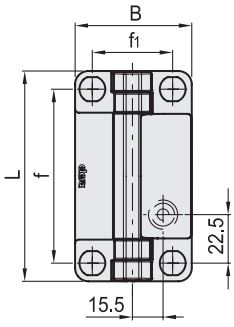
CFSW-F-B



CFSW-FC-B



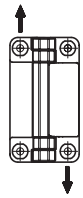
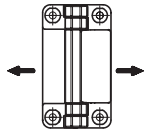
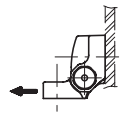




Code	Description	Code	Description	L	B	f	f1	H	h1	h2	d3	d4	C# [Nm]	⚖
426601	CFSW.110-6-2NO+2NC-C-A	426601-C33	CFSW.110-6-2NO+2NC-C-A-C33	110	60	91±0.2	42±0.2	25	15	12	6.5	12	5	150
426602	CFSW.110-6-2NO+2NC-C-C	426602-C33	CFSW.110-6-2NO+2NC-C-C-C33	110	60	91±0.2	42±0.2	25	15	12	6.5	12	5	150
426603	CFSW.110-6-2NO+2NC-C-B	426603-C33	CFSW.110-6-2NO+2NC-C-B-C33	110	60	91±0.2	42±0.2	25	15	12	6.5	12	5	150
426611	CFSW.110-6-2NO+2NC-F-A-2	426611-C33	CFSW.110-6-2NO+2NC-F-A-2-C33	110	60	91±0.2	42±0.2	25	15	12	6.5	12	5	280
426612	CFSW.110-6-2NO+2NC-F-C-2	426612-C33	CFSW.110-6-2NO+2NC-F-C-2-C33	110	60	91±0.2	42±0.2	25	15	12	6.5	12	5	280
426613	CFSW.110-6-2NO+2NC-F-B-2	426613-C33	CFSW.110-6-2NO+2NC-F-B-2-C33	110	60	91±0.2	42±0.2	25	15	12	6.5	12	5	280
426615	CFSW.110-6-2NO+2NC-F-A-5	426615-C33	CFSW.110-6-2NO+2NC-F-A-5-C33	110	60	91±0.2	42±0.2	25	15	12	6.5	12	5	475
426616	CFSW.110-6-2NO+2NC-F-C-5	426616-C33	CFSW.110-6-2NO+2NC-F-C-5-C33	110	60	91±0.2	42±0.2	25	15	12	6.5	12	5	475
426617	CFSW.110-6-2NO+2NC-F-B-5	426617-C33	CFSW.110-6-2NO+2NC-F-B-5-C33	110	60	91±0.2	42±0.2	25	15	12	6.5	12	5	475
426619	CFSW.110-6-2NO+2NC-FC-B	426619-C33	CFSW.110-6-2NO+2NC-FC-B-C33	110	60	91±0.2	42±0.2	25	15	12	6.5	12	5	475
426661	CFSW.110-6-1NO+3NC-C-A	426661-C33	CFSW.110-6-1NO+3NC-C-A-C33	110	60	91±0.2	42±0.2	25	15	12	6.5	12	5	150
426662	CFSW.110-6-1NO+3NC-C-C	426662-C33	CFSW.110-6-1NO+3NC-C-C-C33	110	60	91±0.2	42±0.2	25	15	12	6.5	12	5	150
426663	CFSW.110-6-1NO+3NC-C-B	426663-C33	CFSW.110-6-1NO+3NC-C-B-C33	110	60	91±0.2	42±0.2	25	15	12	6.5	12	5	150
426671	CFSW.110-6-1NO+3NC-F-A-2	426671-C33	CFSW.110-6-1NO+3NC-F-A-2-C33	110	60	91±0.2	42±0.2	25	15	12	6.5	12	5	280
426672	CFSW.110-6-1NO+3NC-F-C-2	426672-C33	CFSW.110-6-1NO+3NC-F-C-2-C33	110	60	91±0.2	42±0.2	25	15	12	6.5	12	5	280
426673	CFSW.110-6-1NO+3NC-F-B-2	426673-C33	CFSW.110-6-1NO+3NC-F-B-2-C33	110	60	91±0.2	42±0.2	25	15	12	6.5	12	5	280
426675	CFSW.110-6-1NO+3NC-F-A-5	426675-C33	CFSW.110-6-1NO+3NC-F-A-5-C33	110	60	91±0.2	42±0.2	25	15	12	6.5	12	5	475
426676	CFSW.110-6-1NO+3NC-F-C-5	426676-C33	CFSW.110-6-1NO+3NC-F-C-5-C33	110	60	91±0.2	42±0.2	25	15	12	6.5	12	5	475
426677	CFSW.110-6-1NO+3NC-F-B-5	426677-C33	CFSW.110-6-1NO+3NC-F-B-5-C33	110	60	91±0.2	42±0.2	25	15	12	6.5	12	5	475
426679	CFSW.110-6-1NO+3NC-FC-B	426679-C33	CFSW.110-6-1NO+3NC-FC-B-C33	110	60	91±0.2	42±0.2	25	15	12	6.5	12	5	475

Suggested tightening torque for assembly screws.

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Resistance tests	AXIAL STRESS	RADIAL STRESS	90° ANGLED STRESS
			
Description	Max limit static load Sa [N]	Max limit static load Sr [N]	Max limit static load S90 [N]
CFSW.110	2100	2800	1300

For CFSW. hinges with built-in safety multiple switch, the reference value supplied is the max limit static load (Sa, Sr, S90), since these hinges can be used as safety devices. Above this value, the material may break, thus prejudicing the hinge functionality. Obviously a suitable factor, according to the importance and safety level of the specific application, must be applied to this value. The load values shown in the tables of the different hinges are the result of tests carried out in our laboratories under controlled temperature and humidity (23°C-50% R.H.), under given conditions of use and for a limited period of time.

Example of suitability check

P = weight of the door [N]
P_1 = additional extra load [N]
W = width of the door
D = distance [metres] between the centre of gravity of the door and the hinge axis. In normal conditions D = W/2
D_1 = distance [metres] between the hinge axis and the additional extra load application point
N = number of hinges
k = safety factor
d_T = sum of the distances (metres) of all the hinges from the hinge of reference ($d_T = d_1 + d_2 + ... + dn$). In case of only two hinge assembled, d_T is simply the distance between them.

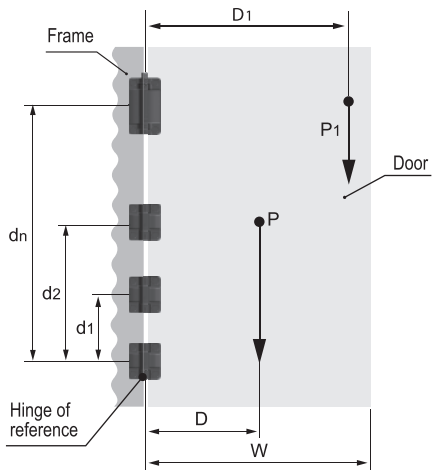
Conditions to be checked in order to ensure a correct functioning with two or more hinges.

$$\frac{(P+P1)}{N} \cdot k < Sa$$

$$\frac{[(P \cdot D)+(P1 \cdot D1)]}{d_T} \cdot k < Sr$$

$$\frac{[(P \cdot D)+(P1 \cdot D1)]}{d_T} \cdot k < S90$$

Hinged door on a vertical axis



The technical designer must use suitable safety factors (k) according to the type of application and function of the CFSW. hinge.

Example hinge CFSW.110-6-2NO+2NC-C-A

P = 294 N (30 Kg) D = 0,4 m N = 3
d_T = 1,5 m d_2 = 1 m d_1 = 0,5 m
P_1 = 196 N (20 Kg) D_1 = 1,2 m

$$\frac{490}{3} = 163 \cdot k < 2100$$

$$\frac{[(294 \cdot 0,4)+(196 \cdot 1,2)]}{1,5} = 235,2 \cdot k < 2800$$

$$\frac{[(294 \cdot 0,4)+(196 \cdot 1,2)]}{1,5} = 235,2 \cdot k < 1300$$

The examples shown here must be considered only as explanatory, since they are not applicable to all the different applications, conditions of use, ways of assembly which can actually take place. In practice, the technical designer, after applying a suitable safety factor (k) must also test the chosen product to check its suitability.
For further general technical information, refer to the guidelines.

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CFSW. and CFMW. assembly kit for profiles

SUPER-technopolymer

PLATE
Glass-fibre reinforced polyamide (PA) SUPER-technopolymer, black colour, matte finish.

SCREWS AND NUTS
AISI 304 stainless steel.

FEATURES AND APPLICATIONS
PMW assembly plate allows the mounting of CFSW.110 and CFMW.110 hinges on standard profiles of 30, 35, 40, 45 and 50 mm with T-slot.
The mounting on profiles of 40 mm can also be performed without the use of assembly plate.
The fixing screws of the plate to the profile are not accessible after the assembly of the hinges (Fig. 1). Therefore, even with the use of PMW assembly plate, CFSW. and CFMW. hinges remain tamperproof.
The supply of the plate includes:
- 2 countersunk screws M6x12 (for CFSW.110).
- 2 countersunk screws M6x14 (for CFMW.110).
- 2 M6 hexagonal nuts, assembled into the plate, necessary for the fixing of the hinge to the plate.

Plates of different dimensions can be combined in case of door and doorframe made with profiles of different dimensions (Fig.2).

ASSEMBLY INSTRUCTIONS
- Fix the plate on the profile in the desired position by using M6 countersunk head screws (not included in the supply) and the relative dowels for T-slot type GN 505 (see page 979) (not included in supply).
- Fit CFSW.110 or CFMW.110 hinge (fig. 1) on the relative plate by using M6 countersunk head screws (included in the supply).
- Place the closing caps properly (included in the supply of the hinge).

TECHNICAL DATA
The use of PMW plate, properly assembled as indicated in the assembly instructions, guarantees the max limit static load of CFSW. and CFMW.



ELESA Original design

Fig.1

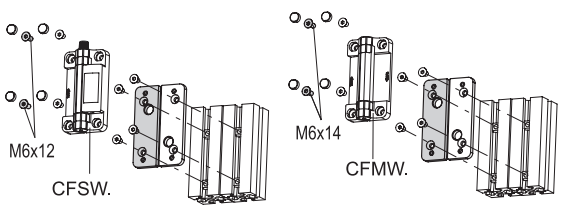
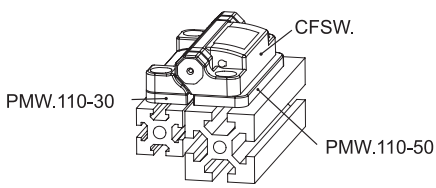
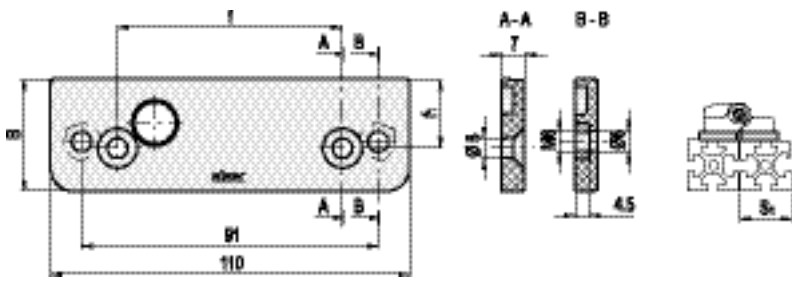


Fig.2





Code	Description	s1	B	f	f1	⚖
51901	PMW.110-30	30	28	73	14.5	26
51903	PMW.110-35	35	28	72	16.5	27
51904	PMW.110-40	40	28	70.5	19	29
51905	PMW.110-45	45	34	69	21	31
51907	PMW.110-50	50	34	69	24	28

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Hinges

SUPER-technopolymer

MATERIAL
Glass-fibre reinforced polyamide (PA) SUPER-technopolymer, black or grey colour RAL 7040 (C33), matte finish.

ROTATING PIN
Glass-fibre reinforced polyamide based (PA) technopolymer, black or grey colour RAL 7040 (C33).

ASSEMBLY KIT (SEE ASSEMBLY):
- n°4 technopolymer covers (fig.1).
- n°4 technopolymer bushings (fig.2 and fig.3).

MOUNTING
CFMW. hinge can be assembled in three different modes:
- With M6 UNI 5933 ISO 10642 countersunk-head screw (not supplied) and screw cover supplied in the kit (fig. 1) to avoid free access to screws.
- With cylindrical-head screw with hexagon socket M6 UNI 5931 ISO 4762 (not supplied) to set with the bushing supplied in the kit (fig.2).
- With M6 UNI 5588 ISO 4032 nut (not supplied) and the bushing supplied in the kit (fig.3). This kind of assembly makes the hinge totally tamper-proof preventing any tampering.

FEATURES AND APPLICATIONS
The different assembly options make this product easy to install on the most common aluminium profiles (30 mm minimum side).
CFMW. hinge can be assembled with CFSW. hinge with built-in safety switch. CFSW. (see page 1428).

ROTATION ANGLE (APPROXIMATE VALUE)
Max 180° (0° and +180° being 0° the condition where the two interconnected surfaces are on the same plane).
Do not exceed the rotation angle limit so as not to prejudice the hinge mechanical performance.
The condition where the two interconnected surfaces are on the same plane is to be strictly verified because the hinge must not be stressed by any negative angle (fig.4).
To choose the convenient type and the right number of hinges for your application, see the Guidelines (on page 1368).





ELESA Original design

Fig.1

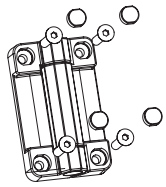


Fig.2

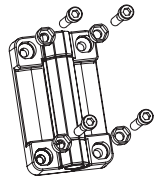
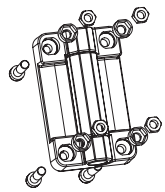


Fig.3



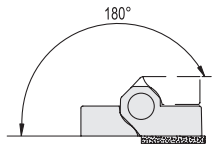
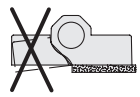
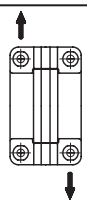
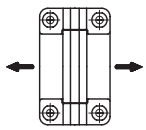
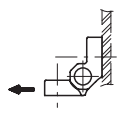


Fig.4

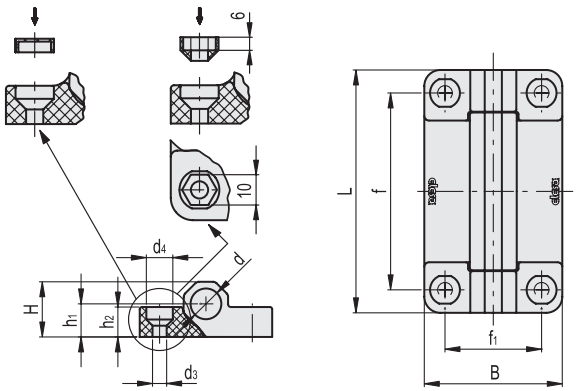


Resistance tests	AXIAL STRESS	RADIAL STRESS	90° ANGLED STRESS
			
Description	Max. limit stati load Sa [N]	Max. limit stati load Sr [N]	Max. limit stati load S90 [N]
CFMW.70	4500	7600	5800
CFMW.110	2100	2800	1300

The max static load is the value above which the material may break thus prejudicing the hinge functionality use. Obviously, a suitable factor, according to the importance and the safety level of the specific application must be applied to this value.

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Code	Description	Code	Description	L	B	f±0.25	f1 ±0.25	H	h1	h2	d	d3	d4	C# [Nm]	⚖
425951	CFMW.70-SH-6	425951-C33	CFMW.70-SH-6-C33	70	60	50	42	25	15	15	13.5	6.5	12	5	80
425956	CFMW.110-SH-6	425956-C33	CFMW.110-SH-6-C33	110	60	91	42	25	15	15	12	6.5	12	5	125

Suggested tightening torque for assembly screws.

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Hinges
with built-in safety switch

SUPER-technopolymer

MATERIAL

Self-extinguish high-rigidity SUPER-technopolymer, black colour, matte finish.
Thanks to its housing made out of SUPER-technopolymer, the CFSQ hinge guarantees the double insulation of the internal circuits, therefore there is no need of grounding connection. Furthermore, the housing protects the electric contacts from shocks, atmospheric agents and accidental penetration of tools.

ROTATING PIN

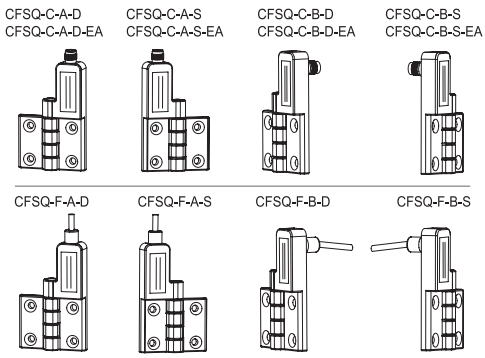
AISI 303 stainless steel.

STANDARD EXECUTIONS

Assembly by means of pass-through holes for M6 countersunk-head screws UNI 5933, DIN 7991.
Starting work angle 0°:
- **C-A-D**: axial connector, microswitch on the right.
- **C-A-S**: axial connector, microswitch on the left.
- **C-B-D**: rear connector, microswitch on the right.
- **C-B-S**: rear connector, microswitch on the left.
- **F-A-D**: axial cable, 2 or 5 m length, microswitch on the right.
- **F-A-S**: axial cable, 2 or 5 m length, microswitch on the left.
- **F-B-D**: rear cable, 2 or 5 m length, microswitch on the right.
- **F-B-S**: rear cable, 2 or 5 m length, microswitch on the left.

Starting work angle -90°:
- **C-A-D-EA**: axial connector, microswitch on the right.
- **C-A-S-EA**: axial connector, microswitch on the left.
- **C-B-D-EA**: rear connector, microswitch on the right.
- **C-B-S-EA**: rear connector, microswitch on the left.

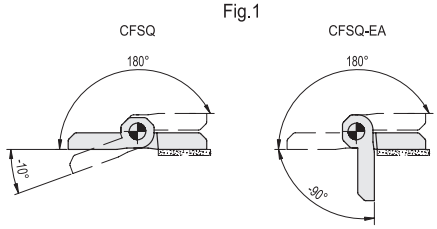
Cable type: UL/CSA STYLE 2587 3 X AWG 22.



ROTATION ANGLE (APPROXIMATE VALUE)

CFSQ: max 190° (-10° and +180° see Fig.1).
CFSQ-EA: max 270° (-90° and +180° see Fig.1).
0° is the condition where the interconnected surfaces are on the same plane.
See Built-in safety switch functioning and maintenance.
The hinge must not be stressed by any negative angle of less than -10° (CFSQ) and -90° (CFSQ-EA).

Fig.1

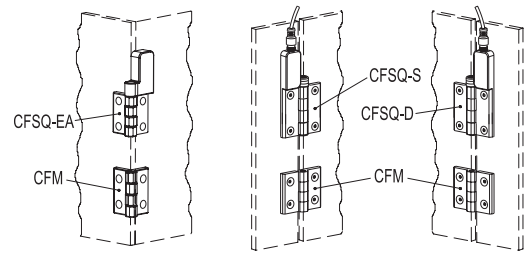




ELESA Original design

FEATURES AND APPLICATIONS

- The hinge with built-in switch (ELESA patent) is a safety device because in case of accidental opening of doors, machine protections, or safety doors on machines and production equipment, it automatically breaks off the power supply hence protecting the operators.
- This hinge can be subject to frequent cleaning cycles and can be used in any situation or environment where a special attention to cleaning and hygiene is requested, thanks to the IP67 protection class and the use of stainless steel elements for closing the hinge body.
- Switch equipped with two contacts: one NC contact and one change-over NO contact, form C, see IEC EN 60947-5-1 standard.
- Switch set with positive opening (in compliance with IEC EN 60947-5-1 standard, K attachment): the contacts break off for the direct movement of an actuator, onto which the working force is applied through non elastic elements.
- Quick release switch: the stroke speed of the contact-holder slider does not depend on the working speed.
- Easy to assemble: the built-in safety switch is integrated into a single body with the hinge, thus offering a very easy and fast assembly. This is a great advantage in comparison with some traditional systems which still require to set up separately a hinge and a safety switch connected by a special pin to replace the standard pin of the hinge.
- Universal usage: CFSQ hinges can be assembled on the most common aluminium profiles.



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ACCESSORIES ON REQUEST
- FC.M12x1: extensions with 4 pole M12 female axial connector.

SPECIAL EXECUTIONS ON REQUEST
Operating angle of the hinge other than from 0° to 180°, every 15°, where the system frame/door requires a special execution.

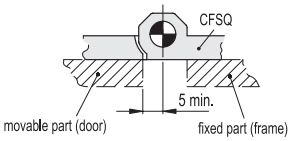
ASSEMBLY INSTRUCTIONS
- Fit the hinge body with the built-in switch on the fixed part (frame) and the other body on the door. The distance between the axis of the hinge pin and the door must be at least 5 mm (fig.3).
- Leave the least clearance between the holes in the mounting walls and the diameter of the setscrews (Max 0.5 mm). The suggested tightening torque should not be exceeded: 5 Nm.
- The hinge must not be used as a mechanical end-stroke either for door maximum opening or for closed door. For this purpose we recommend using external mechanical stops to prevent the door from opening completely against the hinge body assembled on the frame or exceeding the angle where the two interconnected surfaces are on the same plane.
- The CFSQ hinge must always be assembled with at least a second complementary hinge CFM. (CFM.60-45- SH-6 code 425812). In case of horizontal door opening or in general of a limited weight it is possible to use one hinge only.
- The connection cables must always be protected against mechanical damages.

CABLES
- Cable with M12x1 connector using the following circuit scheme.
- Normally Closed contact NC: for safety applications, according to IEC EN 60947-5-1 standard, only the NC contact (for break off) must be used leaving the NO contact unused.
- Normally Open contact NO: the normally open contact can be used only if the hinge is used as status indicator (signalling) in this case also the NC contact can be used simultaneously always as status indicator (signalling).

BUILT-IN SAFETY SWITCH FUNCTIONING AND MAINTENANCE
- The angle nominal variation required for switching the microswitch is of 6° (see stroke diagram). In normal conditions of use, when the mechanical life of the device is completed, the nominal variation may increase up to 9 °. We suggest to check the proper functioning of the hinge according to UNI EN ISO 13857.
- For applications with safety protection function, the hinge must be able to turn at least by 15°, equivalent to the forced opening (positive opening) of the contacts by the actuator.
- We suggest to check the proper functioning of the CFSQ hinge prior to the start up and afterwards periodically.
- When the protection is opened the machine must immediately stop. When the protection is opened at any degrees, the machine must not be able to start.

WARNINGS
- The hinge with built-in safety switch must not be used in environments with frequent temperature changes which can cause condensation, in the presence of explosive or flammable gasses.
- The hinge with built-in safety switch must always be protected with a proper fuse (see table).
- The choice and use of the hinge with built-in safety switch is the responsibility of the customer who will check that the relevant application is compliant to the safety standards in force under the actual operating conditions.
- Using CFSQ hinges always implies a full knowledge of and compliance with the safety standards in force, including EN ISO 13849-1, IEC EN 60204-1, UNI EN ISO 14119, EN ISO 12100.
- The hinge must always be assembled and connected by qualified operators who have to check regularly the hinge perfect functioning.

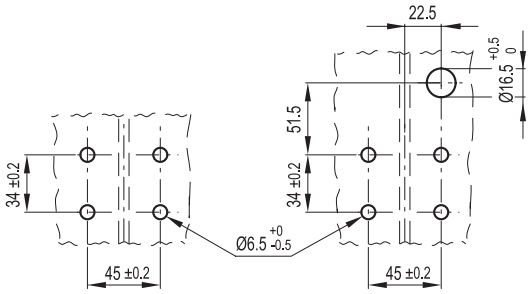
Fig.3



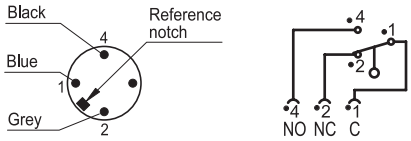
Drilling template

CFSQ-C-A
CFSQ-C-A-EA
CFSQ-F-A

CFSQ-C-B
CFSQ-C-B-EA
CFSQ-F-B

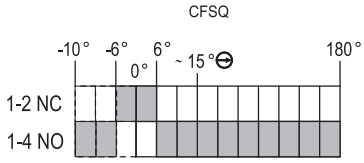


Cable/connector wiring

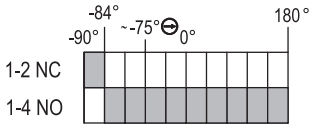


Stroke diagram

CFSQ



CFSQ-EA



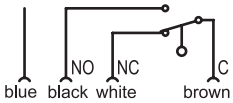
Positive opening

in compliance with EN 60947-5-1

Double insulation

In compliance with:
IEC EN 60947-5-1:2003+A1:2009
Low voltage control auxiliaries
Approved by UL: E360222

Extension cable wiring
(see accessory on request)



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CFSQ

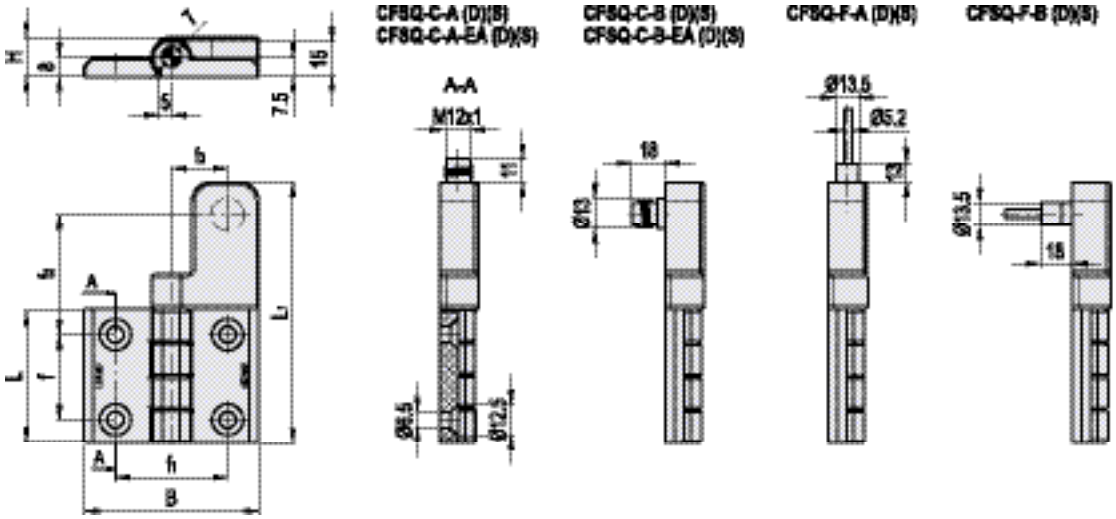
Hinges with built-in safety switch

Category of usage		CFSQ-C.. (connector)	CFSQ-F.. (cable)
AC15 standard IEC 60947-5-1 Typical applications: electromagnetic load controls in alternating current	48 V	4 A	4 A
	220 V	4 A	4 A
	440 V	-	3 A
DC13 standard IEC 60947-5-2 Typical applications: electromagnet controls in direct current	24 V	4 A	4 A
	127 V	0.3 A	0.3 A

Description	Electrical features	Environmental rating
CFSQ.60-SH-6-C	4A at 24 Vac/dc (resistive load)	Types 1 and 4X "indoor use only"
CFSQ.60-SH-6-F	B3000 pilot duty 4A at 240 Vac (resistive load) 4A at 240 Vdc (resistive load)	
Environmental conditions for assembly: maximum permissible ambient temperature 40°C		

Mechanical features	Electrical features	
Type of contact: Ag 90 Ni 10	Thermic power Ith	Cable 10 A
		Connector: 4 A
Maximum working frequence: 600 cycles/hour *	Short-circuit protection: 6A gl	
Mechanical life-span (test carried in compliance with IEC EN 60947-5-1): 10^6	Seal voltage at nominal pulse 4 KV	
	Insulation nominal voltage Ui = 250V	
Protection class of the housing EN60529: IP67	Minimum force (torque for positive opening of contact): 0.5 Nm	
Speed of operation: minimum 2° / sec., maximum 90° / sec.	Short circuit conditioned current: 1000 A	
	Pollution degree: 3	
	B10d = 2000000	
	Tm = 20 years	

* A cycle of operations is equivalent to one closure and one opening as required by the standard EN60947-5-1.

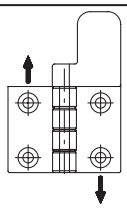
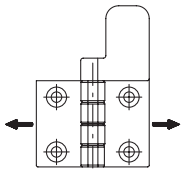
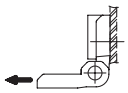


Code	Description	Code	Description	L	B	L1	f	f1	f2	f3	H	C# [Nm]	⚖
427011	CFSQ.60-SH-6-C-A-D	427011-EA	CFSQ.60-SH-6-C-A-D-EA	53	70	110	34	45	-	-	16	5	96
427013	CFSQ.60-SH-6-C-A-S	427013-EA	CFSQ.60-SH-6-C-A-S-EA	53	70	110	34	45	-	-	16	5	96
427015	CFSQ.60-SH-6-C-B-D	427015-EA	CFSQ.60-SH-6-C-B-D-EA	53	70	110	34	45	51.5	22.5	16	5	96
427017	CFSQ.60-SH-6-C-B-S	427017-EA	CFSQ.60-SH-6-C-B-S-EA	53	70	110	34	45	51.5	22.5	16	5	96

Code	Description	L	B	L1	f	f1	f2	f3	H	C# [Nm]	⚖
427021	CFSQ.60-SH-6-F-A-D-2	53	70	110	34	45	-	-	16	5	196
427023	CFSQ.60-SH-6-F-A-S-2	53	70	110	34	45	-	-	16	5	196
427025	CFSQ.60-SH-6-F-B-D-2	53	70	110	34	45	51.5	22.5	16	5	196
427027	CFSQ.60-SH-6-F-B-S-2	53	70	110	34	45	51.5	22.5	16	5	196
427031	CFSQ.60-SH-6-F-A-D-5	53	70	110	34	45	-	-	16	5	330
427033	CFSQ.60-SH-6-F-A-S-5	53	70	110	34	45	-	-	16	5	330
427035	CFSQ.60-SH-6-F-B-D-5	53	70	110	34	45	51.5	22.5	16	5	330
427037	CFSQ.60-SH-6-F-B-S-5	53	70	110	34	45	51.5	22.5	16	5	330

Suggested tightening torque for assembly screws.

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Resistance tests	AXIAL STRESS	RADIAL STRESS	90° ANGLED STRESS
			
Description	Max. limit stati load Sa [N]	Max. limit stati load Sr [N]	Max. limit stati load S90 [N]
CFSQ	2100	2800	1300
CFSQ-EA	1200	1500	600

For CFSQ. hinges with built-in safety switch, the reference value supplied is the max limit static load (Sa, Sr, S90), since these hinges can be used as safety devices. Above this value, the material may break, thus prejudicing the hinge functionality.Obviously a suitable factor, according to the importance and safety level of the specific application, must be applied to this value.The load values shown in the tables of the different hinges are the result of tests carried out in our laboratories under controlled temperature and humidity (23°C-50% R.H.), under given conditions of use and for a limited period of time.

Example of suitability check

P = weight of the door [N]
P_1 = additional extra load [N]
W = width of the door
D = distance [metres] between the centre of gravity of the door and the hinge axis. In normal conditions D = W/2
D_1 = distance [metres] between the hinge axis and the additional extra load application point
N = number of hinges
k = safety factor
d_1 ... d_n = distances (metres) of all the hinges from the hinge of reference
$d_T = d_1 + d_2 + ... + d_n$ In case of only two hinges assembled, d_T is simply the distance between them

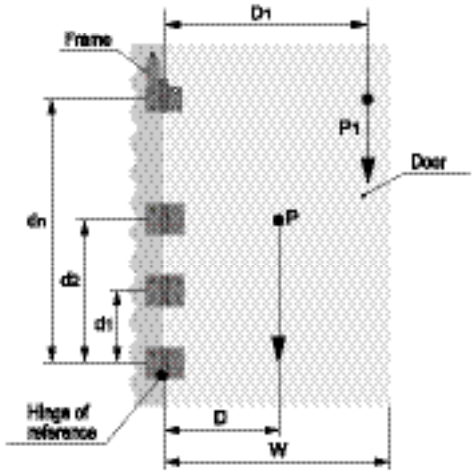
Conditions to be checked in order to ensure a correct functioning with two or more hinges.

$$\frac{(P+P1)}{N} \cdot k < Sa$$

$$\frac{[(P \cdot D)+(P1 \cdot D1)]}{d_T} \cdot k < Sr$$

$$\frac{[(P \cdot D)+(P1 \cdot D1)]}{d_T} \cdot k < S90$$

Hinged door on a vertical axis



The technical designer must use suitable safety factors (k) according to the type of application and function of the CFSQ. hinge.

Example hinge CFSQ.60-SH-6

P = 294 N (30 Kg) D = 0,4 m N = 3
d_T = 1,5 m d_2 = 1 m d_1 = 0,5 m
P_1 = 196 N (20 Kg) D_1 = 1,2 m

$$\frac{480}{3} = 160 \cdot k < 2100$$

$$\frac{[(294 \cdot 0,4)+(196 \cdot 1,2)]}{1,5} = 235,2 \cdot k < 2800$$

$$\frac{[(294 \cdot 0,4)+(196 \cdot 1,2)]}{1,5} = 235,2 \cdot k < 1300$$

The examples shown here must be considered only as explanatory, since they are not applicable to all the different applications, conditions of use, ways of assembly which can actually take place. In practice, the technical designer, after applying a suitable safety factor (k) must also test the chosen product to check its suitability.
For further general technical information, refer to the guidelines.

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GN 139.1

Hinges with safety switch

Zinc die casting



SPECIFICATION

Types

- Type **A**: Connector plug at the top
- Type **AK**: Cable at the top
- Type **B**: Connector plug from the bottom
- Type **BK**: Cable from the bottom
- Type **C**: Connector plug on the backside, with 0.2 m cable
- Type **CK**: Cable from the back

Zinc die casting
plastic coated
silver metallic

Pin
Stainless Steel AISI 303

INFORMATION

Hinges GN 139.1 with integrated safety switches have been designed for monitoring doors and covers of machines and plants. Opening the door will activate the switch contacts which, in turn, will then e.g. interrupt a protective circuit via break contact (NC) and at the same time signal the door opening by closing a normally open contact element (NO).
The contact blocks are fitted with positive opening slow-action contacts, i.e. they will definitely be separated when activated and have no hysteresis. The angle at which the switching points are reached are adjustable (see contact travel diagram).
Together with the integrated contact blocks, the hinges are a compact, easy to mount unit with an attractive design. The mounting from the back make the hinge more tamper-proof.

ON REQUEST

- Hinges with operation angle > 0°
- Hinges with other contact terminations

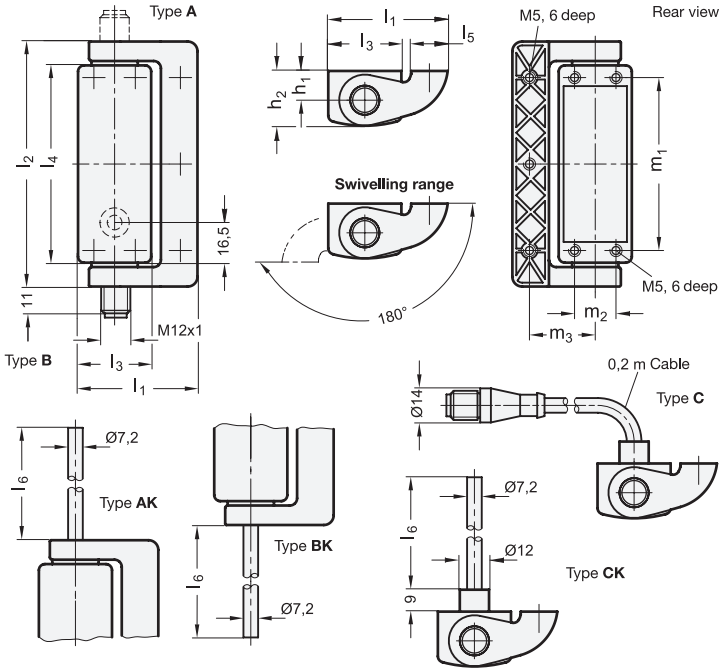
ACCESSORIES

Cable with connection coupling
8-pole, 5 or 10 meters long:

- Cables with conntector coupling GN 330-M12x1-8-G-5 (see page 1448)
- Cables with conntector coupling GN 330-M12x1-8-G-10 (see page 1448)
- Mounting plates, flat GN 139.3 (see page 1444)
- Mounting plates, angled GN 139.4 (see page 1444)

TECHNICAL INFORMATION

- Load rating information of hinges (see page A40)



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GN 139.1

Hinges with safety switch

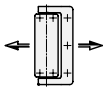
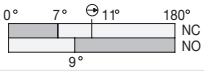


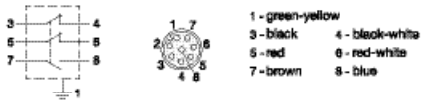
GN 139.1

Description	l1	l2	l3	l4	l5	l6 in m	h1	h2	m1	m2	m3	⚖
GN 139.1-49-101-A	49	101	30	81	15	-	12	22.5	71	17	27	325
GN 139.1-79-101-A	79	101	30	81	30	-	12	22.5	71	17	50	425
GN 139.1-49-101-AK-2	49	101	30	81	15	2	12	22.5	71	17	27	511
GN 139.1-79-101-AK-2	79	101	30	81	30	2	12	22.5	71	17	50	612
GN 139.1-49-101-AK-5	49	101	30	81	15	5	12	22.5	71	17	27	729
GN 139.1-79-101-AK-5	79	101	30	81	30	5	12	22.5	71	17	50	829
GN 139.1-49-101-B	49	101	30	81	15	-	12	22.5	71	17	27	325
GN 139.1-79-101-B	79	101	30	81	30	-	12	22.5	71	17	50	427
GN 139.1-49-101-BK-2	49	101	30	81	15	2	12	22.5	71	17	27	512
GN 139.1-79-101-BK-2	79	101	30	81	30	2	12	22.5	71	17	50	612
GN 139.1-49-101-BK-5	49	101	30	81	15	5	12	22.5	71	17	27	729
GN 139.1-79-101-BK-5	79	101	30	81	30	5	12	22.5	71	17	50	828
GN 139.1-49-101-C	49	101	30	81	15	-	12	22.5	71	17	27	364
GN 139.1-79-101-C	79	101	30	81	30	-	12	22.5	71	17	50	457
GN 139.1-49-101-CK-2	49	101	30	81	15	2	12	22.5	71	17	27	519
GN 139.1-79-101-CK-2	79	101	30	81	30	2	12	22.5	71	17	50	618
GN 139.1-49-101-CK-5	49	101	30	81	15	5	12	22.5	71	17	27	742
GN 139.1-79-101-CK-5	79	101	30	81	30	5	12	22.5	71	17	50	843

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GN 139.1 | Hinges with safety switch

Mechanical features				
Maximum load Information with safety factor	**Load direction**			
Examples of calculation	**l1 = 49**	1500 N	1000 N	1000 N
	l1 = 79	750 N	500 N	500 N
Fixing	from the back, 7 x threads M5, 6 mm deep			
Recommended torque	5 Nm (Screws M5)			
Protection class	IP67 / IP69K (Mind the cable conduit!)		acc. to EN 60529	
Switching principle, contact opening	Slow-action contacts, force-fitted, with positive opening		acc. to IEC 60947-5-1, K	
Contact material	Silver alloy			
Operating travel diagram (scheme)	The switching points are adjustable up to 4° in direction of 0°.			
Maximum operating frequency	600 operating cycles / hour		acc. to IEC 60947-5-1, one operating cycle includes one opening / one closing action	
Mechanical life span	10^6 operating cycles		acc. to IEC 60947-5-1, one operating cycle includes one opening / one closing action	
Actuating speed	min. 2° / second, max. 90° / second		acc. to IEC 60947-5-1, one operating cycle includes one opening / one closing action	

Electrical features / Safety features			
Utilization category	AC 15: 24 Vac / 2A / DC 13: 24 Vdc / 2A (connector plug), AC 15: 250 Vac / 4A / DC 13: 250 Vdc / 0,3 A (cable)		acc. to EN 60947-5-1
Contacts, termination 8-pole connector M12 or cable with 2 m or 5 m length **Pin and cable assignment**			
Type of cable	Type N 7 x0.5 mm², jacket PVC H05VV-F	acc. to IEC 60332-1-2 et seqq.	
Short-circuit current	1000 A	acc. to EN 60947-5-1	
Rated insulation voltage	30 V AC / 36 V DC (connector plug) / 250 Vac (cable)		
Short-circuit protection	2 A, 500 V, Typ gG (connector plug) / 6 A, 500 V, Typ gG (cable)		
Ambient temperature	- 25 °C up to + 80 °C		
Degree of pollution, external	3	acc. to EN 60947-5-1	
Mission time (TM)	20 years	acc. to EN ISO 13849-1	
Number of cycles (B10 d)	5 000 000	acc. to EN 61820-2	

Approvals, Conformities, Applicability			
Low-voltage switchgear and controlgear CE declaration IMQ: CA02.03746 UL: E 131787			EN 60947-1/2007 EN 60947-1-5 : 2004 + A1/2009
Safety applications	up to SIL 3 / PL e	acc. to EN ISO 13849-1	

Other important details and hints are given in the operating instruction for GN 139.1 which is included with every delivery and which is also available as PDF download from „www.elesa-ganter.com“ under ‚Downloads‘.
The hinges with safety switch must be mounted and commissioned by qualified technical personnel in compliance with the details given in the operating instruction and with the national and international rules and regulations and the applicable standards. Elesa+Ganter will assume no statutory liability for missing or incorrect information and for any consequences arising therefrom.

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GN 139.2

Hinges without safety switch

Zinc die casting

SPECIFICATION

Zinc die casting
plastic coated
silver metallic

Pin
Stainless Steel AISI 303

INFORMATION

With the exception of the connector plug, hinges without safety switch GN 139.2 do not differ in their external appearance from hinges with safety switch GN 139.1 (see page 1440). With the concealed screw connection at the back, the hinge is also tamper-proof. The compact design combines safety and attractive appearance. The design with broad hinge halves is intended for mounting to glass or polycarbonate doors.

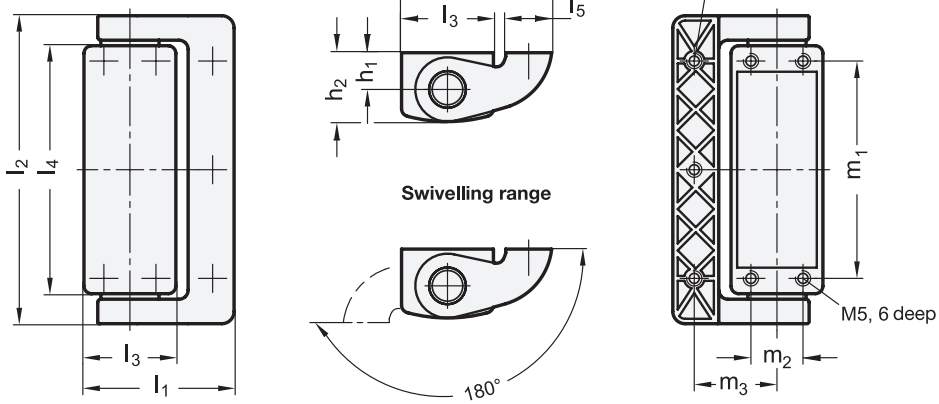
TECHNICAL INFORMATION

- Load rating information of hinges (see page A40)

MECHANICAL FEATURES

Mechanical features of Hinges GN 139.1 (see page 1440)





GN 139.2

Description	l1	l2	l3	l4	l5	h1	h2	m1	m2	m3	⚖
GN 139.2-49-101	49	101	30	81	15	12	22.5	71	17	27	308
GN 139.2-79-101	79	101	30	81	30	12	22.5	71	17	50	400

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GN 139.3

Mounting plates

for hinges with safety switch GN 139.1 / GN 139.2, flat

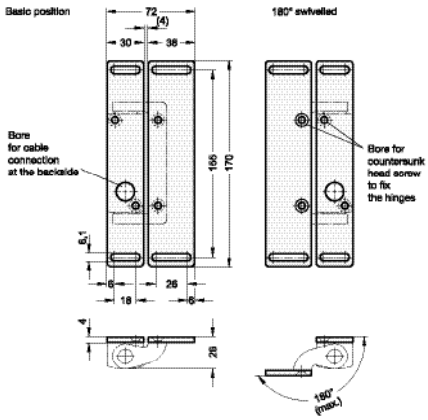
SPECIFICATION

Steel
Zinc plated and plastic coated
silver metallic

INFORMATION

The flat mounting plate GN 139.3 allows the hinges GN 139.1 (see page 1440) / GN 139.2 (see page 1443) to be attached from the front.
The long slotted holes also allow the attachment to profile systems.
Countersunk screws for fixing the hinges to the mounting plate are an included part of the order.





GN 139.3

Description	l	⚖
GN 139.3-170	170	358

GN 139.4

Mounting plates

for hinges with safety switch GN 139.1 / GN 139.2, angled

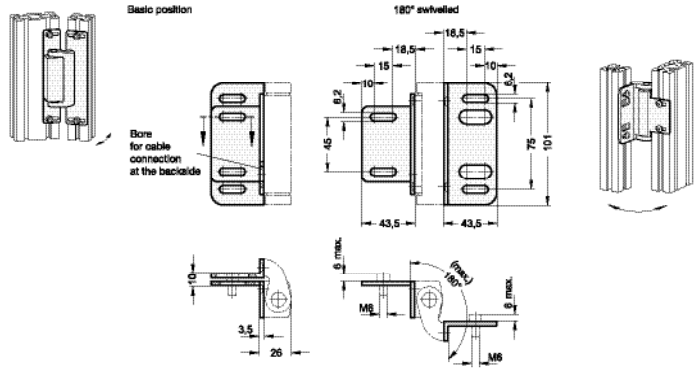
SPECIFICATION

Zinc die casting
plastic coated
silver metallic

INFORMATION

The angled mounting plate GN 139.4 allows the hinges GN 139.1 (see page 1440) / GN 139.2 (see page 1443) to be attached between frame and door, i.e. the door gap.
The long slotted holes also allow the attachment to profile systems.
Countersunk screws for fixing the hinges to the mounting plate are an included part of the order.





GN 139.4

Description	l	⚖
GN 139.4-101	101	241

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GN 139.5

Hinges with safety switch

Stainless Steel



SPECIFICATION

Types

- Type **A**: Connector plug at the top
- Type **B**: Connector plug from the bottom
- Type **C**: Connector plug at the back (with 0.2 m cable)
- Type **CK**: Cable from the back

Stainless Steel precision casting

- AISI 316L
- polished, Ra < 0.8 µm

Pin
Stainless Steel AISI 316L

INFORMATION

Hinges GN 139.5 with integrated safety switches have been designed for monitoring doors and covers of machines and plants. Opening the door will activate the switch contacts which, in turn, will then e.g. interrupt a protective circuit via break contact (NC) and at the same time signal the door opening by closing a normally open contact element (NO). The contact blocks are fitted with positive opening slow-action contacts, i.e. they will definitely be separated when activated and have no hysteresis. The angle at which the switching points are reached are adjustable.
Together with the integrated contact blocks, the hinges are a compact, easy to mount unit with an attractive design. The mounting from the back make the hinge more tamper-proof. Hinges GN 139.6 (see page 1447) without switching function act as additional hinges, e.g. for larger doors or gates where several hinges are required.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)
- Load rating information of hinges (see page A40)

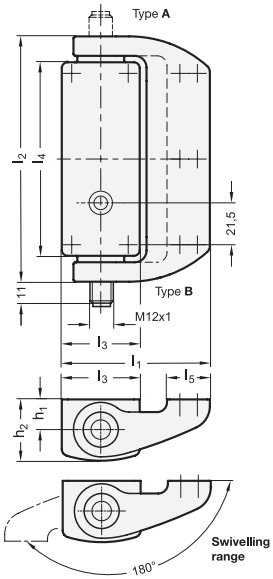
ACCESSORY

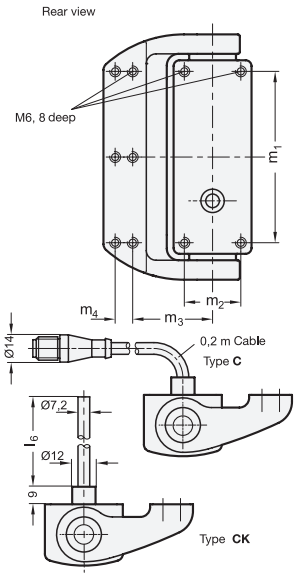
Cable with connector coupling
8-pole, 5 or 10 meter long:

- Cables with conntector coupling GN 330-M12x1-8-G-5 (see page 1448)
- Cables with conntector coupling GN 330 -M12x1-8-G-10 (see page 1448)

ON REQUEST

- Hinges with operating angle > 0°
- Hinges with other contact loadings



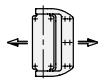
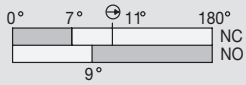


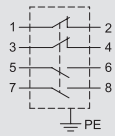
GN 139.5 — **STAINLESS STEEL**

Description	l1	l2	l3	l4	l5	l6	l7	l8	m1	m2	m3	m4	⚖
GN 139.5-76-126-A	76	126	40	99.4	22	-	15.5	31.5	88	29	41	9	1055
GN 139.5-76-126-B	76	126	40	99.4	22	-	15.5	31.5	88	29	41	9	1058
GN 139.5-76-126-C	76	126	40	99.4	22	-	15.5	31.5	88	29	41	9	1100
GN 139.5-76-126-CK-2	76	126	40	99.4	22	2	15.5	31.5	88	29	41	9	1034
GN 139.5-76-126-CK-5	76	126	40	99.4	22	5	15.5	31.5	88	29	41	9	1283

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GN 139.5 | Hinges with safety switch

Mechanical features				
Maximum load Information with safety factor Examples of calculation	Load direction			
	F max.	2000 N	2000 N	2000 N
Fixing	from the back, 10 x threads M6, 8 mm deep			
Recommended torque	10 Nm (Screws M6)			
Protection class	IP67 / IP69K (Mind the cable conduit!)		acc. to EN 60529	
Switching principle, contact opening	Slow-action contacts force-fitted, with positive opening		acc. to IEC 60947-5-1, K	
Contact material	Silver alloy			
Operating travel diagram (scheme)	The switching points are adjustable up to 2° in direction of 0°.			
Maximum operating frequency	600 operating cycles / hour		acc. to IEC 60947-5-1, one operating cycle includes one opening and one closing action	
Mechanical life span	10^6 operating cycles		acc. to IEC 60947-5-1, one operating cycle includes one opening and one closing action	
Actuating speed	min. 2° / second, max. 90° / second		acc. to IEC 60947-5-1, one operating cycle includes one opening and one closing action	

Electrical features / Safety features			
Utilization category	AC 15: 24 Vac / 2A / DC 13: 24 Vdc / 2A (connector plug), AC 15: 250 Vac / 4A / DC 13: 250 Vdc / 0,3 A (cable)		acc. to EN 60947-5-1
Contacts, termination 8-pole connector M12 or 9 wire cable with 2 m or 5 m length Pin and cable assignment	 	1 - black 2 - black-white 3 - red 4 - red-white 5 - brown 6 - blue 7 - purple 8 - purple-white PE - yellow-green (only type CK)	
Type of cable	9x0,34 mm², PVC H05VV-F, black	acc. to IEC 60332-1	
Short-circuit current	1000 A	acc. to EN 60947-5-1	
Rated insulation voltage	30 V AC / 36 V DC (connector plug) / 250 Vac (cable)		
Short-circuit protection	2 A, 500 V, Typ gG (connector plug) / 3 A, 500 V, Typ gG (cable)		
Ambient temperature	- 25 °C up to + 80 °C		
Degree of pollution, external	3	acc. to EN 60947-5-1	
Safety parameters	B10: 1 000 000, B10 d: 5 000 000, B10 / B10 d: 20%	acc. to EN ISO 13849-1	

Approvals, Conformities, Applicability			
Low-voltage switchgear and controlgear CE declaration EAC and UL certified	CE EAC c UL us		EN 60947-1/2007 EN 60947-1-5 : 2004 + A1/2009
Safety applications	up to SIL 3 / PL e	acc. to EN ISO 13849-1	

Other important details and hints are given in the operating instruction for GN 139.5 which is included with every delivery and which is also available as PDF downloads from „www.elesa-ganter.com“ under ‚Downloads‘.
The hinges with safety switch must be mounted and commissioned by qualified technical personnel in compliance with the details given in the operating instructions and with the national and international rules and regulations and the applicable standards. Elesa+Ganter will assume no statutory liability for missing or incorrect information and for any consequences arising therefrom.

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GN 139.6

Hinges without safety switch

Stainless Steel



SPECIFICATION

Stainless Steel precision casting

- AISI 316L
- polished, Ra < 0.8 µm

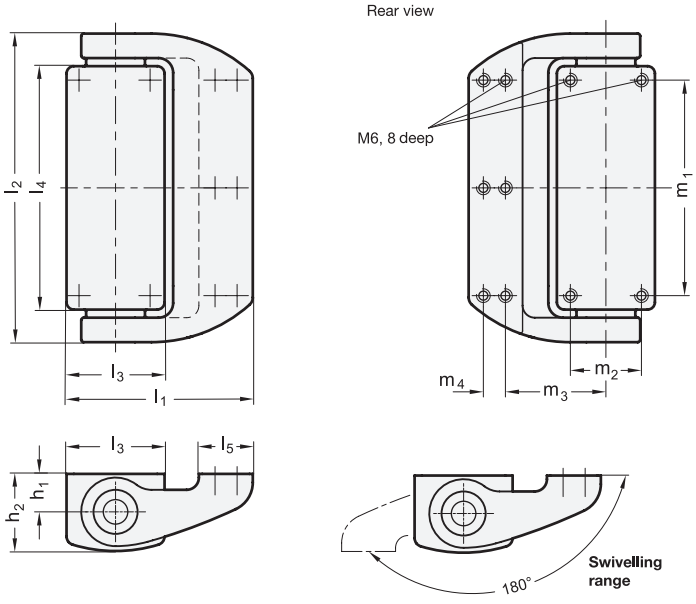
Pin
Stainless Steel AISI 316L

INFORMATION

With the exception of the connector plug, the hinge without safety switch GN 139.6 do not differ in their external appearance from hinges with safety switch GN 139.5 (see page 1445). With the concealed screw connection at the back, the hinge is also tamper-proof.
The compact design combines safety and attractive appearance.
The design with broad hinge halves is intended for mounting to glass or polycarbonate doors.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)
- Load rating information of hinges (see page A40)
- Mechanical features of Hinges GN 139.5 (see page 1446)



GN 139.6 — **STAINLESS STEEL**

Description	l1	l2	l3	l4	l5	h1	h2	m1	m2	m3	m4	⚖
GN 139.6-76-126	76	126	40	99.4	22	15.5	31.5	88	29	41	9	909

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Cables with connector coupling M12x1



SPECIFICATION

Types

- Type **G**: Connector coupling straight
- Type **W**: Connector coupling 90° angled

Handle (Housing)
Plastic
Polyurethan-Elastomer TPU

Cable (Outer sheath)
Polyurethan PUR
black

Temperature resistance: -40 °C ... +90 °C

Insulating resistance: > 10^9 Ω

Degree of pollution: 3 / 2
according to EN 60664-1

Protection class: IP67
(in screwed condition)
according to EN 60529

Connecting nut M12x1
Brass, nickel plated

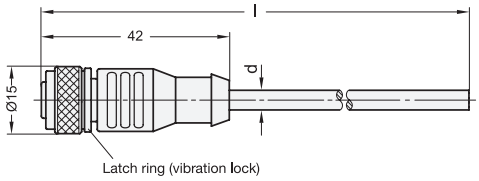
INFORMATION

Cables with connector coupling M12x1 GN 330 are used in conjunction with standard elements which have an electric switching function.

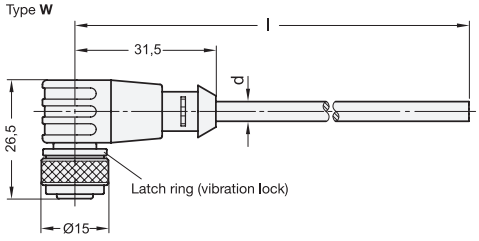
ON REQUEST

- other cable lengths l

Type **G**



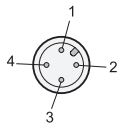
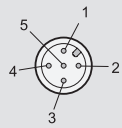
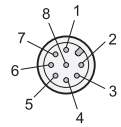
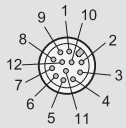
Type **W**



GN 330

Description	Connector	Number of contacts	l	⚖
GN 330-M12x1-4-G-5	M 12 x 1	4	5	160
GN 330-M12x1-5-G-5	M 12 x 1	5	5	210
GN 330-M12x1-8-G-5	M 12 x 1	8	5	230
GN 330-M12x1-12-G-5	M 12 x 1	12	5	250
GN 330-M12x1-4-G-10	M 12 x 1	4	10	399
GN 330-M12x1-8-G-10	M 12 x 1	8	10	512
GN 330-M12x1-12-G-10	M 12 x 1	12	10	468
GN 330-M12x1-8-W-5	M 12 x 1	8	5	265
GN 330-M12x1-12-W-5	M 12 x 1	12	5	246
GN 330-M12x1-8-W-10	M 12 x 1	8	10	400
GN 330-M12x1-12-W-10	M 12 x 1	12	10	460

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Cable with plug-in connector	d Outside diameter	Cross-section	Operating voltage acc. to IEC 60 664-1	Current load rating acc. to IEC 60512-3	Contact assignment
4-pole (4-wire)	5	4 x 0.34 mm²	max. 250 V	4 A	 1 - brown 2 - white 3 - blue 4 - black
5-pole (5-wire)	5	5 x 0.34 mm²	max. 60 V	4 A	 1 - brown 2 - white 3 - blue 4 - black 5 - grey
8-pole (8-wire)	6	8 x 0.25 mm²	max. 30 V	2 A	 1 - white 2 - brown 3 - green 4 - yellow 5 - grey 6 - pink 7 - blue 8 - red
12-pole (12-wire)	6	12 x 0.14 mm²	max. 30 V	1.5 A	 1 - brown 2 - blue 3 - white 4 - green 5 - pink 6 - yellow 7 - black 8 - grey 9 - red 10 - purple 11 - grey / pink 12 - red / blue

OTHER CABLE PROPERTIES

This adaptable cable, suitable for drag chains, features and outer jacket made of PUR and a core insulation made of polypropylene. It is free of PVC, silicon and halogens. UL and CSA approvals are available.

The cable is also resistant to oil, chemical, hydrolysis, microbes and welding sparks and flame retardant under IEC 60332-2-2 which makes the cable the perfect choice in many applications.

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Hinges

consisting of two or three parts / Steel



SPECIFICATION

Types

- Type **D**: consisting of three parts
- Type **Z**: consisting of two parts

Steel zinc plated, blue passivated

Pin
Brass, nickel-plated

Washer
Brass, nickel-plated

Hexagon nut ISO 4032
Steel zinc plated, blue passivated

Serrated washer DIN 6797
for securing screws
zinc plated, blue passivated

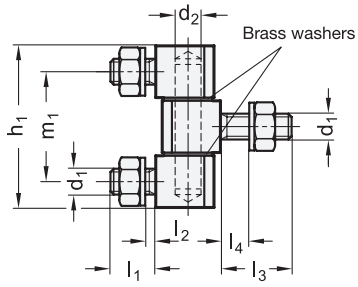
INFORMATION

Hinges GN 129 are used for doors which are flush with the frame on the outside. These hinges are normally arranged to the side of the door.
In the two-part design, the door can be unhinged with two identically arranged hinges.
The three-part hinges, which generally cannot be unhinged and are mounted inside, are suitable for doors and flaps which, as anti-tamper precaution, must not be dismountable from the outside.

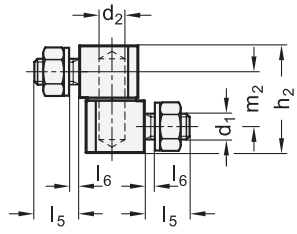
TECHNICAL INFORMATION

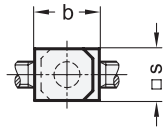
- List of hinges types (see page 1362)

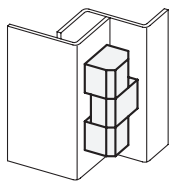
Type **D**

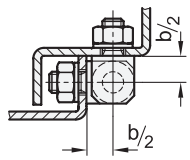


Type **Z**









GN 129

Description	s	b	d1	d2	h1	h2	l1	l2	l3	l4 max.	l5	l6	m1	m2	⚖
GN 129-12-D	12	15	M 6	6	39.2	-	10	5	-	9	-	-	27.2	-	60
GN 129-16-D	16	20	M 8	8	49	-	14	8	-	16	-	-	33	-	135
GN 129-12-Z	12	15	M 6	6	-	25.6	-	5	14	-	10	5	-	13.6	39
GN 129-16-Z	16	20	M 8	8	-	32.5	-	8	22	-	14	8	-	16.5	80

GN 129.2

Hinges

consisting of three parts, Steel / Stainless Steel

SPECIFICATION

Type

Type **C**: Fixing from the back side

Version in Steel

Hinge
Steel zinc plated, blue passivated **ST**

Pin
Brass, nickel plated

Washer
Brass, nickel plated

Hexagon nut ISO 4032
Steel zinc plated, blue passivated

Serrated washer DIN 6797 for securing screws
Steel zinc plated, blue passivated

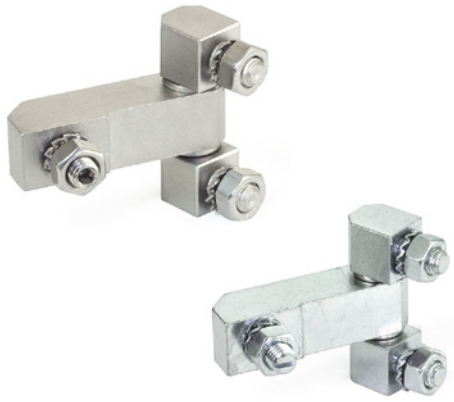
Version in Stainless Steel

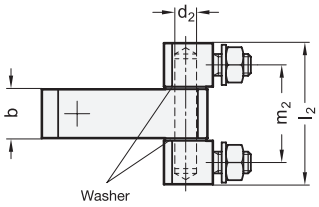
Hinge body, pin, washer

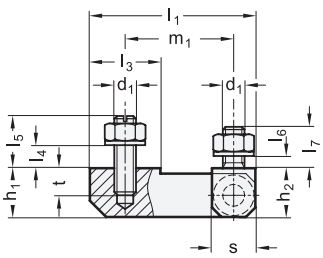
- Stainless Steel AISI 303 **NI**
- Stainless Steel AISI 316L **A4**

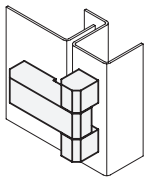
Hexagon nut ISO 4032
Stainless Steel AISI 304

Serrated washer DIN 6797 for securing screws
Stainless Steel AISI 304









INFORMATION

Hinges GN 129.2 are used for doors which are flush with the frame on the outside. Once assembled, they cannot be unhinged.
With the fixing from the inside, they are especially suitable for doors and trap doors which must not be detachable from the outside as an anti-tamper device.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)
- List of hinges types (see page 1362)

GN 129.2

Description	l1	l2	b	d1	d2	h1	h2	l3	l4 max.	l5	l6 max.	l7	m1	m2	s	t	⚖
GN 129.2-45-40-C-ST	45	40	13	M 6	6	13	13.5	18	6	11	5	10	30	28.2	12	9	97
GN 129.2-50-51-C-ST	50	51	18	M 8	8	18	18	26	8	14	8	14	29	35	16	11	213
GN 129.2-53-40-C-ST	53	40	13	M 6	6	13	13.5	26	6	11	5	10	38	28.2	12	9	108
GN 129.2-61-51-C-ST	61	51	18	M 8	8	18	18	26	8	14	8	14	40	35	16	11	240

GN 129.2-A4 — **STAINLESS STEEL**

Description	l1	l2	b	d1	d2	h1	h2	l3	l4 max.	l5	l6 max.	l7	m1	m2	s	t	⚖
GN 129.2-45-40-C-A4	45	40	13	M 6	6	13	13.5	18	6	11	5	10	30	28.2	12	9	100
GN 129.2-50-51-C-A4	50	51	18	M 8	8	18	18	26	8	14	8	14	29	35	16	11	214

GN 129.2-NI — **STAINLESS STEEL**

Description	l1	l2	b	d1	d2	h1	h2	l3	l4 max.	l5	l6 max.	l7	m1	m2	s	t	⚖
GN 129.2-45-40-C-NI	45	40	13	M 6	6	13	13.5	18	6	11	5	10	30	28.2	12	9	97
GN 129.2-50-51-C-NI	50	51	18	M 8	8	18	18	26	8	14	8	14	29	35	16	11	213

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GN 129.3

Hinges

consisting of three parts / Steel

SPECIFICATION

Type

Type **A**: Fixing from the front side

Steel zinc plated, blue passivated **ST**

Pin
Brass, nickel plated

Washer
Brass, nickel plated

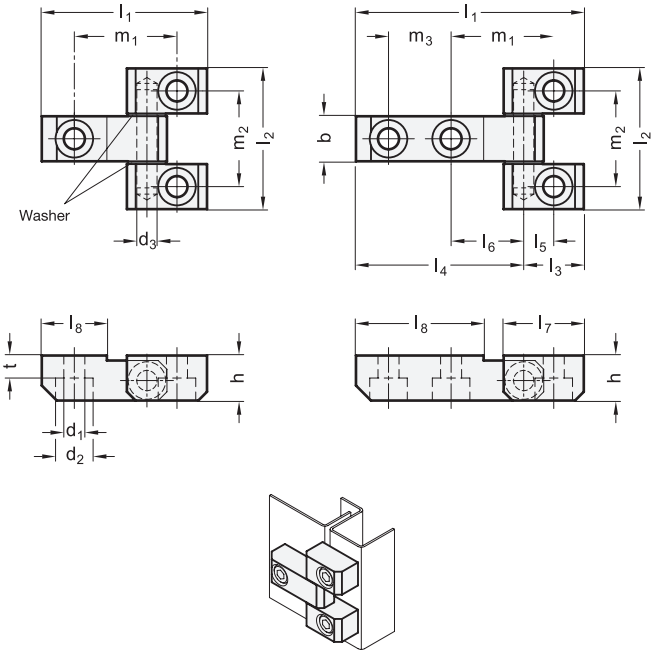
INFORMATION

Hinges GN 129.3 are used for doors which are flush with the frame on the outside. Once assembled, they cannot be unhinged.
By using cylinder screws DIN 912, they are conveniently fixed using threads on the user side or by using through screws for different clamping thicknesses.

TECHNICAL INFORMATION

- List of hinges types (see page 1362)





GN 129.3

Description	l1	l2	b	d1	d2	d3	h	l3	l4 max.	l5	l6 max.	l7	l8	m1	m2	m3	t	⚖
GN 129.3-66-55-A-ST	66	55	18	8.4	15	8	18	24	42	12	29	32	26	41	37	-	9	228
GN 129.3-91-55-A-ST	91	55	18	8.4	15	8	18	24	67	12	29	32	51	41	37	25	9	271

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GN 129.5

Stainless Steel-Hinges

consisting of three parts



SPECIFICATION

Type

Type **D**: consisting of three parts

Hinge body, pin, washer

- Stainless Steel AISI 303 **NI**
- Stainless Steel AISI 316L **A4**

Hexagon nut ISO 4032
Stainless Steel AISI 304

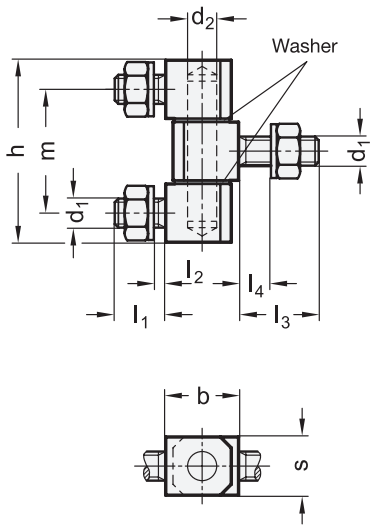
Serrated washer DIN 6797 for securing screws
Stainless Steel AISI 304

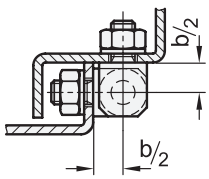
INFORMATION

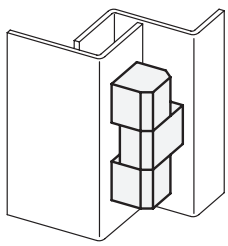
Stainless Steel-Hinges GN 129.5 are used for doors which are flush with the frame on the outside. Once assembled, they cannot be unhinged.
With the fixing from the inside, they are especially suitable for doors and trap doors which must not be detachable from the outside as an anti-tamper device.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)
- List of hinges types (see page 1362)







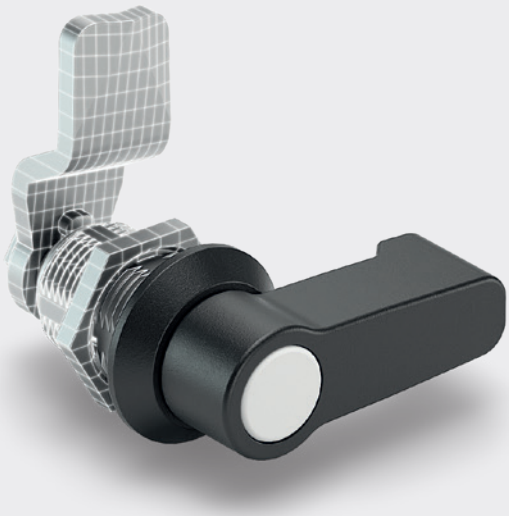
GN 129.5-NI — **STAINLESS STEEL**

Description	s	b	d1	d2	h	l1	l2	l3	l4 max.	m	⚖
GN 129.5-12-D-NI	12	15	M 6	6	39.2	10	5	14	9	27.2	57
GN 129.5-16-D-NI	16	20	M 8	8	49	14	8	22	16	33	134

GN 129.5-A4 — **STAINLESS STEEL**

Description	s	b	d1	d2	h	l1	l2	l3	l4 max.	m	⚖
GN 129.5-12-D-A4	12	15	M 6	6	39.2	10	5	14	9	27.2	61
GN 129.5-16-D-A4	16	20	M 8	8	49	14	8	22	16	33	140

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FOR ENGINEERING

13 Latches

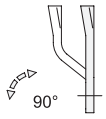
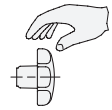
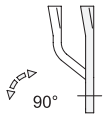
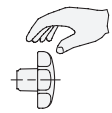
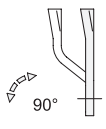
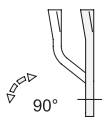
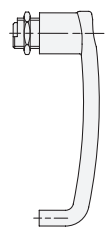
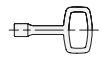
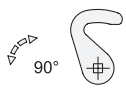
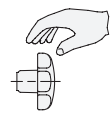
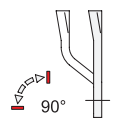
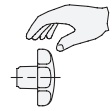


Latches with handle

Latches with key

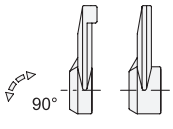
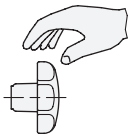
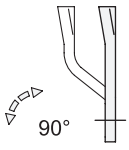
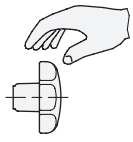
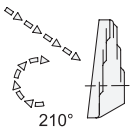
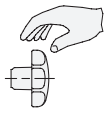
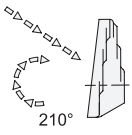
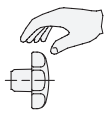
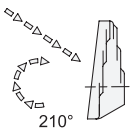
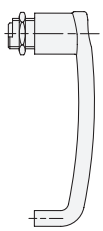
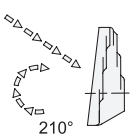
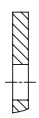
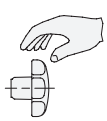
Edge protection profiles

Latches – Types

Standard	Latch type	Housing form	Activation methods
GN 115 see page 1462 **Latches** Zinc die casting, Locating ring chrome-plated or black plastic coated, Latch steel			  
GN 115 see page 1462 **Latches** Stainless Steel INOX			  
GN 115 see page 1471 **Latches** Stainless Steel, Hygienic version INOX			
GN 115.7 see page 1472 **Latches** **with cabinet** **„U“ handle** Zinc die casting, Latch steel			 
GN 115.8 see page 1474 **Hook-type latches** Zinc die casting, Locating ring chrome-plated or black plastic coated, Hook latch Steel, zinc plated			  
GN 115.9 see page 1477 **Latches** **with safety function** Zinc die casting, Locating ring black plastic coated, Latch steel			 

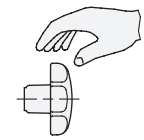
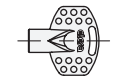
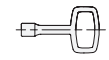
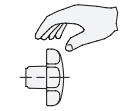
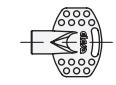
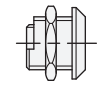
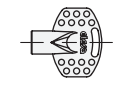
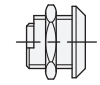
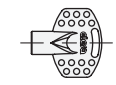
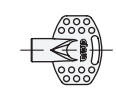
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Latches – Types

Standard	Latch type	Housing form	Activation methods
CMT.AE-V0 see page 1480 **Lever latches with fold-away knob** Technopolymer	 		
CM. see page 1481 **Compression latches with key-type knob** Zinc alloy	 		
GN 119 see page 1482 **Latches** Zinc die casting, chrome-plated, Cam latch steel	 		
GN 119 see page 1482 **Latches** Stainless Steel INOX STAINLESS STEEL	 		
GN 119.3 see page 1484 **Latches with cabinet „U“ handle** Zinc die casting, black or silver plastic coated, Cam latch steel	 		
GN 117 see page 1488 **Latches** Steel	 		

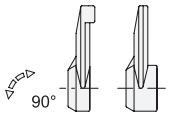
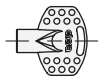
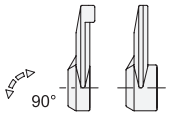
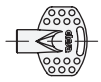
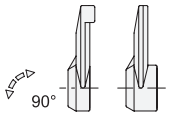
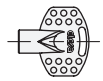
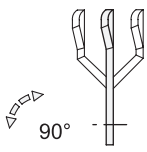
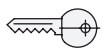
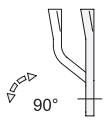
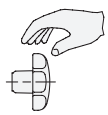
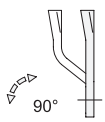
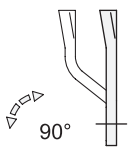
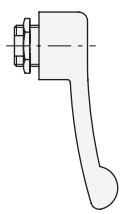
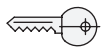
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Latches – Types

Standard	Latch type	Housing form	Activation methods
VCK see page 1490 **Cam latches with knob** Duroplast, steel or stainless steel cam INOX			
BOCK see page 1492 **Cam latches with key** Steel or stainless steel cam INOX			
GN 116.1 see page 1494 **Rotary clamping latches** Zinc die casting, Locating ring black plastic coated, Latch steel			 
CQT.AE-V0 see page 1496 **Lever latches** with recessed key, technopolymer			
CQ. see page 1497 **Lever latches** with recessed key, zinc alloy			
CQ.SST see page 1498 **Lever latches** with recessed key, stainless steel			
CQT.FM-AE-V0 see page 1499 **Lever latches with key** Quick-assembly, self-extinguishing technopolymer			

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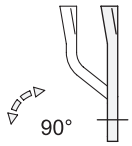
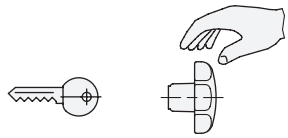
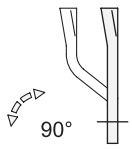
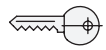
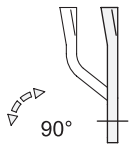
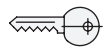
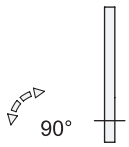
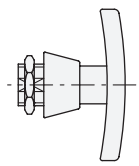
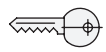
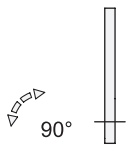
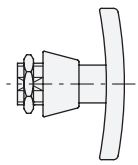
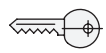
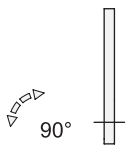
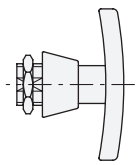
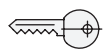
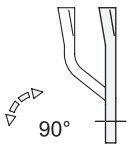
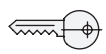
Latches – Types

Standard	Latch type	Housing form	Activation methods
CQT.FM-CR see page 1500 **Lever latches with key** Quick-assembly, technopolymer				
CQTF.FM-AE-V0 see page 1501 **Lever latches with key** Quick-assembly, technopolymer				
CQTL.FM see page 1502 **Lever latches with key** Quick-assembly, technopolymer				
CSL.FM see page 1503 **Lever latches with key** Lock, technopolymer and zinc alloy				
GN 115.1 see page 1504 **Mini-Latches** Zinc die casting, chrome-plated, Latch steel					
GN 115.6 see page 1505 **Mini-Latches** Stainless Steel					
ELCK see page 1506 **Lever latches with key** Operation with lever, technopolymer				

INOX STAINLESS STEEL

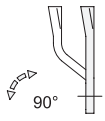
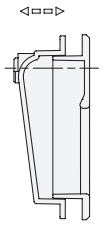
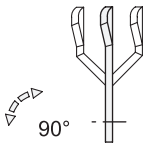
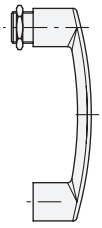
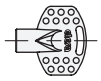
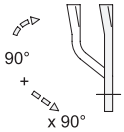
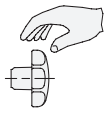
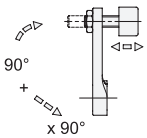
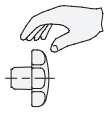
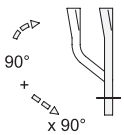
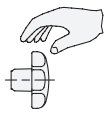
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Latches – Types

Standard	Latch type	Housing form	Activation methods
VC.308 - VC. 309 see page 1508 **Lever latches** with lock, technopolymer knob 			
CS-RPR. see page 1509 **Lever latches** **with key** Programmable lock, steel 			
CS. see page 1510 **Lever latches** **with key** Lock, zinc alloy 			
CSMT. see page 1511 **Lever latches** **with T-Handle** Operation with key, technopolymer 			
CSMT-A see page 1512 **Lever latches** **with T-Handle** Operation with key, anti-rotation device, technopolymer 			
CSM. see page 1513 **Lever latches** **with T-Handle** Operation with key, technopolymer 			
CX. see page 1514 **Lever latches** **with key** Safety lock, zinc alloy 			

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Latches – Types

Standard	Latch type	Housing form	Activation methods
GN 115.10 see page 1527 **Latches with gripping tray** Zinc die casting / Plastic, Latch steel, Clamp-mounted				
EBP-CH see page 1534 **Handles with latch** Technopolymer				
GN 516 see page 1542 **Rotary clamping latches** Zinc die casting Locating ring black plastic coated, Latch steel					
GN 516.1 see page 1544 **Rotary clamping latches** Zinc die casting, Locating ring black plastic coated, Adjustable latch Zinc die casting					
GN 516.5 see page 1546 **Rotary clamping latches** Stainless Steel INOX					

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Latches

Zinc die casting / Stainless Steel, lockable

SPECIFICATION

Version in Zinc die casting

Types

- Type **SC**: Operation with key (same lock)
- Type **SU**: Operation with key (different lock)
- Type **SCK**: Operation with wing knob (same lock)
- Type **SUK**: Operation with wing knob (different lock)
- Type **SCT**: Operation with T-Handle (same lock)
- Type **SUT**: Operation with T-Handle (different lock)
- Type **LCG**: Operation with hand lever (only in SW), (same lock)
- Type **LUG**: Operation with hand lever (only in SW), (different lock)

Lock housing
Zinc die casting

Locating ring

- chrome plated (standard)
- plastic coated, black, RAL 9005, textured finish **SW**

All other parts
Steel zinc plated, blue passivated

Key
Nickel silver with plastic hand piece

Wing knob / T-Handle
Plastic (Polyamide PA)
black, matt

Version in Stainless Steel

Type

- Type **SC**: Operation with key (same lock)

Lock housing
Stainless Steel AISI 303 **NI**

Latch
Stainless Steel AISI 304

Key
Nickel silver with plastic hand piece

INFORMATION

The lockable latches GN 115 lock by a turning operation limited to 90° which moves the locking behind the door frame. The bevels of the latch ease the closing of the door.
Latches with different cranks cover a latch distance A from 4 to 50 mm.
The types with a different lock are available in more than 200 variants, whose key is marked by numbers.
The scope of delivery includes a separately enclosed latch as well as two keys removable in both end positions.

TECHNICAL INFORMATION

- List of latch types (see page 1456)
- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)

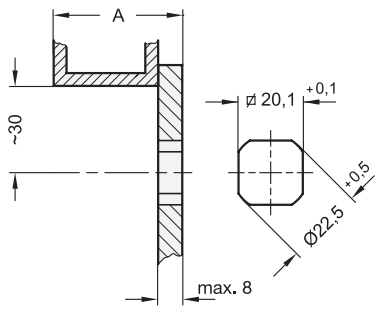
ACCESSORY

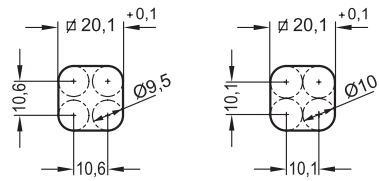
- Protective caps GN 120 (see page 1486)
- Opening handles GN 120.1 (see page 1487)



CONSTRUCTION AND ASSEMBLY INSTRUCTIONS

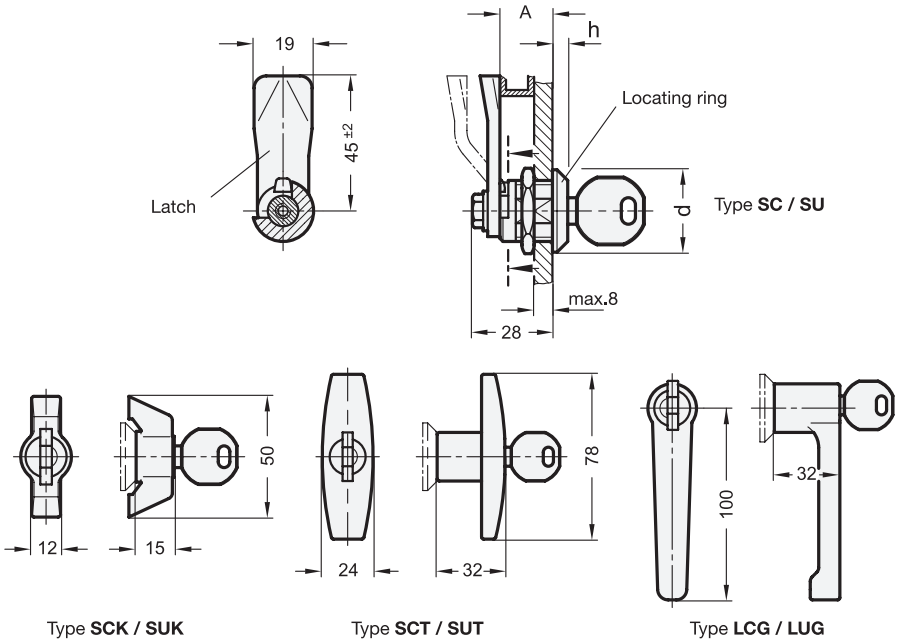
For installation, set a bore diameter in the door as shown in the outline drawing.
Once assembled, the latch is pushed through the bore diameter from the front. The hexagon nut can then be pushed over the latch from the back and bolted in place.
The **installation bore diameter** in the door leaf is usually generated by punching or laser machining in series production.
For small series and steel sheets below 2 mm thickness, the sheet metal punshes GN 123 (see page 1493) are the tool of choice.
The installation bore diameter can also be set by drilling / milling as shown in the outline drawings.





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GN 115-L | Latches



*Complete with type index of the latch

SC SU SCK SUK SCT SUT

*Complete with type index of the latch

SC SU SCK SUK SCT SUT LCG LUG

GN 115-L

Description	Latch distance A	d Type SC, SU	d Type SCK, SUK, SCT, SUT	h Type SC, SU	h Type SCK, SUK, SCT, SUT	⚖
GN 115-*-4	4	28	32	4	6	80
GN 115-*-6	6	28	32	4	6	100
GN 115-*-8	8	28	32	4	6	100
GN 115-*-10	10	28	32	4	6	100
GN 115-*-13	13	28	32	4	6	100
GN 115-*-14	14	28	32	4	6	100
GN 115-*-16	16	28	32	4	6	100
GN 115-*-18	18	28	32	4	6	100
GN 115-*-20	20	28	32	4	6	100
GN 115-*-22	22	28	32	4	6	100
GN 115-*-24	24	28	32	4	6	100
GN 115-*-26	26	28	32	4	6	100
GN 115-*-28	28	28	32	4	6	100
GN 115-*-30	30	28	32	4	6	100
GN 115-*-32	32	28	32	4	6	100
GN 115-*-34	34	28	32	4	6	100
GN 115-*-36	36	28	32	4	6	100
GN 115-*-38	38	28	32	4	6	100
GN 115-*-40	40	28	32	4	6	100
GN 115-*-42	42	28	32	4	6	100
GN 115-*-45	45	28	32	4	6	100
GN 115-*-50	50	28	32	4	6	100

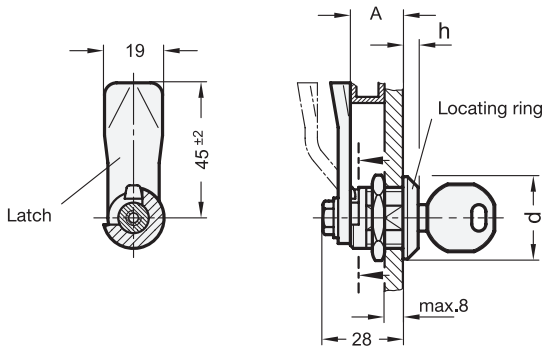
Weight type SC

GN 115-L-SW

Description	Latch distance A	d Type SC, SU	d Type SCK, SUK, SCT, SUT, LCG, LUG	h Type SC, SU	h Type SCK, SUK, SCT, SUT, LCG, LUG	⚖
GN 115-*-4-SW	4	28	32	4	6	100
GN 115-*-6-SW	6	28	32	4	6	100
GN 115-*-8-SW	8	28	32	4	6	100
GN 115-*-10-SW	10	28	32	4	6	100
GN 115-*-13-SW	13	28	32	4	6	100
GN 115-*-14-SW	14	28	32	4	6	100
GN 115-*-16-SW	16	28	32	4	6	100
GN 115-*-18-SW	18	28	32	4	6	100
GN 115-*-20-SW	20	28	32	4	6	100
GN 115-*-22-SW	22	28	32	4	6	100
GN 115-*-24-SW	24	28	32	4	6	100
GN 115-*-26-SW	26	28	32	4	6	100
GN 115-*-28-SW	28	28	32	4	6	100
GN 115-*-30-SW	30	28	32	4	6	100
GN 115-*-32-SW	32	28	32	4	6	100
GN 115-*-34-SW	34	28	32	4	6	100
GN 115-*-36-SW	36	28	32	4	6	100
GN 115-*-38-SW	38	28	32	4	6	100
GN 115-*-40-SW	40	28	32	4	6	100
GN 115-*-42-SW	42	28	32	4	6	100
GN 115-*-45-SW	45	28	32	4	6	100
GN 115-*-50-SW	50	28	32	4	6	100

Weight type SC

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GN 115-L-NI **STAINLESS STEEL**

Description	Latch distance A	d	h	⚖
GN 115-SC-6-NI	6	28	4	100
GN 115-SC-10-NI	10	28	4	100
GN 115-SC-14-NI	14	28	4	100
GN 115-SC-18-NI	18	28	4	100
GN 115-SC-20-NI	20	28	4	100
GN 115-SC-22-NI	22	28	4	100
GN 115-SC-24-NI	24	28	4	101
GN 115-SC-26-NI	26	28	4	102
GN 115-SC-28-NI	28	28	4	104
GN 115-SC-30-NI	30	28	4	104
GN 115-SC-34-NI	34	28	4	108
GN 115-SC-38-NI	38	28	4	112
GN 115-SC-40-NI	40	28	4	116
GN 115-SC-50-NI	50	28	4	120

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GN 115-NL

Latches

Zinc die casting / Stainless Steel, operation with operating elements, not lockable



SPECIFICATION

Version in Zinc die casting

Types

- Type **SG**: Operation with star knob
- Type **SK**: Operation with wing knob
- Type **ST**: Operation with T-Handle
- Type **RG**: Operation with knurled knob GN 7336 (see page 280)
- Type **KG**: Operation with wing knob
- Type **HG**: Operation with lever
- Type **LG**: Operation with hand lever (only with locating ring in SW)

Lock housing
Zinc die casting

Locating ring

- chrome plated (Standard)
- plastic coated, black, RAL 9005, textured finish **SW**

All other parts
Steel zinc plated, blue passivated

Operating handles
Plastic (Polyamide PA)
black, matt
(Type SG, SK, ST, RG, KG, HG)

Zinc die casting
plastic coated
black, RAL 9005, textured finish
(Type LG)

Cover cap (Type RG, KG, HG, LG)
Plastic (Polyamide PA)
light grey

Version in Stainless Steel

Types

- Type **RG**: Operation with knurled knob in plastic GN 7336 (see page 280)
- Type **KG**: Operation with wing knob in plastic
- Type **HG**: Operation with lever in plastic
- Type **SG**: Operation with Stainless Steel-Star knob
- Type **KGN**: Operation with Stainless Steel-Wing knob
- Type **HGN**: Operation with Stainless Steel-Lever

Lock housing
Stainless Steel AISI 303 **NI**

Latch
Stainless Steel AISI 304

Star knobs (Type SG)
Stainless Steel AISI 304

- Sheet metal, drawn
- Hub, welded

Operating handles (Type KGN, HGN)
Stainless Steel AISI CF-8

Operating handles (Type RG, KG, HG)
Plastic (Polyamide PA)
black, matt

INFORMATION

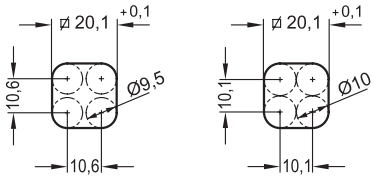
Latches GN 115 lock by a turning operation limited to 90° which moves the locking behind the door frame. The bevels of the latch ease the closing of the door.
Latches with different cranks cover a latch distance A from 4 to 50 mm.
The operating bolt of the stainless steel version is fitted with an O-ring for sealing.
Latches GN 115 are supplied with loosely enclosed latch.

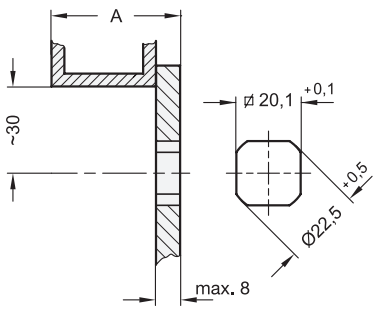
TECHNICAL INFORMATION

- List of latch types (see page 1456)
- IP Protection classes (see page A23)
- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)

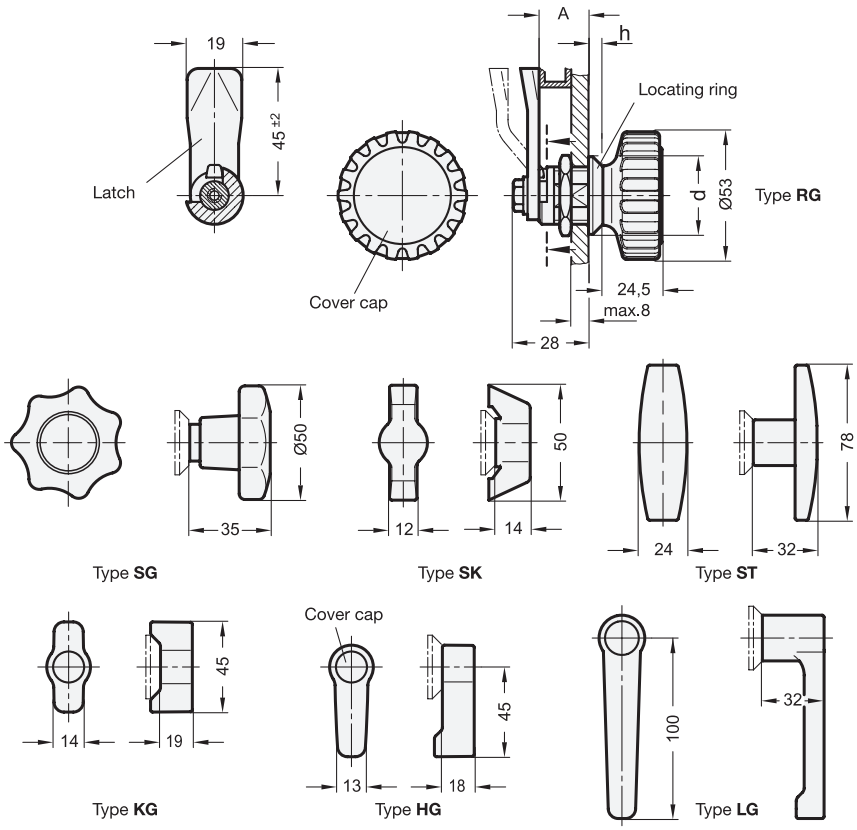
CONSTRUCTION AND ASSEMBLY INSTRUCTIONS

For installation, set a bore diameter in the door as shown in the outline drawing.
Once assembled, the latch is pushed through the bore diameter from the front. The hexagon nut can then be pushed over the latch from the back and bolted in place.
The **installation bore diameter** in the door leaf is usually generated by punching or laser machining in series production.
For small series and steel sheets below 2 mm thickness, the sheet metal punshes GN 123 (see page 1493) are the tool of choice.
The installation bore diameter can also be set by drilling / milling as shown in the outline drawings.





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*Complete with type index of the latch

SG SK ST RG KG HG

GN 115-NL

Description	Latch distance A	d Type SG, RG, KG, HG	d Type SK, ST	h Type SG, RG, KG, HG	h Type SK, ST	⚖
GN 115-*-4	4	28	32	4	6	122
GN 115-*-6	6	28	32	4	6	120
GN 115-*-8	8	28	32	4	6	120
GN 115-*-10	10	28	32	4	6	120
GN 115-*-13	13	28	32	4	6	120
GN 115-*-14	14	28	32	4	6	120
GN 115-*-16	16	28	32	4	6	120
GN 115-*-18	18	28	32	4	6	120
GN 115-*-20	20	28	32	4	6	120
GN 115-*-22	22	28	32	4	6	120
GN 115-*-24	24	28	32	4	6	125
GN 115-*-26	26	28	32	4	6	133
GN 115-*-28	28	28	32	4	6	130
GN 115-*-30	30	28	32	4	6	130
GN 115-*-32	32	28	32	4	6	130
GN 115-*-34	34	28	32	4	6	130
GN 115-*-36	36	28	32	4	6	135
GN 115-*-38	38	28	32	4	6	135
GN 115-*-40	40	28	32	4	6	130
GN 115-*-42	42	28	32	4	6	140
GN 115-*-45	45	28	32	4	6	140
GN 115-*-50	50	28	32	4	6	145

Weight type SG

*Complete with type index of the latch

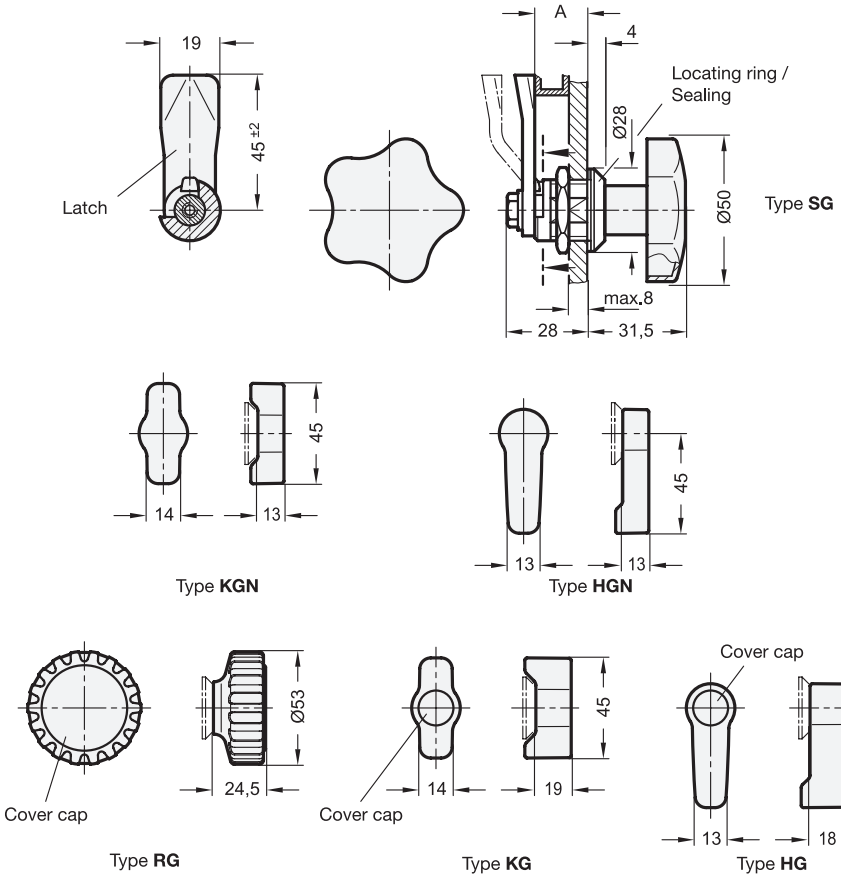
SG SK ST RG KG HG LG

GN 115-NL-SW

Description	Latch distance A	d Type SG, RG, KG, HG	d Type SK, ST, LG	h Type SG, RG, KG, HG	h Type SK, ST, LG	⚖
GN 115-*-4-SW	4	28	32	4	6	122
GN 115-*-6-SW	6	28	32	4	6	120
GN 115-*-8-SW	8	28	32	4	6	120
GN 115-*-10-SW	10	28	32	4	6	120
GN 115-*-13-SW	13	28	32	4	6	120
GN 115-*-14-SW	14	28	32	4	6	120
GN 115-*-16-SW	16	28	32	4	6	120
GN 115-*-18-SW	18	28	32	4	6	120
GN 115-*-20-SW	20	28	32	4	6	120
GN 115-*-22-SW	22	28	32	4	6	120
GN 115-*-24-SW	24	28	32	4	6	125
GN 115-*-26-SW	26	28	32	4	6	130
GN 115-*-28-SW	28	28	32	4	6	130
GN 115-*-30-SW	30	28	32	4	6	130
GN 115-*-32-SW	32	28	32	4	6	133
GN 115-*-34-SW	34	28	32	4	6	135
GN 115-*-36-SW	36	28	32	4	6	135
GN 115-*-38-SW	38	28	32	4	6	135
GN 115-*-40-SW	40	28	32	4	6	140
GN 115-*-42-SW	42	28	32	4	6	140
GN 115-*-45-SW	45	28	32	4	6	140
GN 115-*-50-SW	50	28	32	4	6	145

Weight type SG

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*Complete with type index of the latch

RG KG HG SG KGN HGN

GN 115-NL-NI **STAINLESS STEEL**

Description	Latch distance A	⚖
GN 115-*-6-NI	6	160
GN 115-*-10-NI	10	160
GN 115-*-14-NI	14	160
GN 115-*-18-NI	18	150
GN 115-*-20-NI	20	140
GN 115-*-22-NI	22	150
GN 115-*-24-NI	24	130
GN 115-*-26-NI	26	130
GN 115-*-28-NI	28	160
GN 115-*-30-NI	30	160
GN 115-*-34-NI	34	150
GN 115-*-38-NI	38	150
GN 115-*-40-NI	40	150
GN 115-*-50-NI	50	145

Weight type SG

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GN 115-NL with key

INOX STAINLESS STEEL · RoHS · IP65

Latches

Zinc die casting / Stainless Steel,
Operation with socket key, not lockable



SPECIFICATION

Version in Zinc die casting

Types

- Type **DK**: Operation with triangular spindle (DK7)
- Type **VK7**: Operation with square spindle A/F7
- Type **VK8**: Operation with square spindle A/F8
- Type **SCH**: Operation with slot
- Type **VDE**: Operation with double bit
- Type **SK10**: Operation with hexagon A/F10

Lock housing
Zinc die casting

Locating ring

- chrome plated (Standard)
- plastic coated, black, RAL 9005, textured finish **SW**

All other parts
Steel zinc plated, blue passivated

Version in Stainless Steel

Types

- Type **DK**: Operation with triangular spindle (DK7)
- Type **VK7**: Operation with square spindle A/F7
- Type **VK8**: Operation with square spindle A/F8
- Type **SCH**: Operation with slot
- Type **VDE**: Operation with double bit

Lock housing
Stainless Steel AISI 303 **NI**

Latch
Stainless Steel AISI 304

Protection class IP 65

INFORMATION

Latches GN 115 lock by a turning operation limited to 90° which moves the locking behind the door frame. The bevels of the latch ease the closing of the door.
Latches with different cranks cover a latch distance A from 4 to 50 mm.
The operating bolt of the stainless steel version is fitted with an O-ring for sealing.
Latches GN 115 are supplied with loosely enclosed latch.

TECHNICAL INFORMATION

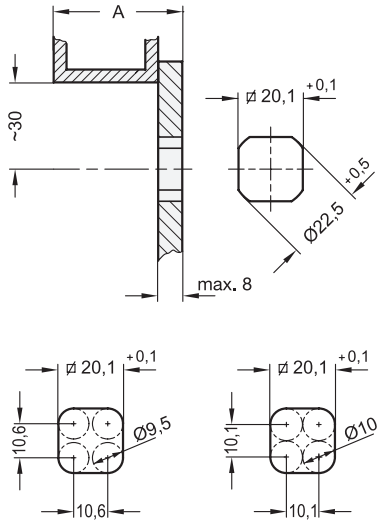
- List of latch types (see page 1456)
- IP Protection classes (see page A23)
- Stainless Steel characteristics (see page A26)

ACCESSORY

- Socket keys GN 119.2 (see page 1530)
- Protective caps GN 120 (see page 1486)
- Opening handles GN 120.1 (see page 1487)

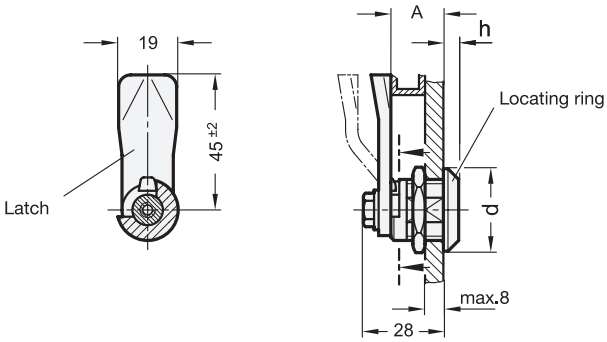
CONSTRUCTION AND ASSEMBLY INSTRUCTIONS

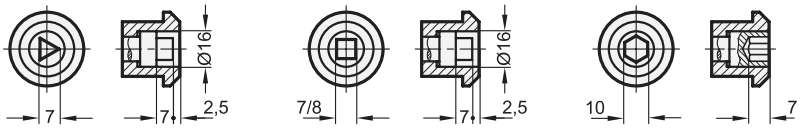
For installation, set a bore diameter in the door as shown in the outline drawing.
Once assembled, the latch is pushed through the bore diameter from the front. The hexagon nut can then be pushed over the latch from the back and bolted in place.
The **installation bore diameter** in the door leaf is usually generated by punching or laser machining in series production.
For small series and steel sheets below 2 mm thickness, the sheet metal punshes GN 123 (see page 1493) are the tool of choice. The installation bore diameter can also be set by drilling / milling as shown in the outline drawings.

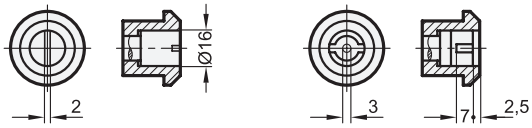


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GN 115-NL with key | Latches







*Complete with type index of the latch

DK VK7 VK8 SCH VDE SK10

GN 115-NL with key

Description	Latch distance A	d	h	⚖
GN 115-*-4	4	28	4	65
GN 115-*-6	6	28	4	65
GN 115-*-8	8	28	4	70
GN 115-*-10	10	28	4	80
GN 115-*-13	13	28	4	80
GN 115-*-14	14	28	4	80
GN 115-*-16	16	28	4	80
GN 115-*-18	18	28	4	80
GN 115-*-20	20	28	4	80
GN 115-*-22	22	28	4	80
GN 115-*-24	24	28	4	80
GN 115-*-26	26	28	4	80
GN 115-*-28	28	28	4	80
GN 115-*-30	30	28	4	80
GN 115-*-32	32	28	4	80
GN 115-*-34	34	28	4	80
GN 115-*-36	36	28	4	85
GN 115-*-38	38	28	4	87
GN 115-*-40	40	28	4	87
GN 115-*-42	42	28	4	90
GN 115-*-45	45	28	4	90
GN 115-*-50	50	28	4	95

Weight type DK

GN 115-NL-SW with key

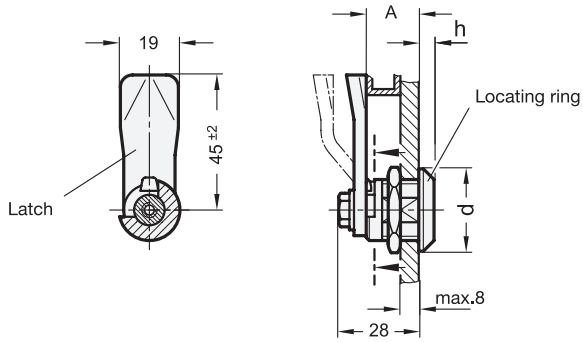
Description	Latch distance A	d	h	⚖
GN 115-*-4-SW	4	28	4	50
GN 115-*-6-SW	6	28	4	50
GN 115-*-8-SW	8	28	4	70
GN 115-*-10-SW	10	28	4	70
GN 115-*-13-SW	13	28	4	75
GN 115-*-14-SW	14	28	4	75
GN 115-*-16-SW	16	28	4	75
GN 115-*-18-SW	18	28	4	78
GN 115-*-20-SW	20	28	4	78
GN 115-*-22-SW	22	28	4	80
GN 115-*-24-SW	24	28	4	80
GN 115-*-26-SW	26	28	4	80
GN 115-*-28-SW	28	28	4	80
GN 115-*-30-SW	30	28	4	80
GN 115-*-32-SW	32	28	4	80
GN 115-*-34-SW	34	28	4	80
GN 115-*-36-SW	36	28	4	85
GN 115-*-38-SW	38	28	4	87
GN 115-*-40-SW	40	28	4	90
GN 115-*-42-SW	42	28	4	90
GN 115-*-45-SW	45	28	4	95
GN 115-*-50-SW	50	28	4	95

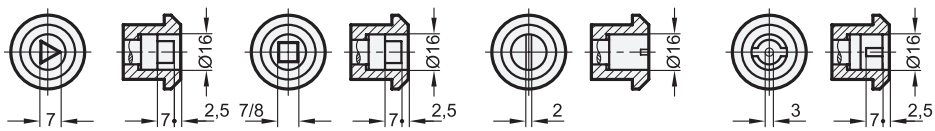
Weight type DK

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GN 115-NL with key

Latches





Type **DK** Type **VK7 / VK8** Type **SCH** Type **VDE**

*Complete with type index of the latch

DK VK7 VK8 SCH VDE

GN 115-NL-NI with key **STAINLESS STEEL**

Description	Latch distance A	⚖
GN 115-*-6-NI	6	80
GN 115-*-10-NI	10	80
GN 115-*-14-NI	14	80
GN 115-*-18-NI	18	80
GN 115-*-20-NI	20	80
GN 115-*-22-NI	22	80
GN 115-*-24-NI	24	80
GN 115-*-26-NI	26	80
GN 115-*-28-NI	28	80
GN 115-*-30-NI	30	80
GN 115-*-34-NI	34	83
GN 115-*-38-NI	38	100
GN 115-*-40-NI	40	100
GN 115-*-50-NI	50	100

Weight type DK

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GN 115-VH8

Stainless Steel-Hygienic latches

Operation with socket key

SPECIFICATION

Type

- Type **VH8**: Operation with square spindle

Lock housing / external square
Stainless Steel AISI 316 Ti (A4) **NI**

Locking
Stainless Steel AISI 304 (A2)

Hexagon screw
Stainless Steel AISI 304 (A2)

Fixing nut
Stainless Steel AISI 304 (A2)

INFORMATION

Stainless Steel-Hygienic latches GN 115 meet the requirements for a hygienic design according to DIN 1672-2 and DIN 14159.
Latches with different cranks cover a latch distance A from 6 to 28 mm.
Latches GN 115 are supplied with loosely enclosed latch.

TECHNICAL INFORMATION

- List of latch types (see page 1456)
- Stainless Steel characteristics (see page A26)

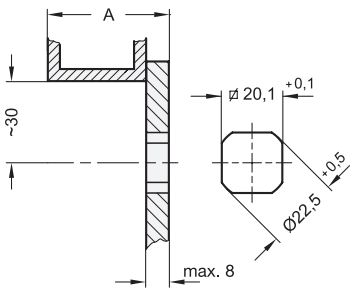
ACCESSORY

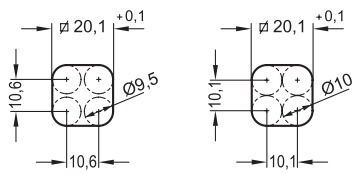
- Socket keys GN 119.2 (see page 1530)

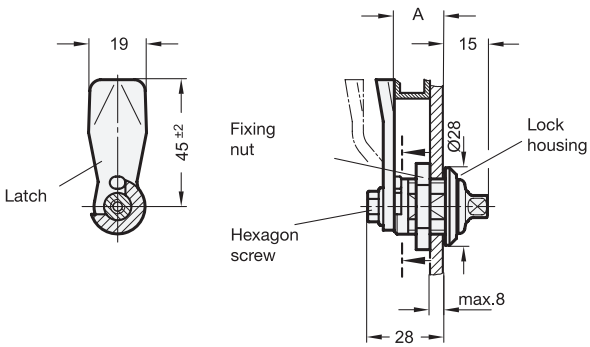
CONSTRUCTION AND ASSEMBLY INSTRUCTIONS

For installation, set a bore diameter in the door as shown in the outline drawing.
Once assembled, the latch is pushed through the bore diameter from the front. The hexagon nut can then be pushed over the latch from the back and bolted in place.
The **installation bore diameter** in the door leaf is usually generated by punching or laser machining in series production.
For small series and steel sheets below 2 mm thickness, the sheet metal punches GN 123 (see page 1493) are the tool of choice.
The installation bore diameter can also be set by drilling / milling as shown in the outline drawings.











GN 115-VH8 **STAINLESS STEEL**

Description	Latch distance A	⚖
GN 115-VH8-6-NI	6	103
GN 115-VH8-10-NI	10	104
GN 115-VH8-14-NI	14	104
GN 115-VH8-18-NI	18	104
GN 115-VH8-20-NI	20	104
GN 115-VH8-22-NI	22	104
GN 115-VH8-24-NI	24	105
GN 115-VH8-26-NI	26	106
GN 115-VH8-28-NI	28	107
GN 115-VH8-30-NI	30	110
GN 115-VH8-34-NI	34	110
GN 115-VH8-38-NI	38	110
GN 115-VH8-40-NI	40	140
GN 115-VH8-50-NI	50	150

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Latches with cabinet "U" handle

Operation with socket key

SPECIFICATION

Types

- Type **DK**: Operation with triangular spindle (DK 7)
- Type **VK7**: Operation with square spindle A/F7
- Type **VK8**: Operation with square spindle A/F8
- Type **SCH**: Operation with slot
- Type **VDE**: Operation with double bit

Cabinet "U" handle
Zinc die casting

plastic coated
black, RAL 9005, textured finish **SW**
silver, RAL 9006, textured finish **SR**

other parts
Steel
zinc plated, blue passivated



INFORMATION

Latches with cabinet "U" handle GN 115.7 are used when the application requires both a locking mechanism and a handle.
A rotary movement limited to 90°, e.g. of the triangular spindle of type DK, shifts the key-bolt behind the door frame, with the bevelled key-bolt making the door closing action easier.
Latches with different cranks cover a latch distance A from 4 to 50 mm.
Latches GN 115.7 are supplied with loosely enclosed latch.

TECHNICAL AND ASSEMBLY INSTRUCTIONS

Depending on the installation situation, the 90° rotary movement range of the latch can be defined by means of a plug-type element which can be mounted in 4 different positions.
This allows the latch with cabinet „U" handle to be used in any attachment position and regardless of the turning and locking direction or of the narrow side of the door. Subsequent repositioning of the 90° rotary range is possible.
The drawing below shows the plugging options and the resulting 90° rotary ranges.

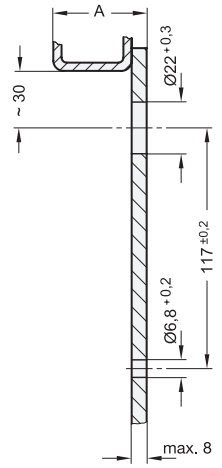
For mounting, the door is fitted with two bore holes as shown in the outline drawing, attached at a distance of 30 mm from the door frame.
If preassembled (cabinet „U" handle and latch), the locking mechanism can be pushed through the bore hole from the front. Then turn in the M6 fixing screw from the rear and push and screw on the hexagonal nut over the latch. Both elements can now be tightened.
The spigot (M22x1.5) also has 4 surfaces, with the effect that the cabinet „U" handle can also be used with the standard borehole of the latches GN 115 (see page 1462).

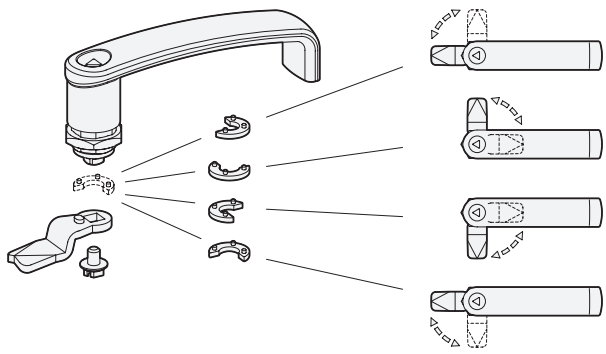
TECHNICAL INFORMATION

- List of latch types (see page 1456)

ACCESSORY

- Socket keys GN 119.2 (see page 153)

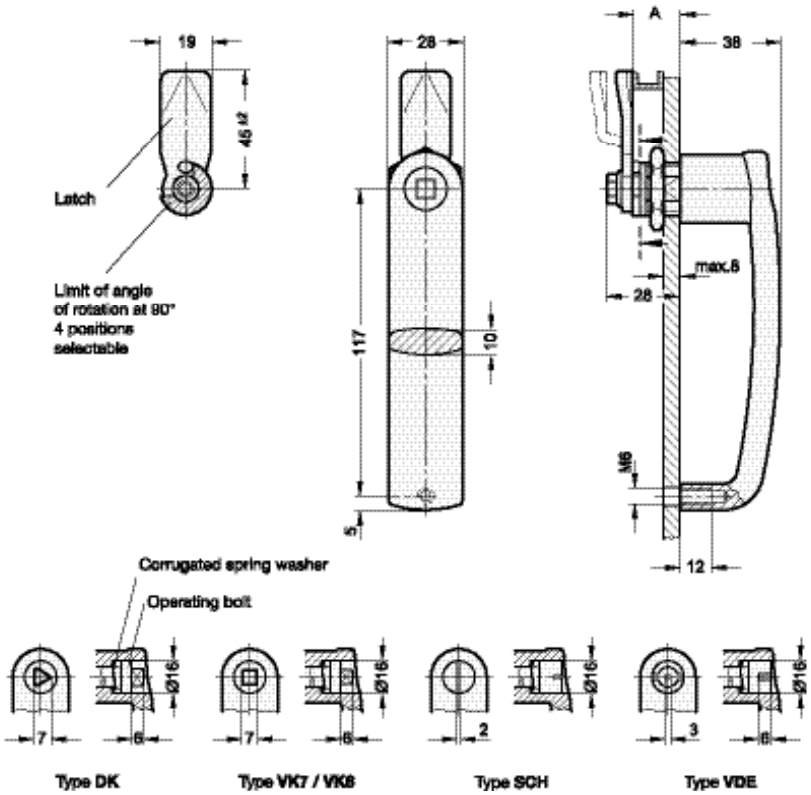




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GN 115.7

Latches with cabinet "U" handle



* Complete with type index of the latch

DK VK7 VK8 SCH VDE

GN 115.7

Description	Latch distance A	⚖
GN 115.7-*-4-SR	4	402
GN 115.7-*-4-SW	4	401
GN 115.7-*-6-SR	6	401
GN 115.7-*-6-SW	6	400
GN 115.7-*-8-SR	8	400
GN 115.7-*-8-SW	8	400
GN 115.7-*-10-SR	10	400
GN 115.7-*-10-SW	10	400
GN 115.7-*-13-SR	13	399
GN 115.7-*-13-SW	13	399
GN 115.7-*-14-SR	14	400
GN 115.7-*-14-SW	14	400
GN 115.7-*-16-SR	16	400
GN 115.7-*-16-SW	16	400
GN 115.7-*-18-SR	18	399
GN 115.7-*-18-SW	18	398
GN 115.7-*-20-SR	20	400
GN 115.7-*-20-SW	20	400
GN 115.7-*-22-SR	22	400
GN 115.7-*-22-SW	22	400
GN 115.7-*-24-SR	24	398
GN 115.7-*-24-SW	24	397
GN 115.7-*-26-SR	26	400

GN 115.7

Description	Latch distance A	⚖
GN 115.7-*-26-SW	26	399
GN 115.7-*-28-SR	28	400
GN 115.7-*-28-SW	28	399
GN 115.7-*-30-SR	30	400
GN 115.7-*-30-SW	30	400
GN 115.7-*-32-SR	32	402
GN 115.7-*-32-SW	32	401
GN 115.7-*-34-SR	34	404
GN 115.7-*-34-SW	34	404
GN 115.7-*-36-SR	36	402
GN 115.7-*-36-SW	36	401
GN 115.7-*-38-SR	38	407
GN 115.7-*-38-SW	38	406
GN 115.7-*-40-SR	40	410
GN 115.7-*-40-SW	40	409
GN 115.7-*-42-SR	42	409
GN 115.7-*-42-SW	42	408
GN 115.7-*-45-SR	45	410
GN 115.7-*-45-SW	45	410
GN 115.7-*-50-SR	50	414
GN 115.7-*-50-SW	50	414

Weight type DK

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Hook-type latches

lockable / not lockable



SPECIFICATION

Lockable

Types

- Type **SC**: Operation with key (same lock)
- Type **SU**: Operation with key (different lock)
- Type **SCK**: Operation with wing knob (same lock)
- Type **SUK**: Operation with wing knob (different lock)
- Type **SCT**: Operation with T-Handle (same lock)
- Type **SUT**: Operation with T-Handle (different lock)

Version of the hook

Version **H1**: Pivot radius R=28

Identification no.

- No. **1**: without latch bracket
- No. **2**: with latch bracket

Lock housing
Zinc die casting

Locating ring

- chrome plated **CR**
- plastic coated, black, RAL 9005, textured finish **SW**

All other parts
Steel zinc plated, blue passivated

Key
Nickel silver with plastic hand piece

Wing knob / T-Handle
Plastic (Polyamide PA)
black, matt

Operation with socket key, not lockable

Types

- Type **DK**: Operation with triangular spindle (DK7)
- Type **VK7**: Operation with square spindle A/F7
- Type **VK8**: Operation with square spindle A/F8
- Type **SCH**: Operation with slot
- Type **VDE**: Operation with double bit

Version of the hook

Version **H1**: Pivot radius R=28

Identification no.

- No. **1**: without latch bracket
- No. **2**: with latch bracket

Lock housing
Zinc die casting

Locating ring

- chrome plated **CR**
- plastic coated, black, RAL 9005, textured finish **SW**

All other parts
Steel zinc plated, blue passivated

Operation with operating elements, not lockable

Types

- Type **SG**: Operation with star knob
- Type **SK**: Operation with wing knob
- Type **ST**: Operation with T-Handle
- Type **RG**: Operation with knurled knob GN 7336 (see page 280)
- Type **KG**: Operation with wing knob
- Type **HG**: Operation with lever

Version of the hook

- Version **H1**: Pivot radius R=28

Identification no.

- No. **1**: without latch bracket
- No. **2**: with latch bracket

Lock housing
Zinc die casting

Locating ring

- chrome plated **CR**
- plastic coated, black, RAL 9005, textured finish **SW**

All other parts
Steel zinc plated, blue passivated

Operating elements
Plastic (Polyamide PA)
black, matt

Cover cap (type RG, KG, HG)
light grey

INFORMATION

Hook-type latches GN 115.8 with hook and latch bracket are mainly used for sliding doors and flaps. The locking action is in radial direciton to the axis of rotation, resulting in a wide variety of different uses.
The types with a different lock are available in more than 200 variants, whose key is marked by numbers.
The scope of delivery includes a separately enclosed hook as well as two keys removable in both end positions.

TECHNICAL INFORMATION

- List of latch types (see page 1456)
- Plastic characteristics (see page A2)

ACCESSORY

- Socket keys GN 119.2 (see page 1530)
- Protective caps GN 120 (see page 1486)
- Opening handles GN 120.1 (see page 1487)

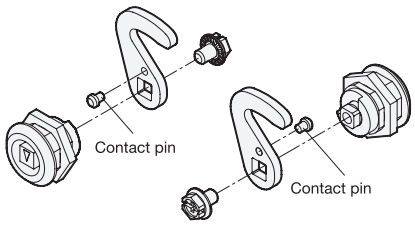
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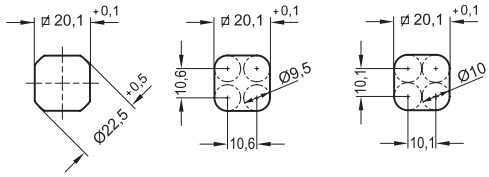
- Hook-type latches with other hook distance A
- Hook with other pivoting radius R

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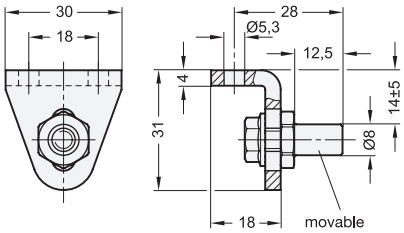
CONSTRUCTION AND ASSEMBLY INSTRUCTIONS

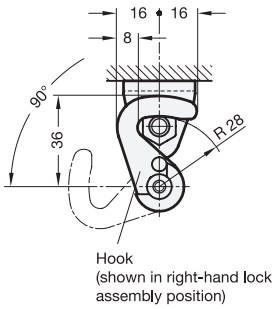
The bolt diameter may be shifted by 10 mm, making it easier to adapt the locking mechanism to the installation site.
When locked, the bolt is ideally positioned at the level of the axis of rotation as shown. A sideways offset of as much as 4 mm does not impair the proper function.
The angle of rotation of the **hook** is normally limited to 90°. Depending on the mounting of the contact pin supplied loose, the locking action is effected by turning left or right. Without the contact pin, the hook can be rotated by 360°.
For installation, set a bore diameter in the door as shown in the outline drawing.
Before mounting the hook, the locking mechanism must first be mounted in the door leaf (using the enclosed hexagonal nut).
The **installation bore diameter** in the door leaf is usually generated by punching or laser machining in series production.
For small series and steel sheets below 2 mm thickness, the sheet metal punshes GN 123 (see page 1493) are the tool of choice.
The installation bore diameter can also be set by drilling / milling as shown in the outline drawings.

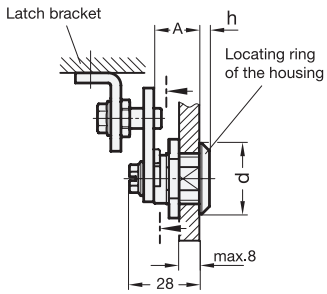


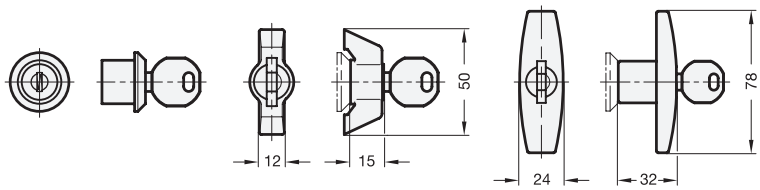


Dimensions of the latch bracket









Type **SC / SU** | Type **SCK / SUK** | Type **SCT / SUT**

GN 115.8 - Lockable

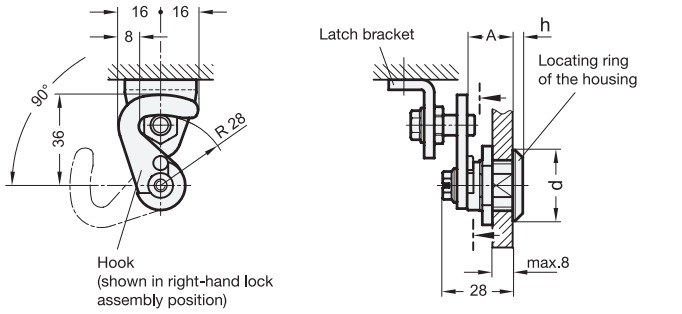
Description	Hook distance A	d	h	⚖
GN 115.8-SC-18-H1-CR-1	18	28	4	94
GN 115.8-SC-18-H1-CR-2	18	28	4	140
GN 115.8-SC-18-H1-SW-1	18	28	4	100
GN 115.8-SC-18-H1-SW-2	18	28	4	120
GN 115.8-SCK-18-H1-CR-1	18	32	6	100
GN 115.8-SCK-18-H1-CR-2	18	32	6	124
GN 115.8-SCK-18-H1-SW-1	18	32	6	128
GN 115.8-SCK-18-H1-SW-2	18	32	6	150
GN 115.8-SCT-18-H1-CR-1	18	32	6	166
GN 115.8-SCT-18-H1-CR-2	18	32	6	206
GN 115.8-SCT-18-H1-SW-1	18	32	6	161
GN 115.8-SCT-18-H1-SW-2	18	32	6	201

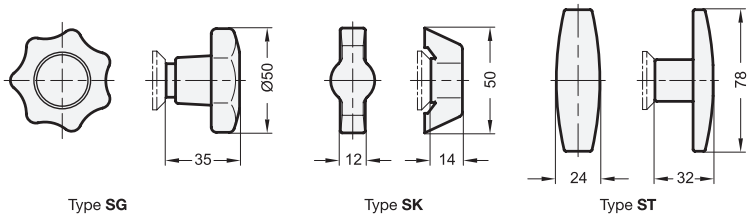
GN 115.8 - Lockable

Description	Hook distance A	d	h	⚖
GN 115.8-SU-18-H1-CR-1	18	28	4	84
GN 115.8-SU-18-H1-CR-2	18	28	4	124
GN 115.8-SU-18-H1-SW-1	18	28	4	84
GN 115.8-SU-18-H1-SW-2	18	28	4	124
GN 115.8-SUK-18-H1-CR-1	18	32	6	124
GN 115.8-SUK-18-H1-CR-2	18	32	6	168
GN 115.8-SUK-18-H1-SW-1	18	32	6	128
GN 115.8-SUK-18-H1-SW-2	18	32	6	168
GN 115.8-SUT-18-H1-CR-1	18	32	6	128
GN 115.8-SUT-18-H1-CR-2	18	32	6	168
GN 115.8-SUT-18-H1-SW-1	18	32	6	128
GN 115.8-SUT-18-H1-SW-2	18	32	6	168

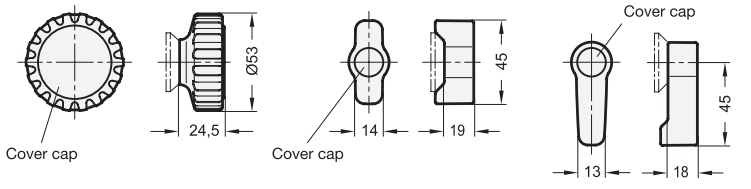
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GN 115.8 | Hook-type latches

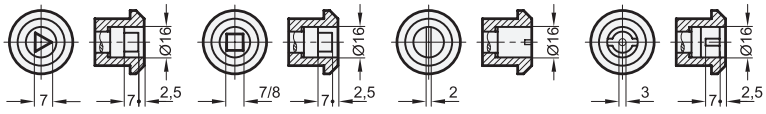




Type **SG** Type **SK** Type **ST**



Type **RG** Type **KG** Type **HG**



Type **DK** Type **VK7 / VK8** Type **SCH** Type **VDE**

GN 115.8 - Operation with operating elements, not lockable

Description	Hook distance A	d	h	⚖
GN 115.8-HG-18-H1-CR-1	18	28	4	87
GN 115.8-HG-18-H1-CR-2	18	28	4	128
GN 115.8-HG-18-H1-SW-1	18	28	4	87
GN 115.8-HG-18-H1-SW-2	18	28	4	130
GN 115.8-KG-18-H1-CR-1	18	28	4	85
GN 115.8-KG-18-H1-CR-2	18	28	4	126
GN 115.8-KG-18-H1-SW-1	18	28	4	85
GN 115.8-KG-18-H1-SW-2	18	28	4	125
GN 115.8-RG-18-H1-CR-1	18	28	4	109
GN 115.8-RG-18-H1-CR-2	18	28	4	149
GN 115.8-RG-18-H1-SW-1	18	28	4	108
GN 115.8-RG-18-H1-SW-2	18	28	4	148
GN 115.8-SG-18-H1-CR-1	18	28	4	111
GN 115.8-SG-18-H1-CR-2	18	28	4	140
GN 115.8-SG-18-H1-SW-1	18	28	4	110
GN 115.8-SG-18-H1-SW-2	18	28	4	140
GN 115.8-SK-18-H1-CR-1	18	32	6	100
GN 115.8-SK-18-H1-CR-2	18	32	6	140
GN 115.8-SK-18-H1-SW-1	18	32	6	100
GN 115.8-SK-18-H1-SW-2	18	32	6	140
GN 115.8-ST-18-H1-CR-1	18	32	6	134
GN 115.8-ST-18-H1-CR-2	18	32	6	174
GN 115.8-ST-18-H1-SW-1	18	32	6	131
GN 115.8-ST-18-H1-SW-2	18	32	6	171

GN 115.8 - Operation with socket key, not lockable

Description	Hook distance A	d	h	⚖
GN 115.8-DK-18-H1-CR-1	18	28	4	72
GN 115.8-DK-18-H1-CR-2	18	28	4	112
GN 115.8-DK-18-H1-SW-1	18	28	4	71
GN 115.8-DK-18-H1-SW-2	18	28	4	111
GN 115.8-SCH-18-H1-CR-1	18	28	4	78
GN 115.8-SCH-18-H1-CR-2	18	28	4	119
GN 115.8-SCH-18-H1-SW-1	18	28	4	79
GN 115.8-SCH-18-H1-SW-2	18	28	4	119
GN 115.8-VDE-18-H1-CR-1	18	28	4	74
GN 115.8-VDE-18-H1-CR-2	18	28	4	100
GN 115.8-VDE-18-H1-SW-1	18	28	4	75
GN 115.8-VDE-18-H1-SW-2	18	28	4	100
GN 115.8-VK7-18-H1-CR-1	18	28	4	72
GN 115.8-VK7-18-H1-CR-2	18	28	4	120
GN 115.8-VK7-18-H1-SW-1	18	28	4	73
GN 115.8-VK7-18-H1-SW-2	18	28	4	113
GN 115.8-VK8-18-H1-CR-1	18	28	4	73
GN 115.8-VK8-18-H1-CR-2	18	28	4	117
GN 115.8-VK8-18-H1-SW-1	18	28	4	73
GN 115.8-VK8-18-H1-SW-2	18	28	4	113

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GN 115.9

Latches with safety function

Operation with operating elements / with socket key, not lockable



SPECIFICATION

Operation with operating elements

Types

- Type **RG**: Operation with knurled knob GN 7336 (see page 280)
- Type **KG**: Operation with wing knob
- Type **HG**: Operation with lever

Lock housing
Zinc die casting

Locating ring
plastic coated
black, RAL 9005, textured finish **SW**

All other parts
Steel zinc plated, blue passivated

Operating handles
Plastic (Polyamide PA)
black, matt

Cover cap
Plastic (Polyamide PA)
light grey

Operation with socket key

Types

- Type **DK**: Operation with triangular spindle (DK7)
- Type **VK7**: Operation with square spindle A/F7
- Type **VK8**: Operation with square spindle A/F8

Lock housing
Zinc die casting

Locating ring
plastic coated
black, RAL 9005, textured finish **SW**

All other parts
Steel zinc plated, blue passivated

INFORMATION

Latches GN 115.9 have a **push-to-turn** safety function. In the two end positions the spindle is locked in place by the latch. The device can be turned 90° only when the operating element is pressed down, which releases the safety pin from the locked position. This feature protects the latch reliably from moving on its own or as the result of vibrations.
The beveled edges on the latch make closing the door easy. Latches with different cranks cover a latch distance A from 4 to 32 mm.
Latches GN 115.9 are supplied with loosely enclosed latch.

TECHNICAL INFORMATION

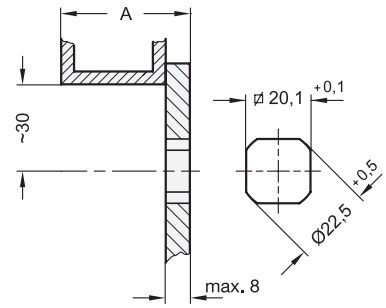
- List of latch types (see page 1456)
- Plastic characteristics (see page A2)

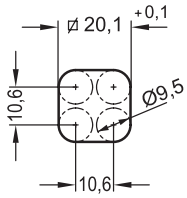
ACCESSORY

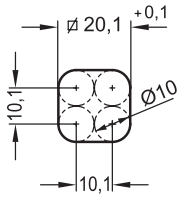
- Socket keys GN 119.2 (see page 1530)
- Protective caps GN 120 (see page A2)
- Opening handles GN 120.1 (see page 1487)

CONSTRUCTION AND ASSEMBLY INSTRUCTIONS

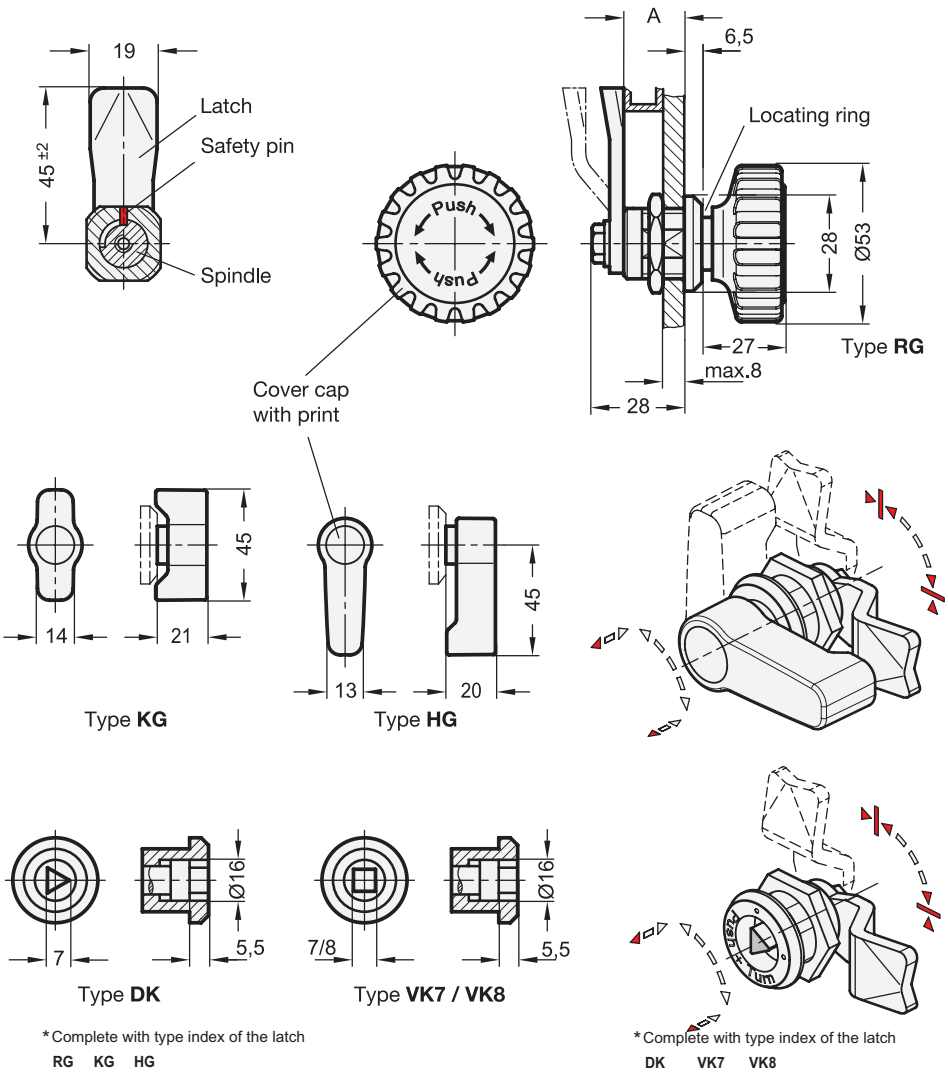
For installation, set a bore diameter in the door as shown in the outline drawing.
Once assembled, the latch is pushed through the bore diameter from the front. The hexagon nut can then be pushed over the latch from the back and bolted in place.
The **installation bore diameter** in the door leaf is usually generated by punching or laser machining in series production.
For small series and steel sheets below 2 mm thickness, the sheet metal punshes GN 123 (see page 1493) are the tool of choice.
The installation bore diameter can also be set by drilling / milling as shown in the outline drawings.







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GN 115.9 - Operation with operating elements

Description	Latch distance A	⚖
GN 115.9-*-4-SW	4	112
GN 115.9-*-6-SW	6	112
GN 115.9-*-8-SW	8	113
GN 115.9-*-10-SW	10	114
GN 115.9-*-13-SW	13	114
GN 115.9-*-14-SW	14	114
GN 115.9-*-16-SW	16	115
GN 115.9-*-18-SW	18	115
GN 115.9-*-20-SW	20	116
GN 115.9-*-22-SW	22	116
GN 115.9-*-24-SW	24	116
GN 115.9-*-26-SW	26	117
GN 115.9-*-28-SW	28	117
GN 115.9-*-30-SW	30	118
GN 115.9-*-32-SW	32	120

Weight type RG

GN 115.9 - Operation with socket key

Description	Latch distance A	⚖
GN 115.9-*-4-SW	4	50
GN 115.9-*-6-SW	6	57
GN 115.9-*-8-SW	8	70
GN 115.9-*-10-SW	10	70
GN 115.9-*-13-SW	13	70
GN 115.9-*-14-SW	14	70
GN 115.9-*-16-SW	16	70
GN 115.9-*-18-SW	18	70
GN 115.9-*-20-SW	20	70
GN 115.9-*-22-SW	22	80
GN 115.9-*-24-SW	24	80
GN 115.9-*-26-SW	26	80
GN 115.9-*-28-SW	28	80
GN 115.9-*-30-SW	30	80
GN 115.9-*-32-SW	32	80

Weight type DK

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GN 120.2

Protective guide plates

for latches GN 115, GN 115.7, GN 115.10

SPECIFICATION

Types

- Type **A**: Mounting with countersunk screw
- Type **B**: Mounting with adhesive pad

Plastic (Polyamide PA)
black, matt **SW**

Adhesive pad (only type B)
Scotch-Mount ™ 4026
double-sided,
with polyurethane foam backing



INFORMATION

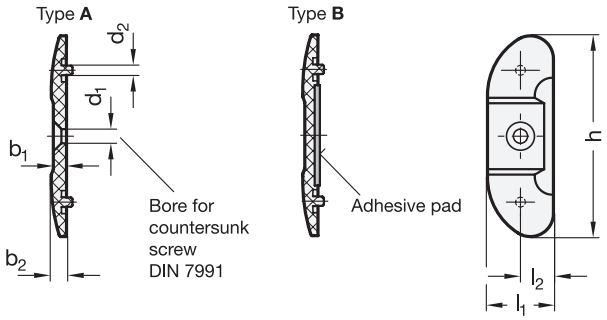
Protective guide plates GN 120.2 are used in connection with door latches, using the principle of friction. They prevent the latch from causing abrasion, for example to corrosion protection layers on a door frame. They additionally prevent unintended opening, as the latches lock into a small recess in their closed position.
If the d_2 positioning tabs are not required they can easily be removed with side cutting pliers, for example.

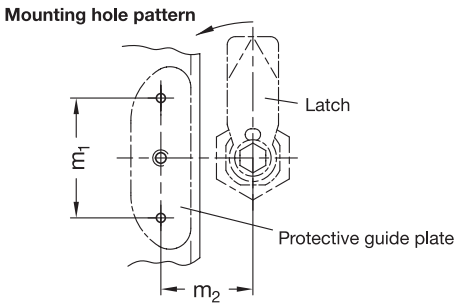
Latches that can be used together with GN 120.2 protective guide plates:

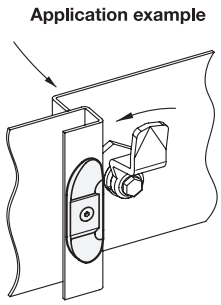
- Latches, lockable GN 115 (see page 1462)
- Latches, not lockable GN 115 (see page 1465)
- Latches with key GN 115 (see page 1468)
- Stainless Steel-Hygienic latches GN 115 (see page 1471)
- Latches with cabinet "U" handle GN 115.7 (see page 1472)
- Latches with gripping tray GN 115.10 (see page 1527)

TECHNICAL INFORMATION

- Plastic characteristics (see page A2)







GN 120.2

Description	h	b1	b2	d1	d2	l1	l2	m1	m2 ±2	⚖
GN 120.2-60-4-A-SW	60	4	4.6	M 4	3	20	10	40	35	6
GN 120.2-60-4-B-SW	60	4	4.6	M 4	3	20	10	40	35	6

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Lever latches with fold-away knob

Technopolymer

MATERIAL
Rotor, stator, fold-away knob, closing lever and nut (M22x1.5) in glass-fibre reinforced polyamide based (PA) technopolymer certified self-extinguish UL-94 V0, black colour, matte finish.

PACKING RING
SBR rubber.

INTERNAL TOOTHED WASHER
AISI 304 stainless steel.

SELF-TAPPING SCREW
AISI 304 stainless steel.

ROTATION
90°.

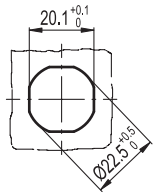
IP PROTECTION
IP 65 protection class, according to table EN 60529 (see page A23).

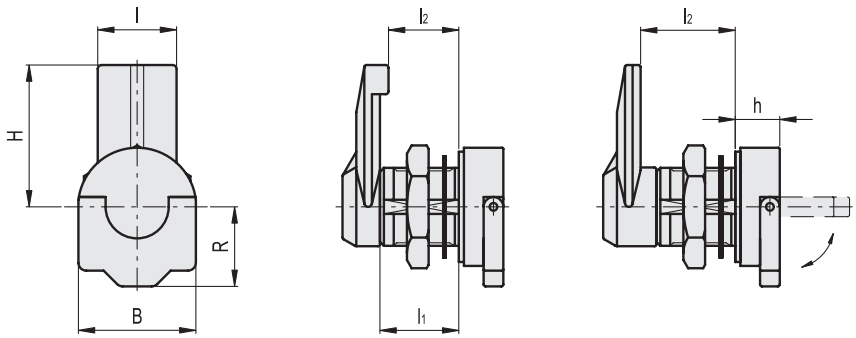
TECHNICAL DATA
The "V0" certification in accordance with UL-94 V (Underwriters Laboratories) (see Technical Data on page A5) indicates that on a plastic test sample with specific shape and dimensions, in the vertical position, the flame is extinguished within 10 seconds, without generating incandescent drops.

SPECIAL EXECUTIONS ON REQUEST
Closing lever with l2 ledge in other dimensions.



Drilling template





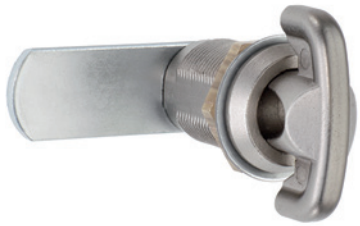
Code	Description	H	B	R	l	l1	l2	h	⚖
421243	CMT.32-18 AE-V0	32	30	20	20	20	18	11	27
421241	CMT.32-20 AE-V0	32	30	20	20	20	20	11	26
421245	CMT.32-24 AE-V0	32	30	20	20	20	24	11	28
421247	CMT.32-32 AE-V0	32	30	20	20	20	32	11	30

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Compression latches with key-type knob

Zinc alloy





MATERIAL
Rotor, stator and knob in nickel-plated zinc alloy.

NUT
M19x1 in brass.

SPRING WASHER
Zinc-plated steel.

WASHER
PVC (only for CML. execution).

CLOSING LEVER
Zinc-plated steel, thickness 2.5 mm.

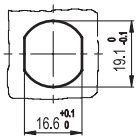
SCREW
M5x8 zinc-plated steel.

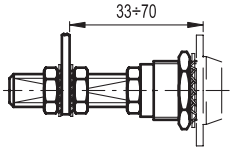
STANDARD EXECUTIONS
- **CM.**: with knob without tranversal hole for the padlock.
- **CML**: with knob provided with a transversal hole for the insertion of a padlock with hook of a diameter from 5 to 7 mm.

ROTATION
90°.

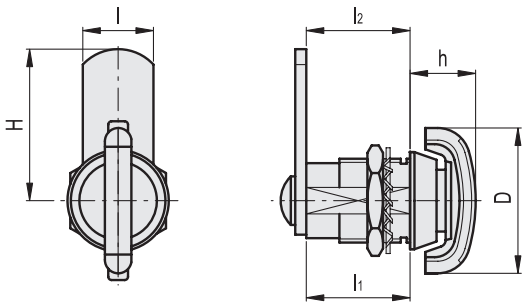
SPECIAL EXECUTIONS AND ACCESSORIES
- Closing levers in other dimensions.
- Brass threaded extension for prolonged positioning of the lever (code 421137 C.PQ M5/58).

Drilling template

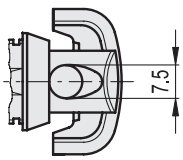




CM.



CML.



CM.

Code	Description	H	D	l	l1	l2	h	⚖
421211	CM.32-20	32	36	16	20	20	15	63
421213	CM.36-25	35.5	36	16	20	25	15	65

CML.

Code	Description	H	D	l	l1	l2	h	⚖
421221	CML.32-25	32	36	16	25	25	23	74
421223	CML.36-30	35.5	36	16	25	30	23	76

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Latches

Steel / Stainless Steel

SPECIFICATION

Types

- Type **SG**: Operation with star knob
- Type **DK**: Operation with triangular spindle (DK7)
- Type **VK7**: Operation with square spindle A/F7
- Type **VK8**: Operation with square spindle A/F8
- Type **VDE**: Operation with double bit

Version in Steel

Lock housing / operating bolt
Zinc die casting, chrome plated

Cam latch
Sheet Steel zinc plated, blue passivated

Distance piece
Aluminium

Star knobs VCT. (see page 244)
Plastic (Polypropylene PP)
black, matt

Version in Stainless Steel

Stainless Steel AISI 303 **NI**
Cam latch AISI 304

Stainless Steel-Star knob GN 5334 (see page 229)
AISI 304

Protection class IP 65

INFORMATION

Latches GN 119 have a pulling-in range of 10 mm. Locking is achieved by turning the latch clockwise.
The operating bolt of the stainless steel version is fitted with an O-ring for sealing.

TECHNICAL INFORMATION

- List of latch types (see page 1456)
- IP Protection classes (see page A23)
- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)

ACCESSORY

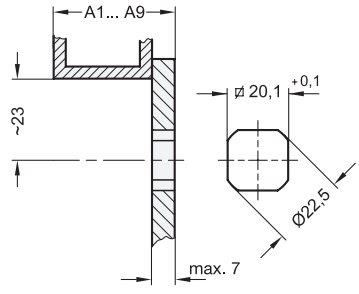
- Socket keys GN 119.2 (see page 1530)
- Protective caps GN 120 (see page 1486)
- Opening handles GN 120.1 (see page 1487)

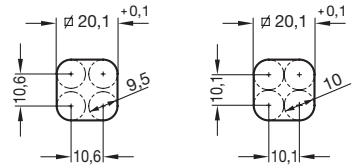




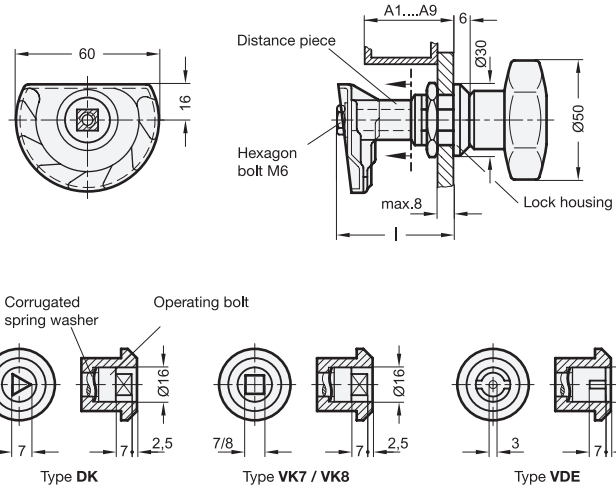
CONSTRUCTION AND ASSEMBLY INSTRUCTIONS

By turning the latch clockwise the stepped cam latch moves up behind the door frame and pulls the door in.
The large pulling-in range of the cam (10 mm) allows these locks to be used successfully on doors with sealing strips. When selecting clamping range ‚A' the thickness of the door seal might have to be taken into consideration.
To fit the lock, the door will have to be provided with a hole as per sketch shown at a distance from the door frame to hole center of 23 mm.
The lock housing with the preassembled operating bolt is fitted into the hole from the front and held in position with the hexagon nut. The distance piece and the cam latch are then fitted at the rear and fixed with the hexagon nut.
In volume production, the **mounting borehole** in the door leaf is usually made by punching or laser machining.
For small series and steel sheets below 2 mm thickness, the sheet metal punches GN 123 (see page 1493) are the tool of choice.
The installation bore diameter can also be set by drilling / milling as shown in the outline drawings.





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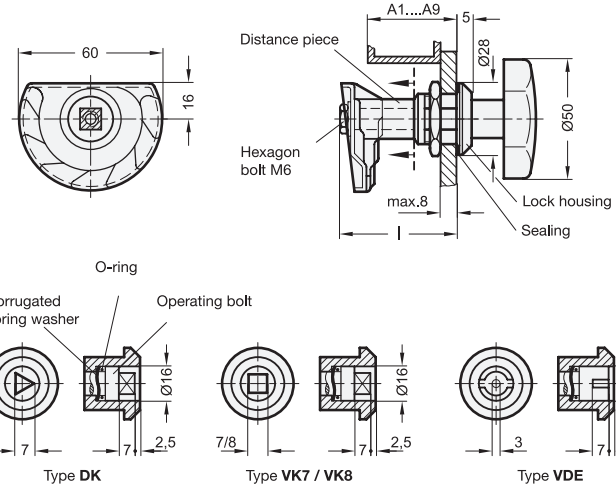
*Complete with type index of the latch

SG DK VK7 VK8 VDE

GN 119

Description	Clamping range A (Door + frame thickness)	Clamping range	⚖
GN 119-*-A1	A 1 (l=35)	17 - 25	104
GN 119-*-A2	A 2 (l=40)	22 - 30	111
GN 119-*-A3	A 3 (l=45)	27 - 35	113
GN 119-*-A4	A 4 (l=50)	32 - 40	113
GN 119-*-A5	A 5 (l=55)	37 - 45	118
GN 119-*-A6	A 6 (l=60)	42 - 50	123
GN 119-*-A7	A 7 (l=65)	47 - 55	126
GN 119-*-A8	A 8 (l=70)	52 - 60	130
GN 119-*-A9	A 9 (l=75)	57 - 65	135

Weight type DK



*Complete with type index of the latch

SG DK VK7 VK8 VDE

GN 119-NI **STAINLESS STEEL**

Description	Clamping range A (Door + frame thickness)	Clamping range	⚖
GN 119-*-A1-NI	A 1 (l=35)	17 - 25	100
GN 119-*-A2-NI	A 2 (l=40)	22 - 30	126
GN 119-*-A3-NI	A 3 (l=45)	27 - 35	140
GN 119-*-A4-NI	A 4 (l=50)	32 - 40	140
GN 119-*-A5-NI	A 5 (l=55)	37 - 45	160
GN 119-*-A6-NI	A 6 (l=60)	42 - 50	160
GN 119-*-A7-NI	A 7 (l=65)	47 - 55	170
GN 119-*-A8-NI	A 8 (l=70)	52 - 60	179
GN 119-*-A9-NI	A 9 (l=75)	57 - 65	204

Weight type DK

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Latches with cabinet "U" handle

with cam latch

SPECIFICATION

Types

- Type **DK**: Operation with triangular spindle (DK7)
- Type **VK7**: Operation with square spindle A/F7
- Type **VK8**: Operation with square spindle A/F8
- Type **VDE**: Operation with double bit

Cabinet "U" handle
Zinc die casting
plastic coated
black, RAL 9005, textured finish **SW**
silver, RAL 9006, textured finish **SR**

Cam latch
Sheet Steel
zinc plated, blue passivated

Distance piece
Aluminium

other parts
Steel
zinc plated, blue passivated

INFORMATION

Latches with cabinet "U" handle GN 119.3 are used when the application requires both a locking mechanism and a handle.
The cabinet "U" handle with integrated lock is an attractively designed and cost-effective solution.
Latches GN 119.3 have a pulling-in range of 10 mm. Locking is achieved by turning the latch clockwise.

TECHNICAL INFORMATION

- List of latch types (see page 1456)

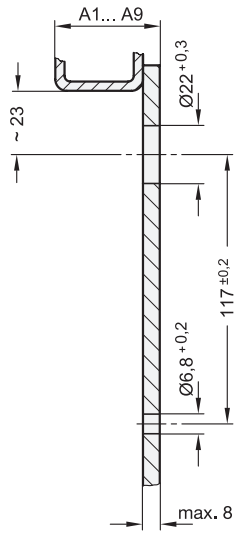
ACCESSORY

- Socket keys GN 119.2 (see page 1530)



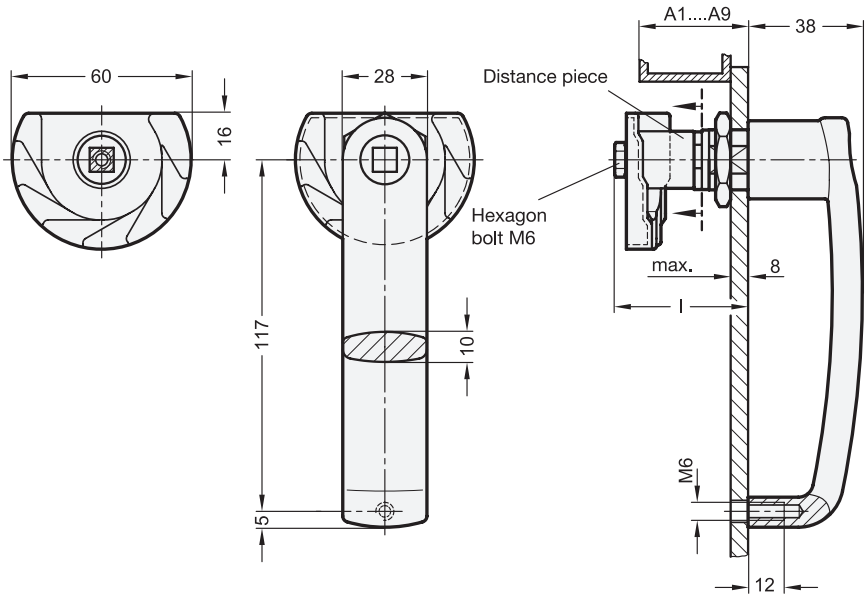
TECHNICAL AND ASSEMBLY INSTRUCTIONS

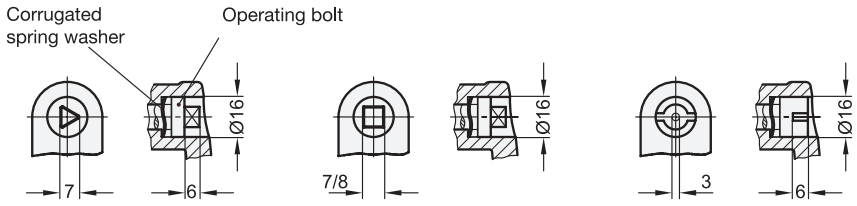
By turning the latch clockwise the stepped cam latch moves up behind the door frame and pulls the door in.
The large pulling-in range of the cam (10 mm) allows these locks to be used successfully on doors with sealing strips. When selecting clamping range ‚A' the thickness of the door seal might have to be taken into consideration.
To fit the lock, the door will have to be provided with two holes as per sketch shown at a distance from the door frame to hole center of 23 mm.
The spigot (M22x1.5) has 4 surfaces, allowing the cabinet "U" handle also to be used with the standard bore holes of door latches GN 119 (see page 1482).
The lock housing with the preassembled operating bolt is fitted into the hole from the front and held in position with the hexagon nut. The distance piece and the cam latch are then fitted at the rear and fixed with the hexagon nut.



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GN 119.3 | Latches with cabinet "U" handle





Type **DK** Type **VK7 / VK8** Type **VDE**

* Complete with type index of the latch

DK VK7 VK8 VDE

GN 119.3

Description	Clamping range A	Clamping range	⚖
GN 119.3-*-A1-SR	A 1 (l=35)	17 - 25	424
GN 119.3-*-A1-SW	A 1 (l=35)	17 - 25	419
GN 119.3-*-A2-SR	A 2 (l=40)	22 - 30	431
GN 119.3-*-A2-SW	A 2 (l=40)	22 - 30	431
GN 119.3-*-A3-SR	A 3 (l=45)	27 - 35	441
GN 119.3-*-A3-SW	A 3 (l=45)	27 - 35	441
GN 119.3-*-A4-SR	A 4 (l=50)	32 - 40	451
GN 119.3-*-A4-SW	A 4 (l=50)	32 - 40	453
GN 119.3-*-A5-SR	A 5 (l=55)	37 - 45	463
GN 119.3-*-A5-SW	A 5 (l=55)	37 - 45	465
GN 119.3-*-A6-SR	A 6 (l=60)	42 - 50	472
GN 119.3-*-A6-SW	A 6 (l=60)	42 - 50	473
GN 119.3-*-A7-SR	A 7 (l=65)	47 - 55	484
GN 119.3-*-A7-SW	A 7 (l=65)	47 - 55	485
GN 119.3-*-A8-SR	A 8 (l=70)	52 - 60	494
GN 119.3-*-A8-SW	A 8 (l=70)	52 - 60	494
GN 119.3-*-A9-SR	A 9 (l=75)	57 - 65	496
GN 119.3-*-A9-SW	A 9 (l=75)	57 - 65	496

Weight type DK

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Protective caps

for latches

SPECIFICATION

Plastic (Polyethylene)
black

INFORMATION

Protective caps GN 120 are used in combination with key-actuated locking devices. These prevent dirt from entering the key mechanism and the locking device and can be mounted as required in a 90° grid pattern together with the housing of the locking device.
Please note: The clamping range A1 ... A9 and/or the latch distance A is reduced by the dimension „b".

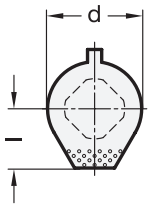
Protective caps GN 120 are suitable for the following latches:

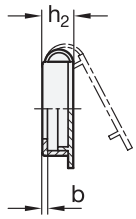
- Mini-Latches GN 115.1 (see page 1504)
- Mini-Latches GN 115.6 (see page 1505)
- Latches, lockable GN 115 (see page 1462)
- Latches, not lockable GN 115 (see page 1465)
- Hook-type latches GN 115.8 (see page 1474)
- Latches GN 119 (see page 1482)
- Rotary clamping latches GN 516 (see page 1542)
- Rotary clamping latches GN 516.1 (see page 1544)
- Stainless Steel-Rotary clamping latches GN 516.5 (see page 1546)

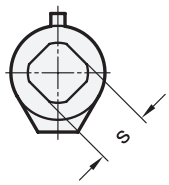
TECHNICAL INFORMATION

- Plastic characteristics (see page A2)

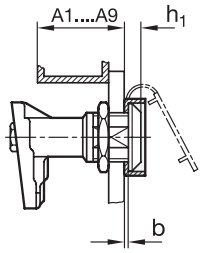




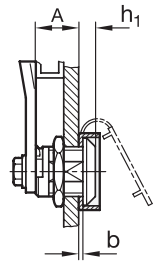




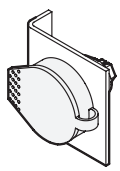
Examples of application



Latches GN 119



Latches GN 115



GN 120

Description	d	s	b	h1	h2	l	For latches	⚖
GN 120-29-14,5	29	14.5	2	6	11	18.5	GN 115.1 / GN 115.6	3
GN 120-36-20,5	36	20.5	2	8	12	23	GN 115 / GN 115.8 / GN 119 / GN 516 / GN 516.1 / GN 516.5	5

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GN 120.1

Opening handles

for latches

SPECIFICATION

Plastic (Polyamide PA)
black, matt **SW**

INFORMATION

Opening handles GN 120.1 are simple operating elements which are used in combination with key or push-button actuated locking devices. They have a low installation height and can be mounted as required in a 90° grid pattern together with the lock housing.
Please note: The clamping range A1 ... A9 and/or the latch distance A is reduced by the dimension „b".

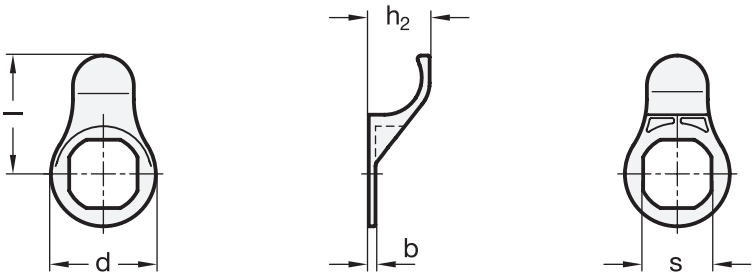
Opening handles GN 120.1 are suitable for the following latches and locking devices:

- Latches, lockable GN 115 (see page 1462)
- Latches, not lockable GN 115 (see page 1465)
- Hook-type latches GN 115.8 (see page 1474)
- Latches GN 119 (see page 1482)
- Snap locks GN 315.1 (see page 1539)
- Rotary clamping latches GN 516 (see page 1542)
- Rotary clamping latches GN 516.1 (see page 1544)
- Stainless Steel-Rotary clamping latches GN 516.5 (see page 1546)

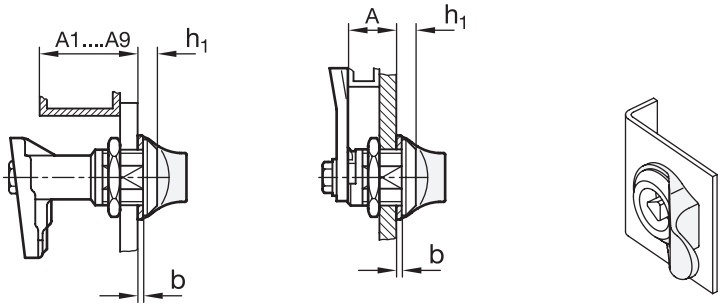
TECHNICAL INFORMATION

- Plastic characteristics (see page A2)





Examples of application



Latches GN 119 | Latches GN 115

GN 120.1

Description	d	s	b	h1	h2	l	For latches	⚖
GN 120.1-31-SW	31	20.5	2	6	18	35	GN 115 / GN 115.8	3
GN 120.1-35-SW	35	20.5	2	8	18	36	GN 119 / GN 315.1 / GN 516 / GN 516.1 / GN 516.5	5

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Latches

SPECIFICATION

Types

- Type **SG**: with star knob
- Type **GB**: with threaded bolt

Star knob DIN 6336
Plastic (Polyamide PA)
black, matt

Cam latch
Sheet Steel
zinc plated, blue passivated

Bolt and distance piece
Steel
zinc plated, blue passivated



INFORMATION

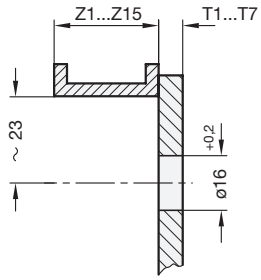
Latches GN 117 are vibration proof and they have a pulling-in range of 10 mm. Locking is achieved by turning the knob clockwise.
Attention is drawn to its simple and hence cost saving installation.
Type GB (with threaded bolt) has been introduced to accept other types of handles besides the star knob.

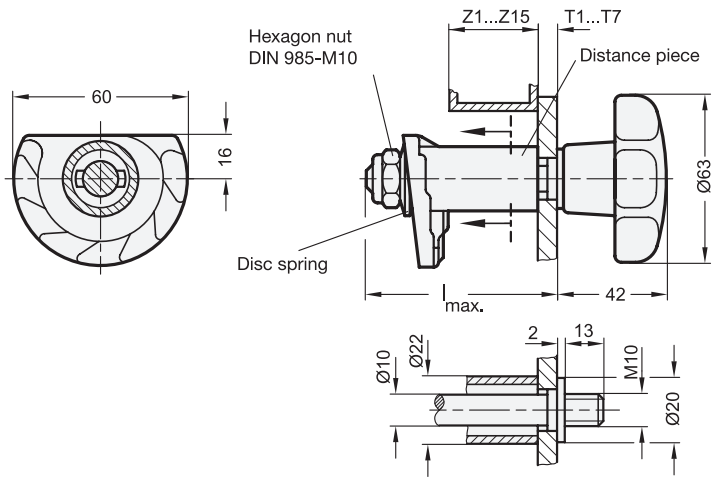
TECHNICAL INFORMATION

- List of latch types (see page 1456)
- Plastic characteristics (see page A2)

CONSTRUCTION AND ASSEMBLY INSTRUCTIONS

By turning the latch clockwise the stepped and spring loaded cam latch moves up behind the door frame and pulls the door in.
The large pulling-in range of the cam (10 mm) allows these locks to be used successfully on doors with sealing strips. When selecting distance ‚Z` the thickness of the door seal might have to be taken into cosideration. The spring loaded cam (disc spring) prevents the door from opening under vibration.
A hole of 16 mm Ø is required in the door at a distance of 23 mm from door frame to hole centre. The bolt is inserted from the front. The distance piece, cam latch and disc springs follow on the shaft on the inside in that sequence.
The self-locking nut is fitted with a torque to allow free movement of the latch.





GN 117

T+Z	l max.
≤ 13.5	31
≤ 18	35.5
≤ 22.5	40
≤ 27	44.5
≤ 31.5	49
≤ 36	53.5
≤ 40.5	58
≤ 45	62.5
≤ 49.5	67
≤ 54	71.5
≤ 58.5	76
≤ 63	80.5

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* Complete with type index of the latch

SG with star knob

GB with threaded bolt

GN 117

Description	Door thickness	Door frame thickness	⚖
GN 117-*-T1-Z1	1.5-3	0-9	94
GN 117-*-T1-Z2	1.5-3	3-12	99
GN 117-*-T1-Z3	1.5-3	6-15	101
GN 117-*-T1-Z4	1.5-3	9-18	105
GN 117-*-T1-Z5	1.5-3	12-21	111
GN 117-*-T1-Z6	1.5-3	15-24	112
GN 117-*-T1-Z7	1.5-3	18-28	115
GN 117-*-T1-Z8	1.5-3	21-30	119
GN 117-*-T1-Z9	1.5-3	24-33	121
GN 117-*-T1-Z10	1.5-3	27-36	125
GN 117-*-T1-Z11	1.5-3	30-39	129
GN 117-*-T1-Z12	1.5-3	33-42	133
GN 117-*-T1-Z13	1.5-3	36-45	135
GN 117-*-T1-Z14	1.5-3	39-48	139
GN 117-*-T1-Z15	1.5-3	42-51	141
GN 117-*-T2-Z1	3-4.5	0-9	94
GN 117-*-T2-Z2	3-4.5	3-12	99
GN 117-*-T2-Z3	3-4.5	6-15	104
GN 117-*-T2-Z4	3-4.5	9-18	105
GN 117-*-T2-Z5	3-4.5	12-21	111
GN 117-*-T2-Z6	3-4.5	15-24	115
GN 117-*-T2-Z7	3-4.5	18-28	115
GN 117-*-T2-Z8	3-4.5	21-30	119
GN 117-*-T2-Z9	3-4.5	24-33	123
GN 117-*-T2-Z10	3-4.5	27-36	125
GN 117-*-T2-Z11	3-4.5	30-39	129
GN 117-*-T2-Z12	3-4.5	33-42	133
GN 117-*-T2-Z13	3-4.5	36-45	135
GN 117-*-T2-Z14	3-4.5	39-48	139
GN 117-*-T2-Z15	3-4.5	42-51	143
GN 117-*-T3-Z1	4.5-6	0-9	97
GN 117-*-T3-Z2	4.5-6	3-12	99
GN 117-*-T3-Z3	4.5-6	6-15	104
GN 117-*-T3-Z4	4.5-6	9-18	107
GN 117-*-T3-Z5	4.5-6	12-21	111
GN 117-*-T3-Z6	4.5-6	15-24	115
GN 117-*-T3-Z7	4.5-6	18-28	118
GN 117-*-T3-Z8	4.5-6	21-30	119
GN 117-*-T3-Z9	4.5-6	24-33	123
GN 117-*-T3-Z10	4.5-6	27-36	128
GN 117-*-T3-Z11	4.5-6	30-39	129
GN 117-*-T3-Z12	4.5-6	33-42	133
GN 117-*-T3-Z13	4.5-6	36-45	138
GN 117-*-T3-Z14	4.5-6	39-48	139
GN 117-*-T3-Z15	4.5-6	42-51	143
GN 117-*-T4-Z1	6-7.5	0-9	97
GN 117-*-T4-Z2	6-7.5	3-12	102
GN 117-*-T4-Z3	6-7.5	6-15	104
GN 117-*-T4-Z4	6-7.5	9-18	107
GN 117-*-T4-Z5	6-7.5	12-21	114
GN 117-*-T4-Z6	6-7.5	15-24	115
GN 117-*-T4-Z7	6-7.5	18-28	118
GN 117-*-T4-Z8	6-7.5	21-30	121

GN 117

Description	Door thickness	Door frame thickness	⚖
GN 117-*-T4-Z9	6-7.5	24-33	123
GN 117-*-T4-Z10	6-7.5	27-36	128
GN 117-*-T4-Z11	6-7.5	30-39	132
GN 117-*-T4-Z12	6-7.5	33-42	133
GN 117-*-T4-Z13	6-7.5	36-45	138
GN 117-*-T4-Z14	6-7.5	39-48	141
GN 117-*-T4-Z15	6-7.5	42-51	143
GN 117-*-T5-Z1	7.5-9	0-9	97
GN 117-*-T5-Z2	7.5-9	3-12	102
GN 117-*-T5-Z3	7.5-9	6-15	106
GN 117-*-T5-Z4	7.5-9	9-18	107
GN 117-*-T5-Z5	7.5-9	12-21	114
GN 117-*-T5-Z6	7.5-9	15-24	118
GN 117-*-T5-Z7	7.5-9	18-28	118
GN 117-*-T5-Z8	7.5-9	21-30	121
GN 117-*-T5-Z9	7.5-9	24-33	126
GN 117-*-T5-Z10	7.5-9	27-36	128
GN 117-*-T5-Z11	7.5-9	30-39	132
GN 117-*-T5-Z12	7.5-9	33-42	136
GN 117-*-T5-Z13	7.5-9	36-45	138
GN 117-*-T5-Z14	7.5-9	39-48	141
GN 117-*-T5-Z15	7.5-9	42-51	146
GN 117-*-T6-Z1	9-10.5	0-9	100
GN 117-*-T6-Z2	9-10.5	3-12	102
GN 117-*-T6-Z3	9-10.5	6-15	106
GN 117-*-T6-Z4	9-10.5	9-18	114
GN 117-*-T6-Z5	9-10.5	12-21	115
GN 117-*-T6-Z6	9-10.5	15-24	118
GN 117-*-T6-Z7	9-10.5	18-28	121
GN 117-*-T6-Z8	9-10.5	21-30	123
GN 117-*-T6-Z9	9-10.5	24-33	128
GN 117-*-T6-Z10	9-10.5	27-36	131
GN 117-*-T6-Z11	9-10.5	30-39	132
GN 117-*-T6-Z12	9-10.5	33-42	136
GN 117-*-T6-Z13	9-10.5	36-45	140
GN 117-*-T6-Z14	9-10.5	39-48	141
GN 117-*-T6-Z15	9-10.5	42-51	144
GN 117-*-T7-Z1	10.5-12	0-9	100
GN 117-*-T7-Z2	10.5-12	3-12	104
GN 117-*-T7-Z3	10.5-12	6-15	109
GN 117-*-T7-Z4	10.5-12	9-18	110
GN 117-*-T7-Z5	10.5-12	12-21	117
GN 117-*-T7-Z6	10.5-12	15-24	118
GN 117-*-T7-Z7	10.5-12	18-28	120
GN 117-*-T7-Z8	10.5-12	21-30	125
GN 117-*-T7-Z9	10.5-12	24-33	128
GN 117-*-T7-Z10	10.5-12	27-36	131
GN 117-*-T7-Z11	10.5-12	30-39	135
GN 117-*-T7-Z12	10.5-12	33-42	136
GN 117-*-T7-Z13	10.5-12	36-45	139
GN 117-*-T7-Z14	10.5-12	39-48	144
GN 117-*-T7-Z15	10.5-12	42-51	146

Weight type GB

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Cam latches with knob

Steel or stainless steel cam

KNOB

Phenolic based (PF) Duroplast, black colour glossy finish.

STANDARD EXECUTIONS

- **VCK** (for doors with thickness S > 5 mm):
  - plain stud in zinc-plated steel;
  - helical latch cam in sintered and vaporized steel with hole for pinning;
  - spring dowel pin Ø 3x20 mm in black-oxide steel;
  - latch spring to compensate door thickness in zinc-plated steel;
  - opening to the right side (D) or left side (S).
- **VCK+G** (for doors with thickness S > 5 mm): as per VCK but with the interposition of guide bush and nut (except type with L = 24 mm), in nickel-plated brass and flat spring washer in zinc-plated steel.
  - opening to the right side (D) or left side (S).
- **VCK-SST** (for doors with thickness S > 5 mm):
  - plain stud in AISI 303 stainless steel;
  - helical latch cam in AISI 316 L sintered stainless steel with hole for pinning;
  - spring dowel pin Ø 3x20 mm in AISI 303 stainless steel;
  - latch spring to compensate door thickness in AISI 302 stainless steel;
  - opening to the right side (D) or left side (S).
- **VCK+G-SST** (for doors with thickness S ≤ 5 mm): as per VCK-SST but with the interposition of guide bush, nut and DIN 6798 flat spring washer in AISI 303 stainless steel.

The kit guide bush and nut is available as accessory sold separately (see table with codes and descriptions).

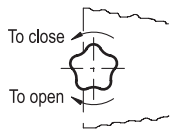
ASSEMBLY INSTRUCTIONS

1. Select the knob with stud length (l) according to the conditions reported in the here-under table.
2. Drill a cylindrical assembly hole in the door according to the conditions reported in the table.
3. Drill a hole in the stud for pinning at a distance "f" from the knob according to the conditions reported in the table.
4. Fit the stud in the hole on the door and assemble the other components.

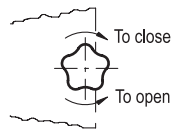
VCK. latch-type knobs are supplied not assembled.



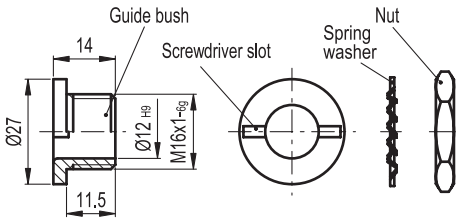
ELESA Original design

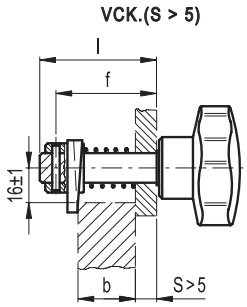


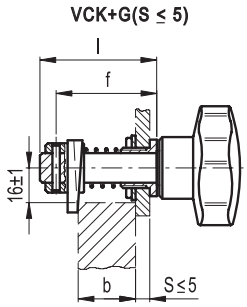
Opening to right (D)
(door hinge on right side)



Opening to left (S)
(door hinge on left side)





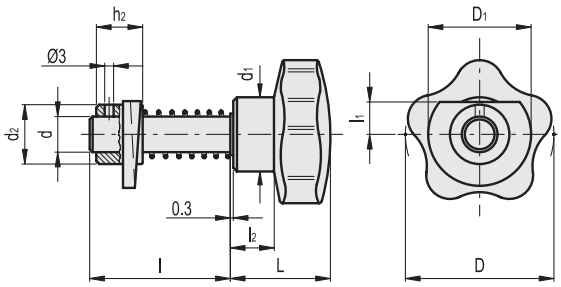


Code	Description	Kit guide, nut for
15201	GG-VCK	VCK.
15211	GG-VCK-SST	VCK-SST

Thickness of the door	Execution	l = length of the stud	Mounting hole	f = hole distance for pinning
S > 5	VCK.	l ≥ S + b + 15	Ø 12 H9	f = S + b + 8.5
S ≤ 5	VCK+G	l ≥ S + b + 15	Ø 16 H9	f = S + b + 11

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VCK. | Cam latches with knob



VCK. - VCK+G

Code	Description	D	D1	L	l	l1	l2	d	d1	d2	h2	⚖
68301	VCK.50-24-D	50	45	33	24	12	14	12	25	20	15	140
68302	VCK.50-24-S	50	45	33	24	12	14	12	25	20	15	140
68321	VCK.50-46-D	50	45	33	46	12	14	12	25	20	15	165
68322	VCK.50-46-S	50	45	33	46	12	14	12	25	20	15	165
68331	VCK.50-46+G-D	50	45	33	46	12	14	12	25	20	15	190
68332	VCK.50-46+G-S	50	45	33	46	12	14	12	25	20	15	190
68421	VCK.60-46-D	60	45	37	46	12	17	12	27	20	15	185
68422	VCK.60-46-S	60	45	37	46	12	17	12	27	20	15	185
68431	VCK.60-46+G-D	60	45	37	46	12	17	12	27	20	15	210
68432	VCK.60-46+G-S	60	45	37	46	12	17	12	27	20	15	210
68441	VCK.60-54-D	60	45	37	54	12	17	12	27	20	15	200
68442	VCK.60-54-S	60	45	37	54	12	17	12	27	20	15	200
68451	VCK.60-54+G-D	60	45	37	54	12	17	12	27	20	15	225
68452	VCK.60-54+G-S	60	45	37	54	12	17	12	27	20	15	225
68461	VCK.60-64-D	60	45	37	64	12	17	12	27	20	15	210
68462	VCK.60-64-S	60	45	37	64	12	17	12	27	20	15	210
68471	VCK.60-64+G-D	60	45	37	64	12	17	12	27	20	15	235
68472	VCK.60-64+G-S	60	45	37	64	12	17	12	27	20	15	235
68521	VCK.70-54-D	70	45	44	54	12	20	12	30	20	15	235
68522	VCK.70-54-S	70	45	44	54	12	20	12	30	20	15	235
68531	VCK.70-54+G-D	70	45	44	54	12	20	12	30	20	15	260
68532	VCK.70-54+G-S	70	45	44	54	12	20	12	30	20	15	260
68541	VCK.70-64-D	70	45	44	64	12	20	12	30	20	15	245
68542	VCK.70-64-S	70	45	44	64	12	20	12	30	20	15	245
68551	VCK.70-64+G-D	70	45	44	64	12	20	12	30	20	15	270
68552	VCK.70-64+G-S	70	45	44	64	12	20	12	30	20	15	270

VCK-SST - VCK+G-SST **STAINLESS STEEL**

Code	Description	D	D1	L	l	l1	l2	d	d1	d2	h2	⚖
68325	VCK.50-46-D-SST	50	45	33	46	12	14	12	25	20	15	165
68326	VCK.50-46-S-SST	50	45	33	46	12	14	12	25	20	15	165
68335	VCK.50-46+G-D-SST	50	45	33	46	12	14	12	25	20	15	190
68336	VCK.50-46+G-S-SST	50	45	33	46	12	14	12	25	20	15	190
68425	VCK.60-46-D-SST	60	45	37	46	12	17	12	27	20	15	185
68426	VCK.60-46-S-SST	60	45	37	46	12	17	12	27	20	15	185
68435	VCK.60-46+G-D-SST	60	45	37	46	12	17	12	27	20	15	210
68436	VCK.60-46+G-S-SST	60	45	37	46	12	17	12	27	20	15	210
68465	VCK.60-64-D-SST	60	45	37	64	12	17	12	27	20	15	210
68466	VCK.60-64-S-SST	60	45	37	64	12	17	12	27	20	15	210
68475	VCK.60-64+G-D-SST	60	45	37	64	12	17	12	27	20	15	235
68476	VCK.60-64+G-S-SST	60	45	37	64	12	17	12	27	20	15	235

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Cam latches with key

Steel or stainless steel cam

STANDARD EXECUTIONS

- **BOCK**:
  - shank in nickel-plated steel with triangular groove for key;
  - guide bush and locking nut (wrench 24) in nickel-plated brass;
  - DIN 6798 flat spring washer in zinc-plated steel;
  - helical latch cam in sintered and vaporized steel with hole for pinning;
  - spring dowel pin Ø 3x20 mm in black-oxide steel;
  - latch spring to compensate door thickness in zinc-plated steel;
  - Key in polyamide based (PA) technopolymer, black colour, matte finish.
  - opening to the right side (D) or left side (S).
- **BOCK-SST**:
  - shank with triangular groove for key, guide bush, locking nut (wrench 24),DIN 6798 flat spring washer in AISI 303 stainless steel;
  - helical latch cam in AISI 316 L sintered stainless steel with hole for pinning;
  - spring dowel pin Ø 3x20 mm in AISI 303 stainless steel;
  - latch spring to compensate door thickness in AISI 302 stainless steel;
  - Key in polyamide based (PA) technopolymer, black colour, matte finish.
  - opening to the right side (D) or left side (S).

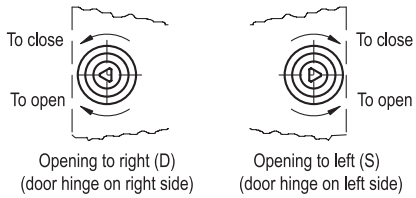
ASSEMBLY INSTRUCTIONS

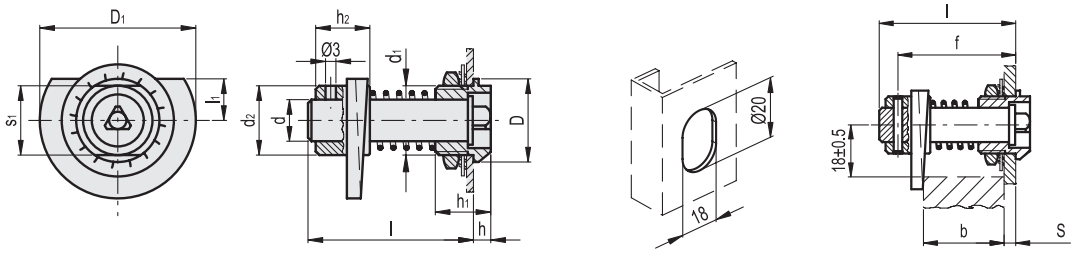
1. Select the latch with shank length (l) according to the following condition l ≥ S+b+15 mm (S = thickness of the door, b = thickness of the ledge).
2. Drill a hole in the door following the supplied template.
3. Drill a hole in the shank for pinning at "f" distance:
4. Fit the shank in the hole on the door and assemble the other components.

BOCK. latches are supplied not assembled.



ELESA Original design





BOCK

Code	Description	D	d1	D1	l	l1	h	h1	h2	d	d2	s1	⚖
6211	BOCK.25-46-D	24	M20x1.5	45	46	12	6	17.5	15	12	20	20	142
6212	BOCK.25-46-S	24	M20x1.5	45	46	12	6	17.5	15	12	20	20	142
6221	BOCK.25-54-D	24	M20x1.5	45	54	12	6	17.5	15	12	20	20	150
6222	BOCK.25-54-S	24	M20x1.5	45	54	12	6	17.5	15	12	20	20	150
6231	BOCK.25-64-D	24	M20x1.5	45	64	12	6	17.5	15	12	20	20	160
6232	BOCK.25-64-S	24	M20x1.5	45	64	12	6	17.5	15	12	20	20	160

BOCK-SST

STAINLESS STEEL

Code	Description	D	d1	D1	l	l1	h	h1	h2	d	d2	s1	⚖
6215	BOCK.25-46-D-SST	24	M20x1.5	45	46	12	6	17.5	15	12	20	20	142
6216	BOCK.25-46-S-SST	24	M20x1.5	45	46	12	6	17.5	15	12	20	20	142
6225	BOCK.25-54-D-SST	24	M20x1.5	45	54	12	6	17.5	15	12	20	20	150
6226	BOCK.25-54-S-SST	24	M20x1.5	45	54	12	6	17.5	15	12	20	20	150

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GN 218

Cam latches

Sintered Steel

SPECIFICATION

Types

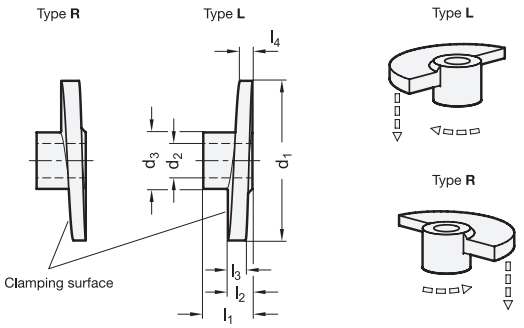
- Type **L**: clamping direction left turn
- Type **R**: clamping direction right turn

Sintered Steel **SM**
black, steam oxidized

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)





GN 218

Description	d_1	d_2 H8	d_3	$l_1 \approx$	l_2	l_3	l_4	⚖
GN 218-SM-35-B8-L	35	B 8	18	15	7	7	3	34
GN 218-SM-35-B10-L	35	B 10	18	15	7	7	3	31
GN 218-SM-65-B12-L	65	B 12	23	20	10	7	5	100
GN 218-SM-80-B16-L	80	B 16	27	24	12	9	6	160
GN 218-SM-35-B8-R	35	B 8	18	15	7	7	3	34
GN 218-SM-35-B10-R	35	B 10	18	15	7	7	3	31
GN 218-SM-65-B12-R	65	B 12	23	20	10	7	5	103
GN 218-SM-80-B16-R	80	B 16	27	24	12	9	6	160

GN 123

Sheet metal punches

for mounting latches

SPECIFICATION

Steel

Punch and die
hardened (56 - 58 HRC)

INFORMATION

These sheet metal punches GN 123 allow the operator to punch in a simple way fixing holes in sheet metal doors for latches with square V14 and V20.
Sheet metal punches GN 123 are ideally suited for punching holes into sheet metal up to 2 mm thickness.

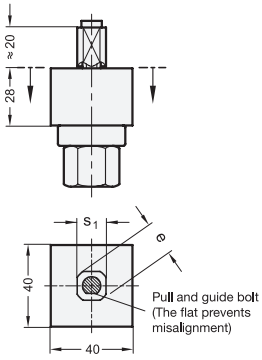
ASSEMBLY INSTRUCTION

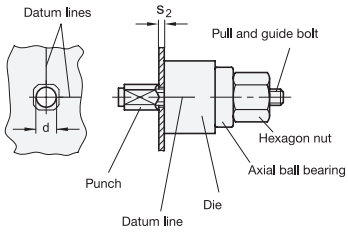
Set predrill hole d. We recommend using an adhesive tape with the centre of the punch hole and the datum lines showing.
Insert pull bolt with punch.
Attach the die, align along the datum lines and fix in place with the hexagon nut / set punch hole.

ON REQUEST

- Sheet metal punches GN 123.5 for Stainless Steel sheet.







GN 123

Description	s_1 +0.1	e Ø +0.5	d	s_2	⚖
GN 123-V14,1	V 14.1	16.3	11	2	475
GN 123-V20,1	V 20.1	22.5	15	2	505

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Rotary clamping latches

SPECIFICATION

Types

- Type **RG**: Operation with knurled knob
- Type **VK7**: Operation with square spindle A/F7
- Type **VK8**: Operation with square spindle A/F8
- Type **DK**: Operation with triangular spindle (DK7)
- Type **SK6**: Operation with hexagon A/F6
- Type **VDE**: Operation with double bit

Housing
Zinc die casting
black plastic coated
black, RAL 9005, textured finish

other parts
Steel
zinc plated, blue passivated

Knurled knob (type RG)
Plastic (Polyamide PA)

- Handle black, matt
- Cover cap, light grey matt



INFORMATION

The outstanding feature of the rotary clamping latches GN 116.1 is their wide clamping range of 12 mm, with the 5 keys A1 to A5 covering a clamping range of 4 to 46 mm with broad overlap. This configuration allows large closing strokes within the individual key spacings, e.g. in connection with seals.
With the permissible tightening torque of 2 Nm for the clamping screw, the key generates a closing force of approx. 300 Nm at the key.

TECHNICAL INFORMATION

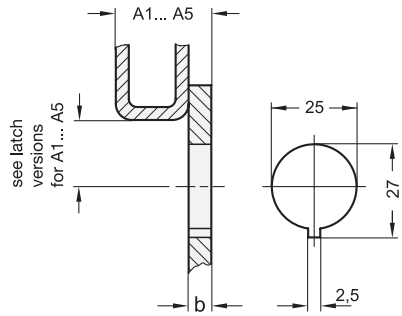
- List of latch types (see page 1456)
- Plastic characteristics (see page A2)

ACCESSORY

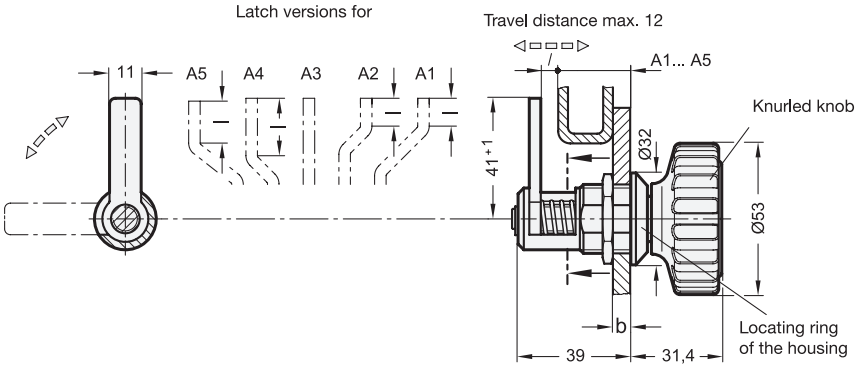
- Socket keys GN 119.2 (see page 1530)

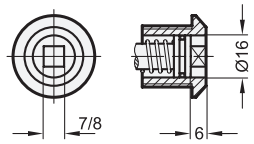
CONSTRUCTION AND ASSEMBLY INSTRUCTIONS

By turning the latch clockwise, the key is first turned by 90° and so moved into the closing position.
When continuing to turn, the thread (M10) will move it in axial direction (max. 12 mm) and will finally clamp the door against the frame.
When opening by turning anti-clockwise, the key will move back and will release the door by a 90° turn.
The pressure spring generates the friction required for the 90° turn.
When mounting, the door is fitted with a bore hole as shown in the outline drawing.
The interlock is pushed through the bore hole from the front, the hexagon nut can be pushed over the key from the back. The mounting step is only possible if the key is located axially in the end position and approximately in the middle of the range of rotation.

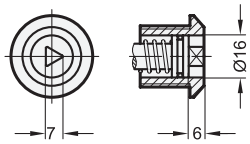


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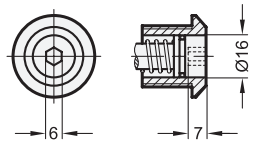




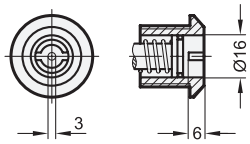
Type **VK7 / VK8**



Type **DK**



Type **SK6**



Type **VDE**

GN 116.1

Description	Clamping range A	Clamping range	b max.	l ≈	⚖
GN 116.1-DK-A1	A 1	4 - 16	6	9.5	100
GN 116.1-DK-A2	A 2	11 - 23	10	9.5	103
GN 116.1-DK-A3	A 3	19 - 31	12	-	103
GN 116.1-DK-A4	A 4	27 - 39	12	20	104
GN 116.1-DK-A5	A 5	34 - 46	12	15	105
GN 116.1-RG-A1	A 1	4 - 16	6	9.5	140
GN 116.1-RG-A2	A 2	11 - 23	10	9.5	140
GN 116.1-RG-A3	A 3	19 - 31	12	-	141
GN 116.1-RG-A4	A 4	27 - 39	12	20	141
GN 116.1-RG-A5	A 5	34 - 46	12	15	143
GN 116.1-SK6-A1	A 1	4 - 16	6	9.5	110
GN 116.1-SK6-A2	A 2	11 - 23	10	9.5	110
GN 116.1-SK6-A3	A 3	19 - 31	12	-	110
GN 116.1-SK6-A4	A 4	27 - 39	12	20	110
GN 116.1-SK6-A5	A 5	34 - 46	12	15	111
GN 116.1-VDE-A1	A 1	4 - 16	6	9.5	107
GN 116.1-VDE-A2	A 2	11 - 23	10	9.5	107
GN 116.1-VDE-A3	A 3	19 - 31	12	-	108
GN 116.1-VDE-A4	A 4	27 - 39	12	20	108
GN 116.1-VDE-A5	A 5	34 - 46	12	15	109
GN 116.1-VK7-A1	A 1	4 - 16	6	9.5	102
GN 116.1-VK7-A2	A 2	11 - 23	10	9.5	103
GN 116.1-VK7-A3	A 3	19 - 31	12	-	104
GN 116.1-VK7-A4	A 4	27 - 39	12	20	106
GN 116.1-VK7-A5	A 5	34 - 46	12	15	107
GN 116.1-VK8-A1	A 1	4 - 16	6	9.5	104
GN 116.1-VK8-A2	A 2	11 - 23	10	9.5	104
GN 116.1-VK8-A3	A 3	19 - 31	12	-	105
GN 116.1-VK8-A4	A 4	27 - 39	12	20	105
GN 116.1-VK8-A5	A 5	34 - 46	12	15	106

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Lever latches

with recessed key, technopolymer

MATERIAL
Stator, rotor, closing lever and nut (M22x1.5) in glass-fibre reinforced polyamide based (PA) technopolymer certified self-extinguish UL-94 V0, black colour, matte finish.

PACKING RING
SBR rubber.

INTERNAL TOOTHED WASHER
AISI 304 stainless steel.

SELF-TAPPING SCREW
AISI 304 stainless steel.

KEY
Polyamide based (PA) technopolymer.

ROTATION
90°.

IP PROTECTION
IP 65 protection class according to table EN 60529 (see page A23).

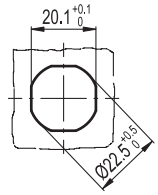
STANDARD EXECUTIONS
- **CQT/A**: mark for two-wings key.
- **CQT/T**: mark for triangular key.

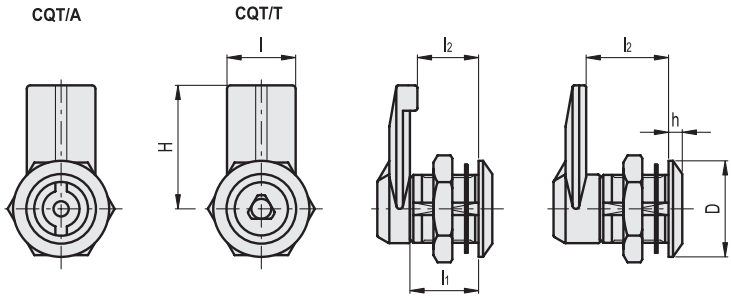
TECHNICAL DATA
The "V0" certification in accordance with UL-94 V (Underwriters Laboratories) (see Technical Data on page A5) indicates that on a plastic test sample with specific shape and dimensions, in the vertical position, the flame is extinguished within 10 seconds, without generating incandescent drops.

SPECIAL EXECUTIONS ON REQUEST
- Cylindrical body of the closing lever in other dimensions.
- Latches and keys supplied separately.



Drilling template





CQT/A

Code	Description	D	H	l	l1	l2	h	⚖
421393	CQT/A-32-18 AE-V0	28	32	20	20	18	4	20
421391	CQT/A-32-20 AE-V0	28	32	20	20	20	4	20
421395	CQT/A-32-24 AE-V0	28	32	20	20	24	4	21
421397	CQT/A-32-32 AE-V0	28	32	20	20	32	4	23

CQT/T

Code	Description	D	H	l	l1	l2	h	⚖
421403	CQT/T-32-18 AE-V0	28	32	20	20	18	4	20
421401	CQT/T-32-20 AE-V0	28	32	20	20	20	4	20
421405	CQT/T-32-24 AE-V0	28	32	20	20	24	4	21
421407	CQT/T-32-32 AE-V0	28	32	20	20	32	4	23

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Lever latches

with recessed key, zinc alloy

STATOR AND ROTOR
Nickel-plated zinc alloy.

NUT
For threaded stator M19X1 = brass.
For threaded stator M22x 1.5 = zinc-plated zinc alloy.

SHAPED CLOSING LEVER
Zinc-plated steel.
For threaded stator M19X1, thickness = 2.5 mm.
For threaded stator M22x 1.5, thickness = 3 mm.

SPRING WASHER
Zinc-plated steel.

PACKING RING
For threaded stator M19X1 = PVC.
For threaded stator M22x 1.5 = SBR rubber.

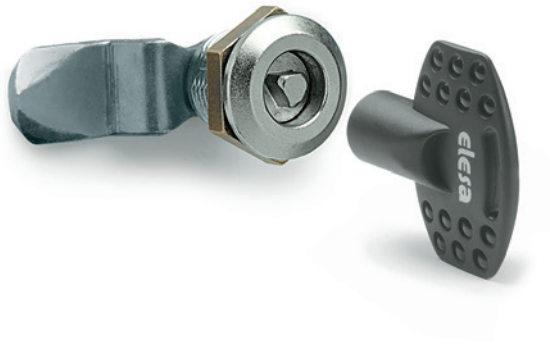
SCREW
M5x8 zinc-plated steel.

KEY
Polyamide based (PA) technopolymer.

ROTATION
90°.

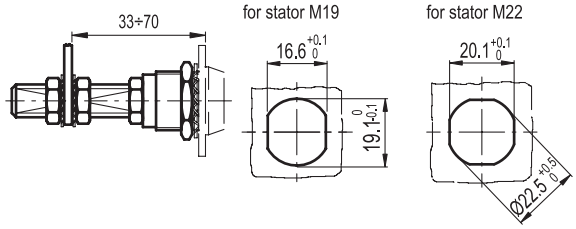
IP PROTECTION
IP 65 protection class, according to table EN 60529 (see page A23).

STANDARD EXECUTIONS:
- **CQ/A**: two-wing groove for key.
- **CQ/T**: triangular groove for key.

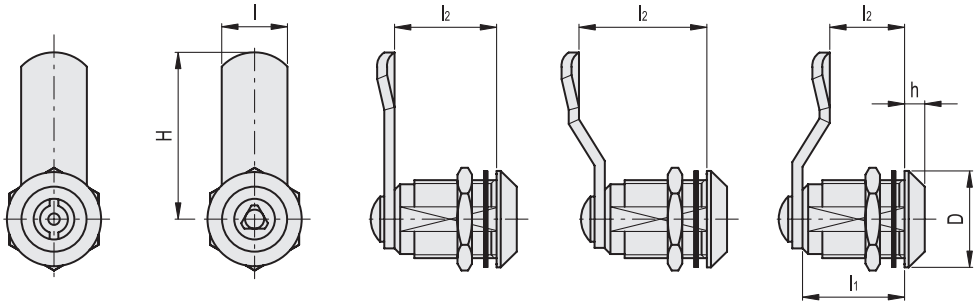


SPECIAL EXECUTIONS AND ACCESSORIES
- Closing levers in other dimensions.
- Latches and keys supplied separately.
- Brass threaded extension for prolonged positioning of the lever (code 421137 C.PQ M5/58).

Drilling templates



CQ/A CQ/T



CQ/A CQ/T

Code	Description	Code	Description	D	H	l	l1	l2	h	⚖
421301	CQ/A-M19x1-36-20	421341	CQ/T-M19x1-36-20	22	35.5	16	20	20	4	73
421303	CQ/A-M19x1-36-25	421343	CQ/T-M19x1-36-25	22	35.5	16	20	25	4	75
421305	CQ/A-M19x1-36-30	421345	CQ/T-M19x1-36-30	22	35.5	16	20	30	4	79
421307	CQ/A-M19x1-36-35	421347	CQ/T-M19x1-36-35	22	35.5	16	20	35	4	83
421313	CQ/A-M22x1.5-45-16	421353	CQ/T-M22x1.5-45-16	28	45	20	20	16	4	85
421315	CQ/A-M22x1.5-45-18	421355	CQ/T-M22x1.5-45-18	28	45	20	20	18	4	87
421311	CQ/A-M22x1.5-45-20	421351	CQ/T-M22x1.5-45-20	28	45	20	20	20	4	83
421317	CQ/A-M22x1.5-45-24	421357	CQ/T-M22x1.5-45-24	28	45	20	20	24	4	91
421319	CQ/A-M22x1.5-45-28	421359	CQ/T-M22x1.5-45-28	28	45	20	20	28	4	93
421321	CQ/A-M22x1.5-45-30	421361	CQ/T-M22x1.5-45-30	28	45	20	20	30	4	94
421323	CQ/A-M22x1.5-45-32	421363	CQ/T-M22x1.5-45-32	28	45	20	20	32	4	95

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Lever latches

with recessed key, stainless steel

STATOR AND ROTOR
AISI 304 stainless steel.

SHAPED CLOSING LEVER
AISI 304 stainless steel, 4 mm thickness.

NUT
M22X1.5 AISI 304 stainless steel.

PACKING RING
NBR synthetic rubber O-Ring.

RING
Nitrile O-ring.

UNDULATED WASHER
Stainless steel.

SCREW
M6X10 AISI 304 stainless steel.

KEY
Polyamide based (PA) technopolymer.

ROTATION
90°.

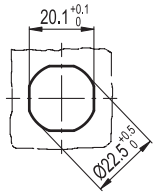
IP PROTECTION
IP 65 protection class according to table EN 60529 (see page A23).

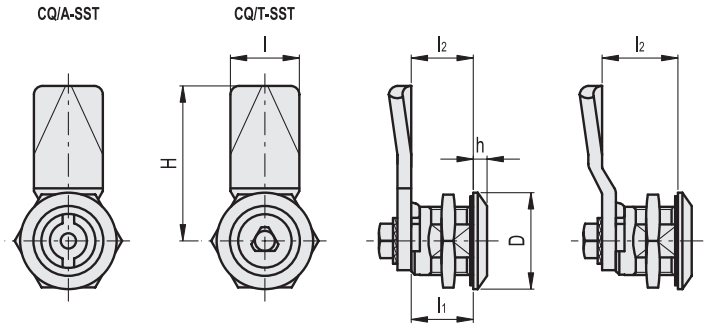
STANDARD EXECUTIONS
- **CQ/A-SST**: two-wing groove for key.
- **CQ/T-SST**: triangular groove for key.

SPECIAL EXECUTIONS ON REQUEST
- Closing levers in other dimensions.
- Latches and keys supplied separately.



Drilling template





CQ/A-SST **STAINLESS STEEL**

Code	Description	D	H	l	l1	l2	h	⚖
421331	CQ/A-45-18-SST	28	45	20	18	18	4	88
421337	CQ/A-45-24-SST	28	45	20	18	24	4	95

CQ/T-SST **STAINLESS STEEL**

Code	Description	D	H	l	l1	l2	h	⚖
421371	CQ/T-45-18-SST	28	45	20	18	18	4	91
421377	CQ/T-45-24-SST	28	45	20	18	24	4	98

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CQT.FM-AE-V0

Lever latches with key

Quick-assembly, self-extinguishing technopolymer

MATERIAL
Glass-fibre reinforced polyamide-based (PA) technopolymer, black colour, certified self-extinguishing UL-94 V0.

PACKING RING
Silicone directly applied onto the back side of the stator head.

WASHER WITH ELASTIC FIXING WINGS AND SELF-TAPPING SCREWS
Stainless steel.

KEY
Polyamide based (PA) technopolymer.

ROTATION
90°.

IP PROTECTION
IP 65 protection class, according to table EN 60529 (see page A23).

STANDARD EXECUTIONS
- **CQT/A**: mark for two-wings key.
- **CQT/T**: mark for triangular key.

MAXIMUM CONTINUOUS WORKING TEMPERATURE
130°C.

DISASSEMBLY TOOL (TO BE ORDERED SEPARATELY)
Code 421550 ATTREZZO CQT.FM. in AISI 304 stainless steel.

FEATURES
Quick assembly with steel plate thickness ranging from 1 to 2 mm latches.

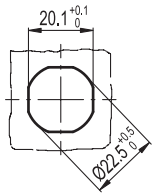
TECHNICAL DATA
The "V0" certification in accordance with UL-94 V (Underwriters Laboratories) (see Technical Data on page A5) indicates that on a plastic test sample with specific shape and dimensions, in the vertical position, the flame is extinguished within 10 seconds, without generating incandescent drops.

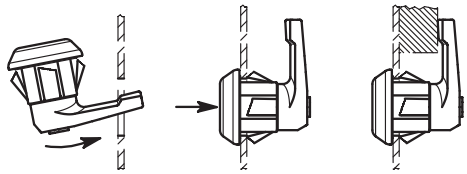
SPECIAL EXECUTIONS ON REQUEST
- Closing levers in zinc-plated steel.
- Latches and keys supplied separately.

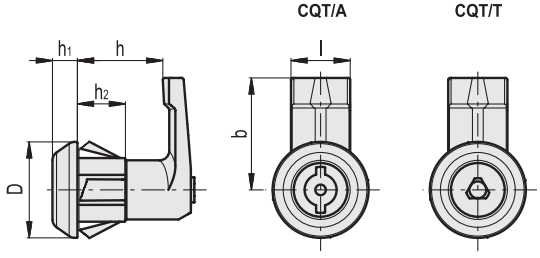
ASSEMBLY INSTRUCTIONS
The latch is inserted in the mounting hole of the door on the lever side (see picture) until the wings of the elastic washer snap in, ensuring complete fastening.
The latches are supplied with assembled lever for faster mounting.
Where needed, the latch can be disassembled from the inside of the door by means of a disassembling tool (to be ordered separately).



Drilling template







CQT/A **CQT/T**

Code	Description	Code	Description	D	l	b	h	h1	h2	⚖
421530	CQT/A-FM-35-18-AE-V0	421535	CQT/T-FM-35-18-AE-V0	30	18.5	35	18	8	15	19
421531	CQT/A-FM-35-20-AE-V0	421536	CQT/T-FM-35-20-AE-V0	30	18.5	35	20	8	15	20
421532	CQT/A-FM-35-22-AE-V0	421537	CQT/T-FM-35-22-AE-V0	30	18.5	35	22	8	15	21
421533	CQT/A-FM-35-25-AE-V0	421538	CQT/T-FM-35-25-AE-V0	30	18.5	35	25	8	15	22
421534	CQT/A-FM-35-30-AE-V0	421539	CQT/T-FM-35-30-AE-V0	30	18.5	35	30	8	15	24

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CQT.FM-CR

Lever latches with key

Quick-assembly, technopolymer

MATERIAL
Glass-fibre reinforced polyamide-based (PA) technopolymer, chrome-plated, glossy finish. Lever not chrome-plated.

PACKING RING
Silicone directly applied onto the back side of the stator head.

WASHER WITH ELASTIC FIXING WINGS AND SELF-TAPPING SCREWS
Stainless steel.

KEY
Polyamide based (PA) technopolymer.

ROTATION
90°.

IP PROTECTION
IP 65 protection class, according to table EN 60529 (see page A23).

STANDARD EXECUTIONS
- **CQT/A**: mark for two-wings key.
- **CQT/T**: mark for triangular key.

MAXIMUM CONTINUOUS WORKING TEMPERATURE
80°C.

DISASSEMBLY TOOL (TO BE ORDERED SEPARATELY)
Code 421550 ATTREZZO CQT.FM. in AISI 304 stainless steel.

FEATURES
Quick assembly with steel plate thickness ranging from 1 to 2 mm latches.

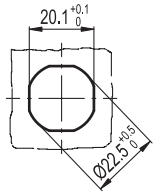
TECHNICAL DATA
With its refined look, the latch CQT.FM-CR is particularly suitable for use in situations where frequent cleaning cycles are needed for hygienic reasons, also with the use of water sprays or steam.
The chrome-plated surface is resistant to wear, scrapes and shocks.
Laboratory tests carried out at ambient temperature (23°C) proved the resistance of the latch surface to: detergents, acetone, ethyl alcohol, formic acid, chlorine solutions.

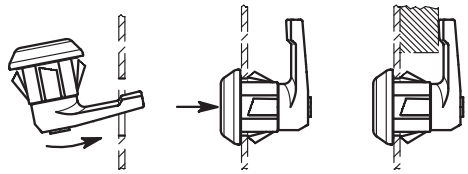
SPECIAL EXECUTIONS ON REQUEST
- Closing levers in zinc-plated steel.
- Latches and keys supplied separately.

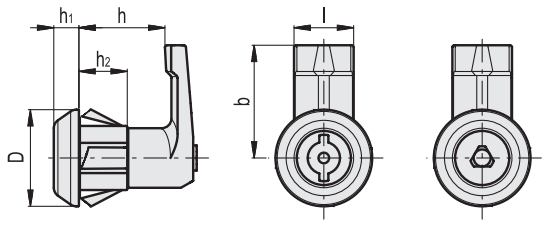
ASSEMBLY INSTRUCTIONS
The latch is inserted in the mounting hole of the door on the lever side (see picture) until the wings of the elastic washer snap in, ensuring complete fastening.
The latches are supplied with assembled lever for faster mounting.
Where needed, the latch can be disassembled from the inside of the door by means of a disassembling tool (to be ordered separately).



Drilling template







CQT/A		CQT/T								
Code	**Description**	**Code**	**Description**	**D**	**l**	**b**	**h**	**h1**	**h2**	⚖
421540	CQT/A-FM-35-18-CR	421545	CQT/T-FM-35-18-CR	30	18.5	35	18	8	15	19
421541	CQT/A-FM-35-20-CR	421546	CQT/T-FM-35-20-CR	30	18.5	35	20	8	15	20
421542	CQT/A-FM-35-22-CR	421547	CQT/T-FM-35-22-CR	30	18.5	35	22	8	15	21
421543	CQT/A-FM-35-25-CR	421548	CQT/T-FM-35-25-CR	30	18.5	35	25	8	15	22
421544	CQT/A-FM-35-30-CR	421549	CQT/T-FM-35-30-CR	30	18.5	35	30	8	15	24

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CQTF.FM-AE-V0

Lever latches with key

Quick-assembly, technopolymer

MATERIAL
Glass-fibre reinforced polyamide-based (PA) technopolymer, black colour, certified self-extinguishing UL-94 V0.

PACKING RING
Silicone directly applied onto the back side of the stator head.

WASHER WITH ELASTIC FIXING WINGS AND SELF-TAPPING SCREWS
Stainless steel.

KEY
Polyamide based (PA) technopolymer.

ROTATION
90°.

IP PROTECTION
IP 65 protection class, according to table EN 60529 (see page A23).

STANDARD EXECUTIONS
- **CQTF/A**: two-wing groove for key.
- **CQTF/T**: triangular groove for key.

MAXIMUM CONTINUOUS WORKING TEMPERATURE
130°C.

DISASSEMBLY TOOL (TO BE ORDERED SEPARATELY)
Code 421550 ATTREZZO CQT.FM. in AISI 304 stainless steel.

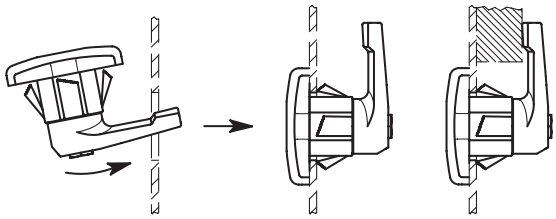
FEATURES
Quick assembly with steel plate thickness ranging from 1 to 2 mm latches.

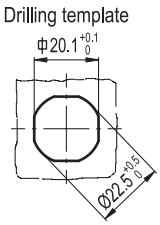
TECHNICAL DATA
The "V0" certification in accordance with UL-94 V (Underwriters Laboratories) (see Technical Data on page A5) indicates that on a plastic test sample with specific shape and dimensions, in the vertical position, the flame is extinguished within 10 seconds, without generating incandescent drops.

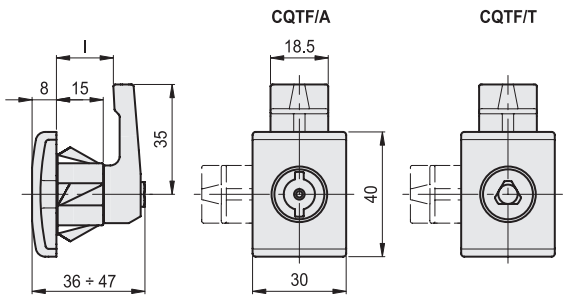
SPECIAL EXECUTIONS ON REQUEST
- Closing levers in zinc-plated steel.
- Latches and keys supplied separately.

ASSEMBLY INSTRUCTIONS
The latch is inserted in the mounting hole of the door on the lever side (see picture) until the wings of the elastic washer snap in, ensuring complete fastening.
The latches are supplied with assembled lever for faster mounting.
Where needed, the latch can be disassembled from the inside of the door by means of a disassembling tool (to be ordered separately).









CQTF/A

Code	Description	I	⚖
421261	CQTF/A-FM-35-18-AE-V0	18	25
421262	CQTF/A-FM-35-20-AE-V0	20	26
421263	CQTF/A-FM-35-22-AE-V0	22	27
421264	CQTF/A-FM-35-25-AE-V0	25	29
421265	CQTF/A-FM-35-30-AE-V0	30	34

CQTF/T

Code	Description	I	⚖
421266	CQTF/T-FM-35-18-AE-V0	18	25
421267	CQTF/T-FM-35-20-AE-V0	20	26
421268	CQTF/T-FM-35-22-AE-V0	22	27
421269	CQTF/T-FM-35-25-AE-V0	25	29
421270	CQTF/T-FM-35-30-AE-V0	30	34

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Lever latches with key

Quick-assembly, technopolymer

MATERIAL
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour.

PACKING RING
Silicone directly applied onto the back side of the stator head.

WASHER WITH ELASTIC FIXING WINGS AND SELF-TAPPING SCREWS
Stainless steel.

KEY
Polyamide based (PA) technopolymer.

ROTATION
90°.

IP PROTECTION
IP 65 protection class, according to table EN 60529 (see page A23).

STANDARD EXECUTIONS
- **CQTL/A**: two-wing groove for key.
- **CQTL/T**: triangular groove for key.

MAXIMUM CONTINUOUS WORKING TEMPERATURE
130°C.

DISASSEMBLY TOOL (TO BE ORDERED SEPARATELY)
Code 421550 ATTREZZO CQT.FM. in AISI 304 stainless steel.

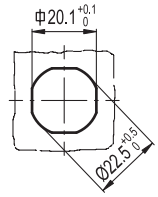
FEATURES
With steel plate thickness ranging from 1 to 2 mm quick-assembly latches with recessed key CQT.FM (patented) allow for faster mounting on doors.

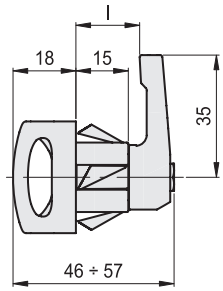
SPECIAL EXECUTIONS ON REQUEST
- Closing levers in zinc-plated steel.
- Latches and keys supplied separately.

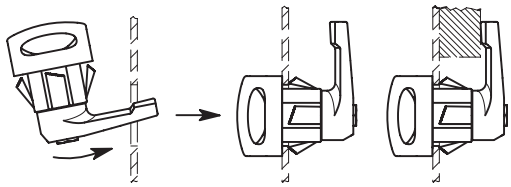
ASSEMBLY INSTRUCTIONS
The latch is inserted in the mounting hole of the door on the lever side (see picture) until the wings of the elastic washer snap in, ensuring complete fastening.
The latches are supplied with assembled lever for faster mounting.
Where needed, the latch can be disassembled from the inside of the door by means of a disassembling tool (to be ordered separately).



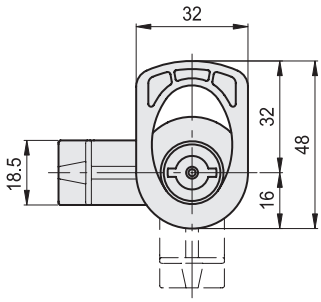
Drilling template



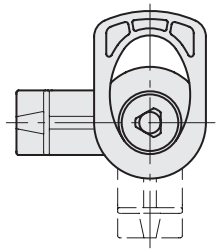




CQTL/A



CQTL/T



CQTL/A

Code	Description	I	⚖
421251	CQTL/A-FM-35-18	18	25
421252	CQTL/A-FM-35-20	20	26
421253	CQTL/A-FM-35-22	22	27
421254	CQTL/A-FM-35-25	25	29
421255	CQTL/A-FM-35-30	30	34

CQTL/T

Code	Description	I	⚖
421256	CQTL/T-FM-35-18	18	25
421257	CQTL/T-FM-35-20	20	26
421258	CQTL/T-FM-35-22	22	27
421259	CQTL/T-FM-35-25	25	29
421260	CQTL/T-FM-35-30	30	34

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CSL.FM

Lever latches with key

Lock, technopolymer and zinc alloy

STATOR
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour.

ROTOR
Chrome-plated zinc alloy.

FRONT PLATE
Stainless steel.

PACKING RING
Silicone directly applied onto the back side of the stator head.

WASHER WITH ELASTIC FIXING WINGS
Zinc-plated steel.

CLOSING LEVER
Zinc-plated steel, thickness 2.5 mm.

SCREW
M5x8 zinc-plated steel.

TWO KEYS
Nickel-plated brass, removable in two positions at 180°.

ROTATION
180°.

IP PROTECTION
IP 65 protection class, according to table EN 60529 (see page A23).

STANDARD EXECUTIONS
- **CSL.**: lock with 400 different combinations. Each lock has a couple of keys with different combination.
- **CSLU.**: lock with one combination. All locks have the same combination and can be opened with the same key.

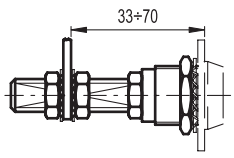
DISASSEMBLY TOOL (TO BE ORDERED SEPARATELY)
Code 421280 ATTREZZO CSL.FM in AISI 304 stainless steel.

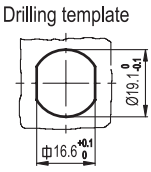
FEATURES
Quick assembly with steel plate thickness ranging from 1 to 2 mm latches.

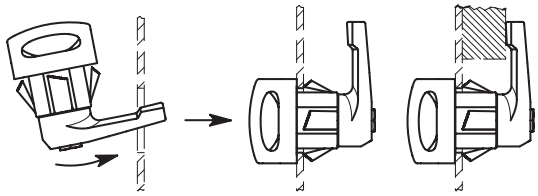
SPECIAL EXECUTIONS AND ACCESSORIES
- Closing levers in other dimensions.
- Brass threaded extension for prolonged positioning of the lever, only for stator lengths l1 = 20, 25 and 30 mm (code 421137 C.PQ M5/58).

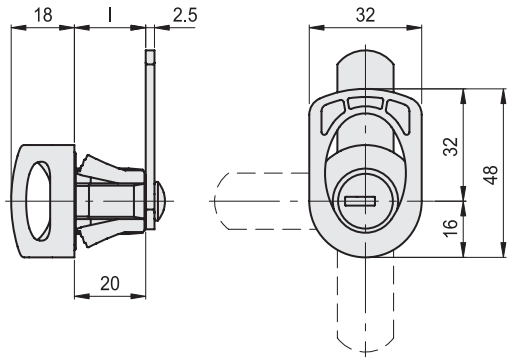
ASSEMBLY INSTRUCTIONS
The latch is inserted in the mounting hole of the door on the lever side (see picture) until the wings of the elastic washer snap in, ensuring complete fastening.
The latches are supplied with assembled lever for faster mounting.
Where needed, the latch can be disassembled from the inside of the door by means of a disassembling tool (to be ordered separately).











CSL.

Code	Description	l	⚖
421281	CSL-FM-45-16	16	62
421282	CSL-FM-45-18	18	63
421283	CSL-FM-45-20	20	64
421284	CSL-FM-45-24	24	66
421285	CSL-FM-45-28	28	68
421286	CSL-FM-45-30	30	69
421287	CSL-FM-45-32	32	70

CSLU.

Code	Description	l	⚖
421291	CSLU-FM-45-16	16	62
421292	CSLU-FM-45-18	18	63
421293	CSLU-FM-45-20	20	64
421294	CSLU-FM-45-24	24	66
421295	CSLU-FM-45-28	28	68
421296	CSLU-FM-45-30	30	69
421297	CSLU-FM-45-32	32	70

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INOX STAINLESS STEEL · RoHS · IP65

Mini-Latches

Zinc die casting / Steel



SPECIFICATION

Types

- Type **DK**: Operation with triangular spindle (DK 6.5)
- Type **VK**: Operation with square spindle (VK 6)
- Type **SCH**: Operation with slot
- Type **SK**: Operation with wing knob
- Type **SCK**: Operation with wing knob, lockable

Lock housing
Zinc die casting, chrome plated

All other parts
Steel zinc plated, blue passivated

Wing knob (Type SK and SCK)
Zinc die casting
plastic coated black, textured finish

Key
Nickel silver with plastic hand piece

Protection class IP65
via the housing gasket and the O-ring

INFORMATION

Mini-Latches GN 115.1 have smaller dimensions than latches GN 115. They lock by a turning operation limited to 90° which moves the locking behind the door frame. The bevels of the locking ease the closing of the door.
Latches with different cranks cover a latch distance A from 7.5 to 19.5 mm.
The lockable latch (Type SCK) is supplied with two keys. The key may be pulled off in both end positions.
In their standard design, the latches have the same lock / the same key.
Mini-Latches GN 115.1 are supplied with loosely enclosed latch.

TECHNICAL INFORMATION

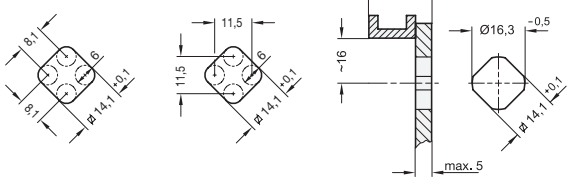
- List of latch types (see page 1456)
- IP Protection classes (see page A23)

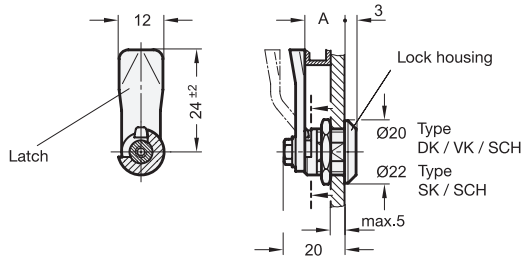
ACCESSORY

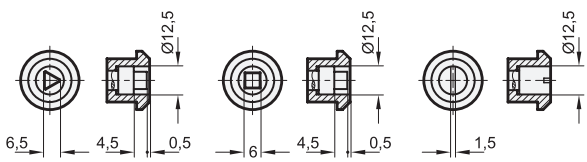
- Socket keys GN 119.2 (see page 1530)
- Protective caps GN 120 (see page 1486)

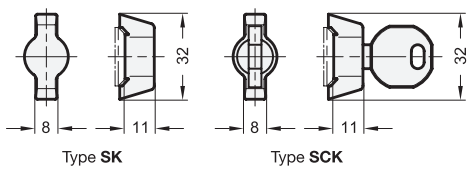
CONSTRUCTION AND ASSEMBLY INSTRUCTIONS

For installation, set a bore diameter in the door as shown in the outline drawing.
Once assembled, the latch is pushed through the bore diameter from the front. The hexagon nut can then be pushed over the latch from the back and bolted in place.
The **installation bore diameter** in the door leaf is usually generated by punching or laser machining in series production.
For small series and steel sheets below 2 mm thickness, the sheet metal punches GN 123 (see page 1493) are the tool of choice.
The installation bore diameter can also be set by drilling / milling as shown in the outline drawings.









* Complete with type index of the mini-latch
DK VK SCH SK SCK

GN 115.1

Description	Latch distance A	⚖
GN 115.1-*-7,5	7.5	24
GN 115.1-*-13,5	13.5	24
GN 115.1-*-19,5	19.5	25

Weight type DK

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GN 115.6

Stainless Steel-Mini-Latches

SPECIFICATION

Types

- Type **DK**: Operation with triangular spindle (DK 6.5)
- Type **VK**: Operation with square spindle (VK 6)
- Type **SCH**: Operation with slot

Stainless Steel AISI 303
Latch AISI 304

Protection class IP65
via the housing gasket and the O-ring

INFORMATION

Mini-Latches GN 115.6 have smaller dimensions than latches GN 115. They lock by a turning operation limited to 90° which moves the locking behind the door frame. The bevels of the locking ease the closing of the door.
Latches with different cranks cover a latch distance A from 7.5 to 19.5 mm.
In their standard design, the latches have the same lock / the same key.
Mini-Latches GN 115.6 are supplied with loosely enclosed latch.

TECHNICAL INFORMATION

- List of latch types (see page 1456)
- IP Protection classes (see page A23)
- Stainless Steel characteristics (see page A26)

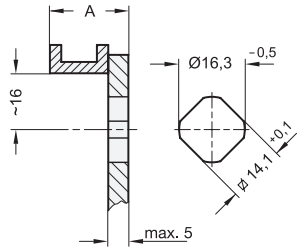
ACCESSORY

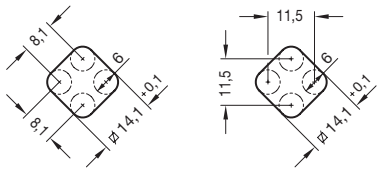
- Socket keys GN 119.2 (see page 1530)
- Protective caps GN 120 (see page 1486)

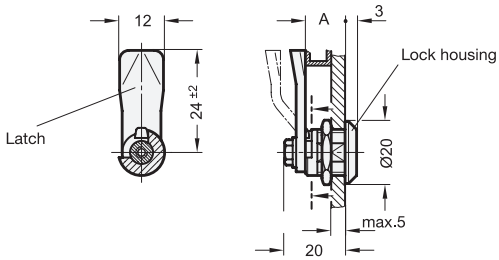
CONSTRUCTION AND ASSEMBLY INSTRUCTIONS

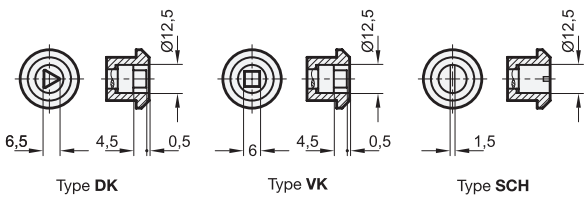
For installation, set a bore diameter in the door as shown in the outline drawing.
Once assembled, the latch is pushed through the bore diameter from the front. The hexagon nut can then be pushed over the latch from the back and bolted in place.
The **installation bore diameter** in the door leaf is usually generated by punching or laser machining in series production.
For small series and steel sheets below 2 mm thickness, the sheet metal punches GN 123 (see page 1493) are the tool of choice.
The installation bore diameter can also be set by drilling / milling as shown in the outline drawings.











GN 115.6 **STAINLESS STEEL**

Description	Latch distance A	⚖
GN 115.6-DK-7.5	7.5	15
GN 115.6-DK-13.5	13.5	20
GN 115.6-DK-19.5	19.5	25
GN 115.6-SCH-7.5	7.5	30
GN 115.6-SCH-13.5	13.5	30
GN 115.6-SCH-19.5	19.5	35
GN 115.6-VK-7.5	7.5	26
GN 115.6-VK-13.5	13.5	28
GN 115.6-VK-19.5	19.5	30

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Lever latches with key

Operation with lever, technopolymer

LEVER
Glass-fibre reinforced polyamide based (PA) technopolymer, grey-black colour, matte finish.

LOCK
- stator and rotor in Zamac;
- lock with stainless steel front plate, movement of the lever at 90°;
- locking nut in brass;
- spring washer in zinc-plated steel;
- zinc-plated steel positioning washer, thickness 1.2 mm to be welded to the sheet of the door in case of thin thickness;
- two keys in nickel-plated brass, removable in two positions (locked or unlocked position);

STANDARD EXECUTIONS
Lock with 400 different combinations. Each lock has a key with different combination.
- **ELCK-1-D**: with zinc-plated steel flat closing lever, opening on the right side.
- **ELCK-1-S**: with zinc-plated steel flat closing lever, opening on the left side.
- **ELCK-1-SS**: with zinc-plated steel flat closing lever (1), without lock. Therefore, the control lever can be used for opening both on the right or on the left side.
- **ELCK-2**: available in all the above mentioned executions but with folded closing lever.

ACCESSORIES ON REQUEST
Threaded extension for the positioning of the closing lever with l=10 mm (ELCK with flat lever) or l=18 mm (ELCK with folded lever).

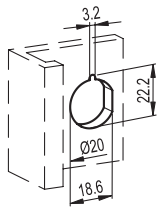
SPECIAL EXECUTIONS ON REQUEST
- ELCK-U: lock with one combination: all locks have the same combination and open with the same key.
- ELCK-M: lock with 160 different combinations and master-key: each lock has a different combination and relative key. Two master-keys, which open all of them, are supplied for every purchase order.

Even the special executions are available with opening on the right or on the left side, with flat or folded closing lever.

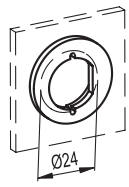


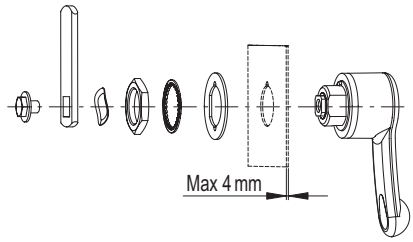
ERGOSTYLE®

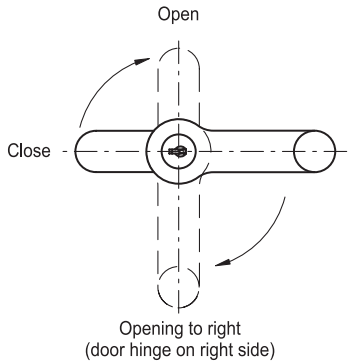
Drilling template for direct fitting

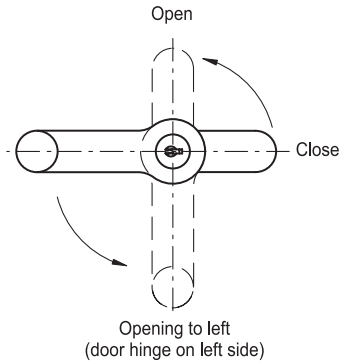


Positioning washer (included in the supply) to be welded to the metal sheet of the door for thin thickness







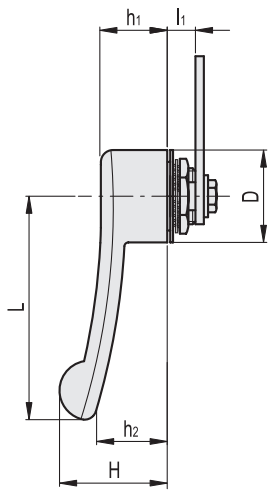


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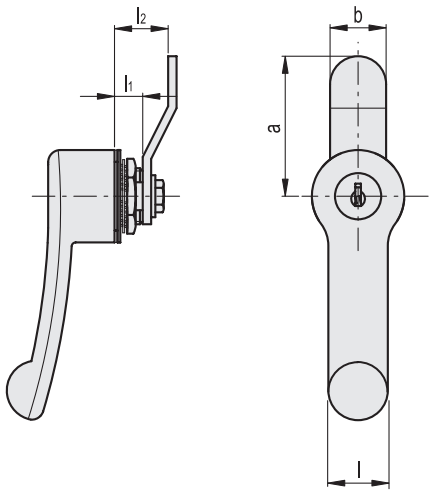
ELCK

Lever latches with key

ELCK-1



ELCK-2



ELCK-1

Code	Description	D	H	L	l	l1	h1	h2	a	b	⚖
212311	ELCK.67-1-D	32	35	67	20	10	25	27	50	20	140
212313	ELCK.67-1-S	32	35	67	20	10	25	27	50	20	140
212315	ELCK.67-1-SS	32	35	67	20	10	25	27	50	20	140
212341	ELCK.85-1-D	37	41	85	23	10	25	27	50	20	150
212343	ELCK.85-1-S	37	41	85	23	10	25	27	50	20	150
212345	ELCK.85-1-SS	37	41	85	23	10	25	27	50	20	150

ELCK-2

Code	Description	D	H	L	l	l1	l2	h1	h2	a	b	⚖
212321	ELCK.67-2-D	32	35	67	20	10	18	25	24	48	20	140
212323	ELCK.67-2-S	32	35	67	20	10	18	25	27	48	20	140
212325	ELCK.67-2-SS	32	35	67	20	10	18	25	27	48	20	140
212351	ELCK.85-2-D	37	41	85	23	10	18	25	27	48	20	150
212353	ELCK.85-2-S	37	41	85	23	10	18	25	27	48	20	150
212355	ELCK.85-2-SS	37	41	85	23	10	18	25	27	48	20	150

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VC.308 - VC.309

RoHS PP +90° 0°

Lever latches

with lock, technopolymer knob



ELESA Original design

KNOB

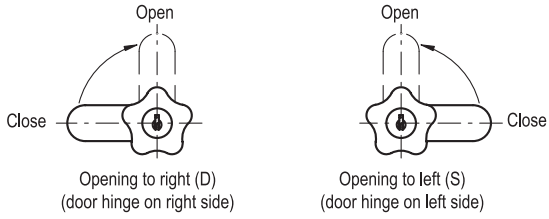
High-resilience polypropylene based (PP) technopolymer.

STANDARD EXECUTIONS

- **VC.308**: with flat closing lever in zinc-plated steel;
  - stator and rotor in Zamac;
  - lock with stainless steel front plate, movement of the knob at 90°;
  - locking nut in brass;
  - spring washer in zinc-plated steel;
  - positioning washer in zinc-plated steel, thickness 1.2 mm to be welded to the metal sheet of the door for thin thickness;
  - two keys in nickel-plated brass, removable in two positions (locked or unlocked position);
  - opening to the right side (D) or to the left side (S);
  - lock with 400 different combinations. Each lock has a key with different combination;
- **VC.308-U**: lock with one combination. All locks have the same combination and can be opended with the same key;
- **VC.308-M**: lock with 160 different combinations and master-key. Each lock has a different combination and a relevant key. Two master-keys, which open all of them, are supplied for every purchase order;
- **VC.308-SS**: without lock. The knob can be used for opening both to the right or to left side;
- **VC.309**: available in all the above mentioned executions but with folded closing lever.

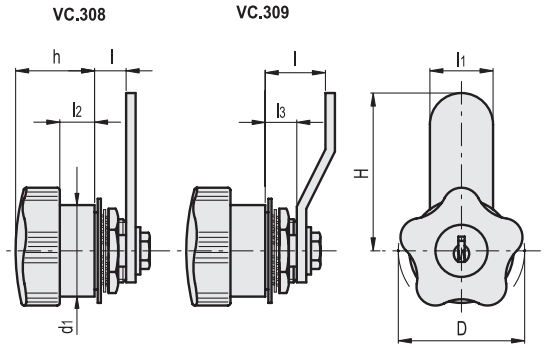
ACCESSORIES ON REQUEST

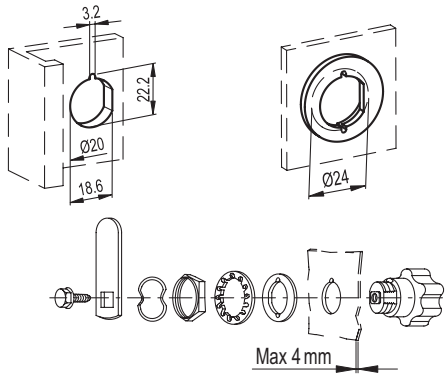
Threaded extension to position the closing lever with l=10 mm (VC.308) or l=18 mm (VC.309).



Drilling template for direct fitting

Positioning washer (included in the supply) to be welded to the metal sheet of the door for thin thickness





VC.308

Code	Description	D	H	l±0.5	l1	l2	h	d1	⚖
68101	VC.308/40-D	40	50	10	20	11	25	29	146
68102	VC.308/40-S	40	50	10	20	11	25	29	146
68103	VC.308/40-UD	40	50	10	20	11	25	29	146
68104	VC.308/40-US	40	50	10	20	11	25	29	146
68105	VC.308/40-MD	40	50	10	20	11	25	29	146
68106	VC.308/40-MS	40	50	10	20	11	25	29	145
68111	VC.308/40-SS	40	50	10	20	11	25	29	115

VC.309

Code	Description	D	H	l±0.5	l1	l2	l3	h	d1	⚖
68121	VC.309/40-D	40	48	18	20	11	10	25	29	146
68122	VC.309/40-S	40	48	18	20	11	10	25	29	146
68123	VC.309/40-UD	40	48	18	20	11	10	25	29	146
68124	VC.309/40-US	40	48	18	20	11	10	25	29	146
68125	VC.309/40-MD	40	48	18	20	11	10	25	29	146
68126	VC.309/40-MS	40	48	18	20	11	10	25	29	146
68131	VC.309/40-SS	40	48	18	20	11	10	25	29	115

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CS-RPR.

Lever latches with key

Reprogrammable lock, steel

LOCK
With opposing blades and double profile key with internal track, (to be ordered separately, see below keys kit). 9.791 different lock combinations.

STATOR AND ROTOR
Chrome-plated zinc alloy with drill-proof hardened steel plate and stainless steel front plate.

NUT
Brass M19x1

TOOTHED WASHERS
For zinc-plated steel stator, for steel screw.

CLOSING LEVER
Zinc-plated steel, thickness 2.5 mm.

NUT
Brass.

SCREW
Zinc-plated steel (only for executions CS-RPR.32-30 and CS-RPR.36-35).

ROTATION
180°, with key removable in two positions.

KEYS KIT
The KCR keys kit (to be ordered separately) consists of a brass programming key and some nickel silver keys for normal use.
- **KCR-05**: 1 programming key and 5 keys for normal use.
- **KCR-10**: 1 programming key and 10 keys for normal use.
- **KCR-01**: 25 keys for normal use.

SPECIAL EXECUTIONS AND ACCESSORIES
- Closing levers in other dimensions.
- Other keys kits with different programming.

FEATURES AND APPLICATIONS
The CS-RPR are supplied non-programmed with the rotor positioned in line with the index marked on the stator front surface.
- First programming: insert the programming brass key and turn the lock clockwise by 45° (Fig.1). The lock is now programmed. Insert the normal use key in nickel silver to lock or unlock the latch (Fig.2).
- Reprogramming of the lock: insert the brass programming key used at first and turn the lock anticlockwise by 45° until the rotor is in the neutral position (Fig.3). Remove the key, insert now a new programming key (new kit) and turn it clockwise by 45° (Fig.1).

Now the lock has been reprogrammed with a new combination and the nickel silver normal use keys, included in the kit of the new programming key, must be used to lock or unlock the latch (Fig.2).



Drilling template

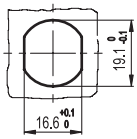




Fig. 1

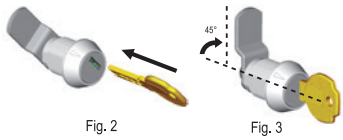


Fig. 2

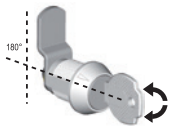
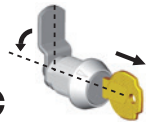
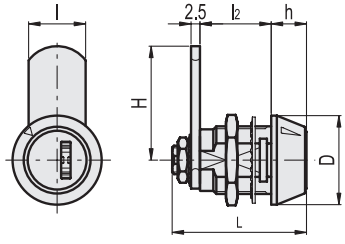


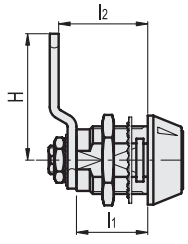
Fig. 3



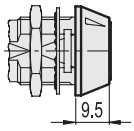
CS-RPR-32



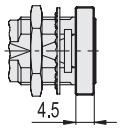
CS-RPR-36



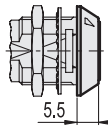
CS-RPR.32-20
CS-RPR.36-25



CS-RPR.32-25
CS-RPR.36-30



CS-RPR.32-30
CS-RPR.36-35



Code	Description	D	H	L	l	l1	l2	h	⚖
421555	CS-RPR.32-20	25	32	37.5	16	20	20	9.5	65
421557	CS-RPR.32-25	22	32	37.5	16	25	25	4.5	70
421559	CS-RPR.32-30	25	32	40.5	16	30	30	5.5	85
421575	CS-RPR.36-25	25	35.5	37.5	16	20	25	9.5	70
421577	CS-RPR.36-30	22	35.5	37.5	16	25	30	4.5	75
421579	CS-RPR.36-35	25	35.5	40.5	16	30	35	5.5	90

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Lever latches with key

Lock, zinc alloy

STATOR
Brass-plated zinc alloy.

ROTOR
Chrome-plated zinc alloy.

FRONT PLATE
Stainless steel.

NUT
M19x1 in brass.

FLAT SPRING WASHER
Zinc-plated steel (only for l1=13 and 16 mm),

INTERNAL TOOTHED WASHER
Zinc-plated steel.

CLOSING LEVER
Zinc-plated steel, thickness 2.5 mm.
Assembly by means of hexagon nut M6x0.75 for l1=13, 16 and 18 mm, assembly with screw M5x5 for l1=20 mm or with screw M5x8 for l1=25 and 30 mm.

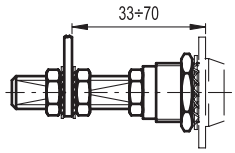
TWO KEYS
Nickel-plated brass, removable in two positions at 180°.

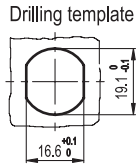
ROTATION
180°.

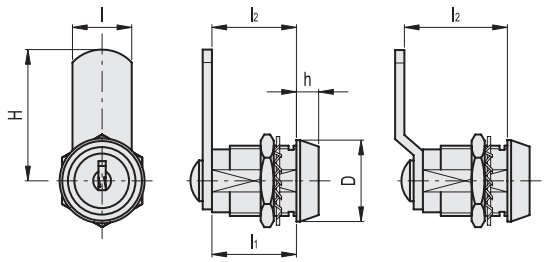
STANDARD EXECUTIONS
- **CS.**: lock with 400 different combinations. Each lock has a couple of keys with different combination.
- **CSU.**: lock with one combination. All locks have a key with the same combination.

SPECIAL EXECUTIONS AND ACCESSORIES
- Closing levers in other dimensions.
- Brass threaded extension for prolonged positioning of the lever, only for stator lengths l1 = 20, 25 and 30 mm (code 421137 C.PQ M5/58).









CS.

Code	Description	D	H	l	l1	l2	h	⚖
421411	CS.13-32-13	23	32	16	13	13	5	41
421413	CS.16-32-16	23	32	16	16	16	5	47
421415	CS.20-32-20	23	32	16	20	20	5	55
421417	CS.25-32-25	23	32	16	25	25	5	64
421419	CS.30-32-30	23	32	16	30	30	5	73
421431	CS.13-36-18	23	35.5	16	13	18	5	43
421433	CS.16-36-21	23	35.5	16	16	21	5	49
421435	CS.20-36-25	23	35.5	16	20	25	5	57
421437	CS.25-36-30	23	35.5	16	25	30	5	66
421439	CS.30-36-35	23	35.5	16	30	35	5	75

CSU.

Code	Description	D	H	l	l1	l2	h	⚖
421451	CSU.13-32-13	23	32	16	13	13	5	41
421453	CSU.16-32-16	23	32	16	16	16	5	47
421455	CSU.20-32-20	23	32	16	20	20	5	55
421457	CSU.25-32-25	23	32	16	25	25	5	64
421459	CSU.30-32-30	23	32	16	30	30	5	73
421471	CSU.13-36-18	23	35.5	16	13	18	5	43
421473	CSU.16-36-21	23	35.5	16	16	21	5	49
421475	CSU.20-36-25	23	35.5	16	20	25	5	57
421477	CSU.25-36-30	23	35.5	16	25	30	5	66
421479	CSU.30-36-35	23	35.5	16	30	35	5	75

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Lever latches with T-Handle

Operation with key, technopolymer

HANDLE AND STATOR
Glass-fibre reinforced polyamide based (PA) technopolymer.

ROTOR
Chrome-plated zinc alloy.

FRONT PLATE
Stainless steel.

NUT
M22x1.5 technopolymer.

FLAT CLOSING LEVER
Zinc-plated steel, thickness 3 mm.

PACKING RING
NBR rubber.

SELF-TAPPING SCREW
Zinc-plated steel.

TWO KEYS
Nickel-plated brass, removable in two positions at 180°.

ROTATION
90° clockwise (right).

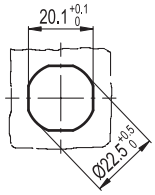
IP PROTECTION
IP 65 protection class, according to table EN 60529 (see page A23).

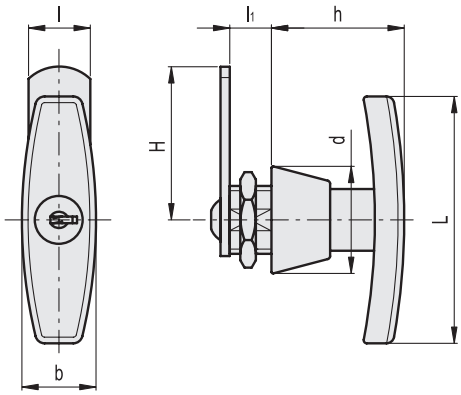
STANDARD EXECUTIONS
- **CSMT.**: lock with 400 different combinations. Each lock has a couple of keys with different combination.
- **CSMTU.**: lock with one combination. All locks have the same combination which can be opened with the same key.

SPECIAL EXECUTIONS ON REQUEST
Closing levers in other dimensions.



Drilling template





Code	Description	H	L	l	l1	b	h	d	⚖
421521	CSMT.50	50	80	20	13.5	24	43	37	107
421523	CSMTU.50	50	80	20	13.5	24	43	37	107

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CSMT-A

RoHS IP65 PA +130° -30°

Lever latches with T-Handle

Operation with key, anti-rotation device, technopolymer



HANDLE AND STATOR
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, RAL 3020 red colour mobile part.

ROTOR
Zinc alloy with superficial chromate treatment.

SPRINGS
Stainless steel.

FRONT PLATE
Stainless steel.

NUT
M22x1.5 in technopolymer.

FLAT CLOSING LEVER
Zinc-plated steel, thickness 3 mm.

PACKING RING
NBR rubber.

SELF-TAPPING SCREW
Zinc-plated steel.

TWO KEYS
Nickel-plated brass, removable in two positions at 180°.

ROTATION
90° clockwise (right).

IP PROTECTION
IP 65 protection class, according to table EN 60529 (see page A23).

STANDARD EXECUTIONS
- **CSMT-A**: lock with 400 different combinations. Each lock has a couple of keys with different combination.
- **CSMTU-A**: lock with one combination. All locks have the same combination which can be opened with the same key.

FEATURES AND APPLICATIONS
Latch-type handles with anti-rotation device CSMT-A are particularly suitable for applications on cabinets or doors subject to strong vibrations. The anti-rotation device prevents the door from opening accidentally due to vibrations when the latch is not locked.
After opening the lock by means of the key (fig. 1) the handle can be turned by pulling the red body towards the operator (fig.2). By turning the handle in the lock position (fig.3), the anti-rotation mechanism is engaged automatically (fig.4).

SPECIAL EXECUTIONS ON REQUEST
Closing levers in other dimensions.

Drilling template

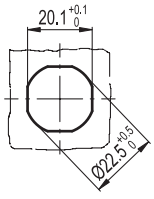


Fig.1



Fig.2



Fig.3

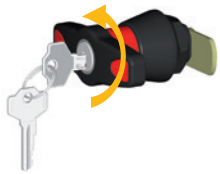
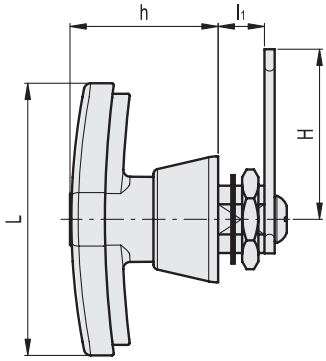
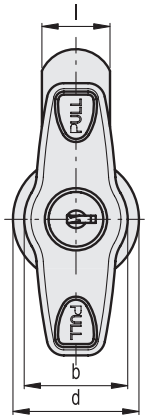


Fig.4







Code	Description	H	L	l	l1	b	h	d	⚖
421525	CSMT-A-50	50	80	20	13.5	30	43	37	130
421527	CSMTU-A-50	50	80	20	13.5	30	43	37	130

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Lever latches with T-Handle

Operation with key, steel

HANDLE AND STATOR
Glossy chrome-plated zinc alloy.

ROTOR
Chrome-plated zinc alloy.

FRONT PLATE
Stainless steel.

NUT
M22x1.5 in zinc-plated zinc-alloy.

SPRING WASHER
Black-oxide steel.

WASHER
Zinc-plated steel.

CLOSING LEVERS
Zinc-plated steel flat and two-point closing lever, thickness 3 mm.

SCREW
M7x10 Zinc-plated steel.

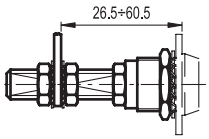
TWO KEYS
Nickel-plated brass, removable in two positions at 180°.

ROTATION
90° clockwise (right).

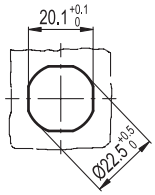
STANDARD EXECUTIONS
- **CSM.**: lock with 400 different combinations. Each lock has a couple of keys with different combination.
- **CSMU.**: lock with one combination. All locks have the same combination which can be openend with the same key.

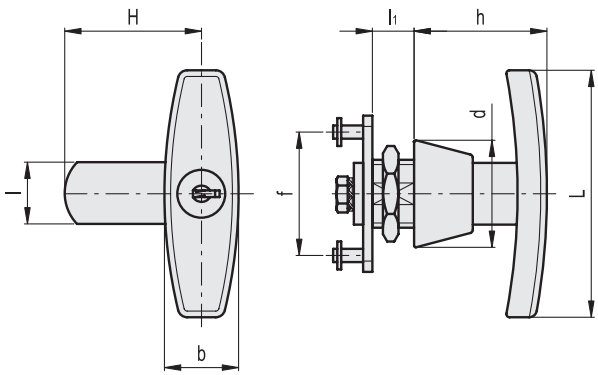
SPECIAL EXECUTIONS AND ACCESSORIES
- Closing levers in other dimensions.
- Brass threaded extension (code 421140 C.PQ M7/53) and flat assembly lever (code 421145 LEVETTA PIANA 7x7) for prolonged positioning of the closing ledge





Drilling template





Code	Description	H	L	l	l1	b	h	d	f	⚖
421511	CSM.50	50	80	20	13.5	24	43	35	42	240
421513	CSMU.50	50	80	20	13.5	24	43	35	42	240

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Lever latches with key

Safety lock, zinc alloy

LOCK
With opposing blades and double track key with internal profile.

STATOR
Glossy chrome-plated zinc alloy.

ROTOR
Chrome-plated zinc alloy with drill-proof hardened steel plate and stainless steel front plate.

NUT
M19x1 in brass.

SPRING WASHER
Zinc-plated steel.

CLOSING LEVER
Zinc-plated steel, thickness 2.5 mm.

SCREW
M5x5 zinc-plated steel.

TWO REVERSIBLE KEYS
Nickel-plated brass, removable in two positions at 180°.

ROTATION
180°.

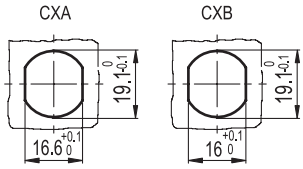
IP PROTECTION
IP 65 protection class according to table EN 60529 (see page A23).

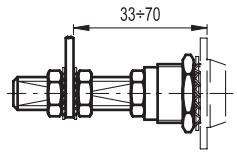
STANDARD EXECUTIONS
- **CXA./CXB**: lock with 15,660 different combinations: each lock has a couple of keys with different combination.
- **CXAU./CXBU**: lock with one combination: all locks have the same combination which can be opened with one key.

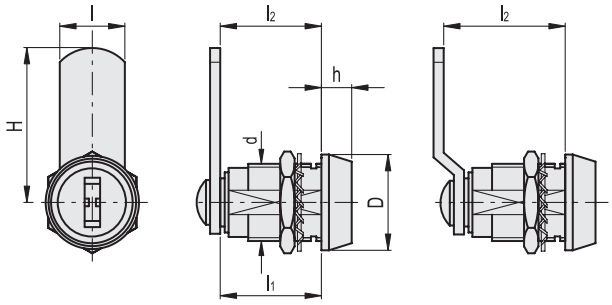
SPECIAL EXECUTIONS AND ACCESSORIES
- Closing levers in other dimensions.
- Brass threaded extension for prolonged positioning of the lever (code 421137 C.PQ M5/58).

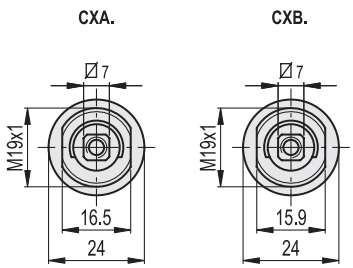


Drilling templates









CX.

Code	Description	D	H	d	l	l1	l2	h	⚖
421611	CXA.32-23	24	32	M19x1	16	22.5	22.5	7	60
421615	CXA.36-28	24	35.5	M19x1	16	22.5	27.5	7	62
421619	CXB.32-23	24	32	M19x1	16	22.5	22.5	7	60
421623	CXB.36-28	24	35.5	M19x1	16	22.5	27.5	7	62

CXU.

Code	Description	D	H	d	l	l1	l2	h	⚖
421613	CXAU.32-23	24	32	M19x1	16	22.5	22.5	7	60
421617	CXAU.36-28	24	35.5	M19x1	16	22.5	27.5	7	62
421621	CXBU.32-23	24	32	M19x1	16	22.5	22.5	7	60
421625	CXBU.36-28	24	35.5	M19x1	16	22.5	27.5	7	62

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Latches for cabinets

with handle for rod controls, technopolymer and zinc alloy



HANDLE
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

BASE
Nickel-plated zamac.

PACKING RING
Silicon directly applied under the handle base.

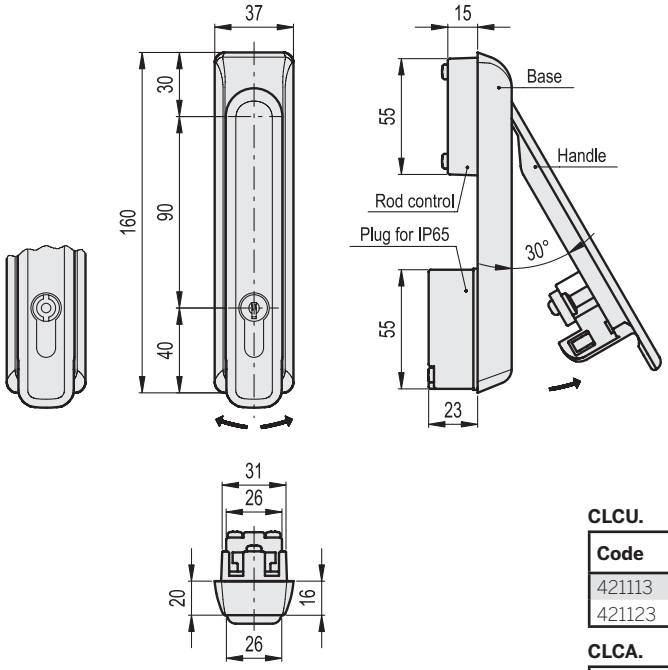
HANDLE SHANK
Chrome-plated zinc alloy with NBR synthetic rubber O-ring.

ROD CONTROL
Chrome-plated zinc alloy.

STANDARD EXECUTIONS
European style stator.
- **CLC-EU**.: lock with different combinations. Each lock has two nickel-plated brass keys, with different combination, removable at 180°.
- **CLCU-EU**: lock with one combination. All locks have a couple of keys in nickel-plated brass and the same combination which can be opened with the same key removable at 180°.
- **CLCA-EU**: lock with two-wing groove and technopolymer key with zamac insert supplied.

Index to add to the above mentioned executions:
- **IP**: executions with protection plug and packing ring with IP 65 protection class, according to table EN 60529 (see page A23), with two zinc-plated setting screws, supplied.

ACCESSORIES ON REQUEST
- One pair of black technopolymer rod guides.
- One pair of flat galvanised steel rods.
- One pair of zinc-alloy connecting bars.



CLC.

Code	Description	⚖
421111	CLC.160-EU	418

CLCU.

Code	Description	⚖
421113	CLCU.160-EU	418
421123	CLCU.160-EU-IP	430

CLCA.

Code	Description	⚖
421115	CLCA.160-EU	416
421125	CLCA.160-EU-IP	428

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Latches for cabinets

with handle for rod controls, technopolymer



HANDLE AND BASE
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

HANDLE SHANK
Zinc alloy with superficial chromate treatment and NBR synthetic rubber O-ring.

PACKING RINGS
Silicon directly applied under the handle base and NBR synthetic rubber O-ring (only for execution IP 65).

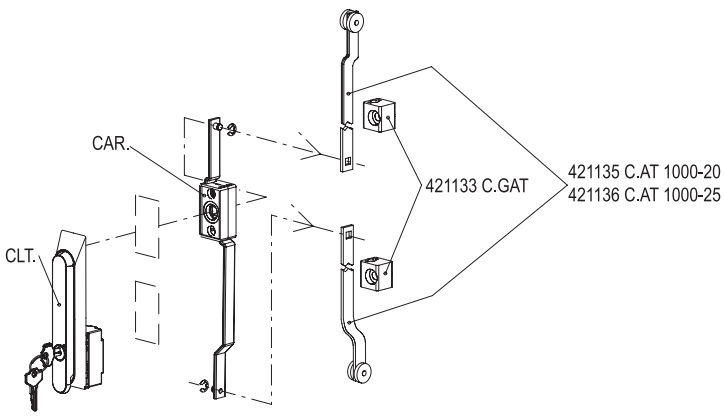
SCREWS
Zinc-plated steel.

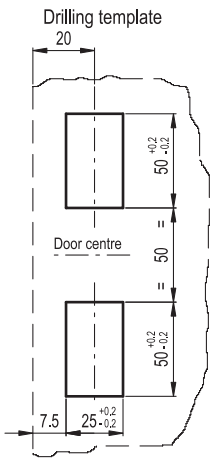
STANDARD EXECUTIONS
- **CLT**.: lock with different combinations. Each lock has two nickel-plated brass keys, with different combination, removable at 180°.
- **CLTU.**: lock with one combination. All locks have a couple of keys in nickel-plated brass and the same combination which can be opened with the same key, removable at 180°.
- **CLTA.**: lock with two-wing groove and technopolymer key with zamac insert, supplied.

Indexes to add to the above mentioned executions:
- **IP**: executions with protection plug and packing ring with IP 65 protection class, according to table EN 60529 (see page A23), with two zinc-plated setting screws, supplied.
- **EU**: executions with European style stator.
- **EU-IP**: executions with European style stator and protection plug and packing ring with IP 65 protection class, according to table EN 60529 (see page A23) , with two zinc-plated setting screws, supplied.

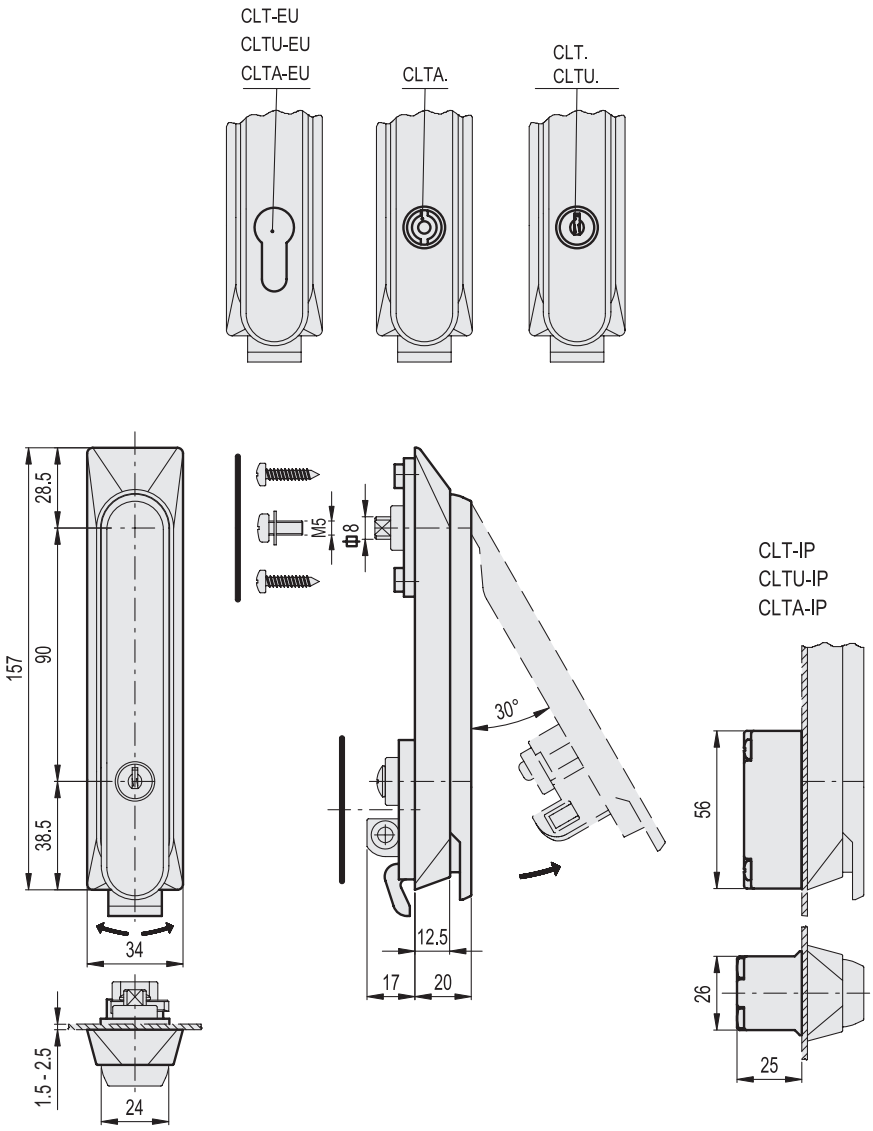
ACCESSORIES ON REQUEST
CLT. latches with handle for rod controls are generally used with rod control CAR. (see page 1518) to be ordered separately (see Assembly drawing attached).

Other accessories available on request:
- black technopolymer rod guides: one rod guide every 500 mm of rod control (code 421133 C.GAT);
- 2 flat galvanised steel rod guides, section 14x3 mm, length 1.000 mm and black technopolymer edge rolls for frame 20 mm thick (code 421135 C.AT 1000-20).
- 2 flat galvanised steel rod guides, section 14x3 mm, length 1.000 mm and black technopolymer edge rolls for frame 25 mm thick (code 421136 C.AT 1000-25).
- Latch-type handles with lock with different groove for key.





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CLT.

Code	Description	⚖
421161	CLT.160	145
421162	CLT.160-IP	160
421163	CLT.160-EU	155
421164	CLT.160-EU-IP	170

CLTA.

Code	Description	⚖
421171	CLTA.160	150
421173	CLTA.160-IP	165
421175	CLTA.160-EU	160
421177	CLTA.160-EU-IP	175

CLTU.

Code	Description	⚖
421166	CLTU.160	145
421167	CLTU.160-IP	160
421168	CLTU.160-EU	155
421169	CLTU.160-EU-IP	170

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Rod controls

Steel

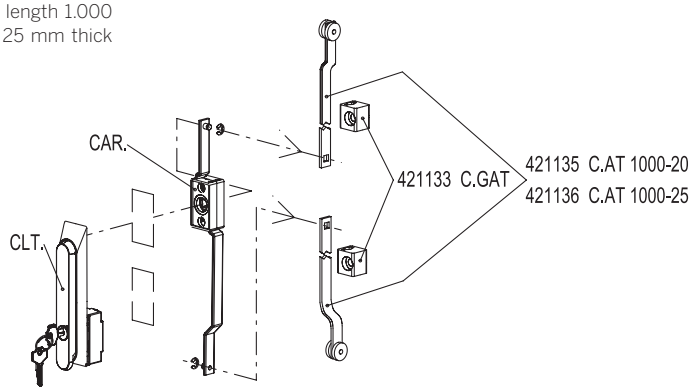
ROD GUIDES
Zinc-plated steel supplied with steel seeger.

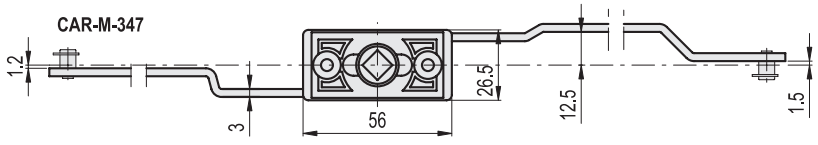
TOOTHED WHEEL
Zinc alloy with superficial chromate treatment.

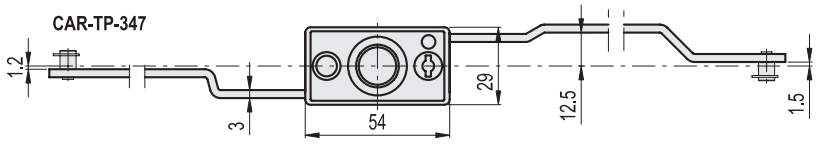
STANDARD EXECUTIONS
- **CAR-M-347**: nickel-plated zinc alloy.
- **CAR-TP-347**: glass-fibre reinforced polyamide based (PA) technopolymer.

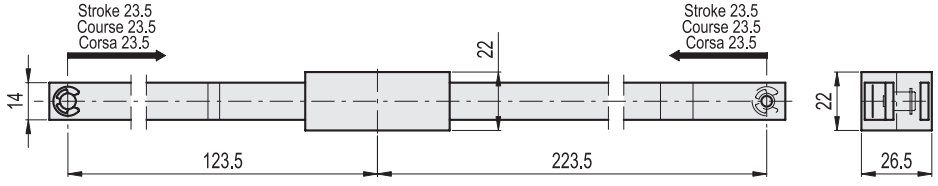
ACCESSORIES ON REQUEST
Rod control CAR. are used in combination with latches with handles CLT. (see page 1516) to be ordered separately (see the assembly drawing).
Other accessories available on request:
- black technopolymer rod guides: one rod guide every 500 mm of rod control (code 421133 C.GAT);
- 2 flat galvanised steel rod guides, section 14x3 mm, length 1.000 mm and black technopolymer edge rolls for frame 20 mm thick (code 421135 C.AT 1000-20).
- 2 flat galvanised steel rod guides, section 14x3 mm, length 1.000 mm and black technopolymer edge rolls for frame 25 mm thick (code 421136 C.AT 1000-25).











Code	Description	⚖
420031	CAR-M-347	210
420032	CAR-TP-347	150

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Locking bolt

Technopolymer

MATERIAL
Glass-fibre reinforced polyamide based (PA) technopolymer with security anti-intrusion-profiled slot, black colour, matte finish.

LOCKING BAR
AISI 304 stainless steel with technopolymer push button. Side end in red colour.

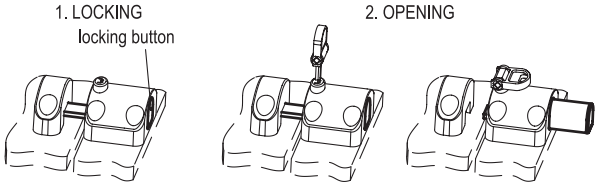
STANDARD EXECUTIONS
- **CKE.40 CH**: pass-through holes for M5 cylindrical-head screws.
- **CKE.40 B**: brass bosses, threaded blind holes.

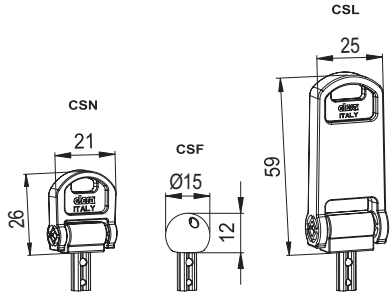
SECURITY KEY (TO BE ORDERED SEPARATELY)
- **CSN (code 6951)**: acetal resin based (POM) technopolymer fold-away key, red colour, anti-intrusion-profiled stainless steel insert.
- **CSF (code 6952)**: polyamide based (PA) technopolymer ball key, red colour, anti-intrusion-profiled stainless steel insert.
- **CSL (code 6953)**: acetal resin based (POM) technopolymer size increased fold-away key, red colour, stainless steel insert.

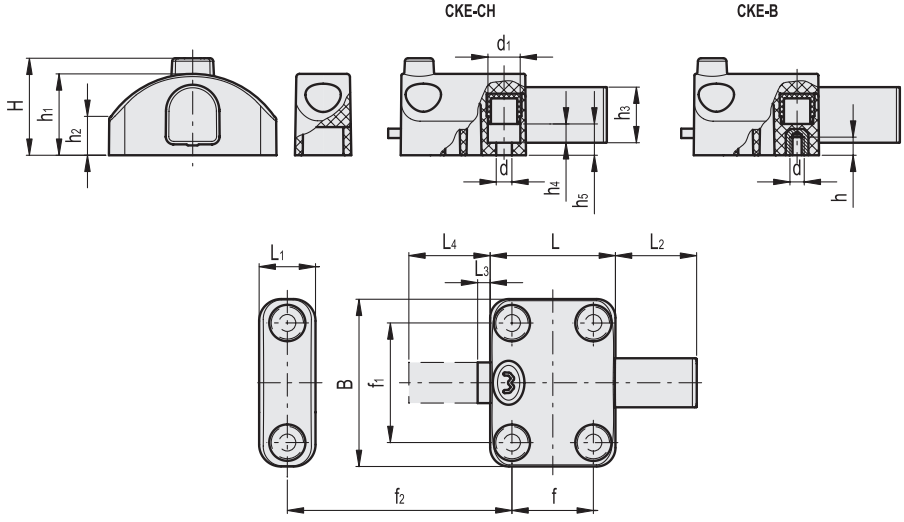
FUNCTIONING OF THE SAFETY DEVICE
Doors with CKE. locking bolt assembled can be opened only by authorised people provided with the proper anti-intrusion-profiled key.
1. Locking: press the locking button until the red side end of it disappears completely into the body and the device snaps. The key must not be inserted during locking operations.
2. Opening: insert the key (without turning it) and push to make the internal device snap.



ELESA Original design







STAINLESS STEEL

Code	Description	H	B	d	d	h	L	L1	L2	L3	L4	d1	f	f1	f2	h1	h2	h3	h4	h5	⚖
7901	CKE.40 CH-5	31	53.5	-	5.5	-	40	18	26	4	30	10	26	38	31-42	26	12	17.5	6	10	85
7905	CKE.40 B-M5	31	53.5	M5	-	6	40	18	26	4	30	-	26	38	31-42	26	12	17.5	-	-	100

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Ball-shaped door lock

Technopolymer

CLAMP
Acetal resin based (POM) technopolymer.

BALL
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

MOUNTING
Self-tapping screw Ø 4.8 mm. UNI 7981 B or M5 cylindrical head screw with hexagon socket DIN 912.

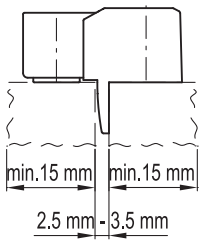
FEATURES AND APPLICATIONS
BPS ball-shaped door lock (ELESA patent) consists of a clamp to be fixed to a frame and a ball to be fixed to a door.
The clamp, in which the ball fixed to the closing door is inserted, is a mechanical stop device also to the door movement, thanks to its shape.
The screws, that fix the clamp and the ball respectively to the frame and to the door, are identical. Thus, making the assembly easier.
Under specific tests, the clamp showed constant performances for more than 20.000 cycles.
The ball-shaped door lock has been conceived for use with both shutter doors and sliding doors.
The minimum thickness for the profile suitable for use is 15 mm, while the distance between door and frame must be within 2.5 mm and 3.5 mm (fig.1).

ACCESSORIES ON REQUEST
BPS.30-SP: acetal based (POM) technopolymer spacers kit 5, 10, 15 mm (sold separately), black colour in order to compensate possible differences in width between frame and door.

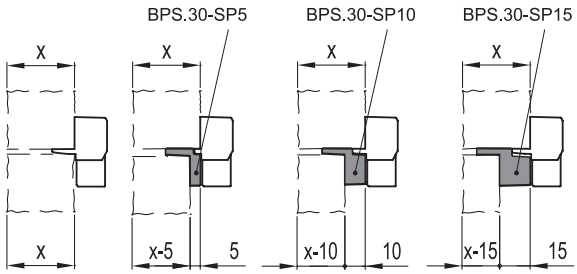


ELESA Original design

Fig.1



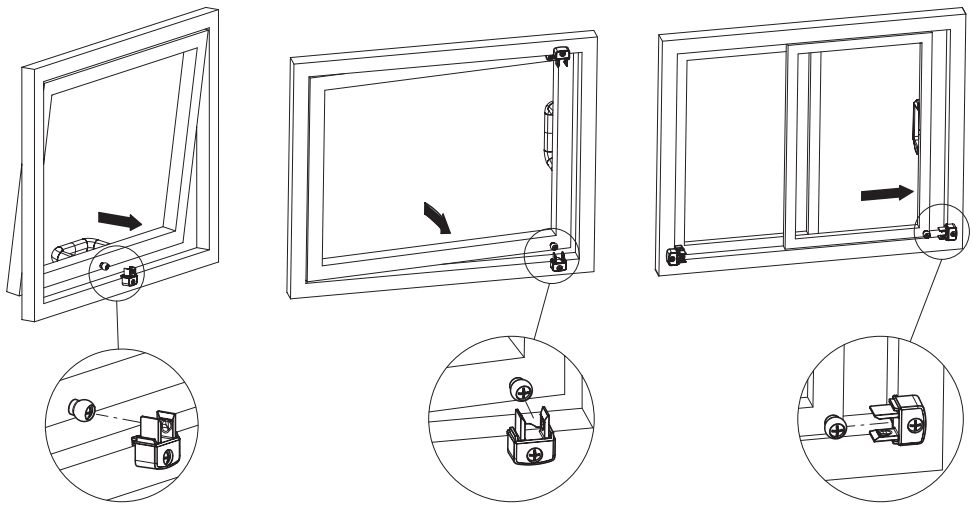
Examples of BPS.30-SP spacers assembly



Thickness differences between frame and door	Spacer to be used	Description
0	-	-
5 mm	5 mm	BPS.30-SP5
10 mm	10 mm	BPS.30-SP10
15 mm	15 mm	BPS.30-SP15
20 mm	10 mm + 10 mm	BPS.30-SP10 + BPS.30-SP10
25 mm	10 mm + 15 mm	BPS.30-SP10 + BPS.30-SP15
30 mm	15 mm + 15 mm	BPS.30-SP15 + BPS.30-SP15

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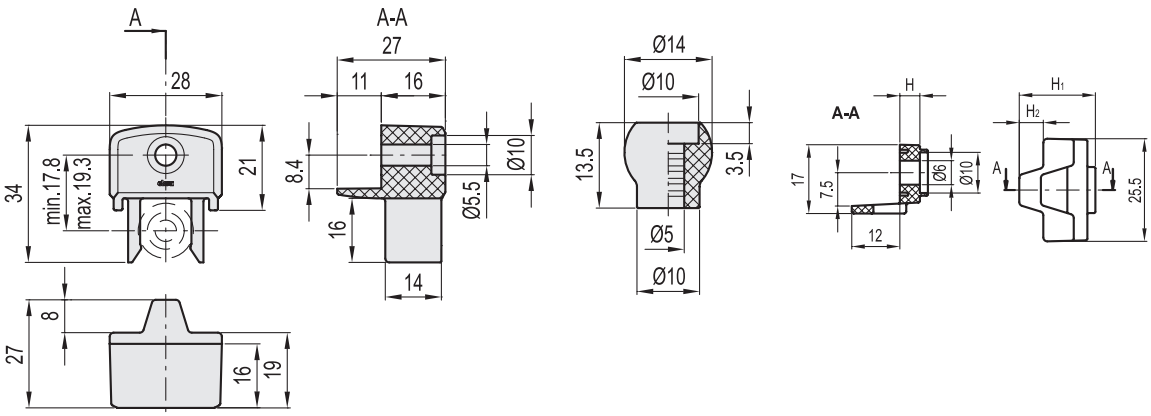
Application examples



BPS

Clamp **Ball**

BPS-SP



BPS

Code	Description	Opening release strength [N]	⚖
6251	BPS.30	30	10

BPS-SP

Code	Description	H	H1	H2	⚖
6253	BPS.30-SP5	5	19	6	3
6254	BPS.30-SP10	10	23	8	4
6255	BPS.30-SP15	15	28	9	5

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Snap door lock

Technopolymer



ELESA Original design

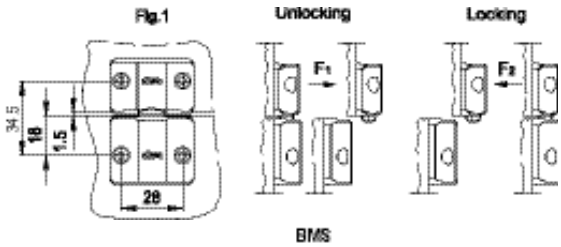
MATERIAL
Glass-fibre reinforced polyamide based (PA) technopolymer, black or grey colour RAL 7040 (C33), matte finish.

SPRING
Stainless steel.

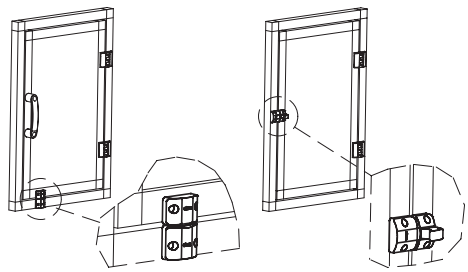
STANDARD EXECUTIONS
- **BMS**: snap lock and unlock.
  - It consists of a return spring and a fixing plate.
  - It is used for pull opening of doors by means of a handle.
- **BMS.L**: snap lock and lever for manual release.
  - It consists of a return spring for manual operation and a fixing plate.
  - It is used for pull opening of doors through the use of the release lever which also represents the handle grip.
  - When the lever is locked, the maximum load at breakage of the door lock is = 2500 N.

FEATURES AND APPLICATIONS
The snap door lock allows the closure of the swing doors in a quick and easy way. For the installation of a door lock, use M4 TCEI screws (not included in the supply).

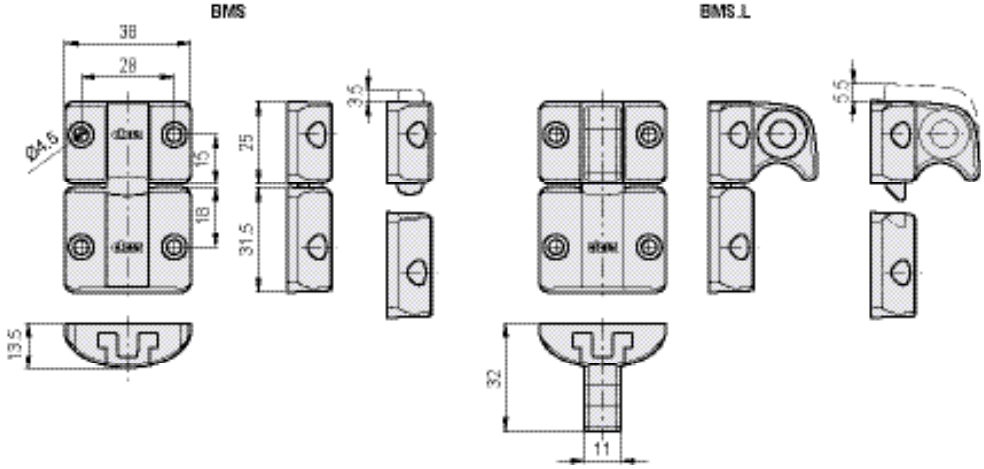
SPECIAL EXECUTION ON REQUEST
Door lock in white colour similar to RAL 9002.



BMS



BMS.L



BMS

Code	Description	Opening strength F1 [N]*	Closing strength F2 [N]*	⚖
627001	BMS.32-25-CH4	100	60	23
627001-C33	BMS.32-25-CH4-C33	100	60	23

BMS.L

Code	Description	Closing strength F2 [N]*	⚖
627006	BMS.L-32-25-CH4	25	27
627006-C33	BMS.L-32-25-CH4-C33	25	27

***** Values referring to the installation with hole centre distance of 34 mm (Fig. 1)

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Snap door lock

for T-slot profiles, technopolymer

MATERIAL
Bodies of the snap door lock made out of glass-fibre reinforced polyamide based (PA) technopolymer.
Polyester based (PBT) technopolymer screw-covers.
Black or grey RAL 7040 (C33) colour, matte finish.

SPRING
Stainless steel.

CLAMPING PLATE
Black-oxide steel.

STANDARD EXECUTIONS
- **BMST**: locking and unlocking spring device for closing doors, pull opening by means of handle or knob (Fig.1).
- **BMST.L**: locking and unlocking spring device for closing doors, pull opening by means of lifting lever (Fig.2).

MOUNTING
For the perfect functioning of the door lock, it is recommended to keep a distance of 1 mm between the two bodies.
The force values in the table are referred to this distance.
For assembly use the clamping plates (included in the supply) and TCEI M6 screws (Fig.3).
For removing the screw-covers use a screwdriver (Fig.4).

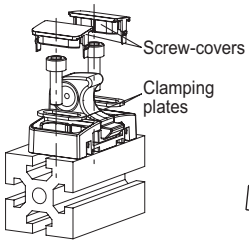
FEATURES AND APPLICATIONS
The snap door lock allows the quick closure of swing doors.
Assembly on T-slot standard profiles with dimensions between 30 and 40 mm.
Load at breakage of the door lock in the closed position = 4500 N.

SPECIAL EXECUTION ON REQUEST
Door lock in white colour similar to RAL 9002.





Fig.3



ELESA Original design

Fig.4

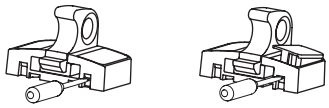


Fig.1

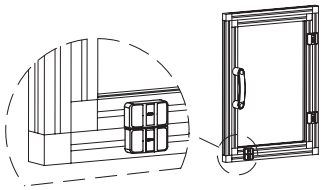
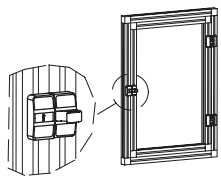
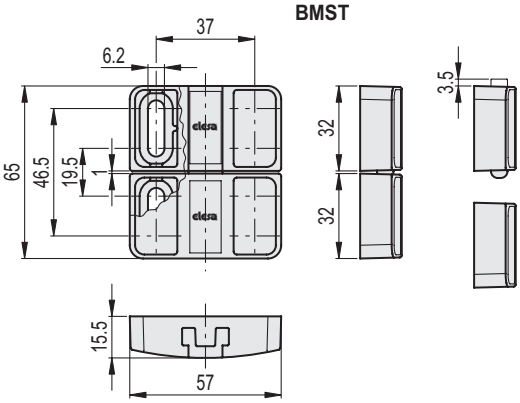


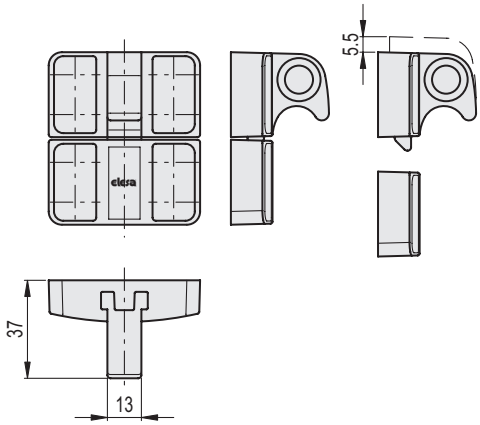
Fig.2



BMST



BMST.L



Code	Description	Code	Description	Closing strength [N]	Opening strength [N]	Max. tightening torque [Nm]	⚖
627011	BMST.32-32-SL6	627011-C33	BMST.32-32-SL6-C33	60	100	5	47
627016	BMST.L-32-32-SL6	627016-C33	BMST.L-32-32-SL6-C33	25	-	5	52

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Door lock handles

with or without built-in lock, technopolymer



ERGOSTYLE®

HANDLE
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish. Acetal resin based (POM) technopolymer retention wings.

STATOR AND ROTOR
Nickel-plated zinc alloy.

CLOSING LEVER
Zinc-plated steel, 2 mm thickness.

TWO KEYS
Nickel-plated brass.

STANDARD EXECUTIONS

ESC.90	-	BM ①	-	K ②	-	90 ③	-	F ④

① **BM**: back mounting.
FM: front mounting.

② **K**: with lock.
SS: without lock.

Only for K execution

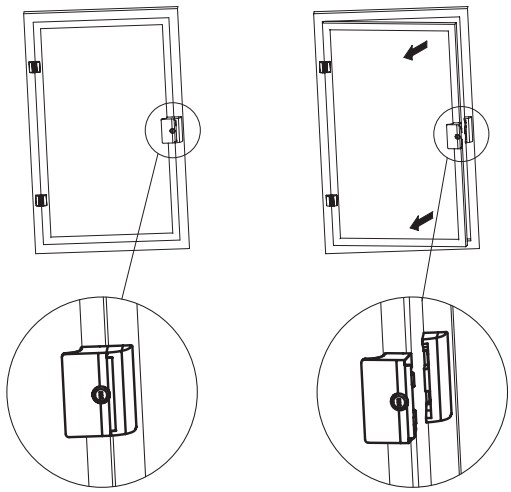
③ **90**: lock with key (100 combinations) removable in the closing position, rotation by 90°.
180: lock with key (200 combinations) removable in two positions at 180°, rotation by 180°.

④ **F**: different combination.
U: same combination (all locks can be opened with the same key).

Order example with lock:
225023 ESC.90-BM-K-90-F
Order example without lock:
225021 ESC.90-BM-SS

FEATURES AND APPLICATIONS
- ESC door lock handle (ELESA patent) keeps the door locked in the closed position. Because of its location outside the door, its installation is very simple.
- The handle dimensions are such as to allow the assembly on profiles with a minimum size of 25 mm and a maximum of 40 mm.
- The handle is able to compensate for any misalignment of the door bringing it back to the correct position while closing by means of the built-in guides.
- The handle is tamperproof from the outside thanks to the rear fastening (ESC.90-BM) or front fastening (ESC.90-FM) with caps not removable when the handle is closed and preventing access to the screws.
- Under specific tests the handle has always maintained unchanged performance for over 40000 cycles.

Application example



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ASSEMBLY INSTRUCTIONS

To ensure a correct opening release strength (45 N as long as the handle is assembled in best conditions), we recommend to position the two elements of the handle as close as possible (Fig. 1) during assembly.

Rear mounting by means of M6 hexagonal-head screws DIN 933 or M6 hexagonal nuts DIN 439B: place the screw as shown in Fig. 2. For ease of assembly with the nut, we recommend initially to fasten the nut as shown in the drawing.

Front mounting by means of M6 cylindrical-head screws: place the doorframe and the door by applying the relevant caps that prevent access to the screws (Fig. 3) (tamperproof).

Suggested tightening torque: 5 Nm.

Only when the door is open, it is possible to remove the caps with a screwdriver on both the door (Fig. 4) and the doorframe (Fig. 5).

Fig.1

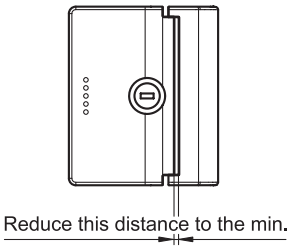


Fig.2
Back mounting (ESC.90-BM)

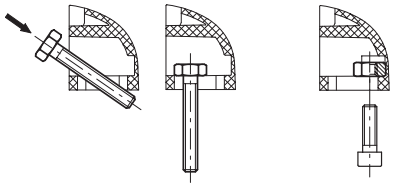


Fig.3
Front mounting (ESC.90-FM)

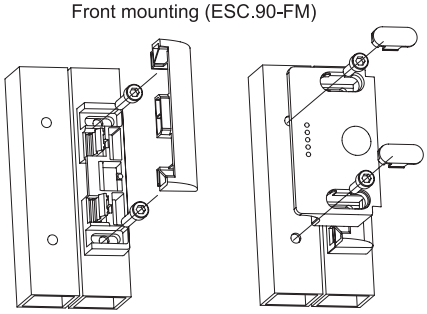


Fig.4
(ESC.90-FM)

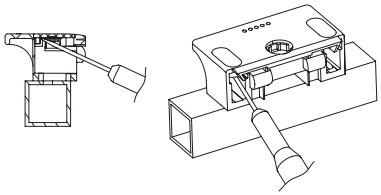
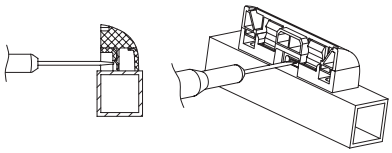
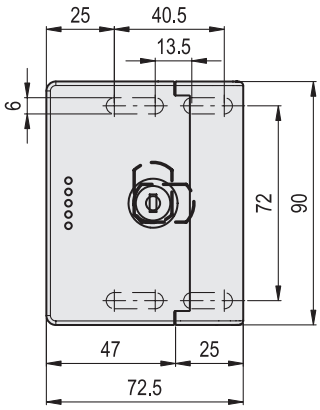


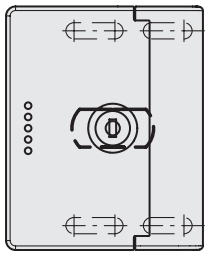
Fig.5
(ESC.90-FM)

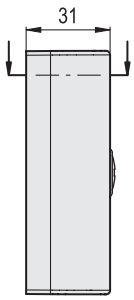


ESC.90....-90

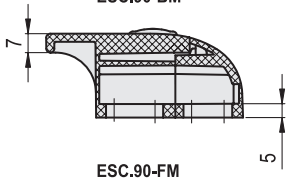


ESC.90....-180

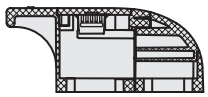




ESC.90-BM



ESC.90-FM



Code	Description	⚖
225021	ESC.90-BM-SS	83
225023	ESC.90-BM-K-90-F	115
225025	ESC.90-BM-K-180-F	115
225029	ESC.90-BM-K-90-U	115
225031	ESC.90-BM-K-180-U	115

Code	Description	⚖
225022	ESC.90-FM-SS	83
225024	ESC.90-FM-K-90-F	115
225026	ESC.90-FM-K-180-F	115
225030	ESC.90-FM-K-90-U	115
225032	ESC.90-FM-K-180-U	115

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Latches with push handle

Zinc alloy



HANDLE
Die-cast zinc alloy, provided with a hole for the insertion of a padlock with the hook of max diameter 9 mm.

FRONT BODY
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

SPINDLE AND PROTECTION CAP
Die-cast zinc alloy.

CLAMPING LEVER
Cylindrical element made out of die-cast zinc alloy, adjustable position by means of a hexagon socket grub screw, glass-fibre reinforced polyamide based (PA) technopolymer coating, black colour.

PACKING RING
Silicone strip applied to the base of the handle.

LOCK
With dustcover made out of acetal resin based (POM) technopolymer, red colour.
Two nickel-plated brass keys, removable in two positions at 90°.

IP PROTECTION
IP 65 protection class,IP65, see Table EN 60529 (see page A23).

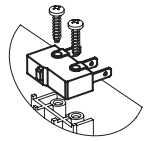
STANDARD EXECUTIONS
Assembly by means of 4 zinc-plated steel screws co-moulded into the base and 4 zinc-plated steel nuts with thread lock included in the supply.
- **CSMH**: lock with 400 different combinations.
- **CSMH-U**: lock with one combination (all locks have a key with the same combination).

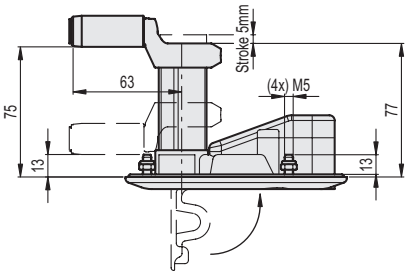
Index for handle colour:
- **BK**: black coated.
- **GR**: grey coated.

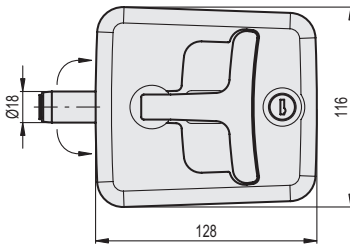
FEATURES AND APPLICATIONS
Close the door and move the lever to the closed position by rotating the handle by 90°. The overturning of the handle in its seat moves the spindle axially with the lever in the direction of the swing-door, until reaching the locking position.
The lock locks the handle in the folded position.
CSMH latches with compression handle guarantee a clamping range from 13 to 75 mm.

ACCESSORIES ON REQUEST
Microswitch for remote signaling of the handle position.

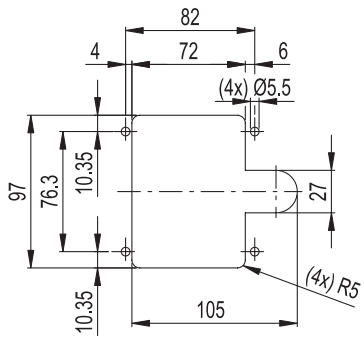
SPECIAL EXECUTION ON REQUEST
Executions with spindle of length 45 mm for range of latches from 13 to 43 mm.







Drilling template



Code	Description	⚖
421501	CSMH-128-BK	507
421502	CSMH-128-GR	507
421503	CSMH-U-128-BK	507
421504	CSMH-U-128-GR	507

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GN 115.10

Latches with gripping tray

Operation with key, lockable / not lockable



SPECIFICATION

Lockable version:

Types

- Type **SC**: Operation with key (same lock)
- Type **SU**: Operation with key (different lock)

Identification no.

- No. **1**: Operation, in drawn position, at the top left
- No. **2**: Operation, in drawn position, at the top right

Front frame, zinc die casting, plastic coated
black, RAL 9005, textured finish **SW**
silver, RAL 9006, textured finish **SR**

Tray, plastic

- black grey (for SW)
- light grey (for SR)

Key
Nickel silver with plastic hand piece

other parts
Steel zinc plated, blue passivated

Not lockable version:

Types

- Type **DK**: Operation with triangular spindle (DK7)
- Type **VK7**: Operation with square spindle A/F7
- Type **VK8**: Operaton with square spindle A/F8
- Type **SCH**: Operation with slot
- Type **VDE**: Operation with double bit

Identification no.

- No. **1**: Operation, in drawn position, at the top left
- No. **2**: Operation, in drawn position, at the top right

Front frame, zinc die casting, plastic coated
black, RAL 9005, textured finish **SW**
silver, RAL 9006, textured finish **SR**

Tray, plastic

- black grey (for SW)
- light grey (for SR)

Operating part
Zinc die casting

- plastic coated, black (for SW)
- chrome-plated (for SR)

other parts
Steel zinc plated, blue passivated

INFORMATION

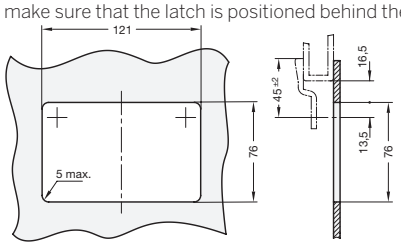
Latches with gripping tray GN 115.10 are used in applications which require a moulded recess in addition to the latching mechanism, e.g. if operating elements are not allowed to protrude for reasons of space.
A rotary movement limited to 90° moves the latch behind the frame, with the run-up bevels at the latch making it easier to close the door.
Latches with different cranks cover a latch distance A from 4 to 50 mm.
The types with a different lock are available in more than 200 variants, whose key is marked by numbers.
The scope of delivery includes a separately enclosed latch as well as two keys removable in both end positions.

ACCESSORY

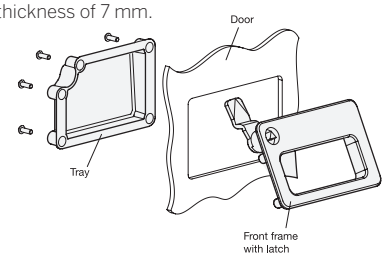
- Socket keys GN 119.2 (see page 1530)

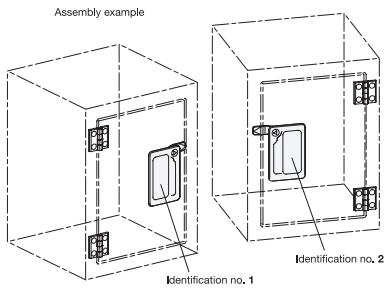
CONSTRUCTION AND ASSEMBLY INSTRUCTIONS

Before assembly, a nick must be made in the door as shown in the drawing.
Depending on position of the latch, the 16.5 mm edge spacing between frame and nick must be ensured sideways and / or top and bottom ot make sure that the latch is positioned behind the frame.



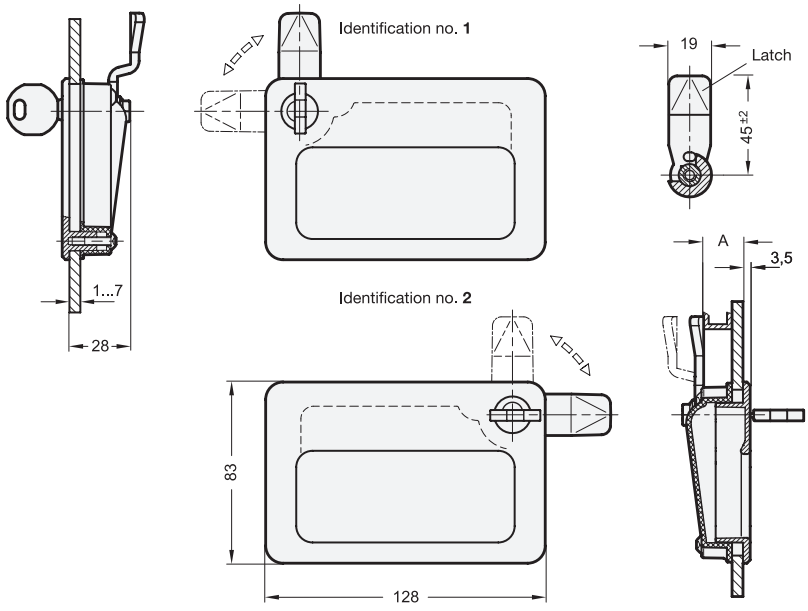
For the assembly, insert the front frame together with the pre-assembled latch from the front through the nick of the door by tilting. Place the plastic tray from the back onto the bore pegs of the front frame.
The M4x12 fillister-head screws included are then screwed in from the rear and tightened to fix and wedge the whole unit in place. The minimum screw-in depth of the screw is guaranteed with a maximum door wall thickness of 7 mm.

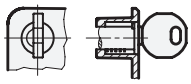




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GN 115.10 | Latches with gripping tray





*Complete with type index of the latch

SC SU

GN 115.10 - Lockable

Description	Latch distance A	⚖
GN 115.10-*-4-1-SR	4	310
GN 115.10-*-4-1-SW	4	300
GN 115.10-*-4-2-SR	4	300
GN 115.10-*-4-2-SW	4	300
GN 115.10-*-6-1-SR	6	307
GN 115.10-*-6-1-SW	6	307
GN 115.10-*-6-2-SR	6	319
GN 115.10-*-6-2-SW	6	319
GN 115.10-*-8-1-SR	8	308
GN 115.10-*-8-1-SW	8	308
GN 115.10-*-8-2-SR	8	308
GN 115.10-*-8-2-SW	8	308
GN 115.10-*-10-1-SR	10	309
GN 115.10-*-10-1-SW	10	309
GN 115.10-*-10-2-SR	10	309
GN 115.10-*-10-2-SW	10	309
GN 115.10-*-13-1-SR	13	310
GN 115.10-*-13-1-SW	13	310
GN 115.10-*-13-2-SR	13	310
GN 115.10-*-13-2-SW	13	310
GN 115.10-*-14-1-SR	14	311
GN 115.10-*-14-1-SW	14	311
GN 115.10-*-14-2-SR	14	311
GN 115.10-*-14-2-SW	14	311
GN 115.10-*-16-1-SR	16	312
GN 115.10-*-16-1-SW	16	312
GN 115.10-*-16-2-SR	16	312
GN 115.10-*-16-2-SW	16	312
GN 115.10-*-18-1-SR	18	305
GN 115.10-*-18-1-SW	18	305

GN 115.10 - Lockable

Description	Latch distance A	⚖
GN 115.10-*-18-2-SR	18	305
GN 115.10-*-18-2-SW	18	305
GN 115.10-*-20-1-SR	20	306
GN 115.10-*-20-1-SW	20	306
GN 115.10-*-20-2-SR	20	306
GN 115.10-*-20-2-SW	20	306
GN 115.10-*-22-1-SR	22	306
GN 115.10-*-22-1-SW	22	306
GN 115.10-*-22-2-SR	22	306
GN 115.10-*-22-2-SW	22	306
GN 115.10-*-24-1-SR	24	306
GN 115.10-*-24-1-SW	24	306
GN 115.10-*-24-2-SR	24	306
GN 115.10-*-24-2-SW	24	306
GN 115.10-*-26-1-SR	26	306
GN 115.10-*-26-1-SW	26	308
GN 115.10-*-26-2-SR	26	308
GN 115.10-*-26-2-SW	26	308
GN 115.10-*-28-1-SR	28	308
GN 115.10-*-28-1-SW	28	308
GN 115.10-*-28-2-SR	28	308
GN 115.10-*-28-2-SW	28	308
GN 115.10-*-30-1-SR	30	309
GN 115.10-*-30-1-SW	30	309
GN 115.10-*-30-2-SR	30	309
GN 115.10-*-30-2-SW	30	309
GN 115.10-*-32-1-SR	32	310
GN 115.10-*-32-1-SW	32	310
GN 115.10-*-32-2-SR	32	310
GN 115.10-*-32-2-SW	32	310

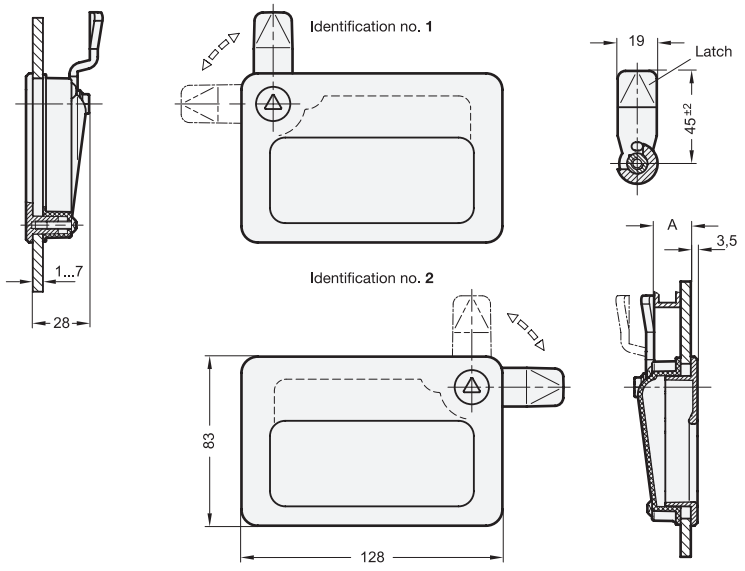
GN 115.10 - Lockable

Description	Latch distance A	⚖
GN 115.10-*-34-1-SR	34	312
GN 115.10-*-34-1-SW	34	312
GN 115.10-*-34-2-SR	34	312
GN 115.10-*-34-2-SW	34	312
GN 115.10-*-36-1-SR	36	313
GN 115.10-*-36-1-SW	36	313
GN 115.10-*-36-2-SR	36	313
GN 115.10-*-36-2-SW	36	313
GN 115.10-*-38-1-SR	38	315
GN 115.10-*-38-1-SW	38	315
GN 115.10-*-38-2-SR	38	315
GN 115.10-*-38-2-SW	38	315
GN 115.10-*-40-1-SR	40	315
GN 115.10-*-40-1-SW	40	315
GN 115.10-*-40-2-SR	40	315
GN 115.10-*-40-2-SW	40	315
GN 115.10-*-42-1-SR	42	317
GN 115.10-*-42-1-SW	42	317
GN 115.10-*-42-2-SR	42	317
GN 115.10-*-42-2-SW	42	317
GN 115.10-*-45-1-SR	45	319
GN 115.10-*-45-1-SW	45	319
GN 115.10-*-45-2-SR	45	319
GN 115.10-*-45-2-SW	45	319
GN 115.10-*-50-1-SR	50	322
GN 115.10-*-50-1-SW	50	322
GN 115.10-*-50-2-SR	50	322
GN 115.10-*-50-2-SW	50	322

Weight type SC

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GN 115.10 | Latches with gripping tray



Type **DK** | Type **VK7 / VK8** | Type **SCH** | Type **VDE**

*Complete with type index of the latch

DK **VK7** **VK8** **SCH** **VDE**

GN 115.10 - Not lockable

Description	Latch distance A	⚖
GN 115.10-*-4-1-SW	4	310
GN 115.10-*-4-1-SR	4	310
GN 115.10-*-4-2-SW	4	310
GN 115.10-*-4-2-SR	4	310
GN 115.10-*-6-1-SW	6	307
GN 115.10-*-6-1-SR	6	307
GN 115.10-*-6-2-SW	6	307
GN 115.10-*-6-2-SR	6	307
GN 115.10-*-8-1-SW	8	308
GN 115.10-*-8-1-SR	8	308
GN 115.10-*-8-2-SW	8	308
GN 115.10-*-8-2-SR	8	308
GN 115.10-*-10-1-SW	10	307
GN 115.10-*-10-1-SR	10	307
GN 115.10-*-10-2-SW	10	307
GN 115.10-*-10-2-SR	10	307
GN 115.10-*-13-1-SW	13	307
GN 115.10-*-13-1-SR	13	307
GN 115.10-*-13-2-SW	13	307
GN 115.10-*-13-2-SR	13	307
GN 115.10-*-14-1-SW	14	307
GN 115.10-*-14-1-SR	14	307
GN 115.10-*-14-2-SW	14	307
GN 115.10-*-14-2-SR	14	307
GN 115.10-*-16-1-SW	16	300
GN 115.10-*-16-1-SR	16	300
GN 115.10-*-16-2-SW	16	300
GN 115.10-*-16-2-SR	16	300
GN 115.10-*-18-1-SW	18	305
GN 115.10-*-18-1-SR	18	305

GN 115.10 - Not lockable

Description	Latch distance A	⚖
GN 115.10-*-18-2-SW	18	305
GN 115.10-*-18-2-SR	18	305
GN 115.10-*-20-1-SW	20	306
GN 115.10-*-20-1-SR	20	306
GN 115.10-*-20-2-SW	20	306
GN 115.10-*-20-2-SR	20	306
GN 115.10-*-22-1-SW	22	306
GN 115.10-*-22-1-SR	22	306
GN 115.10-*-22-2-SW	22	306
GN 115.10-*-22-2-SR	22	306
GN 115.10-*-24-1-SW	24	306
GN 115.10-*-24-1-SR	24	306
GN 115.10-*-24-2-SW	24	306
GN 115.10-*-24-2-SR	24	306
GN 115.10-*-26-1-SW	26	308
GN 115.10-*-26-1-SR	26	308
GN 115.10-*-26-2-SW	26	308
GN 115.10-*-26-2-SR	26	308
GN 115.10-*-28-1-SW	28	308
GN 115.10-*-28-1-SR	28	308
GN 115.10-*-28-2-SW	28	308
GN 115.10-*-28-2-SR	28	308
GN 115.10-*-30-1-SW	30	309
GN 115.10-*-30-1-SR	30	309
GN 115.10-*-30-2-SW	30	308
GN 115.10-*-30-2-SR	30	309
GN 115.10-*-32-1-SW	32	310
GN 115.10-*-32-1-SR	32	310
GN 115.10-*-32-2-SW	32	310
GN 115.10-*-32-2-SR	32	310

GN 115.10 - Not lockable

Description	Latch distance A	⚖
GN 115.10-*-34-1-SW	34	312
GN 115.10-*-34-1-SR	34	312
GN 115.10-*-34-2-SW	34	312
GN 115.10-*-34-2-SR	34	312
GN 115.10-*-36-1-SW	36	313
GN 115.10-*-36-1-SR	36	313
GN 115.10-*-36-2-SW	36	313
GN 115.10-*-36-2-SR	36	313
GN 115.10-*-38-1-SW	38	315
GN 115.10-*-38-1-SR	38	315
GN 115.10-*-38-2-SW	38	315
GN 115.10-*-38-2-SR	38	315
GN 115.10-*-40-1-SW	40	318
GN 115.10-*-40-1-SR	40	318
GN 115.10-*-40-2-SW	40	318
GN 115.10-*-40-2-SR	40	318
GN 115.10-*-42-1-SW	42	317
GN 115.10-*-42-1-SR	42	317
GN 115.10-*-42-2-SW	42	317
GN 115.10-*-42-2-SR	42	317
GN 115.10-*-45-1-SW	45	318
GN 115.10-*-45-1-SR	45	318
GN 115.10-*-45-2-SW	45	318
GN 115.10-*-45-2-SR	45	318
GN 115.10-*-50-1-SW	50	322
GN 115.10-*-50-1-SR	50	322
GN 115.10-*-50-2-SW	50	322
GN 115.10-*-50-2-SR	50	322

Weight type DK

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Socket keys

for latches

SPECIFICATION

Types

- Type **DK6,5**: Operation with triangle h = 6.5
- Type **DK7**: Operation with triangle h = 7
- Type **VK6**: Operation with square A/F6
- Type **VK7**: Operation with square A/F7
- Type **VK8**: Operation with square A/F8
- Type **VDE5**: Operation with double bit d_2 = 5.6
- Type **SCH**: Operation with blade / slot

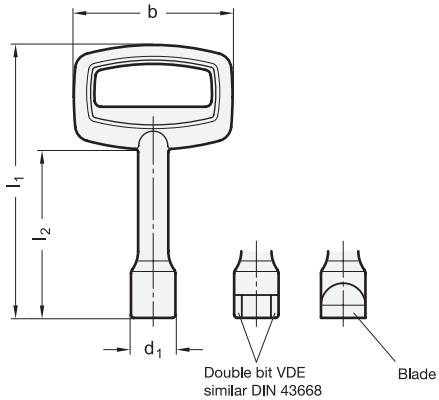
Zinc die casting
plastic coated
black, textured finish **SW**

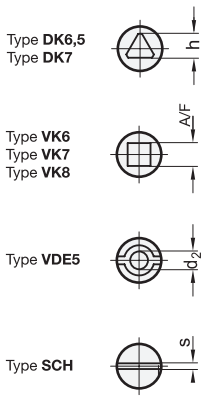


INFORMATION

Socket keys GN 119.2 are suitable for the following latches:

- Mini-Latches GN 115.1 (see page 1504)
- Stainless Steel-Mini-Latches GN 115.6 (see page 1505)
- Latches, lockable GN 115 (see page 1462)
- Latches, not lockable GN 115 (see page 1465)
- Latches with key GN 115 (see page 1468)
- Stainless Steel-Hygienic latches GN 115 (see page 1471)
- Latches with cabinet "U" handle GN 115.7 (see page 1472)
- Hook-type latches GN 115.8 (see page 1474)
- Latches with gripping tray GN 115.10 (see page 1527)
- Rotary clamping latches GN 116.1 (see page 1494)
- Latches GN 119 (see page 1482)
- Latches with cabinet "U" handle GN 119.3 (see page 1484)
- Rotary clamping latches GN 516 (see page 1542)
- Rotary clamping latches GN 516.1 (see page 1544)
- Stainless Steel-Rotary clamping latches GN 516.5 (see page 1546)





GN 119.2

Description	l1	l2	b	d1	d2	h	s	A/F	For latches	⚖
GN 119.2-55-DK6,5-SW	55	34	32	11.4	-	6.5	1.3	6	GN 115.1 / GN 115.6	23
GN 119.2-86-DK7-SW	86	53	50	14	5.6	7	1.8	7	GN 115 / GN 115.7 / GN 115.8 / GN 115.10 / GN 116.1 / GN 119 / GN 119.3 / GN 516 / GN 516.1 / GN 516.5	62
GN 119.2-55-SCH-SW	55	34	32	11.4	-	6.5	1.3	6	GN 115.1 / GN 115.6	22
GN 119.2-86-SCH-SW	86	53	50	14	5.6	7	1.8	7	GN 115 / GN 115.7 / GN 115.8 / GN 115.10 / GN 116.1 / GN 119 / GN 119.3 / GN 516 / GN 516.1 / GN 516.5	58
GN 119.2-55-VK6-SW	55	34	32	11.4	-	6.5	1.3	6	GN 115.1 / GN 115.6	20
GN 119.2-86-VDE5-SW	86	53	50	14	5.6	7	1.8	7	GN 115 / GN 115.7 / GN 115.8 / GN 115.10 / GN 116.1 / GN 119 / GN 119.3 / GN 516 / GN 516.1 / GN 516.5	58
GN 119.2-86-VK8-SW	86	53	50	14	-	-	-	8	GN 115 / GN 115.7 / GN 115.8 / GN 115.10 / GN 116.1 / GN 119 / GN 119.3 / GN 516 / GN 516.1 / GN 516.5	50
GN 119.2-86-VK7-SW	86	53	50	14	5.6	7	1.8	7	GN 115 / GN 115.7 / GN 115.8 / GN 115.10 / GN 116.1 / GN 119 / GN 119.3 / GN 516 / GN 516.1 / GN 516.5	61

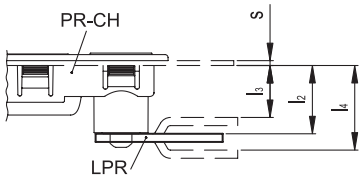
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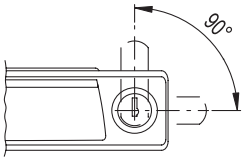
Levers for PR-CH flush pull handles

Steel or stainless steel

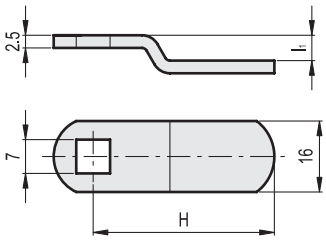
STANDARD EXECUTIONS
- **LPR**: zinc-plated steel lever.
- **LPR-SST**: AISI 304 stainless steel lever.

Assembly on handle PR-CH









LPR

Code	Description	H	l1	s+l2	s+l3	s+l4	⚖
421041	LPR-0-17	17.5	0	23.2	-	-	7
421045	LPR-0-22	22	0	23.2	-	-	8
421049	LPR-0-32	32	0	23.2	-	-	11
421053	LPR-0-46	46	0	23.2	-	-	15
421057	LPR-2-24	24.5	2	-	21.2	25.2	8
421061	LPR-2-28	27.8	2	-	21.2	25.2	10
421065	LPR-2-34	34.5	2	-	21.2	25.2	11
421069	LPR-5-30	30	5	-	18.2	28.2	10
421073	LPR-5-33	33	5	-	18.2	28.2	11
421077	LPR-5-35	35.5	5	-	18.2	28.2	12
421081	LPR-8-32	32.5	8	-	15.2	31.2	13
421085	LPR-12-26	26.5	12	-	11.2	35.2	12

LPR-SST **STAINLESS STEEL**

Code	Description	H	l1	s+l2	s+l3	s+l4	⚖
421046	LPR-0-20-SST	19.8	0	23.2	-	-	8
421050	LPR-0-32-SST	32	0	23.2	-	-	11
421054	LPR-0-46-SST	46	0	23.2	-	-	15
421068	LPR-0-45-SST	45	3	-	20.2	26.2	15

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Flush pull handles with lever latch

Snap-in assembly, technopolymer

HANDLE AND STATOR
Glass-fibre reinforced polyamide based (PA) technopolymer, grey-black colour, matte finish.

TWO KEYS
Nickel-plated brass or polyamide based (PA) technopolymer.

STANDARD EXECUTIONS

PR.92-CH	-	D ①	-	K ②	-	F ③

① **D**: lock placed on the right.
S: lock placed on the left.

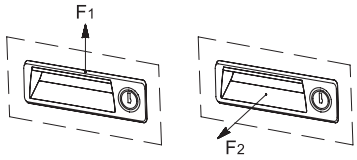
② **K**: lock with key removable in two positions, rotation by 90°; brass-plated zinc alloy rotor.
QE: electrical panel lock type; glass-fibre reinforced polyamide-based (PA) technopolymer rotor; AISI 304 stainless steel screw and washer.

③ *Only for K execution*
F: different combination (400 combinations).
U: same combination (all locks can be opened with the same key).
M: different combination with master-key (160 combinations). Two master-keys, which open all of them, are supplied for every purchase order.

Only for QE execution
T: lock with triangular groove.
Q: lock with square groove.
A: lock with two-wing groove.

Order example for K execution:
51911 PR.92-CH-D-K-F
Order example for QE execution:
51921 PR.92-CH-D-QE-T

TECHNICAL DATA
The lifting (F1) and pull out (F2) resistance values reported in the table are the result of tests carried out in the laboratory with handles assembled on metal sheet panels with thickness = 1.5 mm.

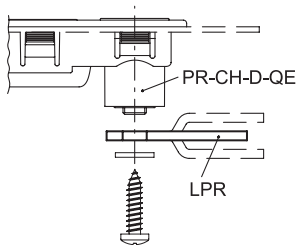


ACCESSORIES ON REQUEST (TO BE ORDERED SEPARATELY)
Closing lever LPR. (see page 1531).

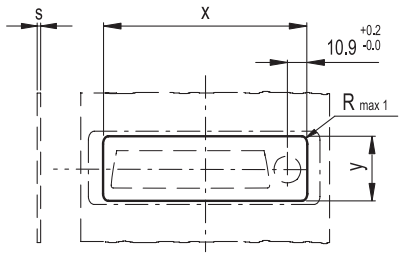
ASSEMBLY INSTRUCTIONS
1. Drill the handle housing according to the template dimensions reported in the table.
2. Remove all drilling burrs before fitting the handle.
3. Fit the upper part of the handle into the housing (Fig. 1).
4. Press onto the lower part until the handle is completely snapped in (Fig. 2).



ELESA Original design



Drilling template



s	x	y
0.7÷1	$110^{+0.3}$	$30.5^{+0.1}$
1÷1.5	$110^{+0.3}$	$30.7^{+0.1}$
1.5÷2	$110^{+0.3}$	$31.7^{+0.1}$
2÷2.2	$110^{+0.3}$	$31.7^{+0.1}$

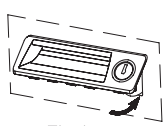


Fig.1

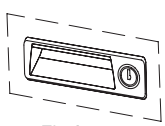
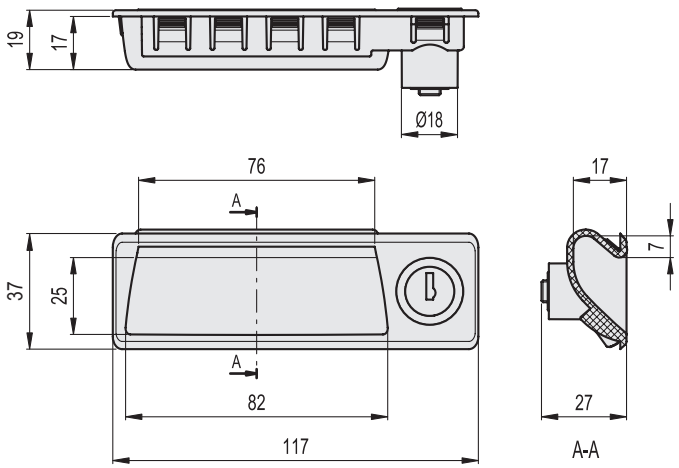


Fig.2

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PR-CH

Flush pull handles with lever latch



Code	Description	F1 [N]	F2 [N]	⚖
51911	PR.92-CH-D-K-F	3600	1500	57
51913	PR.92-CH-D-K-U	3600	1500	57
51915	PR.92-CH-D-K-M	3600	1500	57
51921	PR.92-CH-D-QE-T	3600	1500	40
51923	PR.92-CH-D-QE-Q	3600	1500	40
51925	PR.92-CH-D-QE-A	3600	1500	40
51912	PR.92-CH-S-K-F	3600	1500	57
51914	PR.92-CH-S-K-U	3600	1500	57
51916	PR.92-CH-S-K-M	3600	1500	57
51922	PR.92-CH-S-QE-T	3600	1500	40
51924	PR.92-CH-S-QE-Q	3600	1500	40
51926	PR.92-CH-S-QE-A	3600	1500	40

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Handles with latch

Technopolymer



ERGOSTYLE®

HANDLE
Glass-fibre reinforced polyamide based (PA) technopolymer, grey-black colour, matte finish.

LOCK
- Glass-fibre reinforced polyamide-based (PA) technopolymer rotor, grey-black colour, matte finish. NBR rubber O-Ring.
- Brass stator M22x1,5.
- Zinc alloy locking nut M22x1,5.
- Zinc alloy shaped closing lever, thickness = 4 mm.
- Zinc-plated steel toothed washer.
- Zinc-plated steel self-tapping screw.

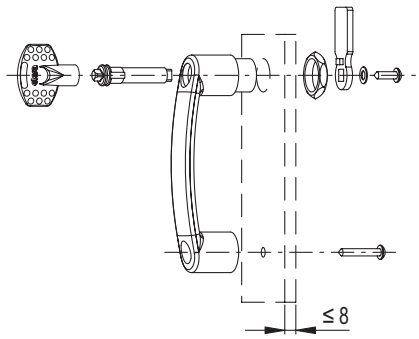
KEY
Polyamide based (PA) technopolymer, grey-black colour, matte finish.

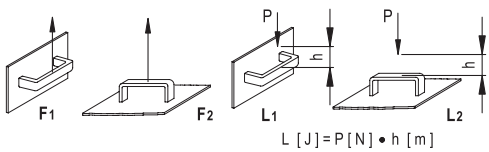
STANDARD EXECUTION
Brass boss, threaded blind hole.
- **EBP-CH-T**: triangular groove for key.
- **EBP-CH-A**: two-wing groove for key.

ROTATION
90°.

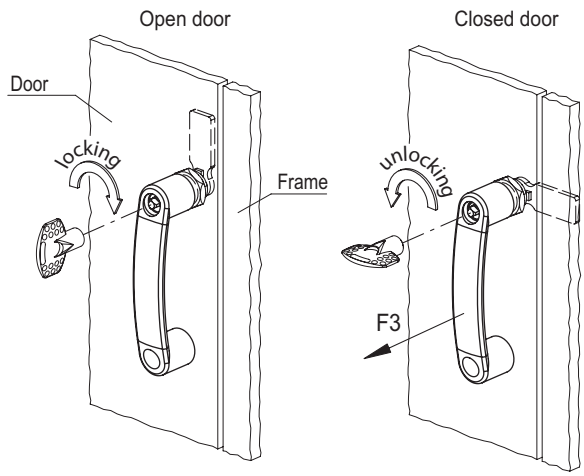
TECHNICAL DATA
Tensile stress and impact strength: the values F1, F2, L1 and L2 indicated in the table were obtained during breaking tests carried out with the appropriate dynamometric equipment under the test conditions shown in the figure with ambient temperature.
The value F3 shown in the table represents the load under traction in the closed condition of the handle.

ASSEMBLY INSTRUCTIONS
1. Drill the holes in the door following the supplied template.
2. Fit the handle.
3. Screw the nut on the stator and the screw in the tapped boss to secure the handle to the door.
4. Fit the rotor into the handle seat.
5. Fix the lever to the end of the rotor by means of a washer and a threaded screw.





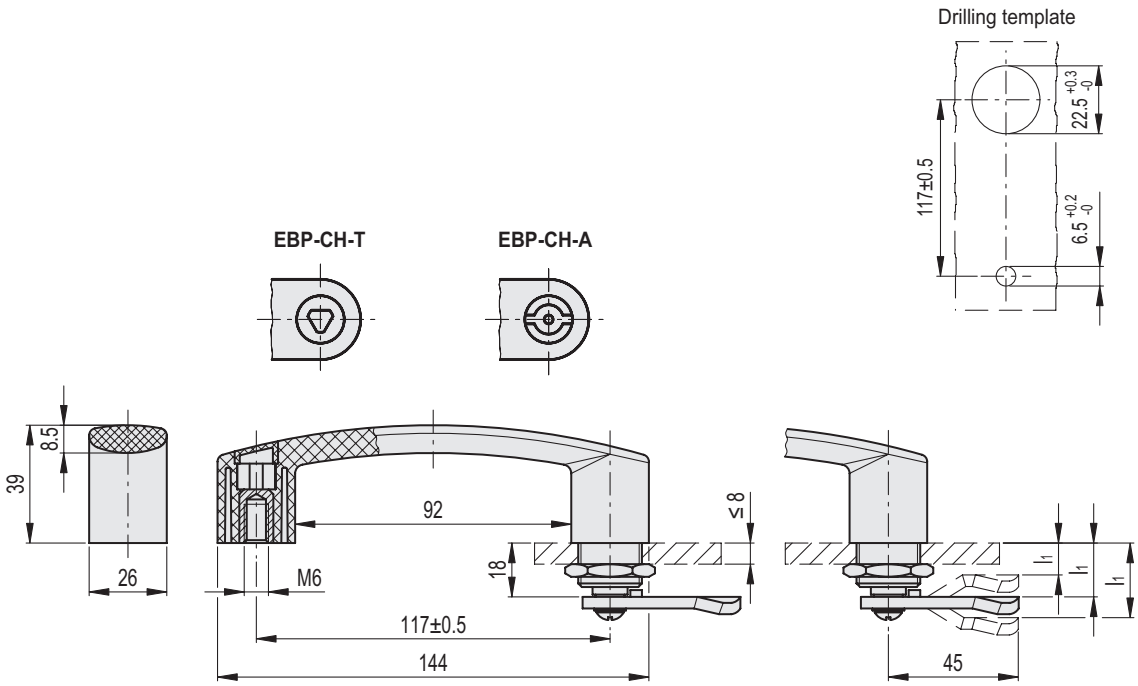
L [J] = P [N] • h [m]



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EBP-CH

Handles with latch



EBP-CH-T **EBP-CH-A**

Code	Description	Code	Description	l1	F1 [N]	F2 [N]	F3 [N]	L1 [J]	L2 [J]	⚖
260266-C1	EBP.140-CH-T-L6-B M6-C1	260286-C1	EBP.140-CH-A-L6-B M6-C1	6	2700	1800	1000	10	4	165
260267-C1	EBP.140-CH-T-L10-B M6-C1	260287-C1	EBP.140-CH-A-L10-B M6-C1	10	2700	1800	1000	10	4	164
260268-C1	EBP.140-CH-T-L14-B M6-C1	260288-C1	EBP.140-CH-A-L14-B M6-C1	14	2700	1800	1000	10	4	164
260269-C1	EBP.140-CH-T-L16-B M6-C1	260289-C1	EBP.140-CH-A-L16-B M6-C1	16	2700	1800	1000	10	4	163
260270-C1	EBP.140-CH-T-L18-B M6-C1	260290-C1	EBP.140-CH-A-L18-B M6-C1	18	2700	1800	1000	10	4	163
260271-C1	EBP.140-CH-T-L20-B M6-C1	260291-C1	EBP.140-CH-A-L20-B M6-C1	20	2700	1800	1000	10	4	163
260272-C1	EBP.140-CH-T-L22-B M6-C1	260292-C1	EBP.140-CH-A-L22-B M6-C1	22	2700	1800	1000	10	4	164
260273-C1	EBP.140-CH-T-L24-B M6-C1	260293-C1	EBP.140-CH-A-L24-B M6-C1	24	2700	1800	1000	10	4	164
260274-C1	EBP.140-CH-T-L26-B M6-C1	260294-C1	EBP.140-CH-A-L26-B M6-C1	26	2700	1800	1000	10	4	165
260275-C1	EBP.140-CH-T-L28-B M6-C1	260295-C1	EBP.140-CH-A-L28-B M6-C1	28	2700	1800	1000	10	4	165
260276-C1	EBP.140-CH-T-L30-B M6-C1	260296-C1	EBP.140-CH-A-L30-B M6-C1	30	2700	1800	1000	10	4	165
260277-C1	EBP.140-CH-T-L32-B M6-C1	260297-C1	EBP.140-CH-A-L32-B M6-C1	32	2700	1800	1000	10	4	166
260278-C1	EBP.140-CH-T-L34-B M6-C1	260298-C1	EBP.140-CH-A-L34-B M6-C1	34	2700	1800	1000	10	4	166
260279-C1	EBP.140-CH-T-L36-B M6-C1	260299-C1	EBP.140-CH-A-L36-B M6-C1	36	2700	1800	1000	10	4	167
260280-C1	EBP.140-CH-T-L38-B M6-C1	260300-C1	EBP.140-CH-A-L38-B M6-C1	38	2700	1800	1000	10	4	167
260281-C1	EBP.140-CH-T-L40-B M6-C1	260301-C1	EBP.140-CH-A-L40-B M6-C1	40	2700	1800	1000	10	4	168
260282-C1	EBP.140-CH-T-L42-B M6-C1	260302-C1	EBP.140-CH-A-L42-B M6-C1	42	2700	1800	1000	10	4	168

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Handle
with safety locking device

Technopolymer



ERGOSTYLE®

MATERIAL
Glass-fibre reinforced polyamide based (PA) technopolymer with security anti-intrusion-profiled slot, grey-black colour, matte finish.

LOCKING PIN
AISI 304 stainless steel pin with technopolymer push button, cylindrical walls in red colour.

KEY RETENTION DEVICE
Ball and AISI 316 stainless steel spring.

CAPS
Technopolymer in Ergostyle colours, glossy finish; supplied with the handle, press-fit assembly, removable by a screwdriver.
Available also as accessories sold separately (see table ECA.).

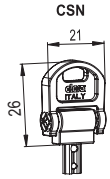
Code	Description	Caps for
29831-*	ECA.B1-*	EBR.150

* Complete with colour index (C1, ..., C6).

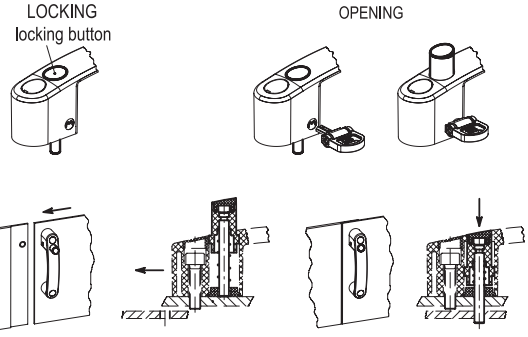
STANDARD EXECUTION
Pass-through holes for cylindrical-head screws with hexagon socket.

ANTI-INTRUSION PROFILED SECURITY KEY (TO BE ORDERED SEPARATELY)
CSN (code 6951): acetal resin based (POM) technopolymer fold-away key, red colour, stainless steel insert.

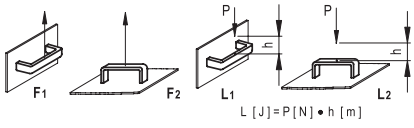
CSN



FUNCTIONING OF THE LOCKING DEVICE
Doors with EBR-CH handle can be opened only by authorised people, by inserting the anti-intrusion profiled key into its proper slot.
Locking: press the locking button until the red side end of it disappears completely into the body and the device snaps. The key must not be inserted during locking operations.
Opening: insert the key (without turning it) and push to make the internal device snap.
A ball spring retaining system ensures the retention of the key if the key remains inserted in its slot during the usual operations of door opening and closing.



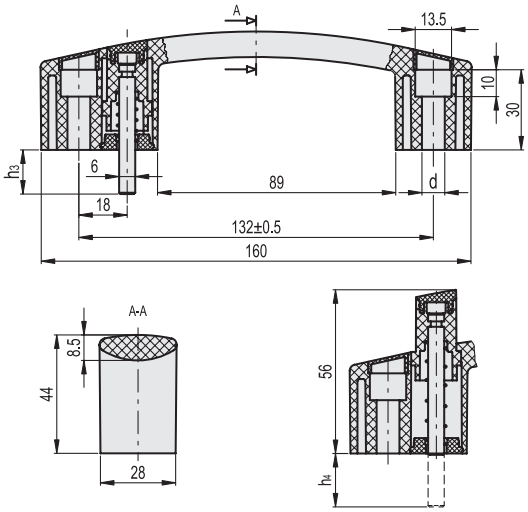
TECHNICAL DATA
Tensile stress and impact strength: the values F1, F2, L1 and L2 indicated in the table were obtained during breaking tests carried out with the appropriate dynamometric equipment under the test conditions shown in the figure with ambient temperature.



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EBR-CH

Handle with safety locking device



* Complete with colour index, example: 260521-C2 EBR.150-CH-6-16-C2

C1	C2	C3	C4	C5	C6
RAL7021	RAL2004	RAL7035	RAL1021	RAL5024	RAL3000

Code	Description	h3	h4	d	F1 [N]	F2 [N]	L1 [J]	L2 [J]	⚖
260521-*	EBR.150-CH-6-16-*	16	-	6.5	2800	2900	35	8	86
260523-*	EBR.150-CH-6-52-*	52	36	6.5	2800	2900	35	8	116
260525-*	EBR.150-CH-6-60-*	60	44	6.5	2800	2900	35	8	120
260527-*	EBR.150-CH-6-65-*	65	49	6.5	2800	2900	35	8	124
260529-*	EBR.150-CH-6-81-*	81	65	6.5	2800	2900	35	8	132
260531-*	EBR.150-CH-8-16-*	16	-	8.5	2800	2900	35	8	90
260533-*	EBR.150-CH-8-52-*	52	36	8.5	2800	2900	35	8	120
260535-*	EBR.150-CH-8-60-*	60	44	8.5	2800	2900	35	8	126
260537-*	EBR.150-CH-8-65-*	65	49	8.5	2800	2900	35	8	132
260539-*	EBR.150-CH-8-81-*	81	65	8.5	2800	2900	35	8	140

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Snap locks

Locking distance A1 / A2 adjustable

SPECIFICATION

Housing
Zinc die casting

- corrosion-resistant, ZNDG Pass. nano®-coating
- anthracite coloured

Setting sleeve
Steel
plastic coated black,
matt textured finish

Operating button / slide
Plastic (Polyamide PA)
black, matt finish

Push button
Plastic (Polyamide PA)
light grey

Hexagon nut
Steel zinc plated, blue passivated



INFORMATION

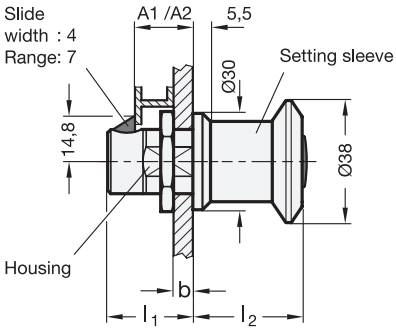
Snap locks GN 315 are characterised by a radial, spring-loaded slide causing the locking action.
When closing the door, the locking action sets in automatically. The bevelled slide is first pushed back via an appropriately arranged lug and then moved into the locking position by the pressure spring.
The door is unlocked via the push button.
To operate the door, these snap locks are fitted with an operating button.

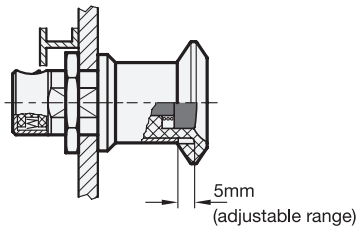
TECHNICAL INFORMATION

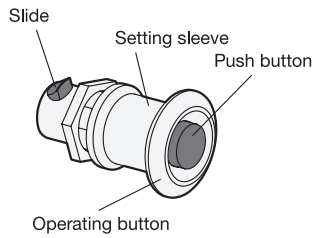
- Plastic characteristics (see page A2)

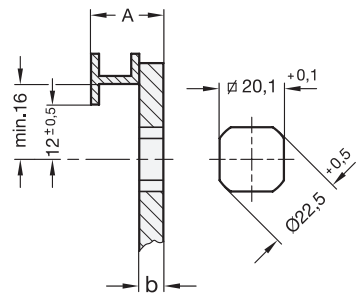
CONSTRUCTION AND ASSEMBLY INSTRUCTIONS

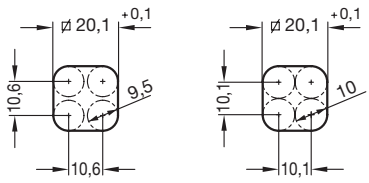
These snap locks can be used to latch a door, but not to clamp it.
This is why it is important to position the locking distance A (door + frame width) with great accuracy and precision.
For snap locks GN 315, the locking distance can be set continuously via the setting sleeve adjustable via a precision thread. This makes installation a great deal easier.
For installation, set a bore diameter in the door as shown in the outline drawing.
The snap lock is pushed through the bore diameter from the front and mounted from the back with a hexagon nut.
The **installation bore diameter** in the door leaf is usually generated by punching or laser machining in series production.
For small series and steel sheets below 2 mm thickness, the sheet metal punches GN 123 (see page 1493) are the tool of choice.
The installation bore diameter can also be set by drilling / milling as shown in the outline drawings.











GN 315

Description	Locking distance min.	Locking distance max.	b max.	l1	l2	⚖
GN 315-A1	18	23	10.5 | 15.5	26.5 | 31.5	34 | 29	100
GN 315-A2	23	28	15.5 | 20.5	31.5 | 36.5	34 | 29	141

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GN 315.1

Snap locks

two locking distances A



SPECIFICATION

Housing
Zinc die casting

- corrosion-resistant, ZNDG Pass. nano®-coating
- anthracite coloured

Locating ring
additionally plastic coated
black, matt textured finish

Slide
Plastic (Polyamide PA)
black

Push button
Plastic (Polyamide PA)
light grey

Hexagon nut
Steel zinc plated, blue passivated

INFORMATION

Snap locks GN 315.1 are characterised by a radial, spring-loaded slide causing the locking action.
When closing the door, the locking action sets in automatically. The bevelled slide is first pushed back via an appropriately arranged lug and then moved into the locking position by the pressure spring.
The door is unlocked via the push button.
If no operating element is needed to operate the door or if such element is arranged separately, snap locks GN 315.1 are used.

TECHNICAL INFORMATION

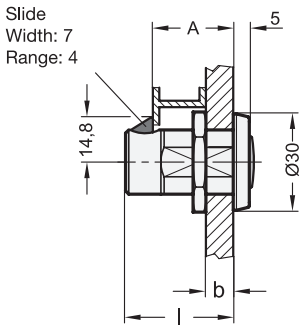
- Plastic characteristics (see page A2)

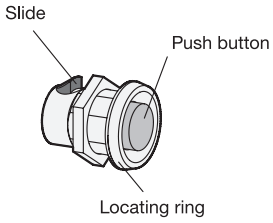
ACCESSORY

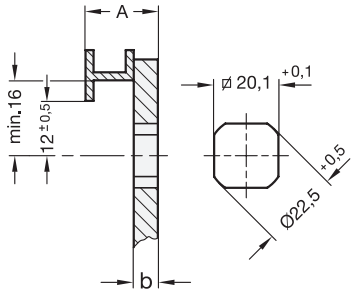
- Opening handles GN 120.1 (see page 1487)

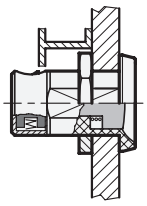
CONSTRUCTION AND ASSEMBLY INSTRUCTIONS

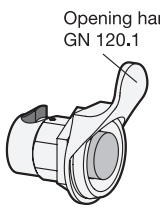
These snap locks can be used to latch a door, but not to clamp it.
This is why it is important to position the locking distance A (door + frame width) with great accuracy and precision.
For installation, set a bore diameter in the door as shown in the outline drawing.
The snap lock is pushed through the bore diameter from the front and mounted from the back with a hexagon nut.
The **installation bore diameter** in the door leaf is usually generated by punching or laser machining in series production.
For small series and steel sheets below 2 mm thickness, the sheet metal punches GN 123 (see page 1493) are the tool of choice.
The installation bore diameter can also be set by drilling / milling as shown in the outline drawings.

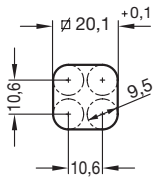


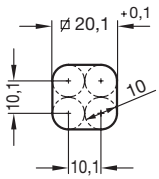












GN 315.1

Description	Locking distance A	b max.	l	⚖
GN 315.1-20	20	12	28.5	57
GN 315.1-25	25	17	33.5	66

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Stop locks

with 4 indexing positions (4 x 90°)

SPECIFICATION

Types

- Type **A**: with flange for surface mounting
- Type **B**: with female thread
- Type **C**: with male thread

Latch
Zinc die casting, plastic coated
black, RAL 9005, textured finish **SW**
red, RAL 3000, textured finish **RS**

Indexing mechanism
Type A
Zinc die casting / Plastic

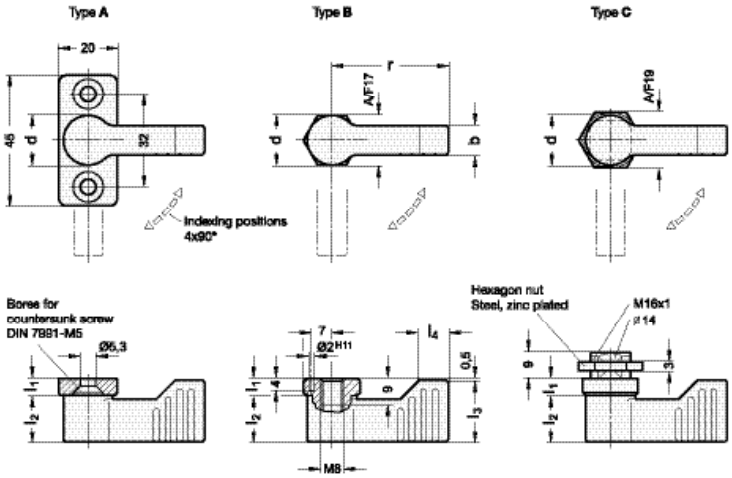
Type B / Type C
Steel / Plastic
Steel parts zinc plated, blue passivated

Fastening flange, zinc die casting
plastic coated, black, matt



INFORMATION

Stop locks GN 702 are particularly suitable for light-weight applications not exposed to dynamic loads, e.g. for keeping drawers closed.
To mount stop locks of Type C, bore holes as shown in the diagram below must be set in the attachment surface.
These mounting holes are usually made by punching or with laser.
For small series and steel sheets below 2 mm thickness, the sheet metal punches GN 123 (see page 1493) are the tool of choice.
The mounting bore holes can also be made by drilling / milling.



*Complete with type index of the stop lock

A	B	C
with flange for surface mounting	with female thread	with male thread

GN 702

Description	d	r	b	l1 ≈	l2	l3 min.	l4	⚖
GN 702-17-40-*-RS	17	40	10	5.5	16.5	21.5	11	72
GN 702-17-40-*-SW	17	40	10	5.5	16.5	21.5	11	73
GN 702-17-55-*-RS	17	55	10	5.5	16.5	21.5	11	80
GN 702-17-55-*-SW	17	55	10	5.5	16.5	21.5	11	80

Weight type A

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GN 720

Stop lock

with 4 indexing positions (4 x 90°)

SPECIFICATION

Type

Type **A**: Mounting with countersunk screw

Latch
Zinc die casting
plastic coated
black, RAL 9005, textured finish **SW**
silver, RAL 9006, textured finish **SR**

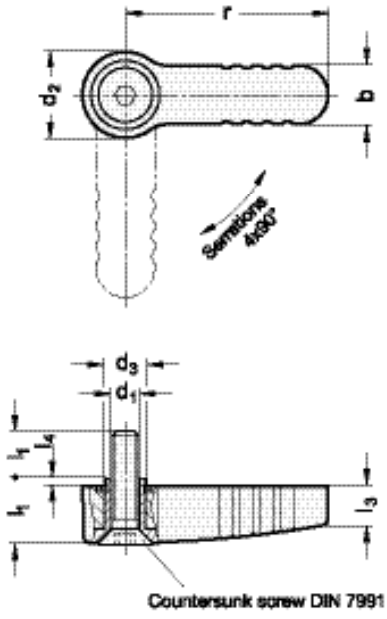
Indexing mechanism
Stainless Steel

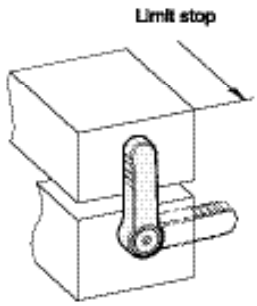
Countersunk screw DIN 7991
Stainless Steel (A2)



INFORMATION

Stop locks GN 720 may be used as stops and feature a high degree of stability.
The inside ball-spring latching mechanism has 4 latching positions at a distance of 90° each. Thanks to the bolt attachment using the countersunk screw, the latching position is freely selectable.
The bar is solid and may be machined, if required.
The countersunk screw is enclosed as part of the set.





GN 720

Description	r	d1	b	d2	d3	l1	l2	l3	l4	Load F max. in N	⚖
GN 720-45-M6-A-SR	45	M 6	13	19	9	12	13	8.5	0.5	500	59
GN 720-45-M6-A-SW	45	M 6	13	19	9	12	13	8.5	0.5	500	59
GN 720-65-M8-A-SR	65	M 8	18	25	14	14	16	10.5	0.6	1000	131
GN 720-65-M8-A-SW	65	M 8	18	25	14	14	16	10.5	0.6	1000	131

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Rotary clamping latches

Operation with socket key or operating element

SPECIFICATION

Types

- Type **DK**: Operation with triangular spindle (DK7)
- Type **VK7**: Operation with square spindle A/F7
- Type **VK8**: Operation with square spindle A/F8
- Type **SCH**: Operation with slot
- Type **VDE**: Operation with double bit
- Type **RG**: Operation with knurled knob GN 7336 (see page 280)
- Type **KG**: Operation with wing knob
- Type **HG**: Operation with lever

Housing / Locking mechanism
Zinc die casting

Locating ring
plastic coated
black, textured finish

Latch
Steel, zinc plated, blue passivated

all handles (Type RG / KG / HG)

- Plastic (Polyamide PA) black, matt
- Cover cap light grey, matt

Protection class: IP 65



INFORMATION

The rotary clamping latches GN 516 have a closing mechanism which transfers the rotary movement of the operating element (key) into a 90° turn and then into a 6 mm linear stroke.
This mechanism is designed for common applications such as making a tight and vibration-proof interlock in the end position (retaining position) in connection with an elastic element (door / casing seal).
22 latches with different cranks will cover latch distances (retaining zones) of between 17 and 63 mm. If the measured retaining position lies between two latch distances A, the next smaller value must be selected.
The rotary clamping latches GN 516 are supplied with loosely enclosed latch.

TECHNICAL AND ASSEMBLY INSTRUCTIONS

1. Latch in starting position.
2. The first 90° turn of the actuator / key moves the latch into the usual locking position.
3. Turning the actuator further by another 90° will lift the latch in linear direction by 6 mm, pulling the door leaf against the frame or the seal and generating a vibration-proof lock.

max. torque: 4.5 Nm
max. axial force: 340 N
max. static load: 340 N

For **installation**, set a bore diameter in the door as shown in the outline drawing. Once assembled, the rotary clamping latch is pushed through the bore diameter from the front. The hexagonal nut can then be pushed over the latch from the back and bolted in place.

The **installation bore diameter** in the door leaf is usually generated by punching or laser application in series production.

For small series and steel sheets below 2 mm thickness, the sheet metal punches GN 123 (see page 1493) are the tool of choice.

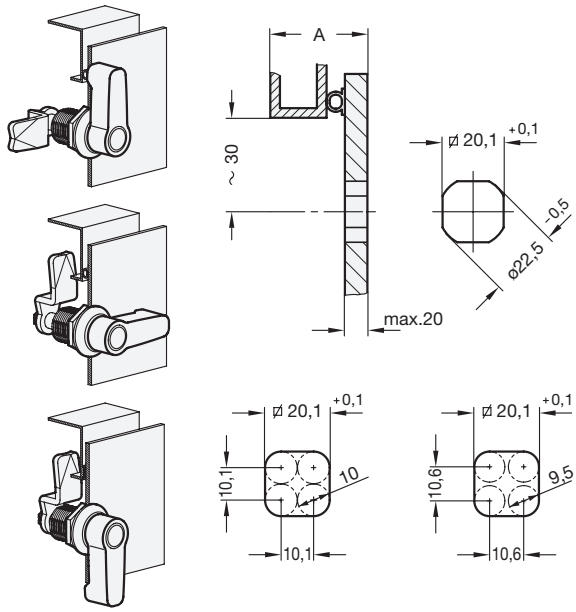
The installation bore diameter can also be set by drilling / milling as shown in the outline drawings.

TECHNICAL INFORMATION

- List of latch types (see page 1456)
- IP Protection classes (see page A23)
- Plastic characteristics (see page A2)

ACCESSORY

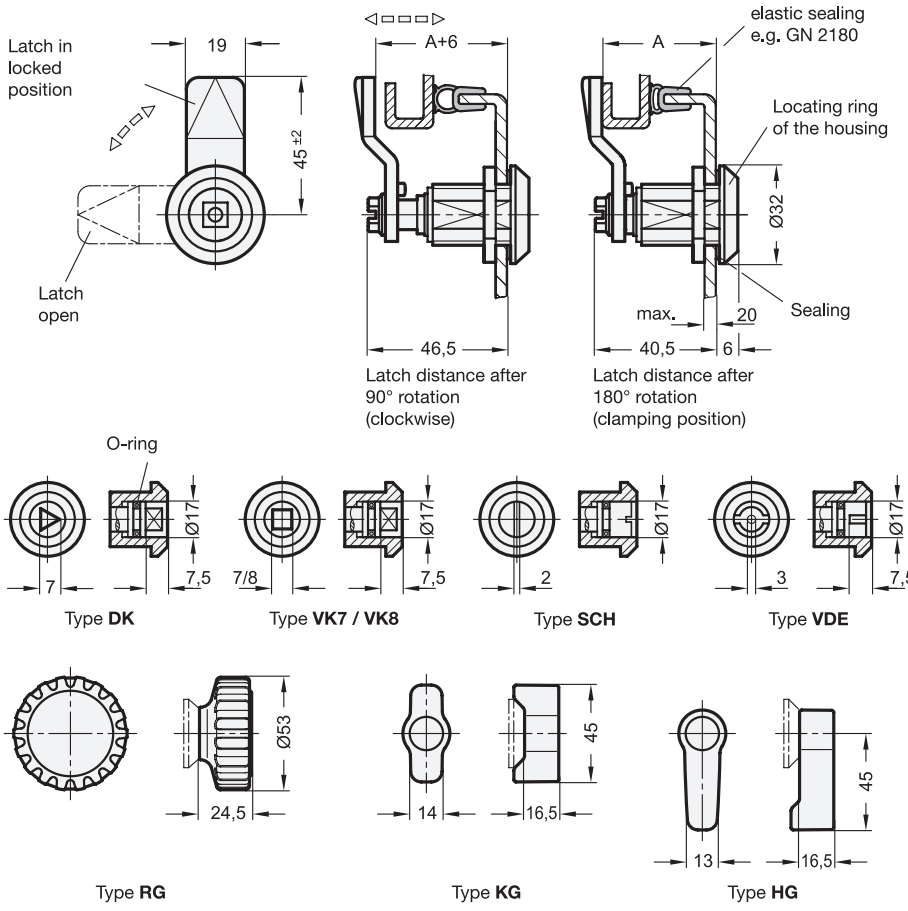
- Socket keys GN 119.2 (see page 1530)
- Protective caps GN 120 (see page 1486)
- Opening handles GN 120.1 (see page 1487)



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GN 516

Rotary clamping latches



*Complete with type index of the rotary clamping latch

GN 516

DK VK7 VK8 SCH VDE RG KG HG

Description	Latch distance A in retaining position (clamping position)	⚖
GN 516-*-17	17	80
GN 516-*-19	19	81
GN 516-*-21	21	81
GN 516-*-23	23	82
GN 516-*-26	26	82
GN 516-*-27	27	83
GN 516-*-29	29	84
GN 516-*-31	31	84
GN 516-*-33	33	84
GN 516-*-35	35	84
GN 516-*-37	37	84
GN 516-*-39	39	86
GN 516-*-41	41	86
GN 516-*-43	43	87
GN 516-*-45	45	88
GN 516-*-47	47	88
GN 516-*-49	49	88
GN 516-*-51	51	93
GN 516-*-53	53	95
GN 516-*-55	55	95
GN 516-*-58	58	96
GN 516-*-63	63	98

Weight type DK

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Rotary clamping latches

Latch distance A continuously adjustable

SPECIFICATION

Types

- Type **DK**: Operation with triangular spindle (DK7)
- Type **VK7**: Operation with square spindle A/F7
- Type **VK8**: Operation with square spindle A/F8
- Type **SCH**: Operation with slot
- Type **VDE**: Operation with double bit
- Type **RG**: Operation with knurled knob GN 7336 (see page 280)
- Type **KG**: Operation with wing knob
- Type **HG**: Operation with lever

Housing / Locking mechanism
Zinc die casting

Locating ring
plastic coated, black, textured finish

Latch
Zinc die casting

all handles (Type RG / KG / HG)

- Plastic (Polyamide PA) black, matt
- Cover cap light grey, matt

Protective cap CR Neoprene©

- 40 to 50 Shore A
- black

Protection class: IP 65



INFORMATION

The rotary clamping latches GN 516.1 have a closing mechanism which transfers the rotary movement of the operating element (key) into a 90° turn and then into a 6 mm linear stroke.
This mechanism is designed for common applications such as making a tight and vibration-proof interlock in the end position (retaining position) in connection with the protective cap.
A 10 mm adjustment within the latch distances A1 ... A4 can be achieved by the set screw M6. This covers a latch distance from 1 to 41 mm consistently.

TECHNICAL AND ASSEMBLY INSTRUCTIONS

1. Latch in starting position.
2. The first 90° turn of the actuator / key moves the latch into the usual locking position.
3. Turning the actuator further by another 90° will lift the latch in linear direction by 6 mm, pulling the door leaf against the frame or the seal and generating a vibration-proof lock.

max. torque: 4.5 Nm
max. axial force: 340 N
max. static load: 340 N

For **installation**, set a bore diameter in the door as shown in the outline drawing. Once assembled, the rotary clamping latch is pushed through the bore diameter from the front. The hexagonal nut can then be pushed over the latch from the back and bolted in place.

The **installation bore diameter** in the door leaf is usually generated by punching or laser application in series production.

For small series and steel sheets below 2 mm thickness, the sheet metal punches GN 123 (see page 1493) are the tool of choice.

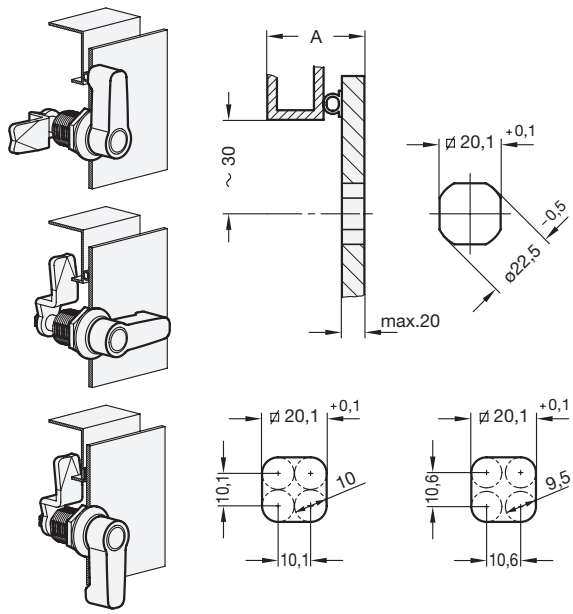
The installation bore diameter can also be set by drilling / milling as shown in the outline drawings.

TECHNICAL INFORMATION

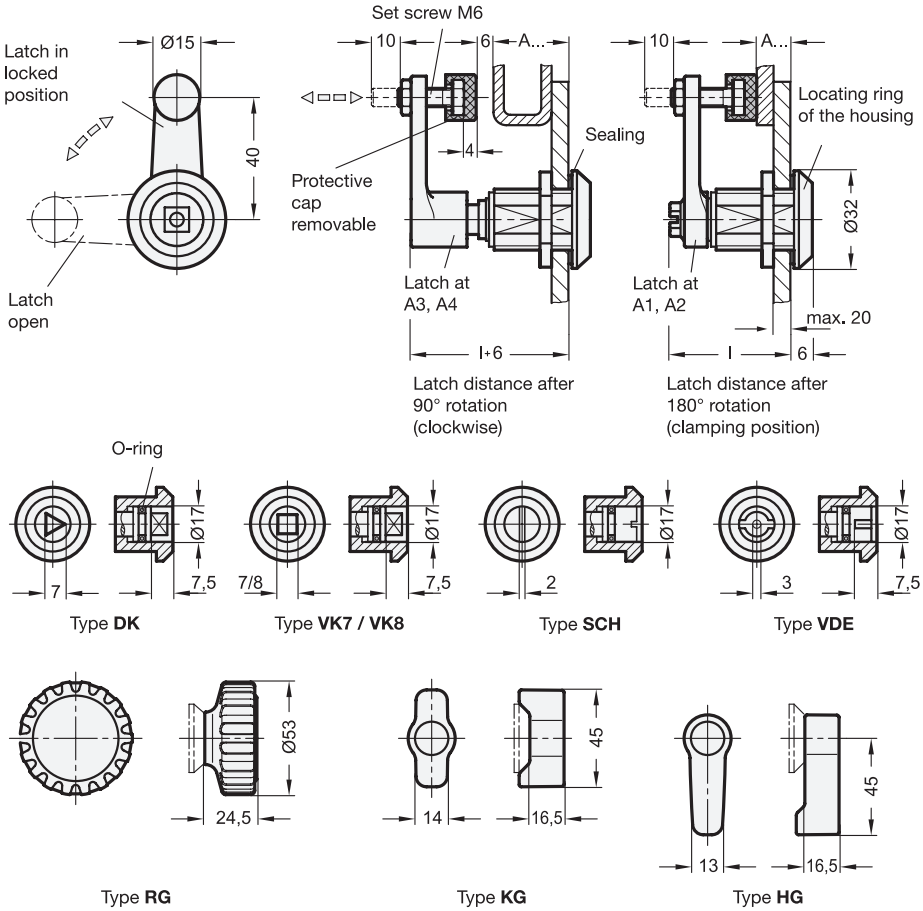
- List of latch types (see page 1456)
- IP Protection classes (see page A23)
- Plastic characteristics (see page A2)

ACCESSORY

- Socket keys GN 119.2 (see page 1530)
- Protective caps GN 120 (see page 1486)
- Opening handles GN 120.1 (see page 1487)



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*Complete with type index of the rotary clamping latch

DK VK7 VK8 SCH VDE RG KG HG

GN 516.1

Description	Latch distance A in retaining position (clamping position)	Latch distance	⚖
GN 516.1-*-A1	A 1 (l = 40.5)	1 ... 11	80
GN 516.1-*-A2	A 2 (l = 40.5)	11 ... 21	87
GN 516.1-*-A3	A 3 (l = 56)	21 ... 31	102
GN 516.1-*-A4	A 4 (l = 56)	31 ... 41	118

Weight type DK

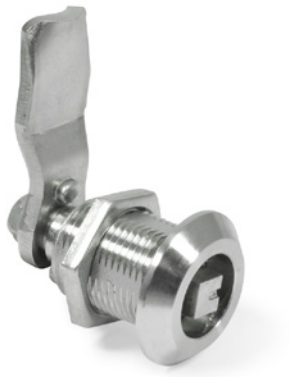
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GN 516.5

INOX STAINLESS STEEL | RoHS | IP65

Stainless Steel-
Rotary clamping latches

Operation with socket key or operating element



SPECIFICATION

Types

- Type **VK8**: Operation with square spindle A/F8
- Type **SCH**: Operation with slot
- Type **VDE**: Operation with double bit
- Type **RG**: Operation with knurled knob GN 7336 (see page 280)
- Type **KG**: Operation with wing knob
- Type **HG**: Operation with lever

Stainless Steel

- Housing AISI 316
- Locking mechanism AISI 316
- Bolt AISI 316
- Latch AISI 304

all handles (Type RG / KG / HG)

- Plastic (Polyamide PA)
- black, matt
- Cover cap light grey matt

Protection class: IP 65

INFORMATION

The Stainless Steel-Rotary clamping latches GN 516.5 have a closing mechanism which transfers the rotary movement of the operating element / key into a 90° turn and then into a 6 mm linear stroke.
This mechanism is designed for common applications such as making a tight and vibration-proof interlock in the end position (retaining position) in connection with an elastic element (door / casing seal).
9 latches with different cranks will cover latch distances (retaining zones) of between 19 and 41 mm. If the measured retaining position lies between two latch distances A, the next smaller value must be selected.
The rotary clamping latches GN 516.5 are supplied with loosely enlcosed latch.

TECHNICAL AND ASSEMBLY INSTRUCTIONS

1. Latch in starting position.
2. The first 90° turn of the actuator / key moves the latch into the usual locking position.
3. Turning the actuator further by another 90° will lift the latch in linear direction by 6 mm, pulling the door leaf against the frame or the seal and generating a vibration-proof lock.

max. torque: 4.5 Nm
max. axial force: 340 N
max. static load: 340 N

For **installation**, set a bore diameter in the door as shown in the outline drawing. Once assembled, the rotary clamping latch is pushed through the bore diameter from the front. The hexagonal nut can then be pushed over the latch from the back and bolted in place.

The **installation bore diameter** in the door leaf is usually generated by punching or laser application in series production.

For small series and steel sheets below 2 mm thickness, the sheet metal punches GN 123 (see page 1493) are the tool of choice.

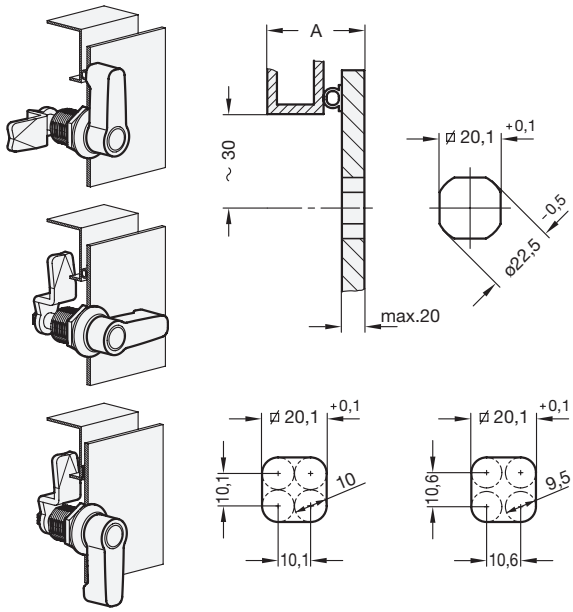
The installation bore diameter can also be set by drilling / milling as shown in the outline drawings.

TECHNICAL INFORMATION

- List of latch types (see page 1456)
- IP Protection classes (see page A23)
- Stainless Steel characteristics (see page A26)
- Plastic characteristics (see page A2)

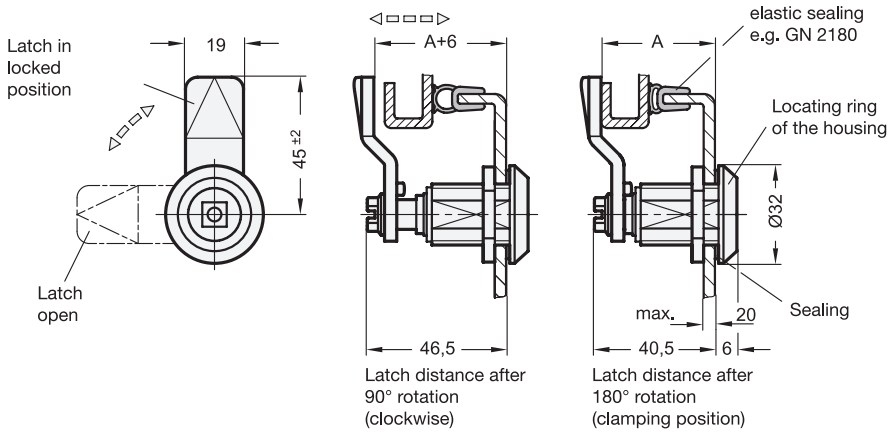
ACCESSORY

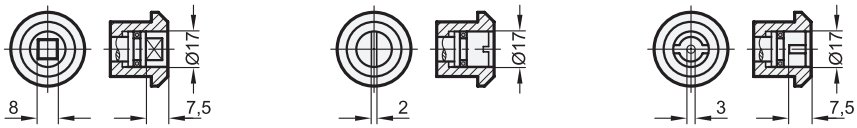
- Socket keys GN 119.2 (see page 1530)
- Protective caps GN 120 (see page 1486)
- Opening handles GN 120.1 (see page 1487)



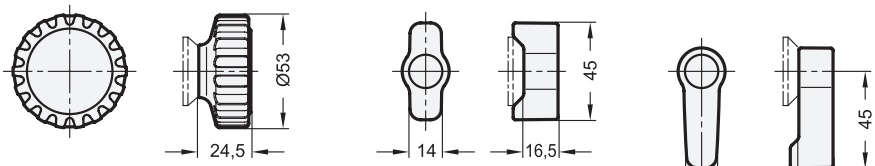
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GN 516.5 | Stainless Steel-Rotary clamping latches





Type **VK8** Type **SCH** Type **VDE**



Type **RG** Type **KG** Type **HG**

*Complete with type index of the rotary clamping latch

VK8 SCH VDE RG KG HG

GN 516.5 **STAINLESS STEEL**

Description	Latch distance A	⚖
GN 516.5-*-19	19	100
GN 516.5-*-23	23	120
GN 516.5-*-27	27	120
GN 516.5-*-31	31	120
GN 516.5-*-33	33	120
GN 516.5-*-35	35	120
GN 516.5-*-37	37	120
GN 516.5-*-39	39	100
GN 516.5-*-41	41	120

Weight type VK8

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Edge protection profiles and edge protection seal profiles

General notes

Introduction

Edge protection profiles are installed on the front edge of metal sheets and plates. They protect surfaces from damage by sharp edges. Meanwhile, edge protection seal profiles feature a seal profile in order to provide additional sealing for doors, covers and hatches.

Uses and applications

With the use of edge protection when handling equipment and machine parts made of sheet metal profiles, the risk of cuts or abrasions is reduced to a minimum. In the process, in these applications the profiles provide a visual "decorative effect." Other application possibilities include cable and tube laying, where openings and edges of divider plates need to be bypassed. This provides reliable protection from flaking or worn-down cables and tubes.

In general, using edge protection profiles can reduce the need for further treatment such as burring and chamfering of cut or laser-cut metal sheets.

Edge protection seal profiles provide the same benefits as edge protection profiles. However they are recommended for use in cases where doors, covers and hatches require additional sealing in order to prevent the emission of dust, warm air or noise; for example, or in order to prevent water spray from entering.

Structure

Edge protection profiles consist of an extruded clamping profile which forms the base of the structure and is used on the edge of sheet metal in order to affix the edge protection profile.

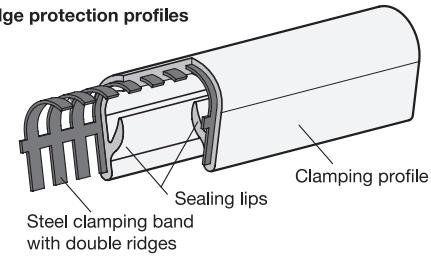
In order to increase the clamping force, the clamping profile is strengthened through a reinforcement, preventing the profile from detaching itself after assembly.

The clamp insert is available as a steel clamping band or as a steel wire polyester clamping band. Steel clamping bands have a higher clamping effect, while steel wire clamping bands allow a smaller assembly radius, also enabling a more even alignment of the edges.

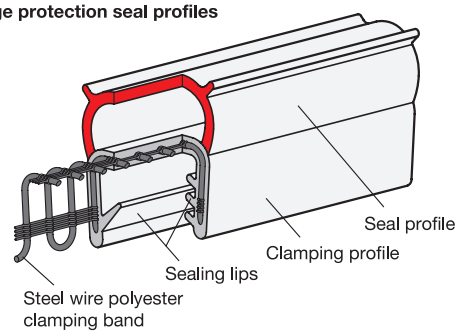
The seal profile is affixed to the top or the side of the clamping profile and is significantly "softer". It can be made from the basic material of the clamping profile but it can also be made from particular materials for specific applications. In order to attain optimum sealing, the seal profile needs to be prestressed and/or formed to enable it to adapt precisely to the countersurface.

The sealing lips in the interior of the clamping profile ensure the sealing of the edge protection seal profile with the edge of the sheet.

Edge protection profiles



Edge protection seal profiles



Assembly

Side cutters and scissors that are suitable for cutting the metal clamping insert can be used to align the profiles. Any end parts of the clamp insert that protrude from the cutting area should be removed in order to prevent injuries. The profile ends and cants can be subsequently sealed and/or glued as required.

The mounting of the profiles to the edges is secured via the clamp insert. Glue or other adhesives are not usually required.

Profiles can generally be assembled by applying pressure by hand. If necessary, the profile can additionally be secured by lightly applying a soft-face hammer.

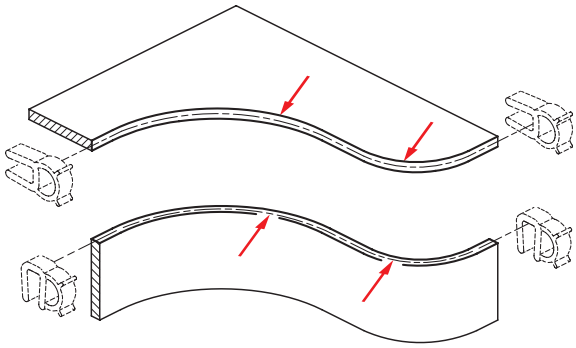
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Edge protection profiles and edge protection seal profiles

Technical information

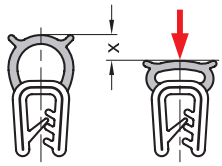
Minimum placement radii

In order to ensure a consistent seal for the profile and to prevent the profile from detaching, placement should not be set below the minimum radii. This also makes the profile assembly easier.
The radii are listed on the corresponding standard sheets and should be used as a guideline. Depending on the direction of application, a distinction is made between cut or curved radii, in other words, interior or exterior seal profiles.



Shaping

Ideally, edge protection seal profiles should maintain a deformation x of approximately 30 - 50% of the maximum value in order to ensure a reliable sealing.
Deformation of over 50% can impair seal tightness and reduce the resilience of the sealing material due to plastic deformation.



Basic materials, characteristics

Profiles can be made from various basic materials depending on the application. The table to the right summarizes the general characteristics to facilitate the choice.
Due to the multitude of chemicals, solvents etc. exact specifications are not possible, as basic materials that are fundamentally unstable can be durable in combination with specific materials and vice versa. Concentration, temperature and exposure time also play a crucial role. The customer is advised to test resistance when combining respective materials in contact with one another.

* + resistant, o conditionally resistant, – non-resistant

Characteristics	PVC	NBR	EPDM
Operational temperature min.	-40 °C	- 30 °C	- 40 °C
Operational temperature max.	+70 °C	+100 °C	+100 °C
Abrasion resistance / Wear resistance	+	+	+
Deformation resistance	o	+	+
Resistant to: *			
• UV light / weather exposure	+	-	+
• Chemicals	+	-	+
• Oil, greases	o	+	-
• Fuels	o	+	-
• Acids	+	o	+
• Alkalines	o	+	+
• Solvents	o	o	o
• Alcohol	o	o	+

UL certification (Seal profiles as EPDM)

UL (Underwriters Laboratories) is an independent global company operating in safety science, similar to TÜV in Germany. Their testing is required as a priority in the US-American market.
Edge protection seal profiles GN 2180 (see page 1550) made of EPDM have a "UL-recognized component" mark. This states that the profiles can be used as components in finished products which are also intended for UL-certified use.
For customers and companies, the need for these types of certification is becoming increasingly important, as it guarantees high quality, reliable processing, and long durability, as well as reliable product safety.

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Edge protection seal profiles

Material NBR / EPDM (UL-certified)

SPECIFICATION

Types

- Type **A**: Upper seal profile
- Type **D**: Side seal profile

Clamping profile / Sealing profile
Ethylene propylene diene rubber **EPDM**

- black
- Clamping profile hardness 65 ±5 Shore A
- Sealing profile hardness 25 ±5 Shore A
- temperature resistant -40 °C to 100 °C

Acrylonitrile butadiene rubber **NBR**
(only for sizes h_1 = 20.5 and 13)

- black
- Clamping profile hardness 60 ±5 Shore A
- Sealing profile hardness 25 ±5 Shore A
- temperature resistant -30 °C to 100 °C

Clamp insert
Steel wire polyester clamping band

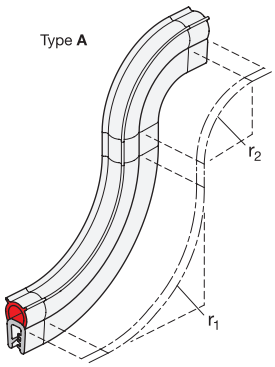
INFORMATION

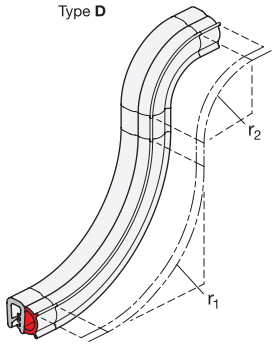
Edge protection seal profiles GN 2180 can be used to seal doors, covers and hatches. The profiles are pressed by hand onto the front of metal sheets and plates. The embedded clamp insert prevents detachment. Glue or other adhesives are not required.
When assembled, the profile should deform slightly according to w_2. This ensures an optimal seal. Adherance to the guideline placement radii (r_1... r_4) is recommended in order to ensure a tight profile seal and to make assembly easier.
The NBR profiles are recommended for use in cases where contact with fuels, oils or coolants can occur.
EPDM profiles are certified according to UL 50 and UL 94-HB and are therefore approved for the US-American and the Canadian market.

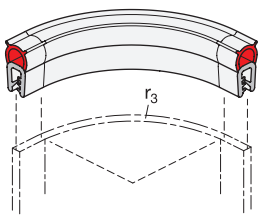


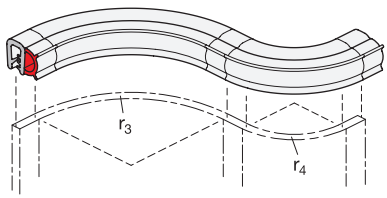
TECHNICAL INFORMATION

- Technical information for edge protection profiles (see page 1548)
- Elastomer characteristics (see page A32)







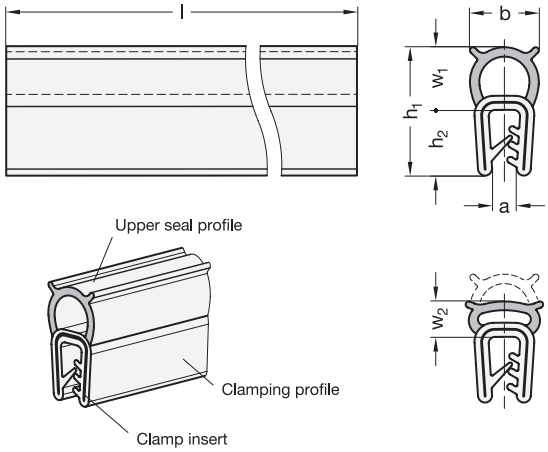


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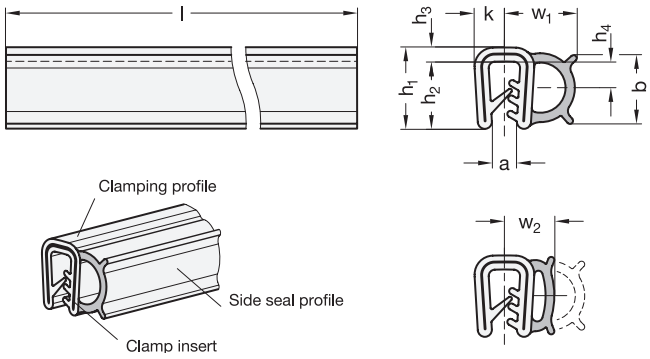
GN 2180

Edge protection seal profiles

Type **A**



Type **D**



GN 2180

Description	h1	Cutting length l in m	a	b	h2	h3	h4	k	r1	r2	r3	r4	w1	w2	⚖
GN 2180-EPDM-15,5-A-20	15.5	20	0.8 - 2.5	8.5	9	-	-	-	80	50	20	-	6.5	5	2800
GN 2180-EPDM-15,5-A-50	15.5	50	0.8 - 2.5	8.5	9	-	-	-	80	50	20	-	6.5	5	5600
GN 2180-EPDM-20,5-A-20	20.5	20	1 - 3.5	11	10.5	-	-	-	90	50	30	-	10	7	2800
GN 2180-EPDM-20,5-A-50	20.5	50	1 - 3,5	11	10.5	-	-	-	90	50	30	-	10	7	7130
GN 2180-EPDM-11,5-D-20	11.5	20	0.8 - 2.5	8.75	9	2.5	3.75	4	30	40	80	40	8.5	6.75	2500
GN 2180-EPDM-11,5-D-50	11.5	50	0.8 - 2.5	8.75	9	2.5	3.75	4	30	40	80	40	8.5	6.75	5600
GN 2180-EPDM-13-D-20	13	20	1 - 3.5	11	10.75	2.25	4.5	4.75	40	50	100	80	11.25	8.75	2800
GN 2180-EPDM-13-D-50	13	50	1 - 3.5	11	10.75	2.25	4.5	4.75	40	50	100	80	11.25	8.75	7500
GN 2180-NBR-20,5-A-20	20.5	20	1 - 3.5	11	10.5	-	-	-	90	50	30	-	10	7	3000
GN 2180-NBR-20,5-A-50	20.5	50	1 - 3.5	11	10.5	-	-	-	90	50	30	-	10	7	7500
GN 2180-NBR-13-D-20	13	20	1 - 3.5	11	10.75	2.25	4.5	4.75	40	50	100	80	11.25	8.75	3000
GN 2180-NBR-13-D-50	13	50	1 - 3.5	11	10.75	2.25	4.5	4.75	40	50	100	80	11.25	8.75	7000

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Edge protection seal profiles

Material combination PVC / EPDM



SPECIFICATION

Types

- Type **A**: Upper seal profile
- Type **D**: Side seal profile

Clamping profile
Polyvinyl Chloride (PVC)
Hardness 70±5 Shore A

Sealing profile
Ethylene propylene diene rubber (EPDM)
Hardness 25±5 Shore A

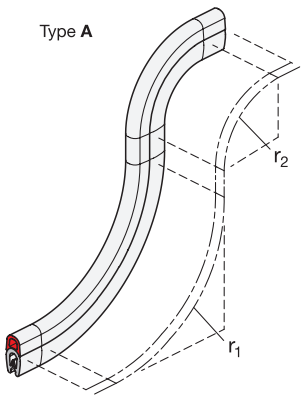
Clamp insert
Steel clamping band
- black
- temperature resistant -40 °C to 90 °C
- weather exposure

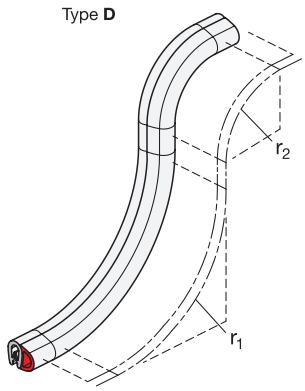
INFORMATION

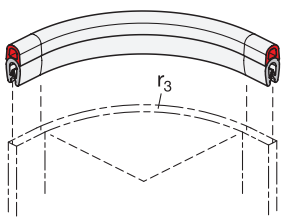
Edge protection seal profiles GN 2182 can be used to seal doors, covers and hatches. The profiles are pressed by hand onto the front of metal sheets and plates. The embedded clamp insert prevents detachment. Glue or other adhesives are not required.
When assembled, the profile should deform slightly according to w2. This ensures an optimal seal. Adherance to the guideline placement radii (r1...r4) is recommended in order to ensure a tight profile seal and to make assembly easier.

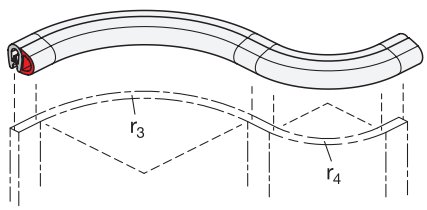
TECHNICAL INFORMATION

- Technical information for edge protection profiles (see page 1548)







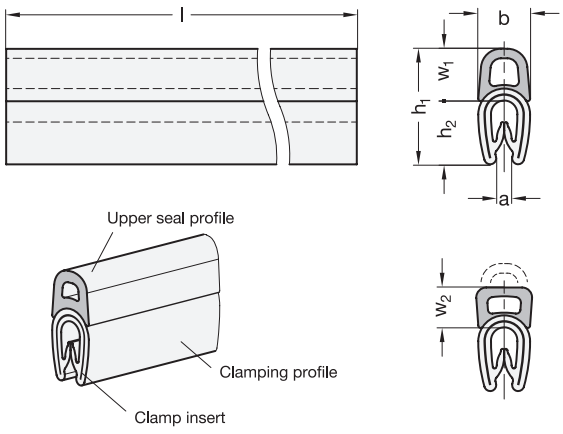


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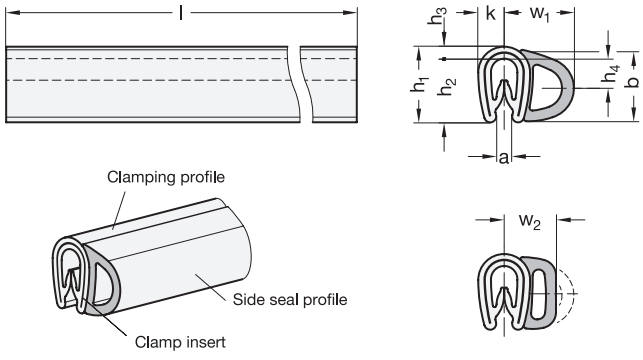
GN 2182

Edge protection seal profiles

Type **A**



Type **D**



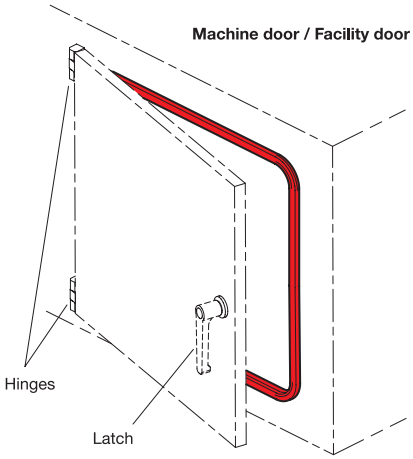
GN 2182

Description	h1	Cutting length l in m	a	b	h2	h3	h4	k	r1	r2	r3	r4	w1	w2	⚖
GN 2182-14,5-A-20	14.5	20	1 - 2	6.5	8	-	-	-	40	20	10	-	6.5	5.25	1650
GN 2182-14,5-A-50	14.5	50	1 - 2	6.5	8	-	-	-	40	20	10	-	6.5	5.25	4100
GN 2182-9,5-D-20	9.5	20	1 - 2	9	8	1.5	4	3.25	15	20	30	50	8.75	6.75	1650
GN 2182-9,5-D-50	9.5	50	1 - 2	9	8	1.5	4	3.25	15	20	30	50	8.75	6.75	4100

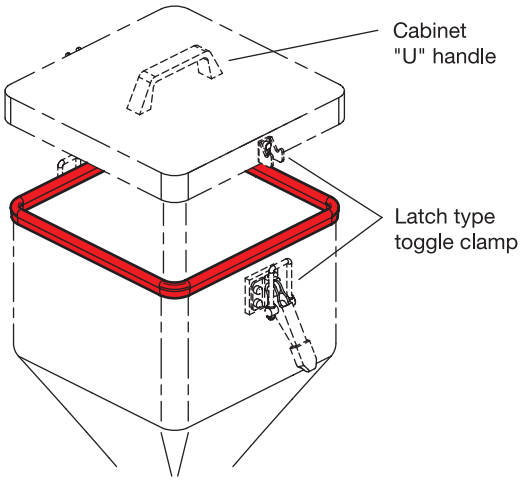
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Edge protection profiles and edge protection seal profiles

Application example - profiles in combination with other Elesa+Ganter standard machine elements



Bulk container lid



Application examples

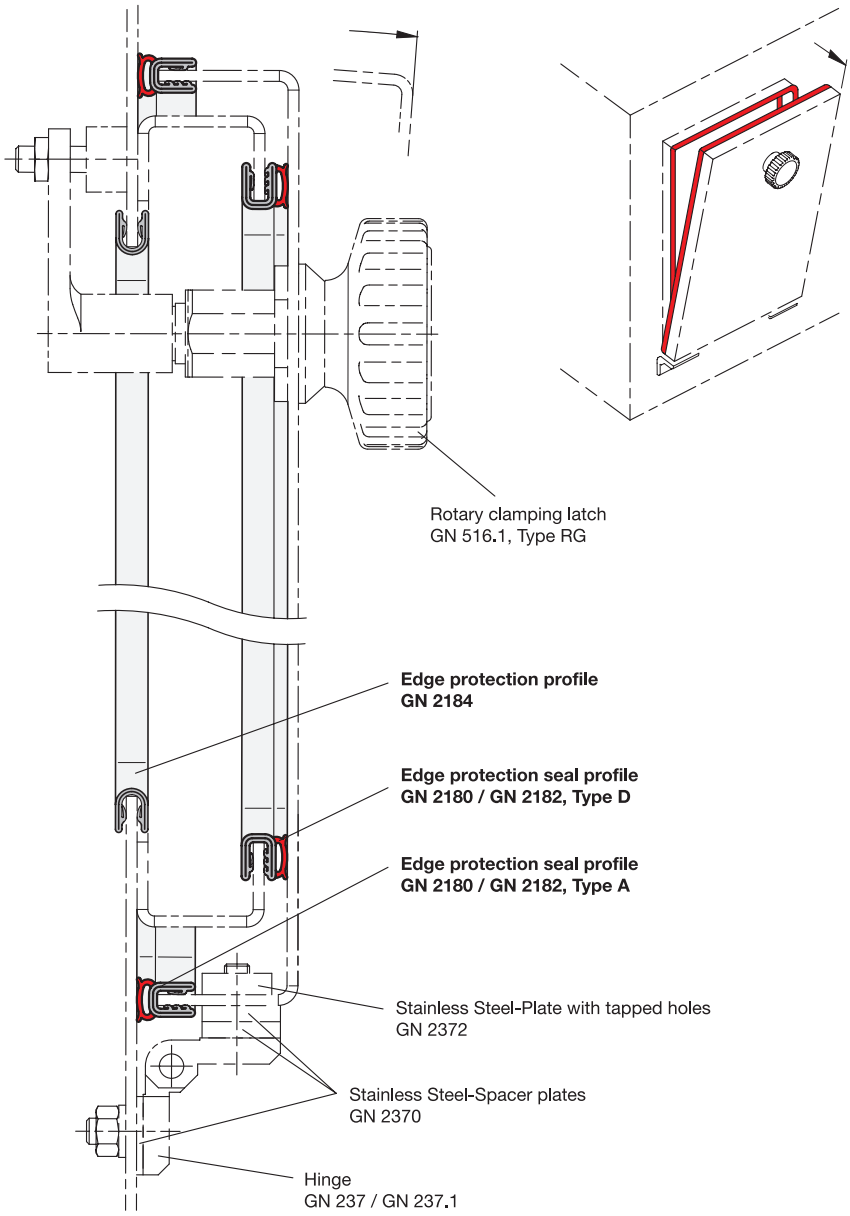
With their versatility, edge protection profiles and/or edge protection seal profiles can be implemented in various applications, in conjunction with other Elesa+Ganter products.

- Latches (see page 1462)
- Hinges (see page 1386)
- Toggle clamps (see page 1562)

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Edge protection profiles and edge protection seal profiles

Construction example



Construction examples

The construction depicted shows a standard application of edge protection profiles and edge protection seal profiles. The edge protection seal profiles are attached to the door and the fixed frame. The opening for the door is covered with and edge protectioin profile at its cut edge.

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Edge protection profiles

Material PVC



SPECIFICATION

Profile
Polyvinyl Chloride (PVC)

- black **SW**
- Hardness 70 ±5 Shore A
- temperature resistant -40 °C to 90 °C
- weather exposure

Clamp insert
Steel clamping band

INFORMATION

Edge protection profiles GN 2184 are installed on the front edge of metal sheets and plates. They protect the surfaces from damage by sharp edges. The edge finish additionally achieves an optical decorative effect, while the need for potential further treatment such as burring and chamfering of cut or laser-cut metal sheets is reduced to an absolute minimum.
Adhering to the guideline placement radii (r1...r3) is recommended in order to guarantee permanent profile placement and to make assembly easier. Assembly can be carried out by hand, or alternatively with a soft-face hammer. The embedded clamp insert prevents it from detaching. Glue or other adhesive is not required.

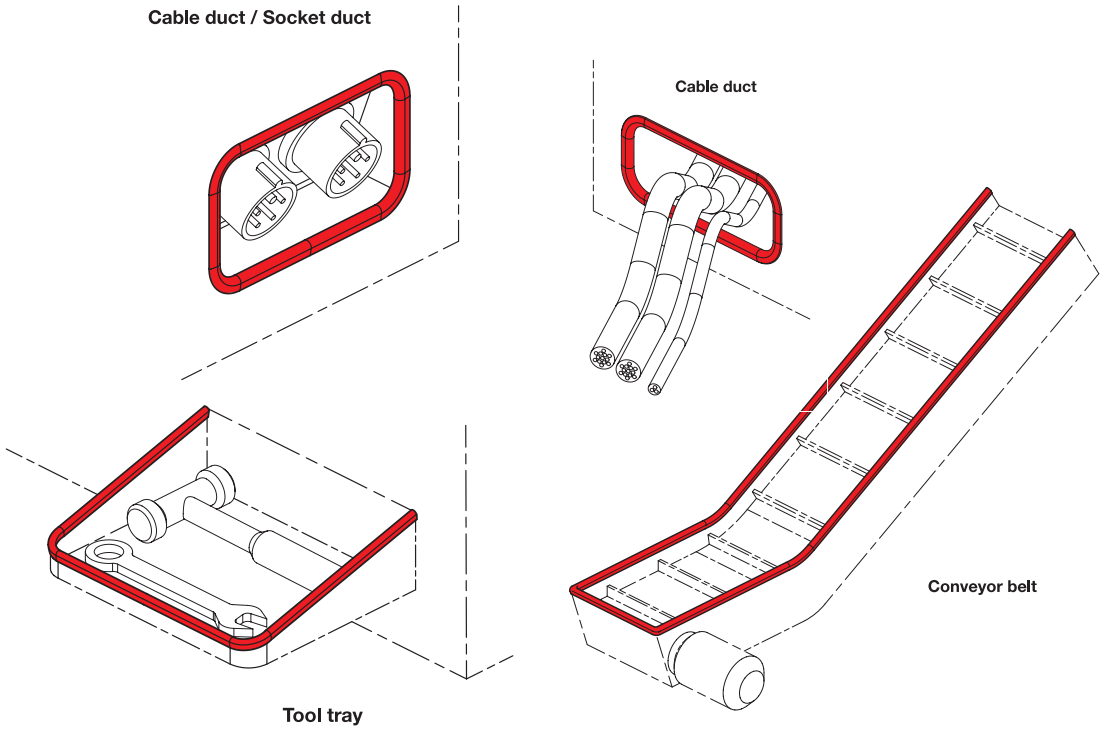
TECHNICAL INFORMATION

- Technical information for edge protection profiles (see page 1548)

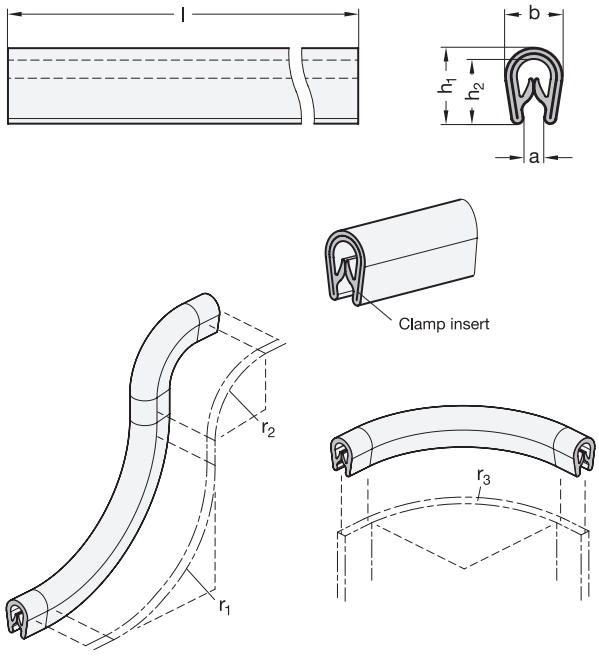
ON REQUEST

- Color white / grey

Application examples



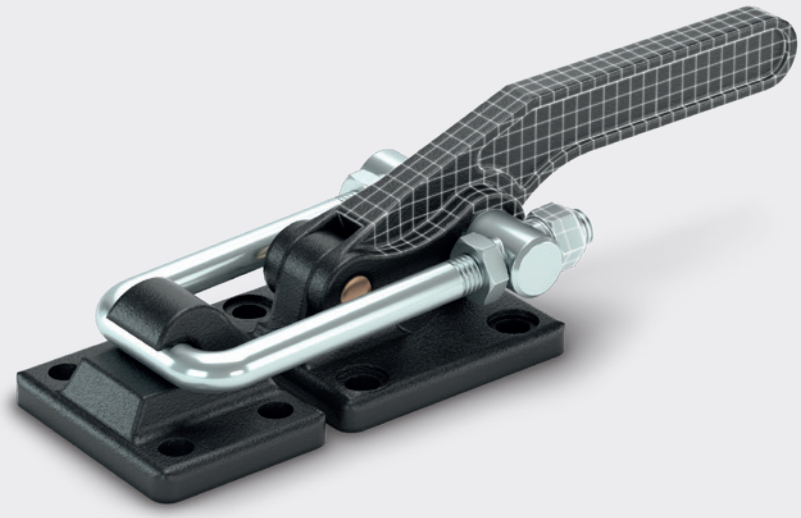
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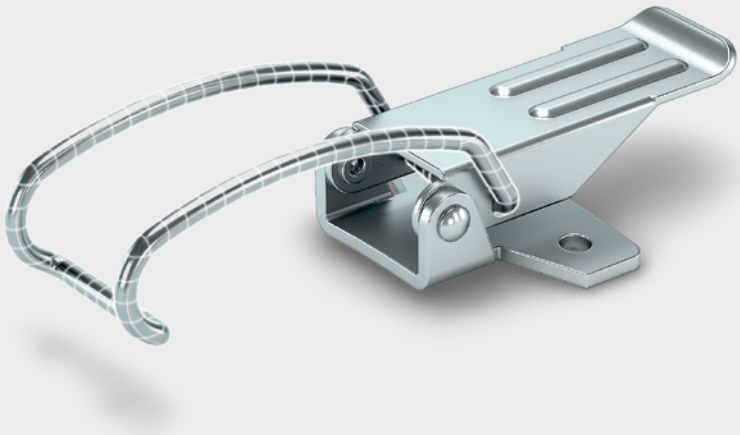


GN 2184

Description	h1	Cutting length l in m	a	b	h2	r1	r2	r3	⚖
GN 2184-9,5-SW-20	9.5	20	1 - 2	6.5	8	15	10	10	1500
GN 2184-9,5-SW-50	9.5	50	1 - 2	6.5	8	15	10	10	3500
GN 2184-14-SW-20	14	20	1 - 4	10.5	12	25	25	25	3000
GN 2184-14-SW-50	14	50	1 - 4	10.5	12	25	25	25	7350

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DESIGNED
FOR ENGINEERING

14 Toggle, power and hook clamps



Toggle clamps

Power clamps

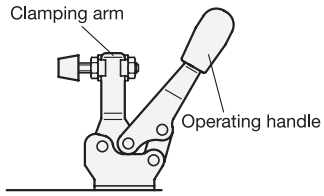
Hook clamps

Toggle clamps

Operating principle toggle link

By using the **toggle link principle** toggle clamps offer decisive advantages:

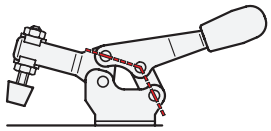
The clamping arm retracts to such an extent that the workpiece can be loaded and unloaded completely unobstructed.



Even the slightest forward movement of the operating handle brings the clamping arm with the contact pad over the workpiece.

As can be seen from the sketch, the position of the toggle links will lead to a multiple of the input force applied to the operating handle.

In this position the toggle clamp is not yet fully engaged and any counter force will open it.



In this position all three pivots are perfectly aligned yielding the maximum **clamping force F_S** (dead centre point).

The clamping force F_S exerted on the workpiece is mainly dependent on the following criteria:

- the input force which is applied to the operating handle,
- the position of the clamping bolt on the clamping lever.

Since the applied force on the lever by the operator is not known, the clamping force F_S shown in the table is only specified for pneumatically operated clamps.

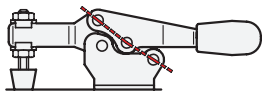


The clamping force F_S can be altered by re-adjusting the position of the clamping bolt. The clamping force increases if the entire contact area of the bolt arrives on the workpiece prior to the toggle linkage reaching dead centre point. This effect is illustrated clearly when using an elastic clamping pad.

In this position the toggle linkage has arrived in the over-centre lock position and the operating lever has reached a firm stop and is thus prevented from opening until it is released by the operator.

The force which the clamp is capable of withstanding in this over-centre lock position without suffering permanent deformation is known as holding force F_H. The holding force has a characteristic value (co-efficient) for toggle clamps and this value is mainly dependent on:

- the size (dimensions, geometry) of the toggle clamp,
- the position of the clamping bolt on the clamping arm



In the tables the **holding force F_H** of the toggle clamps is given in each case in relation to a particular position (distance r) of the clamping arm.

On the standard sheets all clamps are shown in their clamping position.
All references to force are given in N (Newton).

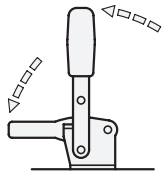
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Toggle clamps

Types

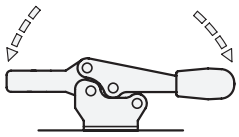
Vertical acting toggle clamps

Lever and clamping bar move in the same direction.
In the clamped position the operating handle is in vertical position.
For applications where substantial forces and many tightening cycles occur, „Longlife" versions are available.



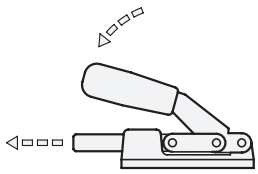
Horizontal acting toggle clamps

Lever and clamping bar move in opposite direction.
In the clamped position the operating handle is in horizontal position (flat version).



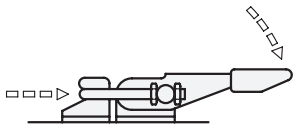
Push-pull type toggle clamps

On these clamps the swinging movement of the operating handle is converted into an axial movement to push or pull the plunger.
With the exception of two versions (GN 841 see page 1588) , they lock at the end of their stroke in both directions. For this reason they lend themselves for push or pull operations.



Latch type toggle clamps

On these clamps the swinging movement of the operating handle is converted into an axial movement to pull the hook.
Latch clamps are available with and without locking mechanism.

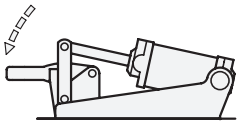


Pneumatic toggle clamps

These toggle clamps combine the advantages of clamping by the toggle principle (clamp remains in the clamping position even in the event of air pressure loss!) with the advantages offered by pneumatics i.e.:

- constant clamping force Fs independent of the operator,
- several clamps can be operated simultaneously,
- pneumatic toggle clamps can be energised from various operating points (remote control, co-ordinated and controlled by other machines),
- some variants are available with an air cylinder which allows control via a proximity switch, to give an electrical impulse when the clamp has reached a specific position within its clamping cycle.

Pneumatic toggle clamps are available as vertical and push rod versions.



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Vertical acting toggle clamps

Steel / Stainless Steel, with horizontal mounting base



SPECIFICATION

Types

- Type **A**: U-bar version, with two flanged washers
- Type **C**: U-bar version, with two flanged washers and GN 708.1 spindle assembly (see page 1625)
- Type **E**: Solid bar version, with clasp

Version in Steel

- Case-hardened Steel C10, zinc plated, blue passivated
- Bearing pins tempered
- Bearing rivets (for size 230 and up), case-hardened

All moving parts
lubricated with special grease

Hand grip
High quality, oil resistant red plastic

Spindle assembly GN 708.1 , Type A (see page 1625)

- Steel, zinc plated
- Rubber tip 85 Shore A

Version in Stainless Steel NI

Stainless Steel AISI 304

All moving parts
lubricated with special grease

Hand grip
High quality, oil resistant red plastic

Spindle assembly GN 708.1 , Type A (see page 1625)

- Stainless Steel AISI 304
- Rubber tip 85 Shore A

ACCESSORY

- Spindle assemblies (see page 1623)
- GN 801 clamp mounts for toggle clamps (for Type A) (see page 1629)
- GN 809 clamp mounts for toggle clamps (for Type E) (see page 1630)

INFORMATION

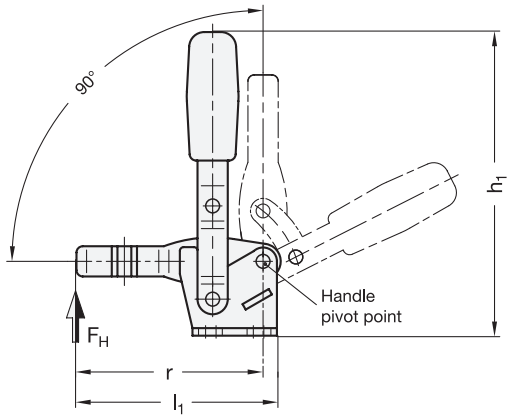
GN 810 vertical acting toggle clamps work according to the toggle principle: lever and clamping bar move in the same direction. In the clamped position the operating lever is in its vertical position.
Vertical acting toggle clamps in the U-bar version with two flanged washers (Type A) can accommodate an application specific clamping screw. A spindle assembly with neoprene rubber tip is also included for Type C.
Type E version can either be utilized by welding the clasp which can then accommodate an application specific hold-down fastener component, or by utilizing the bar in conjunction with the GN 809 (see page 1630) clamp mounts to hold the work piece in place.

- General information for toggle clamps (see page 1560)

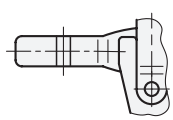
Type **A**

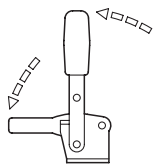
Type **C**

Type **E**



Operating principle

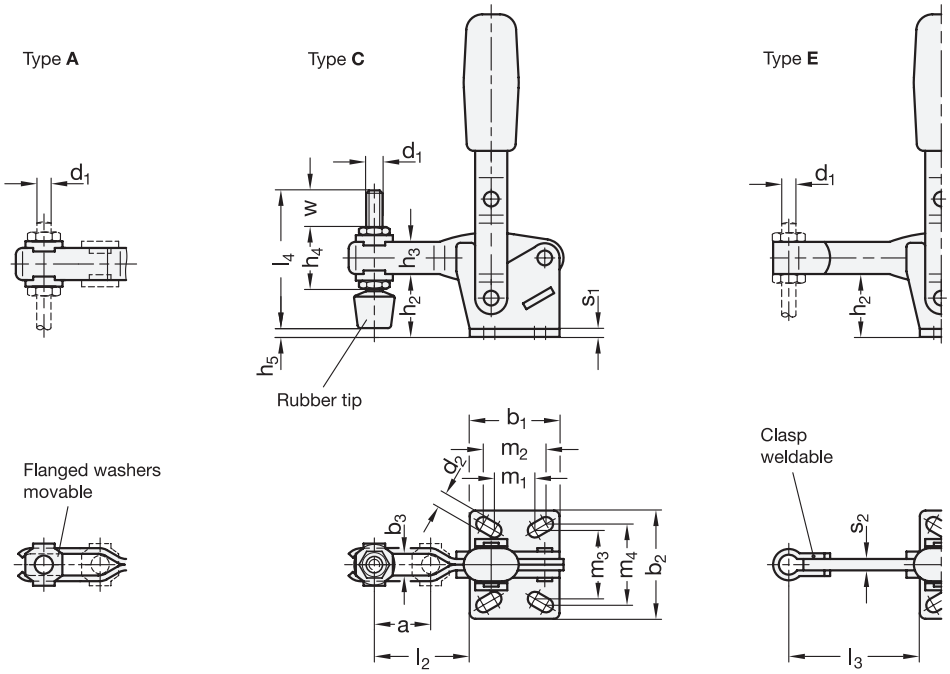




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GN 810

Vertical acting toggle clamps



GN 810

Description	Size	FH in N	a ≈	b1	b2	b3	d1	d2 ≈	h1 ≈	h2	h3	h4	h5	l1 ≈	l2 ≈	l3 max.	l4	m1	m2	m3	m4	r ≈	s1	s2	w	⚖
GN 810-75-A	75	750	20	29	34	5.2	M 5	4.5	98	20.5	11	-	-	66.5	31.5	-	-	15	16	24	24	62.5	2	-	-	98
GN 810-130-A	130	1050	28	35	42	6.2	M 6	5.5	142	28	16	-	-	85	42	-	-	12.5	19	27	29	79.5	2.5	-	-	220
GN 810-230-A	230	2000	40	43	45	8.5	M 8	6.5	168	33.5	18	-	-	110.5	58	-	-	19	20	32	32	104	3	-	-	370
GN 810-330-A	330	2400	43	50	65	10.5	M 10	8.5	195	43	22	-	-	129	66	-	-	29	32	45	46	122	3.5	-	-	601
GN 810-430-A	430	2800	64	58	65	12.5	M 12	8.5	247	55.5	26	-	-	164	88	-	-	32	32	45	45	156	4	-	-	1050
GN 810-530-A	530	4500	90	80	95	12.5	M 12	12.5	303	84.5	32	-	-	223	125	-	-	50	51	70	70	212	7	-	-	2100
GN 810-75-C	75	750	20	29	34	5.2	M 5	4.5	98	20.5	11	19	5.5	66.5	31.5	-	45	15	16	24	24	62.5	2	-	15	100
GN 810-130-C	130	1050	28	35	42	6.2	M 6	5.5	142	28	16	25.5	11.3	85	42	-	55	12.5	19	27	29	79.5	2.5	-	17.5	230
GN 810-230-C	230	2000	40	43	45	8.5	M 8	6.5	168	33.5	18	30	9.5	110.5	58	-	68	19	20	32	32	104	3	-	20	400
GN 810-330-C	330	2400	43	50	65	10.5	M 10	8.5	195	43	22	37	15	129	66	-	77	29	32	45	46	122	3.5	-	19	600
GN 810-430-C	430	2800	64	58	65	12.5	M 12	8.5	247	55.5	26	43	23	164	88	-	100	32	32	45	45	156	4	-	33	1100
GN 810-530-C	530	4500	90	80	95	12.5	M 12	12.5	303	84.5	32	49	52	223	125	-	100	50	51	70	70	212	7	-	27	2180
GN 810-75-E	75	750	-	29	34	-	M 5	4.5	98	20.5	11	-	-	67	-	41	-	15	16	24	24	62.5	2	4	-	106
GN 810-130-E	130	1050	-	35	42	-	M 6	5.5	142	28	16	-	-	86	-	54	-	12.5	19	27	29	79.5	2.5	5	-	220
GN 810-230-E	230	2000	-	43	45	-	M 8	6.5	168	33.5	18	-	-	112	-	73	-	19	20	32	32	104	3	6	-	401
GN 810-330-E	330	2400	-	50	65	-	M 10	8.5	195	43	22	-	-	130.5	-	86	-	29	32	45	46	122	3.5	7	-	580
GN 810-430-E	430	2800	-	58	65	-	M 12	8.5	247	55.5	26	-	-	166	-	114	-	32	32	45	45	156	4	10	-	1090
GN 810-530-E	530	4500	-	80	95	-	M 12	12.5	303	84.5	32	-	-	225	-	152	-	50	51	70	70	212	7	10	-	2066

GN 810-NI

STAINLESS STEEL

Description	Size	FH in N	a ≈	b1	b2	b3	d1	d2 ≈	h1 ≈	h2	h3	h4	h5	l1 ≈	l2 ≈	l3 max.	l4	m1	m2	m3	m4	r ≈	s1	s2	w	⚖
GN 810-75-A-NI	75	750	20	29	34	5.2	M 5	4.5	98	20.5	11	-	-	66.5	31.5	-	-	15	16	24	24	62.5	2	-	-	92
GN 810-130-A-NI	130	1050	28	35	42	6.2	M 6	5.5	142	28	16	-	-	85	42	-	-	12.5	19	27	29	79.5	2.5	-	-	228
GN 810-230-A-NI	230	2000	40	43	45	8.5	M 8	6.5	168	33.5	18	-	-	110.5	58	-	-	19	20	32	32	104	3	-	-	379
GN 810-75-C-NI	75	750	20	29	34	5.2	M 5	4.5	98	20.5	11	19	5.5	66.5	31.5	-	45	15	16	24	24	62.5	2	-	15	92
GN 810-130-C-NI	130	1050	28	35	42	6.2	M 6	5.5	142	28	16	25.5	11.3	85	42	-	55	12.5	19	27	29	79.5	2.5	-	17.5	228
GN 810-230-C-NI	230	2000	40	43	45	8.5	M 8	6.5	168	33.5	18	30	9.5	110.5	58	-	68	19	20	32	32	104	3	-	20	390
GN 810-75-E-NI	75	750	-	29	34	-	M 5	4.5	98	20.5	11	-	-	67	-	41	-	15	16	24	24	62.5	2	4	-	100
GN 810-130-E-NI	130	1050	-	35	42	-	M 6	5.5	142	28	16	-	-	86	-	54	-	12.5	19	27	29	79.5	2.5	5	-	230
GN 810-230-E-NI	230	2000	-	43	45	-	M 8	6.5	168	33.5	18	-	-	112	-	73	-	19	20	32	32	104	3	6	-	389

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Vertical acting toggle clamps

Steel / Stainless Steel, with vertical mounting base



SPECIFICATION

Types

- Type **B**: U-bar version, with two flanged washers
- Type **BC**: U-bar version, with two flanged washers and GN 708.1 spindle assembly (see page 1625)
- Type **F**: Solid bar version, with clasp

Version in Steel

- Case-hardened Steel C10, zinc plated, blue passivated
- Bearing pins tempered
- Bearing rivets (for size 230 and up), case-hardened

All moving parts
lubricated with special grease

Hand grip
High quality, oil resistant red plastic

Spindle assembly GN 708.1 , Type A (see page 1625)

- Steel, zinc plated
- Rubber tip 85 Shore A

Version in Stainless Steel NI

Stainless Steel AISI 304

All moving parts
lubricated with special grease

Hand grip
High quality, oil resistant red plastic

Spindle assembly GN 708.1 , Type A (see page 1625)

- Stainless Steel AISI 304
- Rubber tip 85 Shore A

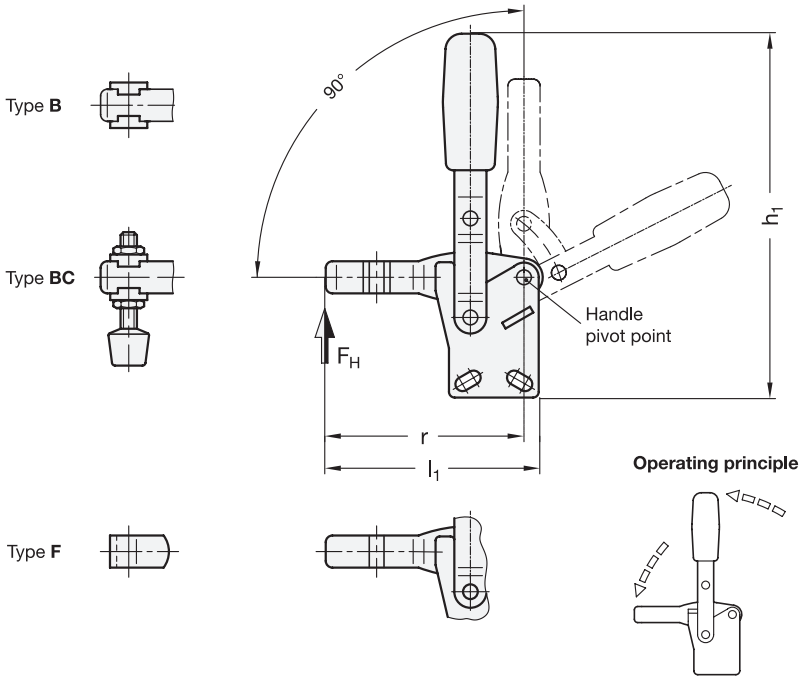
ACCESSORY

- Spindle assemblies (see page 1623)
- GN 801 clamp mounts for toggle clamps (for Type B) (see page 1629)
- GN 809 clamp mounts for toggle clamps (for Type F) (see page 1630)

INFORMATION

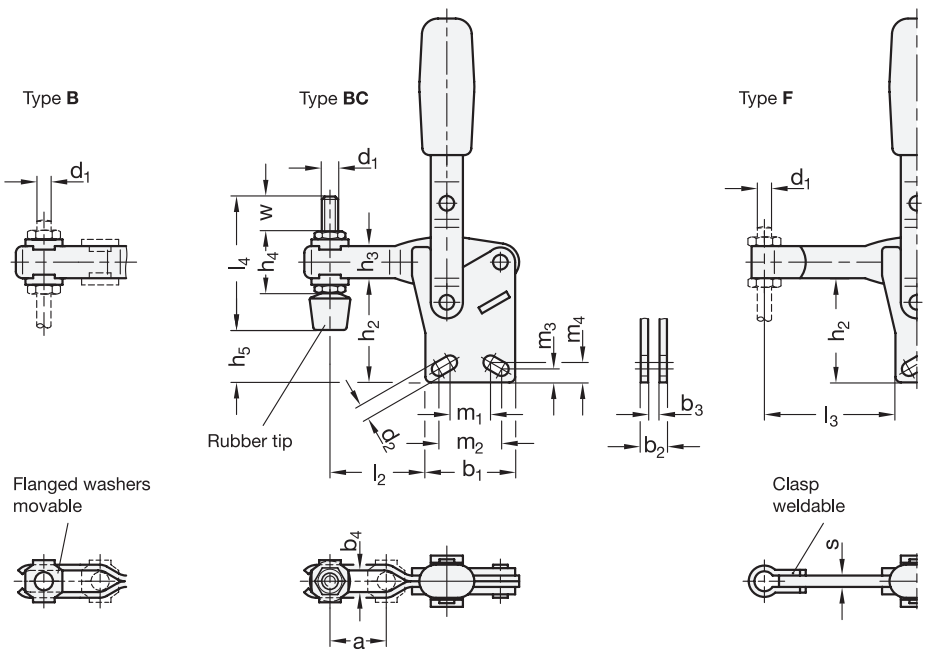
GN 810.1 vertical acting toggle clamps work according to the toggle principle: lever and clamping bar move in the same direction. In the clamped position the operating lever is in its vertical position.
Vertical acting toggle clamps in the U-bar version with two flanged washers (Type B) can accommodate an application specific clamping screw. A spindle assembly with neoprene rubber tip is also included for Type BC.
Type F version can either be utilized by welding the clasp which can then accommodate an application specific hold-down fastener component, or by utilizing the bar in conjunction with the GN 809 (see page 1630) clamp mounts to hold the work piece in place.

- General information for toggle clamps (see page 1560)



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GN 810.1 | Vertical acting toggle clamps



GN 810.1

Description	Size	FH in N	a ≈	b1	b2	b3	b4	d1	d2 ≈	h1 ≈	h2	h3	h4	h5 max.	l1 ≈	l2 ≈	l3 max.	l4	m1	m2	m3	m4	r ≈	s	w	⚖
GN 810.1-75-B	75	750	20	29	8	4	5.2	M 5	4.5	109	32	11	-	-	66.5	31.5	-	-	15	16	5	5	62.5	-	-	100
GN 810.1-130-B	130	1050	28	35	10	5	6.2	M 6	5.5	156	41.5	16	-	-	85	42	-	-	12.5	19	6.5	7.5	79	-	-	228
GN 810.1-230-B	230	2000	40	43	12	6	8.5	M 8	6.5	183	48	18	-	-	110.5	58	-	-	19	20	6.5	6.5	104	-	-	387
GN 810.1-330-B	330	2400	43	50	14	7	10.5	M 10	8.5	218	66	22	-	-	129	66	-	-	28.7	32.3	10	9.5	122	-	-	550
GN 810.1-430-B	430	2800	64	58	18	10	12.5	M 12	8.5	268	77.5	26	-	-	164	88	-	-	32	32	10	10	156	-	-	1140
GN 810.1-530-B	530	4500	90	77	18	10	12.5	M 12	12.5	337	117.5	32	-	-	223	128	-	-	50	51	12.5	12.5	212	-	-	1870
GN 810.1-75-BC	75	750	20	29	8	4	5.2	M 5	4.5	109	32	11	19	17	66.5	31.5	-	45	15	16	5	5	62.5	-	15	109
GN 810.1-130-BC	130	1050	28	35	10	5	6.2	M 6	5.5	156	41.5	16	25.5	25	85	42	-	55	12.5	19	6.5	7.5	79	-	17.5	200
GN 810.1-230-BC	230	2000	40	43	12	6	8.5	M 8	6.5	183	48	18	30	24	110.5	58	-	68	19	20	6.5	6.5	104	-	20	400
GN 810.1-330-BC	330	2400	43	50	14	7	10.5	M 10	8.5	218	66	22	37	39.5	129	66	-	77	28.7	32.3	10	9.5	122	-	19	600
GN 810.1-430-BC	430	2800	64	58	18	10	12.5	M 12	8.5	268	77.5	26	43	45	164	88	-	100	32	32	10	10	156	-	33	1100
GN 810.1-530-BC	530	4500	90	77	18	10	12.5	M 12	12.5	337	117.5	32	49	85	223	128	-	100	50	51	12.5	12.5	212	-	27	1960
GN 810.1-75-F	75	750	-	29	8	4	-	M 5	4.5	109	32	11	-	-	67	-	41	-	15	16	5	5	62.5	4	-	102
GN 810.1-130-F	130	1050	-	35	10	5	-	M 6	5.5	156	41.5	16	-	-	86	-	54	-	12.5	19	6.5	7.5	79	5	-	234
GN 810.1-230-F	230	2000	-	43	12	6	-	M 8	6.5	183	48	18	-	-	112	-	73	-	19	20	6.5	6.5	104	6	-	400
GN 810.1-330-F	330	2400	-	50	14	7	-	M 10	8.5	218	66	22	-	-	130.5	-	86	-	28.7	32.3	10	9.5	122	7	-	600
GN 810.1-430-F	430	2800	-	58	18	10	-	M 12	8.5	268	77.5	26	-	-	166	-	114	-	32	32	10	10	156	10	-	1100
GN 810.1-530-F	530	4500	-	77	18	10	-	M 12	12.5	337	117.5	32	-	-	225	-	155	-	50	51	12.5	12.5	212	10	-	1900

GN 810.1-NI

STAINLESS STEEL

Description	Size	FH in N	a ≈	b1	b2	b3	b4	d1	d2 ≈	h1 ≈	h2	h3	h4	h5 max.	l1 ≈	l2 ≈	l3 max.	l4	m1	m2	m3	m4	r ≈	s	w	⚖
GN 810.1-75-B-NI	75	750	20	29	8	4	5.2	M 5	4.5	109	32	11	-	-	66.5	31.5	-	-	15	16	5	5	62.5	-	-	97
GN 810.1-130-B-NI	130	1050	28	35	10	5	6.2	M 6	5.5	156	41.5	16	-	-	85	42	-	-	12.5	19	6.5	7.5	79	-	-	228
GN 810.1-230-B-NI	230	2000	40	43	12	6	8.5	M 8	6.5	183	48	18	-	-	110.5	58	-	-	19	20	6.5	6.5	104	-	-	379
GN 810.1-75-BC-NI	75	750	20	29	8	4	5.2	M 5	4.5	109	32	11	19	17	66.5	31.5	-	45	15	16	5	5	62.5	-	15	107
GN 810.1-130-BC-NI	130	1050	28	35	10	5	6.2	M 6	5.5	156	41.5	16	25.5	25	85	42	-	55	12.5	19	6.5	7.5	79	-	17.5	220
GN 810.1-230-BC-NI	230	2000	40	43	12	6	8.5	M 8	6.5	183	48	18	30	24	110.5	58	-	68	19	20	6.5	6.5	104	-	20	400
GN 810.1-75-F-NI	75	750	-	29	8	4	-	M 5	4.5	109	32	11	-	-	67	-	41	-	15	16	5	5	62.5	4	-	100
GN 810.1-130-F-NI	130	1050	-	35	10	5	-	M 6	5.5	156	41.5	16	-	-	86	-	54	-	12.5	19	6.5	7.5	79	5	-	235
GN 810.1-230-F-NI	230	2000	-	43	12	6	-	M 8	6.5	183	48	18	-	-	112	-	73	-	19	20	6.5	6.5	104	6	-	390

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Heavy duty vertical acting toggle clamps

with horizontal mounting base „Longlife“



SPECIFICATION

Types

- Type **A**: Clamping arm with slotted hole (only sizes 220 and 440)
- Type **E**: Clamping arm with bushing

Toggle clamp steel

- Precision casting
- blackened

Lever arm steel

- forged
- blackened

Parts in sheet metal

- case-hardened steel
- blackened

Bearing pins and rivets steel
hardened and ground

All moving parts
lubricated with special grease

Hand grip
High quality, oil resistant red plastic

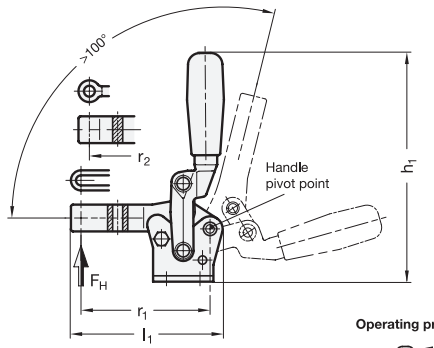
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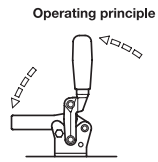
GN 910 heavy duty vertical acting toggle clamps "Longlife" are an advanced development of GN 810 (see page 1562): The steel sheet design of the clamp and lever arms is replaced by precision or die-forged components. The remaining steel sheet parts have been reinforced, bearing pins and rivets are hardened and ground.
These vertical clamps are therefore suitable for applications in which substantial forces occur and in which a long service life is required.
Extensive tests have shown that trouble-free function (under load) is ensured also after one million clamping cycles.
Stepped side washers are included.

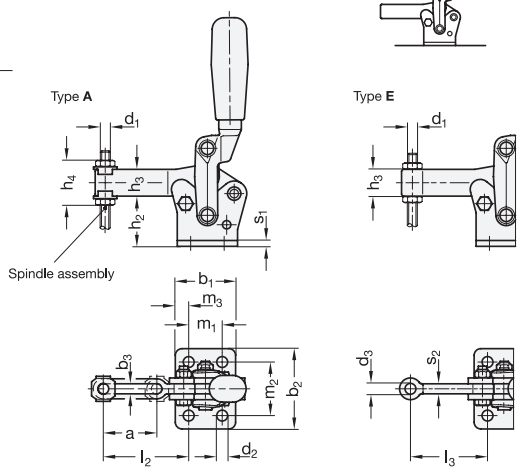
- General information for toggle clamps (see page 1560)

ACCESSORY

- Spindle assemblies (see page 1623)







GN 910

Description	Size	FH in N	a	b1	b2	b3	d1	d2	d3	h1	h2	h3	h4 ≈	l1	l2	l3	m1	m2	m3	r1	r2	s1	s2	⚖
GN 910-220-A	220	2200	32	36	48	6	M 6	6.5	-	136.5	30	16	27	91	51	-	20	32	8	77	-	3.5	-	330
GN 910-440-A	440	4400	34	54	65	10	M 10	8.5	-	215	50	24	45	129.5	66	-	30	45	12	107	-	5	-	1000
GN 910-220-E	220	2200	-	36	48	-	M 6	6.5	6.5	136.5	30	16	-	86	-	46	20	32	8	-	72	3.5	6	320
GN 910-440-E	440	4400	-	54	65	-	M 10	8.5	10.5	215	50	24	-	129.5	-	66	30	45	12	-	107	5	10	1200
GN 910-850-E	850*	8500	-	75	75	-	M 12	10.5	12.5	280	67	30	-	161	-	72	55	55	10	-	133	6	12	2200
GN 910-1540-E	1540*	15400	-	90	100	-	M 16	12.5	16.5	330	76.5	35	-	203	-	92.5	65	65	12.5	-	167	8	16	4600

* This size is fitted with a round handle at the lever arm and available only in type E.

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GN 910.1

Heavy duty vertical acting toggle clamps

with vertical mounting base „Longlife“



SPECIFICATION

Types

- Type **B**: Clamping arm with slotted hole (only sizes 220 and 440)
- Type **F**: Clamping arm with bushing

Toggle clamp steel

- Precision casting
- blackened

Lever arm steel

- forged
- blackened

Parts in sheet metal

- case-hardened steel
- blackened

Bearing pins and rivets steel
hardened and ground

All moving parts
lubricated with special grease

Hand grip
High quality, oil resistant red plastic

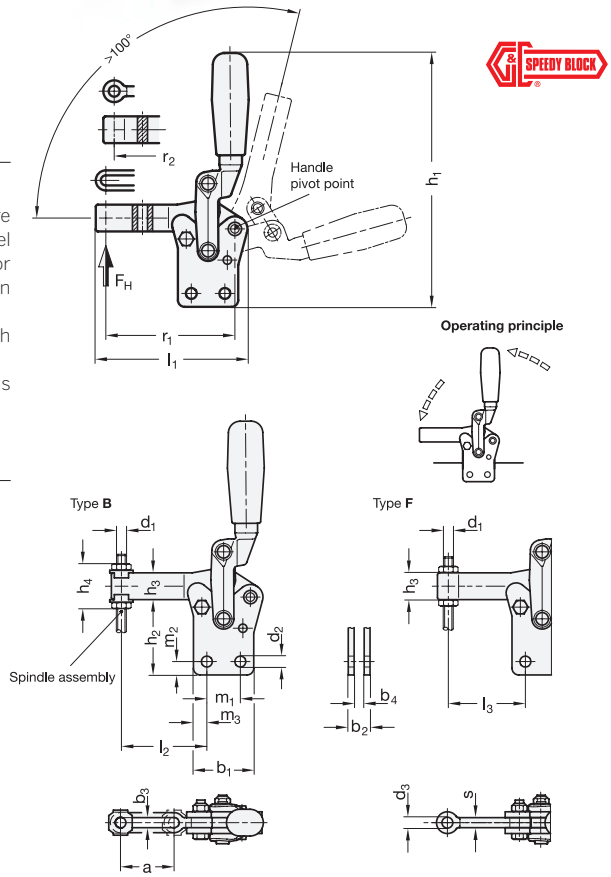
INFORMATION

GN 910.1 heavy duty vertical acting toggle clamps "Longlife" are an advanced development of GN 810.1 (see page 1564): The steel sheet design of the clamp and lever arms is replaced by precision or die-forged components. The remaining steel sheet parts have been reinforced, bearing pins and rivets are hardened and ground.
These vertical clamps are therefore suitable for applications in which substantial forces occur and in which a long service life is required.
Extensive tests have shown that trouble-free function (under load) is ensured also after one million clamping cycles.
Stepped side washers are included.

- General information for toggle clamps (see page 1560)

ACCESSORY

- Spindle assemblies (see page 1623)
- GN 801 clamp mounts for toggle clamps (for Type B) (see page 1629)



GN 910.1

Description	Size	FH in N	a	b1	b2	b3	b4	d1	d2	d3	h1	h2	h3	h4 ≈	l1	l2	l3	m1	m2	m3	r1	r2	s	⚖
GN 910.1-220-B	220	2200	32	36	13	6	6	M 6	6.5	-	152	45.5	16	27	91	51	-	20	8	8	77	-	-	330
GN 910.1-440-B	440	4400	34	54	20	10	10	M 10	8.5	-	235	69.5	24	45	129.5	66	-	30	10	12	107	-	-	1200
GN 910.1-220-F	220	2200	-	36	13	-	6	M 6	6.5	6.5	152	45.5	16	-	86	-	46	20	8	8	-	72	6	325
GN 910.1-440-F	440	4400	-	54	20	-	10	M 10	8.5	10.5	235	69.5	24	-	129.5	-	66	30	10	12	-	107	10	1200
GN 910.1-850-F	850*	8500	-	75	24	-	12	M 12	10.5	12.5	301	88	30	-	161	-	72	55	10	10	-	133	12	2200
GN 910.1-1540-F	1540*	15400	-	90	32	-	16	M 16	12.5	16.5	344	106	35	-	203	-	92.5	65	17.5	12.5	-	167	16	4500

* This size is fitted with a round handle at the lever arm and available only in type F.

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Heavy duty knee lever modules

with horizontal or vertical mounting base, to screw-on

SPECIFICATION

Types

- Type **C**: Mounting holes vertical to the handle pivot point
- Type **G**: Mounting holes parallel to the handle pivot point

Lever arm steel

- forged
- blackened

Parts in sheet metal

- case-hardened steel C10
- blackened

Bearing pins and rivets steel
hardened and ground

All moving parts
lubricated with special grease



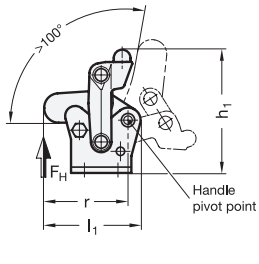
INFORMATION

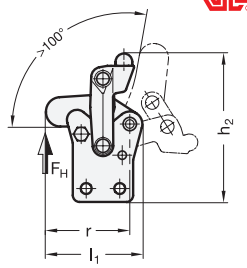
GN 910.2 heavy duty knee lever modules have the same properties and attributes as the "Longlife" GN 910 (see page 1566) / GN 910.1 (see page 1567) heavy duty vertical acting toggle clamps: The clamping arms are die-forged, the remaining steel sheet parts have been reinforced and bearing pins and rivets are hardened and ground.
These knee lever modules are therefore suitable for applications in which substantial forces occur and in which a long service life is required.
Extensive tests have shown that trouble-free function (under load) is ensured also after one million clamping cycles.
These knee lever modules permit the size and position of the lever and clamping arms to be adjusted to match the specific application.

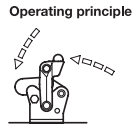
- General information for toggle clamps (see page 1560)

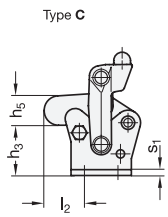
ACCESSORY

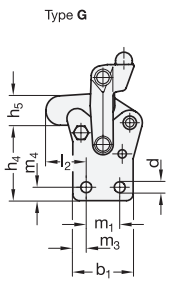
- Handles, levers, clamping arm extenders, bushings, base plates (see page 1570)

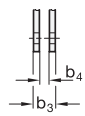


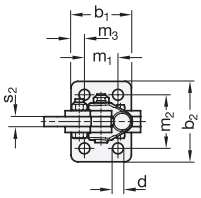


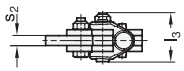












GN 910.2

Description	Size	FH in N	b1	b2	b3	b4	d	h1	h2	h3	h4	h5	l1	l2	l3	m1	m2	m3	m4	r	s1	s2	⚖
GN 910.2-220-C	220	2200	36	48	13	6	6.5	74	-	30	-	17.5	57.5	24	29	20	32	-	-	50	3.5	6	256
GN 910.2-440-C	440	4400	54	65	20	10	8.5	121	-	50	-	28	85.5	32	42.5	30	45	-	-	73	5	10	967
GN 910.2-850-C	850	8500	75	75	24	12	10.5	158	-	67	-	35	115	38	52	55	55	-	-	99	6	12	1967
GN 910.2-1540-C	1540	15400	90	100	34	16	12.5	193	-	76.5	-	40	147.5	53	68	65	75	-	-	127.5	8	16	3980
GN 910.2-220-G	220	2200	36	-	13	6	6.5	-	89	-	45.5	17.5	57.5	24	29	20	-	8	8	50	-	6	256
GN 910.2-440-G	440	4400	54	-	20	10	8.5	-	140.5	-	69.5	28	85.5	32	42.5	30	-	12	10	73	-	10	967
GN 910.2-850-G	850	8500	75	-	24	12	10.5	-	180	-	88	35	115	38	52	55	-	10	10	99	-	12	1900
GN 910.2-1540-G	1540	15400	90	-	34	16	12.5	-	222	-	106	40	147.5	53	68	65	-	12.5	17.5	127.5	-	16	4000

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GN 910.3

Heavy duty knee lever modules

for welding

SPECIFICATION

Lever arm steel

- forged
- blackened

Parts in sheet metal

- case-hardened steel C10
- blackened

Bearing pins and rivets steel
hardened and ground

All moving parts
lubricated with special grease

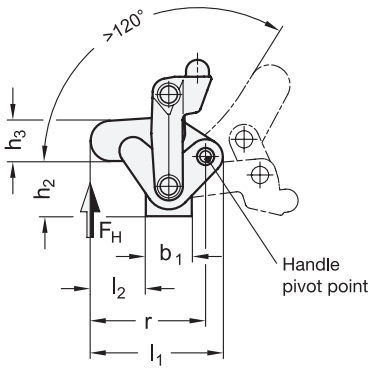


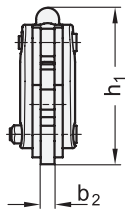
INFORMATION

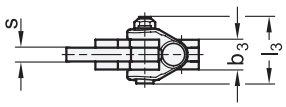
GN 910.3 heavy duty knee lever modules have the same properties and attributes as the "Longlife" GN 910 (see page 1566) / GN 910.1 (see page 1567) heavy duty vertical acting toggle clamps: The clamping arms are die-forged, the remaining steel sheet parts have been reinforced and bearing pins and rivets are hardened and ground.
These knee lever modules are therefore suitable for applications in which substantial forces occur and in which a long service life is required.
Extensive tests have shown that trouble-free function (under load) is ensured also after one million clamping cycles.
These knee lever modules permit the size and position of the lever and clamping arms to be adjusted to match the specific application.
The actual module is welded on.
- General information for toggle clamps (see page 1560)

ACCESSORY

- Handles, levers, clamping arm extenders, bushings, base plates (see page 1570)







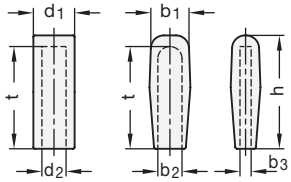
GN 910.3

Description	Size	FH in N	b1	b2	b3	h1	h2	h3	l1	l2	l3	r	s	⚖
GN 910.3-220	220	2200	20	6	13	68	24	17.5	57.5	24	29	50	6	268
GN 910.3-440	440	4400	30	10	20	113	42	28	85.5	32	42.5	73	10	820
GN 910.3-850	850	8500	50	12	24	148	57	35	115	40.5	52	99	12	1620
GN 910.3-1540	1540	15400	60	16	32	183	66.5	40.5	147.5	55.5	68	127.5	16	3420

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Accessories for heavy duty knee lever modules

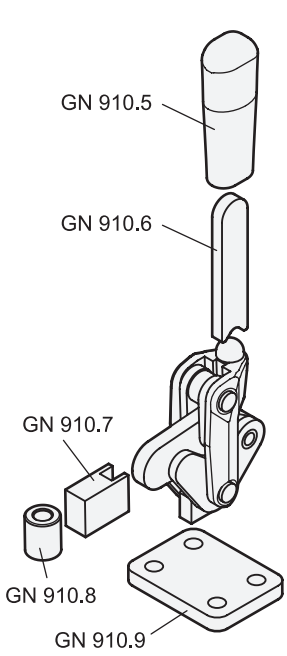
GN 910.2 and GN 910.3

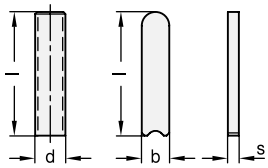


Handles

GN 910.5

Description	Size	b1	d1	b2	d2	b3	h	t	⚖
GN 910.5-220	220	22	-	13	-	5	60	55	12
GN 910.5-440	440	31	-	20	-	8	86	77	22
GN 910.5-850	850	-	30	-	22	-	119	112	50
GN 910.5-1540	1540	-	34	-	25	-	119	112	54

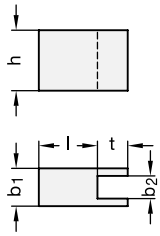




Levers

GN 910.6

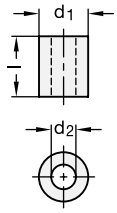
Description	Size	b	d	l	s	⚖
GN 910.6-220	220	13	-	60	5	31
GN 910.6-440	440	20	-	90	8	108
GN 910.6-850	850	-	22	122	-	122
GN 910.6-1540	1540	-	25	138	-	187



Clamping arm extenders

GN 910.7

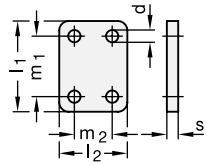
Description	Size	b1	b2	h	l	t	⚖
GN 910.7-220	220	10	6	16	15.5	6.5	23
GN 910.7-440	440	15	10	24	16	8	76
GN 910.7-850	850	20	12	30	22.1	15	130
GN 910.7-1540	1540	25	16.2	35	23.5	-	204



Bushings

GN 910.8

Description	Size	d1	d2	l	⚖
GN 910.8-220	220	13	6.5	16	13
GN 910.8-440	440	20	10.5	24	42
GN 910.8-850	850	24	12.5	30	76
GN 910.8-1540	1540	32	16.5	35	161



Base plates

GN 910.9

Description	Size	d	l1	l2	m1	m2	s	⚖
GN 910.9-220	220	6.5	48	36	32	20	6	74
GN 910.9-440	440	8.5	65	54	45	30	8	205
GN 910.9-850	850	10.5	75	75	55	55	10	400
GN 910.9-1540	1540	12.5	100	90	65	65	10	657

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GN 813

Heavy duty vertical acting toggle clamps

with vertical mounting base



SPECIFICATION

Type

- Type **F**: Solid bar version

Bearing pins and clamping lever
Steel St 60
blackened

Other parts
Steel St 37

- weldable
- blackened

Bearing pins and rivets
case-hardened

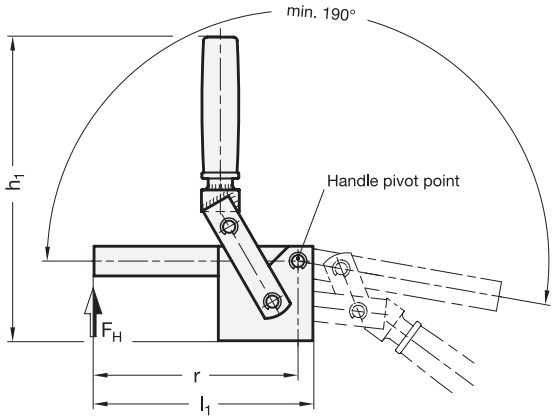
All moving parts
lubricated with special grease

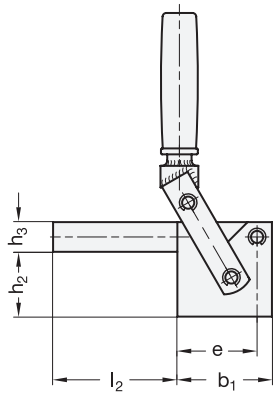
Hand grip
High quality, oil resistant red plastic

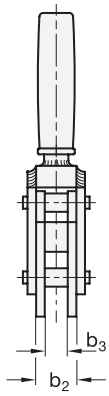
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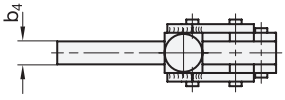
GN 813 vertical acting toggle clamps are used for applications where a very high holding force is required such as closing of foam molds. These clamps have been designed for easy dismantling: i.e. the bearing pins are locked with circlips.
After dismantling the individual parts, they can be modified to suit individual applications.

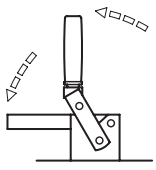
- General information for toggle clamps (see page 1560)











GN 813

Description	Size	FH in N	b1	b2	b3	b4	e	h1	h2	h3	l1	l2	r	⚖
GN 813-1000-F	1000	10000	80	36	20	20	67	265	55	25	190	110	177	2400
GN 813-2000-F	2000	20000	100	36	20	20	82	297	65	35	220	120	202	3540
GN 813-3000-F	3000	30000	110	45	25	25	90	320	80	40	250	140	230	5500

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Vertical acting toggle clamps

with dual flanged mounting base



SPECIFICATION

Types

- Type **AV**: U-bar version, with two flanged washers
- Type **CV**: U-bar version, with two flanged washers and GN 708.1 spindle assembly (see page 1625)
- Type **EV**: Solid bar version, with clasp

Parts in sheet metal
Case-hardened Steel C10, zinc plated, blue passivated

Bearing pins tempered

Bearing rivets case-hardened

All moving parts
lubricated with special grease

Hand grip
High quality, oil resistant red plastic

Spindle assembly GN 708.1 , Type A (see page 1625)

- Steel, zinc plated
- Rubber tip 85 Shore A

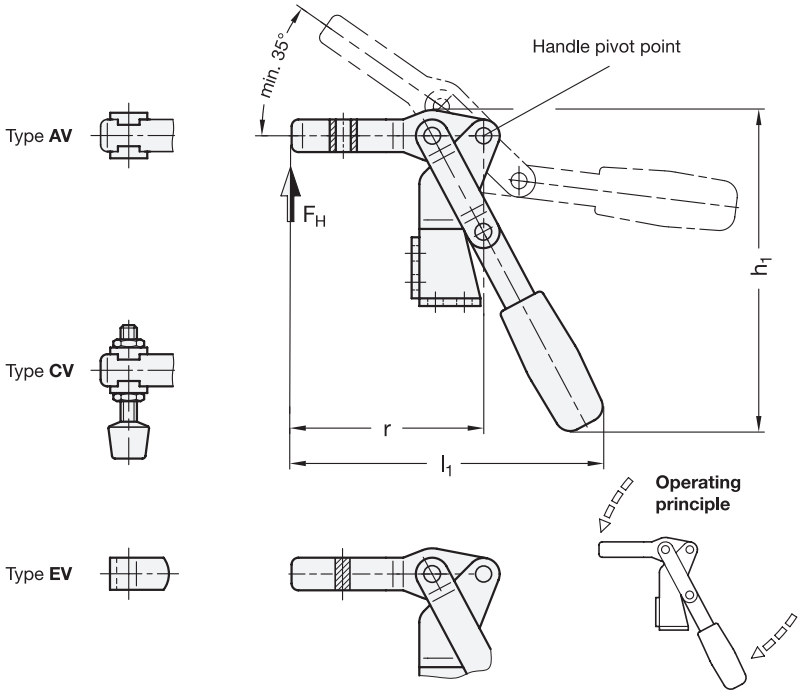
INFORMATION

GN 812 vertical acting toggle clamps work according to the toggle principle: lever and clamping bar move in the same direction. They can be mounted in two planes via the dual flanged mounting base and require less space for the clamping action because the clamping arm and the operating lever move in opposite directions.
Vertical acting toggle clamps in the U-bar version with two flanged washers (Type AV) can accommodate an application specific clamping screw. A spindle assembly with neoprene rubber tip is also included for Type CV.
Type EV version can either be utilized by welding the clasp which can then accommodate an application specific hold-down fastener component, or by utilizing the bar in conjunction with the GN 809 (see page 1630) clamp mounts to hold the work piece in place.

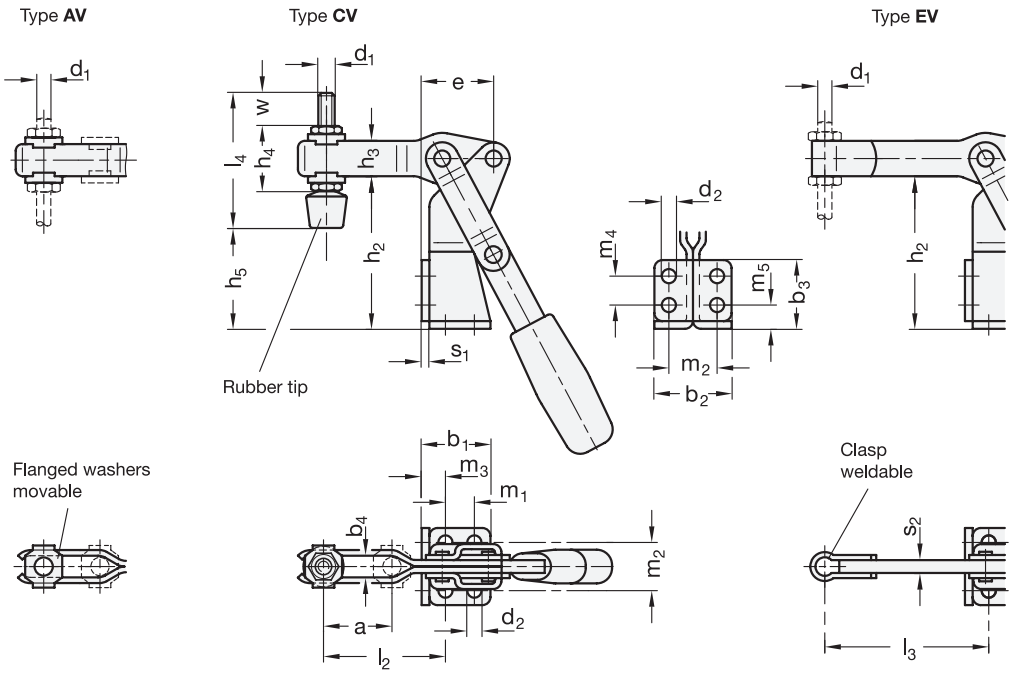
- General information for toggle clamps (see page 1560)

ACCESSORY

- Spindle assemblies (see page 1623)
- GN 801 clamp mounts for toggle clamps (for Type AV) (see page 1629)
- GN 809 clamp mounts for toggle clamps (for Type EV) (see page 1630)



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GN 812

Description	Size	F_H in N	a ≈	b1	b2	b3	b4	d1	d2	e	h1 ≈	h2	h3	h4	h5 max.	l1 ≈	l2 ≈	l3 max.	l4	m1	m2	m3	m4	m5	r ≈	s1	s2	w	⚖
GN 812-200-AV	200	1200	34	35	38	35	8.5	M 8	6.5	37	154	76	17	-	-	158	59	-	-	16	26	11	16	11	96	3	-	-	420
GN 812-300-AV	300	1900	42	48	48	51	10.4	M 10	8.5	46	198	108	20	-	-	194	74	-	-	28	30	11.5	30	12	122	3	-	-	800
GN 812-200-CV	200	1200	34	35	38	35	8.5	M 8	6.5	37	154	76	17	29	52	158	59	-	68	16	26	11	16	11	96	3	-	21	480
GN 812-300-CV	300	1900	42	48	48	51	10.4	M 10	8.5	46	198	108	20	35	79.5	194	74	-	77	28	30	11.5	30	12	122	3	-	21	880
GN 812-200-EV	200	1200	-	35	38	35	-	M 8	6.5	37	154	76	17	-	-	158	-	76	-	16	26	11	16	11	96	3	6	-	420
GN 812-300-EV	300	1900	-	48	48	51	-	M 10	8.5	46	198	108	20	-	-	194	-	95	-	28	30	11.5	30	12	122	3	8	-	800

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Vertical acting toggle clamps

with dual flanged mounting base



SPECIFICATION

Types

- Type **AVF**: U-bar version, with two flanged washers
- Type **CVF**: U-bar version, with two flanged washers and GN 708.1 spindle assembly (see page 1625)
- Type **EVF**: Solid bar version, with clasp

Parts in sheet metal
Case-hardened Steel C10
zinc plated, blue passivated

Bearing pins tempered

Bearing rivets case-hardened

All moving parts
lubricated with special grease

Hand grip
High quality, oil resistant red plastic

Spindle assembly GN 708.1 , Type A (see page 1625)

- Steel, zinc plated
- Rubber tip 85 Shore A

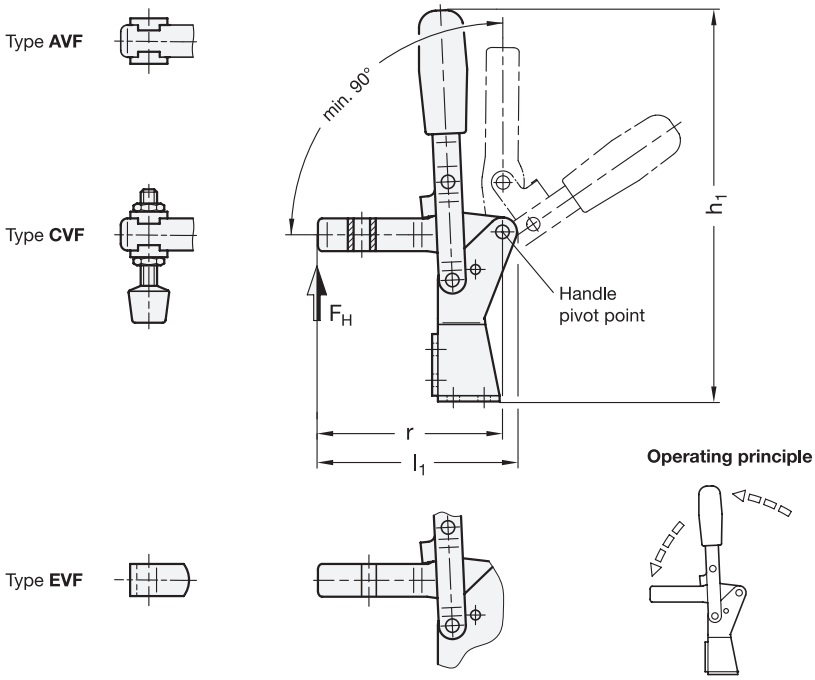
INFORMATION

GN 812.1 vertical acting toggle clamps work according to the toggle principle: lever and clamping bar move in the same direction. In the clamped position the operating lever is in its vertical position.
They can be mounted in two planes via the dual flanged mounting base and require less space for the clamping action.
Vertical acting toggle clamps in the U-bar version with two flanged washers (Type AVF) can accommodate an application specific clamping screw. A spindle assembly with neoprene rubber tip is also included for Type CVF.
Type EVF version can either be utilized by welding the clasp which can then accommodate an application specific hold-down fastener component, or by utilizing the bar in conjunction with the GN 809 (see page 1630) clamp mounts to hold the work piece in place.

- General information for toggle clamps (see page 1560)

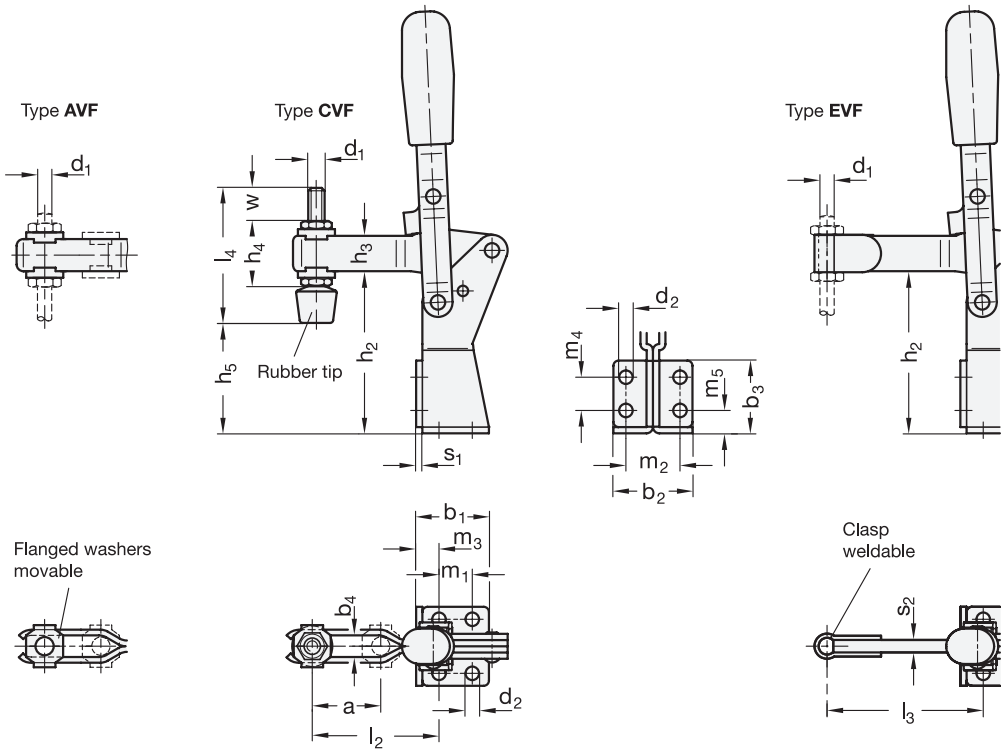
ACCESSORY

- Spindle assemblies (see page 1623)
- GN 809 clamp mounts for toggle clamps (for Type EVF) (see page 1630)
- GN 801 clamp mounts for toggle clamps (for Type AVF) (see page 1629)



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GN 812.1 | Vertical acting toggle clamps



GN 812.1

Description	Size	FH in N	a ≈	b1	b2	b3	b4	d1	d2	h1 ≈	h2	h3	h4 ≈	h5 max.	l1 ≈	l2	l3 max.	l4	m1	m2	m3	m4	m5	r	s1	s2	w	⚖
GN 812.1-200-AVF	200	1600	36	35	38	35	8.5	M 8	6.5	203	77	17	-	-	103	61	-	-	16	26	11	16	11	95.5	3	-	-	390
GN 812.1-300-AVF	300	2400	50	48	48	51	10.2	M 10	8.5	258	105	20	-	-	130	75	-	-	28	30	11.5	30	12	121.5	3	-	-	680
GN 812.1-200-CVF	200	1600	36	35	38	35	8.5	M 8	6.5	203	77	17	29	53	103	61	-	68	16	26	11	16	11	95.5	3	-	21	450
GN 812.1-300-CVF	300	2400	50	48	48	51	10.2	M 10	8.5	258	105	20	35	76.5	130	75	-	77	28	30	11.5	30	12	121.5	3	-	21	700
GN 812.1-200-EVF	200	1600	-	35	38	35	-	M 8	6.5	203	77	17	-	-	105	-	85	-	16	26	11	16	11	97.5	3	6	-	400
GN 812.1-300-EVF	300	2400	-	48	48	51	-	M 10	8.5	258	105	20	-	-	132	-	100	-	28	30	11.5	30	12	123	3	8	-	690

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Horizontal acting toggle clamps

Steel / Stainless Steel, with horizontal mounting base





SPECIFICATION

Types

- Type **M**: U-bar version, with two flanged washers
- Type **MC**: U-bar version, with two flanged washers and GN 708.1 spindle assembly (see page 1625)
- Type **O**: Solid bar version, with clasp

Version in Steel

- Case-hardened Steel C10, zinc plated, blue passivated
- Bearing pins tempered
- Bearing rivets (for size 355 and up), case-hardened

All moving parts
lubricated with special grease

Hand grip
High quality, oil resistant red plastic

Spindle assembly GN 708.1 , Type A (see page 1625)

- Steel, zinc plated
- Rubber tip 85 Shore A

Version in Stainless Steel NI

Stainless Steel AISI 304

All moving parts
lubricated with special grease

Hand grip
High quality, oil resistant red plastic

Spindle assembly GN 708.1 , Type A (see page 1625)

- Stainless Steel AISI 304
- Rubber tip 85 Shore A

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)

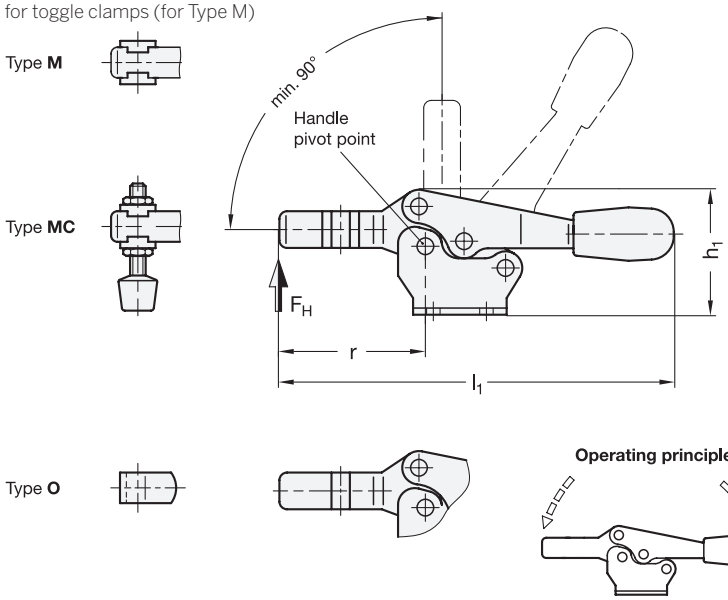
ACCESSORY

- Spindle assemblies (see page 1623)
- GN 809 clamp mounts for toggle clamps (for Type O) (see page 1630)
- GN 801 clamp mounts for toggle clamps (for Type M) (see page 1629)

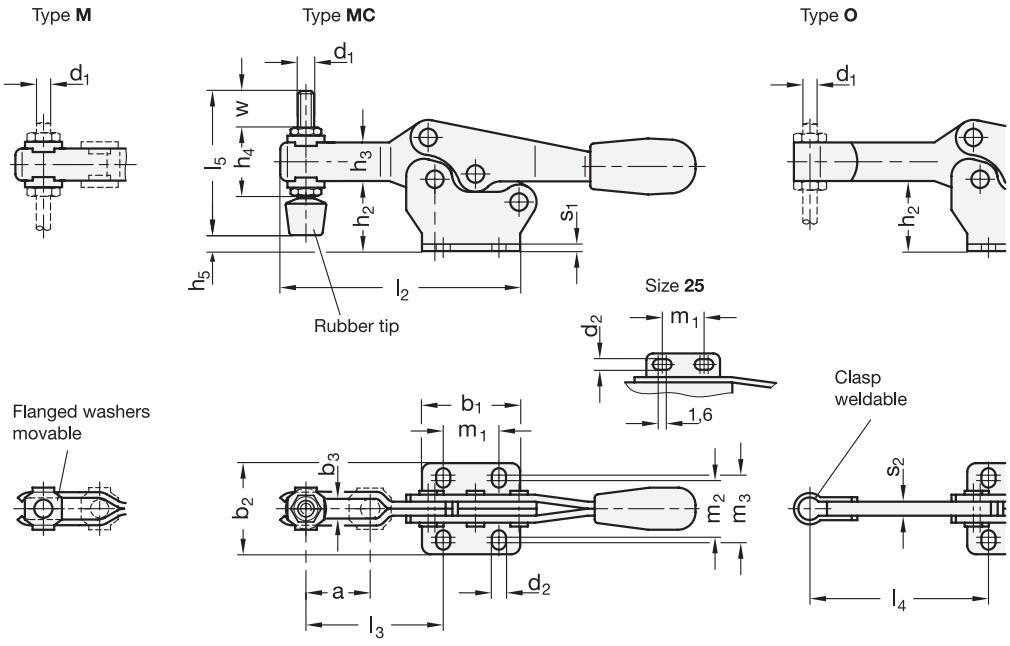
INFORMATION

GN 820 horizontal acting toggle clamps work according to the toggle principle: lever and clamping bar move in the opposite direction.
They require less space for the clamping action. In the clamped position the operating lever is in its horizontal position.
Horizontal acting toggle clamps in the U-bar version with two flanged washers (Type M) can accommodate an application specific clamping screw. A spindle assembly with neoprene rubber tip is also included for Type MC.
Type O version can either be utilized by welding the clasp which can then accommodate an application specific hold-down fastener component, or by utilizing the bar in conjunction with the GN 809 (see page 1630) clamp mounts to hold the work piece in place.

- General information for toggle clamps (see page 1560)



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GN 820

Description	Size	FH in N	a ≈	b1	b2	b3	d1	d2	h1 ≈	h2	h3	h4	h5 max.	l1 ≈	l2 ≈	l3 ≈	l4 max.	l5	m1	m2	m3	r	s1	s2	w	⚖
GN 820-25-*	25**	400	10	24	24.5	4.3	M 4	4.3	23	12	7	13.5	-	69	43	20	-	-	15	16	16	24.5	1.2	-	-	25
GN 820-75-*	75	900	20	28	26	5.5	M 5	4.5	37	20	11	19	5	118	67	40	49.5	45	13.5	16	19	43	2	4	15	85
GN 820-130-*	130	1000	32	36	40	6.5	M 6	5.5	51	30.5	16	25.5	14	168	92	53	64	55	26	22.4	28.4	62	2.5	5	17.5	203
GN 820-230-*	230	1700	37	44	42	8.5	M 8	6.5	61.5	36.5	18	30	12.5	196	110	63.5	78	68	26	26	31.5	72	3	6	20	329
GN 820-355-*	355	1800	58	60	56	10.4	M 10	8.5	83	50	22	37	23.5	270	161	96	115	77	41	38.8	43	108.5	3.5	7	19	700
GN 820-455-*	455	3200	65	70	65	12.4	M 12	8.5	98.5	60	26	43	27.5	309	186	116	135	100	41.5	40	43	126	4	10	33	1200

GN 820-NI

STAINLESS STEEL

Description	Size	FH in N	a ≈	b1	b2	b3	d1	d2	h1 ≈	h2	h3	h4	h5 max.	l1 ≈	l2 ≈	l3 ≈	l4 max.	l5	m1	m2	m3	r	s1	s2	w	⚖
GN 820-25-*-NI	25**	400	10	24	24.5	4.3	M 4	4.3	23	12	7	13.5	-	69	43	20	-	-	15	16	16	24.5	1.2	-	-	20
GN 820-75-*-NI	75	900	20	28	26	5.5	M 5	4.5	37	20	11	19	5	118	67	40	49.5	45	13.5	16	19	43	2	4	15	80
GN 820-130-*-NI	130	1000	32	36	40	6.5	M 6	5.5	51	30.5	16	25.5	14	168	92	53	64	55	26	22.4	28.4	62	2.5	5	17.5	202
GN 820-230-*-NI	230	1700	37	44	42	8.5	M 8	6.5	61.5	36.5	18	30	12.5	196	110	63.5	78	68	26	26	31.5	72	3	6	20	330

** Size 25 only available as type M

Weight type M

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Horizontal acting toggle clamps

Steel / Stainless Steel, with vertical mounting base





SPECIFICATION

Types

- Type **N**: U-bar version, with two flanged washers
- Type **NC**: U-bar version, with two flanged washers and GN 708.1 spindle assembly (see page 1625)
- Type **P**: Solid bar version, with clasp

Version in Steel

- Case-hardened Steel C10, zinc plated, blue passivated
- Bearing pins tempered
- Bearing rivets (for size 355 and up), case-hardened

All moving parts
lubricated with special grease

Hand grip
High quality, oil resistant red plastic

Spindle assembly GN 708.1 , Type A (see page 1625)

- Steel, zinc plated
- Rubber tip 85 Shore A

Version in Stainless Steel NI

Stainless Steel AISI 304

All moving parts
lubricated with special grease

Hand grip
High quality, oil resistant red plastic

Spindle assembly GN 708.1 , Type A (see page 1625)

- Stainless Steel AISI 304
- Rubber tip 85 Shore A

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)

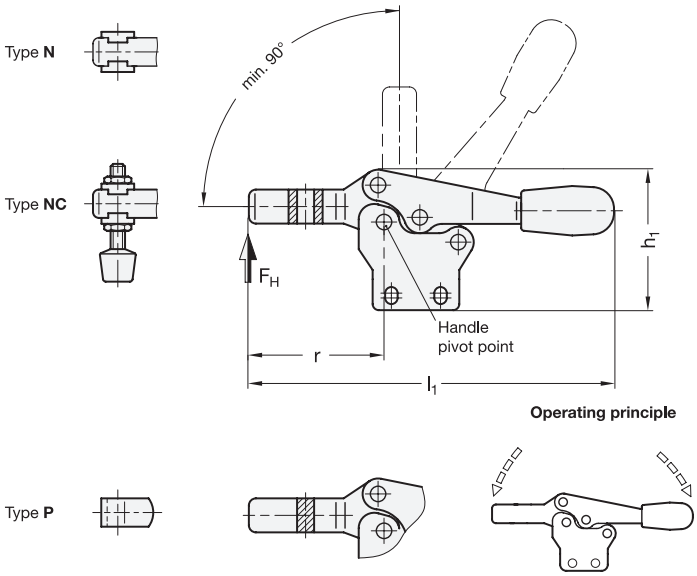
ACCESSORY

- Spindle assemblies (see page 1623)
- GN 801 clamp mounts for toggle clamps (for Type N) (see page 1629)
- GN 809 clamp mounts for toggle clamps (for Type P) (see page 1630)

INFORMATION

GN 820.1 horizontal acting toggle clamps work according to the toggle principle: lever and clamping bar move in the opposite direction.
They require less space for the clamping action. In the clamped position the operating lever is in its horizontal position.
Horizontal acting toggle clamps in the U-bar version with two flanged washers (Type N) can accommodate an application specific clamping screw. A spindle assembly with neoprene rubber tip is also included for Type NC.
Type P version can either be utilized by welding the clasp which can then accommodate an application specific hold-down fastener component, or by utilizing the bar in conjunction with the GN 809 (see page 1630) clamp mounts to hold the work piece in place.

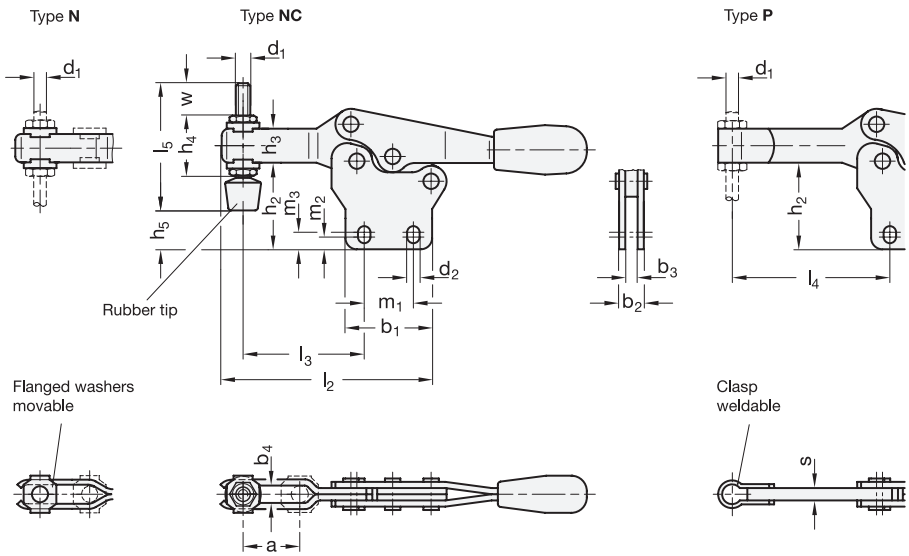
- General information for toggle clamps (see page 1560)



Operating principle

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GN 820.1 | Horizontal acting toggle clamps



*Complete with type index of the horizontal acting toggle clamps
N NC P

GN 820.1

Description	Size	FH in N	a ≈	b1	b2	b3	b4	d1	d2	h1 ≈	h2	h3	h4	h5 max.	l1 ≈	l2 ≈	l3 ≈	l4 max.	l5	m1	m2	m3	r ≈	s	w	⚖
GN 820.1-75-*	75	900	20	28	8	4	5.5	M 5	4.5	45.5	27.5	11	19	12.5	118	68	40	49.5	45	13.5	3.5	5	43	4	15	90
GN 820.1-130-*	130	1000	32	36	10	5	6.5	M 6	5.5	64	44	16	25.5	27.5	170	92	53	64	55	26	5.8	8.8	62	5	17.5	200
GN 820.1-230-*	230	1700	37	44	12	6	8.5	M 8	6.5	75	50	18	30	26	196	109	63.5	78	68	26	6.5	9	73	6	20	330
GN 820.1-355-*	355	1800	58	60	14	7	10.4	M 10	8.5	102	69	22	37	42.5	270	161	96	115	77	41	7.5	9.6	110	7	19	700
GN 820.1-455-*	455	3200	65	70	18	10	12.4	M 12	8.5	119	80.5	26	43	48	309	186	116	135	100	41.5	11	12.5	128	10	33	1200

GN 820.1-NI

STAINLESS STEEL

Description	Size	FH in N	a ≈	b1	b2	b3	b4	d1	d2	h1 ≈	h2	h3	h4	h5 max.	l1 ≈	l2 ≈	l3 ≈	l4 max.	l5	m1	m2	m3	r ≈	s	w	⚖
GN 820.1-75-*-NI	75	900	20	28	8	4	5.5	M 5	4.5	45.5	27.5	11	19	12.5	118	68	40	49.5	45	13.5	3.5	5	43	4	15	90
GN 820.1-130-*-NI	130	1000	32	36	10	5	6.5	M 6	5.5	64	44	16	25.5	27.5	170	92	53	64	55	26	5.8	8.8	62	5	17.5	200
GN 820.1-230-*-NI	230	1700	37	44	12	6	8.5	M 8	6.5	75	50	18	30	26	196	109	63.5	78	68	26	6.5	9	73	6	20	330

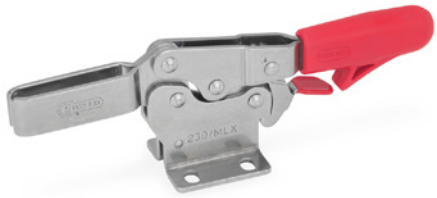
Weight type N

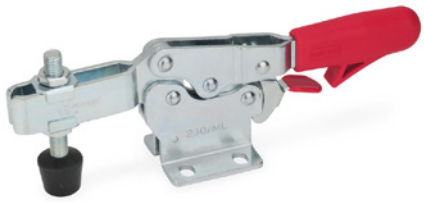
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GN 820.3

Horizontal acting toggle clamps

Steel / Stainless Steel, with safety hook, with horizontal mounting base





SPECIFICATION

Types

- Type **ML**: U-bar version, with two flanged washers
- Type **MLC**: U-bar version, with two flanged washers and GN 708.1 spindle assembly (see page 1625)
- Type **OL**: Solid bar version, with clasp

Version in Steel

- Case-hardened Steel C10, zinc plated, blue passivated
- Bearing pins tempered
- Bearing rivets (for size 355 and up), case-hardened

All moving parts
lubricated with special grease

Hand grip
High quality, oil resistant red plastic

Spindle assembly GN 708.1 , Type A (see page 1625)

- Steel, zinc plated
- Rubber tip 85 Shore A

Version in Stainless Steel NI

Stainless Steel AISI 304

All moving parts
lubricated with special grease

Hand grip
High quality, oil resistant red plastic

Spindle assembly GN 708.1 , Type A (see page 1625)

- Stainless Steel AISI 304
- Rubber tip 85 Shore A

TECHNICAL INFORMATION

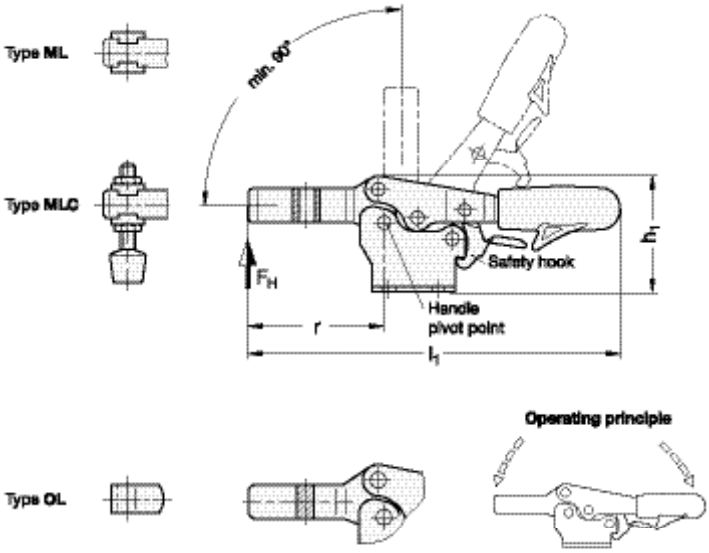
- Stainless Steel characteristics (see page A26)

ACCESSORY

- Spindle assemblies (see page 1623)
- GN 801 clamp mounts for toggle clamps (for Type ML) (see page 1629)
- GN 809 clamp mounts for toggle clamps (for Type OL)

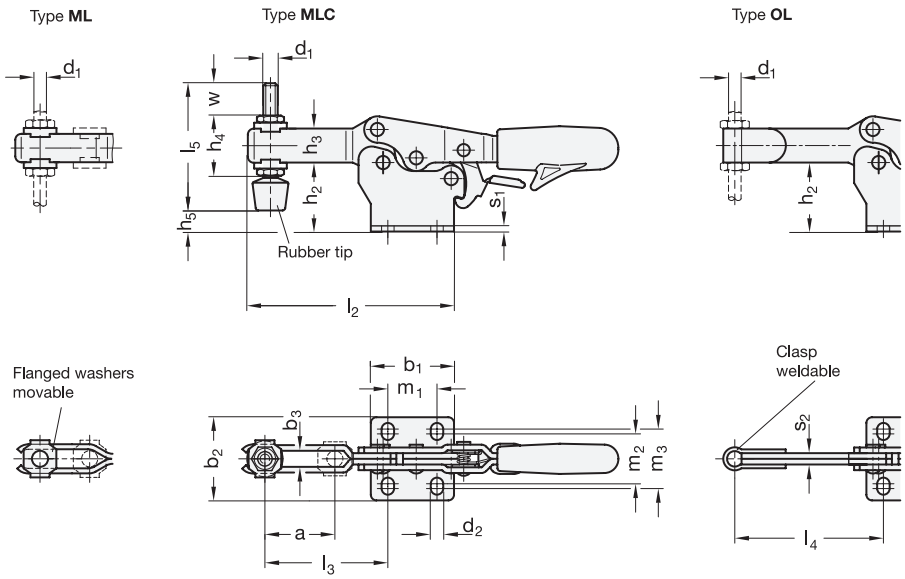
INFORMATION

GN 820.3 horizontal acting toggle clamps have a safety function whereby, during closing, a spring loaded safety hook latch ensures a secure locking connection. It prevents the inadvertent unlocking of the clamp due to vibrations or an accidental attempt of loosening / opening of the clamp. To open and release the clamp, pull up on the finger grip to disengage the safety hook latch mechanism (one hand operation).
They work according to the toggle principle: lever and clamping bar move in the opposite direction. They require less space for the clamping action.
Horizontal acting toggle clamps in the U-bar version with two flanged washers (Type ML) can accommodate an application specific clamping screw. A spindle assembly with neoprene rubber tip is also included for Type MLC.
Type OL version can either be utilized by welding the clasp which can then accommodate an application specific hold-down fastener component, or by utilizing the bar in conjunction with the GN 809 clamp mounts to hold the work piece in place.
nation for toggle clamps (see page 1560)



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GN 820.3 | Horizontal acting toggle clamps



*Complete with type index of the horizontal acting toggle clamps
ML MLC OL

GN 820.3

Description	Size	F_H in N	a ≈	b1	b2	b3	d1	d2	h1 ≈	h2	h3	h4	h5 max.	l1 ≈	l2 ≈	l3 ≈	l4 max.	l5	m1	m2	m3	r	s1	s2	w	⚖
GN 820.3-75-*	75	900	20	28	26	5.3	M 5	4.5	37	20	11	19	5	118	67	40	49.5	45	13.5	16	19	43	2	4	15	100
GN 820.3-130-*	130	1000	32	36	40	6.3	M 6	5.6	51	30.5	16	25.5	14	172	92	53	64	55	26	22.4	28.4	62	2.5	5	17.5	200
GN 820.3-230-*	230	1700	37	44	44	8.5	M 8	6.6	61.5	36.5	18	30	12.5	196	109	63.5	78	68	26	26	31.5	72	3	6	20	320
GN 820.3-355-*	355	1800	58	60	58	10.5	M 10	8.6	83	50	22	37	23.5	270	160	96	115	77	41	38.8	43	108.5	3.5	7	19	730
GN 820.3-455-*	455	3200	65	70	65	12.5	M 12	8.7	99	60	26	43	27.5	306	184	116	135	100	41.5	40	43	126	4	10	33	1200

GN 820.3-NI

STAINLESS STEEL

Description	Size	F_H in N	a ≈	b1	b2	b3	d1	d2	h1 ≈	h2	h3	h4	h5 max.	l1 ≈	l2 ≈	l3 ≈	l4 max.	l5	m1	m2	m3	r	s1	s2	w	⚖
GN 820.3-75-*-NI	75	900	20	28	26	5.3	M 5	4.5	37	20	11	19	5	118	67	40	49.5	45	13.5	16	19	43	2	4	15	90
GN 820.3-130-*-NI	130	1000	32	36	40	6.3	M 6	5.6	51	30.5	16	25.5	14	172	92	53	64	55	26	22.4	28.4	62	2.5	5	17.5	200
GN 820.3-230-*-NI	230	1700	37	44	44	8.5	M 8	6.6	61.5	36.5	18	30	12.5	196	109	63.5	78	68	26	26	31.5	72	3	6	20	320

Weight type ML

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Horizontal acting toggle clamps

Steel / Stainless Steel, with safety hook, with vertical mounting base





SPECIFICATION

Types

- Type **NL**: U-bar version, with two flanged washers
- Type **NLC**: U-bar version, with two flanged washers and GN 708.1 spindle assembly (see page 1625)
- Type **PL**: Solid bar version, with clasp

Version in Steel

- Case-hardened Steel C10, zinc plated, blue passivated
- Bearing pins tempered
- Bearing rivets (for size 355 and up), case-hardened

All moving parts
lubricated with special grease

Hand grip
High quality, oil resistant red plastic

Spindle assembly GN 708.1 , Type A (see page 1625)

- Steel, zinc plated
- Rubber tip 85 Shore A

Version in Stainless Steel NI

Stainless Steel AISI 304

All moving parts
lubricated with special grease

Hand grip
High quality, oil resistant red plastic

Spindle assembly GN 708.1 , Type A (see page 1625)

- Stainless Steel AISI 304
- Rubber tip 85 Shore A

TECHNICAL INFORMATION

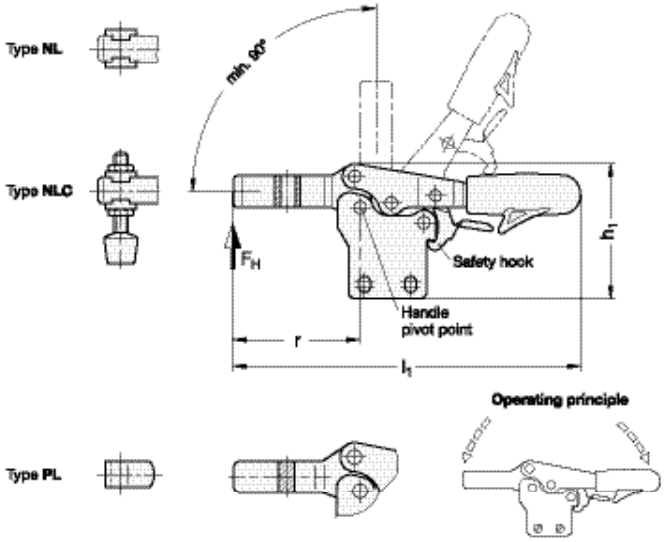
- Stainless Steel characteristics (see page A26)

ACCESSORY

- Spindle assemblies (see page 1623)
- GN 801 clamp mounts for toggle clamps (for Type NL) (see page 1629)
- GN 809 clamp mounts for toggle clamps (for Type PL) (see page 1630)

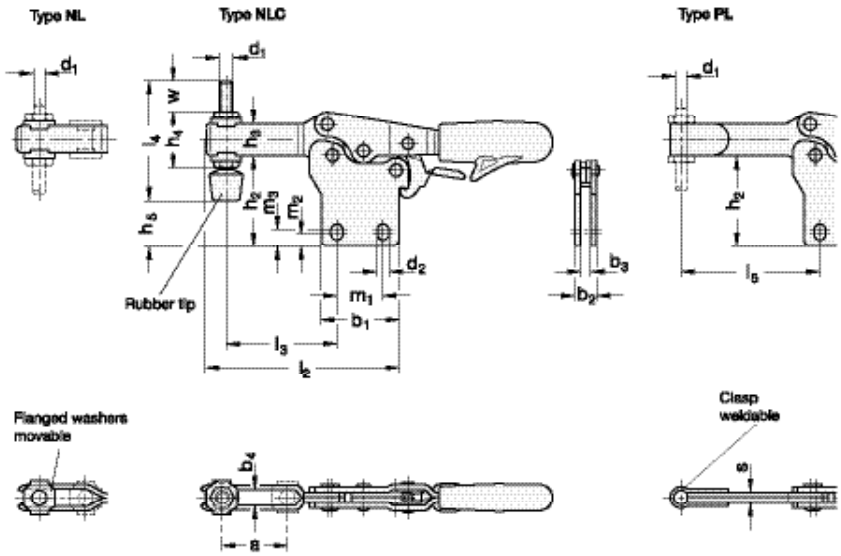
INFORMATION

GN 820.4 horizontal acting toggle clamps have a safety function whereby, during closing, a spring loaded safety hook latch ensures a secure locking connection. It prevents the inadvertent unlocking of the clamp due to vibrations or an accidental attempt of loosening / opening of the clamp. To open and release the clamp, pull up on the finger grip to disengage the safety hook latch mechanism (one hand operation).
They work according to the toggle principle: lever and clamping bar move in the opposite direction. They require less space for the clamping action.
Horizontal acting toggle clamps in the U-bar version with two flanged washers (Type NL) can accommodate an application specific clamping screw. A spindle assembly with neoprene rubber tip is also included for Type NLC.
Type PL version can either be utilized by welding the clasp which can then accommodate an application specific hold-down fastener component, or by utilizing the bar in conjunction with the GN 809 clamp mounts to hold the work piece in place.
information for toggle clamps (see page 1560)



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GN 820.4 | Horizontal acting toggle clamps



*Complete with type index of the horizontal acting toggle clamps

NL NLC PL

GN 820.4

Description	Size	FH in N	a ≈	b1	b2	b3	b4	d1	d2	h1 ≈	h2	h3	h4	h5 max.	l1 ≈	l2 ≈	l3 ≈	l4 max.	l5	m1	m2	m3	r ≈	s	w	⚖
GN 820.4-75-*	75	900	20	28	8	4	5.3	M 5	4.5	45.5	29	11	19	14	118	68	40	49.5	45	13.5	3.5	5	43	4	15	90
GN 820.4-130-*	130	1000	32	36	10	5	6.3	M 6	5.6	64.5	44	16	25.5	27.5	172	92	53	64	55	26	5.8	8.8	62	5	17.5	200
GN 820.4-230-*	230	1700	37	44	12	6	8.5	M 8	6.6	75.5	51	18	30	27	196	109	63.5	78	68	26	6.5	9	73	6	20	320
GN 820.4-355-*	355	1800	58	60	14	7	10.5	M 10	8.6	102	69.5	22	37	43	270	161	96	115	77	41	7.5	9.6	110	7	19	730
GN 820.4-455-*	455	3200	65	70	18	10	12.5	M 12	8.7	120	80.5	26	43	48	306	186	116	135	100	41.5	11	12.5	128	10	33	1200

GN 820.4-NI

STAINLESS STEEL

Description	Size	FH in N	a ≈	b1	b2	b3	b4	d1	d2	h1 ≈	h2	h3	h4	h5 max.	l1 ≈	l2 ≈	l3 ≈	l4 max.	l5	m1	m2	m3	r ≈	s	w	⚖
GN 820.4-75-*-NI	75	900	20	28	8	4	5.3	M 5	4.5	45.5	29	11	19	14	118	68	40	49.5	45	13.5	3.5	5	43	4	15	90
GN 820.4-130-*-NI	130	100	32	36	10	5	6.3	M 6	5.6	64.5	44	16	25.5	27.5	172	92	53	64	55	26	5.8	8.8	62	5	17.5	200
GN 820.4-230-*-NI	230	1700	37	44	12	6	8.5	M 8	6.6	75.5	51	18	30	27	196	109	63.5	78	68	26	6.5	9	73	6	20	320

Weight type NL

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Horizontal acting toggle clamps

Steel / Stainless Steel, with vertical mounting base



SPECIFICATION

Types

- Type **MF**: U-bar version, with two flanged washers
- Type **MFC**: U-bar version, with two flanged washers and GN 708.1 spindle assembly (see page 1625)

Version in Steel

- Case-hardened Steel C10, zinc plated, blue passivated
- Bearing pins tempered
- Bearing rivets (for size 355 and up), case-hardened

All moving parts
lubricated with special grease

Hand grip
High quality, oil resistant red plastic

Spindle assembly GN 708.1 , Type A (see page 1625)

- Steel, zinc plated
- Rubber tip 85 Shore A

Version in Stainless Steel NI

Stainless Steel AISI 304

All moving parts
lubricated with special grease

Hand grip
High quality, oil resistant red plastic

Spindle assembly GN 708.1 , Type A (see page 1625)

- Stainless Steel AISI 304
- Rubber tip 85 Shore A

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)

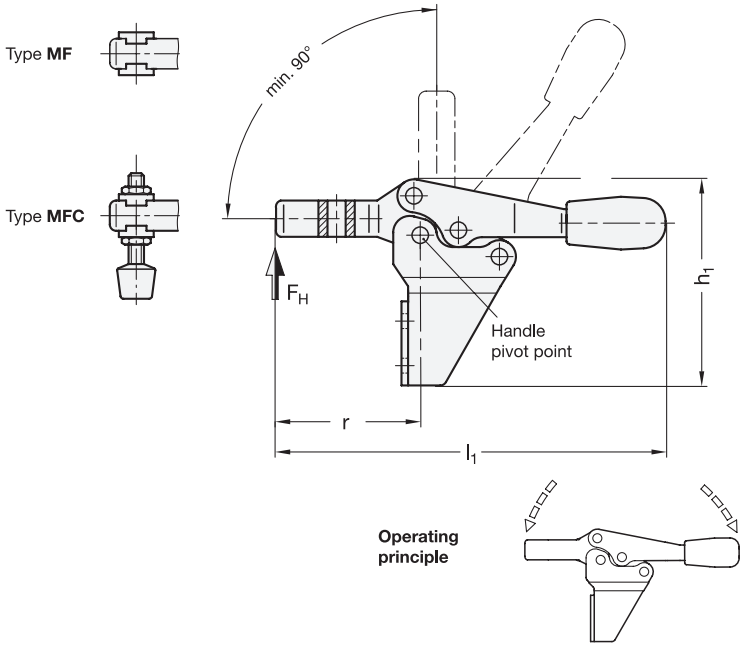
ACCESSORY

- Spindle assemblies (see page 1623)
- GN 801 clamp mounts for toggle clamps (for Type MF) (see page 1629)

INFORMATION

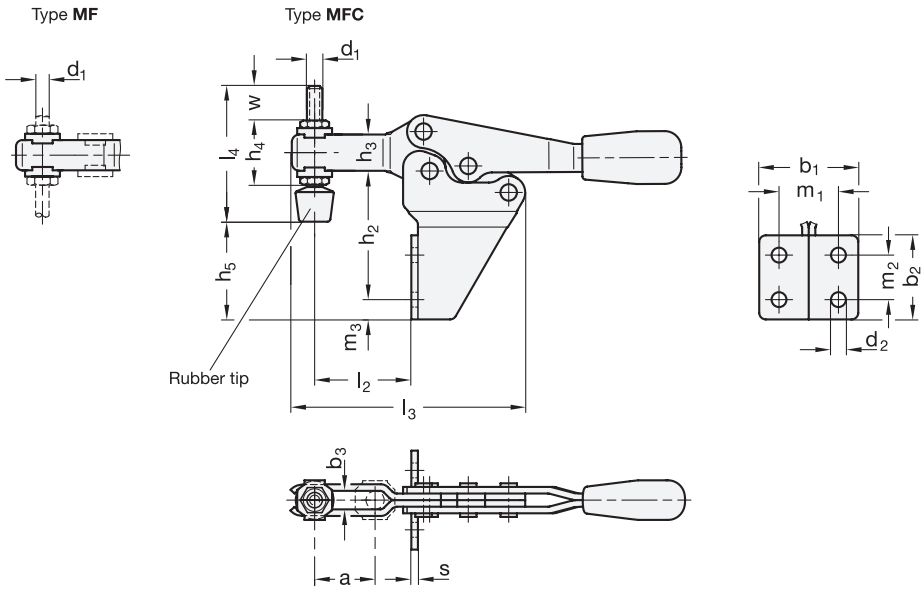
GN 820.2 horizontal acting toggle clamps work according to the toggle principle: lever and clamping bar move in the opposite direction.
They require less space for the clamping action. In the clamped position the operating lever is in its horizontal position. The 90° rotated mounting surface allows a space-saving installation in addition to the clamping point.
Horizontal acting toggle clamps in the U-bar version with two flanged washers (Type MF) can accommodate an application specific clamping screw. A spindle assembly with neoprene rubber tip is also included for Type MFC.

- General information for toggle clamps (see page 1560)



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GN 820.2 | Horizontal acting toggle clamps



*Complete with type index of the horizontal acting toggle clamps
MF MFC

GN 820.2

Description	Size	FH in N	a ≈	b1	b2	b3	d1	d2	h1	h2	h3	h4	h5 max.	l1	l2	l3	l4	m1	m2	m3	r	s	w	⚖
GN 820.2-75-*	75	900	20	30	25.5	5.5	M 5	4.5	62	39	11	19	30	118	30	72	45	18	13.5	6	42.5	2	15	105
GN 820.2-130-*	130	1000	32	39	35	6.5	M 6	5.5	85	58.5	16	25.5	48.5	170	45	95	55	26	22	6.5	61	2.5	17.5	240
GN 820.2-230-*	230	1700	37	43	40	8.5	M 8	6.5	102	69	18	30	53	195	52	113	68	28.5	24	8	70	3	20	400
GN 820.2-355-*	355	1800	58	52	52	10.5	M 10	8.5	135	92	22	37	75.5	270	85	166	77	32	32	10	108.5	3.5	19	840

GN 820.2-NI **STAINLESS STEEL**

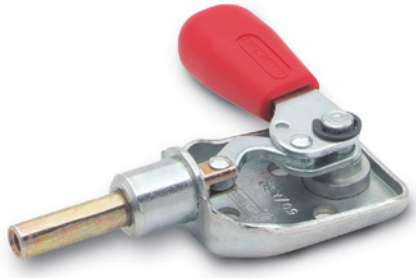
Description	Size	FH in N	a ≈	b1	b2	b3	d1	d2	h1	h2	h3	h4	h5 max.	l1	l2	l3	l4	m1	m2	m3	r	s	w	⚖
GN 820.2-75-*-NI	75	900	20	30	25.5	5.5	M 5	4.5	62	39	11	19	30	118	30	72	45	18	13.5	6	42.5	2	15	105
GN 820.2-130-*-NI	130	1000	32	39	35	6.5	M 6	5.5	85	58.5	16	25.5	48.5	170	45	95	55	26	22	6.5	61	2.5	17.5	240
GN 820.2-230-*-NI	230	1700	37	43	40	8.5	M 8	6.5	102	69	18	30	53	195	52	113	68	28.5	24	8	70	3	20	400

Weight type MF

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Push-pull type toggle clamps

for push-pull clamping



SPECIFICATION

Types

- Type **ASD**: Clamping by turning handle counter-clockwise
- Type **ASS**: Clamping by turning handle clockwise

Parts in sheet metal
Case-hardened Steel C10
zinc plated, blue passivated

Plunger
Steel St 37
zinc plated, blue passivated

Plunger guide bushing
Steel St 37
zinc plated, blue passivated

All moving parts
lubricated with special grease

Hand grip
High quality, oil resistant red plastic

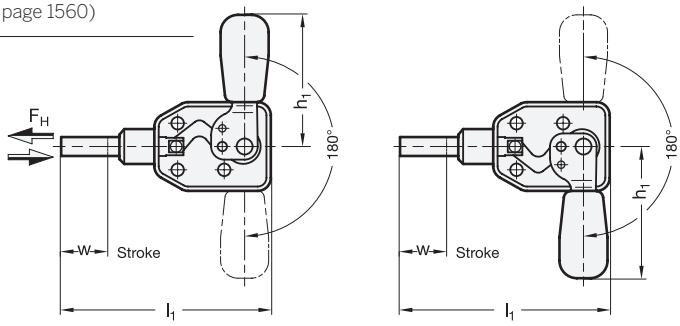
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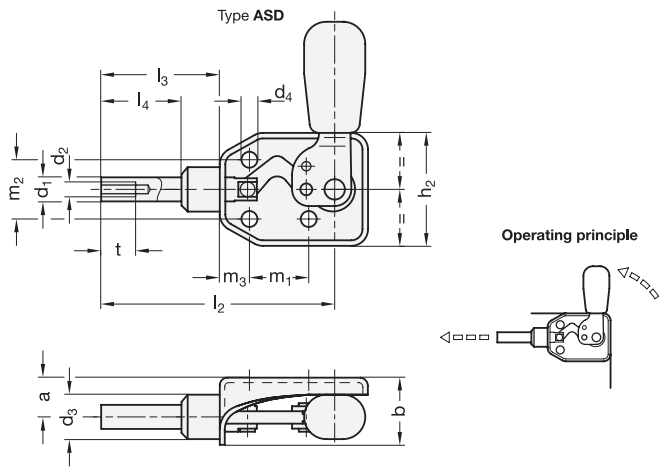
GN 840 push-pull type toggle clamps are known for their extremely low height regardless of the position of the operating handle.

- General information for toggle clamps (see page 1560)

ACCESSORY

- Spindle assemblies (see page 1623)





Type **ASS** is mirror image of type ASD

GN 840

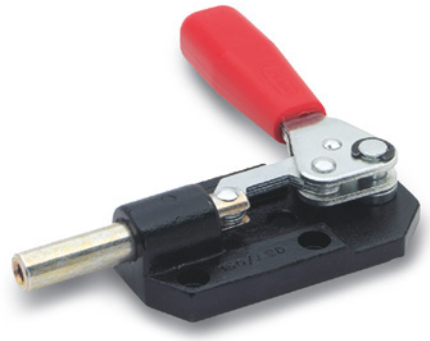
Description	Size	F_H in N	a	b	d_1	d_2	d_3	d_4	h_1 ≈	h_2	l_1 ≈	l_2 ≈	l_3 ≈	l_4 ≈	m_1	m_2	m_3	t min.	w	⚖
GN 840-50-ASD	50	800	10	17.5	6.5	M 4	12	4.3	45.2	30.5	73	64.5	33	21	16	16	8	9	16	60
GN 840-50-ASS	50	800	10	17.5	6.5	M 4	12	4.3	45.2	30.5	73	64.5	33	21	16	16	8	9	16	60

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GN 844

Heavy duty push-pull type toggle clamps

for push-pull clamping



SPECIFICATION

Types

- Type **ASD**: Clamping by turning handle counter-clockwise
- Type **ASS**: Clamping by turning handle clockwise

Body
Brass: size 70
Steel: from size 160

- forged
- black lacquered

Parts in sheet metal
Case-hardened Steel C10
zinc plated, blue passivated

Plunger
Steel St 37
zinc plated, blue passivated

All moving parts
lubricated with special grease

Hand grip
High quality, oil resistant red plastic

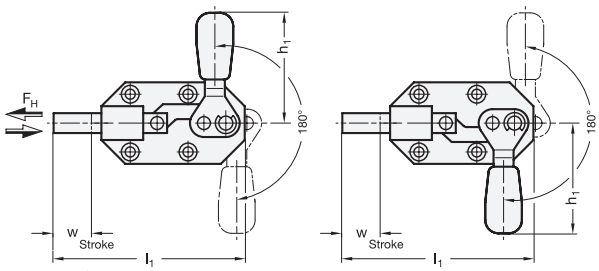
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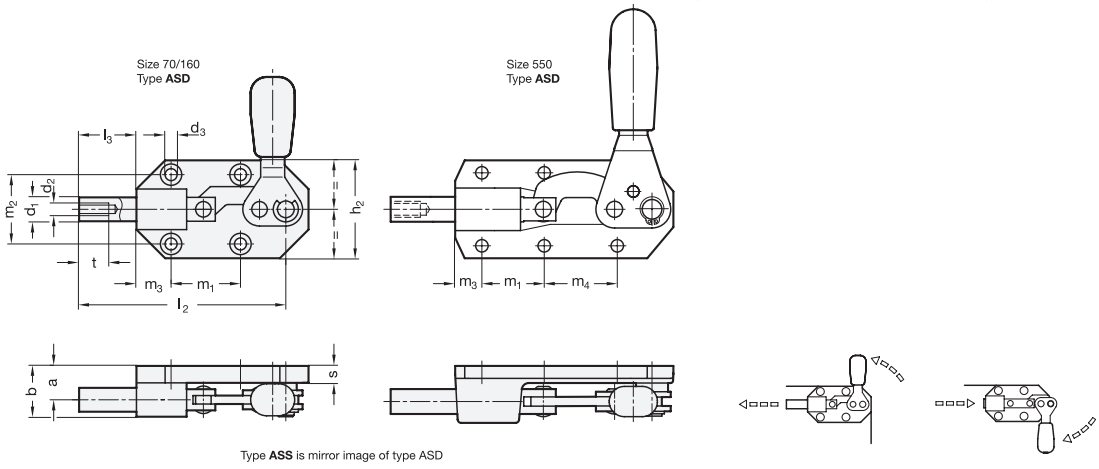
GN 844 heavy duty push-pull type toggle clamps are known for their low height in all clamping positions. They can be used for very high holding forces thanks to their massive and sturdy body.

- General information for toggle clamps (see page 1560)

ACCESSORY

- Spindle assemblies (see page 1623)





Type **ASS** is mirror image of type ASD

GN 844

Description	Size	F_H in N	a	b	d1	d2	d3	h1 ≈	h2	l1 ≈	l2 ≈	l3 ≈	m1	m2	m3	m4	s	t	w	⚖
GN 844-70-ASD	70	900	12	19.5	8.5	M 6	4.3	49	36	86	77	22	26	26	13	-	6	12	20	162
GN 844-160-ASD	160	1300	15	25	11	M 6	5.5	79	46	117	107	32	36.5	33.5	11.5	-	7	12	30	320
GN 844-550-ASD	550	4500	20	32	14	M 8	7	113	55	165	153	42	35	41	15	41	7	16	42	700
GN 844-70-ASS	70	900	12	19.5	8.5	M 6	4.3	49	36	86	77	22	26	26	13	-	6	12	20	160
GN 844-160-ASS	160	1300	15	25	11	M 6	5.5	79	46	117	107	32	36.5	33.5	11.5	-	7	12	30	350
GN 844-550-ASS	550	4500	20	32	14	M 8	7	113	55	165	153	42	35	41	15	41	7	16	42	700

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Push-pull type toggle clamps

for push-on clamping



SPECIFICATION

Type
- Type **AS**: Sheet metal body

Parts in sheet metal
Case-hardened Steel C10
zinc plated, blue passivated

Plunger
Steel St 37
zinc plated, blue passivated

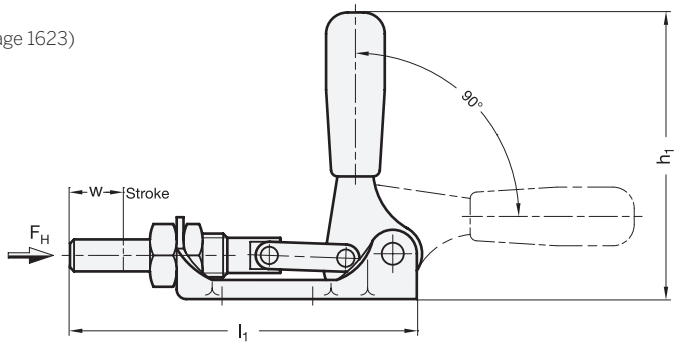
Plunger guide bushing
Brass
zinc plated, blue passivated

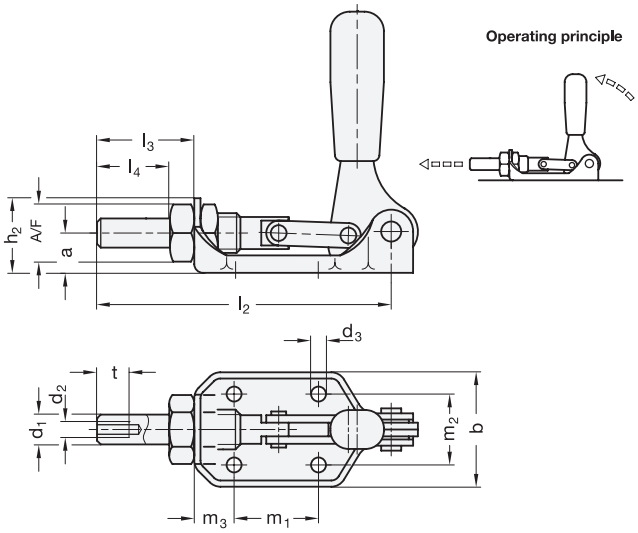
All moving parts
lubricated with special grease

Hand grip
High quality, oil resistant red plastic

INFORMATION
- General information for toggle clamps (see page 1560)

ACCESSORY
- Spindle assemblies (see page 1623)





GN 841

Description	Size	F_H in N	a	b	d1	d2	d3	h1 ≈	h2	l1 ≈	l2 ≈	l3 ≈	l4 ≈	m1	m2	m3	A/F	t	w	⚖
GN 841-120-AS	120	3600	17	48	12	M 6	5.5	111	31	130	121	40	30	34	30	17	24	12	20	338
GN 841-300-AS	300	7200	20	58	14	M 8	6.5	140	36	167	155	57	45	50	34	18	27	16	34	590

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GN 842

Heavy duty push-pull type toggle clamps

for push-pull clamping



SPECIFICATION

Type
- Type **AS**: Steel or brass base, forged

Body
Brass: Size 70
Steel: Size 160 to 3100

- forged
- black lacquered

Parts in sheet metal
Case-hardened Steel C10
zinc plated, blue passivated

Plunger
Steel St 37
zinc plated, blue passivated

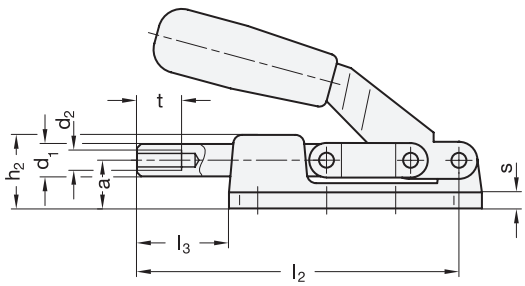
Bearing pins (rivets)
case-hardened

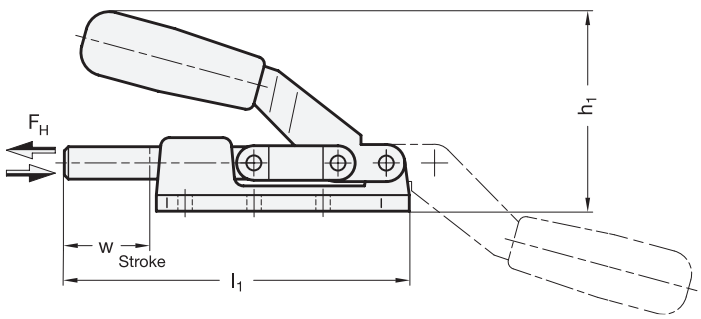
INFORMATION

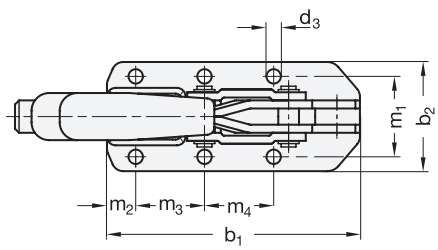
GN 842 heavy duty push-pull type toggle clamps can be used for very high holding capacities thanks to their massive and sturdy body.
On the size 70, the mounting holes are provided with cylindrical countersinks for the use of hexagon socket head screws DIN 912-M4.
- General information for toggle clamps (see page 1560)

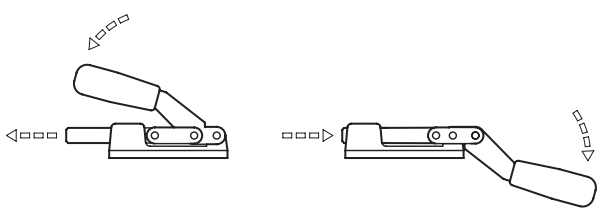
ACCESSORY

- Spindle assemblies (see page 1623)









GN 842

Description	Size	FH in N	a	b1	b2	d1	d2	d3	h1 ≈	h2 ≈	l1	l2 ≈	l3	m1	m2	m3	m4	s	t	w	⚖
GN 842-70-AS	70	1200	12	64	36	8.5	M 6	4.3	42.5	19.5	86	79	22	26	13	26	-	6	12	20	180
GN 842-160-AS	160	2800	15	85	46	11	M 6	5.3	59	25	116	107	31	33.5	11.5	36.5	-	7	12	30	300
GN 842-360-AS	360	5600	25	90	45.5	12	M 8	5.5	75	34.5	122	114	32	33.5	30	36.5	-	7	15	32	450
GN 842-550-AS	550	8000	18	122.5	55	14	M 8	7	82.5	29.5	164.5	154.5	42	41	15	35	41	6	16	42	720
GN 842-1100-AS	1100	16000	25	133	57	16	M 10	8.5	95	38	182	170.5	49	41	15	35	41	8	18	50	1090
GN 842-2100-AS	2100	25000	35	177	70	20	M 12	8.5	118.5	50	238	222	61	50	35	50	50	10	22	60	2200
GN 842-3100-AS	3100	45000	40	216	76	22	M 14	11	137	56	316	300	100	54	40	70	70	10	25	100	3100

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Push-pull type toggle clamps

Steel / Stainless Steel, for push-pull clamping



SPECIFICATION

Types

- Type **AS**: without mounting bracket
- Type **ASW**: with mounting bracket

Version in Steel

Parts in sheet metal
Case-hardened Steel C10
zinc plated, blue passivated

All moving parts
lubricated with special grease

Hand grip
High quality, oil resistant red plastic

Version in Stainless Steel NI

- Parts in sheet metal AISI 304
- other parts AISI 303

All moving parts
lubricated with special grease

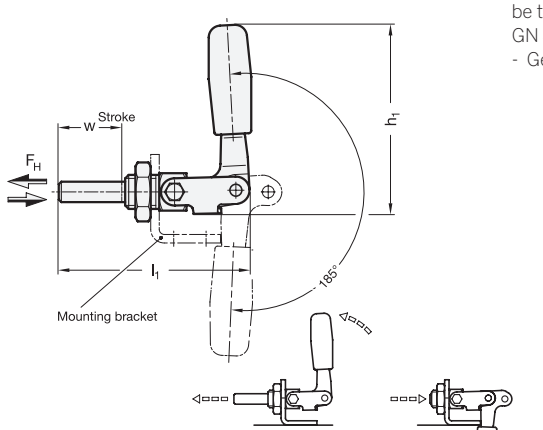
Hand grip
High quality, oil resistant red plastic

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)

ACCESSORY

- Spindle assemblies (see page 1623)



*Complete with type index of the push-pull type toggle clamps

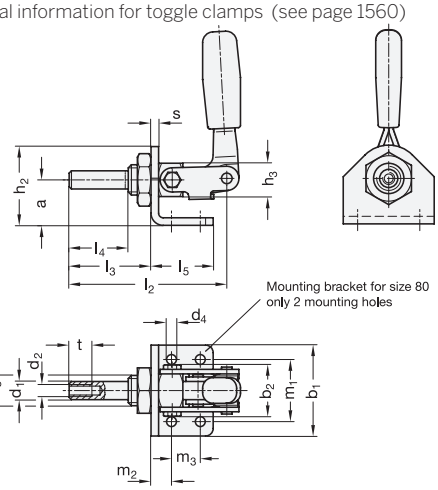
AS
without mounting bracket

ASW
with mounting bracket

INFORMATION

GN 843.1 push-pull type toggle clamps can be mounted on a mounting bracket (Type ASW) or directly on the jig.
The center bushing securing method allows the operating handle to be turned to the most favorable position.
GN 843.1 push-pull type toggle clamps replace series GN 843.

- General information for toggle clamps (see page 1560)



GN 843.1

Description	Size	F_H in N	a	b_1	b_2	d_1	d_2	d_3	d_4	h_1 ≈	h_2	h_3	l_1 ≈	l_2 ≈	l_3 ≈	l_4 ≈	l_5	m_1	m_2	m_3	s	t	w	⚖
GN 843.1-80-*	80	3000	24	35	29	10	M 6	M 16 x 1.5	5.5	70.5	38.5	19	71	65	34	22	22	20	12	-	4	12	21	133
GN 843.1-165-*	165	5400	32	60	35	12	M 8	M 20 x 1.5	6.5	110	50	22	112	104	54	39	41	41	13.5	19	5	15	38	332
GN 843.1-340-*	340	7000	48	75	47.6	16	M 10	M 24 x 2	8.5	146	70	30	173	162	85	68	59	55	19	25	5	18	66	830

GN 843.1-NI

STAINLESS STEEL

Description	Size	F_H in N	a	b_1	b_2	d_1	d_2	d_3	d_4	h_1 ≈	h_2	h_3	l_1 ≈	l_2 ≈	l_3 ≈	l_4 ≈	l_5	m_1	m_2	m_3	s	t	w	⚖
GN 843.1-80-*-NI	80	3000	24	35	29	10	M 6	M 16 x 1.5	5.5	70.5	38.5	19	71	65	34	22	22	20	12	-	4	12	21	136
GN 843.1-165-*-NI	165	5400	32	60	35	12	M 8	M 20 x 1.5	6.5	110	50	22	112	104	54	39	41	41	13.5	19	5	15	38	333
GN 843.1-340-*-NI	340	7000	48	75	47.6	16	M 10	M 24 x 2	8.5	146	70	30	173	162	85	68	59	55	19	25	5	18	66	820

Weight type AS

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GN 850

Hook type toggle clamps

for pulling action

SPECIFICATION

Types

- Type **T**: with draw axle
- Type **TF**: with draw hook

Parts in sheet metal
Case-hardened Steel C10
zinc plated, blue passivated

Draw hook
Steel St 37
zinc plated, blue passivated

All moving parts
lubricated with special grease

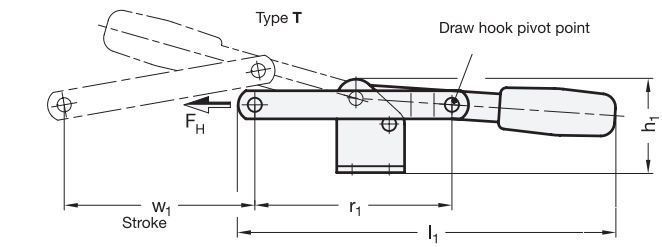
Hand grip
High quality, oil resistant red plastic

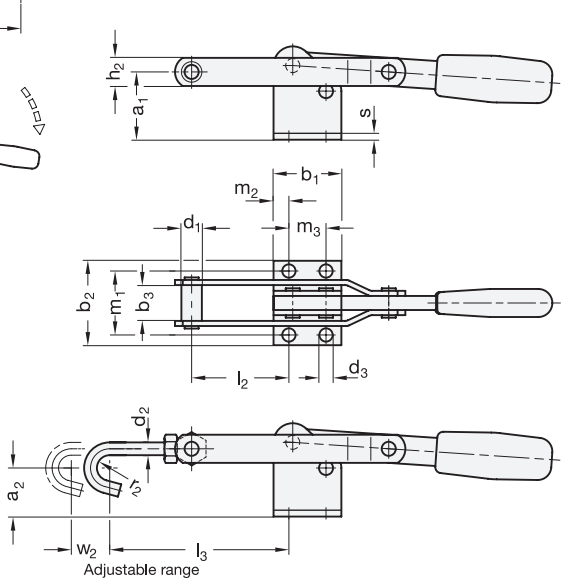


INFORMATION

The draw hook of the GN 850 hook type toggle clamps can be adjusted within the stroke.

- General information for toggle clamps (see page 1560)





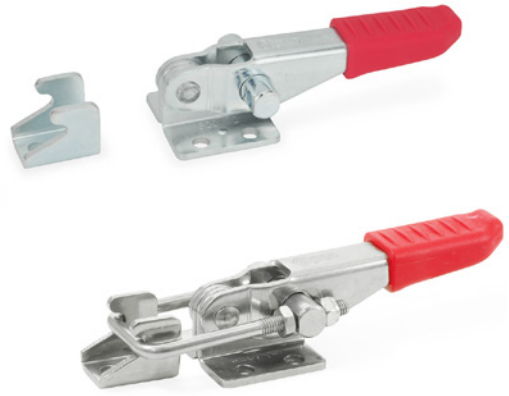
GN 850

Description	Size	F_H in N	a1	a2	b1	b2	b3	d1	d2	d3	h1 ≈	h2	l1 ≈	l2 ≈	l3 ≈	m1	m2	m3	r1 ≈	r2	s	w1	w2 ≈	⚖
GN 850-200-T	200	2000	37	-	35	45	18	10	-	6.5	49	16	202	51	-	32	8	19	102	-	3	100	-	300
GN 850-300-T	300	3000	35	-	48	60	21	10	-	8.5	49	18	225	51	-	45	8	32	105	-	3	104	-	460
GN 850-400-T	400	4000	43	-	54	84	26	14	-	10.5	60.5	25	278	58	-	60	12.5	28.5	138	-	5	160	-	1000
GN 850-200-TF	200	2000	37	29	35	45	18	10	8	6.5	49	16	202	51	93	32	8	19	102	5	3	100	20	370
GN 850-300-TF	300	3000	35	25	48	60	21	10	10	8.5	49	18	225	51	98	45	8	32	105	6	3	104	20	560
GN 850-400-TF	400	4000	43	30	54	84	26	14	12	10.5	60.5	25	278	58	117.5	60	12.5	28.5	138	7	5	160	20	1200

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Horizontal latch type toggle clamps

Steel / Stainless Steel, for pulling action



SPECIFICATION

Types

- Type **T2**: with U-bolt latch, with catch
- Type **T**: without U-bolt latch, with catch

Version in Steel

Case-hardened Steel C10
zinc plated, blue passivated

U-bolt latch
Steel St 37
zinc plated, blue passivated

All moving parts
lubricated with special grease

Handle with plastic sleeve
red, oil resistant

Version in Stainless Steel NI

Parts in sheet metal / U-bolt latch
Stainless Steel AISI 304

Pin
Stainless Steel AISI 303

All moving parts
lubricated with special grease

Handle with plastic sleeve
red, oil resistant

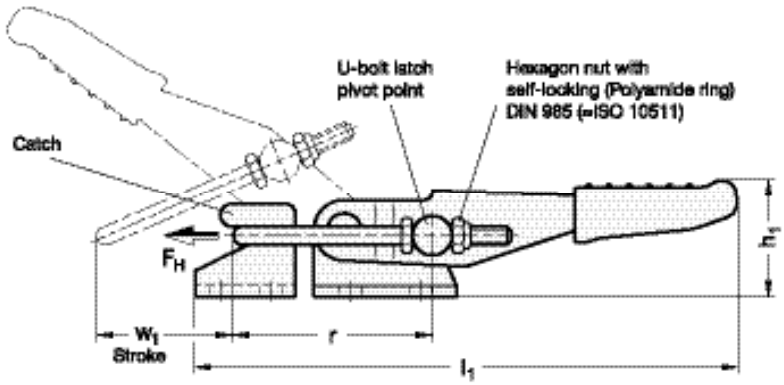
INFORMATION

The stroke of the U-bolt latch of GN 851 latch type toggle clamps can be adjusted within its range.
In the clamped position the U-bolt latch with clamping arm is parallel to the plane of the operating handle.
In addition to the standard lengths of the U-bolt latches shown in the table, a variety of other lengths are also available under the GN 951.1 series (see page 1604).

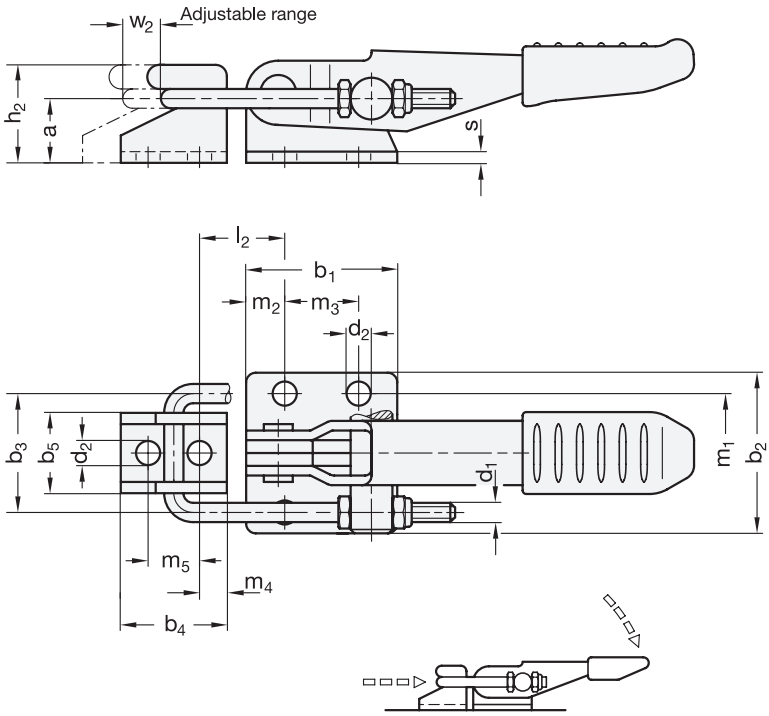
- General information for toggle clamps (see page 1560)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



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GN 851

Description	Size	FH in N	a	b1	b2	b3	b4	b5	d1	d2	h1 ≈	h2	l1 ≈	l2 min.	m1	m2	m3	m4	m5	r ≈	s	w1	w2 ≈	⚖
GN 851-160-T	160	1600	-	26	28	-	20	14	-	4.3	26	18	-	-	19	5	16	5	10	-	2	-	-	72
GN 851-320-T	320	3200	-	40	44	-	28	22	-	6.5	30	25	-	-	32	10.5	19	7	14.3	-	3	-	-	225
GN 851-700-T	700	7000	-	60	54	-	38	26	-	8.5	42	36	-	-	38	9.5	41.5	9.5	19	-	3.5	-	-	534
GN 851-160-T2	160	1600	12	26	28	21	20	14	M 4	4.3	26	18	98	11	19	5	16	5	10	35	2	25	11	80
GN 851-320-T2	320	3200	16	40	44	32	28	22	M 6	6.5	30	25	152	19	32	10.5	19	7	14.3	57	3	48	10	260
GN 851-700-T2	700	7000	24	60	54	38	38	26	M 8	8.5	42	36	220	21	38	9.5	41.5	9.5	19	74	3.5	58	22	620

GN 851-NI **STAINLESS STEEL**

Description	Size	FH in N	a	b1	b2	b3	b4	b5	d1	d2	h1 ≈	h2	l1 ≈	l2 min.	m1	m2	m3	m4	m5	r ≈	s	w1	w2 ≈	⚖
GN 851-160-T-NI	160	1600	-	26	28	-	20	14	-	4.3	26	18	-	-	19	5	16	5	10	-	2	-	-	71
GN 851-320-T-NI	320	3200	-	40	44	-	28	22	-	6.5	30	25	-	-	32	10.5	19	7	14.3	-	3	-	-	223
GN 851-700-T-NI	700	7000	-	60	54	-	38	26	-	8.5	42	37	-	-	38	9.5	41.5	9.5	19	-	3.5	-	-	515
GN 851-160-T2-NI	160	1600	12	26	28	21	20	14	M 4	4.3	26	18	98	11	19	5	16	5	10	35	2	25	11	85
GN 851-320-T2-NI	320	3200	16	40	44	32	28	22	M 6	6.5	30	25	152	19	32	10.5	19	7	14.3	57	3	48	10	260
GN 851-700-T2-NI	700	7000	24	60	54	38	38	26	M 8	8.5	42	37	220	21	38	9.5	41.5	9.5	19	74	3.5	58	22	600

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GN 851.3

Horizontal latch type toggle clamps

Steel / Stainless Steel, with safety hook, with pulling action



SPECIFICATION

Types

- Type **T6**: with U-bolt latch, with catch
- Type **T**: without U-bolt latch, with catch

Version in Steel

Case-hardened Steel C10
zinc plated, blue passivated

U-bolt latch
Steel St 37
zinc plated, blue passivated

All moving parts
lubricated with special grease

Handle with plastic sleeve
red, oil resistant

Version in Stainless Steel A4

Sheet metal parts / U-bolt latch / Pin
Stainless Steel AISI 316L

All moving parts
lubricated with special grease

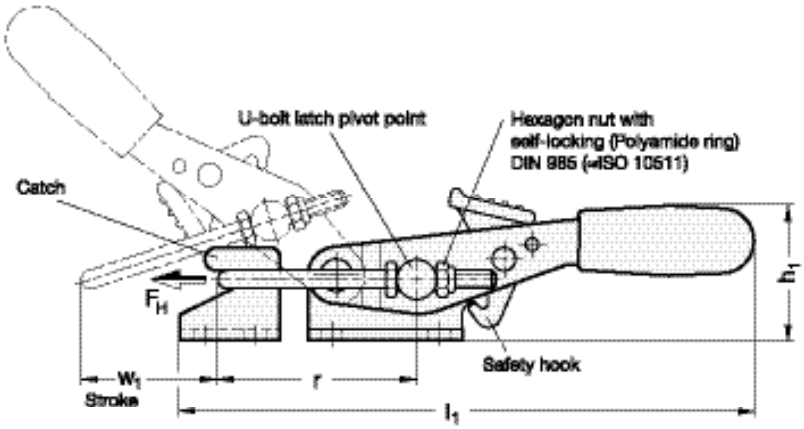
Handle with plastic sleeve
red, oil resistant

INFORMATION

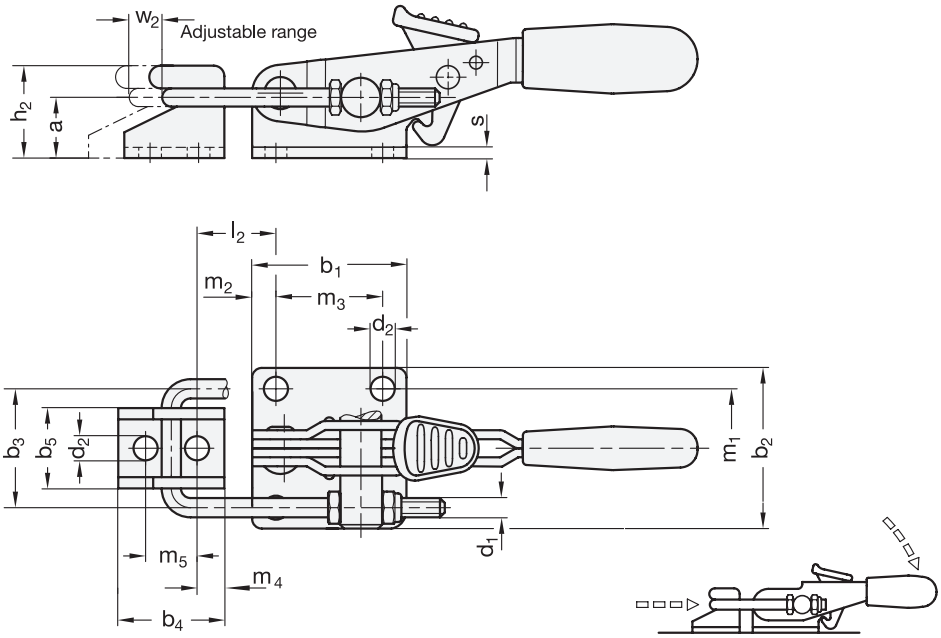
GN 851.3 horizontal latch type toggle clamps are compact in design and can be used to ensure high holding capacities.
When closing the spanner, a safety hook positively locks onto the body. This prevents the inadvertent or vibration-induced release from the clamping position. To open the safety hook it is unlocked per one-hand operation.
The stroke of the U-bolt latch can be adjusted within its range.
In addition to the standard lengths for the U-bolt latch shown above, more lengths may be achieved by using series GN 951.1 square U-bolts (see page 1604).
- General information for toggle clamps (see page 1560)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



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GN 851.3

Description	Size	FH in N	a	b1	b2	b3	b4	b5	d1	d2	h1 ≈	h2	l1 ≈	l2 min.	m1	m2	m3	m4	m5	r ≈	s	w1	w2 ≈	⚖
GN 851.3-160-T6	160	1600	12	26	28	21	20	14	M 4	4.3	31	18	99	11	19	5	16	5	10	35	2	25	11	80
GN 851.3-320-T6	320	3200	16	40	44	32	28	22	M 6	6.5	45	25	166	20	32	10.5	19	7	14.3	54	3	35	13	280
GN 851.3-700-T6	700	7000	24	60	54	38	38	26	M 8	8.5	56	36	217	25	38	9.5	41.5	9.5	19	70	3.5	49	26	595
GN 851.3-160-T	160	1600	-	26	28	-	20	14	-	4.3	31	18	-	-	19	5	16	5	10	-	2	-	-	100
GN 851.3-320-T	320	3200	-	40	44	-	28	22	-	6.5	45	25	-	-	32	10.5	19	7	14.3	-	3	-	-	256
GN 851.3-700-T	700	7000	-	60	54	-	38	26	-	8.5	56	36	-	-	38	9.5	41.5	9.5	19	-	3.5	-	-	505

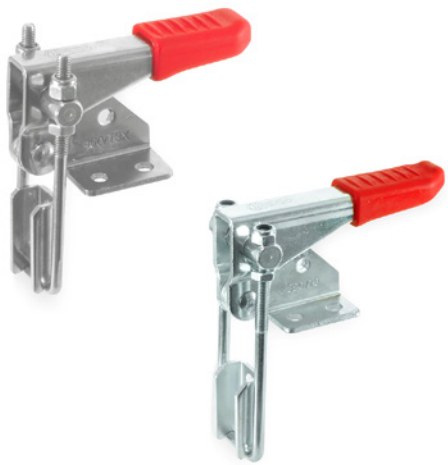
GN 851.3-A4 **STAINLESS STEEL**

Description	Size	FH in N	a	b1	b2	b3	b4	b5	d1	d2	h1 ≈	h2	l1 ≈	l2 min.	m1	m2	m3	m4	m5	r ≈	s	w1	w2 ≈	⚖
GN 851.3-160-T6-A4	160	1600	12	26	28	21	20	14	M 4	4.3	31	18	99	11	19	5	16	5	10	35	2	25	11	92
GN 851.3-320-T6-A4	320	3200	16	40	44	32	28	22	M 6	6.5	45	25	166	20	32	10.5	19	7	14.3	54	3	35	13	300
GN 851.3-700-T6-A4	700	7000	24	60	54	38	38	26	M 8	8.5	56	36	217	25	38	9.5	41.5	9.5	19	70	3.5	49	26	595
GN 851.3-160-T-A4	160	1600	-	26	28	-	20	14	-	4.3	31	18	-	-	19	5	16	5	10	-	2	-	-	80
GN 851.3-320-T-A4	320	3200	-	40	44	-	28	22	-	6.5	45	25	-	-	32	10.5	19	7	14.3	-	3	-	-	261
GN 851.3-700-T-A4	700	7000	-	60	54	-	38	26	-	8.5	56	36	-	-	38	9.5	41.5	9.5	19	-	3.5	-	-	499

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Vertical latch type toggle clamps

Steel / Stainless Steel, for pulling action



SPECIFICATION

Types

- Type **T3**: with U-bolt latch, with catch
- Type **T**: without U-bolt latch, with catch

Version in Steel

Case-hardened Steel C10
zinc plated, blue passivated

U-bolt latch
Steel St 37
zinc plated, blue passivated

All moving parts
lubricated with special grease

Handle with plastic sleeve
red, oil resistant

Version in Stainless Steel NI

Parts in sheet metal / U-bolt latch
Stainless Steel AISI 304

Pin
Stainless Steel AISI 303

All moving parts
lubricated with special grease

Handle with plastic sleeve
red, oil resistant

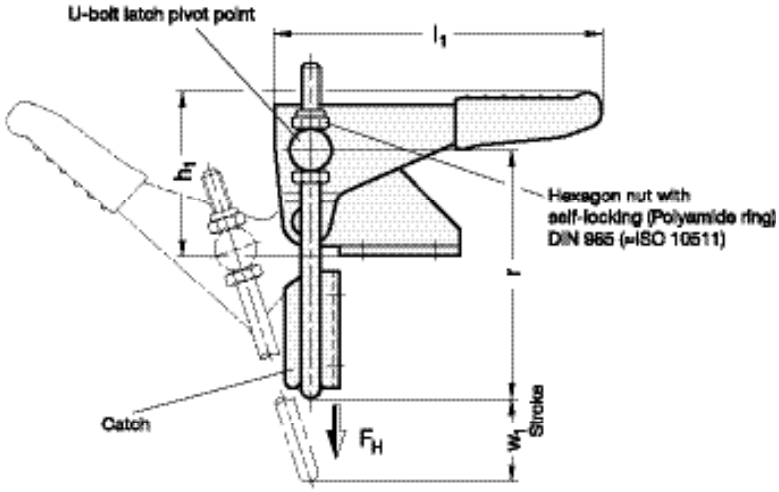
INFORMATION

The stroke of the U-bolt latch of GN 851.1 vertical latch type toggle clamps can be adjusted within its range.
In the clamped position the U-bolt latch with clamping arm is perpendicular to the clamping arm and the plane of the operating handle.
In addition to the standard lengths of the U-bolt latches shown in the table, a variety of other lengths are also available under the GN 951.1 series (see page 1604).

- General information for toggle clamps (see page 1560)

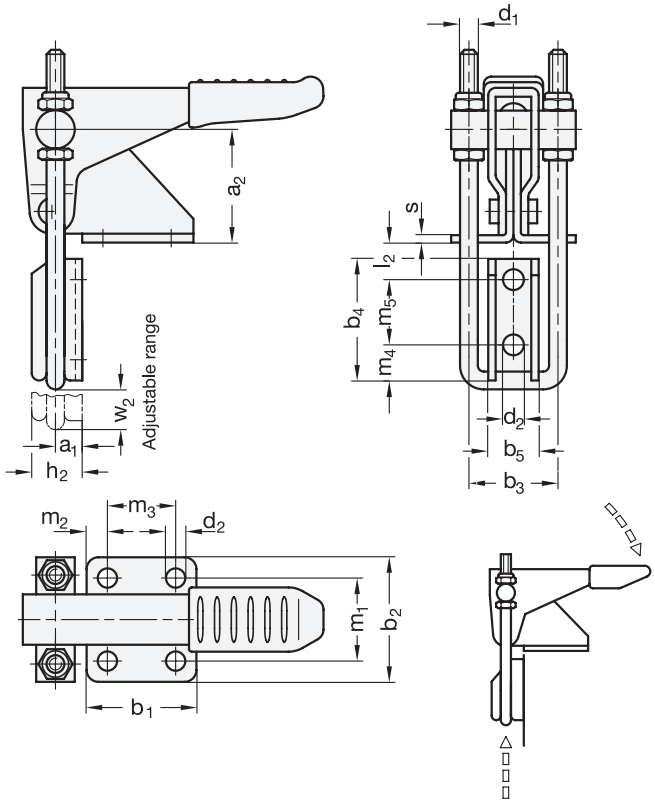
TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



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GN 851.1 | Vertical latch type toggle clamps



GN 851.1

Description	Size	FH in N	a1	a2	b1	b2	b3	b4	b5	d1	d2	h1	h2	l1 ≈	l2 min.	m1	m2	m3	m4	m5	r ≈	s	w1	w2 ≈	⚖
GN 851.1-160-T3	160	1600	5	25	26	35	21	25.5	14	M 4	4.3	37	10	68	4.5	22	6.5	13	6.7	14.3	50	2	32	12	104
GN 851.1-320-T3	320	3200	8	37	36	44	32	37	22	M 6	6.5	54	15	106	6	25.5	8.5	19	10.5	20.5	78	3	53	21	310
GN 851.1-700-T3	700	7000	13	45	52	54	38	48.5	26	M 8	8.5	67	23	147	8	36.5	10	32	13.5	27	98	3.5	64	30	720
GN 851.1-160-T	160	1600	-	25	26	35	-	25.5	14	-	4.3	37	10	-	-	22	6.5	13	6.7	14.3	-	2	-	-	90
GN 851.1-320-T	320	3200	-	37	36	44	-	37	22	-	6.5	54	15	-	-	25.5	8.5	19	10.5	20.5	-	3	-	-	290
GN 851.1-700-T	700	7000	-	45	52	54	-	48.5	26	-	8.5	67	23	-	-	36.5	10	32	13.5	27	-	3.5	-	-	600

GN 851.1-NI **STAINLESS STEEL**

Description	Size	FH in N	a1	a2	b1	b2	b3	b4	b5	d1	d2	h1	h2	l1 ≈	l2 min.	m1	m2	m3	m4	m5	r ≈	s	w1	w2 ≈	⚖
GN 851.1-160-T3-NI	160	1600	5	25	26	35	21	25.5	14	M 4	4.3	37	10	68	4.5	22	6.5	13	6.7	14.3	50	2	32	12	103
GN 851.1-320-T3-NI	320	3200	8	37	36	44	32	37	22	M 6	6.5	54	15	106	6	25.5	8.5	19	10.5	20.5	78	3	53	21	326
GN 851.1-700-T3-NI	700	7000	13	45	52	54	38	48.5	26	M 8	8.5	67	23	147	8	36.5	10	32	13.5	27	98	3.5	64	30	710
GN 851.1-160-T-NI	160	1600	-	25	26	35	-	25.5	14	-	4.3	37	10	-	-	22	6.5	13	6.7	14.3	-	2	-	-	80
GN 851.1-320-T-NI	320	3200	-	37	36	44	-	37	22	-	6.5	54	15	-	-	25.5	8.5	19	10.5	20.5	-	3	-	-	277
GN 851.1-700-T-NI	700	7000	-	45	52	54	-	48.5	26	-	8.5	67	23	-	-	36.5	10	32	13.5	27	-	3.5	-	-	592

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Latch type toggle clamps

for pulling action

SPECIFICATION

Types

- Type **T4**: with U-bolt latch, with catch
- Type **T**: without U-bolt latch, with catch

Parts in sheet metal
Case-hardened Steel C10
zinc plated, blue passivated

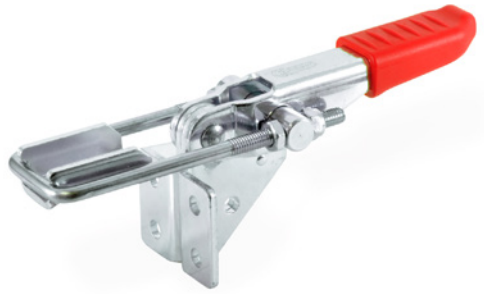
U-bolt latch
Steel St 37
zinc plated, blue passivated

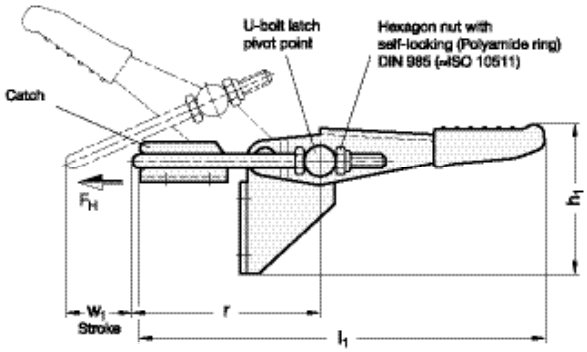
All moving parts
lubricated with special grease

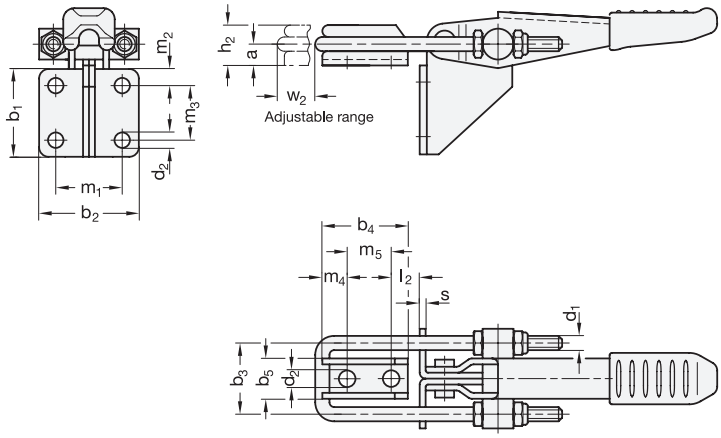
Handle with plastic sleeve
red, oil resistant

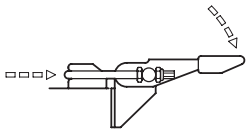
INFORMATION

The stroke of the U-bolt latch of GN 851.2 latch type toggle clamps can be adjusted within its range.
In the clamped position the U-bolt latch and the clamping arm are horizontal to the vertical fixing plane.
In addition to the standard lengths of the U-bolt latches shown in the table, a variety of other lengths are also available under the GN 951.1 series (see page 1604).
- General information for toggle clamps (see page 1560)









GN 851.2

Description	Size	F_H in N	a	b_1	b_2	b_3	b_4	b_5	d_1	d_2	h_1 ≈	h_2	l_1 ≈	l_2 min.	m_1	m_2	m_3	m_4	m_5	r ≈	s	w_1	w_2 ≈	⚖
GN 851.2-160-T4	160	1600	5	26	35	21	25.5	14	M 4	4.3	40	10	104	4.5	22	6.5	13	6.5	14.3	50	2	32	12	100
GN 851.2-320-T4	320	3200	8	36	44	32	37	22	M 6	6.5	57.5	15	159	6	25.5	8.5	19	10.5	20.5	78	3	53	21	305
GN 851.2-700-T4	700	7000	13	52	54	38	48.5	26	M 8	8.5	82	23	225	8	36.5	10	32	13.5	27	98	3.5	64	30	675
GN 851.2-160-T	160	1600	-	26	35	-	25.5	14	-	4.3	40	10	-	-	22	6.5	13	6.5	14.3	-	2	-	-	100
GN 851.2-320-T	320	3200	-	36	44	-	37	22	-	6.5	57.5	15	-	-	25.5	8.5	19	10.5	20.5	-	3	-	-	260
GN 851.2-700-T	700	7000	-	52	54	-	48.5	26	-	8.5	82	23	-	-	36.5	10	32	13.5	27	-	3.5	-	-	675

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GN 852.1

Vertical hook type toogle clamps

heavy duty type



SPECIFICATION

Types

- Type **T**: with mounting holes, without U-bolt latch, with catch
- Type **T3**: with mounting holes, with U-bolt latch, with catch
- Type **TS**: for welding, without U-bolt latch, with catch
- Type **T3S**: for welding, with U-bolt latch, with catch

Base / operating handle
Steel C22

- forged
- blackened

Catch
Sheet metal
blackened

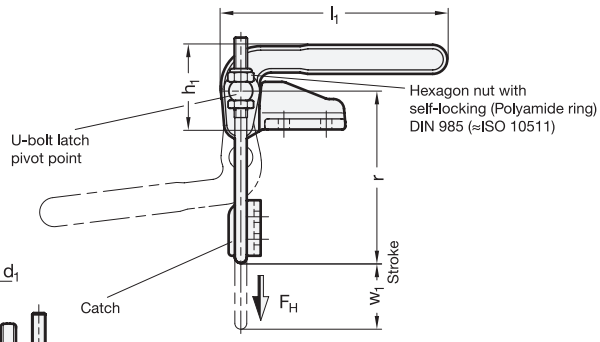
U-bolt latch / bearing pins
Steel St 37
zinc plated, blue passivated

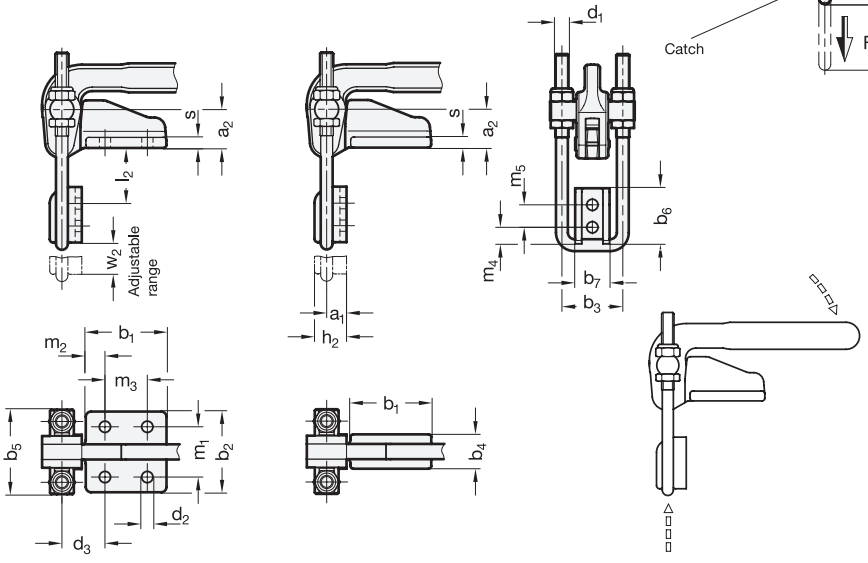
All moving parts
lubricated with special grease

INFORMATION

The U-bolt latch of GN 852.1 vertical hook type toggle clamps is adjustable within the adjusting range.
Once in the clamping position, the latch bolt is perpendicular to the clamping arm and to the mounting base of the toggle clamp.
In addition to the standard lengths of the U-bolt latches shown in the table, a variety of other lengths are also available under the GN 951.2 series (see page 1605).

- General information for toggle clamps (see page 1560)





GN 852.1

Description	Size	FH in N	a1	a2	b1	b2	b3	b4	b5	b6	b7	d1	d2	d3	h1 ≈	h2	l1 ≈	l2 min.	m1	m2	m3	m4	m5	r ≈	s	w1	w2 ≈	⚖
GN 852.1-1400-T	1400	12000	-	29	61	61	46	-	64	42	26	-	8.5	32.5	64	24	171	-	38	14.5	32	12.5	17	-	8	-	-	954
GN 852.1-1400-T3	1400	12000	15	29	61	61	46	-	64	42	26	M 10	8.5	32.5	64	24	171	42	38	14.5	32	12.5	17	106	8	50	22	1145
GN 852.1-1400-T3S	1400	12000	-	29	61	-	46	26	64	42	26	M 10	-	-	64	24	171	42	-	-	-	12.5	17	106	8	50	22	1018
GN 852.1-1400-TS	1400	12000	15	29	61	-	46	26	64	42	26	-	-	-	64	24	171	-	-	-	-	12.5	17	-	8	-	-	838

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Latch type toggle clamps

Steel / Stainless Steel, heavy duty type

SPECIFICATION

Types

- Type **T2**: with mounting holes, with U-bolt latch, with catch
- Type **T**: with mounting holes, without U-bolt latch, with catch
- Type **T2S**: for welding, with U-bolt latch, with catch
- Type **TS**: for welding, without U-bolt latch, with catch

Version in Steel

Body / catch / clamping lever
Steel C22

- forged
- black lacquered (Type T2 / T)
- blackened (Type T2S / TS)

U-bolt latch / bearing pin
Steel St 37
zinc plated, blue passivated

All moving parts
lubricated with special grease

Version in Stainless Steel NI

Body / catch / clamping lever / U-bolt latch
Stainless Steel AISI 304
forged

Other parts
Stainless Steel AISI 303

All moving parts
lubricated with special grease

TECHNICAL INFORMATION

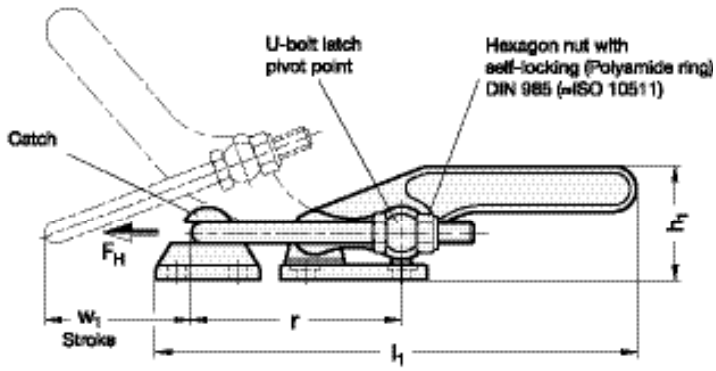
- Stainless Steel characteristics (see page A26)



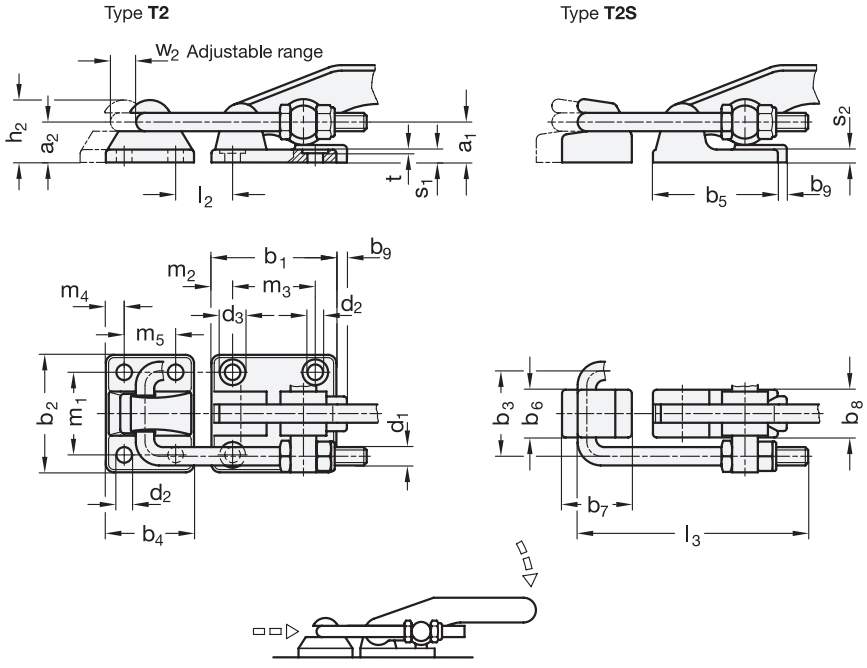
INFORMATION

GN 852 heavy duty latch type toggle clamps are used for very high holding forces as may be required in plastic high pressure mold forming.
The stroke of the U-bolt latch can be adjusted within its range.
In addition to the standard lengths of the U-bolt latches shown in the table, a variety of other lengths are also available under the GN 951.2 series (see page 1605).

- General information for toggle clamps (see page 1560)



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GN 852

Description	Size	FH in N	a1	a2	b1	b2	b3	b4	b5	b6	b7	b8	b9	d1	d2	d3	h1 ≈	h2	l1 ≈	l2 min.	l3 ≈	m1	m2	m3	m4	m5	r ≈	s1	s2	t	w1	w2 ≈	⚖
GN 852-1700-T	1700	17000	22	21	68	64	46	48	-	-	-	28	6	M 10	8.5	14	55	34.5	223	33	129	45	11.5	45	10	28	96	7	-	2	54	15	954
GN 852-2800-T	2800	40000	28	27	85	80	55	60	-	-	-	32	-	M 12	10.5	16	65	42.5	265	32.1	151	57	14	57	12.5	35	117	9	-	2	78	15	1700
GN 852-1700-T2	1700	17000	22	21	68	64	46	48	-	-	-	28	6	M 10	8.5	14	55	34.5	223	33	129	45	11.5	45	10	28	96	7	-	2	54	15	1100
GN 852-2800-T2	2800	40000	28	27	85	80	55	60	-	-	-	32	-	M 12	10.5	16	65	42.5	265	32.1	151	57	14	57	12.5	35	117	9	-	2	78	15	2000
GN 852-1700-TS	1700	17000	22	21	-	-	46	-	68	26.5	38	28	6	M 10	-	-	55	34.5	218	-	129	-	-	-	-	-	96	-	7	-	54	15	225
GN 852-2800-TS	2800	40000	28	27	-	-	55	-	80	32	50	32	-	M 12	-	-	65	42.5	265	-	151	-	-	-	-	-	117	-	12.7	-	78	15	1433
GN 852-1700-T2S	1700	17000	22	21	-	-	46	-	68	26.5	38	28	6	M 10	-	-	55	34.5	218	-	129	-	-	-	-	-	96	-	7	-	54	15	900
GN 852-2800-T2S	2800	40000	28	27	-	-	55	-	80	32	50	32	-	M 12	-	-	65	42.5	265	-	151	-	-	-	-	-	117	-	12.7	-	78	15	1500

GN 852-NI

STAINLESS STEEL

Description	Size	FH in N	a1	a2	b1	b2	b3	b4	b5	b6	b7	b8	b9	d1	d2	d3	h1 ≈	h2	l1 ≈	l2 min.	l3 ≈	m1	m2	m3	m4	m5	r ≈	s1	s2	t	w1	w2 ≈	⚖
GN 852-1700-T-NI	1700	14000	22	21	68	64	46	48	-	-	-	28	6	M 10	8.5	14	55	34.5	223	33	129	45	11.5	45	10	28	96	7	-	2	54	15	900
GN 852-2800-T-NI	2800	30000	28	27	85	80	55	60	-	-	-	32	-	M 12	10.5	16	65	42.5	265	32.1	151	57	14	57	12.5	35	117	9	-	2	78	15	1851
GN 852-1700-T2-NI	1700	14000	22	21	68	64	46	48	-	-	-	28	6	M 10	8.5	14	55	34.5	223	33	129	45	11.5	45	10	28	96	7	-	2	54	15	1100
GN 852-2800-T2-NI	2800	30000	28	27	85	80	55	60	-	-	-	32	-	M 12	10.5	16	65	42.5	265	32.1	151	57	14	57	12.5	35	117	9	-	2	78	15	2115
GN 852-1700-TS-NI	1700	14000	22	21	-	-	46	-	68	26.5	38	28	6	M 10	-	-	55	34.5	218	-	129	-	-	-	-	-	96	-	7	-	54	15	756
GN 852-2800-TS-NI	2800	30000	28	27	-	-	55	-	80	32	50	32	-	M 12	-	-	65	42.5	265	-	151	-	-	-	-	-	117	-	12.7	-	78	15	1421
GN 852-1700-T2S-NI	1700	14000	22	21	-	-	46	-	68	26.5	38	28	6	M 10	-	-	55	34.5	218	-	129	-	-	-	-	-	96	-	7	-	54	15	900
GN 852-2800-T2S-NI	2800	30000	28	27	-	-	55	-	80	32	50	32	-	M 12	-	-	65	42.5	265	-	151	-	-	-	-	-	117	-	12.7	-	78	15	1670

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Latch type toggle clamps

Steel / Stainless Steel, with safety hook, heavy duty type

SPECIFICATION

Types

- Type **T6**: with mounting holes, with U-bolt latch, with catch
- Type **T**: with mounting holes, without U-bolt latch, with catch
- Type **T6S**: for welding, with U-bolt latch, with catch
- Type **TS**: for welding, without U-bolt latch, with catch

Version in Steel

Body / catch / clamping lever
Steel C22

- forged
- black lacquered (Type T6 / T)
- blackened (Type T6S / TS)

U-bolt latch / bearing pin
Steel St 37
zinc plated, blue passivated

All moving parts
lubricated with special grease

Version in Stainless Steel NI

Body / catch / clamping lever / U-bolt latch
Stainless Steel AISI 304
forged

Other parts
Stainless Steel AISI 303

All moving parts
lubricated with special grease

TECHNICAL INFORMATION

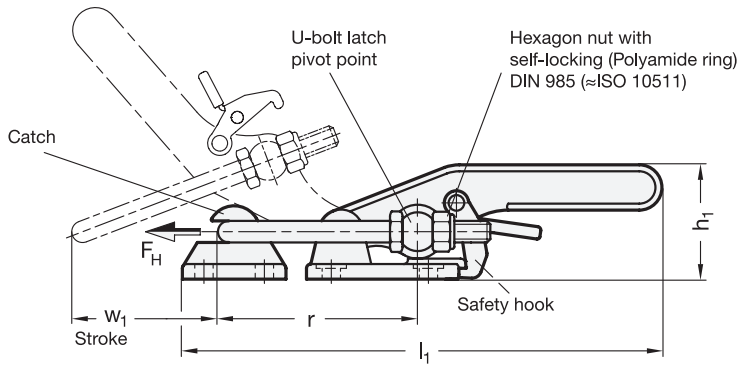
- Stainless Steel characteristics (see page A26)



INFORMATION

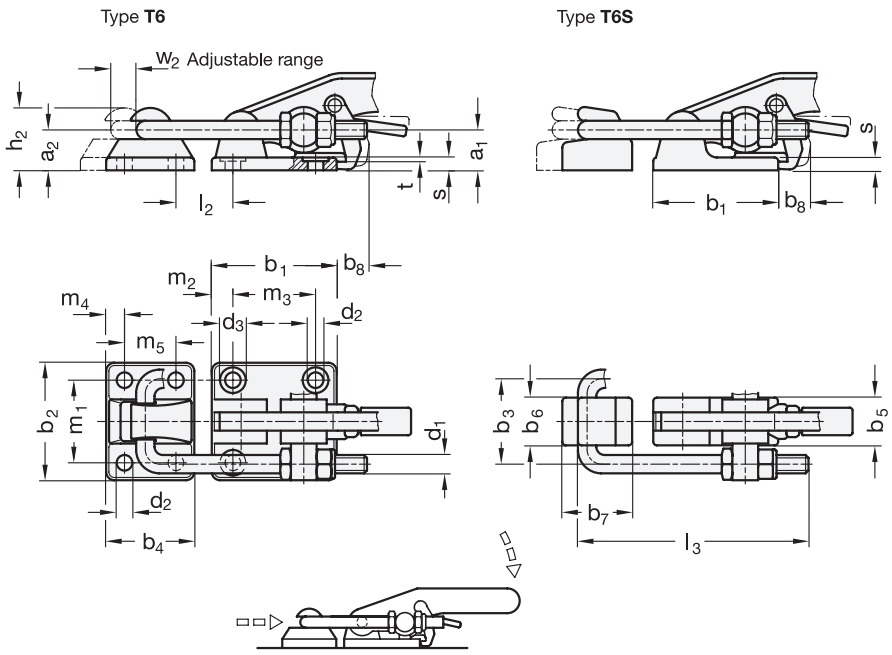
GN 852.3 latch type toggle clamps are compact in design and can be used to ensure high holding capacities.
When closing the spanner, a safety hook positively locks onto the body. This prevents the inadvertent or vibration-induced release from the clamping position. To open the safety hook it is unlocked per one-hand operation.
The stroke of the U-bolt latch can be adjusted within its range.
In addition to the standard lengths of the U-bolt latches shown in the table, a variety of other lengths are also available under the GN 951.1 series (see page 1604).

- General information for toggle clamps (see page 1560)



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GN 852.3 | Latch type toggle clamps



GN 852.3

Description	Size	FH in N	a1	a2	b1	b2	b3	b4	b5	b6	b7	b8	d1	d2	d3	h1 ≈	h2	l1 ≈	l2 min.	l3 ≈	m1	m2	m3	m4	m5	r ≈	s	t	w1	w2 ≈	⚖
GN 852.3-1700-T6	1700	17000	22	21	68	64	46	48	-	-	-	17	M 10	8.5	14	55	34.5	223	33	129	45	11.5	45	10	28	96	7	2	54	15	1127
GN 852.3-4000-T6	4000	40000	28	27	85	80	55	60	-	-	-	20	M 12	10.5	16	68	42.5	271	30	151	57	14	57	12.5	35	107	9	2	62	25	2018
GN 852.3-1700-T	1700	17000	-	-	68	64	-	48	-	-	-	17	-	8.5	14	55	34.5	-	-	-	45	11.5	45	10	28	-	7	2	-	-	960
GN 852.3-4000-T	4000	40000	-	-	85	80	-	60	-	-	-	20	-	10.5	16	68	42.5	-	-	-	57	14	57	12.5	35	-	9	2	-	-	1735
GN 852.3-1700-T6S	1700	17000	22	21	-	-	46	-	28	26.5	38	17	M 10	-	-	55	34.5	218	33	129	-	-	-	-	-	96	-	-	54	15	918
GN 852.3-4000-T6S	4000	40000	28	27	-	-	55	-	34	32	50	20	M 12	-	-	68	42.5	266	30	151	-	-	-	-	-	107	-	-	62	25	1668
GN 852.3-1700-TS	1700	17000	-	-	-	-	-	-	28	26.5	38	17	-	-	-	55	34.5	-	-	-	-	-	-	-	-	-	-	-	-	-	746
GN 852.3-4000-TS	4000	40000	-	-	-	-	-	-	34	32	50	20	-	-	-	68	42.5	-	-	-	-	-	-	-	-	-	-	-	-	-	1300

GN 852.3-NI

STAINLESS STEEL

Description	Size	FH in N	a1	a2	b1	b2	b3	b4	b5	b6	b7	b8	d1	d2	d3	h1 ≈	h2	l1 ≈	l2 min.	l3 ≈	m1	m2	m3	m4	m5	r ≈	s	t	w1	w2 ≈	⚖
GN 852.3-1700-T6-NI	1700	14000	22	21	68	64	46	48	-	-	-	17	M 10	8.5	14	55	34.5	223	33	129	45	11.5	45	10	28	96	7	2	54	15	1131
GN 852.3-4000-T6-NI	4000	30000	28	27	85	80	55	60	-	-	-	20	M 12	10.5	16	68	42.5	271	30	151	57	14	57	12.5	35	107	9	2	62	25	2017
GN 852.3-1700-T-NI	1700	14000	-	-	68	64	-	48	-	-	-	17	-	8.5	14	55	34.5	-	-	-	45	11.5	45	10	28	-	7	2	-	-	951
GN 852.3-4000-T-NI	4000	30000	-	-	85	80	-	60	-	-	-	20	-	10.5	16	68	42.5	-	-	-	57	14	57	12.5	35	-	9	2	-	-	1725
GN 852.3-1700-T6S-NI	1700	14000	22	21	-	-	46	-	28	26.5	38	17	M 10	-	-	55	34.5	218	33	129	-	-	-	-	-	96	-	-	54	15	932
GN 852.3-4000-T6S-NI	4000	30000	28	27	-	-	55	-	34	32	50	20	M 12	-	-	68	42.5	266	3	151	-	-	-	-	-	107	-	-	62	25	1691
GN 852.3-1700-TS-NI	1700	14000	-	-	-	-	-	-	28	26.5	38	17	-	-	-	55	34.5	-	-	-	-	-	-	-	-	-	-	-	-	-	765
GN 852.3-4000-TS-NI	4000	30000	-	-	-	-	-	-	34	32	50	20	-	-	-	68	42.5	-	-	-	-	-	-	-	-	-	-	-	-	-	1391

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GN 951.1

Square U-bolts

Steel / Stainless Steel, for GN 851 / GN 851.1 / GN 851.2 / GN 851.3 latch type toggle clamps

SPECIFICATION

Version in Steel ST

zinc plated, blue passivated

Version in Stainless Steel AISI 304 NI

Hexagon nuts (with polyamide insert)
M4: DIN 934 / DIN 985
M6 / M8: DIN 936 / DIN 985
Steel, zinc plated, resp. Stainless Steel

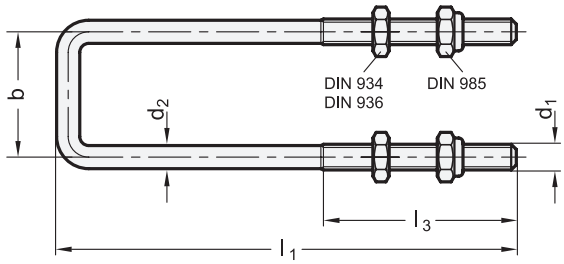
TECHNICAL INFORMATION

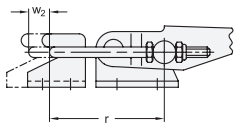
- Stainless Steel characteristics (see page A26)

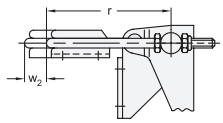
ON REQUEST

- Stainless Steel AISI 316 **A4**









*Complete with material index of the square U-bolts

ST	NI
Steel	Stainless Steel

GN 951.1 — **STAINLESS STEEL**

Description	d1	b	l1	d2	l3	Size GN 851 / GN 851.3	GN 851 r at w2 =0	GN 851 w2	GN 851.3 r at w2 =0	GN 851.3 w2	Size GN 851.1 / GN 851.2	GN 851.1 / GN 851.2 r at w2 =0	GN 851.1 / GN 851.2 w2	⚖
GN 951.1-M4-21-56-*	M 4	21	56**	3.4	27.5	160	35	11	35	11	-	-	-	11
GN 951.1-M4-21-70-*	M 4	21	70***	3.4	28.5	160	48	12	48	12	160	50	12	15
GN 951.1-M4-21-103-*	M 4	21	103	3.4	30	160	80	14	80	14	160	82	14	19
GN 951.1-M4-21-153-*	M 4	21	153	3.4	35	160	125	19	125	19	160	127	19	23
GN 951.1-M4-21-203-*	M 4	21	203	3.4	35	160	175	19	175	19	160	177	19	27
GN 951.1-M6-32-78-*	M 6	32	78**	5.2	33	320	57	10	54	13	-	-	-	35
GN 951.1-M6-32-110-*	M 6	32	110***	5.2	44	320	75	24	75	24	320	78	21	45
GN 951.1-M6-32-130-*	M 6	32	130	5.2	45	320	94	25	94	25	320	94	25	60
GN 951.1-M6-32-155-*	M 6	32	155	5.2	45	320	119	25	119	25	320	119	25	73
GN 951.1-M6-32-205-*	M 6	32	205	5.2	45	320	169	25	169	25	320	169	25	95
GN 951.1-M8-38-111-*	M 8	38	111**	7.2	52	700	74	22	70	26	-	-	-	85
GN 951.1-M8-38-127-*	M 8	38	127	7.2	60	700	78	34	78	34	-	-	-	100
GN 951.1-M8-38-143-*	M 8	38	143***	7.2	56	700	98	30	98	30	700	98	30	110
GN 951.1-M8-38-157-*	M 8	38	157	7.2	60	700	108	34	108	34	700	108	34	135
GN 951.1-M8-38-207-*	M 8	38	207	7.2	60	700	158	34	158	34	700	158	34	185

** These U-bolt latch lengths are included in the delivery of standard orders for GN 851 / GN 851.3.

*** These U-bolt latch lengths are included in the delivery of standard orders for GN 851.1 / GN 851.2.

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GN 951.2

Square U-bolts

Steel / Stainless Steel, for GN 852 / GN 852.1 / GN 852.3 latch type toggle clamps

SPECIFICATION

Version in Steel ST

zinc plated, blue passivated

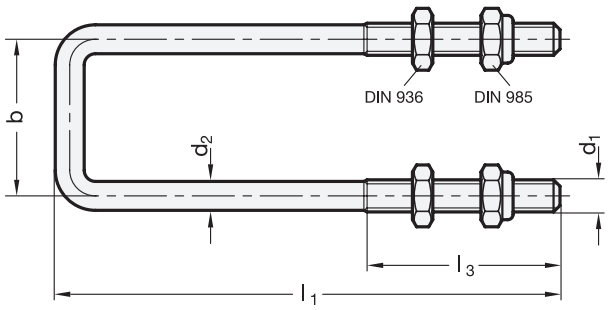
Version in Stainless Steel AISI 304 NI

Hexagon nuts (with polyamide insert)
DIN 936 / DIN 985
Steel, zinc plated, resp. Stainless Steel

TECHNICAL INFORMATION

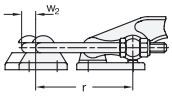
- Stainless Steel characteristics (see page A26)

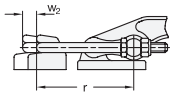




*Complete with material index of the square U-bolts

ST	NI
Steel	Stainless Steel





GN 951.2 — **STAINLESS STEEL**

Description	d1	b	l1	d2	l3	Size GN 852 / GN 852.3	GN 852 r at w2 =0	GN 852 w2	GN 852.3 r at w2=0	GN 852.3 w2	Size GN 852.1	GN 852.1 r at w2=0	GN 852.1 w2	⚖
GN 951.2-M10-46-129-*	M 10	46	129**	9	45	1700	96	15	96	15	1400	95	15	160
GN 951.2-M10-46-149-*	M 10	46	149***	9	52	1700	106	22	106	22	1400	108	22	173
GN 951.2-M10-46-179-*	M 10	46	179	9	45	1700	146	15	146	15	1400	145	15	223
GN 951.2-M10-46-209-*	M 10	46	209	9	45	1700	176	15	176	15	1400	175	15	243
GN 951.2-M10-46-259-*	M 10	46	259	9	45	1700	226	15	226	15	1400	225	15	300
GN 951.2-M12-55-151-*	M 12	55	151**	10.8	70	2800	117	15	107	25	-	-	-	233
GN 951.2-M12-55-211-*	M 12	55	211	10.8	70	2800	156	36	156	36	-	-	-	440
GN 951.2-M12-55-361-*	M 12	55	361	10.8	70	2800	306	36	306	36	-	-	-	600
GN 951.2-M12-55-421-*	M 12	55	421	10.8	70	2800	366	36	366	36	-	-	-	680

** These U-bolt latch lengths are included in the delivery of standard orders for GN 852 / GN 852.3.

*** This U-bolt latch length is included in the delivery of standard orders for GN 852.1

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Latch type toggle clamps

Steel / Stainless Steel, with locking mechanism

SPECIFICATION

Types

- Type **T5**: without latch bolt, without catch
- Type **TG**: with oval head latch bolt, with catch
- Type **TT**: with T-head latch bolt, with catch
- Type **TU**: with J-hook latch bolt, with catch

Version in Steel

Parts in sheet metal
Case-hardened Steel C10
blackened

Latch bolt
Steel St 32
blackened

All moving parts
lubricated with special grease

Solid moulded plastic handle sleeve
red, oil resistant

Version in Stainless Steel NI

Parts in sheet metal
Stainless Steel AISI 304

Latch bolt
Stainless Steel AISI 304

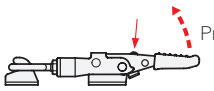
All moving parts
lubricated with special grease

Solid moulded plastic handle sleeve
red, oil resistant

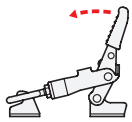
TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)

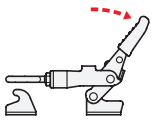
DESCRIPTION OF FUNCTION (FOR ONE-HAND OPERATION)



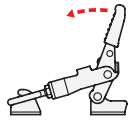
Press the release button for **releasing**.



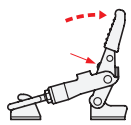
Lift the clamping arm until the latch bolt disengages from the catch.



Retracting the clamping arm will lift the latch bolt and release the catch (one-hand operation).



For **clamping operation**, lift the clamping arm until it rests on the catch.

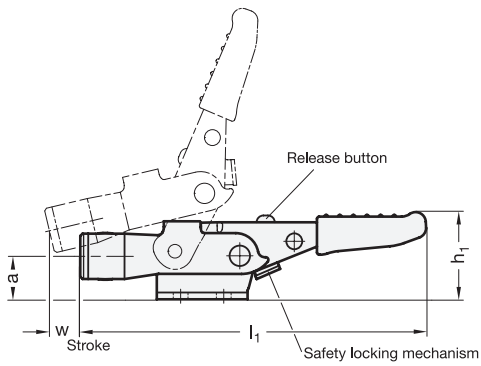


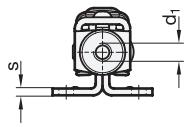
The clamping arm engages in the catch if the release button is pressed for the clamping operation.
When clamping in the end position, the system locks automatically by spring force.

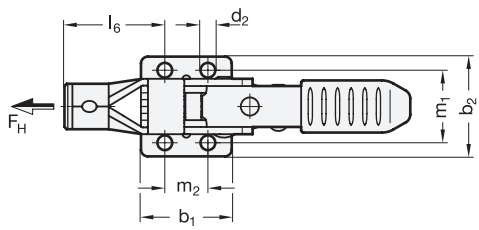


INFORMATION

GN 853 latch type toggle clamps feature a locking mechanism which prevents an inadvertent or vibration-induced opening of the clamp. Another benefit is the option of operating the clamp with one hand.

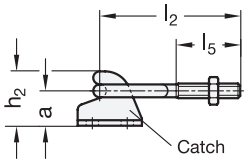


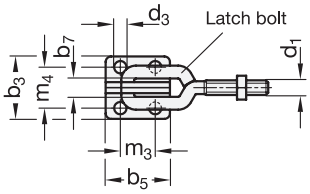




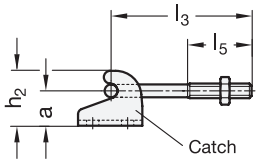
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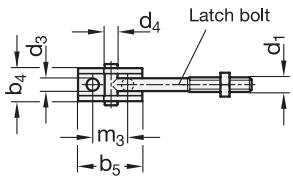
Type **TG**
Oval head latch bolt



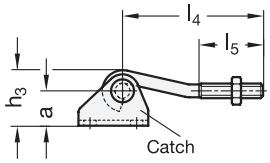


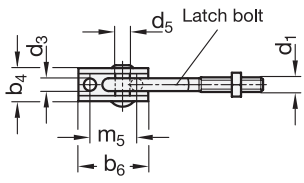
Type **TT**
T-head latch bolt





Type **TU**
J-hook latch bolt





GN 853

Description	Size	FH in N	a	b1	b2	b3	b4	b5	b6	b7	d1	d2	d3	d4	d5	h1 ≈	h2	h3	l1 ≈	l2 ≈	l3 ≈	l4 ≈	l5	l6	m1	m2	m3	m4	m5	s	w	⚖
GN 853-160-T5	160	1750	-	26	28	-	-	-	-	-	-	4.5	-	-	-	27	-	-	103	-	-	-	-	30	19	16	-	-	-	2	8	80
GN 853-320-T5	320	4000	-	40	44	-	-	-	-	-	-	6.7	-	-	-	38.5	-	-	153	-	-	-	-	44.5	32	19	-	-	-	3	13	297
GN 853-700-T5	700	7500	-	60	54	-	-	-	-	-	-	8.5	-	-	-	53	-	-	222	-	-	-	-	51	38	41.5	-	-	-	3.5	19	686
GN 853-160-TG	160	1750	13	26	28	23	-	26	-	6.8	M 6	4.5	4.5	-	-	27	20	-	103	55	-	-	28	30	19	16	16	14.3	-	2	8	130
GN 853-320-TG	320	4000	19	40	44	34	-	35	-	10	M 8	6.7	6.7	-	-	38.5	30	-	153	76.5	-	-	34	44.5	32	19	19	22.3	-	3	13	383
GN 853-700-TG	700	7500	28	60	54	41	-	50	-	11	M 10	8.5	8.5	-	-	53	40.5	-	222	95.5	-	-	42	51	38	41.5	31	25.4	-	3.5	19	880
GN 853-160-TU	160	1750	13	26	28	-	14	-	35	-	M 6	4.5	-	-	6	27	-	20.5	103	-	-	54	28	30	19	16	-	-	25.4	2	8	120
GN 853-320-TU	320	4000	19	40	44	-	18	-	38	-	M 8	6.7	-	-	8	38.5	-	28	153	-	-	76.5	34	44.5	32	19	-	-	25.4	3	13	380
GN 853-700-TU	700	7500	28	60	54	-	26	-	50	-	M 10	8.5	-	-	10	53	-	39	222	-	-	92	42	51	38	41.5	-	-	31	3.5	19	840
GN 853-160-TT	160	1750	13	26	28	-	14	26	-	-	M 6	4.5	-	5.2	-	27	20	-	103	-	55	-	28	30	19	16	16	-	-	2	8	110
GN 853-320-TT	320	4000	19	40	44	-	18	35	-	-	M 8	6.7	-	7	-	38.5	30	-	153	-	76.5	-	34	44.5	32	19	19	-	-	3	13	360
GN 853-700-TT	700	7500	28	60	54	-	26	50	-	-	M 10	8.5	-	9	-	53	40.5	-	222	-	95.5	-	42	51	38	41.5	31	-	-	3.5	19	840

GN 853-NI **STAINLESS STEEL**

Description	Size	FH in N	a	b1	b2	b3	b4	b5	b6	b7	d1	d2	d3	d4	d5	h1 ≈	h2	h3	l1 ≈	l2 ≈	l3 ≈	l4 ≈	l5	l6	m1	m2	m3	m4	m5	s	w	⚖
GN 853-160-T5-NI	160	1750	-	26	28	-	-	-	-	-	-	4.5	-	-	-	27	-	-	103	-	-	-	-	30	19	16	-	-	-	2	8	97
GN 853-320-T5-NI	320	4000	-	40	44	-	-	-	-	-	-	6.7	-	-	-	38.5	-	-	153	-	-	-	-	44.5	32	19	-	-	-	3	13	300
GN 853-700-T5-NI	700	7500	-	60	54	-	-	-	-	-	-	8.5	-	-	-	53	-	-	222	-	-	-	-	51	38	41.5	-	-	-	3.5	19	681
GN 853-160-TG-NI	160	1750	13	26	28	23	-	26	-	6.8	M 6	4.5	4.5	-	-	27	20	-	103	55	-	-	28	30	19	16	16	14.3	-	2	8	97
GN 853-320-TG-NI	320	4000	19	40	44	34	-	35	-	10	M 8	6.7	6.7	-	-	38.5	30	-	153	76.5	-	-	34	44.5	32	19	19	22.3	-	3	13	330
GN 853-700-TG-NI	700	7500	28	60	54	41	-	50	-	11	M 10	8.5	8.5	-	-	53	40.5	-	222	95.5	-	-	42	51	38	41.5	31	25.4	-	3.5	19	883
GN 853-160-TU-NI	160	1750	13	26	28	-	14	-	35	-	M 6	4.5	-	-	6	27	-	20.5	103	-	-	54	28	30	19	16	-	-	25.4	2	8	134
GN 853-320-TU-NI	320	4000	19	40	44	-	18	-	38	-	M 8	6.7	-	-	8	38.5	-	28	153	-	-	76.5	34	44.5	32	19	-	-	25.4	3	13	380
GN 853-700-TU-NI	700	7500	28	60	54	-	26	-	50	-	M 10	8.5	-	-	10	53	-	39	222	-	-	92	42	51	38	41.5	-	-	31	3.5	19	858
GN 853-160-TT-NI	160	1750	13	26	28	-	14	26	-	-	M 6	4.5	-	5.2	-	27	20	-	103	-	55	-	28	30	19	16	16	-	-	2	8	120
GN 853-320-TT-NI	320	4000	19	40	44	-	18	35	-	-	M 8	6.7	-	7	-	38.5	30	-	153	-	76.5	-	34	44.5	32	19	19	-	-	3	13	360
GN 853-700-TT-NI	700	7500	28	60	54	-	26	50	-	-	M 10	8.5	-	9	-	53	40.5	-	222	-	95.5	-	42	51	38	41.5	31	-	-	3.5	19	780

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Latch type toggle clamps

with trigger function

SPECIFICATION

Type

- Type **T2S**: for welding

Codings

- Coding **1**: with bore for gear lever handle
- Coding **2**: with clamping arm

Clamping bearing / clamping arm
Steel

- forged
- weldable
- blank

U-bolt latch / bearing pins
Steel St 37
blank

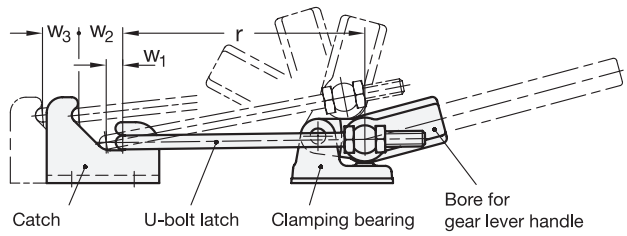
Catch
Sheet metal steel
blank



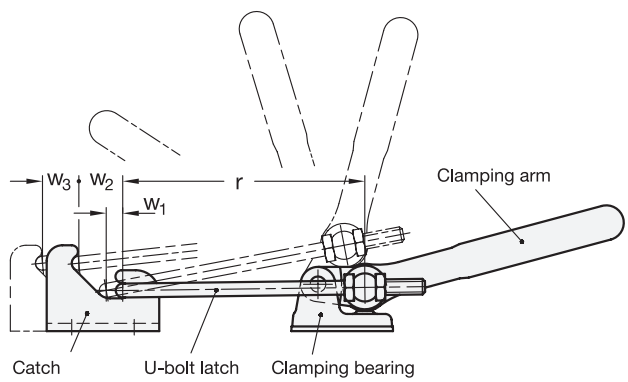
INFORMATION

The outstanding feature of GN 854 latch type toggle clamps is their highly robust, sturdy and compact design, allowing their use under demanding conditions, e.g. exposure to high temperatures, dust, spray mist, etc.
The specially designed catch allows the forced loosening of the clamping by the clamping arm moving the U-bolt latch forward, e.g. for separating mould halves.
Latch type toggle clamps with bore (coding 1) are operated with a gear lever handle which is plugged into the latch and pulled off after operation. This saves space and has the added advantage that the gear lever handle is not exposed to adverse ambient conditions, e.g. becoming too hot to operate. The gear lever handle is not included in the delivery.
The catch can also be attached using screws or bolts.
If required, clamps and U-bolt latches are also available as separate parts; for replacement, the bearing pin is easily dismantled.

Coding **1**



Coding **2**

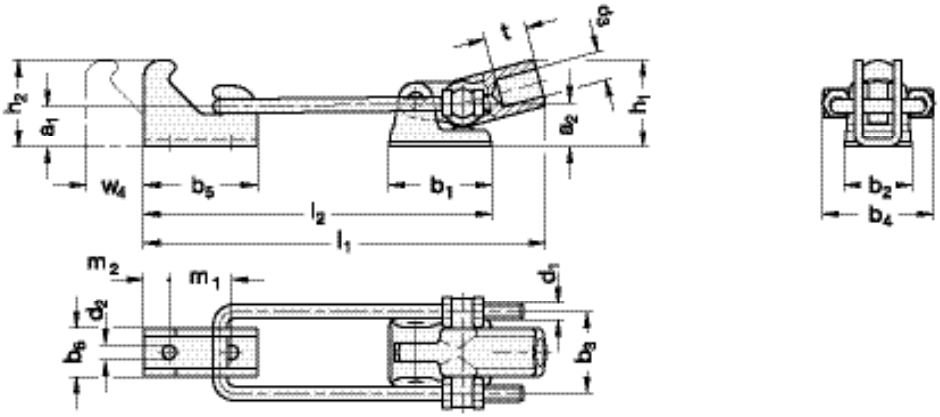


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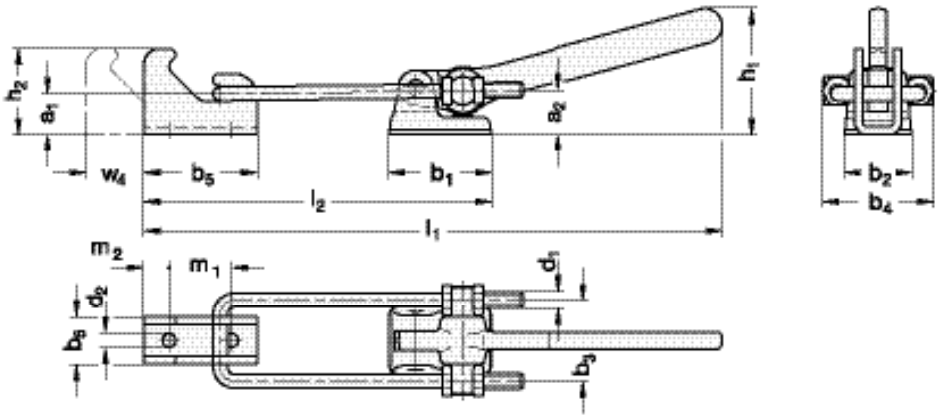
GN 854

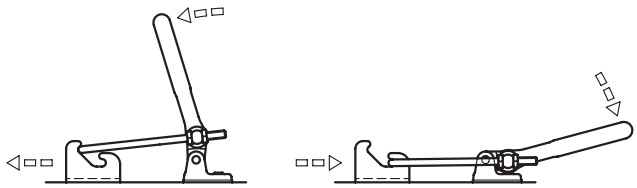
Latch type toggle clamps

Coding 1



Coding 2





GN 854

Description	Size	FH in N	a1	a2	b1	b2	b3	b4	b5	b6	d1	d2	d3	h1 ≈	h2	l1 ≈	l2 min.	m1	m2	r	t	w1	w2	w3 ≈	w4 ≈	⚖
GN 854-1500-1-T2S	1500	15000	26	28	65	43	52	70	72	30	M 10	8.5	18	55	55	220	186	40	16	120	30	10.5	28	25	40	1200
GN 854-1500-2-T2S	1500	15000	26	28	65	43	52	70	72	30	M 10	8.5	-	81	55	334	186	40	16	120	-	10.5	28	25	40	1331

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GN 855

C-clamps



SPECIFICATION

Type
- Type **C2**: for screwing

Clamp / operating handle
Steel
- forged
- blackened

Bearing flange
Sheet steel, blackened

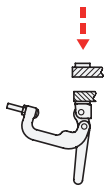
Spindle assembly
Steel, blackened

Counter plate / bearing pin
Steel, blackened

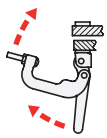
INFORMATION

GN 855 C-clamps feature an especially robust, sturdy and compact design, allowing them to be used under severe and demanding conditions, e.g. higher temperatures, dust, mist, etc.
The C-clamps are normally installed and mounted at the clamping point. The counter plate (supplied loose) has a ball socket and is designed for attaching to the counter piece to be clamped. In connection with the ball-type bolt, this configuration ensures the precise positioning of the latch clamp.
If the counter plate is not to remain at the counter piece to be clamped, the clamping bracket may alternatively also be used to hold GN 802 (see page 1626) toggle clamp spindle assemblies which have a pendulum-type bearing surface.

DESCRIPTION OF FUNCTION



Place the pieces to be clamped into the clamping position, e.g. close the lid or place the piece to be clamped on top.



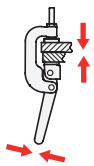
Then move the clamping bracket and the operating handle of the C-clamp upwards.



Now move the clamping bracket forward such that the clamping bolt is located in the ball socket of the counter plate.

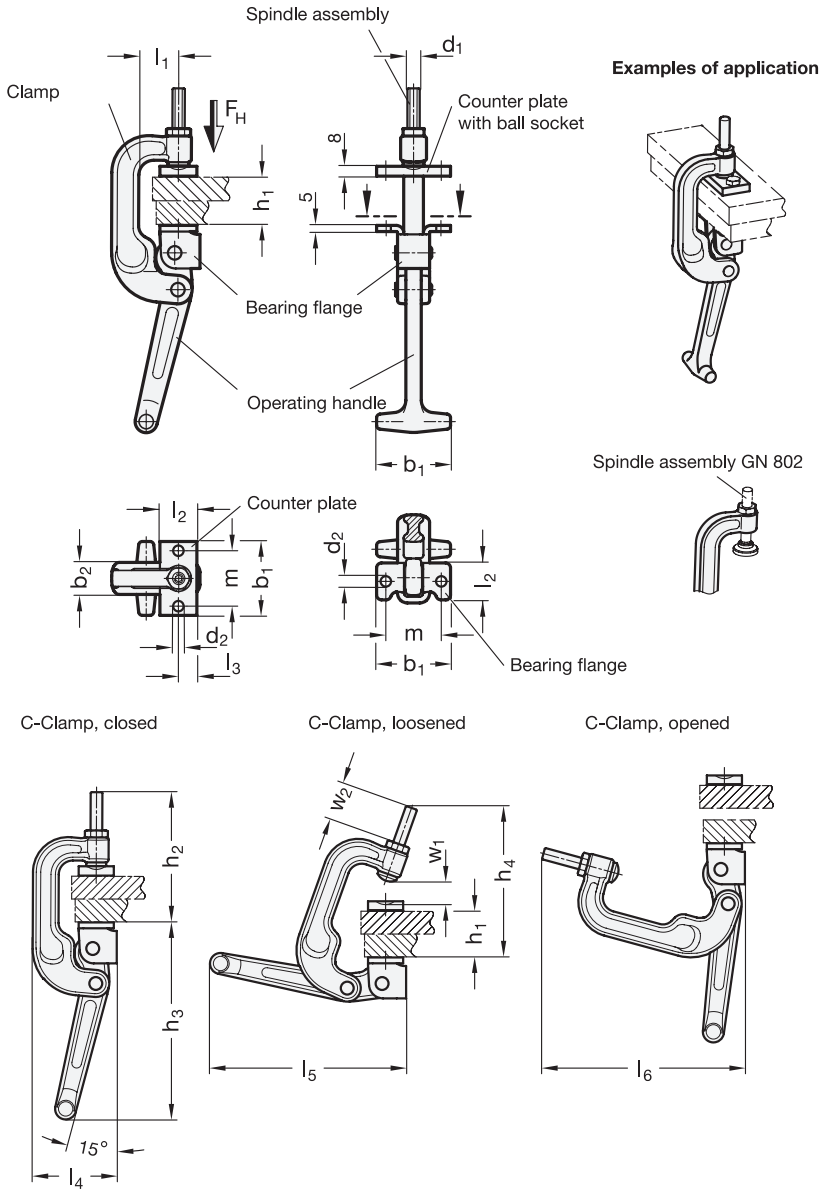


Move the operating handle downwards until the clamping force has exceeded the dead point.



When closed, the C-clamp now holds its position on its own.

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GN 855

Description	h1 max.	l1	FH in N	b1	b2	d1	d2	h2	h3	h4	l2	l3	l4	l5	l6	m	w1	w2	⚖
GN 855-40-32-C2	40	32	15000	60	26	M 10	8.5	111	168	129	30	18	72	168	173	45	19	32	1000
GN 855-75-32-C2	75	32	15000	60	26	M 10	8.5	146	168	164	30	18	72	168	207	45	19	32	1000

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Latch type toggle clamps

with locking mechanism

SPECIFICATION

Type

- Type **T5**: with fixing holes (d2)

Steel forged / precision die casting
chemically blackened

Bearing pins steel
hardened and ground

All moving parts
lubricated with special grease

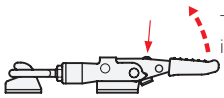
Hand grip
High quality, oil resistant red plastic

INFORMATION

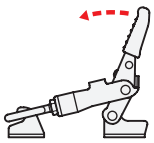
GN 858 latch type toggle clamps are used when very high retaining forces are required.
The latch type clamp also features a locking mechanism which prevents the inadvertent or vibration-induced opening of the clamp.
Another benefit of this clamp is the ability to operate it with one hand.
Catch is included.

- General information for toggle clamps (see page 1560)

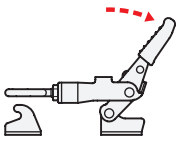
DESCRIPTION OF FUNCTION (FOR ONE-HAND OPERATION)



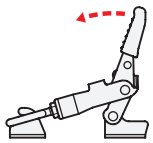
To **release**, move the locking mechanism in the direction of the arrow.



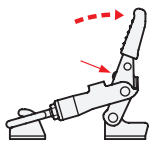
Lift the lever arm until the latch bolt is disengaged from the catch.



Moving the lever arm back will lift the latch bolt and release the catch (one-hand operation).

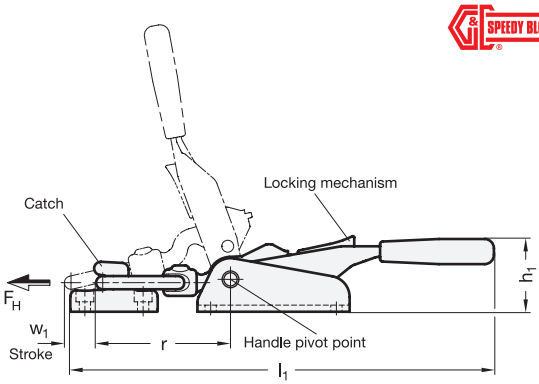


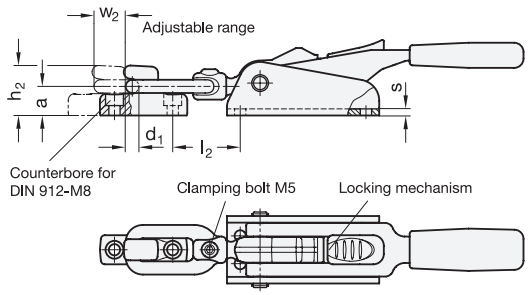
For **clamping**, lift the lever arm until the latch bolt rests against the catch.



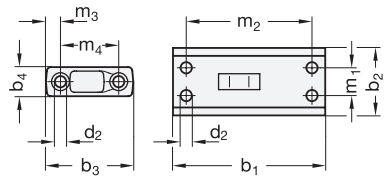
The latch bolt engages with the catch if the locking mechanism is moved upward during clamping.
When clamping in the end position, the mechanism locks automatically through spring tension.







Dimensions of installation (Top view)



GN 858

Description	Size	F_H in N	a	b_1	b_2	b_3	b_4	d_1	d_2	h_1	h_2	l_1 ≈	l_2 min.	m_1	m_2	m_3	m_4	r ≈	s	w_1	w_2	⚖
GN 858-1400-T5	1400	15000	22	115	51.5	66	22	10	8.5	57	38	318	47	21	95	11	44	97.5	5	24	22	1633

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GN 861

Heavy duty pneumatic toggle clamps

with magnetic piston



SPECIFICATION

Type
- Type **EP**: solid clamping arm

Coding
- Coding **M**: Magnetic piston

Base
cast steel
black lacquered

other parts
Steel St 60
zinc plated, blue passivated

Bearing pins
case hardened

Double-action air cylinder
with adjustable cushioning
max. pressure 6 bar

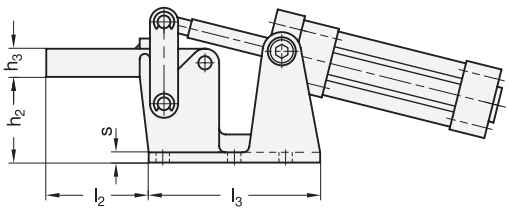
All moving parts
lubricated with special grease

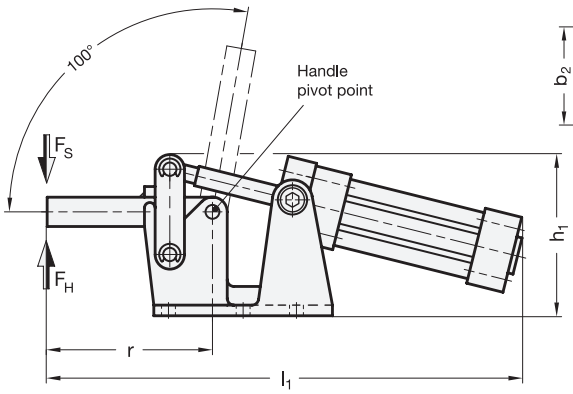
INFORMATION

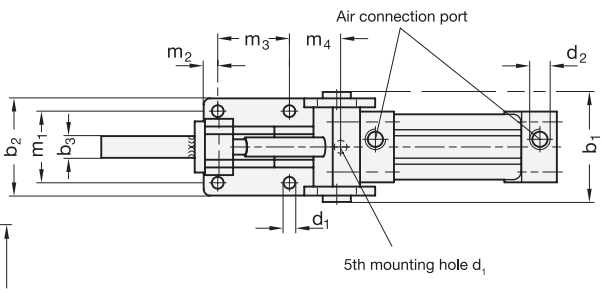
GN 861 heavy duty pneumatic toggle clamps have been constructed in such a way as to make them easy to unmount. The bearing pins are axially fixed with circlips. This allows the clamping arm to be modified to suit any particular application.
To ensure an extended life of the mechanical parts as well as the air cylinder the operating pressure should not exceed 6 bar. In addition a lubrication control unit should be fitted in the air line.
GN 861 pneumatic toggle clamps are available as version M (magnetic piston). In conjunction with a GN 896.3 (see page 1622) proximity switch the piston position is sensed and the generated signal can be used in sequence control systems.
- General information for toggle clamps (see page 1560)

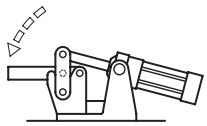
ACCESSORY

- GN 896.3 proximity switch (see page 1622)









GN 861

Description	Size	FH in N	FS in N	b1	b2	b3	d1	d2	Inside Ø connection tube	h1 ≈	h2	h3	l1 ≈	l2 ≈	l3 ≈	m1	m2	m3	m4	r ≈	s	⚖
GN 861-1000-EP-M	1000	10000	2500	102	90	20	10.5	G 1/4	8	145	80	25	410	90	155	65	12.5	65	48	140	13	6000
GN 861-2000-EP-M	2000	20000	3600	112	100	20	10.5	G 3/8	10	171.5	90	35	487	113	176	70	15	70	56	172	13	7400

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Pneumatic toggle clamps

SPECIFICATION

Types

- Type **AP3**: U-bar version, with two flanged washers
- Type **CP3**: U-bar version, with two flanged washers and GN 708.1 spindle assembly (see page 1625)
- Type **EP3**: Solid bar version, with clasp

Coding

- Coding **M**: Magnetic piston (for size 200 and up)

Parts in sheet metal
case-hardened steel C10
zinc plated, blue passivated

Bearing pins
hardened

Bearing rivets (for size 200 and up)
case-hardened

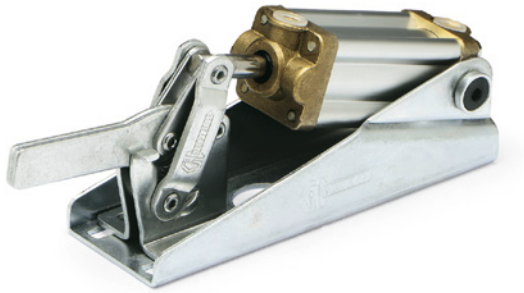
Air cylinder bearing pins
case-hardened

Double-action air cylinder
max. pressure 6 bar

All moving parts
lubricated with special grease

Spindle assembly GN 708.1 , Type A (see page 1625)

- Steel, zinc plated
- Rubber tip 85 Shore A



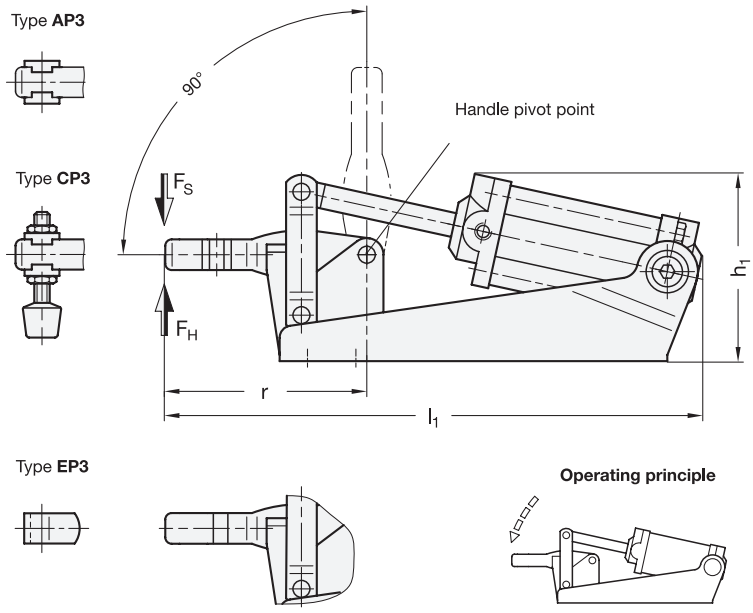
INFORMATION

The clamping principle of GN 860 pneumatic toggle clamps is identical in construction and dimensions to the manually operated GN 810 vertical toggle clamps (see page 1562).
To ensure an extended life of the mechanical parts as well as the air cylinders the operating pressure should not exceed 6 bar.
GN 860 pneumatic toggle clamps are also available in sizes 200 and up as a version M (magnetic piston). In conjunction with GN 896.1 / GN 896.2 (see page 1622) proximity switches, the piston position can be sensed and the generated impulse can be used to transmit an electrical signal.

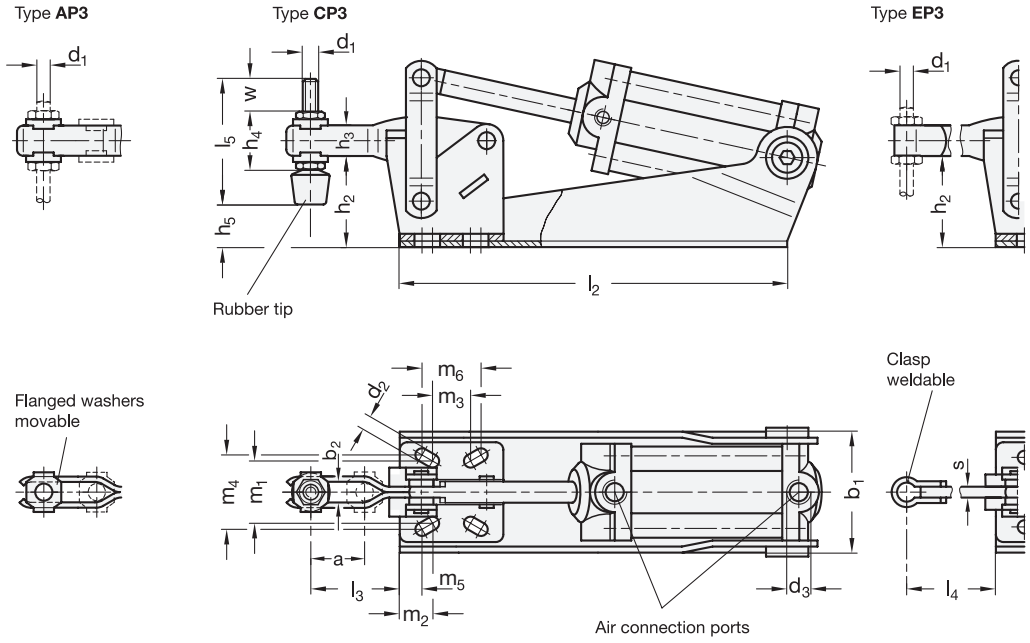
- General information for toggle clamps (see page 1560)

ACCESSORY

- Spindle assemblies (see page 1623)
- GN 801 clamp mounts for toggle clamps (for Type AP3) (see page 1629)
- GN 809 clamp mounts for toggle clamps (for Type EP3) (see page 1630)
- GN 896.1 proximity switch (see page 1622)
- GN 896.2 proximity switch (see page 1622)



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GN 860

Description	Size	FH in N	FS in N	a ≈	b1	b2	d1	d2	d3	Inside Ø connection tube	h1 ≈	h2	h3	h4	h5	l1 ≈	l2 ≈	l3 ≈	l4 ≈ max.	l5	m1	m2	m3	m4	m5	m6	r ≈	s	w	⚖
GN 860-70-AP3	70	700	480	20	42	5.5	M 5	4.5	G 1/8	4	51	21	11	-	-	163	92	33	-	-	24	7	15	24	6.5	16	62.5	-	-	499
GN 860-125-AP3	125	1600	600	28	47.5	6.5	M 6	5.5	G 1/8	4	70.5	30	14	-	-	200.5	150	40	-	-	27	11.25	12.5	29	8	19	79	-	-	727
GN 860-200-AP3	200	2200	800	40	53	8.5	M 8	6.5	G 1/8	4	79	36	18	-	-	247	160	59	-	-	32	12	19	32	11.5	20	104	-	-	1220
GN 860-300-AP3	300	2700	1300	42	74	10.5	M 10	8.5	G 1/4	6	98	48	20	-	-	305	195.5	66	-	-	45	10.5	29	46	8.5	32	122	-	-	1600
GN 860-400-AP3	400	3000	1350	66	74	12.5	M 12	8.5	G 1/4	8	107.5	51	22	-	-	361	216	94	-	-	45	10	32	45	10	32	156	-	-	3265
GN 860-70-CP3	70	700	480	20	42	5.5	M 5	4.5	G 1/8	4	51	21	11	19	6.3	163	92	33	-	45	24	7	15	24	6.5	16	62.5	-	15	500
GN 860-125-CP3	125	1600	600	28	47.5	6.5	M 6	5.5	G 1/8	4	70.5	30	14	23.5	13.5	200.5	150	40	-	55	27	11.25	12.5	29	8	19	79	-	19.5	700
GN 860-200-CP3	200	2200	800	40	53	8.5	M 8	6.5	G 1/8	4	79	36	18	30	12.5	247	160	59	-	68	32	12	19	32	11.5	20	104	-	20	1220
GN 860-300-CP3	300	2700	1300	42	74	10.5	M 10	8.5	G 1/4	6	98	48	20	35	20	305	195.5	66	-	77	45	10.5	29	46	8.5	32	122	-	21	2200
GN 860-400-CP3	400	3000	1350	66	74	12.5	M 12	8.5	G 1/4	8	107.5	51	22	39	18.5	361	216	94	-	100	45	10	32	45	10	32	156	-	37	3376
GN 860-70-EP3	70	700	480	-	42	-	M 5	4.5	G 1/8	4	51	21	11	-	-	163	92	-	41	-	24	7	15	24	6.5	16	62.5	4	-	400
GN 860-125-EP3	125	1600	600	-	47.5	-	M 6	5.5	G 1/8	4	70.5	30	14	-	-	200.5	150	-	54	-	27	11.25	12.5	29	8	19	79	5	-	723
GN 860-200-EP3	200	2200	800	-	53	-	M 8	6.5	G 1/8	4	79	36	18	-	-	247	160	-	75	-	32	12	19	32	11.5	20	104	6	-	1225
GN 860-300-EP3	300	2700	1300	-	74	-	M 10	8.5	G 1/4	6	98	48	20	-	-	305	195.5	-	85	-	45	10.5	29	46	8.5	32	122	8	-	2350
GN 860-400-EP3	400	3000	1350	-	74	-	M 12	8.5	G 1/4	8	107.5	51	22	-	-	361	216	-	120	-	45	10	32	45	10	32	156	10	-	3250
GN 860-200-AP3-M	200	2200	800	40	53	8.5	M8	6.5	G 1/8	4	79	36	18	-	-	247	160	59	-	-	32	12	19	32	11.5	20	104	-	-	1225
GN 860-300-AP3-M	300	2700	1300	42	74	10.5	M10	8.5	G 1/4	6	98	48	20	-	-	305	195.5	66	-	-	45	10.5	29	46	8.5	32	122	-	-	2148
GN 860-400-AP3-M	400	3000	1350	66	74	12.5	M12	8.5	G 1/4	8	107.5	51	22	-	-	361	216	94	-	-	45	10	32	45	10	32	156	-	-	3235
GN 860-200-CP3-M	200	2200	800	40	53	8.5	M8	6.5	G 1/8	4	79	36	18	30	12.5	247	160	59	-	68	32	12	19	32	11.5	20	104	-	20	1250
GN 860-300-CP3-M	300	2700	1300	42	74	10.5	M10	8.5	G 1/4	6	98	48	20	35	20	305	195.5	66	-	77	45	10.5	29	46	8.5	32	122	-	21	2218
GN 860-400-CP3-M	400	3000	1350	66	74	12.5	M12	8.5	G 1/4	8	107.5	51	22	39	18.5	361	216	94	-	100	45	10	32	45	10	32	156	-	37	3346
GN 860-200-EP3-M	200	2200	800	-	53	-	M8	6.5	G 1/8	4	79	36	18	-	-	247	160	-	75	-	32	12	19	32	11.5	20	104	6	-	1245
GN 860-300-EP3-M	300	2700	1300	-	74	-	M10	8.5	G 1/4	6	98	48	20	-	-	305	195.5	-	85	-	45	10.5	29	46	8.5	32	122	8	-	2160
GN 860-400-EP3-M	400	3000	1350	-	74	-	M12	8.5	G 1/4	8	107.5	51	22	-	-	361	216	-	120	-	45	10	32	45	10	32	156	10	-	3226

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Pneumatic toggle clamps

with angled base



SPECIFICATION

Types

- Type **APV3**: U-bar version, with two flanged washers
- Type **CPV3**: U-bar version, with two flanged washers and GN 708.1 spindle assembly (see page 1625)
- Type **EPV3**: Solid bar version, with clasp

Coding

- Coding **M**: Magnetic piston

Parts in sheet metal
Case-hardened Steel C10
zinc plated, blue passivated

Bearing pins hardened

Bearing rivets case-hardened

Air cylinder bearing pins
case-hardened

Double-action air cylinder
max. pressure 6 bar

All moving parts
lubricated with special grease

Spindle assembly GN 708.1 , Type A (see page 1625)

- Steel, zinc plated
- Rubber tip 85 Shore A

INFORMATION

The clamping principle of GN 862 pneumatic toggle clamps is identical in construction and dimensions to the manually operated GN 812 vertical toggle clamps (see page 1572).
To ensure an extended life of the mechanical parts as well as the air cylinders the operating pressure should not exceed 6 bar.
GN 862 pneumatic toggle clamps are also available in sizes 200 and up as a version M (magnetic piston). In conjunction with a GN 896.2 (see page 1622) proximity switch, the piston position can be sensed and the generated impulse can be used to transmit an electrical signal.

- General information for toggle clamps (see page 1560)

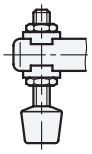
ACCESSORY

- Spindle assemblies (see page 1623)
- GN 801 clamp mounts for toggle clamps (for Type APV3) (see page 1629)
- GN 809 clamp mounts for toggle clamps (for Type EPV3) (see page 1630)
- GN 896.2 proximity switch (see page 1622)

Type **APV3**

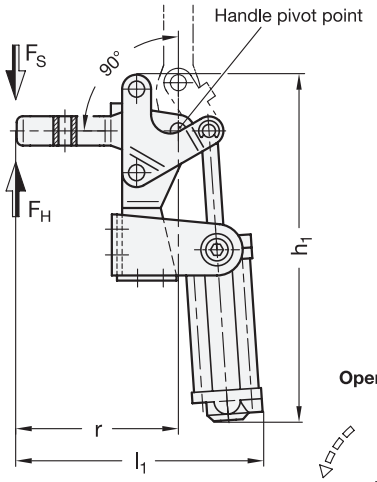


Type **CPV3**

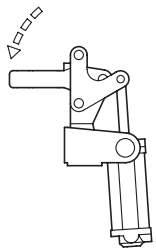


Type **EPV3**





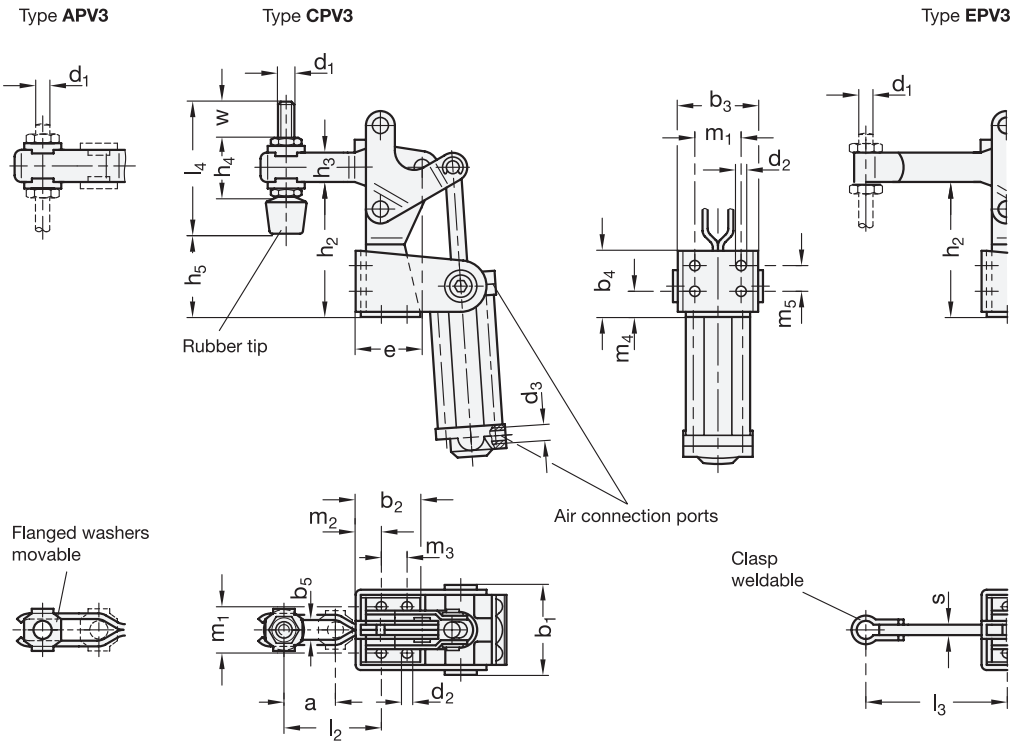
Operating principle



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GN 862

Pneumatic toggle clamps



GN 862

Description	Size	FH in N	FS in N	a ≈	b1	b2	b3	b4	b5	d1	d2	d3	Inside Ø connection tube	e
GN 862-200-APV3	200	1600	970	34	59.5	38.5	51	35	8.5	M 8	6.5	G 1/8	4	39.5
GN 862-300-APV3	300	2400	1050	42	68.5	53	60.5	50	10.3	M 10	8.5	G 1/4	6	50.5
GN 862-200-CPV3	200	1600	970	34	59.5	38.5	51	35	8.5	M 8	6.5	G 1/8	4	39.5
GN 862-300-CPV3	300	2400	1050	42	68.5	53	60.5	50	10.3	M 10	8.5	G 1/4	6	50.5
GN 862-200-EPV3	200	1600	970	-	59.5	38.5	51	35	-	M 8	6.5	G 1/8	4	39.5
GN 862-300-EPV3	300	2400	1050	-	68.5	53	60.5	50	-	M 10	8.5	G 1/4	6	50.5
GN 862-200-APV3-M	200	1600	970	34	59.5	38.5	51	35	8.5	M8	6.5	G 1/8	4	39.5
GN 862-300-APV3-M	300	2400	1050	42	68.5	53	60.5	50	10.3	M10	8.5	G 1/4	6	50.5
GN 862-200-CPV3-M	200	1600	970	34	59.5	38.5	51	35	8.5	M8	6.5	G 1/8	4	39.5
GN 862-300-CPV3-M	300	2400	1050	42	68.5	53	60.5	50	10.3	M10	8.5	G 1/4	6	50.5
GN 862-200-EPV3-M	200	1600	970	-	59.5	38.5	51	35	-	M8	6.5	G 1/8	4	39.5
GN 862-300-EPV3-M	300	2400	1050	-	68.5	53	60.5	50	-	M10	8.5	G 1/4	6	50.5

GN 862

Description	h1 ≈	h2	h3	h4	h5	l1 ≈	l2 ≈	l3 max.	l4	m1	m2	m3	m4	m5	r ≈	s	w	⚖
GN 862-200-APV3	210	78	17	-	-	150	59	-	-	26	14.5	16	11	16	98	-	-	1147
GN 862-300-APV3	258	108	20	-	-	187	74	-	-	30	16.5	28	12	30	122	-	-	2000
GN 862-200-CPV3	210	78	17	29	54	150	59	-	68	26	14.5	16	11	16	98	-	21	1147
GN 862-300-CPV3	258	108	20	35	79.5	187	74	-	77	30	16.5	28	12	30	122	-	21	2090
GN 862-200-EPV3	210	78	17	-	-	150	-	80	-	-	14.5	16	11	16	98	6	-	1150
GN 862-300-EPV3	258	108	20	-	-	187	-	104	-	-	16.5	28	12	30	122	8	-	2025
GN 862-200-APV3-M	210	78	17	-	-	150	59	-	-	26	14.5	16	11	16	98	-	-	1100
GN 862-300-APV3-M	258	108	20	-	-	187	74	-	-	30	16.5	28	12	30	122	-	-	2015
GN 862-200-CPV3-M	210	78	17	29	54	150	59	-	68	26	14.5	16	11	16	98	-	21	1147
GN 862-300-CPV3-M	258	108	20	35	79.5	187	74	-	77	30	16.5	28	12	30	122	-	21	2100
GN 862-200-EPV3-M	210	78	17	-	-	150	-	80	-	-	14.5	16	11	16	98	6	-	1100
GN 862-300-EPV3-M	258	108	20	-	-	187	-	104	-	-	16.5	28	12	30	122	8	-	2030

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Pneumatic toggle clamps

with additional manual operation



SPECIFICATION

Types

- Type **APV3S**: U-bar version, with two flanged washers
- Type **CPV3S**: U-bar version, with two flanged washers and GN 708.1 spindle assembly (see page 1625)
- Type **EPV3S**: Solid bar version, with clasp

Coding

- Coding **M**: Magnetic piston

Parts in sheet metal
Case-hardened Steel C10
zinc plated, blue passivated

Bearing pins hardened

Bearing rivets case-hardened

Air cylinder bearing pins
case-hardened

Double-action air cylinder
max. pressure 6 bar

All moving parts
lubricated with special grease

Spindle assembly GN 708.1 , Type A (see page 1625)

- Steel, zinc plated
- Rubber tip 85 Shore A

INFORMATION

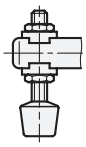
GN 862.1 pneumatic toggle clamps are built from the same construction as GN 862 (see page 1616).
The special features of these clamps are that they can be mounted in two different planes, and they can also be operated manually via the grip handle. For example, they can individually be manually closed, and then all clamps can be opened at once via the pneumatic function.
To ensure an extended life of the mechanical parts as well as the air cylinders the operating pressure should not exceed 6 bar.
GN 862.1 pneumatic toggle clamps are also available as a version M (magnetic piston). In conjunction with a GN 896.2 (see page 1622) proximity switch, the piston position can be sensed and the generated impulse can be used to transmit an electrical signal.

- General information for toggle clamps (see page 1560)

ACCESSORY

- Spindle assemblies (see page 1623)
- GN 801 clamp mounts for toggle clamps (for Type APV3S) (see page 1629)
- GN 809 clamp mounts for toggle clamps (for Type EPV3S) (see page 1630)
- GN 896.2 proximity switch (see page 1622)

Type **CPV3S**

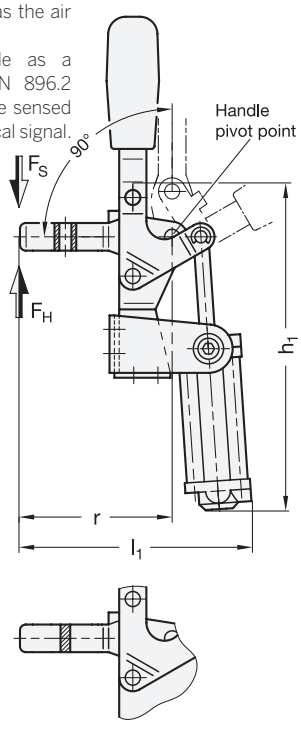


Type **APV3S**

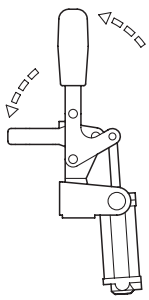


Type **EPV3S**

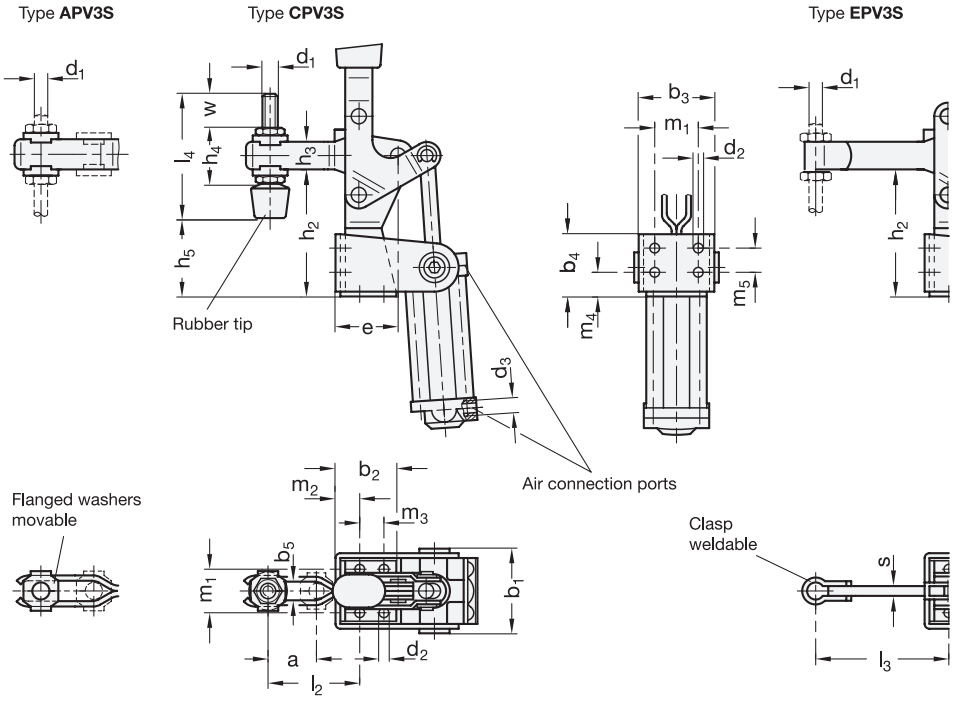




Operating principle



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GN 862.1

Description	Size	FH in N	FS in N	a	b1	b2	b3	b4	b5	d1	d2	d3	Inside Ø connection tube	e
GN 862.1-200-APV3S	200	1600	970	34	59.5	38.5	51	35	8.5	M 8	6.5	G 1/8	4	39.5
GN 862.1-300-APV3S	300	2400	1050	42	68.5	53	60.5	50	10.3	M 10	8.5	G 1/4	6	50.5
GN 862.1-200-CPV3S	200	1600	970	34	59.5	38.5	51	35	8.5	M 8	6.5	G 1/8	4	39.5
GN 862.1-300-CPV3S	300	2400	1050	42	68.5	53	60.5	50	10.3	M 10	8.5	G 1/4	6	50.5
GN 862.1-200-EPV3S	200	1600	970	-	59.5	38.5	51	35	-	M 8	6.5	G 1/8	4	39.5
GN 862.1-300-EPV3S	300	2400	1050	-	68.5	53	60.5	50	-	M 10	8.5	G 1/4	6	50.5
GN 862.1-200-APV3S-M	200	1600	970	34	59.5	38.5	51	35	8.5	M 8	6.5	G 1/8	4	39.5
GN 862.1-300-APV3S-M	300	2400	1050	42	68.5	53	60.5	50	10.3	M 10	8.5	G 1/4	6	50.5
GN 862.1-200-CPV3S-M	200	1600	970	34	59.5	38.5	51	35	8.5	M 8	6.5	G 1/8	4	39.5
GN 862.1-300-CPV3S-M	300	2400	1050	42	68.5	53	60.5	50	10.3	M 10	8.5	G 1/4	6	50.5
GN 862.1-200-EPV3S-M	200	1600	970	-	59.5	38.5	51	35	-	M 8	6.5	G 1/8	4	39.5
GN 862.1-300-EPV3S-M	300	2400	1050	-	68.5	53	60.5	50	-	M 10	8.5	G 1/4	6	50.5

GN 862.1

Description	h1	h2	h3	h4 ≈	h5	l1 ≈	l2 ≈	l3 ≈ max.	l4	m1	m2	m3	m4	m5	r ≈	s	w	⚖
GN 862.1-200-APV3S	296	78	17	-	-	150	59	-	-	26	14.5	16	11	16	98	-	-	1218
GN 862.1-300-APV3S	360	108	20	-	-	187	74	-	-	30	16.5	28	12	30	122	-	-	2123
GN 862.1-200-CPV3S	296	78	17	29	54	150	59	-	68	26	14.5	16	11	16	98	-	21	1253
GN 862.1-300-CPV3S	360	108	20	35	79.5	187	74	-	77	30	16.5	28	12	30	122	-	21	2180
GN 862.1-200-EPV3S	296	78	17	-	-	150	-	80	-	-	14.5	16	11	16	98	6	-	1209
GN 862.1-300-EPV3S	360	108	20	-	-	187	-	104	-	-	16.5	28	12	30	122	8	-	2140
GN 862.1-200-APV3S-M	296	78	17	-	-	150	59	-	-	26	14.5	16	11	16	98	-	-	1250
GN 862.1-300-APV3S-M	360	108	20	-	-	187	74	-	-	30	16.5	28	12	30	122	-	-	2116
GN 862.1-200-CPV3S-M	296	78	17	29	54	150	59	-	68	26	14.5	16	11	16	98	-	21	1156
GN 862.1-300-CPV3S-M	360	108	20	35	79.5	187	74	-	77	30	16.5	28	12	30	122	-	21	2186
GN 862.1-200-EPV3S-M	296	78	17	-	-	150	-	80	-	-	14.5	16	11	16	98	6	-	1256
GN 862.1-300-EPV3S-M	360	108	20	-	-	187	-	104	-	-	16.5	28	12	30	122	8	-	2150

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Heavy duty pneumatic toggle clamps

with magnetic piston



SPECIFICATION

Type
- Type **EPV**: solid clamping arm

Coding
- Coding **M**: Magnetic piston

Body
cast steel
black lacquered

other parts
Steel St 60
zinc plated, blue passivated

Bearing pins
case-hardened

Double-action air cylinder
with adjustable cushioning
max. pressure 6 bar

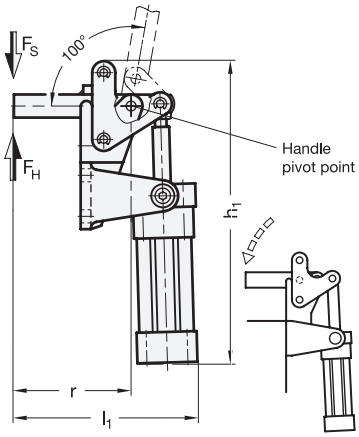
All moving parts
lubricated with special grease

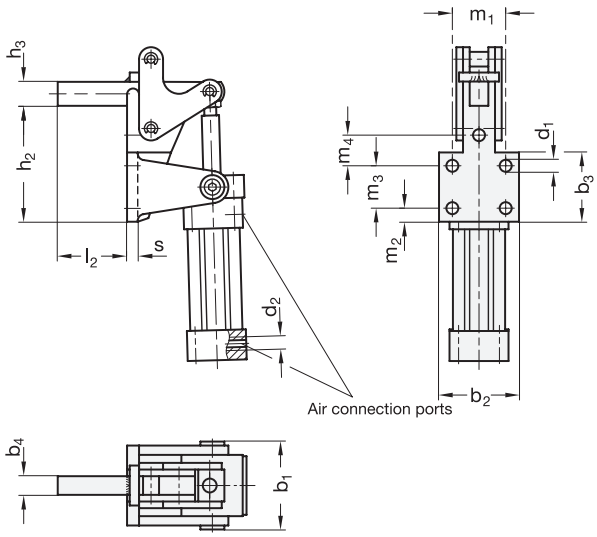
INFORMATION

GN 863 heavy duty pneumatic toggle clamps have been constructed in such a way as to make them easy to unmount: The bearing pins are axially fixed with circlips. This allows the clamping arm to be modified once it is dismantled, to suit any particular application.
To ensure an extended life of the mechanical parts as well as the air cylinder the operating pressure should not exceed 6 bar. In addition a lubrication control unit should be fitted in the air line.
GN 863 pneumatic toggle clamps are available as version M (magnetic piston). In conjunction with a GN 896.3 (see page 1622) proximity switch the piston position is sensed and the generated signal can be used in sequence control systems.
- General information for toggle clamps (see page 1560)

ACCESSORY

- GN 896.3 proximity switch (see page 1622)





GN 863

Description	Size	FH in N	FS in N	b1 ≈	b2	b3	b4	d1	d2	Inside Ø connection tube	h1 ≈	h2	h3	l1 ≈	l2 ≈	m1	m2	m3	m4	r	s	⚖
GN 863-1000-EPV-M	1000	10000	3250	102	90	80	20	10.5	G 1/4	8	355	132.5	25	217.5	80	50	12.5	50	-	144	13	5500
GN 863-2000-EPV-M	2000	20000	5600	112	100	90	20	12.5	G 3/8	10	425	161	35	246.5	100	54	12.5	58	45	168.5	14	8355

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GN 890

Pneumatic toggle clamps

for push-pull clamping

SPECIFICATION

Type
- Type **SP3**: Body, Steel forged

Coding
- Coding **M**: Magnetic piston (for size 360 and up)

Body
Steel

- forged
- chemically blackened

Parts in sheet metal
Case-hardened Steel C10
zinc plated, blue passivated

Tapped connecting rod
Steel St 37
zinc plated, blue passivated

Bearing pins (Bearing rivets)
case-hardened

Double-action air cylinder
max. pressure 6 bar

All moving parts
lubricated with special grease

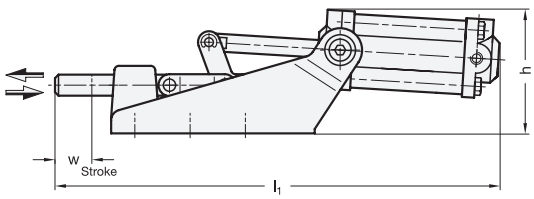
INFORMATION

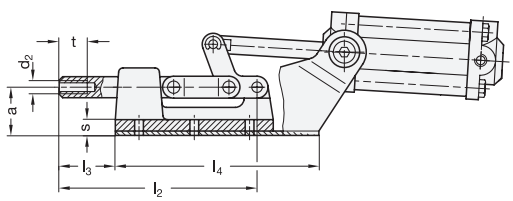
The working principle of the GN 890 pneumatic toggle clamps is identical in construction and dimensions to the manual toggle clamps GN 842 (see page 1589). To ensure an extended life of the mechanical parts as well as the air cylinders the operating pressure should not exceed 6 bar.
In addition a lubrication control unit should be fitted in the air line.
The sturdy mounting frame for the cylinder has been designed to avoid the trunions of the cylinder to protrude over the frame.
GN 890 pneumatic toggle clamps are also available in sizes 360 and up as a version M (magnetic piston). In conjunction with GN 896.1 (see page 1622) / GN 896.2 (see page 1622) proximity switches, the piston position can be sensed and the generated impulse can be used to transmit an electrical signal.
- General information for toggle clamps (see page 1560)

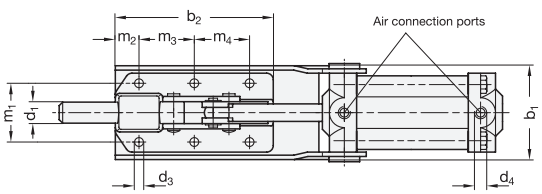
ACCESSORY

- GN 896.1 proximity switch (see page 1622)
- GN 896.2 proximity switch (see page 1622)









Operating principle



GN 890

Description	Size	FH in N	FS in N	a	b1	b2	d1	d2	d3	d4	Inside Ø connection tube	h	l1	l2	l3	l4	m1	m2	m3	m4	s ≈	t	w	⚖
GN 890-70-SP3	70	1200	550	14	42	64	8.5	M 6	4.3	G 1/8	4	52	171	78.5	20	64	26	13	26	-	8	12	12	556
GN 890-360-SP3	360	5600	1000	27.5	55	90	12	M 8	5.5	G 1/8	4	70	260	113	32	116	33.5	30	36.5	-	9.5	16	21	1285
GN 890-1100-SP3	1100	16000	1850	28	66	133	16	M 10	8.5	G 1/4	6	88	355	171	49	167	41	15	35	41	12	18	31	2400
GN 890-2100-SP3	2100	25000	3000	38.5	80	177	20	M 12	8.5	G 1/4	8	100	469	222	61.5	231	50	35	50	50	13	22	45	4830
GN 890-360-SP3-M	360	5600	1000	27.5	55	90	12	M 8	5.5	G 1/8	4	70	260	113	32	116	33.5	30	36.5	-	9.5	16	21	1400
GN 890-1100-SP3-M	1100	16000	1850	28	66	133	16	M 10	8.5	G 1/4	6	88	355	171	49	167	41	15	35	41	12	18	31	2440
GN 890-2100-SP3-M	2100	25000	3000	38.5	80	177	20	M 12	8.5	G 1/4	8	100	469	222	61.5	231	50	35	50	50	13	22	45	4800

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Proximity switch

with mounting bracket

SPECIFICATION

Electric cable PVC 2 wires, 2.5 m.
If used on DC brown wire to be connected to +,
for the diode to work.

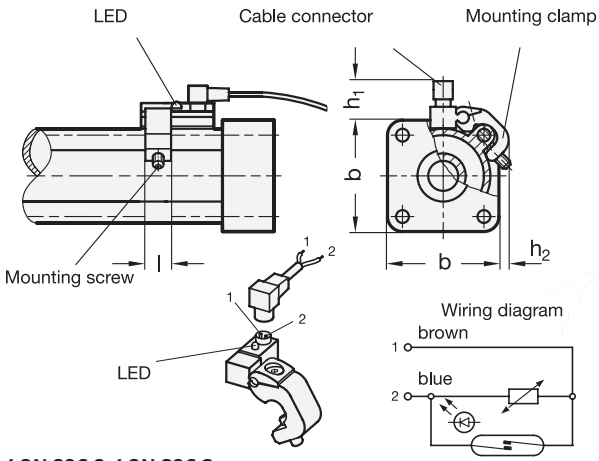
INFORMATION

With GN 896.1, GN 896.2 and GN 896.3 proximity switches the pneumatically operated clamps can emit control signals. To do this the clamps must be assembled with a special cylinder with magnetic piston which will cause the electric contacts in the REED switch to close.
The proximity switches with their mounting brackets can be set anywhere along the full stroke length of the cylinder.



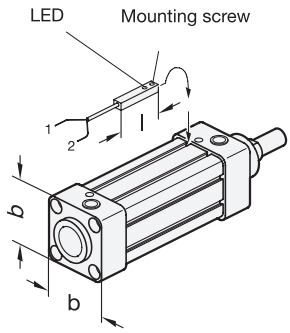


Mounting **GN 896.1 / GN 896.2**



Mounting **GN 896.3**

Insert the thinner part of the proximity switch into the provided slot, turn 90° and affix inside the slot via the mounting screw.



GN 896.1 / GN 896.2 / GN 896.3

Pneumatically operated clamp	Proximity switch	b	h1 ≈	h2 ≈	l	⚖
GN 860-200-AP3-M	GN 896.2	44	24	10	14	60
GN 860-200-EP3-M	GN 896.2	44	24	10	14	60
GN 860-300-AP3-M	GN 896.2	50	27	11	14	60
GN 860-300-EP3-M	GN 896.2	50	27	11	14	60
GN 860-400-AP3-M	GN 896.1	62	24	10	14	108
GN 860-400-EP3-M	GN 896.1	62	24	10	14	108
GN 861-1000-EP-M	GN 896.3	65	-	-	30	34
GN 861-2000-EP-M	GN 896.3	75	-	-	30	34
GN 862-200-APV3-M	GN 896.2	44	24	10	14	60
GN 862-200-EPV3-M	GN 896.2	44	24	10	14	60
GN 862-300-APV3-M	GN 896.2	50	27	11	14	60
GN 862-300-EPV3-M	GN 896.2	50	27	11	14	60
GN 862.1-200-APV3S-M	GN 896.2	44	24	10	14	60
GN 862.1-200-EPV3S-M	GN 896.2	44	24	10	14	60
GN 862.1-300-APV3S-M	GN 896.2	50	27	11	14	60
GN 862.1-300-EPV3S-M	GN 896.2	50	27	11	14	60
GN 863-1000-EPV-M	GN 896.3	65	-	-	30	34
GN 863-2000-EPV-M	GN 896.3	75	-	-	30	34
GN 890-360-SP3-M	GN 896.2	44	24	10	14	60
GN 890-1100-SP3-M	GN 896.2	50	27	11	14	60
GN 890-2100-SP3-M	GN 896.1	62	26	10	14	108

Specification	GN 896.1	GN 896.2	GN 896.3
Voltage range:	3 to 110 V AC/DC	3 to 110 V AC/DC	3 to 110 V AC/DC
Switch load:	0.3 A	0.3 A	0.2 A
Switch capacity (inductive):	10 VA	10 VA	6 VA
Voltage drop LED:	3 V	3 V	3 V
Temp. range:	- 20 °C to + 85 °C	- 20 °C to + 85 °C	- 20 °C to + 85 °C
Slew rate:	0.6 ms	0.6 ms	0.5 ms
Life expectancy:	10^7 operations	10^7 operations	10^7 operations
Protection class:	IP 67	IP 67	IP 67

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GN 804

Toggle clamp spindle assemblies

with adjustable spring loaded thrust pad



SPECIFICATION

Spindle
Steel

- Tensile strength class 5.8
- zinc plated, blue passivated

Hexagon nuts ISO 4032
Steel
zinc plated, blue passivated

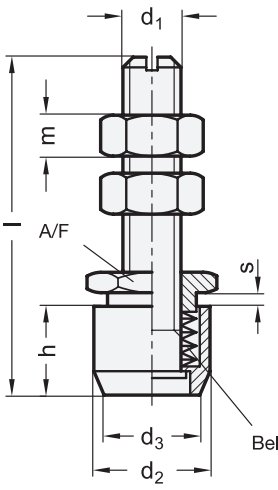
Thrust pad
Steel
nitrided, blackened

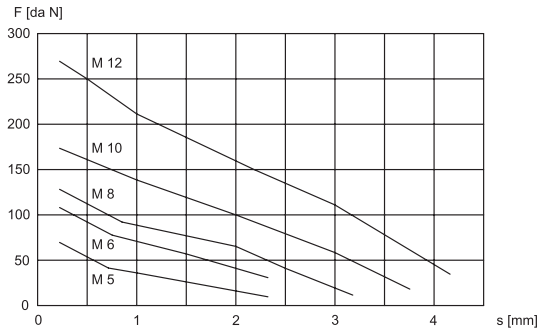
INFORMATION

In order to pass the dead centre point and / or compensate for work piece tolerances when using hand operated toggle clamps, an elastic thrust pad such as GN 708.1 (see page 1625) can be used.
GN 804 toggle clamp spindle assemblies fitted with Belleville spring washers do not only help to overcome workpiece tolerances but they also allow presetting of the required clamping force.
This adjustment can be made with the hexagon nut (A/F). The setting nut stroke is the distance by which the Belleville spring washers can be preloaded as shown on the graph to give the required clamping force.
The thrust pad is movable.
The two hexagon nuts are included parts of the order.

TECHNICAL INFORMATION

- Strength values of screws (see page A20)





Belleville spring washers

GN 804

Description	d1	l ±1	d2	d3	h	m	A/F	⚖
GN 804-M5-45	M 5	45	13	11	13	4	14	20
GN 804-M6-50	M 6	50	16	13	15	4	16	35
GN 804-M8-70	M 8	70	18	15	17	5	18	58
GN 804-M10-85	M 10	85	24	18	20	6	24	123
GN 804-M12-106	M 12	106	28	21	24	7	27	196

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Toggle clamp spindle assemblies

Steel / Stainless Steel, with / without protective cap



SPECIFICATION

Types

- Type **A**: without protective cap
- Type **B**: with protective cap

Version in Steel

Hexagon head screw ISO 4017 / DIN 933
Tensile strength class 8.8
zinc plated, blue passivated

Hexagon nuts ISO 4032
zinc plated, blue passivated

Version in Stainless Steel

Stainless Steel AISI 304 **NI**

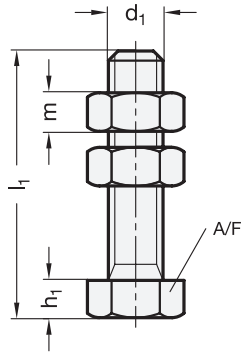
- Hexagon head screw ISO 4017 / DIN 933
- Hexagon nuts ISO 4032

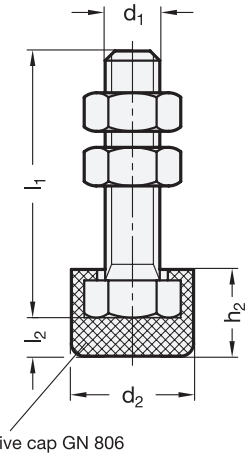
INFORMATION

The two hexagon nuts are included parts of the order.

TECHNICAL INFORMATION

- Protective caps GN 806 (see page 923)
- Stainless Steel characteristics (see page A26)
- Strength values of screws (see page A20)





Protective cap GN 806

*Complete with type index of the toggle clamp spindle assemblies

A
without protective cap

B
with protective cap

GN 807

Description	d1	l1	d2	h1	h2	l2	m	A/F	⚖
GN 807-M4-23-*	M 4	23	11	3	6.5	2.5	3.2	7	5
GN 807-M5-38-*	M 5	38	12.5	3.5	8	2.5	4.7	8	9
GN 807-M6-29-*	M 6	29	15	4	10	4	5.2	10	11
GN 807-M6-49-*	M 6	49	15	4	10	4	5.2	10	16
GN 807-M8-36-*	M 8	36	19	5.5	13	5.5	6.8	13	24
GN 807-M8-56-*	M 8	56	19	5.5	13	5.5	6.8	13	26
GN 807-M8-96-*	M 8	96	19	5.5	13	5.5	6.8	13	43
GN 807-M10-43-*	M 10	43	24	6.5	16	7	8.4	16	47
GN 807-M10-77-*	M 10	77	24	6.5	16	7	8.4	16	65
GN 807-M10-127-*	M 10	127	24	6.5	16	7	8.4	16	92
GN 807-M12-53-*	M 12	53	26	7.5	19	8.5	10.8	18	75
GN 807-M12-88-*	M 12	88	26	7.5	19	8.5	10.8	18	106
GN 807-M12-128-*	M 12	128	26	7.5	19	8.5	10.8	18	139
GN 807-M14-54-*	M 14**	54	-	9	-	-	12.8	21	109

GN 807-NI

STAINLESS STEEL

Description	d1	l1	d2	h1	h2	l2	m	A/F	⚖
GN 807-M4-23-*-NI	M 4	23	11	3	6.5	2.5	3.2	7	4
GN 807-M5-38-*-NI	M 5	38	12.5	3.5	8	2.5	4.7	8	8
GN 807-M6-29-*-NI	M 6	29	15	4	10	4	5.2	10	11
GN 807-M6-49-*-NI	M 6	49	15	4	10	4	5.2	10	17
GN 807-M8-36-*-NI	M 8	36	19	5.5	13	5.5	6.8	13	24
GN 807-M8-56-*-NI	M 8	56	19	5.5	13	5.5	6.8	13	30
GN 807-M8-96-*-NI	M 8	96	19	5.5	13	5.5	6.8	13	43

** Toggle clamp spindle assemblies M14 are not available as type B (with protective cap) | Weight type A

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GN 708.1

Toggle clamp spindle assemblies

Steel / Stainless Steel, with rubber pressure pad



SPECIFICATION

Types

- Type **A**: Flat spindle tip
- Type **B**: Rounded spindle tip

Version in Steel ST

Spindle
Steel zinc plated, blue passivated

Hexagon nuts ISO 4035
Steel zinc plated, blue passivated

Version in Stainless Steel NI

Spindle
Stainless Steel AISI 304

Hexagon nuts ISO 4035
Stainless Steel AISI 304

Pressure pad
Rubber, Neoprene (CR)

- 85 Shore A ≈
- vulcanized
- black

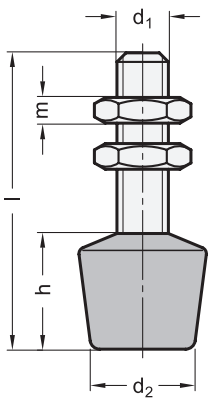
INFORMATION

The two hexagon nuts are included parts of the order.

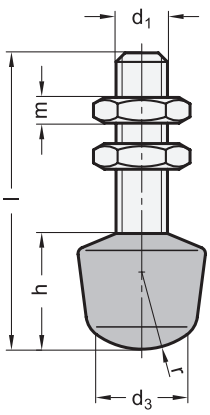
TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)
- Elastomer characteristics (see page A32)

Type **A**



Type **B**



* Complete with type index of the toggle clamp spindle assemblies

A	B
Flat spindle tip	Rounded spindle tip

GN 708.1

Description	d1	l	d2	d3	h	m	r	⚖
GN 708.1-M4-33-*-ST	M 4	33	8	8	10	2.2	6	6
GN 708.1-M4-43-*-ST	M 4	43	8	8	10	2.2	6	7
GN 708.1-M5-45-*-ST	M 5	45	10	9	11	2.7	8	10
GN 708.1-M5-55-*-ST	M 5	55	10	9	11	2.7	8	11
GN 708.1-M6-35-*-ST	M 6	35	13	12	12	3.2	10	13
GN 708.1-M6-55-*-ST	M 6	55	13	12	12	3.2	10	16
GN 708.1-M6-65-*-ST	M 6	65	13	12	12	3.2	10	18
GN 708.1-M8-43-*-ST	M 8	43	16	14	18	4	12	29
GN 708.1-M8-68-*-ST	M 8	68	16	14	18	4	12	35
GN 708.1-M10-50-*-ST	M 10	50	20	18	21	5	15	52
GN 708.1-M10-77-*-ST	M 10	77	20	18	21	5	15	60
GN 708.1-M10-97-*-ST	M 10	97	20	18	21	5	15	74
GN 708.1-M12-100-*-ST	M 12	100	25	23	24	6	18	111
GN 708.1-M12-130-*-ST	M 12	130	25	23	24	6	18	132

GN 708.1-NI **STAINLESS STEEL**

Description	d1	l	d2	d3	h	m	r	⚖
GN 708.1-M4-33-*-NI	M 4	33	8	8	10	2.2	6	13
GN 708.1-M4-43-*-NI	M 4	43	8	8	10	2.2	6	7
GN 708.1-M5-45-*-NI	M 5	45	10	9	11	2.7	8	10
GN 708.1-M5-55-*-NI	M 5	55	10	9	11	2.7	8	11
GN 708.1-M6-35-*-NI	M 6	35	13	12	12	3.2	10	13
GN 708.1-M6-55-*-NI	M 6	55	13	12	12	3.2	10	17
GN 708.1-M6-65-*-NI	M 6	65	13	12	12	3.2	10	19
GN 708.1-M8-43-*-NI	M 8	43	16	14	18	4	12	27
GN 708.1-M8-68-*-NI	M 8	68	16	14	18	4	12	34
GN 708.1-M10-50-*-NI	M 10	50	20	18	21	5	15	52
GN 708.1-M10-77-*-NI	M 10	77	20	18	21	5	15	65
GN 708.1-M10-97-*-NI	M 10	97	20	18	21	5	15	74
GN 708.1-M12-100-*-NI	M 12	100	25	23	24	6	18	109
GN 708.1-M12-130-*-NI	M 12	130	25	23	24	6	18	133

Weight type A

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Toggle clamp spindle assemblies

with swivel steel thrust pad

SPECIFICATION

Grub screw DIN 6332 (see page 912)

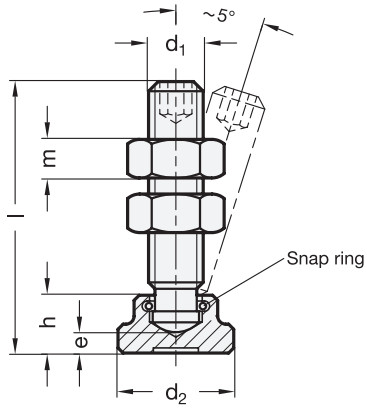
Thrust pad DIN 6311 (see page 938)

Hexagon nuts ISO 4032 / DIN 934
Steel zinc plated, blue passivated

INFORMATION

By means of the retaining ring in the thrust pad a simple and toggle link between bolt an thrust pad is created.
The two hexagon nuts are included parts of the order.





GN 802

Description	d1	l	d2	e	h	m	⚖
GN 802-M5-37	M 5*	37	14	-	10	4.7	30
GN 802-M6-32	M 6	32	12	2.2	7	5.2	15
GN 802-M6-42	M 6	42	12	2.2	7	5.2	17
GN 802-M6-52	M 6	52	12	2.2	7	5.2	19
GN 802-M8-38	M 8	38	16	3	9	6.8	28
GN 802-M8-48	M 8	48	16	3	9	6.8	30
GN 802-M8-63	M 8	63	16	3	9	6.8	35
GN 802-M8-83	M 8	83	16	3	9	6.8	41
GN 802-M10-44	M 10	44	20	3.6	11	8.4	53
GN 802-M10-54	M 10	54	20	3.6	11	8.4	58
GN 802-M10-64	M 10	64	20	3.6	11	8.4	63
GN 802-M10-84	M 10	84	20	3.6	11	8.4	72
GN 802-M12-55	M 12	55	25	4.5	13	10.8	92
GN 802-M12-65	M 12	65	25	4.5	13	10.8	96
GN 802-M12-85	M 12	85	25	4.5	13	10.8	110
GN 802-M12-105	M 12	105	25	4.5	13	10.8	120

* Clamping bolt M5: bolt end and thrust pad are not hardened and not removable.

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Toggle clamp spindle assemblies

Steel / Stainless Steel, with swivel plastic thrust pad



SPECIFICATION

Thrust pad
Plastic (Polyacetal POM)

- temperature resistant up to 80 °C
- black, matt

Version in Steel ST

Grub screw
Steel

- Tensile strength class 5.8
- blackened

Hexagon nuts ISO 4032
Steel zinc plated, blue passivated

Version in Stainless Steel NI

Grub screw
Stainless Steel AISI 303

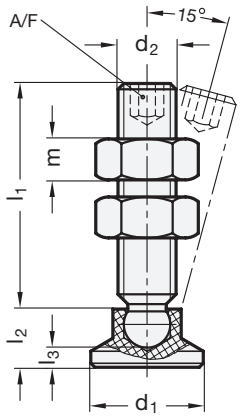
Hexagon nuts ISO 4032
Stainless Steel AISI 303

INFORMATION

The ball end of the grub screw can be hit easily into the thrust pad and removed.
The two hexagon nuts are included parts of the order.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)
- Strength values of screws (see page A20)



*Complete with material index of the toggle clamp spindle assemblies

ST Steel
NI Stainless Steel

GN 903 — **STAINLESS STEEL**

Description	d1	d2	l1	l2	l3 ≈	m	A/F	⚖
GN 903-15-M6-26-*	15	M 6	26	7.6	3.6	5.2	3	12
GN 903-15-M6-36-*	15	M 6	36	7.6	3.6	5.2	3	15
GN 903-15-M6-46-*	15	M 6	46	7.6	3.6	5.2	3	15
GN 903-15-M8-20-*	15	M 8	20	7.6	2.5	6.8	4	16
GN 903-15-M8-35-*	15	M 8	35	7.6	2.5	6.8	4	21
GN 903-15-M8-45-*	15	M 8	45	7.6	2.5	6.8	4	24
GN 903-15-M8-58-*	15	M 8	58	7.6	2.5	6.8	4	28
GN 903-18-M8-20-*	18	M 8	20	9.2	4.2	6.8	4	19
GN 903-18-M8-35-*	18	M 8	35	9.2	4.2	6.8	4	22
GN 903-18-M8-45-*	18	M 8	45	9.2	4.2	6.8	4	25
GN 903-18-M8-58-*	18	M 8	58	9.2	4.2	6.8	4	29

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GN 903

Toggle clamp spindle assemblies

*Complete with material index of the toggle clamp spindle assemblies

ST Steel

NI Stainless Steel

GN 903

STAINLESS STEEL

Description	d1	d2	l1	l2	l3 ≈	m	A/F	⚖
GN 903-18-M10-34-*	18	M 10	34	9.2	3.4	8.4	5	34
GN 903-18-M10-44-*	18	M 10	44	9.2	3.4	8.4	5	40
GN 903-18-M10-57-*	18	M 10	57	9.2	3.4	8.4	5	47
GN 903-18-M10-74-*	18	M 10	74	9.2	3.4	8.4	5	55
GN 903-21-M8-20-*	21	M 8	20	10	5	6.8	4	18
GN 903-21-M8-35-*	21	M 8	35	10	5	6.8	4	21
GN 903-21-M8-45-*	21	M 8	45	10	5	6.8	4	25
GN 903-21-M8-58-*	21	M 8	58	10	5	6.8	4	30
GN 903-21-M10-34-*	21	M 10	34	10	4.3	8.4	5	35
GN 903-21-M10-44-*	21	M 10	44	10	4.3	8.4	5	41
GN 903-21-M10-57-*	21	M 10	57	10	4.3	8.4	5	48
GN 903-21-M10-74-*	21	M 10	74	10	4.3	8.4	5	56
GN 903-21-M12-34-*	21	M 12	34	10	3.4	10.8	6	47
GN 903-21-M12-57-*	21	M 12	57	10	3.4	10.8	6	68
GN 903-21-M12-74-*	21	M 12	74	10	3.4	10.8	6	80
GN 903-21-M12-94-*	21	M 12	94	10	3.4	10.8	6	95
GN 903-25-M8-20-*	25	M 8	20	10.5	5.5	6.8	4	14
GN 903-25-M8-35-*	25	M 8	35	10.5	5.5	6.8	4	18
GN 903-25-M8-45-*	25	M 8	45	10.5	5.5	6.8	4	26
GN 903-25-M8-58-*	25	M 8	58	10.5	5.5	6.8	4	30
GN 903-25-M10-34-*	25	M 10	34	10.5	4.6	8.4	5	37
GN 903-25-M10-44-*	25	M 10	44	10.5	4.6	8.4	5	43
GN 903-25-M10-57-*	25	M 10	57	10.5	4.6	8.4	5	50
GN 903-25-M10-74-*	25	M 10	74	10.5	4.6	8.4	5	58
GN 903-25-M12-34-*	25	M 12	34	10.5	3.6	10.8	6	49
GN 903-25-M12-57-*	25	M 12	57	10.5	3.6	10.8	6	70
GN 903-25-M12-74-*	25	M 12	74	10.5	3.6	10.8	6	82
GN 903-25-M12-94-*	25	M 12	94	10.5	3.6	10.8	6	97
GN 903-32-M8-20-*	32	M 8	20	11	6	6.8	4	16
GN 903-32-M8-35-*	32	M 8	35	11	6	6.8	4	20
GN 903-32-M8-45-*	32	M 8	45	11	6	6.8	4	24
GN 903-32-M8-58-*	32	M 8	58	11	6	6.8	4	28
GN 903-32-M10-34-*	32	M 10	34	11	5	8.4	5	29
GN 903-32-M10-44-*	32	M 10	44	11	5	8.4	5	35
GN 903-32-M10-57-*	32	M 10	57	11	5	8.4	5	45
GN 903-32-M10-74-*	32	M 10	74	11	5	8.4	5	50
GN 903-32-M12-34-*	32	M 12	34	11	4.2	10.8	6	37
GN 903-32-M12-57-*	32	M 12	57	11	4.2	10.8	6	50
GN 903-32-M12-74-*	32	M 12	74	11	4.2	10.8	6	76
GN 903-32-M12-94-*	32	M 12	94	11	4.2	10.8	6	85
GN 903-40-M8-20-*	40	M 8	20	13	8	6.8	4	21
GN 903-40-M8-35-*	40	M 8	35	13	8	6.8	4	25
GN 903-40-M8-45-*	40	M 8	45	13	8	6.8	4	29
GN 903-40-M8-58-*	40	M 8	58	13	8	6.8	4	32
GN 903-40-M10-34-*	40	M 10	34	13	7	8.4	5	34
GN 903-40-M10-44-*	40	M 10	44	13	7	8.4	5	40
GN 903-40-M10-57-*	40	M 10	57	13	7	8.4	5	47
GN 903-40-M10-74-*	40	M 10	74	13	7	8.4	5	55
GN 903-40-M12-34-*	40	M 12	34	13	6.2	10.8	6	41
GN 903-40-M12-57-*	40	M 12	57	13	6.2	10.8	6	62
GN 903-40-M12-74-*	40	M 12	74	13	6.2	10.8	6	71
GN 903-40-M12-94-*	40	M 12	94	13	6.2	10.8	6	89

Weight type ST

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GN 801

Clamp mounts

for toggle clamps with forked clamping arm

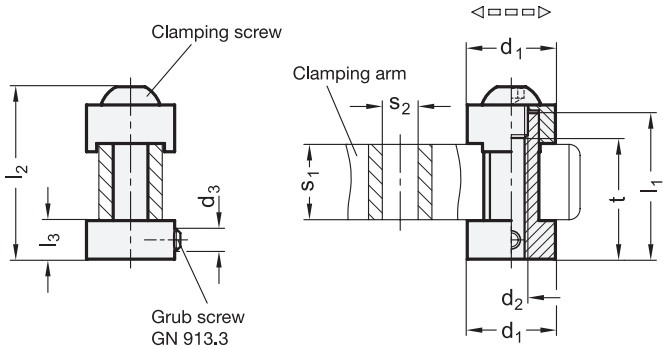
SPECIFICATION

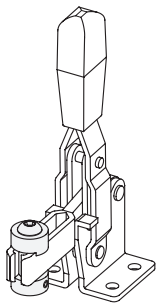
Steel
zinc plated, blue passivated

INFORMATION

GN 801 clamp mounts have been developed for use with toggle clamps that are designed with a forked clamping arm.
The clamp mounts can be moved along the clamping arm. Once the desired position is reached, you can secure the mount in place with the clamping screw.
The thread d2 serves to hold the wide variety of toggle clamp spindle assemblies, spring elements and similar devices.
The ideal clamping height can be adjusted without loosening the clamp mount on the forked clamping arm.







GN 801

Description	d1	d2	l1	l2	l3	d3	s1	s2	t	For toggle clamps GN 810 GN 810.1	GN 812 GN 812.1	GN 820 GN 820.1 GN 820.2 GN 820.3 GN 820.4	GN 860 GN 862 GN 862.1	⚖
GN 801-16-M6	16	M 6	26.5	33 (31)*	7	M 4	16 (14)*	6.5	24 (22)*	130	-	130	125	25
GN 801-18-M8	18	M 8	31	38 (37)**	8	M 5	18 (17)**	8.5	26 (25)**	230	200	230	200	39
GN 801-22-M10	22	M 10	37	47 (45)***	8	M 5	22 (20)***	10.5	30 (28)***	330	300	355	300	70
GN 801-24-M10	24	M 10	41	49	8	M 5	24	10	32	-	-	-	-	100
GN 801-26-M10	26	M 10	39	48	8	M 5	22	12.5	30	430	-	-	400	160

* Dimension in (...) applies to GN 860

** Dimension in (...) applies to GN 812, GN 812.1, GN 862 and GN 862.1

*** Dimension in (...) applies to GN 812, GN 812.1, GN 860, GN 862 and GN 862.1

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Clamp mounts

for toggle clamps with solid clamping arm

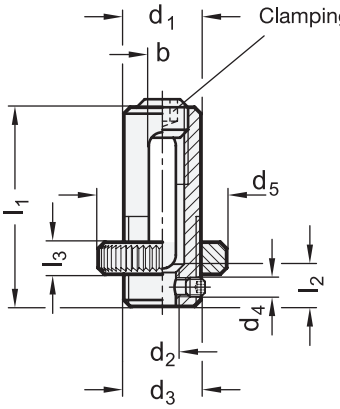
SPECIFICATION

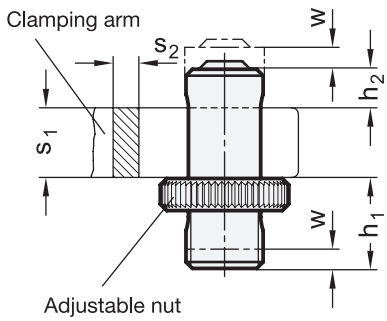
Steel
zinc plated, blue passivated

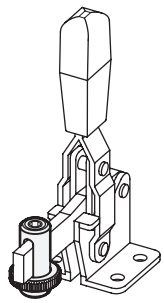
INFORMATION

GN 809 clamp mounts for toggle clamp spindle assemblies have been developed for various toggle clamps in the design version "solid clamping arm".
The clamp mounts can be moved along the clamping arm and be adjusted in height. Once the desired position is reached, fix the mounting in place with the clamping screw.
The thread d_2 serves to hold the wide variety of clamping bolts, spring elements and similar devices.









GN 809

Description	d1	d2	b	d3	d4	d5	h1 max.	h1 min.	h2 max.	h2 min.	l1	l2	l3	s1	s2	w	For toggle clamps GN 860 GN 862 GN 862.1	GN 810 GN 810.1	GN 820 GN 820.1 GN 820.3 GN 820.4	GN 812 GN 812.1	⚖
GN 809-12-M5	12	M 5	4.2	M 12 x 1.5	M 3	20	14	8	12	6	31	6	5	11	4	3	70	75	75	-	22
GN 809-16-M6	16	M 6	5.3	M 16 x 1.5	M 4	22	16 (18)*	10	16	8	40	10	5.5	16 (14)*	5	4	125	130	130	-	43
GN 809-18-M8	18	M 8	6.3	M 18 x 1.5	M 4	24	23 (24)**	13	20	10	51	13	6	18 (17)**	6	5	200	230	230	200	65
GN 809-20-M8	20	M 8	7.3	M 20 x 1.5	M 5	27	25	15	20	10	57	15	7	22	7	5	-	330	355	-	96
GN 809-22-M10	22	M 10	8.3	M 22 x 1.5	M 5	30	28	16	24	12	60	16	8	20	8	5	300	-	-	300	121

* Dimension in (...) applies only to GN 860 | ** Dimension in (...) applies only to GN 812, GN 812.1, GN 862 and GN 862.1

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Pneumatic fastening clamps

Operating principle / types

These pneumatic fastening clamps (patent MISATI) are used for clamping, holding, gripping and positioning of work pieces in jigs and handling systems.

The salient points of these pneumatic fastening clamps are:

- the high clamping force
- the small dimensions
- the reduced air consumption
- the light weight

The working principle of these three types of clamps can be seen from the sketches on the right.

Pistons with diameters of 20, 32, 40 and 50 mm yield a clamping force of 60 Nm up to 475 Nm, which leads to clamping forces being much above those of competitors' clamps.

The pneumatic fastening clamps have been designed and configured to achieve an extended life. Functional tests have proved that even after 20 million cycles they were still serviceable.

Further salient design points are:

- The movement path is designed in such a manner that at the end of the clamping stroke (clamping force FS), irreversible self locking (holding force FH) is achieved.

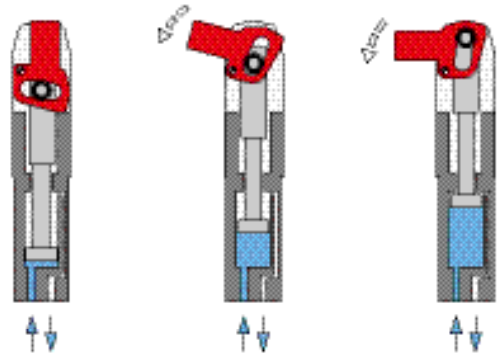
- The forward stroke sequence of the clamping arm is rapid but the ultimate clamping action is slow and as a result pneumatic damping is normally not required. Upon request, however, it can be supplied when big masses are moved.

- The clamping mechanism is fitted with needle bearings which give optimum clamping forces and reduced wear.

- The steel cylinder with the integrated clamping mechanism are in one unit. This leads to high stability for these small units with an extended range of applications. The placement of the air connection at the bottom end leads also to many other advantages.

- The clamping mechanism of GN 864 (see page 1634) is also shrouded to avoid the ingress of dirt and other objects which could interfere with the proper functioning of the clamps (such as welding operations!)

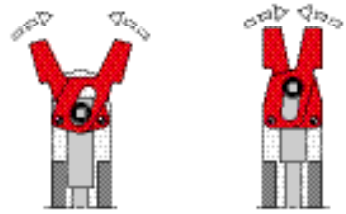
GN 864

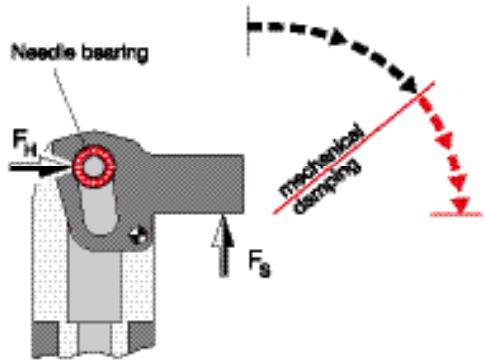


GN 865



GN 866



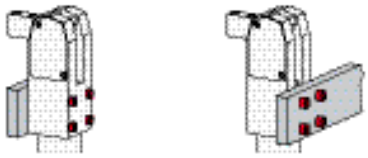


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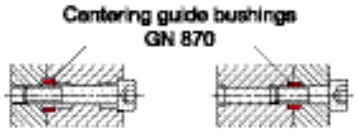
Pneumatic fastening clamps

Mounting methods / accessories

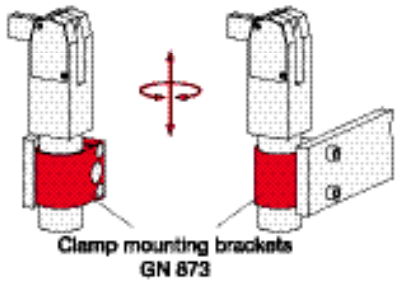
The mounting holes on the main body of the pneumatic fastening clamps have been designed to allow installation direct on the female threaded holes or alternatively with through bolts.



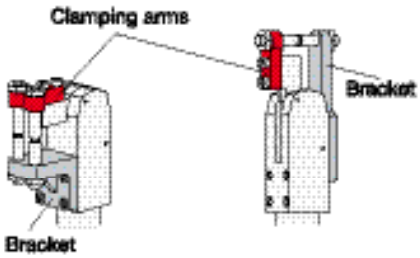
Centering guide bushings present an important function when mounting the pneumatic fastening clamps: they absorb lateral thrust and they ensure a precise alignment.



Mounting of the cylinder by a collar clamp increases the numerous ways they can be installed.
Even collar clamps use centering guide bushings for precise positioning.

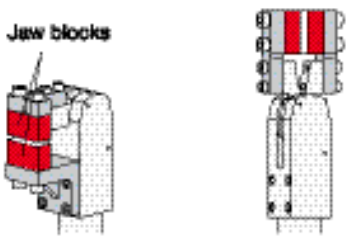


There is an extensive range of accessories available for pneumatic fastening clamps, such as tool holders (for clamping arms) thrust bolts and clamping jaws. The sketches shown on the right give some idea.

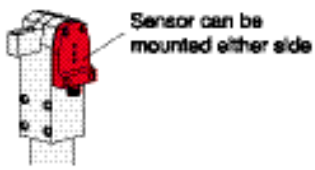


The combination of clamping tools on the clamping arm and brackets represent together a tool set.

For the fixing and precise positioning of clamping arms and jaw blocks, GN 870 (see page 1645) centering guide bushings are also used. The individual data sheets give further information.



All pneumatic fastening clamps can be fitted with proximity switches (inductive sensors) to monitor the end position of the stroke.



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Pneumatic fastening clamps

SPECIFICATION

Type

- Type **BL**: Clamping arm horizontal

Steel C45
blackened

max. pressure 10 bar



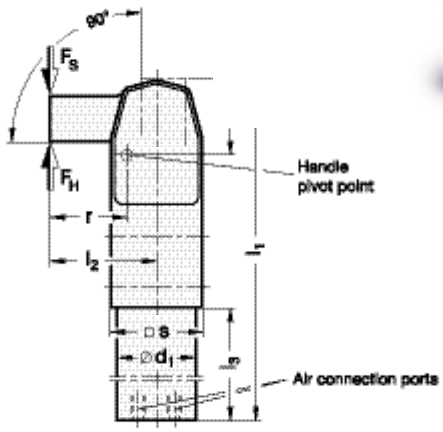
INFORMATION

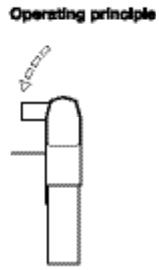
The maximum clamping moment of the GN 864 pneumatic fastening clamps is reached once the clamping arm is at the end of its stroke. For this reason the working stroke should be completed as closely as possible to the stroke end.

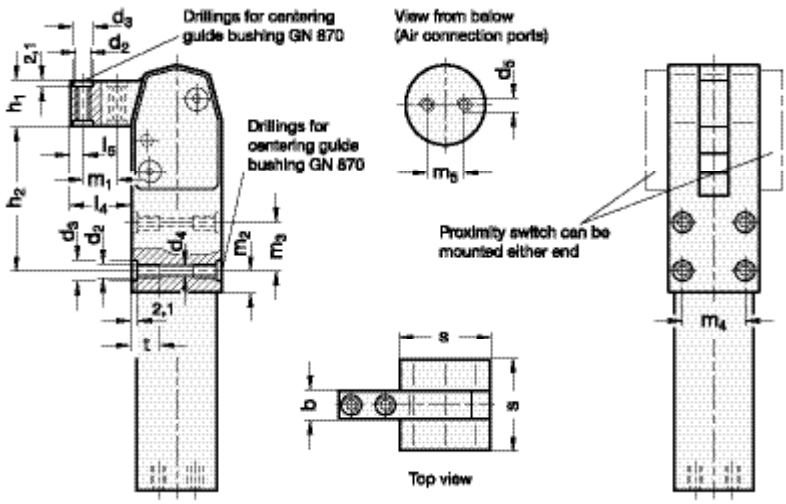
- Information for pneumatic fastening clamps (see page 1632)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)







GN 864

Description	Size	max. clamping moment in Nm at 6 bar	F_H in N	F_S in N	a	b -0.2	d1 h8	d2	d3 H8	d4	d5	h1	h2	l1 -0.5	l2	l3	l4	l5	m1 ±0.01	m2	m3 ±0.01	m4 ±0.01	m5	r	s	t	⚖
GN 864-20-BL	20	60	4070	2220	27	10	28	M 5	7	4.2	M 5	16	51	150	37.5	70	21.5	4.5	12	7.5	17	22	13	27	32	13	640
GN 864-32-BL	32	150	5620	4110	36.5	12	40	M 6	9	5	G 1/8	21	75.5	206	52	91	31	6	18	10	25	30	22	36.5	42	15	1500
GN 864-40-BL	40	300	7530	6740	44.5	16	50	M 8	11	6.8	G 1/8	26	91.5	244	63	104	37	7.5	22	13	30	37	25	44.5	52	18	2820
GN 864-50-BL	50	475	13300	9000	52.5	18	60	M 10	13	8.5	G 1/8	31	114	279	72.5	110.5	41.5	8	27	12	47	44	35	52.5	62	21	4010

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GN 865

Pneumatic fastening clamps

SPECIFICATION

Type

- Type **BI**: Clamping arm vertical

Steel C45
blackened

max. pressure 10 bar



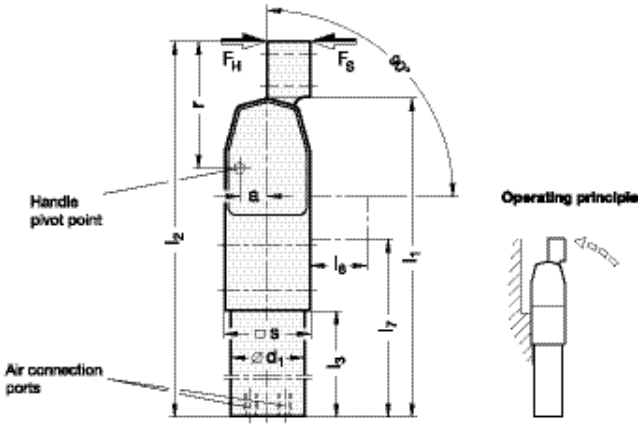
INFORMATION

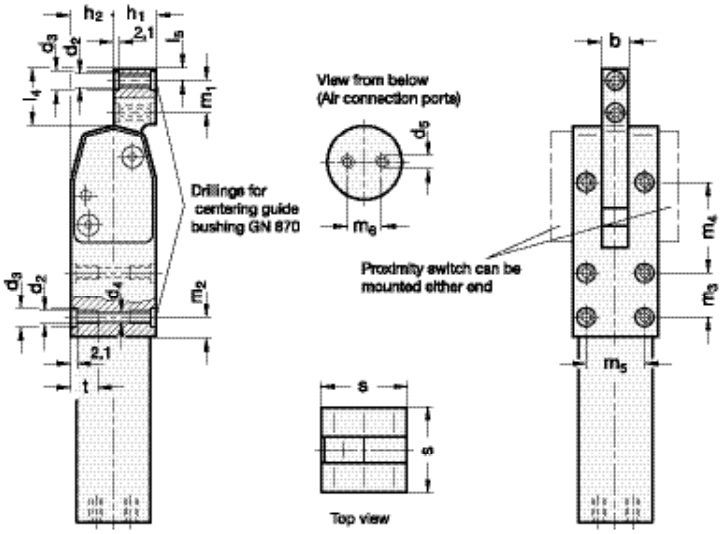
The maximum clamping moment of the GN 865 pneumatic fastening clamps is reached once the clamping arm is at the end of its stroke. For this reason the working stroke should be completed as closely as possible to the stroke end.

- Information for pneum

TECHNICAL INFORMAT

- ISO-Fundamental Toler





GN 865

Description	Size	max. clamping moment in Nm at 6 bar	FH in N	FS in N	a	b -0.2	d1 h8	d2	d3 H8	d4	d5	h1	h2	l1 -0.5	l2 -0.5	l3	l4	l5	l6	l7 -0.5	m1 ±0.01	m2	m3 ±0.01	m4 ±0.01	m5 ±0.01	m6	r	s	t	⚖
GN 865-20-BI	20	60	2300	1250	10.5	10	28	M 5	7	4.2	M 5	16	16	150	171	70	21	4.5	21	97	12	7.5	17	34	22	13	47.5	32	13	620
GN 865-32-BI	32	150	3040	2220	15.5	12	40	M 6	9	5	G 1/8	21	21	206	237	91	31	6	31	133	18	10	25	51	30	22	67.5	42	15	1520
GN 865-40-BI	40	300	4060	3640	18.5	16	50	M 8	11	6.8	G 1/8	26	26	244	282	104	38	7.5	38	155	22	13	30	62	37	25	82.5	52	18	2800
GN 865-50-BI	50	475	7200	4900	21.5	18	60	M 10	13	8.5	G 1/8	31	31	279	323	110.5	44	8	44	174	27	12	47	71.5	44	35	96.5	62	21	4000

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Pneumatic fastening clamps

for centred clamping



SPECIFICATION

Type

- Type **BC**: 2 clamping arms vertical for centred clamping

Steel C45
blackened

max. pressure 10 bar

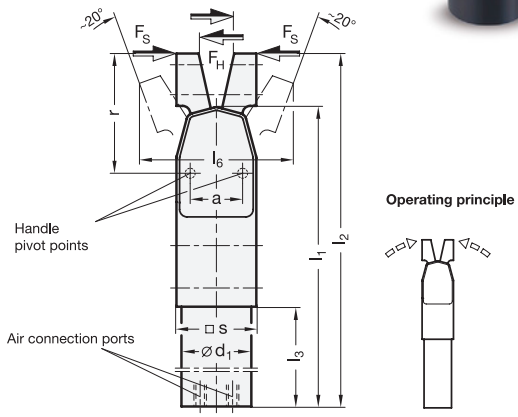
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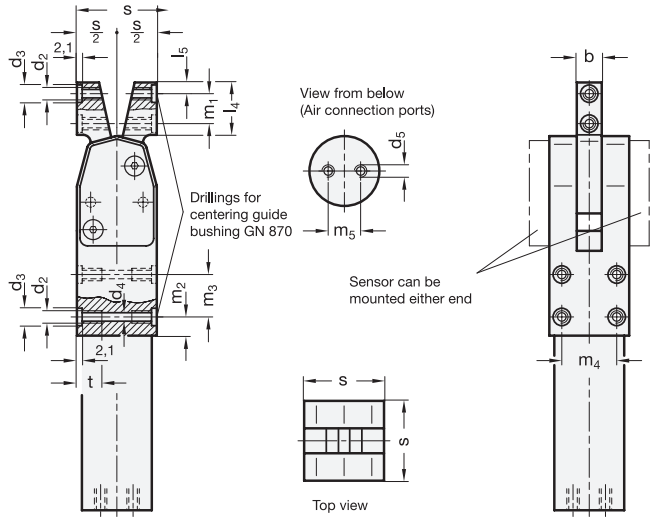
The clamping forces F_S in GN 866 pneumatic fastening clamps are directed inwards at the clamping arms.
The maximum clamping moment of the GN 866 pneumatic fastening clamps is reached once the clamping arm is at the end of its stroke. For this reason the working stroke should be completed as closely as possible to the stroke end.

- Information for pneumatic fastening clamps (see page 1632)

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)





GN 866

Description	Size	max. clamping moment in Nm at 6 bar	F_H in N	F_S in N	a	b -0.2	d_1 h8	d_2	d_3 H8	d_4	d_5	l_1 -0.5	l_2 -0.5	l_3	l_4	l_5	l_6 ≈	m_1 ±0.01	m_2	m_3 ±0.01	m_4 ±0.01	m_5	r	s	t	⚖
GN 866-20-BC	20	60	1150	630	21	10	28	M 5	7	4.2	M 5	150	171	70	21	4.5	45	12	7.5	17	22	13	48	32	13	650
GN 866-32-BC	32	150	1520	1110	31	12	40	M 6	9	5	G 1/8	206	237	91	31	6	72.5	18	10	25	30	22	67.5	42	15	1400
GN 866-40-BC	40	300	2000	1800	37	16	50	M 8	11	6.8	G 1/8	244	282	104	38	7.5	89.5	22	13	30	37	25	82.5	52	18	2900

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GN 867

Single post coupling / Y-coupling accessories

SPECIFICATION

Types

- Type **E**: for one clamping bolt
- Type **Z**: for two clamping bolts

Steel C45
blackened

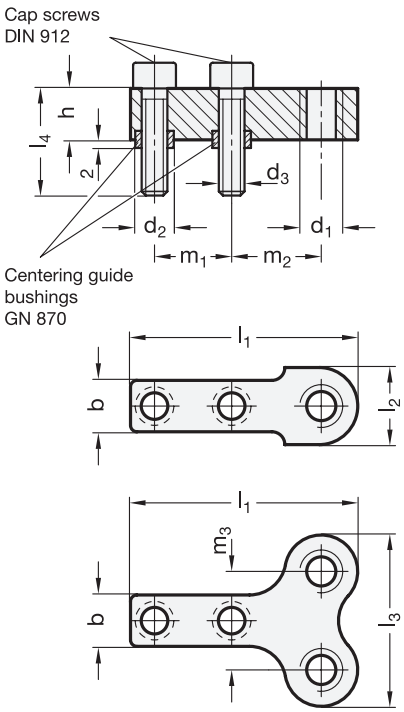


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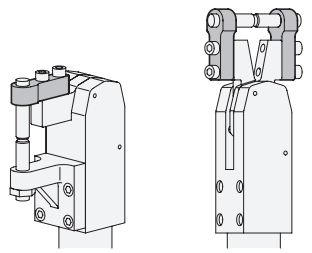
GN 867 single post coupling / Y-coupling accessories are suitable for use on clamping arms of the GN 864 (see page 1634) / GN 865 (see page 1635) / GN 866 (see page 1636) pneumatic fastening clamps. Y-coupling accessories for two clamping bolts (Type Z) are preferably used in such applications where absolutely rigid clamping of a sheet metal component is essential. For the same purpose GN 605 (see page 928) ball point screws with serrated ball pads are ideally suited. Cap screws and centering guide bushing accessories are included.

TECHNICAL INFORMATION

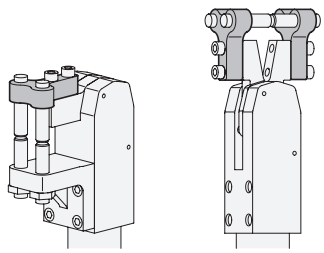
- ISO-Fundamental Tolerances (see page A21)



Mounting examples



Type **E**



Type **Z**

GN 867

Description	b -0.2	d1	d2 H8/h6	d3	h	l1	l2	l3	l4	m1	m2	m3	⚖
GN 867-10-M8-E	10	M 8	7	M 5	10	37	13	-	19.5	12	14.5	-	20
GN 867-12-M10-E	12	M 10	9	M 6	12	53	17	-	29.5	18	20.9	-	90
GN 867-16-M12-E	16	M 12	11	M 8	14	63	20	-	34	22	23.5	-	110
GN 867-18-M12-E	18	M 12	13	M 10	16	73	20	-	34	27	28.5	-	130
GN 867-10-M8-Z	10	M 8	7	M 5	10	37	-	30	19,5	12	-	17	30
GN 867-12-M10-Z	12	M 10	9	M 6	12	53	-	40	29.5	18	-	23	120
GN 867-16-M12-Z	16	M 12	11	M 8	14	63	-	50	34	22	-	30	180
GN 867-18-M12-Z	18	M 12	13	M 10	16	73	-	60	34	27	-	40	190

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Single post bracket / bracket accessories

for clamping bolts

SPECIFICATION

Types

- Type **E**: for one clamping bolt
- Type **Z**: for two clamping bolts

Steel C45
blackened

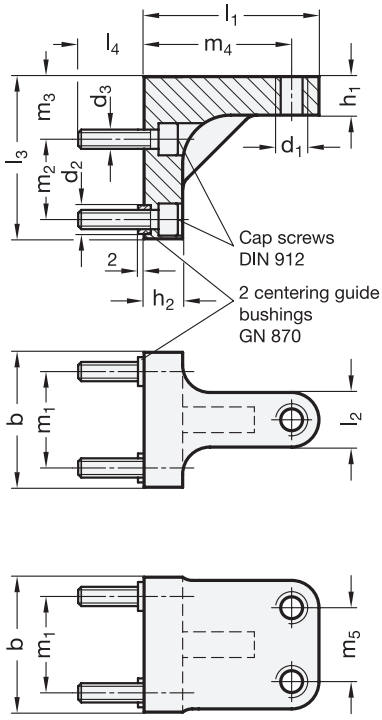


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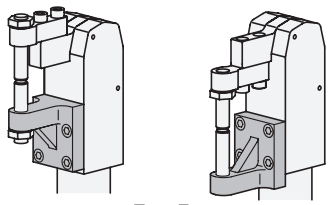
GN 867.1 single post bracket / bracket accessories have been designed for use with GN 864 (see page 1634) pneumatic fastening clamps.
Bracket accessories with two clamping bolts (Type Z) are preferably used for rigid clamping of sheet metal components. For the same purpose GN 605 (see page 928) ball point screws with serrated ball pads are ideally suited.
Cap screws and centering guide bushing accessories are included.

TECHNICAL INFORMATION

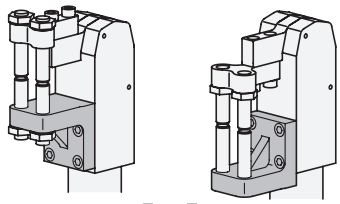
- ISO-Fundamental Tolerances (see page A21)



Mounting examples



Type **E**



Type **Z**

GN 867.1

Description	b -0.2	d1	d2 H8/h6	d3	h1	h2	l1	l2	l3	l4	m1	m2	m3	m4	m5	⚖
GN 867.1-32-M8-E	32	M 8	7	M 5	10	10	38	17	37	7.5	22	17	15	31.5	-	120
GN 867.1-42-M10-E	42	M 10	9	M 6	12	12	54.5	17	50.5	10	30	25	19.5	45.9	-	295
GN 867.1-52-M12-E	52	M 12	11	M 8	14	14	63	17	61	13.5	37	30	23.5	53	-	500
GN 867.1-62-M12-E	62	M 12	13	M 10	16	16	73.5	20	83	13.5	44	47	27	63.5	-	670
GN 867.1-32-M8-Z	32	M 8	7	M 5	10	10	38	-	37	7.5	22	17	15	31.5	17	152
GN 867.1-42-M10-Z	42	M 10	9	M 6	12	12	54.5	-	50.5	10	30	25	19.5	45.9	23	380
GN 867.1-52-M12-Z	52	M 12	11	M 8	14	14	63	-	61	13.5	37	30	23.5	53	30	655
GN 867.1-62-M12-Z	62	M 12	13	M 10	16	16	73.5	-	83	13.5	44	47	27	63.5	40	864

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GN 868

T-coupling / double post coupling accessories

SPECIFICATION

Types

- Type **R**: Clamping jaws at right angle to clamping arm
- Type **P**: Clamping jaws parallel to clamping arm

Steel C45
blackened

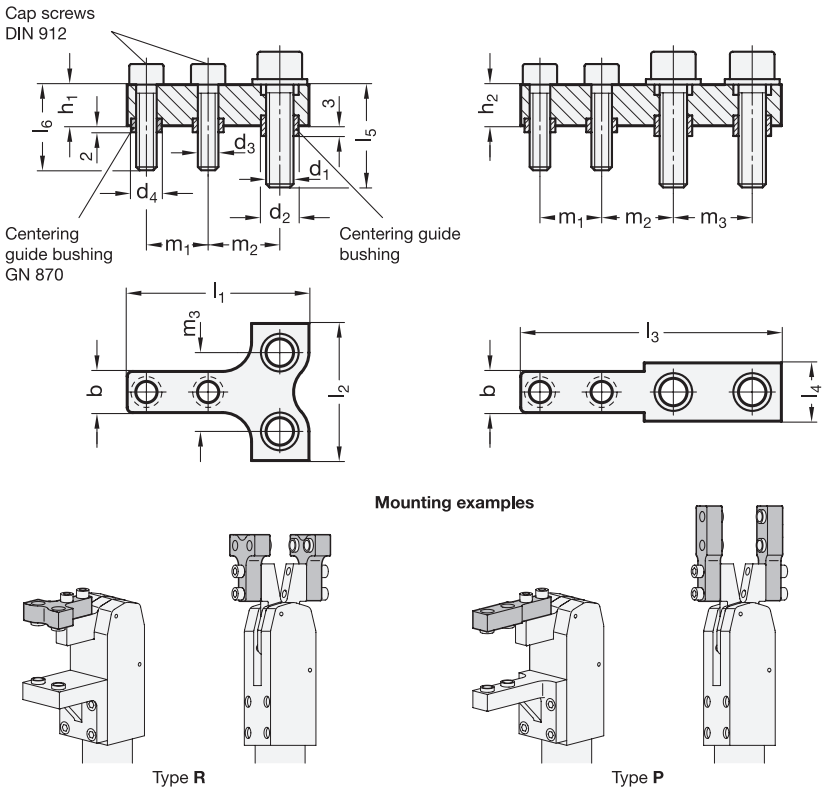


INFORMATION

GN 868 T-coupling / double post coupling accessories are suitable for the clamping arms of the GN 864 (see page 1634)/ GN 865 (see page 1635) / GN 866 (see page 1636) pneumatic fastening clamps. T-coupling accessories are equally precisely positioned on the clamping arm as are the GN 872 (see page 1643) jaw block accessories on the holders themselves.
Cap screws and centering guide bushing accessories are included.

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)



Mounting examples

Type **R** Type **P**

GN 868

Description	b -0.2	d1	d2 H8/h6	d3	d4 H8/h6	h1	h2	l1	l2	l3	l4	l5	l6	m1	m2	m3	⚖
GN 868-10-P	10	M 6	9	M 5	7	-	10	-	-	54	13	18.5	19.5	12	14.5	17	30
GN 868-12-P	12	M 8	11	M 6	9	-	14	-	-	76	17	23.5	29.5	18	20.9	23	80
GN 868-16-P	16	M 10	13	M 8	11	-	16	-	-	93	20	28	34	22	23.5	30	170
GN 868-18-P	18	M 10	13	M 10	13	-	18	-	-	113	20	28	34	27	28.5	40	250
GN 868-10-R	10	M 6	9	M 5	7	10	-	37	30	-	-	18.5	19.5	12	14.5	17	33
GN 868-12-R	12	M 8	11	M 6	9	12	-	53	40	-	-	23.5	29.5	18	20.9	23	120
GN 868-16-R	16	M 10	13	M 8	11	14	-	63	50	-	-	28	34	22	23.5	30	190
GN 868-18-R	18	M 10	13	M 10	13	16	-	73	60	-	-	28	34	27	28.5	40	200

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Bracket / double post bracket accessories

Static holders

SPECIFICATION

Types

- Type **R**: Clamping jaws at right angle to clamping arm
- Type **P**: Clamping jaws parallel to clamping arm

Steel C45
blackened

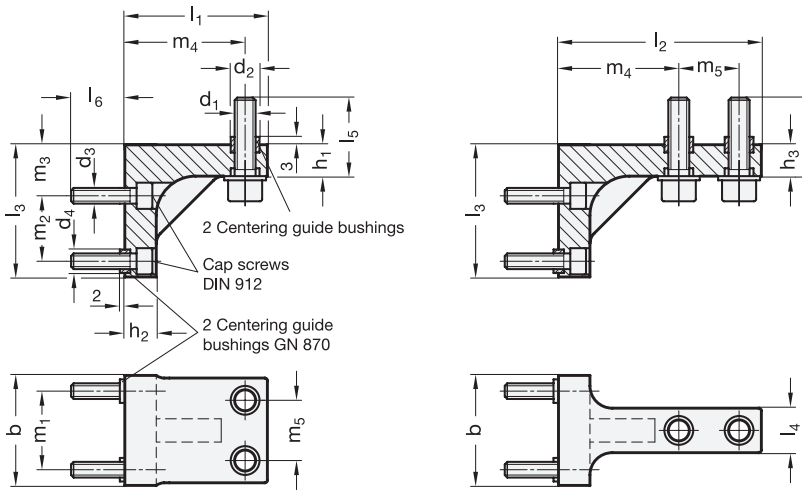


INFORMATION

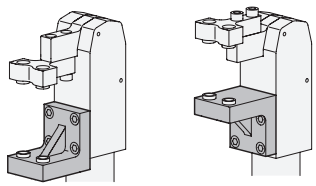
GN 868.1 bracket / double post bracket accessories have been designed for use with GN 864 (see page 1634) pneumatic fastening clamps .
Bracket / double post bracket accessories are equally precisely positioned on the clamping arm as are the GN 872 (see page 1643) jaw block accessories on the holders themselves.
Cap screws and centering guide bushing accessories are included.

TECHNICAL INFORMATION

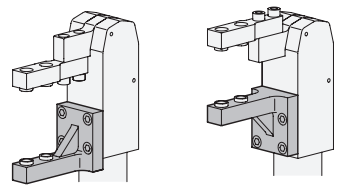
- ISO-Fundamental Tolerances (see page A21)



Mounting examples



Type **R**



Type **P**

GN 868.1

Description	b -0.2	d1	d2 H8/h6	d3	d4 H8/ h6	h1	h2	h3	l1	l2	l3	l4	l5	l6	m1	m2	m3	m4	m5	⚖
GN 868.1-32-R	32	M 6	9	M 5	7	10	-	-	38	-	37	-	18.5	7.5	22	17	15	31.5	-	170
GN 868.1-42-R	42	M 8	11	M 6	9	12	-	-	54.5	-	50.5	-	23.5	10	30	25	19.5	45.9	-	360
GN 868.1-52-R	52	M 10	13	M 8	11	14	-	-	63	-	61	-	28	13.5	37	30	23.5	53	-	650
GN 868.1-62-R	62	M 10	13	M 10	13	16	-	-	73.5	-	83.5	-	27	13.5	44	47	27	62.5	-	730
GN 868.1-32-P	32	M 6	9	M 5	7	-	10	10	-	55	37	13	18.5	7.5	22	17	15	31.5	17	190
GN 868.1-42-P	42	M 8	11	M 6	9	-	12	14	-	77.5	50.5	17	23.5	10	30	25	19.5	45.9	23	280
GN 868.1-52-P	52	M 10	13	M 8	11	-	14	16	-	93	61	20	28	13.5	37	30	23.5	53	30	450
GN 868.1-62-P	62	M 10	13	M 10	13	-	16	18	-	113.5	85.5	20	29	13.5	44	47	27	62.5	40	780

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GN 869.1

Single post bracket / Y-bracket accessories

for clamping bolts

SPECIFICATION

Types

- Type **E**: for one clamping bolt
- Type **Z**: for two clamping bolts

Steel C45
blackened

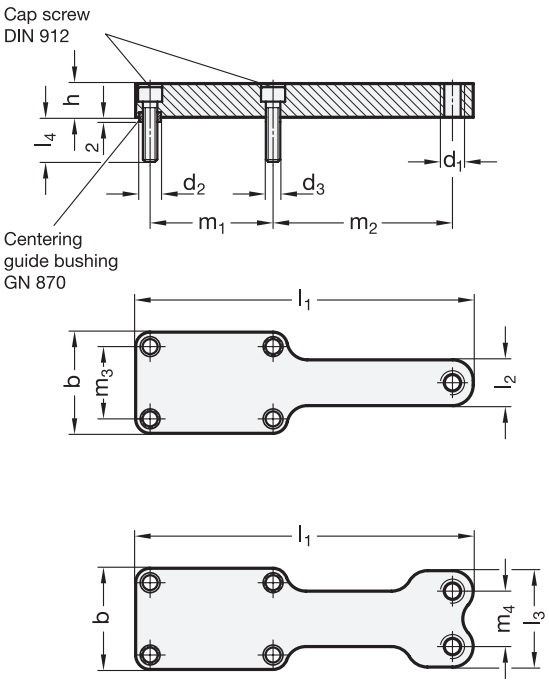


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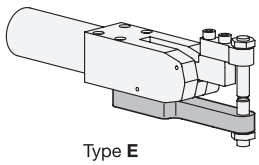
GN 869.1 single post bracket / Y-bracket accessories have been designed for use with GN 865 (see page 1635) pneumatic fastening clamps .
Y-bracket accessories for two clamping bolts (Type Z) are preferably used in such applications where absolutely rigid clamping of a sheet metal component is essential. For the same purpose GN 605 (see page 928) ball point screws with serrated ball pads are ideally suited. Cap screws and centering guide bushing accessories are included.

TECHNICAL INFORMATION

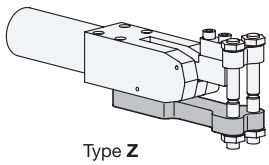
- ISO-Fundamental Tolerances (see page A21)



Mounting examples



Type **E**



Type **Z**

GN 869.1

Description	b	d1	d2 H8/h6	d3	h	l1	l2	l3	l4	m1	m2	m3	m4	⚖
GN 869.1-32-E	32	M 8	7	M 5	10	98.5	15	-	8	34	53	22	-	130
GN 869.1-42-E	42	M 10	9	M 6	14	140	19	-	8.5	51	74.4	30	-	220
GN 869.1-52-E	52	M 12	11	M 8	16	168	22	-	12.5	62	88.5	37	-	380
GN 869.1-62-E	62	M 12	13	M 10	18	192.5	22	-	12.5	71.5	102	44	-	690
GN 869.1-32-Z	32	M 8	7	M 5	10	98.5	-	30	8	34	53	22	17	150
GN 869.1-42-Z	42	M 10	9	M 6	14	140	-	40	8.5	51	74.4	30	23	410
GN 869.1-52-Z	52	M 12	11	M 8	16	168	-	50	12.5	62	88.5	37	30	900
GN 869.1-62-Z	62	M 12	13	M 10	18	192.5	-	60	12.5	71.5	102	44	40	1020

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T-bracket / double post bracket accessories

Static holder

SPECIFICATION

Types

- Type **R**: Clamping jaws at right angle to clamping arm
- Type **P**: Clamping jaws parallel to clamping arm

Steel C45
blackened

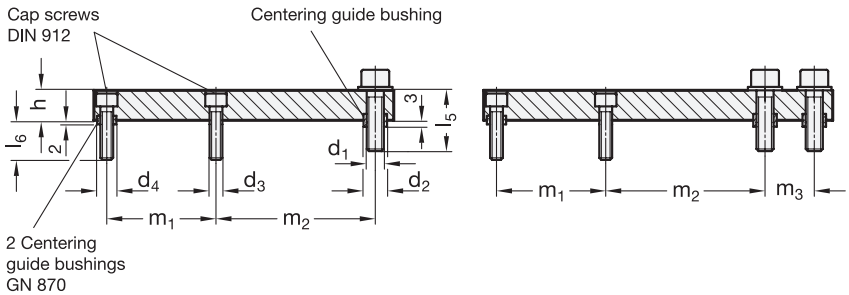


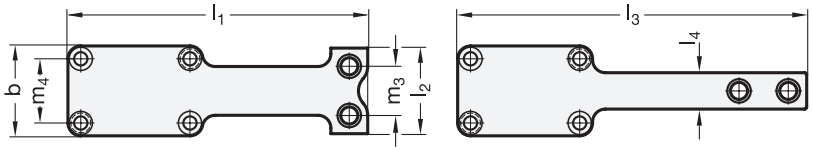
INFORMATION

GN 869.2 T-bracket / double post bracket accessories have been designed for use with GN 865 (see page 1635) pneumatic fastening clamps.
T-bracket / double post bracket accessories are equally precisely positioned on the clamping arm as are the GN 872 (see page 1643) jaw block accessories on the holders themselves. Cap screws and centering guide bushing accessories are included.

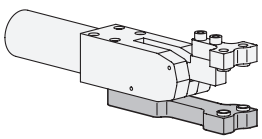
TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)

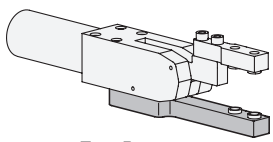




Mounting examples



Type **R**



Type **P**

GN 869.2

Description	b -0.2	d1	d2 H8/ h6	d3	d4 H8/ h6	h	l1	l2	l3	l4	l5	l6	m1	m2	m3	m4	⚖
GN 869.2-32-P	32	M 6	9	M 5	7	10	-	-	115.5	13	18.5	8	34	53	17	22	150
GN 869.2-42-P	42	M 8	11	M 6	9	14	-	-	163	17	23.5	8.5	51	74.4	23	30	370
GN 869.2-52-P	52	M 10	13	M 8	11	16	-	-	198	20	28	12.5	62	88.5	30	37	720
GN 869.2-62-P	62	M 10	13	M 10	13	18	-	-	232.5	20	28	12.5	71.5	102	40	44	770
GN 869.2-32-R	32	M 6	9	M 5	7	10	98.5	30	-	-	18.5	8	34	53	17	22	150
GN 869.2-42-R	42	M 8	11	M 6	9	14	140	40	-	-	23.5	8.5	51	74.4	23	30	400
GN 869.2-52-R	52	M 10	13	M 8	11	16	168	50	-	-	28	12.5	62	88.5	30	37	900
GN 869.2-62-R	62	M 10	13	M 10	13	18	192.5	60	-	-	28	12.5	71.5	102	40	44	1030

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GN 872

Jaw block accessories

for GN 864 / GN 865 / GN 866 pneumatic fastening clamps

SPECIFICATION

Steel C45
blackened

INFORMATION

GN 872 jaw block accessories are manufactured to meet the dimensions of the accessories for clamping arms and static holders. GN 870 (see page 1645) centering guide bushing accessories are **not** included.

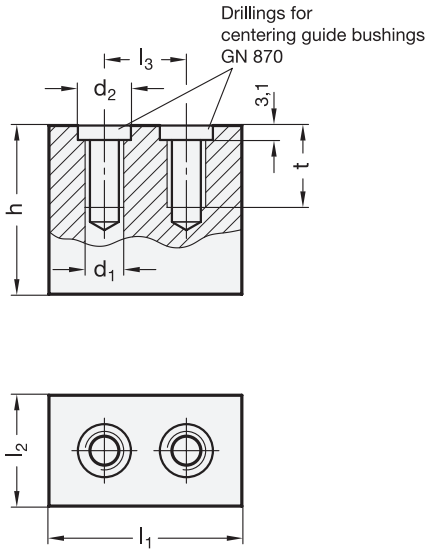
ACCESSORY

- GN 870 centering guide bushing accessories (see page 1645)

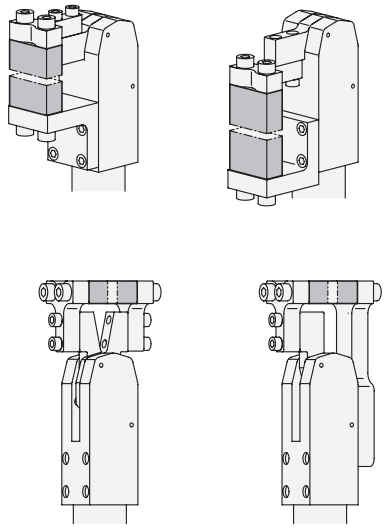
TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)





Mounting examples



GN 872

Description	l1	h	d1	d2 H8/h6	l2	l3 ±0.01	t	⚖
GN 872-30-25	30	25	M 6	9	13	17	8	80
GN 872-30-50	30	50	M 6	9	13	17	8	150
GN 872-40-35	40	35	M 8	11	17	23	12	180
GN 872-40-70	40	70	M 8	11	17	23	12	370
GN 872-50-45	50	45	M 10	13	20	30	15	350
GN 872-50-80	50	80	M 10	13	20	30	15	620
GN 872-60-50	60	50	M 10	13	20	40	15	470
GN 872-60-85	60	85	M 10	13	20	40	15	800

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Clamp mounting bracket accessories

for GN 864 / GN 865 / GN 866 pneumatic fastening clamps

SPECIFICATION

Aluminium
black anodized

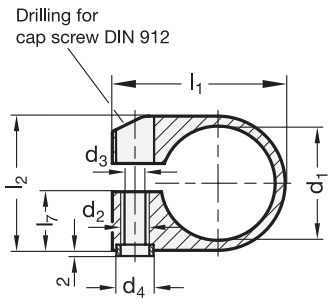
INFORMATION

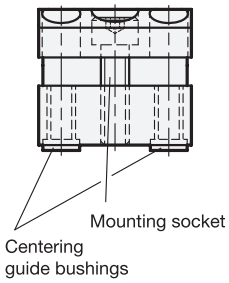
GN 873 clamp mounting bracket accessories greatly increase the mounting possibilities and, with that, the field of applications for pneumatic fastening clamps is vastly increased.
The abutting shoulder can be used for precise positioning of the pneumatic fastening clamps thus allowing a problem free exchange of the latter.
The use of the two centering guide bushing accessories ensures an exact and stable installation of the clamp mounting bracket accessories as well as the pneumatic fastening clamps.
Other clamp mounting bracket accessories for the sizes d_1 = 40 (piston Ø 20) and d_1 = 50 (piston Ø 40) are shown under the tube clamp connector range.
Centering guide bushing accessories are included.

TECHNICAL INFORMATION

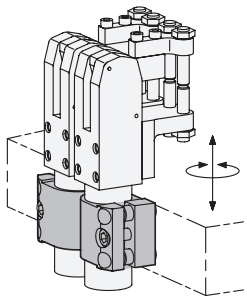
- ISO-Fundamental Tolerances (see page A21)

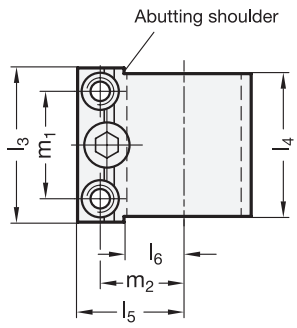


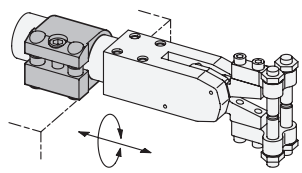




Mounting examples







GN 873

Description	d1	d2	d3	d4 H8/h6	l1	l2	l3	l4	l5	l6	l7	m1	m2	⚖
GN 873-28	28	M 8	6.5	11	51.35	38	39	36	35	16	16	26	25.85	200
GN 873-40	40	M 10	8.5	13	61.35	48	54	51	39	21	21	38	29.35	560
GN 873-50	50	M 12	10.5	16	72.35	58	64	61	47	26	26	45	33.85	800

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GN 870

Centering guide bushing accessories

for pneumatic fastening clamps

SPECIFICATION

Steel
blackened

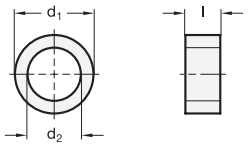
INFORMATION

GN 870 centering guide bushing accessories ensure accurate location of the jaw block accessories and static holders, as well as the pneumatic fastening clamps.
At the same time they absorb side thrust and eliminate excessive load on the mounting screws.

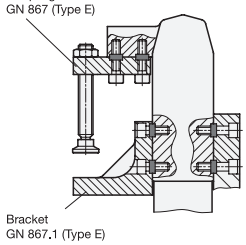
TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)





Examples of application



GN 870

Description	d1 h6	d2	l	⚖
GN 870-7	7	5.1	4	1
GN 870-9	9	6.1	4	1
GN 870-11	11	8.1	4	1
GN 870-13	13	10.1	4	2

GN 871

Shim kit accessories

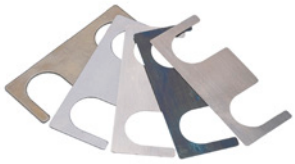
for jaw block accessories

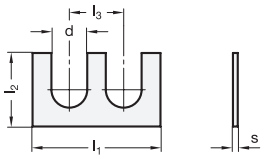
SPECIFICATION

Steel
blackened

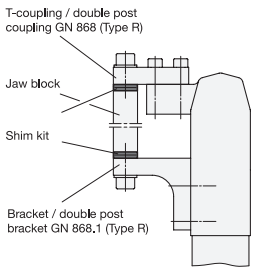
INFORMATION

GN 871 shim kit accessories are used to correct any discrepancy in the alignment of the two clamping jaw levels.
This facilitates in a simple way the optimum clamping position of the jaws, i. e. also the optimal clamping force.
The shim kit accessories are only available as a complete set of five of different thicknesses for each size.





Examples of application



GN 871

Description	l1	s	d	l2	l3	⚖
GN 871-30	30	0.1 | 0.2 | 0.3 | 0.5 | 1	9.2	13	17	1
GN 871-40	40	0.1 | 0.2 | 0.3 | 0.5 | 1	11.2	17	23	1
GN 871-50	50	0.1 | 0.2 | 0.3 | 0.5 | 1	13.2	20	30	2
GN 871-60	60	0.1 | 0.2 | 0.3 | 0.5 | 1	13.2	20	40	4

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Proximity switch

for pneumatic fastening clamps, inductive sensor

SPECIFICATION

Voltage range: 10 to 30 VDC
Switch load: 0 to 100 mA
Voltage drop: ≤ 2 V
Temperature range: 0 °C to 50 °C
Protection class: IP 65
LED-Indication:

- green: operating voltage
- red: switch position closed
- yellow: switch position open



INFORMATION

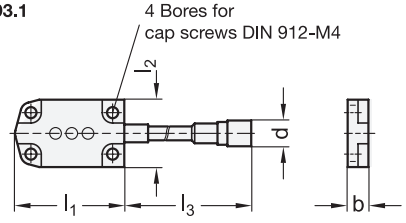
With these GN 893.1, GN 893.2, GN 893.3 and GN 893.4 proximity switches pneumatic fastening clamps can induce controlled signals whereby the LEDs indicate the operating and switch positions.
The proximity switches can be screwed directly on to the pneumatic fastening clamps. The position of the switches can be on either side.
A plastic intermediate plate and two cap screws M4 are included.

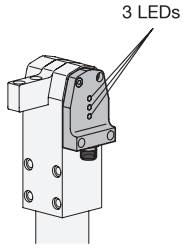
ACCESSORY

Cable with connector
4-pole, 5 or 10 meters long:

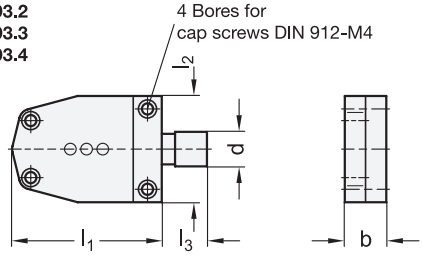
- GN 330-M12x1-4-G-5 (see page 1448)
- GN 330-M12x1-4-G-10 (see page 1448)

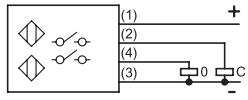
GN 893.1





GN 893.2
GN 893.3
GN 893.4





GN 893.1 / GN 893.2 / GN 893.3 / GN 893.4

Pneumatic fastening clamps	Proximity switch	b	d Connector 4-pole	l1 -0.2	l2	l3	⚖
GN 864-20-BL	GN 893.1	8	M 12 x 1	42	26	110 (PVC cable)	20
GN 864-32-BL	GN 893.2	16	M 12 x 1	57.5	41	10	26
GN 864-40-BL	GN 893.3	16	M 12 x 1	73	48	10	31
GN 864-50-BL	GN 893.4	16	M 12 x 1	73	48	10	31
GN 865-20-BI	GN 893.1	8	M 12 x 1	42	26	110 (PVC cable)	20
GN 865-32-BI	GN 893.2	16	M 12 x 1	57.5	41	10	26
GN 865-40-BI	GN 893.3	16	M 12 x 1	73	48	10	31
GN 865-50-BI	GN 893.4	16	M 12 x 1	73	48	10	31
GN 866-20-BC	GN 893.1	8	M 12 x 1	42	26	110 (PVC cable)	20
GN 866-32-BC	GN 893.2	16	M 12 x 1	57.5	41	10	26
GN 866-40-BC	GN 893.3	16	M 12 x 1	73	48	10	31

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Toggle latches

Steel / Stainless Steel



SPECIFICATION

Types

- Type **A**: without spring cotter pin
- Type **B**: with spring cotter pin

Version in Steel ST
zinc plated, blue passivated

Version in Stainless Steel NI
AISI 304

INFORMATION

The outstanding features of GN 8330 toggle latches are superior functionality and design. The integrated spring mechanism holds the locking lever and the clamping hook in the open position and allows effortless operation.
Once the dead center is exceeded, the elasticity of the sheet metal parts will cause the toggle latch to close. In the clamped position, the required drill hole spacing is m_2.
With the stroke w of the clamping hook, the elements to be connected can be pulled together during clamping.
The toggle latch can be secured against opening inadvertently with the so-called spring cotter pin. The spring cotter pin is placed into the d_2 bore hole. Sealing is also possible via d_2.
The retaining force given in the table is a guide value for the potentially static tensile stress load acting on the toggle latch. Depending on the conditions of use (e.g. when exposed to vibrations or shock impact), the retaining force may be impaired.
Screws with low-lying flat head must be used to guarantee the proper function. The drill template also allows the assembly using blank rivets.

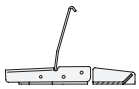
ON REQUEST

- GN 8330.1 spring cotter pin

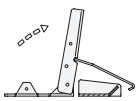
TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)

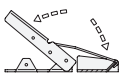
DESCRIPTION OF FUNCTION



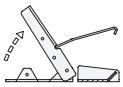
If not operated (i.e. not in the clamping position), both the locking lever and the clamping hook are held in the position shown, kept in place by two torsion springs.



Lifting the clamping lever will swivel the clamping hook into the level of the catch bracket.

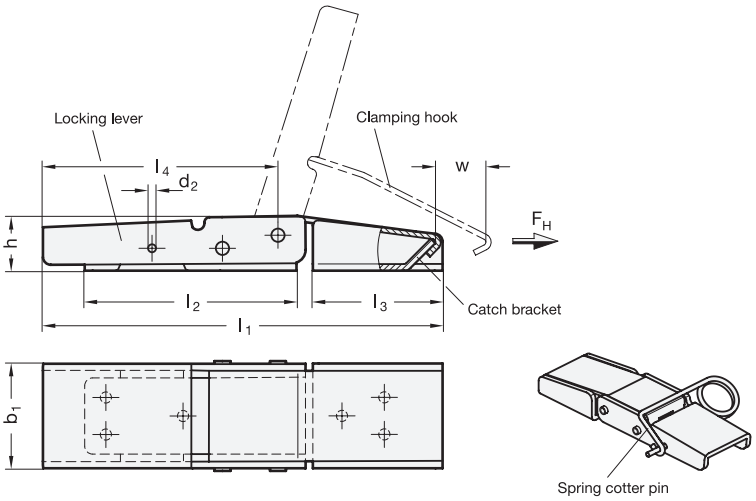


For the clamping action, the clamping hook is pressed into the catch bracket and the locking lever is at the same time turned into the starting (retaining) position.

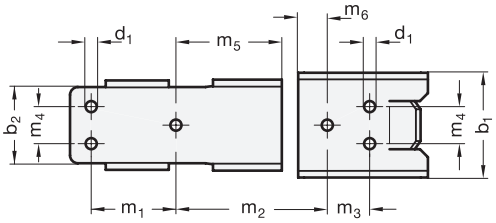


To release, simply lift the locking lever.

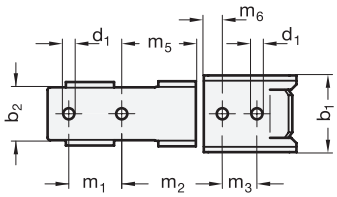
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Hole pattern for b_1 = 40



Hole pattern for b_1 = 15 / 20 / 29



GN 8330

Description	b1	FH in N	b2	d1	d2	h	l1 ≈	l2	l3	l4	m1	m2	m3	m4	m5	m6	w ≈	⚖
GN 8330-15-ST-A	15	100	9.5	3.4	1.4	8	53	25	17	31.5	9.5	13.5	6.2	-	8.5	3	11	16
GN 8330-20-ST-A	20	300	13	3.4	1.8	10	76	34	25	44	8	29	8	-	22	4	9	35
GN 8330-29-ST-A	29	600	20	4.2	2.5	15	111	56	35	67	20	38.8	13	-	28	7	11	123
GN 8330-40-ST-A	40	1200	29	4.2	3	20	152	80	49	89	32	57.3	16	14	40	11	19	289
GN 8330-15-ST-B	15	100	9.5	3.4	1.4	8	53	25	17	31.5	9.5	13.5	6.2	-	8.5	3	11	17
GN 8330-20-ST-B	20	300	13	3.4	1.8	10	76	34	25	44	8	29	8	-	22	4	9	36
GN 8330-29-ST-B	29	600	20	4.2	2.5	15	111	56	35	67	20	38.8	13	-	28	7	11	128
GN 8330-40-ST-B	40	1200	29	4.2	3	20	152	80	49	89	32	57.3	16	14	40	11	19	294

GN 8330-NI STAINLESS STEEL

Description	b1	FH in N	b2	d1	d2	h	l1 ≈	l2	l3	l4	m1	m2	m3	m4	m5	m6	w ≈	⚖
GN 8330-15-NI-A	15	100	9.5	3.4	1.4	8	53	25	17	31.5	9.5	13.5	6.2	-	8.5	3	11	15
GN 8330-20-NI-A	20	300	13	3.4	1.8	10	76	34	25	44	8	29	8	-	22	4	9	37
GN 8330-29-NI-A	29	600	20	4.2	2.5	15	111	56	35	67	20	38.8	13	-	28	7	11	117
GN 8330-40-NI-A	40	1200	29	4.2	3	20	152	80	49	89	32	57.3	16	14	40	11	19	281
GN 8330-15-NI-B	15	100	9.5	3.4	1.4	8	53	25	17	31.5	9.5	13.5	6.2	-	8.5	3	11	17
GN 8330-20-NI-B	20	300	13	3.4	1.8	10	76	34	25	44	8	29	8	-	22	4	9	38
GN 8330-29-NI-B	29	600	20	4.2	2.5	15	111	56	35	67	20	38.8	13	-	28	7	11	122
GN 8330-40-NI-B	40	1200	29	4.2	3	20	152	80	49	89	32	57.3	16	14	40	11	19	286

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Toggle latches

Steel / Stainless Steel



SPECIFICATION

Types

- Type **A**: without safety catch
- Type **S**: with safety catch
- Type **SV**: for safety catch with padlock
- Type **SS**: with key lock

Identification No.

- No. **1**: long Type
- No. **2**: short Type

Version in Steel ST
zinc plated, blue passivated

Version in Stainless Steel NI
only Type A, S and SV

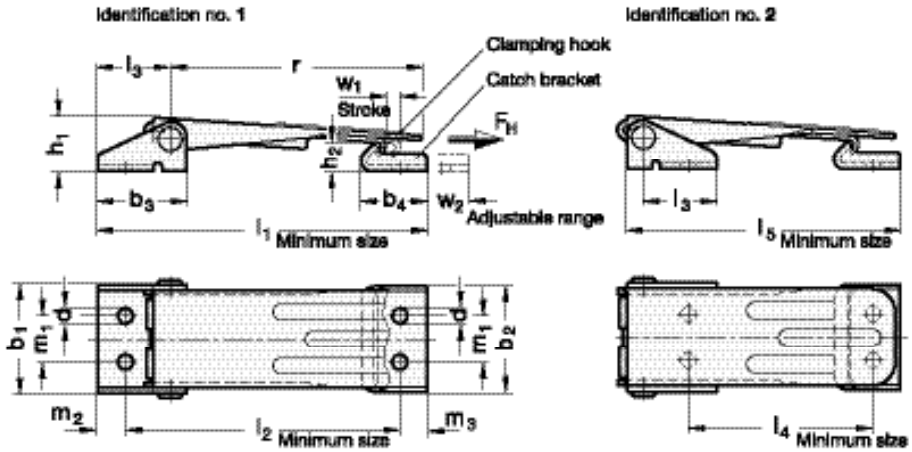
- Parts in sheet metal AISI 304
- Clamping hook / pin AISI 303

INFORMATION

GN 821 toggle latches are used among others for the secure holding of flaps and container lids. The clamps will lock securely over the centre and are thus vibration proof.
The stroke w_1 of the clamping hook can pull the parts to be clamped together by up to 6 mm. The range w_2 can be adjusted on the M6 threaded spindle at the clamping hook.
The types S, SV and SS prevent unwanted release of the toggle latches.
In the standard version the toggle latches of type SS have the same lock and / or the same key.
The load specified in the table are simply guide line values for a nominal static pulling force which the lock can withstand. Depending on the conditions under which these toggle latches are used such as vibration or shock loads, the holding capacity can be adversely affected.
The catch bracket is included.

TECHNICAL INFORMATION

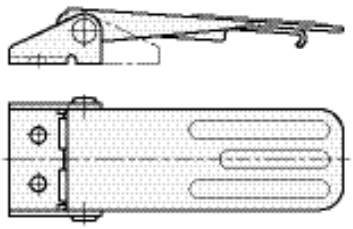
- Stainless Steel characteristics (see page A26)



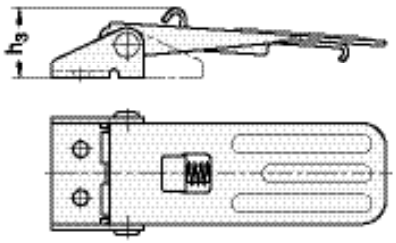
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The respective long versions (identification no. 1) are pictured

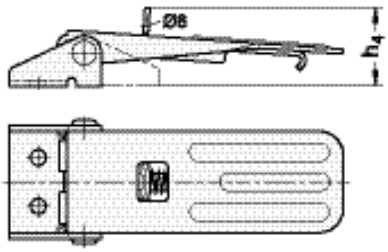
Form A
without safety catch



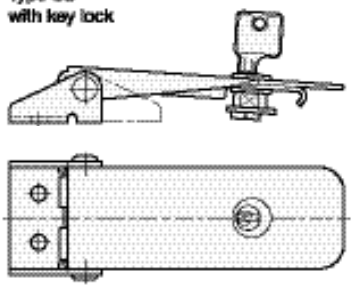
Form S
with safety catch



Type SV
with padlock



Type SS
with key lock



GN 821

Description	Size	FH in N	b1	b2	b3	b4	h1	h2	h3	h4	l1 min.	l2 min.	l3	l4 min.	l5 min.	d	m1	m2	m3	r	w1 ≈	w2 ≈	⚖
GN 821-400-A-ST-1	400	4000	46.5	45	38	27	22	12	-	-	144	120.5	32	-	-	6.3	20	12	11.5	107.5	6.5	15	213
GN 821-400-A-ST-2	400	4000	46.5	45	38	27	22	12	-	-	-	-	32	80.5	118	6.3	20	12	11.5	107.5	6.5	15	210
GN 821-400-S-ST-1	400	4000	46.5	45	38	27	22	12	28.5	-	147	123.5	32	-	-	6.3	20	12	11.5	107.5	6.5	8	220
GN 821-400-S-ST-2	400	4000	46.5	45	38	27	22	12	28.5	-	-	-	32	83.5	121	6.3	20	12	11.5	107.5	6.5	8	204
GN 821-400-SV-ST-1	400	4000	46.5	45	38	27	22	12	-	32.5	144	120.5	32	-	-	6.3	20	12	11.5	107.5	6.5	15	220
GN 821-400-SV-ST-2	400	4000	46.5	45	38	27	22	12	-	32.5	-	-	32	80.5	118	6.3	20	12	11.5	107.5	6.5	15	220
GN 821-400-SS-ST-1	400	4000	46.5	45	38	27	22	12	28.5	32.5	147	123.5	32	-	-	6.3	20	12	11.5	107.5	6.5	8	240
GN 821-400-SS-ST-2	400	4000	46.5	45	38	27	22	12	28.5	32.5	-	-	32	83.5	121	6.3	20	12	11.5	107.5	6.5	8	240

GN 821-NI **STAINLESS STEEL**

Description	Size	FH in N	b1	b2	b3	b4	h1	h2	h3	h4	l1 min.	l2 min.	l3	l4 min.	l5 min.	d	m1	m2	m3	r	w1 ≈	w2 ≈	⚖
GN 821-400-A-NI-1	400	4000	46.5	45	38	27	22	12	-	-	144	120.5	32	-	-	6.3	20	12	11.5	107.5	6.5	15	220
GN 821-400-A-NI-2	400	4000	46.5	45	38	27	22	12	-	-	-	-	32	80.5	118	6.3	20	12	11.5	107.5	6.5	15	208
GN 821-400-S-NI-1	400	4000	46.5	45	38	27	22	12	28.5	-	147	123.5	32	-	-	6.3	20	12	11.5	107.5	6.5	8	220
GN 821-400-S-NI-2	400	4000	46.5	45	38	27	22	12	28.5	-	-	-	32	83.5	121	6.3	20	12	11.5	107.5	6.5	8	218
GN 821-400-SV-NI-1	400	4000	46.5	45	38	27	22	12	-	32.5	144	120.5	32	-	-	6.3	20	12	11.5	107.5	6.5	15	220
GN 821-400-SV-NI-2	400	4000	46.5	45	38	27	22	12	-	32.5	-	-	32	80.5	118	6.3	20	12	11.5	107.5	6.5	15	220

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GN 831

Toggle latches

Steel / Stainless Steel



SPECIFICATION

Types

- Type **A**: without safety catch
- Type **S**: with safety catch
- Type **SV**: for safety catch with padlock

Identification No.

- No. **1**: long Type
- No. **2**: short Type

Version in Steel ST

zinc plated, blue passivated

Version in Stainless Steel NI

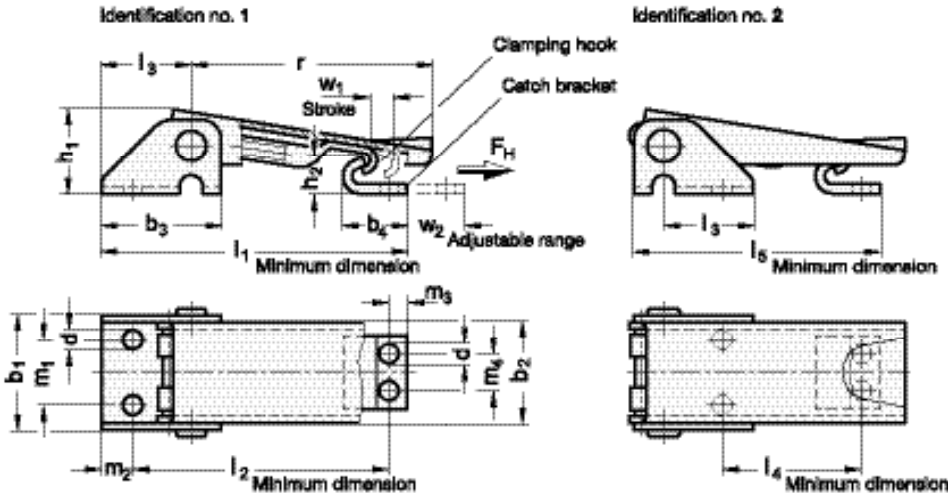
- Parts in sheet metal AISI 304
- Clamping hook / pin AISI 303

INFORMATION

GN 831 toggle latches are used among others for the secure holding of flaps and container lids. The clamps will lock securely over the centre and are thus vibration proof.
The stroke w_1 of the clamping hook can pull the parts to be clamped together by up to 6 mm. The range w_2 can be adjusted on the M6 threaded spindle at the clamping hook.
The types S and SV prevent unwanted release of the toggle latch.
Screws with low head height such as DIN 6912 are used to fix the toggle latches.
The load specified in the table are simply guide line values for a nominal static pulling force which the lock can withstand. Depending on the conditions under which these toggle latches are used such as vibration or shock loads, the holding capacity can be adversely affected.
The catch bracket is included.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



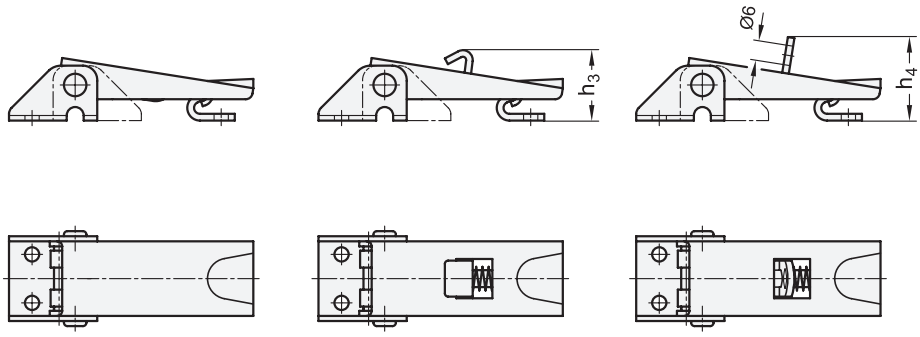
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The respective long versions (Identification no. 1) are pictured

Type **A**
without safety catch

Type **S**
with safety catch

Type **SV**
for safety with padlock



GN 831

Description	Size	FH in N	b1	b2	b3	b4	d	h1	h2	h3	h4	l1 min.	l2 min.	l3	l4 min.	l5 min.	m1	m2	m3	m4	r	w1 ≈	w2 ≈	⚖
GN 831-100-A-ST-1	100	1000	25.5	22	26	14	4.2	18.5	8.5	-	-	67	56	19.5	-	-	14.3	7	4	8	51	5.5	12	55
GN 831-100-A-ST-2	100	1000	25.5	22	26	14	4.2	18.5	8.5	-	-	-	-	19.5	31	54	14.3	7	4	8	51	5.5	12	40
GN 831-100-S-ST-1	100	1000	25.5	22	26	14	4.2	18.5	8.5	21.5	-	74	63	19.5	-	-	14.3	7	4	8	51	5.5	8	60
GN 831-100-S-ST-2	100	1000	25.5	22	26	14	4.2	18.5	8.5	21.5	-	-	-	19.5	38	61	14.3	7	4	8	51	5.5	8	58
GN 831-100-SV-ST-1	100	1000	25.5	22	26	14	4.2	18.5	8.5	-	25.5	67	56	19.5	-	-	14.3	7	4	8	51	5.5	12	55
GN 831-100-SV-ST-2	100	1000	25.5	22	26	14	4.2	18.5	8.5	-	25.5	-	-	19.5	31	54	14.3	7	4	8	51	5.5	12	55

GN 831-NI **STAINLESS STEEL**

Description	Size	FH in N	b1	b2	b3	b4	d	h1	h2	h3	h4	l1 min.	l2 min.	l3	l4 min.	l5 min.	m1	m2	m3	m4	r	w1 ≈	w2 ≈	⚖
GN 831-100-A-NI-1	100	1000	25.5	22	26	14	4.2	18.5	8.5	-	-	67	56	19.5	-	-	14.3	7	4	8	51	5.5	12	54
GN 831-100-A-NI-2	100	1000	25.5	22	26	14	4.2	18.5	8.5	-	-	-	-	19.5	31	54	14.3	7	4	8	51	5.5	12	54
GN 831-100-S-NI-1	100	1000	25.5	22	26	14	4.2	18.5	8.5	21.5	-	74	63	19.5	-	-	14.3	7	4	8	51	5.5	8	50
GN 831-100-S-NI-2	100	1000	25.5	22	26	14	4.2	18.5	8.5	21.5	-	-	-	19.5	38	61	14.3	7	4	8	51	5.5	8	49
GN 831-100-SV-NI-1	100	1000	25.5	22	26	14	4.2	18.5	8.5	-	25.5	67	56	19.5	-	-	14.3	7	4	8	51	5.5	12	57
GN 831-100-SV-NI-2	100	1000	25.5	22	26	14	4.2	18.5	8.5	-	25.5	-	-	19.5	31	54	14.3	7	4	8	51	5.5	12	55

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Hook clamps

Steel or stainless steel

STANDARD EXECUTIONS

- **TLA**: basic hook clamp.
- **TLAL**: hook clamp with padlock hole.
- **TLAS**: hook clamp with security stop and technopolymer push button in RAL 3000 red colour or with stainless steel spring.

Indexes for materials and treatments to add to the above-mentioned standard executions:

- **Z**: lever body and bracket in zinc-plated steel.
- **SST**: lever body and bracket in AISI 304 stainless steel.
- **NH**: lever body and bracket in nickel-plated steel.

SPECIAL EXECUTIONS ON REQUEST

- Hook clamps in unplated steel.
- Catch brackets in different shapes and finishes.



Radial strength tests

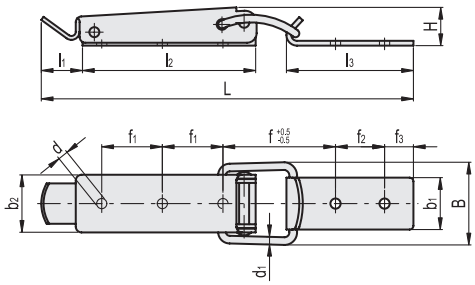








TLA
TLA.SST



TLA.Z

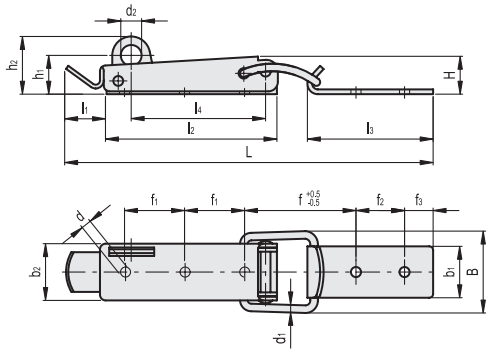
Code	Description	b2	L	B	H	d	d1	b1	l1	l2	l3	f	f1	f2	f3	Max. working load [N]	Load at breakage [N]	⚖
420081	TLA.Z-16.4/102+R	16.4	102	23	11	3.2	2	13	16	44	30	34.5	12.5	12	5	550	1200	31
420061	TLA.Z-23/140.5+R	23	140.5	34	12.5	4.1	3	19	16	70	43	38	22.5	20	8	1500	3000	78
420051	TLA.Z-30/193.5+R	30	193.5	43	19	5.3	4	27	21.5	90	66	58.5	31.5	25.5	15	2000	4000	188

TLA.SST **STAINLESS STEEL**

Code	Description	b2	L	B	H	d	d1	b1	l1	l2	l3	f	f1	f2	f3	Max. working load [N]	Load at breakage [N]	⚖
420082	TLA.SST-16.4/102+R	16.4	102	23	11	3.2	2	13	16	44	30	34.5	12.5	12	5	550	1200	31
420062	TLA.SST-23/140.5+R	23	140.5	34	12.5	4.1	3	19	16	70	43	38	22.5	20	8	1500	3000	78
420052	TLA.SST-30/193.5+R	30	193.5	43	19	5.3	4	27	21.5	90	66	58.5	31.5	25.5	15	2000	4000	188

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TLAL
TLAL.SST



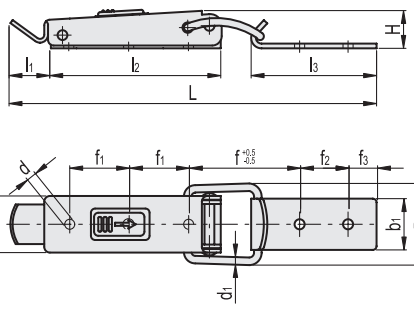
TLAL.Z

Code	Description	b2	L	B	H	d	d1	d2	b1	l1	l2	l3	l4	f	f1	f2	f3	h1	h2	Max. working load [N]	Load at breakage [N]	⚖
420085	TLAL.Z-16.4/102+R	16.4	102	23	11	3.2	2	4	13	16	44	30	34.5	34.5	12.5	12	5	11.5	15.5	550	1200	32
420063	TLAL.Z-23/140.5+R	23	140.5	34	12.5	4.1	3	7	19	16	70	43	55	38	22.5	20	8	13	20	1500	3000	79
420053	TLAL.Z-30/193.5+R	30	193.5	43	19	5.3	4	11	27	21.5	90	66	71	58.5	31.5	25.5	15	20.5	30.5	2000	4000	189

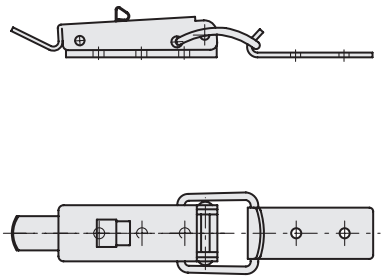
TLAL.SST **STAINLESS STEEL**

Code	Description	b2	L	B	H	d	d1	d2	b1	l1	l2	l3	l4	f	f1	f2	f3	h1	h2	Max. working load [N]	Load at breakage [N]	⚖
420086	TLAL.SST-16.4/102+R	16.4	102	23	11	3.2	2	4	13	16	44	30	34.5	34.5	12.5	12	5	11.5	15.5	550	1200	32
420064	TLAL.SST-23/140.5+R	23	140.5	34	12.5	4.1	3	7	19	16	70	43	55	38	22.5	20	8	13	20	1500	3000	79
420054	TLAL.SST-30/193.5+R	30	193.5	43	19	5.3	4	11	27	21.5	90	66	71	58.5	31.5	25.5	15	20.5	30.5	2000	4000	189

TLAS.NH-30/193.5+R
TLAS.SST-30/193.5+R



TLAS.Z-16.4/102+R
TLAS.SST-16.4/102+R



TLAS.

Code	Description	b2	L	B	H	d	d1	b1	l1	l2	l3	f	f1	f2	f3	Max. working load [N]	Load at breakage [N]	⚖
420083	TLAS.Z-16.4/102+R	16.4	102	23	11	3.2	2	13	16	44	30	34.5	12.5	12	5	550	1200	32
420055	TLAS.NH-30/193.5+R	30	193.5	43	19	5.3	4	27	21.5	90	66	58.5	31.5	25.5	15	2000	4000	189

TLAS.SST **STAINLESS STEEL**

Code	Description	b2	L	B	H	d	d1	b1	l1	l2	l3	f	f1	f2	f3	Max. working load [N]	Load at breakage [N]	⚖
420084	TLAS.SST-16.4/102+R	16.4	102	23	11	3.2	2	13	16	44	30	34.5	12.5	12	5	550	1200	32
420056	TLAS.SST-30/193.5+R	30	193.5	43	19	5.3	4	27	21.5	90	66	58.5	31.5	25.5	15	2000	4000	189

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TLC.

Hook clamps

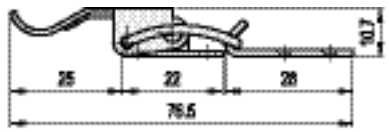
Steel or stainless steel

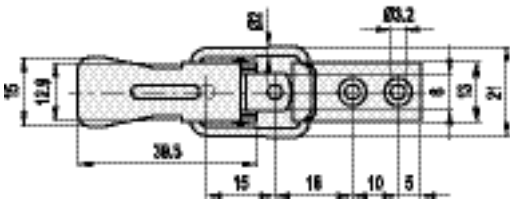
STANDARD EXECUTIONS
- **TLC.Z**: zinc-plated steel.
- **TLC.SST**: AISI 304 stainless steel.

SPECIAL EXECUTIONS ON REQUEST
- Hook clamps in unplated steel or nickel-plated steel.
- Catch brackets in different shapes and finishes.









TLC.Z

Code	Description	Max. working load [N]	Load at breakage [N]	⚖
420071	TLC.Z-15/76.5+R	400	1000	16

TLC.SST — **STAINLESS STEEL**

Code	Description	Max. working load [N]	Load at breakage [N]	⚖
420072	TLC.SST-15/76.5+R	400	1500	16

TLG.

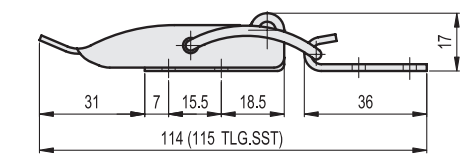
Hook clamps

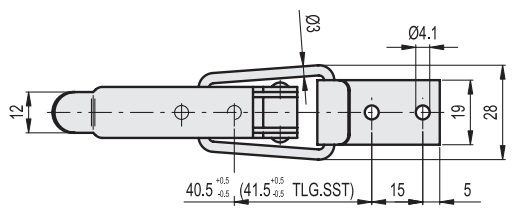
Steel or stainless steel

STANDARD EXECUTIONS
- **TLG.Z**: zinc-plated steel.
- **TLG.SST**: AISI 304 stainless steel.

SPECIAL EXECUTIONS ON REQUEST
- Hook clamps in unplated steel or nickel-plated steel.
- Catch brackets in different shapes and finishes.







TLG.Z

Code	Description	Max. working load [N]	Load at breakage [N]	⚖
420111	TLG.Z-12/114+R	1000	2500	59

TLG.SST — **STAINLESS STEEL**

Code	Description	Max. working load [N]	Load at breakage [N]	⚖
420112	TLG.SST-12/114+R	1000	2500	59

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TLI.

Hook clamps

Steel or stainless steel

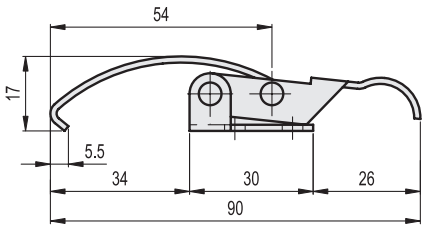
STANDARD EXECUTIONS
- **TLI.Z**: zinc-plated steel.
- **TLI.SST**: AISI 304 stainless steel.

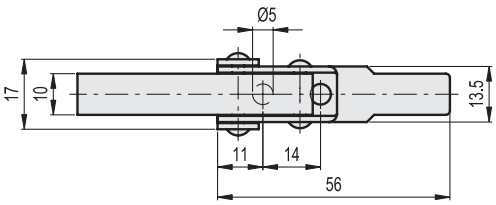
SPECIAL EXECUTIONS ON REQUEST
- Hook clamps in unplated steel or nickel-plated steel.



Radial strength tests







TLI.Z

Code	Description	Max. working load [N]	Load at breakage [N]	⚖
420131	TLI.Z-13.5/90	500	900	28

TLI.SST — **STAINLESS STEEL**

Code	Description	Max. working load [N]	Load at breakage [N]	⚖
420132	TLI.SST-13.5/90	500	900	28

TLV.

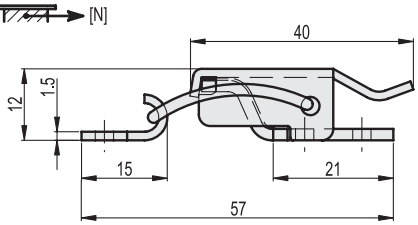
Hook clamps

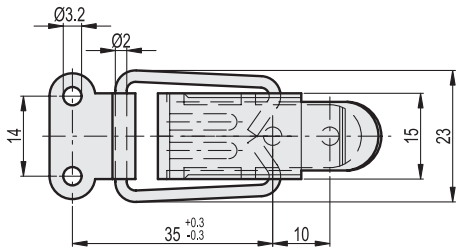
Steel or stainless steel

STANDARD EXECUTIONS
- **TLV.Z**: zinc-plated steel.
- **TLV.SST**: AISI 304 stainless steel.

SPECIAL EXECUTIONS ON REQUEST
- Catch brackets in different shapes and finishes.







TLV.Z

Code	Description	Max. working load [N]	Load at breakage [N]	⚖
420243	TLV.Z-15/56+R	550	1000	23

TLV.SST — **STAINLESS STEEL**

Code	Description	Max. working load [N]	Load at breakage [N]	⚖
420242	TLV.SST-15/56+R	550	1000	23

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Hook clamps

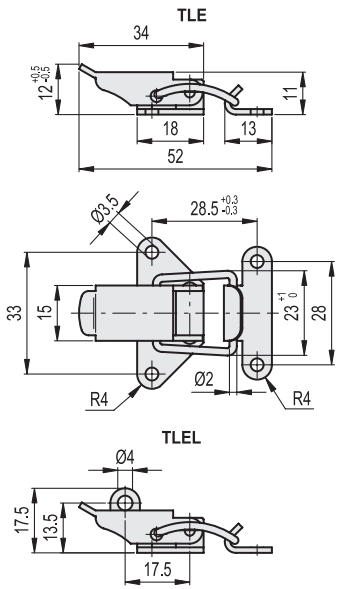
Steel or stainless steel

STANDARD EXECUTIONS
- **TLE.Z**: zinc-plated steel basic hook clamps.
- **TLE.SST**: AISI 304 stainless steel basic hook clamps.
- **TLEL.Z**: zinc-plated steel basic hook clamps with padlock holes.

SPECIAL EXECUTIONS ON REQUEST
- Hook clamps in unplated steel or nickel-plated steel.
- Catch brackets in different shapes and finishes.







TLE.Z

Code	Description	Max. working load [N]	Load at breakage [N]	⚖
420091	TLE.Z-15/52+R	550	1200	21

TLE.SST — **STAINLESS STEEL**

Code	Description	Max. working load [N]	Load at breakage [N]	⚖
420092	TLE.SST-15/52+R	550	1800	21

TLEL.Z

Code	Description	Max. working load [N]	Load at breakage [N]	⚖
420093	TLEL.Z-15/52+R	550	1800	21

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Adjustable hook clamps

Steel or stainless steel

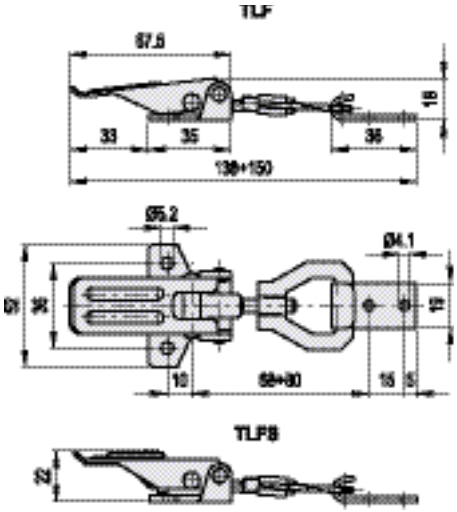
STANDARD EXECUTIONS
- **TLF**: basic hook clamps.
- **TLFS**: hook clamps with security stop. RAL 3000 red technopolymer push button.

Indexes for materials and treatments to add to the above-mentioned standard executions:
- **Z**: zinc-plated steel.
- **SST**: AISI 304 stainless steel.
- **NH**: nickel-plated steel.

SPECIAL EXECUTIONS ON REQUEST
- Hook clamps in unplated steel.
- Catch brackets in different shapes and finishes.







TLF.Z - TLFS.NH

Code	Description	Max. working load [N]	Load at breakage [N]	⚖
420101	TLF.Z-24/138-150+R	1500	2500	101
420103	TLFS.NH-24/138-150+R	1500	2500	103

TLF.SST - TLFS.SST STAINLESS STEEL

Code	Description	Max. working load [N]	Load at breakage [N]	⚖
420102	TLF.SST-24/138-150+R	1500	2500	101
420104	TLFS.SST-24/138-150+R	1500	2500	103

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TLL.

Adjustable hook clamps

Steel

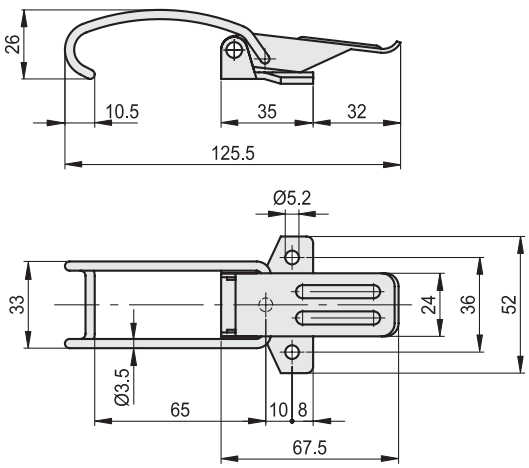
MATERIAL
Zinc-plated steel.

SPECIAL EXECUTIONS ON REQUEST
Hook clamps in AISI 304 stainless steel.



Radial strength tests





Code	Description	Max. working load [N]	Load at breakage [N]	⚖
420141	TLL.Z-24/125	200	3500	77

TLP.

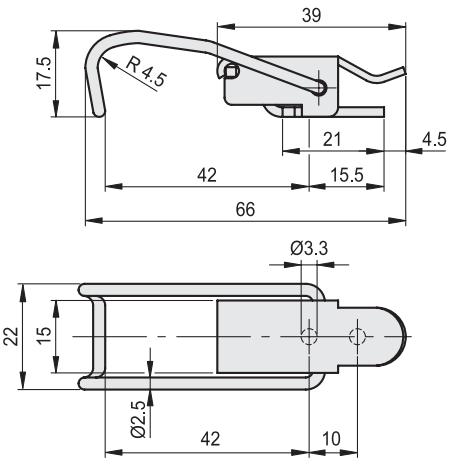
Adjustable hook clamps

Steel

MATERIAL
Zinc-plated steel.

SPECIAL EXECUTIONS ON REQUEST
Hook clamps in AISI 304 stainless steel.





Code	Description	Max. working load [N]	Load at breakage [N]	⚖
420181	TLP.Z-22/67	400	700	23

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TLM.

Adjustable hook clamps

Steel or stainless steel

STANDARD EXECUTIONS
- **TLM.**: basic hook clamp.
- **TLML**: hook clamp with padlock hole.

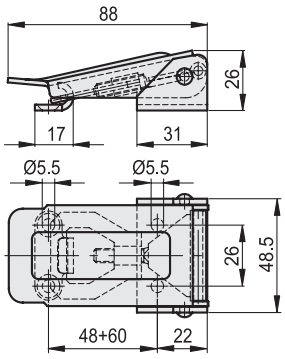
Indexes for materials and treatments to add to the above-mentioned standard executions:
- **Z**: zinc-plated steel.
- **SST**: AISI 304 stainless steel.



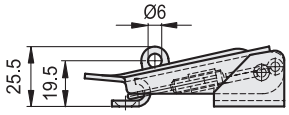
Radial strength tests



TLM.



TLML.



TLM.Z - TLML.Z

Code	Description	Max. working load [N]	Load at breakage [N]	⚖
420151	TLM.Z-26/48-60+R	1500	3000	175
420153	TLML.Z-26/48-60+R	1500	3000	175

TLM.SST **STAINLESS STEEL**

420152	TLM.SST-26/48-60+R	1500	3000	175

TLN.

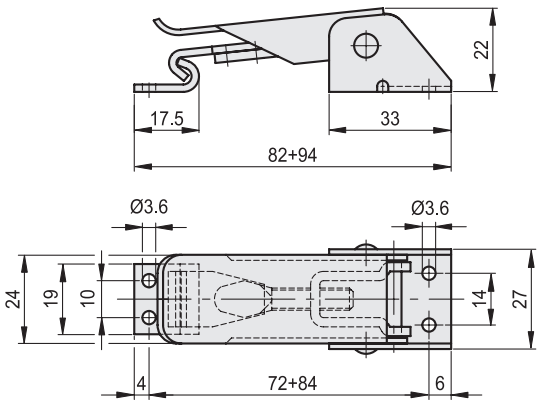
Adjustable hook clamps

Steel

LEVER BODY AND CATCH BRACKET MATERIAL
Zinc-plated steel.

SPECIAL EXECUTIONS ON REQUEST
Adjustable hook clamps with padlock holes.

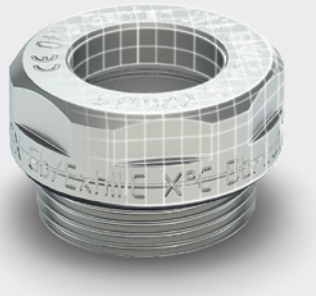




Code	Description	Max. working load [N]	Load at breakage [N]	⚖
420161	TLN.Z-14/72-84+R	1000	2000	74

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elesa



DESIGNED
FOR ENGINEERING

15 Accessories for hydraulic systems



Plugs

Breather caps

Level indicators

Column level indicators

Plugs

Technopolymer

MATERIAL
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

PACKING RING
NBR synthetic rubber.

STANDARD EXECUTIONS
- **TN.**: without side hole.
- **TNF.**: with side breather hole.

MAXIMUM CONTINUOUS WORKING TEMPERATURE
100°C.

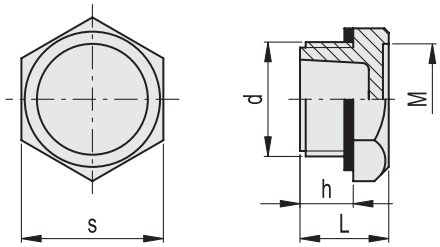
TECHNICAL DATA
The tightening torque indicated in the table guarantees an optimal tightness, keeping the packing ring in the correct position.

ACCESSORIES ON REQUEST
TN. plugs are suitable for mounting aluminium plates with graphic symbols type MH. (see page 1665).

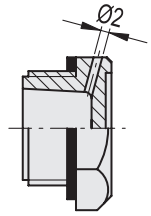


ELESA Original design

TN.



TNF.



TN.		TNF.								
Code	**Description**	**Code**	**Description**	**d**	**h**	**s**	**L**	**M**	**Tightening torque [Nm]**	⚖
58284	TN.10x1.5	58334	TNF.10x1.5	M10x1.5	9	19	16	15	4÷5	4
58285	TN.12x1.5	58335	TNF.12x1.5	M12x1.5	9	19	16	15	6÷8	4
58286	TN.14x1.5	58336	TNF.14x1.5	M14x1.5	9	19	16	15	6÷8	5
58287	TN.16x1.5	58337	TNF.16x1.5	M16x1.5	9	22	16	17	8÷10	7
58288	TN.18x1.5	58338	TNF.18x1.5	M18x1.5	11	26	18	20.5	8÷10	8
58289	TN.20x1.5	58339	TNF.20x1.5	M20x1.5	11	26	18	20.5	8÷10	8
58290	TN.22x1.5	58340	TNF.22x1.5	M22x1.5	12	32	20	25	10÷12	12
58291	TN.25x1.5	58343	TNF.25x1.5	M25x1.5	12	32	20	25	10÷12	12
58292	TN.26x1.5	58344	TNF.26x1.5	M26x1.5	12	32	20	25	10÷12	14
58293	TN.35x1.5	58345	TNF.35x1.5	M35x1.5	13	38	22	31	15÷18	15
58401	TN.40x1.5	58451	TNF.40x1.5	M40x1.5	14	46	24	38	15÷18	20
58294	TN.1/8	58346	TNF.1/8	G 1/8	9	19	16	15	4÷6	4
58295	TN.1/4	58347	TNF.1/4	G 1/4	9	19	16	15	4÷6	4
58296	TN.3/8	58348	TNF.3/8	G 3/8	9	22	16	17	8÷10	5
58297	TN.1/2	58349	TNF.1/2	G 1/2	11	26	18	20.5	8÷10	8
58298	TN.3/4	58350	TNF.3/4	G 3/4	12	32	20	25	10÷12	14
58299	TN.1	58353	TNF.1	G 1	13	38	22	31	12÷15	18
58411	TN.1¼	58461	TNF.1 ¼	G1 1/4	14	46	24	38	15÷18	20
58413	TN.1½	58463	TNF.1 ½	G1 1/2	15	55	26	46	15÷18	24

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Plugs

Technopolymer

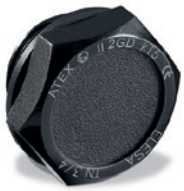
MATERIAL
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

PACKING RING
NBR synthetic rubber.

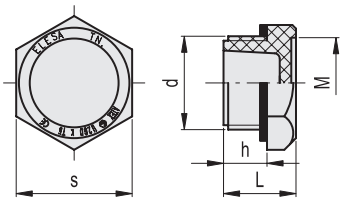
MAXIMUM CONTINUOUS WORKING TEMPERATURE
100°C

ATEX DIRECTIVE COMPLIANCE
The plugs of the TN-EX series comply with Health and Safety Requirements intended in 94/9/EC ATEX European Directive (explosive atmospheres) for equipments in Group II, category 2GD. Plugs have "k" protection degree and can therefore be mounted in equipments protected by means of "immersion in liquid", without lowering protection degree.
II 2 G D k T5, marked on the TN-EX plugs, represents the identification according to ATEX directive.
II: group of substances for which the product is suitable
2: identification of the category
G: identification of the type of explosive atmosphere (Gases or vapours)
D: identification of the type of explosive atmosphere (Dust)
k: protection degree by means of immersion in liquid
T5: temperature class
Ambient and/or fluid temperature: -30 ÷ +100°C
The declaration of conformity to European Directives of this product is available and it is part of the product itself.

TECHNICAL DATA
The tightening torque indicated in the table guarantees an optimal tightness, keeping the packing ring in the correct position.



ELESA Original design



Code	Description	d	h	s	L	M	Tightening torque [Nm]	⚖
58296-EX	TN.3/8-EX	G 3/8	9	22	16	17	8÷10	5
58297-EX	TN.1/2-EX	G 1/2	11	26	18	20.5	8÷10	8
58298-EX	TN.3/4-EX	G 3/4	12	32	20	25	10÷12	14

Labels with marks and symbols

for oil plugs, aluminium

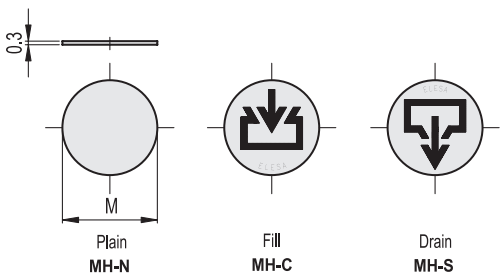
MATERIAL
Matte anodised aluminium.
Self-adhesive back for sticking to the plain surface of the plug head.

STANDARDIZED GRAPHIC SYMBOLS
- **MH-N**: plain surface, without symbols.
- **MH-C**: with graphic symbol "fill" according to DIN regulations.
- **MH-S**: with graphic symbol "drain" according to DIN regulations.

MAXIMUM CONTINUOUS WORKING TEMPERATURE
100°C.

APPLICATIONS
The plates with graphic symbols for oil plugs are suitable for the application on plugs type TN. (see page 1664), TNR. (see page 1666), TN-EX (see page 1665), TCR. (see page 1667), TCD. (see page 1668), TSD. (see page 1670) and TSR. (see page 1671).





MH-N		MH-C		MH-S		
Code	Description	Code	Description	Code	Description	M*Ø
39501	MH.19-N	39521	MH.19-C	39541	MH.19-S	15
39503	MH.22-N	39523	MH.22-C	39543	MH.22-S	17
39505	MH.26-N	39525	MH.26-C	39545	MH.26-S	20.5
39507	MH.32-N	39527	MH.32-C	39547	MH.32-S	25
39509	MH.38-N	39529	MH.38-C	39549	MH.38-S	31

M * = diameter of the seat of the correspondent plug.

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Plugs

Technopolymer

MATERIAL
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

PACKING RING
NBR synthetic rubber O-Ring.
The positioning of the O-Ring in its housing guarantees a high tightening torque.

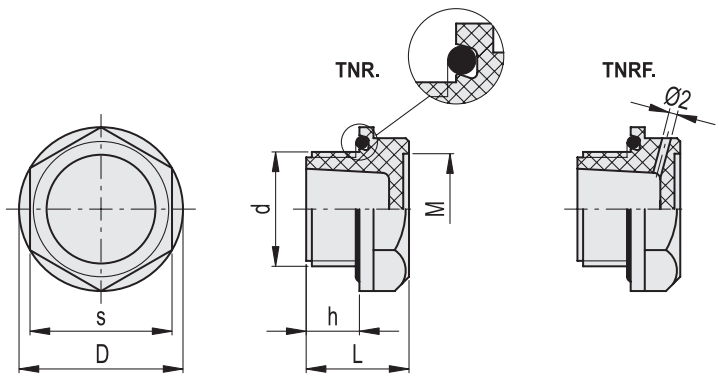
STANDARD EXECUTIONS
- **TNR.**: without side hole.
- **TNRF.**: with side breather hole.

MAXIMUM CONTINUOUS WORKING TEMPERATURE
100°C.

ACCESSORIES ON REQUEST
TNR. plugs are suitable for mounting aluminium plates with graphic symbols type MH. (see page 1665).



ELESA Original design



TNR. **TNRF.**

Code	Description	Code	Description	d	h	s	D	L	M	Tightening torque [Nm]	⚖
158295	TNR.1/4	158495	TNRF.1/4	G 1/4	9	19	22	17	15	4÷6	4
158296	TNR.3/8	158496	TNRF.3/8	G 3/8	9	22	25.5	18	17	8÷10	6
158297	TNR.1/2	158497	TNRF.1/2	G 1/2	11	27	32	20	20.5	8÷10	8
158298	TNR.3/4	158498	TNRF.3/4	G 3/4	12	32	37	22	25	10÷12	14
158299	TNR.1	158499	TNRF.1	G 1	13	38	44	23	31	12÷15	18
158411	TNR.1 ¼	158611	TNRF.1 ¼	G1 1/4	14	46	53.5	26	38	15÷18	32
158413	TNR.1 ½	158613	TNRF.1 ½	G1 1/2	15	55	63.5	28	46	15÷18	51

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Oil fill plugs

Technopolymer

MATERIAL
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

PACKING RING
NBR synthetic rubber O-Ring.
The positioning of the O-Ring in its housing guarantees a high tightening torque.

STANDARD EXECUTIONS
- **TCR.**: without side hole.
- **TCRF.**: with side breather hole.

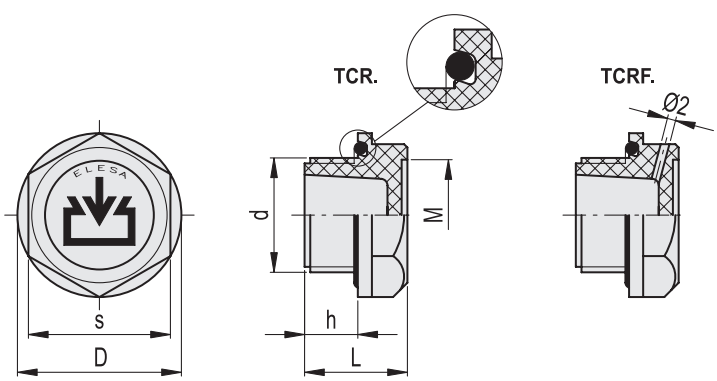
MAXIMUM CONTINUOUS WORKING TEMPERATURE
100°C.

GRAPHIC SYMBOL "FILL"
According to DIN regulations.

ACCESSORIES ON REQUEST
TCR. oil fill plugs are suitable for mounting aluminium plates with graphic symbols type MH. (see page 1665).



ELESA Original design



TCR. **TCRF.**

Code	Description	Code	Description	d	h	s	D	L	M	Tightening torque [Nm]	⚖
158695	TCR.1/4	158795	TCRF.1/4	G 1/4	9	19	22	17	15	4÷6	4
158696	TCR.3/8	158796	TCRF.3/8	G 3/8	9	22	25.5	18	17	8÷10	6
158697	TCR.1/2	158797	TCRF.1/2	G 1/2	11	27	32	20	20.5	8÷10	8
158698	TCR.3/4	158798	TCRF.3/4	G 3/4	12	32	37	22	25	10÷12	14
158699	TCR.1	158799	TCRF.1	G 1	13	38	44	23	31	12÷15	18
158711	TCR.1¼	158811	TCRF.1¼	G1 1/4	14	46	53.5	26	38	15÷18	32
158713	TCR.1½	158813	TCRF.1½	G1 1/2	15	55	63.5	28	46	15÷18	51

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Oil fill plugs

Technopolymer

MATERIAL
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

PACKING RING
NBR synthetic rubber.

STANDARD EXECUTIONS
- **TCD.**: without side hole.
- **TCDF.**: with side breather hole.

MAXIMUM CONTINUOUS WORKING TEMPERATURE
100°C.

GRAPHIC SYMBOL "FILL"
According to DIN regulations.

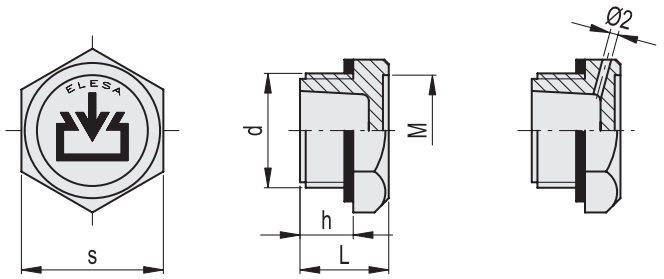
TECHNICAL DATA
The tightening torque indicated in the table guarantees an optimal tightness, keeping the packing ring in the correct position.

ACCESSORIES
TCD. oil fill plugs are suitable for mounting aluminium plates with graphic symbols type MH. (see page 1665).



ELESA Original design

TCD. **TCDF.**



TCD. Code	TCD. Description	TCDF. Code	TCDF. Description	d	h	s	L	M	Tightening torque [Nm]	⚖
58551	TCD.10x1.5	58651	TCDF.10x1.5	M10x1.5	9	19	16	15	4÷5	4
58553	TCD.12x1.5	58653	TCDF.12x1.5	M12x1.5	9	19	16	15	6÷8	4
58555	TCD.14x1.5	58655	TCDF.14x1.5	M14x1.5	9	19	16	15	6÷8	5
58557	TCD.16x1.5	58657	TCDF.16x1.5	M16x1.5	9	22	16	17	8÷10	7
58559	TCD.18x1.5	58659	TCDF.18x1.5	M18x1.5	11	26	18	20.5	8÷10	8
58561	TCD.20x1.5	58661	TCDF.20x1.5	M20x1.5	11	26	18	20.5	8÷10	8
58563	TCD.22x1.5	58663	TCDF.22x1.5	M22x1.5	12	32	20	25	10÷12	12
58565	TCD.25x1.5	58665	TCDF.25x1.5	M25x1.5	12	32	20	25	10÷12	12
58569	TCD.26x1.5	58681	TCDF.26x1.5	M26x1.5	12	32	20	25	10÷12	14
58567	TCD.35x1.5	58667	TCDF.35x1.5	M35x1.5	13	38	22	31	15÷18	15
58571	TCD.40x1.5	58683	TCDF.40x1.5	M40x1.5	14	46	24	38	15÷18	20
58591	TCD.1/8	58669	TCDF.1/8	G 1/8	9	19	16	15	4÷6	4
58601	TCD.1/4	58671	TCDF.1/4	G 1/4	9	19	16	15	4÷6	4
58611	TCD.3/8	58673	TCDF.3/8	G 3/8	9	22	16	17	8÷10	5
58621	TCD.1/2	58675	TCDF.1/2	G 1/2	11	26	18	20.5	8÷10	8
58631	TCD.3/4	58677	TCDF.3/4	G 3/4	12	32	20	25	10÷12	14
58641	TCD.1	58679	TCDF.1	G 1	13	38	22	31	12÷15	18
58643	TCD.1¼	58685	TCDF.1¼	G1 1/4	14	46	24	38	15÷18	20
58645	TCD.1½	58687	TCDF.1½	G1 1/2	15	55	26	46	15÷18	24

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Oil fill plugs

with flat dipstick, technopolymer

MATERIAL
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

PACKING RING
NBR synthetic rubber.

FLAT DIPSTICK
Flat section phosphatised steel.
On request and for sufficient quantities dipstick can be supplied in different lengths and/or complete with MAX-MIN level lines.

STANDARD EXECUTIONS
- **TCD+a**: without side hole.
- **TCDF+a**: with side breather hole.

MAXIMUM CONTINUOUS WORKING TEMPERATURE
100°C.

GRAPHIC SYMBOL "FILL"
According to DIN regulations.

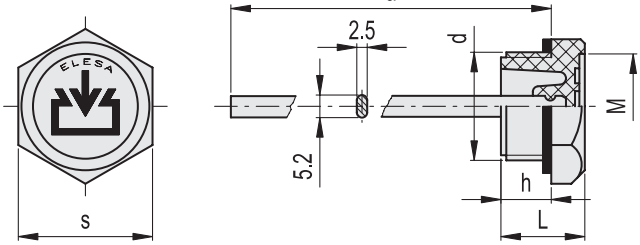
TECHNICAL DATA
The tightening torque indicated in the table guarantees an optimal tightness, keeping the packing ring in the correct position.

ACCESSORIES
TCD+a oil fill plugs are suitable for mounting aluminium plates with graphic symbols type MH. (see page 1665).

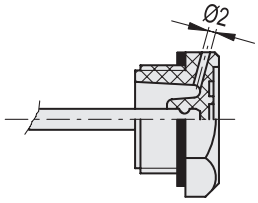


ELESA Original design

TCD+a



TCDF+a



TCD+a

Code	Description	d	h	s	L	M	a	Tightening torque [Nm]	⚖
59501	TCD.10x1.5+a	M10x1.5	9	19	16	15	120	4÷5	21
59503	TCD.12x1.5+a	M12x1.5	9	19	16	15	120	6÷8	21
59505	TCD.14x1.5+a	M14x1.5	9	19	16	15	120	6÷8	22
59507	TCD.16x1.5+a	M16x1.5	9	22	16	17	120	8÷10	22
59509	TCD.18x1.5+a	M18x1.5	11	26	18	20.5	195	8÷10	36
59511	TCD.20x1.5+a	M20x1.5	11	26	18	20.5	195	8÷10	37
59513	TCD.22x1.5+a	M22x1.5	12	32	20	25	195	10÷12	40
59515	TCD.25x1.5+a	M25x1.5	12	32	20	25	195	10÷12	40
59517	TCD.26x1.5+a	M26x1.5	12	32	20	25	195	10÷12	42
59519	TCD.35x1.5+a	M35x1.5	13	38	22	31	195	15÷18	44
59523	TCD.40x1.5+a	M40x1.5	14	46	24	38	195	15÷18	49
59531	TCD.1/8+a	G 1/8	9	19	16	15	120	4÷6	22
59533	TCD.1/4+a	G 1/4	9	19	16	15	120	4÷6	22
59535	TCD.3/8+a	G 3/8	9	22	16	17	120	8÷10	22
59537	TCD.1/2+a	G 1/2	11	26	18	20.5	195	8÷10	37
59539	TCD.3/4+a	G 3/4	12	32	20	25	195	10÷12	40
59541	TCD.1+a	G 1	13	38	22	31	195	12÷15	44
59543	TCD.1¼+a	G1 1/4	14	46	24	38	195	15÷18	49
59545	TCD.1½+a	G1 1/2	15	55	26	46	195	15÷18	53

TCDF+a

Code	Description	d	h	s	L	M	a	Tightening torque [Nm]	⚖
59557	TCDF.16x1.5+a	M16x1.5	9	22	16	17	120	8÷10	15
59559	TCDF.18x1.5+a	M18X1.5	11	26	18	20.5	195	8÷10	30
59561	TCDF.20x1.5+a	M20x1.5	11	26	18	20.5	195	8÷10	30
59563	TCDF.22x1.5+a	M22x1.5	12	32	20	25	195	10÷12	35
59565	TCDF.25x1.5+a	M25x1.5	12	32	20	25	195	10÷12	35
59567	TCDF.26x1.5+a	M26x1.5	12	32	20	25	195	10÷12	35
59569	TCDF.35x1.5+a	M35x1.5	13	38	22	31	195	15÷18	40
59573	TCDF.40x1.5+a	M40x1.5	14	46	24	38	195	15÷18	49
59585	TCDF.3/8+a	G 3/8	9	22	16	17	120	8÷10	20
59587	TCDF.1/2+a	G 1/2	11	26	18	20.5	195	8÷10	30
59589	TCDF.3/4+a	G 3/4	12	32	20	25	195	10÷12	35
59591	TCDF.1+a	G 1	13	38	22	31	195	12÷15	45
59595	TCDF.1¼+a	G1 1/4	14	46	24	38	195	15÷18	49
59597	TCDF.1½+a	G1 1/2	15	55	26	46	195	15÷18	53

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Oil drain plugs

Technopolymer

MATERIAL
Glass-fibre reinforced polyamide based (PA) technopolymer, red colour similar to RAL 3000, matte finish.

FLAT PACKING RING
NBR synthetic rubber.

MAXIMUM CONTINUOUS WORKING TEMPERATURE
100°C.

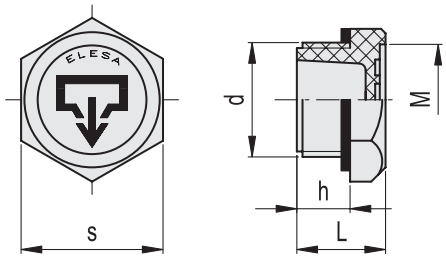
GRAPHIC SYMBOL "DRAIN"
According to DIN regulations.

TECHNICAL DATA
The tightening torque indicated in the table guarantees an optimal tightness, keeping the packing ring in the correct position.

ACCESSORIES ON REQUEST
TSD. oil fill plugs are suitable for mounting aluminium plates with graphic symbols type MH. (see page 1665).



ELESA Original design



Code	Description	d	h	s	L	M	Tightening torque [Nm]	⚖
59942	TSD.10x1.5	M10x1.5	9	19	16	15	4÷5	4
59944	TSD.12x1.5	M12x1.5	9	19	16	15	6÷8	4
59946	TSD.14x1.5	M14x1.5	9	19	16	15	6÷8	5
59948	TSD.16x1.5	M16x1.5	9	22	16	17	8÷10	7
59950	TSD.18x1.5	M18x1.5	11	26	18	20.5	8÷10	8
59952	TSD.20x1.5	M20x1.5	11	26	18	20.5	8÷10	8
59954	TSD.22x1.5	M22x1.5	12	32	20	25	10÷12	12
59956	TSD.25x1.5	M25x1.5	12	32	20	25	10÷12	12
59958	TSD.26x1.5	M26x1.5	12	32	20	25	10÷12	14
59960	TSD.35x1.5	M35x1.5	13	38	22	31	15÷18	15
59964	TSD.40x1.5	M40x1.5	14	46	24	38	15÷18	20
59972	TSD.1/8	G 1/8	9	19	16	15	4÷6	4
59974	TSD.1/4	G 1/4	9	19	16	15	4÷6	4
59976	TSD.3/8	G 3/8	9	22	16	17	8÷10	5
59978	TSD.1/2	G 1/2	11	26	18	20.5	8÷10	8
59980	TSD.3/4	G 3/4	12	32	20	25	10÷12	14
59982	TSD.1	G 1	13	38	22	31	15÷18	18
59986	TSD.1¼	G1 1/4	14	46	24	38	15÷18	20
59988	TSD.1½	G1 1/2	15	55	26	46	15÷18	24

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Oil drain plugs

Technopolymer

MATERIAL
Glass-fibre reinforced polyamide based (PA) technopolymer, red colour similar to RAL 3000, matte finish.

PACKING RING
NBR synthetic rubber O-Ring.
The positioning of the O-Ring in its housing guarantees a high tightening torque.

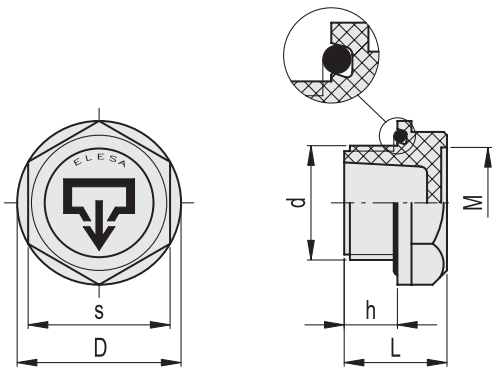
MAXIMUM CONTINUOUS WORKING TEMPERATURE
100°C.

GRAPHIC SYMBOL "DRAIN"
According to DIN regulations.

ACCESSORIES ON REQUEST
TSR. oil fill plugs are are suitable for mounting aluminium plates with graphic symbols type MH. (see page 1665).



ELESA Original design



Code	Description	d	h	s	D	L	M	Tightening torque [Nm]	⚖
158895	TSR.1/4	G 1/4	9	19	22	17	15	4÷6	4
158896	TSR.3/8	G 3/8	9	22	25.5	18	17	8÷10	6
158897	TSR.1/2	G 1/2	11	27	32	20	20.5	8÷10	8
158898	TSR.3/4	G 3/4	12	32	37	22	25	10÷12	14
158899	TSR.1	G 1	13	38	44	23	31	12÷15	18
158911	TSR.1¼	G1 1/4	14	46	53.5	26	38	15÷18	32
158913	TSR.1½	G1 1/2	15	55	63.5	28	46	15÷18	51

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Threaded plugs

Aluminium, up to 100 °C



SPECIFICATION

Types

- Type **OS**: neutral, blank
- Type **OSS**: neutral, black anodized
- Type **ES**: with DIN re-fill symbol, blank
- Type **ESS**: with DIN re-fill symbol, black anodized
- Type **AS**: with DIN drain symbol, blank
- Type **ASS**: with DIN drain symbol, black anodized

Identification no.

- No. **1**: without vent drilling
- No. **2**: with vent drilling

Aluminium

- Type OS, ES and AS: fine turned, blank
- Type OSS, ESS and ASS: fine turned, black anodized
- Symbol laser engraved

Temperature resistant up to **100 °C**

Sealing ring rubbers NBR (Perbunan)

INFORMATION

Threaded plugs GN 741 are fitted with outside diameter d1 to suit screw holes with BSP threads to DIN 3852.
The sealing ring is bedded into a undercut groove which prevents it from dropping out and at the same time stops it from being extruded when tightening the cap.

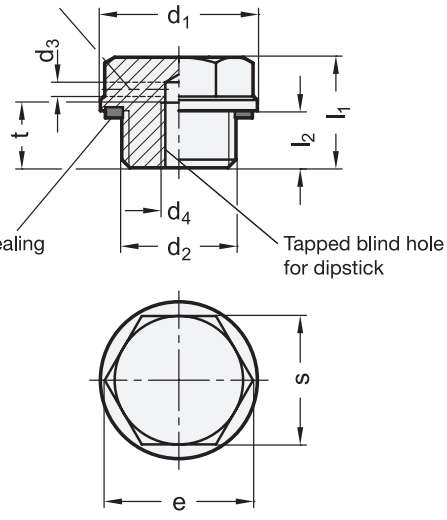
ON REQUEST

- with dipstick

TECHNICAL INFORMATION

- Elastomer characteristics (see page A32)
- Plastic characteristics (see page A2)

Air vent drilling



Re-fill symbol



Drain symbol



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*Complete with type index of the Threaded plugs

OS OSS ES ESS AS ASS

GN 741

Description	d1	d2	d3	d4	l1	l2	s	e ≈	t min.	⚖
GN 741-19-M14x1,5-*-1	19	M 14 x 1.5	2	M 5	15.5	8	15	17.3	8	7
GN 741-19-M14x1,5-*-2	19	M 14 x 1.5	2	M 5	15.5	8	15	17.3	8	7
GN 741-22-M16x1,5-*-1	22	M 16 x 1.5	2	M 5	15.5	8	18	20.8	8	10
GN 741-22-M16x1,5-*-2	22	M 16 x 1.5	2	M 5	15.5	8	18	20.8	8	10
GN 741-26-M20x1,5-*-1	26	M 20 x 1.5	2	M 5	16	8.5	21	24.3	8	16
GN 741-26-M20x1,5-*-2	26	M 20 x 1.5	2	M 5	16	8.5	21	24.3	8	15
GN 741-32-M26x1,5-*-1	32	M 26 x 1.5	2	M 5	17	9	27	31.2	8	26
GN 741-32-M26x1,5-*-2	32	M 26 x 1.5	2	M 5	17	9	27	31.2	8	25
GN 741-32-M27x1,5-*-1	32	M 27 x 1.5	2	M 5	17	9	27	31.2	8	27
GN 741-32-M27x1,5-*-2	32	M 27 x 1.5	2	M 5	17	9	27	31.2	8	27
GN 741-40-M33x1,5-*-1	40	M 33 x 1.5	2	M 5	19.5	11	32	37	8	47
GN 741-40-M33x1,5-*-2	40	M 33 x 1.5	2	M 5	19.5	11	32	37	8	47
GN 741-50-M40x1,5-*-1	50	M 40 x 1.5	2	M 5	21	12	41	47.3	8	2
GN 741-50-M40x1,5-*-2	50	M 40 x 1.5	2	M 5	21	12	41	47.3	8	2
GN 741-50-M42x1,5-*-1	50	M 42 x 1.5	2	M 5	21	12	41	47.3	8	2
GN 741-50-M42x1,5-*-2	50	M 42 x 1.5	2	M 5	21	12	41	47.3	8	2
GN 741-50-M42x2-*-1	50	M 42 x 2	2	M 5	21	12	41	47.3	8	2
GN 741-50-M42x2-*-2	50	M 42 x 2	2	M 5	21	12	41	47.3	8	2
GN 741-19-G1/4-*-1	19	G 1/4	2	M 5	15.5	8	15	17.3	8	7
GN 741-19-G1/4-*-2	19	G 1/4	2	M 5	15.5	8	15	17.3	8	8
GN 741-22-G3/8-*-1	22	G 3/8	2	M 5	15.5	8	18	20.8	8	10
GN 741-22-G3/8-*-2	22	G 3/8	2	M 5	15.5	8	18	20.8	8	10
GN 741-26-G1/2-*-1	26	G 1/2	2	M 5	16	8.5	21	24.3	8	15
GN 741-26-G1/2-*-2	26	G 1/2	2	M 5	16	8.5	21	24.3	8	17
GN 741-32-G3/4-*-1	32	G 3/4	2	M 5	17	9	27	31.2	8	27
GN 741-32-G3/4-*-2	32	G 3/4	2	M 5	17	9	27	31.2	8	38
GN 741-40-G1-*-1	40	G 1	2	M 5	19.5	11	32	37	8	47
GN 741-40-G1-*-2	40	G 1	2	M 5	19.5	11	32	37	8	47
GN 741-50-G11/4-*-1	50	G 1 1/4	2	M 5	21	12	41	47.3	8	80
GN 741-50-G11/4-*-2	50	G 1 1/4	2	M 5	21	12	41	47.3	8	80
GN 741-60-G11/2-*-1	60	G 1 1/2	2	M 5	22	13	50	57.7	8	119
GN 741-60-G11/2-*-2	60	G 1 1/2	2	M 5	22	13	50	57.7	8	119

Weight OS

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Threaded plugs

Aluminium, up to 180 °C



SPECIFICATION

Types

- Type **OS**: neutral, blank
- Type **OSS**: neutral, black anodized
- Type **ES**: with DIN re-fill symbol, blank
- Type **ESS**: with DIN re-fill symbol, black anodized
- Type **AS**: with DIN drain symbol, blank
- Type **ASS**: with DIN drain symbol, black anodized

Identification no.

- No. **1**: without vent drilling
- No. **2**: with vent drilling

Aluminium

- Type OS, ES and AS: fine turned, blank
- Type OSS, ESS and ASS: fine turned, black anodized
- Symbols laser engraved

temperature resistant up to **180 °C**

Sealing ring rubber FPM (Viton®)
Identification by not black finish of seal

INFORMATION

Threaded plugs GN 742 are fitted with outside diameter d_1 to suit screw holes with BSP threads to DIN 3852.
The sealing ring is bedded into a undercut groove which prevents it from dropping out and at the same time stops it from being extruded when tightening the cap.

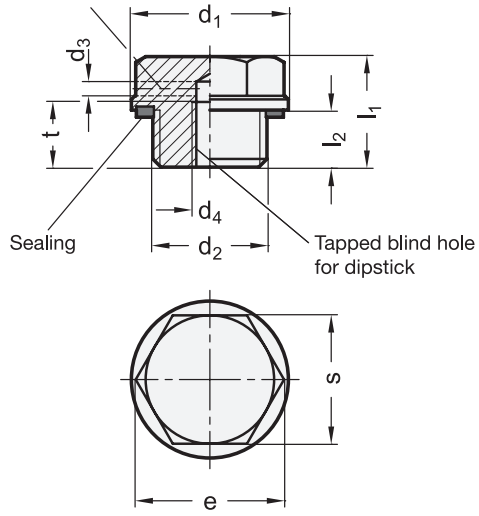
ON REQUEST

- with dipstick

TECHNICAL INFORMATION

- Elastomer characteristics (see page A32)
- Plastic characteristics (see page A2)

Air vent drilling



Re-fill symbol



Drain symbol



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*Complete with type index of the Threaded plugs

OS OSS ES ESS AS ASS

GN 742

Description	d1	d2	d3	d4	l1	l2	s	e ≈	t min.	⚖
GN 742-19-M14x1,5-*-1	19	M 14 x 1.5	2	M 5	15.5	8	15	17.3	8	7
GN 742-19-M14x1,5-*-2	19	M 14 x 1.5	2	M 5	15.5	8	15	17.3	8	7
GN 742-22-M16x1,5-*-1	22	M 16 x 1.5	2	M 5	15.5	8	18	20.8	8	10
GN 742-22-M16x1,5-*-2	22	M 16 x 1.5	2	M 5	15.5	8	18	20.8	8	10
GN 742-26-M20x1,5-*-1	26	M 20 x 1.5	2	M 5	16	8.5	21	24.3	8	15
GN 742-26-M20x1,5-*-2	26	M 20 x 1.5	2	M 5	16	8.5	21	24.3	8	15
GN 742-32-M26x1,5-*-1	32	M 26 x 1.5	2	M 5	17	9	27	31.2	8	27
GN 742-32-M26x1,5-*-2	32	M 26 x 1.5	2	M 5	17	9	27	31.2	8	27
GN 742-32-M27x1,5-*-1	32	M 27 x 1.5	2	M 5	17	9	27	31.2	8	27
GN 742-32-M27x1,5-*-2	32	M 27 x 1.5	2	M 5	17	9	27	31.2	8	27
GN 742-40-M33x1,5-*-1	40	M 33 x 1.5	2	M 5	19.5	11	32	37	8	50
GN 742-40-M33x1,5-*-2	40	M 33 x 1.5	2	M 5	19.5	11	32	37	8	50
GN 742-50-M40x1,5-*-1	50	M 40 x 1.5	2	M 5	21	12	41	47.3	8	2
GN 742-50-M40x1,5-*-2	50	M 40 x 1.5	2	M 5	21	12	41	47.3	8	2
GN 742-50-M42x1,5-*-1	50	M 42 x 1.5	2	M 5	21	12	41	47.3	8	2
GN 742-50-M42x1,5-*-2	50	M 42 x 1.5	2	M 5	21	12	41	47.3	8	2
GN 742-50-M42x2-*-1	50	M 42 x 2	2	M 5	21	12	41	47.3	8	2
GN 742-50-M42x2-*-2	50	M 42 x 2	2	M 5	21	12	41	47.3	8	2
GN 742-19-G1/4-*-1	19	G 1/4	2	M 5	15.5	8	15	17.3	8	7
GN 742-19-G1/4-*-2	19	G 1/4	2	M 5	15.5	8	15	17.3	8	7
GN 742-22-G3/8-*-1	22	G 3/8	2	M 5	15.5	8	18	20.8	8	10
GN 742-22-G3/8-*-2	22	G 3/8	2	M 5	15.5	8	18	20.8	8	10
GN 742-26-G1/2-*-1	26	G 1/2	2	M 5	16	8.5	21	24.3	8	18
GN 742-26-G1/2-*-2	26	G 1/2	2	M 5	16	8.5	21	24.3	8	18
GN 742-32-G3/4-*-1	32	G 3/4	2	M 5	17	9	27	31.2	8	26
GN 742-32-G3/4-*-2	32	G 3/4	2	M 5	17	9	27	31.2	8	26
GN 742-40-G1-*-1	40	G 1	2	M 5	19.5	11	32	37	8	47
GN 742-40-G1-*-2	40	G 1	2	M 5	19.5	11	32	37	8	47
GN 742-50-G11/4-*-1	50	G 1 1/4	2	M 5	21	12	41	47.3	8	80
GN 742-50-G11/4-*-2	50	G 1 1/4	2	M 5	21	12	41	47.3	8	80
GN 742-60-G11/2-*-1	60	G 1 1/2	2	M 5	22	13	50	57.7	8	120
GN 742-60-G11/2-*-2	60	G 1 1/2	2	M 5	22	13	50	57.7	8	120

Weight OS

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Magnetic plugs

Aluminium

MATERIAL
Black anodised aluminium.
Marked "MAGNETIC" and graphic symbol, laser engraved.

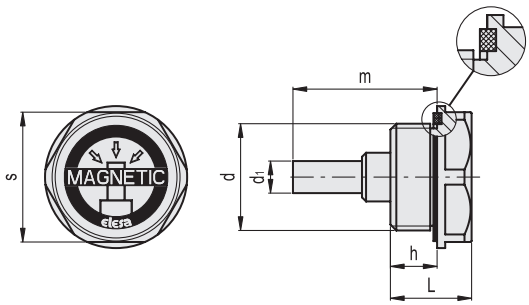
PERMANENT MAGNETIC ELEMENT
(AlNiCo) Aluminium-nickel-cobalt with a high attractive power, to keep metal particles in oil.

STANDARD EXECUTIONS
- **TMB**: NBR synthetic rubber flat packing ring. Max working temperature 100°C.
- **TMB-HT**: FKM synthetic rubber flat packing ring. Max working temperature 180°C.

TECHNICAL DATA
The positioning of the packing ring in its housing guarantees a high tightening torque, therefore the plug can be used even in pressurised reservoirs.



ELESA Original design



TMB **TMB-HT**

Code	Description	Code	Description	d	h	s	L	d1	m	⚖
59701	TMB.M14x1,5	59751	TMB-HT.M14x1,5	M14x1.5	9	19	16.5	6	30	14
59703	TMB.M16x1,5	59753	TMB-HT.M16x1,5	M16x1.5	9	22	16.5	8	31	22
59705	TMB.M20x1,5	59755	TMB-HT.M20x1,5	M20x1.5	11	24	18.5	8	34	28
59707	TMB.M26x1,5	59757	TMB-HT.M26x1,5	M26x1.5	11.5	32	20	8	35.5	45
59709	TMB.M27x1,5	59759	TMB-HT.M27x1,5	M27x1.5	11.5	32	20	8	35.5	46
59711	TMB.M33x1,5	59761	TMB-HT.M33x1,5	M33x1.5	11.5	38	20	8	35.5	65
59713	TMB.M40x1,5	59763	TMB-HT.M40x1,5	M40x1.5	13	46	24	8	37	107
59715	TMB.M42x1,5	59765	TMB-HT.M42x1,5	M42x1.5	13	46	24	8	37	110
59717	TMB.M42x2	59767	TMB-HT.M42x2	M42x2	13	46	24	8	37	113
59721	TMB.1/4	59771	TMB-HT.1/4	G 1/4	9	19	16.5	6	30	14
59723	TMB.3/8	59773	TMB-HT.3/8	G 3/8	9	22	16.5	8	31	22
59725	TMB.1/2	59775	TMB-HT.1/2	G 1/2	11	24	18.5	8	34	28
59727	TMB.3/4	59777	TMB-HT.3/4	G 3/4	11.5	32	20	8	35.5	45
59729	TMB.1	59779	TMB-HT.1	G 1	11.5	38	20.5	8	35.5	65
59731	TMB.1 1/4	59781	TMB-HT.1 1/4	G 1 1/4	13	46	24	8	37	107
59733	TMB.1 1/2	59783	TMB-HT.1 1/2	G 1 1/2	13	50	24	8	37	131

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TPC

Oil fill plugs

for push-fit, technopolymer

MATERIAL
High-resilience polypropylene based (PP) technopolymer, black colour, matte finish.

PACKING RINGS
Two NBR synthetic rubber O-rings.

STANDARD EXECUTIONS
- **TPC**: without side hole.
- **TPCF**: with side breather hole.

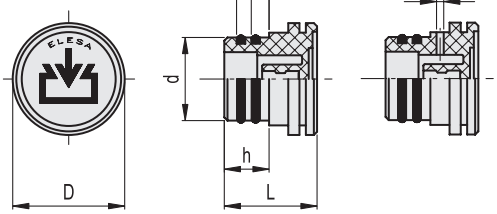
MAXIMUM CONTINUOUS WORKING TEMPERATURE
100°C.

GRAPHIC SYMBOL "FILL"
According to DIN regulations.



ELESA Original design

TPC. TPCF.



TPC.

Code	Description	d+0.2	h	D	L	h1	h2	⚖
59861	TPC.20	20	14	30	29	6.5	10.5	8
59881	TPC.26	26	14	35	29.5	6.5	10.5	15

TPCF.

Code	Description	d+0.2	h	D	L	h1	h2	⚖
59901	TPCF.20	20	14	30	29	6.5	10.5	8
59921	TPCF.26	26	14	35	29.5	6.5	10.5	15

TPC+a

Oil fill plugs

with flat dipstick for push-fit, technopolymer

MATERIAL
High-resilience polypropylene based (PP) technopolymer, black colour, matte finish.

PACKING RINGS
Two NBR synthetic rubber O-rings.

FLAT DIPSTICK
Flat section phosphatised steel.
On request and for sufficient quantities dipstick can be supplied in different lengths and/or complete with MAX-MIN level lines.

STANDARD EXECUTIONS
- **TPC+a**: without side hole.
- **TPCF+a**: with side breather hole.

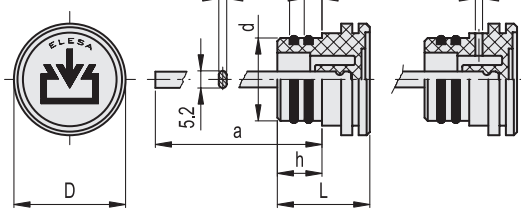
MAXIMUM CONTINUOUS WORKING TEMPERATURE
100°C.

GRAPHIC SYMBOL "FILL"
According to DIN regulations.



ELESA Original design

TPC+a TPCF+a



TPC+a

Code	Description	d+0.2	h	D	L	h1	h2	a	⚖
59865	TPC.20+a	20	14	30	29	6.5	10.5	188	27
59885	TPC.26+a	26	14	35	29.5	6.5	10.5	188	35

TPCF+a

Code	Description	d+0.2	h	D	L	h1	h2	a	⚖
59905	TPCF.20+a	20	14	30	29	6.5	10.5	188	27
59925	TPCF.26+a	26	14	35	29.5	6.5	10.5	188	35

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T.440

RoHS PA +100° -30°

Plugs

Technopolymer

MATERIAL
Polyamide based (PA) technopolymer, black colour, matte finish.

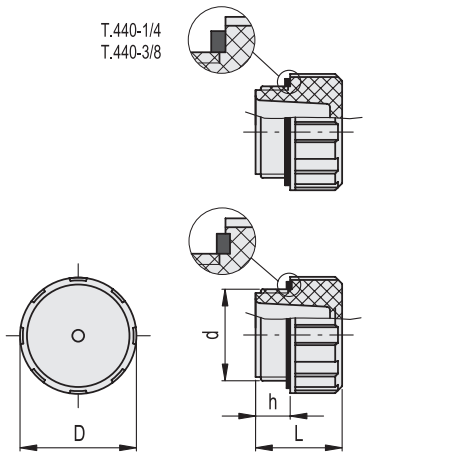
PACKING RING
NBR synthetic rubber.

MAXIMUM CONTINUOUS WORKING TEMPERATURE
100°C.

SPECIAL EXECUTIONS ON REQUEST
Words, marks and graphic symbols can be tampoprinted on the cap.



ELESA Original design



Code	Description	d	h	D	L	⚖
157111	T.440-1/4	G 1/4	9	20.5	19	10
157121	T.440-3/8	G 3/8	9	25	21	12
157131	T.440-1/2	G 1/2	11	28.5	25	14
157141	T.440-3/4	G 3/4	12	34.5	27	22
157151	T.440-1	G 1	13	42.5	28.5	28
157161	T.440-1¼	G1 1/4	13	52	32	52
157171	T.440-1½	G1 1/2	13	57.5	34	63

T.440+a

RoHS PA +100° -30°

Plugs

with flat dipstick, technopolymer

MATERIAL
Polyamide based (PA) technopolymer, black colour, matte finish.

PACKING RING
NBR synthetic rubber.

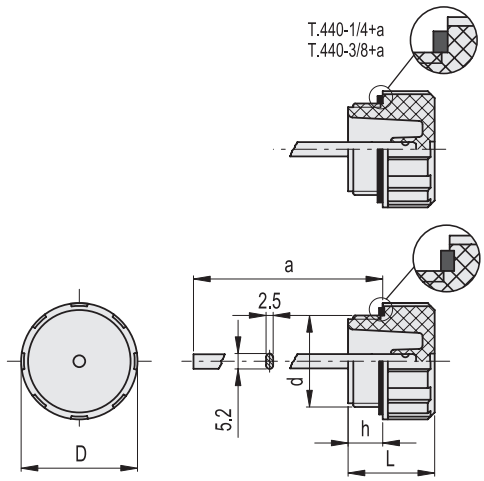
FLAT DIPSTICK
Flat section phosphatised steel.
On request and for sufficient quantities dipstick can be supplied in different lengths and/or complete with MAX-MIN level lines.

MAXIMUM CONTINUOUS WORKING TEMPERATURE
100°C.

SPECIAL EXECUTIONS ON REQUEST
Words, marks and graphic symbols can be tampoprinted on the cap.



ELESA Original design



Code	Description	d	h	D	L	a	⚖
157211	T.440-1/4+a	G 1/4	9	20.5	19	192	30
157221	T.440-3/8+a	G 3/8	9	25	21	192	32
157231	T.440-1/2+a	G 1/2	11	28.5	25	189	42
157241	T.440-3/4+a	G 3/4	12	34.5	27	188	50
157251	T.440-1+a	G 1	13	42.5	28.5	188	56
157261	T.440-1¼+a	G1 1/4	13	52	32	185	72
157271	T.440-1½+a	G1 1/2	13	57.5	34	185	83

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T.470

RoHS PA +100° -30°

Plugs

Technopolymer

MATERIAL
Polyamide based (PA) technopolymer, black colour, matte finish.

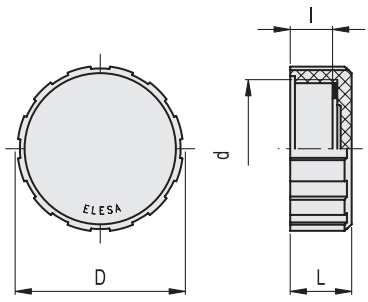
PACKING RING
NBR synthetic rubber.

MAXIMUM CONTINUOUS WORKING TEMPERATURE
100°C.

SPECIAL EXECUTIONS ON REQUEST
Words, marks and graphic symbols can be tampoprinted on the cap.



ELESA Original design



Code	Description	d	I	D	L	⚖
58231	T.470-60x2	M60x2	18	70	26	55
58251	T.470-1	G 1	11	42	16	17
58281	T.470-2	G 2	18	70	26	58

TCE.

RoHS PA +100° -30°

Plugs

with hexagon socket, technopolymer

MATERIAL
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.

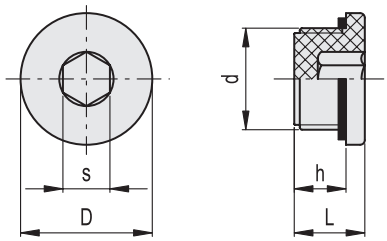
PACKING RING
NBR synthetic rubber.

MAXIMUM CONTINUOUS WORKING TEMPERATURE
100°C.

TECHNICAL DATA
The tightening torque indicated in the table guarantees an optimal tightness, keeping the packing ring in the correct position.



ELESA Original design



Code	Description	d	h	s	D	L	Tightening torque [Nm]	⚖
161033	TCE.1/4	G 1/4	9	6	20	12	3	4
161034	TCE.3/8	G 3/8	9	8	22	13	3÷5	5
161035	TCE.1/2	G 1/2	11	10	28	15	3÷4	8
161036	TCE.3/4	G 3/4	12	12	32	16.5	3÷5	14

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Threaded plugs

Steel, zinc plated

SPECIFICATION

Types

- Type **A**: Sealing ring rubber NBR (Perbunan)
- Type **B**: Sealing ring rubber FPM (Viton®)

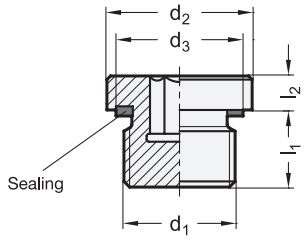
Steel

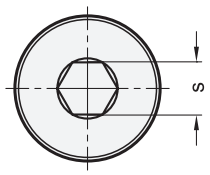
- Tensile strength class 5.8
- ultrasonically and tensile tested
- zinc plated, nano-passivated (silver / yellowish)

Type **A**
temperature resistant up to **100 °C**
Sealing ring rubber NBR (Perbunan)

Type **B**
temperature resistant up tp **180 °C**
Sealing ring rubber FPM (Viton®)
Identification by not black finish of the seal







INFORMATION

The dimensions of the threaded plugs GN 749 comply with DIN 908 (see page 1681), but deviating from the latter is the elastic sealing ring (rubber). This sealling ring is retained in a radial undercut in the mating face which prevents it from dropping out and in particular it does not extrude when the plug is tightened.
The details relating to the permissible operating pressure are non-binding recommended values and rule out any liability. They constitute no general warranty of quality and condition. The user must determine from case to case whether a product is suitable for the intended use.

*Complete with type index of the Threaded plugs

A	B
Perbunan	Viton

GN 749

Description	d1	d2 h14	d3	l1	l2	s	Max. permissible operating pressure in PB	Recommended tourque in Nm	⚖
GN 749-M8x1-*	M 8 x 1	12	9.9	8	4	4	400	8	5
GN 749-M10x1-*	M 10 x 1	14	11.9	8	4	5	400	12	7
GN 749-M12x1,5-*	M 12 x 1.5	17	14.4	12	5	6	400	25	14
GN 749-M14x1,5-*	M 14 x 1.5	19	16.5	12	5	6	400	30	19
GN 749-M16x1,5-*	M 16 x 1.5	22	18.9	12	5	8	400	50	24
GN 749-M18x1,5-*	M 18 x 1.5	24	20.9	12	5	8	400	60	31
GN 749-M20x1,5-*	M 20 x 1.5	26	22.9	14	5	10	400	70	41
GN 749-M22x1,5-*	M 22 x 1.5	27	24.3	14	5	10	400	80	49
GN 749-M24x1,5-*	M 24 x 1.5	30	26.9	14	5	12	400	95	56
GN 749-M26x1,5-*	M 26 x 1.5	32	29.2	16	5	12	400	120	75
GN 749-M27x2-*	M 27 x 2	32	29.2	16	5	12	400	120	80
GN 749-M30x1,5-*	M 30 x 1.5	37	32.7	16	6.5	17	400	190	103
GN 749-M33x2-*	M 33 x 2	40	35.7	16	6.5	17	400	225	126
GN 749-M42x2-*	M 42 x 2	50	45.8	16	6.5	22	315	360	201
GN 749-M48x2-*	M 48 x 2	55	50.7	16	6.5	24	315	400	254
GN 749-G1/8-*	G 1/8	14	11.9	8	4	5	400	12	7
GN 749-G1/4-*	G 1/4	19	16.5	12	5	6	400	30	17
GN 749-G3/8-*	G 3/8	22	18.9	12	5	8	400	50	26
GN 749-G1/2-*	G 1/2	27	23.9	14	5	10	400	80	44
GN 749-G3/4-*	G 3/4	32	29.2	16	5	12	400	120	70
GN 749-G1-*	G 1	40	35.7	16	6.5	17	400	225	125
GN 749-G11/4-*	G 1 1/4	50	45.8	16	6.5	22	315	360	195
GN 749-G11/2-*	G 1 1/2	55	50.7	16	6.5	24	315	400	240

Weight A

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DIN 908

Threaded plugs

Steel, zinc plated

SPECIFICATION

Types

- Type **A**: without gasket
- Type **AC**: with gasket in copper
- Type **AA**: with gasket in aluminium

Steel **ST**

- Tensile strength class 5.8
- ultrasonically and tensile tested
- zinc plated, nano-passivated

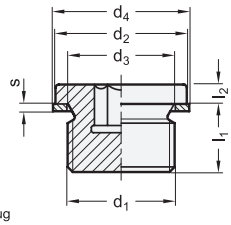
INFORMATION

The gaskets in types AC and AA correspond to the gaskets DIN 7603 (see page 1682), type A (flat gaskets).

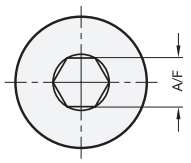
ON REQUEST

- Stainless Steel version (NI)





Screw-in plug
to DIN 3852-1
Type A



* Complete with type index of the Threaded plugs

A **AC** **AA**

DIN 908

Description	d1	d2 h14	d3	d4	l1 ±0.2	l2 +0.5	s	A/F	⚖
DIN 908-ST-M8x1-*	M 8 x 1	12	8.3	11.5	8	3	1	4	4
DIN 908-ST-M10x1-*	M 10 x 1	14	10.3	13.5	8	3	1	5	6
DIN 908-ST-M12x1,5-*	M 12 x 1.5	17	12.3	16	12	3	1.5	6	11
DIN 908-ST-M14x1,5-*	M 14 x 1.5	19	14.3	18	12	3	1.5	6	16
DIN 908-ST-M16x1,5-*	M 16 x 1.5	21	16.3	20	12	3	1.5	8	20
DIN 908-ST-M18x1,5-*	M 18 x 1.5	23	18.3	22	12	4	1.5	8	29
DIN 908-ST-M20x1,5-*	M 20 x 1.5	25	20.3	24	14	4	1.5	10	38
DIN 908-ST-M22x1,5-*	M 22 x 1.5	27	22.3	27	14	4	1.5	10	55
DIN 908-ST-M24x1,5-*	M 24 x 1.5	29	24.3	29	14	4	2	12	60
DIN 908-ST-M26x1,5-*	M 26 x 1.5	31	26.3	31	16	4	2	12	73
DIN 908-ST-M27x2-*	M 27 x 2	32	27.3	32	16	4	2	12	75
DIN 908-ST-M30x1,5-*	M 30 x 1.5	36	30.3	36	16	4	2	17	84
DIN 908-ST-M33x2-*	M 33 x 2	39	33.3	39	16	5	2	17	119
DIN 908-ST-M42x2-*	M 42 x 2	49	42.3	49	16	5	2	22	187
DIN 908-ST-M48x2-*	M 48 x 2	55	48.3	55	16	5	2	24	240
DIN 908-ST-G1/8-*	G 1/8	14	10	13.5	8	3	1	5	6
DIN 908-ST-G1/4-*	G 1/4	18	13.4	18	12	3	1.5	6	14
DIN 908-ST-G3/8-*	G 3/8	22	17	21	12	3	1.5	8	22
DIN 908-ST-G1/2-*	G 1/2	26	21.3	26	14	4	1.5	10	41
DIN 908-ST-G3/4-*	G 3/4	32	26.7	32	16	4	2	12	53
DIN 908-ST-G1-*	G 1	39	33.5	39	16	5	2	17	119
DIN 908-ST-G11/4-*	G 1 1/4	49	42.2	49	16	5	2	22	185
DIN 908-ST-G11/2-*	G 1 1/2	55	48.1	55	16	5	2	24	237

Weight A

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Gaskets

Metal, for threaded plugs DIN 908

SPECIFICATION

Type
- Type **A**: Flat gasket

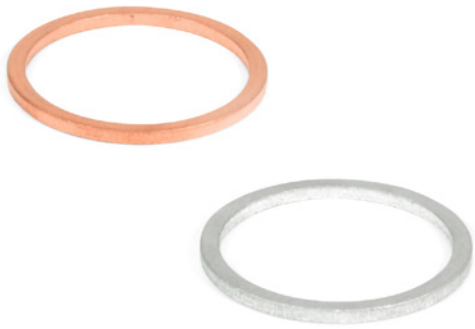
Copper **CU**
Aluminium **AL**

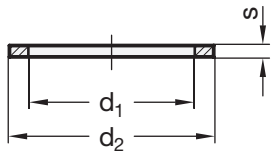
INFORMATION

The gaskets listed in this standard sheet are only an extract of DIN 7603.
They are used in connection with threaded plugs DIN 908 (see page 1681).

ON REQUEST

- other sizes
- other materials
- other types





*Complete with type index of the Gaskets

CU Copper
AL Aluminium

DIN 7603

Description	d1	d1 +0.3	d2	d2 -0.2	s ±0.2	Suitable for DIN 908	⚖
DIN 7603-*-8-11,5-A	8	8.2	11.5	11.4	1	M 8 x 1	1
DIN 7603-*-10-13,5-A	10	10.2	13.5	13.4	1	M 10 x 1	1
DIN 7603-*-12-16-A	12	12.2	16	15.9	1.5	M 12 x 1.5	1
DIN 7603-*-14-18-A	14	14.2	18	17.9	1.5	M 14 x 1.5	1
DIN 7603-*-16-20-A	16	16.2	20	19.9	1.5	M 16 x 1.5	1
DIN 7603-*-18-22-A	18	18.2	22	21.9	1.5	M 18 x 1.5	1
DIN 7603-*-20-24-A	20	20.2	24	23.9	1.5	M 20 x 1.5	1
DIN 7603-*-22-27-A	22	22.2	27	26.9	1.5	M 22 x 1.5	1
DIN 7603-*-24-29-A	24	24.3	29	28.9	2	M 24 x 1.5	1
DIN 7603-*-26-31-A	26	26.3	31	30.9	2	M 26 x 1.5	1
DIN 7603-*-27-32-A	27	27.3	32	31.9	2	M 27 x 2	1
DIN 7603-*-30-36-A	30	30.3	36	35.9	2	M 30 x 1.5	1
DIN 7603-*-33-39-A	33	33.3	39	38.9	2	M 33 x 2	2
DIN 7603-*-42-49-A	42	42.3	49	48.9	2	M 42 x 2	2
DIN 7603-*-48-55-A	48	48.3	55	54.9	2	M 48 x 2	3
DIN 7603-*-10-13,5-A	10	10.2	13.5	13.4	1	G 1/8	1
DIN 7603-*-14-18-A	14	14.2	18	17.9	1.5	G 1/4	1
DIN 7603-*-17-21-A	17	17.2	21	20.9	1.5	G 3/8	1
DIN 7603-*-21-26-A	21	21.2	26	25.9	1.5	G 1/2	1
DIN 7603-*-27-32-A	27	27.3	32	31.9	2	G 3/4	1
DIN 7603-*-33-39-A	33	33.3	39	38.9	2	G 1	2
DIN 7603-*-42-49-A	42	42.3	49	48.9	2	G 1 1/4	2
DIN 7603-*-48-55-A	48	48.3	55	54.9	2	G 1 1/2	3

Weight AL

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GN 7490

RoHS

Welding sockets

with and without collar



SPECIFICATION

Types

- Type **A**: with chamfer
- Type **B**: with collar

Steel **ST**

- weldable
- turned
- blank

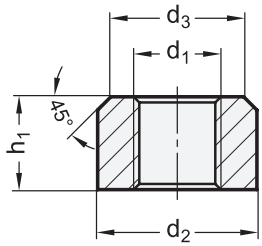
INFORMATION

Welding sockets GN 7490 are used in container construction or in hydraulics for mounting instruments such as oil level sight glasses or locking caps.
The plane surfaces are machined, with the effect that they can be used as sealing surface in connection with a sealing element or compound.
The favourably dimensioned wall thickness prevents deformation or burn-through during welding.
Type B is used if exact positioning through the mounting bore or a low construction height is required.

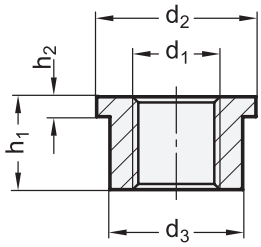
ON REQUEST

- Stainless Steel-Welding sockets
- metric threads

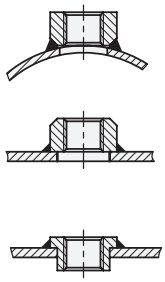
Type **A**



Type **B**



Examples of application



*Complete with type index of the Welding sockets

A	B
with chamfer	with collar

GN 7490

Description	d1	d2	d3	h1	h2	⚖
GN 7490-ST-G1/8-*	G 1/8	20	16	10	3	18
GN 7490-ST-G1/4-*	G 1/4	24	20	14	3	35
GN 7490-ST-G3/8-*	G 3/8	28	22	14	4.5	42
GN 7490-ST-G1/2-*	G 1/2	32	26	16	4.5	57
GN 7490-ST-G3/4-*	G 3/4	40	32	18	6	97
GN 7490-ST-G1-*	G 1	50	40	20	7.5	165
GN 7490-ST-G11/4-*	G 1 1/4	60	50	22	7.5	244
GN 7490-ST-G11/2-*	G 1 1/2	65	55	24	7.5	282

Weight A

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Threaded plugs

Steel / Stainless Steel, with conical thread

SPECIFICATION

Types

- Type **A**: without micro encapsulation
- Type **GPC**: with micro encapsulation

Version in Steel ST

- ultrasonically and tensile tested
- zinc plated, blue passivated

Version in Stainless Steel AISI 303 NI

Thread coating GPC

Precote 5 (see page A25)

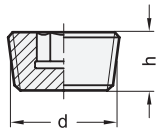


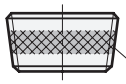
INFORMATION

Threaded plugs DIN 906 are used to close bore holes with cylindrical internal thread.
The tightness depends on the medium, pressure, temperature and material pairing. The design with GPC thread coating provides a higher degree of safety.
The official DIN 906 standard sheet also provides for thread sizes M33x2; M38x1.5; M39x2; M52x1.5; M52x2; M56x2 and M60x2.

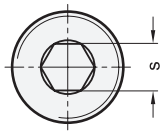
TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)





Pressure tightness with thread coating **GPC** (Precote 5)



*Complete with type index of the Threaded plugs

A without mirco encapsulation

GPC with micro encapsulation

DIN 906

Description	d	h	s	⚖
DIN 906-ST-M8x1-*	M 8 x 1	8	4	2
DIN 906-ST-M10x1-*	M 10 x 1	8	5	3
DIN 906-ST-M12x1,5-*	M 12 x 1.5	10	6	6
DIN 906-ST-M14x1,5-*	M 14 x 1.5	10	7	8
DIN 906-ST-M16x1,5-*	M 16 x 1.5	10	8	10
DIN 906-ST-M18x1,5-*	M 18 x 1.5	10	8	14
DIN 906-ST-M20x1,5-*	M 20 x 1.5	10	10	17
DIN 906-ST-M22x1,5-*	M 22 x 1.5	10	10	22
DIN 906-ST-M24x1,5-*	M 24 x 1.5	12	12	30
DIN 906-ST-M26x1,5-*	M 26 x 1.5	12	12	37
DIN 906-ST-M30x1,5-*	M 30 x 1.5	12	17	45
DIN 906-ST-M36x1,5-*	M 36 x 1.5	15	19	86
DIN 906-ST-M42x1,5-*	M 42 x 1.5	18	22	142
DIN 906-ST-M45x1,5-*	M 45 x 1.5	18	22	163
DIN 906-ST-M48x1,5-*	M 48 x 1.5	20	24	210
DIN 906-ST-R1/8-*	R 1/8	8	5	3
DIN 906-ST-R1/4-*	R 1/4	10	7	7
DIN 906-ST-R3/8-*	R 3/8	10	8	12
DIN 906-ST-R1/2-*	R 1/2	10	10	19
DIN 906-ST-R3/4-*	R 3/4	12	12	37
DIN 906-ST-R1-*	R 1	12	17	57
DIN 906-ST-R11/4-*	R 1 1/4	18	22	133
DIN 906-ST-R11/2-*	R 1 1/2	20	24	200

Weight A

*Complete with type index of the Threaded plugs

A without mirco encapsulation

GPC with micro encapsulation

DIN 906-NI

STAINLESS STEEL

Description	d	h	s	⚖
DIN 906-NI-M8x1-*	M 8 x 1	8	4	2
DIN 906-NI-M10x1-*	M 10 x 1	8	5	4
DIN 906-NI-M12x1,5-*	M 12 x 1.5	10	6	6
DIN 906-NI-M14x1,5-*	M 14 x 1.5	10	7	9
DIN 906-NI-M16x1,5-*	M 16 x 1.5	10	8	11
DIN 906-NI-M18x1,5-*	M 18 x 1.5	10	8	15
DIN 906-NI-M20x1,5-*	M 20 x 1.5	10	10	19
DIN 906-NI-M22x1,5-*	M 22 x 1.5	10	10	23
DIN 906-NI-M24x1,5-*	M 24 x 1.5	12	12	33
DIN 906-NI-R1/8-*	R 1/8	8	5	3
DIN 906-NI-R1/4-*	R 1/4	10	7	7
DIN 906-NI-R3/8-*	R 3/8	10	8	12
DIN 906-NI-R1/2-*	R 1/2	10	10	18
DIN 906-NI-R3/4-*	R 3/4	12	12	39
DIN 906-NI-R1-*	R 1	12	17	63

Weight A

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GN 252

Blanking plugs

SPECIFICATION

Types

- Type **A**: without thread coating
- Type **PRB**: with thread coating (polyamide allround coating)

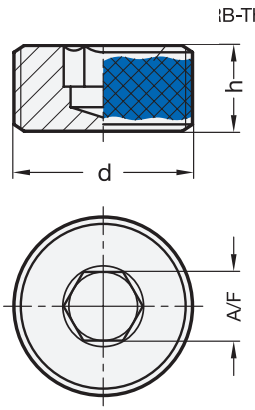
Steel

- Tensile strength class 5.8
- blackened

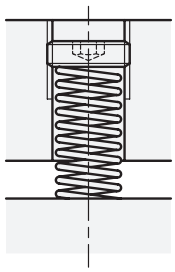
INFORMATION

The thread locking PRB (polyamide allround coating) is a clamping lock which prevents the locking screw from being inadvertently being loosened and becoming detached.





Example for application



GN 252

Description	d	h	A/F	⚖
GN 252-M12x1,5-A	M 12 x 1.5	10	6	6
GN 252-M16x1,5-A	M 16 x 1.5	10	8	14
GN 252-M20x1,5-A	M 20 x 1.5	12	10	20
GN 252-M24x1,5-A	M 24 x 1.5	12	14	24
GN 252-M27x1,5-A	M 27 x 1.5	12	14	36
GN 252-M30x1,5-A	M 30 x 1.5	12	17	44
GN 252-M33x1,5-A	M 33 x 1.5	12	17	56
GN 252-M12x1,5-PRB	M 12 x 1.5	10	6	6
GN 252-M16x1,5-PRB	M 16 x 1.5	10	8	10
GN 252-M20x1,5-PRB	M 20 x 1.5	12	10	20
GN 252-M24x1,5-PRB	M 24 x 1.5	12	14	24
GN 252-M27x1,5-PRB	M 27 x 1.5	12	14	36
GN 252-M30x1,5-PRB	M 30 x 1.5	12	17	44
GN 252-M33x1,5-PRB	M 33 x 1.5	12	17	56

GN 252.5

Stainless Steel-Blanking plugs

SPECIFICATION

Types

- Type **A**: without thread coating
- Type **PRB**: with thread coating (polyamide allround coating)

Stainless Steel AISI 303

INFORMATION

The thread locking PRB (polyamide allround coating) is a clamping lock which prevents the locking screw from being inadvertently being loosened and becoming detached.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)

GN 252.5 **STAINLESS STEEL**

Description	d	h	A/F	⚖
GN 252.5-M12x1,5-A	M12x1.5	10	6	5
GN 252.5-M16x1,5-A	M16x1.5	10	8	10
GN 252.5-M20x1,5-A	M20x1.5	12	10	20
GN 252.5-M24x1,5-A	M24x1.5	12	14	26
GN 252.5-M27x1,5-A	M27x1.5	12	14	26
GN 252.5-M12x1,5-PRB	M12x1.5	10	6	6
GN 252.5-M16x1,5-PRB	M16x1.5	10	8	10
GN 252.5-M20x1,5-PRB	M20x1.5	12	10	26
GN 252.5-M24x1,5-PRB	M24x1.5	12	14	30
GN 252.5-M27x1,5-PRB	M27x1.5	12	14	36

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Threaded plugs

Resistant up to 100 °C, Aluminium

SPECIFICATION

Identification no.

- No. **1**: without vent hole
- No. **2**: with vent hole

Aluminium

plastic coated
black, RAL 9005, matte finish **SW**

blank **BL**
tumbled

temperature resistant up to **100 °C**
Sealing ring rubber NBR (Perbunan)



INFORMATION

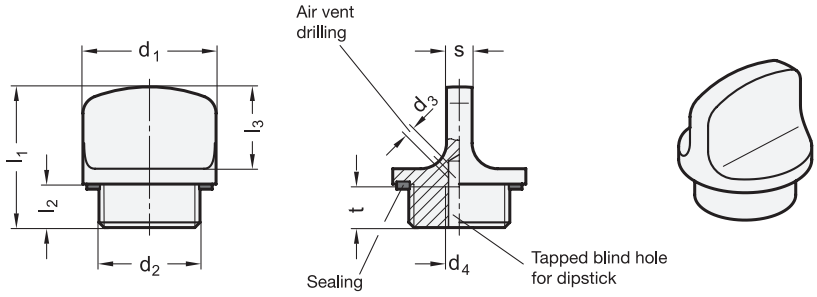
Threaded plugs GN 441 with the external diameter d1 match the screw-in holes for DIN 3852 pipe bolt connections.
The sealing ring is embedded in a radial recess on the plane side, which makes the sealing ring captive and cannot be squeezed out during tightening. The sealing is also relatively soft, enhancing the sealing effect also on uneven surfaces.

ON REQUEST

- Threaded plugs with dipstick

TECHNICAL INFORMATION

- Elastomer characteristics (see page A32)



*Complete with colour index of the Threaded plugs

SW RAL9005 BL blank

GN 441

Description	d1	d2	d3	d4	l1 ±0.5	l2	l3	s	t min.	⚖
GN 441-22-M16x1,5-1-*	22	M 16 x 1.5	-	M 5	26	8	15	5	8	12
GN 441-22-M16x1,5-2-*	22	M 16 x 1.5	2	M 5	26	8	15	5	8	12
GN 441-26-M20x1,5-1-*	26	M 20 x 1.5	-	M 5	27.5	8.5	16	5	8	17
GN 441-26-M20x1,5-2-*	26	M 20 x 1.5	2	M 5	27.5	8.5	16	5	8	17
GN 441-32-M26x1,5-1-*	32	M 26 x 1.5	-	M 5	29	9	17	6	8	27
GN 441-32-M26x1,5-2-*	32	M 26 x 1.5	2	M 5	29	9	17	6	8	27
GN 441-22-G3/8-1-*	22	G 3/8	-	M 5	26	8	15	5	8	12
GN 441-22-G3/8-2-*	22	G 3/8	2	M 5	26	8	15	5	8	12
GN 441-26-G1/2-1-*	26	G 1/2	-	M 5	27.5	8.5	16	5	8	17
GN 441-26-G1/2-2-*	26	G 1/2	2	M 5	27.5	8.5	16	5	8	17
GN 441-32-G3/4-1-*	32	G 3/4	-	M 5	29	9	17	6	8	27
GN 441-32-G3/4-2-*	32	G 3/4	2	M 5	29	9	17	6	8	27
GN 441-40-G1-1-*	40	G 1	-	M 5	32.5	11	18	7	8	48
GN 441-40-G1-2-*	40	G 1	2	M 5	32.5	11	18	7	8	48

Weight colour SW

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GN 442

Threaded plugs

Resistant up to 200 °C, Aluminium

SPECIFICATION

Identification no.

- No. **1**: without vent hole
- No. **2**: with vent hole

Aluminium

plastic coated
black, RAL 9005, matte finish **SW**

blank **BL**
tumbled

temperature resistant up to **200 °C**
Sealing ring rubber FPM (Viton®)

Identification by not black finish of the seal



INFORMATION

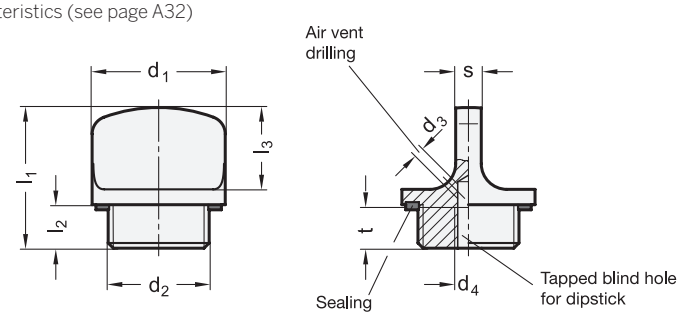
Threaded plugs GN 442 with the external diameter d1 match the screw-in holes for DIN 3852 pipe bolt connections.
The sealing ring is embedded in a radial recess on the plane side, which makes the sealing ring captive and cannot be squeezed out during tightening. The sealing is also relatively soft, enhancing the sealing effect also on uneven surfaces.

ON REQUEST

- Threaded plugs with dipstick

TECHNICAL INFORMATION

- Elastomer characteristics (see page A32)



*Complete with colour index of the Threaded plugs

SW RAL9005 BL blank

GN 442

Description	d1	d2	d3	d4	l1 ±0.5	l2	l3	s	t min.	⚖
GN 442-22-M16x1,5-1-*	22	M 16 x 1.5	-	M 5	26	8	15	5	8	12
GN 442-22-M16x1,5-2-*	22	M 16 x 1.5	2	M 5	26	8	15	5	8	12
GN 442-26-M20x1,5-1-*	26	M 20 x 1.5	-	M 5	27.5	8.5	16	5	8	17
GN 442-26-M20x1,5-2-*	26	M 20 x 1.5	2	M 5	27.5	8.5	16	5	8	17
GN 442-32-M26x1,5-1-*	32	M 26 x 1.5	-	M 5	29	9	17	6	8	27
GN 442-32-M26x1,5-2-*	32	M 26 x 1.5	2	M 5	29	9	17	6	8	27
GN 442-22-G3/8-1-*	22	G 3/8	-	M 5	26	8	15	5	8	12
GN 442-22-G3/8-2-*	22	G 3/8	2	M 5	26	8	15	5	8	12
GN 442-26-G1/2-1-*	26	G 1/2	-	M 5	27.5	8.5	16	5	8	17
GN 442-26-G1/2-2-*	26	G 1/2	2	M 5	27.5	8.5	16	5	8	17
GN 442-32-G3/4-1-*	32	G 3/4	-	M 5	29	9	17	6	8	27
GN 442-32-G3/4-2-*	32	G 3/4	2	M 5	29	9	17	6	8	27
GN 442-40-G1-1-*	40	G 1	-	M 5	32.5	11	18	7	8	48
GN 442-40-G1-2-*	40	G 1	2	M 5	32.5	11	18	7	8	48

Weight colour SW

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Oil drain valves

SPECIFICATION

Type
- Type **K**: with plastic protective cap and retaining cable

Valve body
- Steel **ST** zinc plated, blue passivated
- Brass **MS**

Valve plate
- Brass
- O-ring rubber FPM (Viton®)

Sealing disc DIN 7603 A
Copper

Protective cap
Plastic (Polyamide PA)

Retaining cable
Stainless Steel



INFORMATION

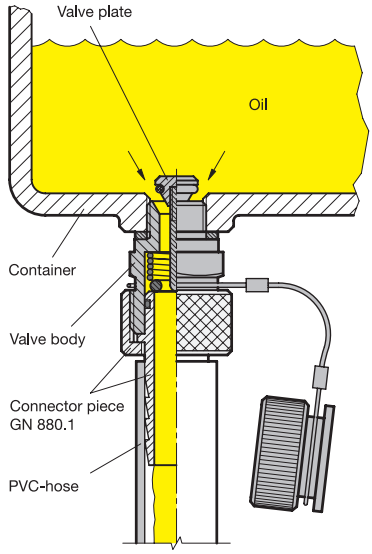
Oil drain valves GN 880 may be used for draining non-pressurised oil. As well conditionally as for vacuum drainage.
The flow volume (l/min.) depends on the viscosity of the medium, the filling quantity and the temperature. Guidance values available on request.
Other features are:
- easy and safe handling
- optimum flow rate
- high pressure resistance (up to 100 bar)
- high temperature resistance (-30 °C to +120 °C, short period up to 180 °C)
- 100 % leak-tight tested

TECHNICAL INFORMATION
- Elastomer characteristics (see page A32)

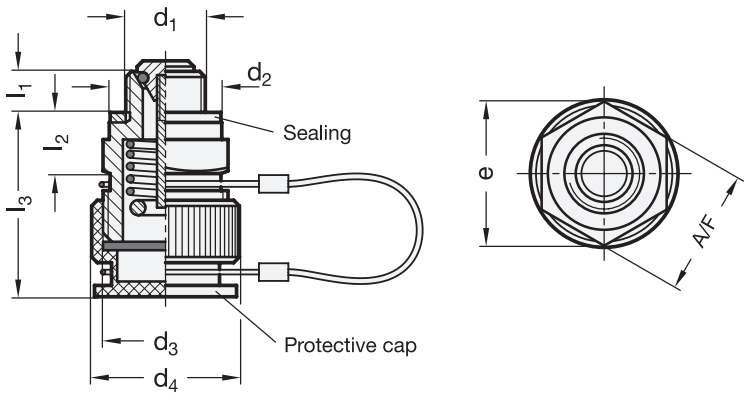
ON REQUEST
- other materials

OPERATION DESCRIPTION

After removing the protective cap secured against loss with a retaining cable, turn in the matching connector pieces GN 880.1 (see page 1690).
When the connector is screwed in, the valve plate will open and the oil will empty through the hose into a pan.
Take off the connector after the oil has drained. The valve plate will be lowered and closes off the drainage outlet.
The container with the oil drain vale is ready for filling again.
Other benefits of the oil drain valves GN 880:
- No risk of burns caused by hot oil
- No dirt caused by uncontrolled oil drainage
- Quick and easy



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GN 880

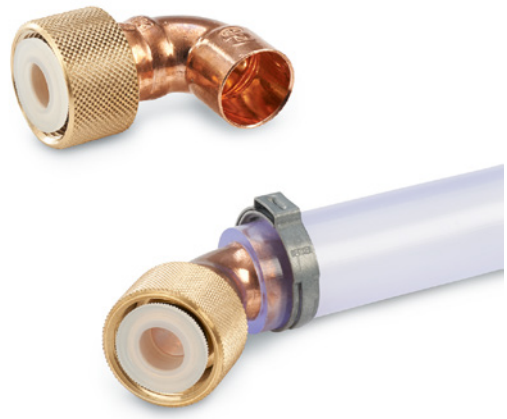
Description	d1	d2	d3	d4	e ≈	l1	l2	l3	A/F	⚖
GN 880-M14x1,5-ST-K	M 14 x 1.5	20	M22x1.5	26	25.4	7.5	10.5	31	22	54
GN 880-M16x1,5-ST-K	M 16 x 1.5	22	M22x1.5	26	25.4	7.5	10.5	31	22	58
GN 880-M18x1,5-ST-K	M 18 x 1.5	24	M22x1.5	26	25.4	8.5	10.5	31	22	62
GN 880-M20x1,5-ST-K	M 20 x 1.5	26	M22x1.5	26	31.2	8.5	10.5	31	27	81
GN 880-M22x1,5-ST-K	M 22 x 1.5	27	M26x1.5	30	31.2	8.5	12	32	27	94
GN 880-M24x1,5-MS-K	M 24 x 1.5	29	M26x1.5	30	34.7	9	12	32	30	116
GN 880-M26x1,5-MS-K	M 26 x 1.5	32	M26x1.5	30	37	9	12	32	32	132
GN 880-M30x1,5-MS-K	M 30 x 1.5	36	M26x1.5	30	41.6	9	12	32	36	166
GN 880-G1/4-ST-K	G 1/4	20	M22x1.5	26	25.4	7.5	10.5	31	22	55
GN 880-G3/8-ST-K	G 3/8	23	M22x1.5	26	25.4	7.5	10.5	31	22	61
GN 880-G1/2-ST-K	G 1/2	26	M26x1.5	30	31.2	8.5	12	32	27	81
GN 880-G3/4-MS-K	G 3/4	32	M26x1.5	30	37	9	12	32	32	153
GN 880-G1-MS-K	G 1	39	M26x1.5	30	47.3	9	12	32	41	205

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RoHS

Connector pieces

for oil drain valves GN 880 / with or without drain hose



SPECIFICATION

Types

- Type **A**: Connector straight
- Type **B**: Connector 45°
- Type **C**: Connector 90°

Connecting nut
with hose liner
Brass

L bend 45° / 90 °
Copper

O-Ring
Rubber NBR (Perbunan)

Drain hose
PVC, transparent **T**

Hose clip
Steel, zinc plated

Plug
Plastic, LD-PE

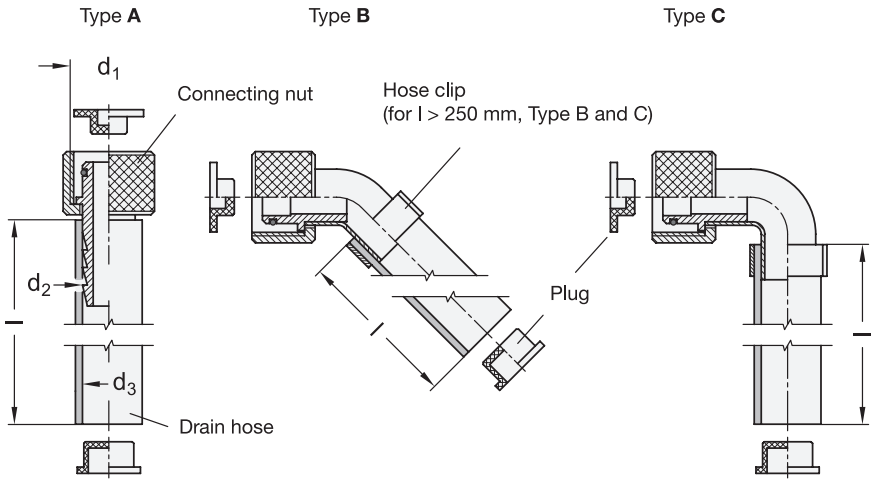
INFORMATION

Connector pieces GN 880.1 are needed when using oil drain valves GN 880 (see page 1688).
Screwing on the connector piece will activate the valve plate of the oil drain valve, allowing the oil to flow through the hose into a pan held ready.
The plug prevents remaining oil from dripping out after discharging.

ON REQUEST

- other hose length
- Drain hose with inside webbing (Nylon)

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GN 880.1

Description	Size	d1	l	d2	d3	⚖
GN 880.1-22-A	22	M 22 x 1.5	-	15	-	58
GN 880.1-26-A	26	M 26 x 1.5	-	20	-	88
GN 880.1-22-B	22	M 22 x 1.5	-	15	-	58
GN 880.1-26-B	26	M 26 x 1.5	-	20	-	86
GN 880.1-22-C	22	M 22 x 1.5	-	15	-	61
GN 880.1-26-C	26	M 26 x 1.5	-	20	-	89
GN 880.1-22-A-250-T	22	M 22 x 1.5	250	15	14	97
GN 880.1-22-A-500-T	22	M 22 x 1.5	500	15	14	129
GN 880.1-22-A-1000-T	22	M 22 x 1.5	1000	15	14	220
GN 880.1-26-A-250-T	26	M 26 x 1.5	250	20	19	162
GN 880.1-26-A-500-T	26	M 26 x 1.5	500	20	19	237
GN 880.1-26-A-1000-T	26	M 26 x 1.5	1000	20	19	387
GN 880.1-22-B-250-T	22	M 22 x 1.5	250	15	14	93
GN 880.1-22-B-500-T	22	M 22 x 1.5	500	15	14	140
GN 880.1-22-B-1000-T	22	M 22 x 1.5	1000	15	14	223
GN 880.1-26-B-250-T	26	M 26 x 1.5	250	20	19	152
GN 880.1-26-B-500-T	26	M 26 x 1.5	500	20	19	234
GN 880.1-26-B-1000-T	26	M 26 x 1.5	1000	20	19	386
GN 880.1-22-C-250-T	22	M 22 x 1.5	250	15	14	97
GN 880.1-22-C-500-T	22	M 22 x 1.5	500	15	14	140
GN 880.1-22-C-1000-T	22	M 22 x 1.5	1000	15	14	219
GN 880.1-26-C-250-T	26	M 26 x 1.5	250	20	19	153
GN 880.1-26-C-500-T	26	M 26 x 1.5	500	20	19	232
GN 880.1-26-C-1000-T	26	M 26 x 1.5	1000	20	19	389

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Breather valves

Brass

SPECIFICATION

Valve body
Brass **MS**

Breather cap
Stainless Steel AISI 304 **M**

Gasket
Brass
with silicone-rubber coating (VMQ)

Spring
Stainless Steel AISI 301

Sealing DIN 7603 A
Soft iron 1.0338

temperature resistant from -30 °C to +100 °C

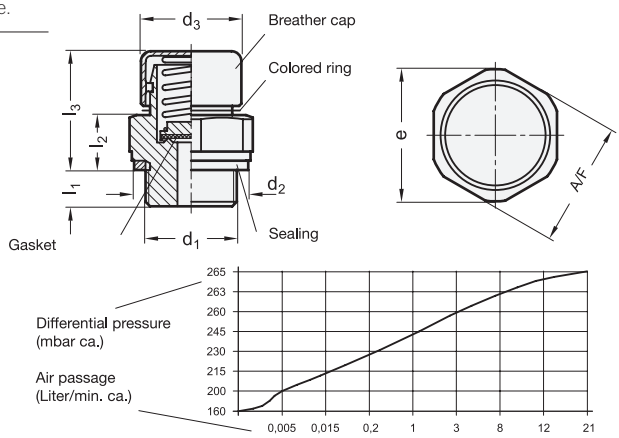


INFORMATION

Once the opening pressure given in the table is exceeded, breather valves GN 881 with gasket will vent into a container and so protect against excessive inside container pressure. A green colour ring marks the opening pressure of 200 mbar.
In its normal state, the gasket closes the container and so prevents dirt or dust getting inside the container.
The above diagram shows the air outlet as a factor of the opening pressure.
The installation position is vertical to the top.
The valves are checked for leak tightness and opening pressure.

ON REQUEST

- other materials
- with other opening pressure 50 mbar (yellow ring)
- with dipstick



GN 881

Description	d1	Opening pressure in mbar ±20%	d2	d3	e ≈	l1	l2	l3	A/F	⚖
GN 881-M12x1,5-200-MS-M	M 12 x 1.5	200	18	20	23.5	8.5	11.5	24.5	22	39
GN 881-M14x1,5-200-MS-M	M 14 x 1.5	200	20	20	23.5	8.5	11.5	24.5	22	44
GN 881-M16x1,5-200-MS-M	M 16 x 1.5	200	22	20	23.5	8.5	11.5	24.5	22	49
GN 881-M18x1,5-200-MS-M	M 18 x 1.5	200	24	20	23.5	8.5	11.5	24.5	22	52
GN 881-M20x1,5-200-MS-M	M 20 x 1.5	200	26	20	29	8.5	11.5	24.5	27	74
GN 881-M22x1,5-200-MS-M	M 22 x 1.5	200	27	22	29	8.5	11.5	24.5	27	79
GN 881-M24x1,5-200-MS-M	M 24 x 1.5	200	29	20	32.5	8	12	25	30	96
GN 881-M26x1,5-200-MS-M	M 26 x 1.5	200	32	20	34	8	12	25	32	112
GN 881-M30x1,5-200-MS-M	M 30 x 1.5	200	36	20	39	8	12	25	36	148
GN 881-G1/4-200-MS-M	G 1/4	200	20	20	23.5	8.5	11.5	24.5	22	42
GN 881-G3/8-200-MS-M	G 3/8	200	23	20	23.5	8.5	11.5	24.5	22	51
GN 881-G1/2-200-MS-M	G 1/2	200	26	20	29	8.5	11.5	24.5	27	76
GN 881-G3/4-200-MS-M	G 3/4	200	32	20	34	8	12	25	32	113
GN 881-G1-200-MS-M	G 1	200	39	20	44	8	12	25	41	186

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GN 882

Breather filters

Brass

SPECIFICATION

Valve body
Brass **MS**

Breather cap
Stainless Steel AISI 304 **M**

Air filter

- Stainless Steel-Wire mesh AISI 304
- Filter category G2-G3
- Mean separation rate (Am approx. 65 - 85 %, based on a particle size > 10 µm)

Sealing DIN 7603 A
Soft iron 1.0338

temperature resistant from -30 °C to +100 °C

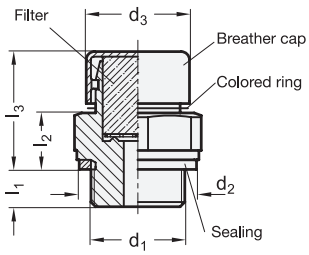


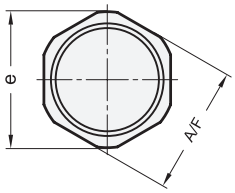
INFORMATION

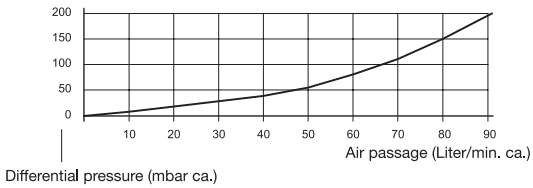
Breather filters GN 882 are used when the air exchange is to be allowed between the inside of the container and the ambient air. The filter function is marked by a blue colour ring.
The filter prevents air-borne particles (e.g. dust) from being carried from the outside to the inside of the container. It also ensures that e.g. oil particles do not escape to the outside.
The above diagram shows the air passage as a factor of the differential pressure.
The recommended installation position is vertical to the top.

ON REQUEST

- other materials
- with dipstick







GN 882

Description	d1	d2	d3	e	l1	l2	l3	A/F	⚖
GN 882-M12x1,5-MS-M	M 12 x 1.5	18	20	23.5	8.5	11.5	24.5	22	40
GN 882-M14x1,5-MS-M	M 14 x 1.5	20	20	23.5	8.5	11.5	24.5	22	44
GN 882-M16x1,5-MS-M	M 16 x 1.5	22	20	23.5	8.5	11.5	24.5	22	49
GN 882-M18x1,5-MS-M	M 18 x 1.5	24	20	23.5	8.5	11.5	24.5	22	53
GN 882-M20x1,5-MS-M	M 20 x 1.5	26	20	29	8.5	11.5	24.5	27	75
GN 882-M22x1,5-MS-M	M 22 x 1.5	27	20	29	8.5	11.5	24.5	27	79
GN 882-M24x1,5-MS-M	M 24 x 1.5	29	20	32.5	8	12	25	30	97
GN 882-M26x1,5-MS-M	M 26 x 1.5	32	20	34	8	12	25	32	113
GN 882-M30x1,5-MS-M	M 30 x 1.5	36	20	39	8	12	25	36	148
GN 882-G1/4-MS-M	G 1/4	20	20	23.5	7.5	10.5	24.5	22	42
GN 882-G3/8-MS-M	G 3/8	22	20	23.5	8.5	11.5	24.5	22	49
GN 882-G1/2-MS-M	G 1/2	26	20	29	8	12	25	27	75
GN 882-G3/4-MS-M	G 3/4	32	20	34	8	12	25	32	113
GN 882-G1-MS-M	G 1	39	20	44	8	12	25	41	186

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Breather valves

Brass



SPECIFICATION

Types

- Type **A**: low design
- Type **B**: high design with Stainless Steel cap

Valve body
Brass **MS**

Ball
Stainless Steel AISI 5210

Spring
Stainless Steel AISI 301

Sealing DIN 7603 A
Soft iron 1.0338
(for d_1 = M10 x 1:PA6)

Breather cap (Type B)
Stainless Steel AISI 304

temperature resistant from -30 °C to +100 °C

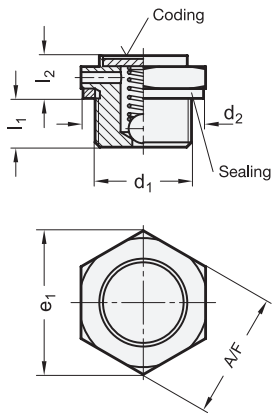
INFORMATION

Once the opening pressure given in the table is exceeded, breather valves GN 883 will vent into a container and so protect against excessive inside container pressure. They also feature highly compact dimensions.
A coding (Type A) or a colour ring (Type B) in yellow (20 - 80 mbar) or green (160 - 240 mbar) indicates the different opening pressure ratings.
The simple function principle (pressure spring / ball) ensures long and trouble-free use of the valve. The installation position is vertical to the top.

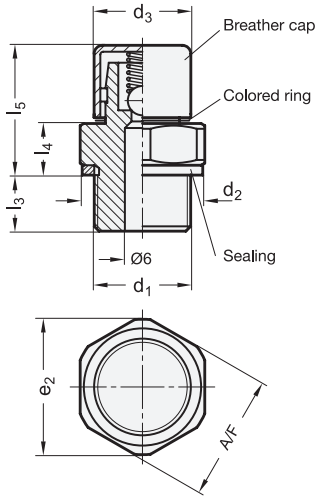
TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)

Type **A**



Type **B**



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GN 883

Description	d1	Opening pressure in mbar min.	Opening pressure in mbar max.	d2	d3	e1	e2	l1	l2	l3	l4	l5	A/F	Ca. air passage l/min.	⚖
GN 883-M10x1-20-A-MS	M 10 x 1	20	80	14.5	-	16	-	6	6	-	-	-	14	1.2	8
GN 883-M10x1-160-A-MS	M 10 x 1	160	240	14.5	-	16	-	6	6	-	-	-	14	1.2	8
GN 883-M12x1,5-20-A-MS	M 12 x 1.5	20	80	18	-	19.5	-	6.5	6	-	-	-	17	1.2	14
GN 883-M12x1,5-160-A-MS	M 12 x 1.5	160	240	18	-	19.5	-	6.5	6	-	-	-	17	1.2	14
GN 883-M14x1,5-20-A-MS	M 14 x 1.5	20	80	20	-	19.5	-	6.5	6	-	-	-	17	1.2	16
GN 883-M14x1,5-160-A-MS	M 14 x 1.5	160	240	20	-	19.5	-	6.5	6	-	-	-	17	1.2	17
GN 883-M16x1,5-20-A-MS	M 16 x 1.5	20	80	22	-	25	-	9	11	-	-	-	22	1.2	35
GN 883-M16x1,5-160-A-MS	M 16 x 1.5	160	240	22	-	25	-	9	11	-	-	-	22	1.2	36
GN 883-M10x1-20-B-MS	M 10 x 1	20	80	-	12.5	-	18.5	-	-	8	7	16	17	1.8	19
GN 883-M10x1-160-B-MS	M 10 x 1	160	240	-	12.5	-	18.5	-	-	8	7	16	17	1.8	19
GN 883-M12x1,5-20-B-MS	M 12 x 1.5	20	80	-	12.5	-	18.5	-	-	7.5	7	16.5	17	1.8	22
GN 883-M12x1,5-160-B-MS	M 12 x 1.5	160	240	-	12.5	-	18.5	-	-	7.5	7	16.5	17	1.8	22
GN 883-M14x1,5-20-B-MS	M 14 x 1.5	20	80	-	12.5	-	18.5	-	-	7.5	7.5	16.5	17	1.8	25
GN 883-M14x1,5-160-B-MS	M 14 x 1.5	160	240	-	12.5	-	18.5	-	-	7.5	7.5	16.5	17	1.8	25
GN 883-M16x1,5-20-B-MS	M 16 x 1.5	20	80	-	12.5	-	24	-	-	7.5	7.5	16.5	22	1.8	36
GN 883-M16x1,5-160-B-MS	M 16 x 1.5	160	240	-	12.5	-	24	-	-	7.5	7.5	16.5	22	1.8	36
GN 883-G1/4-20-A-MS	G 1/4	20	80	20	-	19.5	-	6.5	6	-	-	-	17	1.2	15
GN 883-G1/4-160-A-MS	G 1/4	160	240	20	-	19.5	-	6.5	6	-	-	-	17	1.2	15
GN 883-G3/8-20-A-MS	G 3/8	20	80	23	-	25	-	9	11	-	-	-	22	1.2	37
GN 883-G3/8-160-A-MS	G 3/8	160	240	23	-	25	-	9	11	-	-	-	22	1.2	35
GN 883-G1/2-20-A-MS	G 1/2	20	80	26	-	31	-	8.5	11	-	-	-	27	1.2	46
GN 883-G1/2-160-A-MS	G 1/2	160	240	26	-	31	-	8.5	11	-	-	-	27	1.2	54
GN 883-G3/4-20-A-MS	G 3/4	20	80	32	-	37	-	8.5	11	-	-	-	32	1.2	49
GN 883-G3/4-160-A-MS	G 3/4	160	240	32	-	37	-	8.5	11	-	-	-	32	1.2	83
GN 883-G1/4-20-B-MS	G 1/4	20	80	-	12.5	-	18.5	-	-	7.5	7.5	16.5	17	1.8	24
GN 883-G1/4-160-B-MS	G 1/4	160	240	-	12.5	-	18.5	-	-	7.5	7.5	16.5	17	1.8	24
GN 883-G3/8-20-B-MS	G 3/8	20	80	-	12.5	-	24	-	-	7.5	7.5	16.5	22	1.8	38
GN 883-G3/8-160-B-MS	G 3/8	160	240	-	12.5	-	24	-	-	7.5	7.5	16.5	22	1.8	38
GN 883-G1/2-20-B-MS	G 1/2	20	80	-	12.5	-	29	-	-	8	8	17	27	1.8	56
GN 883-G1/2-160-B-MS	G 1/2	160	240	-	12.5	-	29	-	-	8	8	17	27	1.8	56
GN 883-G3/4-20-B-MS	G 3/4	20	80	-	12.5	-	35	-	-	8	8	17	32	1.8	84
GN 883-G3/4-160-B-MS	G 3/4	160	240	-	12.5	-	35	-	-	8	8	17	32	1.8	84

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Breather filters

Brass



SPECIFICATION

Types

- Type **A**: low design
- Type **B**: high design, with Stainless Steel cap

Valve body
Brass **MS**

Air filter

- Stainless Steel-Wire mesh AISI 304
- Filter category G2-G3
- Mean separation rate (Am approx. 65 - 80 %, based on a particle size > 10 µm)

Sealing DIN 7603 A
Soft iron 1.0338
(at d1 = M10 x 1: PA6)

Breather (Type B)
Stainless Steel AISI 304

temperature resistant from -30 °C to +100 °C

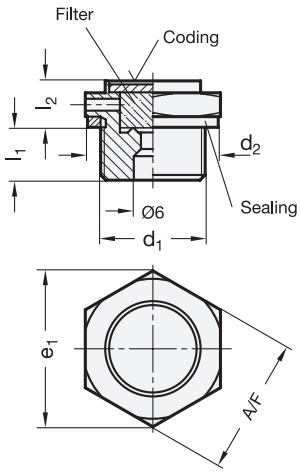
INFORMATION

The breather filters GN 884 are used when the air exchange is to be allowed between the inside of the container and the ambient air.
The stainless steel wire mesh prevents air-borne particles of a certain size from being carried into the inside of the container and simultaneously ensures that e.g. oil particles do not escape to the outside.
A label with the symbol "BE" (type A) or a blue coloured ring (type B) marks the filter function. The recommended installation position is vertical to the top.

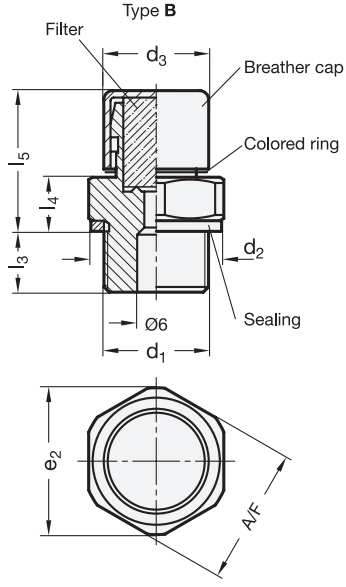
ON REQUEST

- other materials
- other dimensions

Type **A**



Type **B**



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GN 884

Description	d1	d2	d3	e1	e2	l1	l2	l3	l4	l5	A/F	Ca. air passage l/min.	⚖
GN 884-G1/8-A-MS	G 1/8	13.5	-	16	-	6	6	-	-	-	14	24	8
GN 884-M10x1-A-MS	M 10 x 1	14.5	-	16	-	6	6	-	-	-	14	24	7
GN 884-M12x1,5-A-MS	M 12 x 1.5	18	-	19.5	-	6.5	6	-	-	-	17	24	13
GN 884-M14x1,5-A-MS	M 14 x 1.5	20	-	19.5	-	6.5	6	-	-	-	17	24	15
GN 884-G1/4-A-MS	G 1/4	20	-	19.5	-	6.5	6	-	-	-	17	24	14
GN 884-M16x1,5-A-MS	M 16 x 1.5	22	-	25	-	9	11	-	-	-	22	24	33
GN 884-M18x1,5-A-MS	M 18 x 1.5	24	-	25	-	9	11	-	-	-	22	24	37
GN 884-M22x1,5-A-MS	M 22 x 1.5	27	-	31	-	9	11	-	-	-	27	24	55
GN 884-G3/8-A-MS	G 3/8	23	-	25	-	9	11	-	-	-	22	24	36
GN 884-G1/2-A-MS	G 1/2	26	-	31	-	8.5	11	-	-	-	27	24	53
GN 884-G3/4-A-MS	G 3/4	32	-	37	-	8.5	11	-	-	-	32	24	80
GN 884-G1/8-B-MS	G 1/8	13.5	12.5	16	18.5	6	6	8	7	16	17	46	18
GN 884-M10x1-B-MS	M 10 x 1	14.5	12.5	16	18.5	6	6	8	7	16	17	46	18
GN 884-M12x1,5-B-MS	M 12 x 1.5	18	12.5	19.5	18.5	6.5	6	7.5	7.5	16.5	17	46	21
GN 884-M14x1,5-B-MS	M 14 x 1.5	20	12.5	19.5	18.5	6.5	6	7.5	7.5	16.5	17	46	24
GN 884-G1/4-B-MS	G 1/4	20	12.5	19.5	18.5	6.5	6	7.5	7.5	16.5	17	46	23
GN 884-M16x1,5-B-MS	M 16 x 1.5	22	12.5	25	24	9	11	7.5	7.5	16.5	22	46	34
GN 884-M18x1,5-B-MS	M 18 x 1.5	24	12.5	25	24	9	11	7.5	7.5	16.5	22	46	38
GN 884-M22x1,5-B-MS	M 22 x 1.5	27	12.5	31	29	9	11	7.5	7.5	16.5	27	46	55
GN 884-G3/8-B-MS	G 3/8	23	12.5	25	24	9	11	7.5	7.5	16.5	22	46	36
GN 884-G1/2-B-MS	G 1/2	26	12.5	31	29	8.5	11	8	8	17	27	46	52
GN 884-G3/4-B-MS	G 3/4	32	12.5	37	35	8.5	11	8	8	17	32	46	80

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Breather caps

Technopolymer



ELESA Original design

MATERIAL
Polyamide based (PA) technopolymer.
- Cover: RAL 2004 orange, semi-matte finish, marked "OIL".
- Threaded connector: black colour, semi-matte finish.

PACKING RING
NBR synthetic rubber.

STANDARD EXECUTIONS
- **SFN.**: without air filter.
- **SFN+F**: with "tech-foam" air filter in polyurethane foam mesh (polyester base), air filtration 40 µ.
- **SFN.70-BA+F**: with "tech-foam" air filter in polyurethane foam mesh (polyester base), air filtration 40 µ.

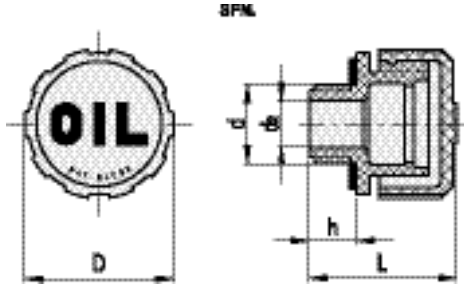
Zinc-plated steel sheet bayonet.
Chrome-plated steel safety chain.

MAXIMUM CONTINUOUS WORKING TEMPERATURE
100°C for execution with "tech-foam" air filter.

FEATURES AND APPLICATIONS
SFN. breather caps, owing to their high air flow rate, are particularly suitable for use on hydraulic power packs or tanks subject to rapid changes in liquid volume.

TECHNICAL DATA
Air flow rate for each model can be determined from the graph calculating the difference between the pressure inside and outside the reservoir.

SPECIAL EXECUTIONS ON REQUEST
- Cover, RAL 2004 orange, without "OIL" mark.
- Black cover with or without "OIL" mark.
- Threaded connector also with NPT thread (National Taper pipe Thread - ANSI-ASME B1-20) for the codes marked with # in the table.

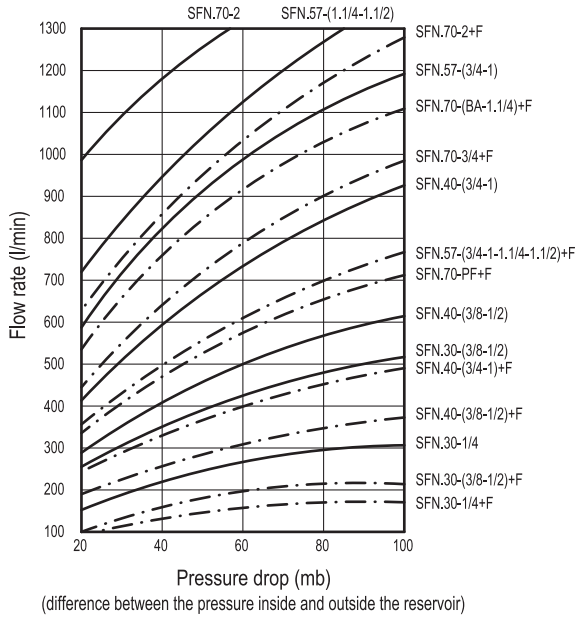


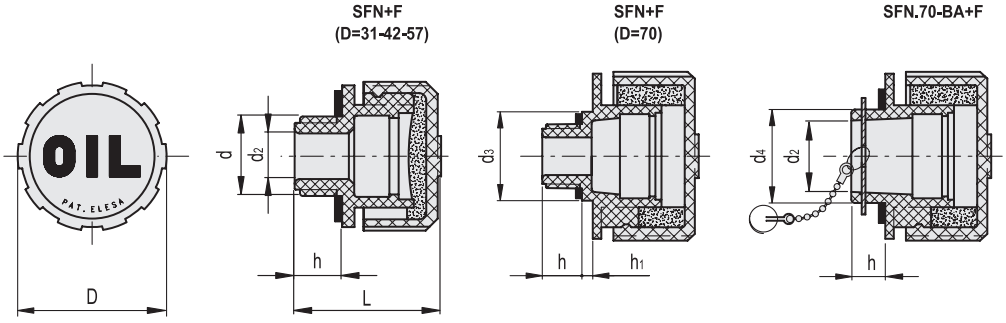
SFN.

Code	Description	d	D	L	d2	h	⚖
56151	SFN.30-1/4#	G 1/4	31	29.5	8	9.5	10
53901	SFN.30-3/8	G 3/8	31	29.5	10	9.5	10
53911	SFN.30-1/2	G 1/2	31	29.5	12	9.5	11
56181	SFN.40-3/8#	G 3/8	42	36.5	10	11.5	20
56201	SFN.40-1/2#	G 1/2	42	36.5	12	11.5	21
53921	SFN.40-3/4#	G 3/4	42	36.5	18	11.5	20
53931	SFN.40-1	G 1	42	36.5	18	11.5	20
56241	SFN.57-3/4#	G 3/4	57	42	18	14	38
56261	SFN.57-1	G 1	57	42	23	14	40
53932	SFN.57-1¼	G1 1/4	57	44	28	16	41
53933	SFN.57-1½	G1 1/2	57	44	28	16	40
56381	SFN.70-2	G 2	70	59	23	17	79

Types available on request with NPT thread (National Taper pipe Thread - ANSI-ASME B1-20).

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SFN+F

Code	Description	d	D	L	d2	d3	h	h1	⚖
56156	SFN.30-1/4+F#	G 1/4	31	29.5	8	-	9.5	-	10
56161	SFN.30-3/8+F	G 3/8	31	29.5	10	-	9.5	-	10
56171	SFN.30-1/2+F	G 1/2	31	29.5	12	-	9.5	-	11
56191	SFN.40-3/8+F#	G 3/8	42	36.5	10	-	11.5	-	19
56211	SFN.40-1/2+F#	G 1/2	42	36.5	12	-	11.5	-	20
56221	SFN.40-3/4+F#	G 3/4	42	36.5	18	-	11.5	-	20
56231	SFN.40-1+F	G 1	42	36.5	18	-	11.5	-	21
56251	SFN.57-3/4+F#	G 3/4	57	42	18	-	14	-	37
56271	SFN.57-1+F	G 1	57	42	23	-	14	-	38
56281	SFN.57-1¼+F	G1 1/4	57	44	28	-	16	-	39
56291	SFN.57-1½+F	G1 1/2	57	44	28	-	16	-	40
54701	SFN.70-3/4+F#	G 3/4	70	63	16	35	15	6	76
54711	SFN.70-1¼+F	G1 1/4	70	59	23	-	17	-	77
56391	SFN.70-2+F	G 2	70	59	23	-	17	-	82

SFN-BA+F

Code	Description	D	L	d2	d4	h	⚖
54731	SFN.70-BA+F	70	56	23	39	14	85

Types available on request with NPT thread (National Taper pipe Thread - ANSI-ASME B1-20).

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Breather cap

with sealing closure, technopolymer

MATERIAL
- Cover: polyamide based (PA) technopolymer, black colour, semi-matte finish.
- Threaded connector: acetal based technopolymer (POM), black colour, semi-matte finish.

PACKING RINGS
NBR synthetic rubber O-Ring.

AIR FILTER
Polyurethane foam mesh "tech-foam" (polyester base), air filtration 10 µ.

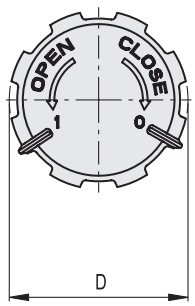
MAXIMUM CONTINUOUS WORKING TEMPERATURE
80°C.

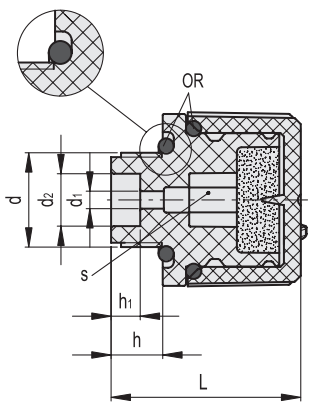
FEATURES AND APPLICATIONS
The cover of the SFC. breather cap (ELESA Patent) can be positioned in two different ways:
- Breather position: air is let in and out of the reservoir in normal conditions of use.
- Closure position: a packing ring between the cover and the threaded connector flange guarantees a perfect sealing of gas or liquid contained in the reservoir.

SPECIAL EXECUTIONS ON REQUEST
- Air filter in polyurethane foam mesh "tech-foam" (polyester base) with air filtration 40 µ.
- Cover in RAL 2004 orange.



ELESA Original design





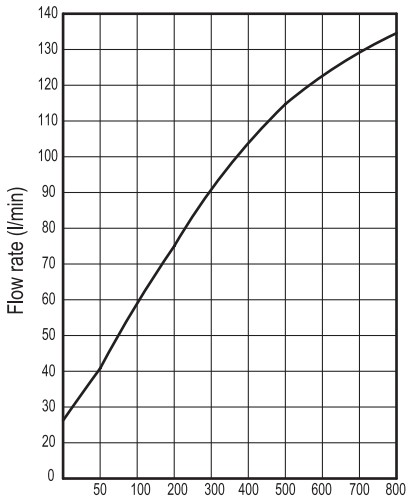
Code	Description	d	D	L	d1	d2	h	h1	s	⚖
52801	SFC.30-3/8+F	G 3/8	30	33	3	9	9	5	8	18

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ASSEMBLY INSTRUCTIONS

The components are supplied not assembled.

- Screw the threaded connector by means of a hexagon socket, tightening torque 8 Nm (fig. 1).
- Insert the "tech-foam" filter in its proper upper housing.
- Fit the cover on the threaded connector by properly matching the two different teeth (one large and one tight) inside the cover, with the relevant knurlings on the upper part of the threaded connector (fig. 2).
- By turning the cover clockwise of a few degrees the breather position is reached: the index on the cover marked with 1 is in line with the index of the threaded connector (fig. 3).
- By further turning the cover clockwise following the CLOSE arrow, the closure position is reached: the index on the cover marked with 0 is in line with the index of the threaded connector (fig. 4).
- To reach from the closure position to the breather one just turn the cover anticlockwise following the OPEN arrow until the click.
- By further turning the cover anticlockwise following the OPEN arrow, it is possible to remove the cover from the threaded connector, thus allowing the operator to clean the two components or to substitute or clean the "tech-foam" filter (fig. 5).



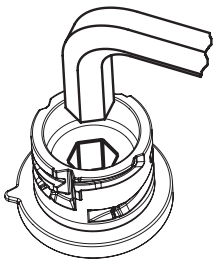


Fig.1

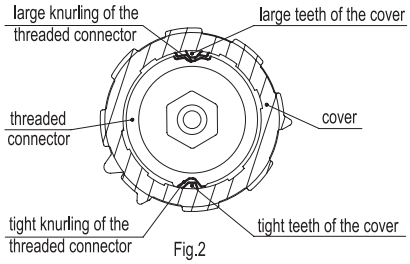


Fig.2

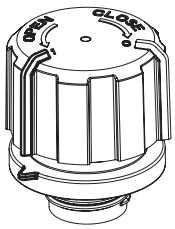


Fig.3

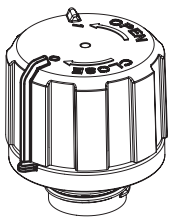


Fig.4

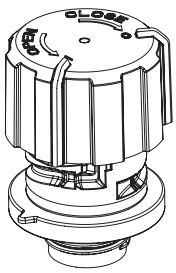


Fig.5

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Breather caps

with splash guard, technopolymer



ELESA Original design

MATERIAL
Polyamide based (PA) technopolymer.
- Cover: RAL 2004 orange, semi-matte finish, marked "OIL".
- Threaded connector: black colour, semi-matte finish.

PACKING RING
NBR synthetic rubber.

SPLASH GUARD
Technopolymer.

STANDARD EXECUTIONS
- **SFP.**: without air filter (black splash guard).
- **SFP+F**: with "tech-foam" air filter in polyurethane foam mesh (polyester base), air filtration 40 µ (grey splash guard) or with "tech-fil" air filter in zinc-plated steel wire (orange splash guard).
- **SFP.70-BA+F**: with "tech-foam" air filter in polyurethane foam mesh (polyester base), air filtration 40 µ (grey splash guard).

Zinc-plated steel sheet bayonet.
Chrome-plated steel safety chain.

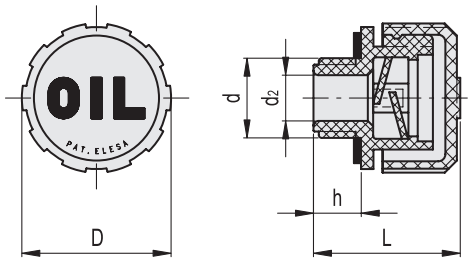
MAXIMUM CONTINUOUS WORKING TEMPERATURE
100°C.

FEATURES AND APPLICATIONS
SFP. breather caps come complete with splash guard device (ELESA original design) that prevents oil loss and are particularly suitable for use where oil is violently agitated and could be splashed against breather cap.

TECHNICAL DATA
Air flow rate for each model can be determined from the graph calculating the difference between the pressure inside and outside the reservoir.

SPECIAL EXECUTIONS ON REQUEST
- Cover, RAL 2004 orange, without "OIL" mark.
- Black cover with or without "OIL" mark.
- Threaded connector also with NPT thread (National Taper pipe Thread - ANSI-ASME B1-20) for the codes marked with # in the table.

SFP.

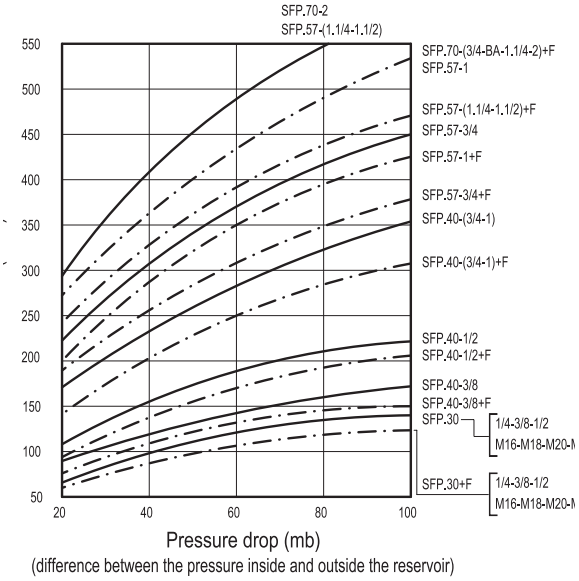


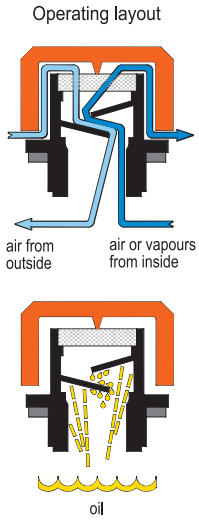
SFP.

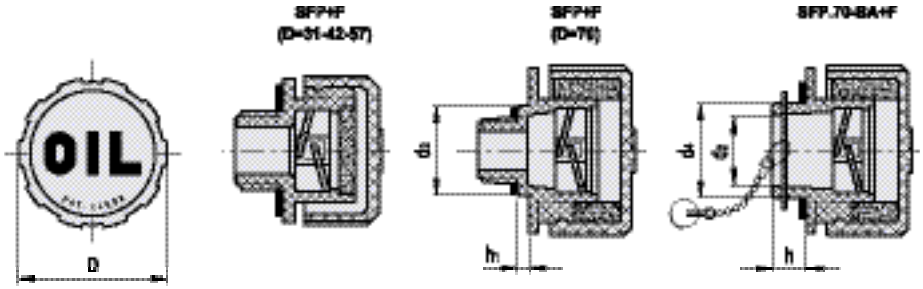
Code	Description	d	D	L	d2	h	⚖
53941	SFP.30-16x1.5	M16x1.5	31	29.5	10	9.5	10
53961	SFP.30-18x1.5	M18x1.5	31	29.5	10	9.5	10
53981	SFP.30-20x1.5	M20x1.5	31	29.5	12	9.5	11
53991	SFP.30-22x1.5	M22x1.5	31	29.5	12	9.5	11
53935	SFP.30-1/4#	G 1/4	31	29.5	8	9.5	10
54001	SFP.30-3/8	G 3/8	31	29.5	10	9.5	11
54101	SFP.30-1/2	G 1/2	31	29.5	12	9.5	11
56651	SFP.40-3/8#	G 3/8	42	36.5	10	11.5	20
56671	SFP.40-1/2#	G 1/2	42	36.5	12	11.5	22
54201	SFP.40-3/4#	G 3/4	42	36.5	18	11.5	22
54301	SFP.40-1	G 1	42	36.5	18	11.5	22
56701	SFP.57-3/4#	G 3/4	57	42	18	14	40
56731	SFP.57-1	G 1	57	42	23	14	40
54401	SFP.57-1¼	G1 1/4	57	44	28	16	41
54501	SFP.57-1½	G1 1/2	57	44	28	16	45
54876	SFP.70-2	G 2	70	59	23	17	82

Types available on request with NPT thread (National Taper pipe Thread - ANSI-ASME B1-20).

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SFP+F

Code	Description	Code	Description	d	D	L	d2	d3	h	h1	⚖
53951	SFP.30-16x1.5+F FIL	53952	SFP.30-16x1.5+F FOAM	M16x1.5	31	29.5	10	-	9.5	-	12
53971	SFP.30-18x1.5+F FIL	53972	SFP.30-18x1.5+F FOAM	M18x1.5	31	29.5	10	-	9.5	-	13
53986	SFP.30-20x1.5+F FIL	53987	SFP.30-20x1.5+FFOAM	M20x1.5	31	29.5	12	-	9.5	-	13
53996	SFP.30-22x1.5+F FIL	53997	SFP.30-22x1.5+F FOAM	M22x1.5	31	29.5	12	-	9.5	-	14
53937	SFP.30-1/4+F FIL	53938	SFP.30-1/4+F FOAM	G 1/4	31	29.5	8	-	9.5	-	11
54021	SFP.30-3/8+F FIL	54022	SFP.30-3/8+F FOAM	G 3/8	31	29.5	10	-	9.5	-	13
54121	SFP.30-1/2+F FIL	54122	SFP.30-1/2+F FOAM	G 1/2	31	29.5	12	-	9.5	-	15
56661	SFP.40-3/8+F FIL	56662	SFP.40-3/8+F FOAM#	G 3/8	42	36.5	10	-	11.5	-	23
56681	SFP.40-1/2+F FIL	56682	SFP.40-1/2+F FOAM#	G 1/2	42	36.5	12	-	11.5	-	26
54221	SFP.40-3/4+F FIL	54222	SFP.40-3/4+F FOAM#	G 3/4	42	36.5	18	-	11.5	-	28
54321	SFP.40-1+F FIL	54322	SFP.40-1+F FOAM	G 1	42	36.5	18	-	11.5	-	24
56711	SFP.57-3/4+F FIL	56712	SFP.57-3/4+F FOAM#	G 3/4	57	42	18	-	14	-	50
56741	SFP.57-1+F FIL	56742	SFP.57-1+F FOAM	G 1	57	42	23	-	14	-	50
54421	SFP.57-1¼+F FIL	54422	SFP.57-1¼+F FOAM	G1 1/4	57	44	28	-	16	-	50
54521	SFP.57-1½+F FIL	54522	SFP.57-1½+F FOAM	G1 1/2	57	44	28	-	16	-	54
-	-	54851	SFP.70-3/4+F FOAM#	G 3/4	70	63	16	35	15	6	80
-	-	54861	SFP.70-1¼+F FOAM	G1 1/4	70	59	23	-	17	-	80
-	-	54878	SFP.70-2+F FOAM	G 2	70	59	23	-	17	-	85

SFP.70-BA+F

Code	Description	D	L	d2	d4	h	⚖
54881	SFP.70-BA+F FOAM	70	56	30	39	14	91

Types available on request with NPT thread (National Taper pipe Thread - ANSI-ASME B1-20).

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SFP+a

Breather caps

with splash guard and flat dipstick, technopolymer

MATERIAL
Polyamide based (PA) technopolymer.
- Cover: RAL 2004 orange, semi-matte finish, marked "OIL".
- Threaded connector: black, semi-matte finish.

PACKING RING
NBR synthetic rubber.

FLAT DIPSTICK
Flat section phosphatised steel. On request and for sufficient quantities dipstick can be supplied in different lengths and/or complete with MAX-MIN level lines.

SPLASH GUARD
Technopolymer.

STANDARD EXECUTIONS
- **SFP+a**: without air filter (black splash guard).
- **SFP+F+a**: D = 31, 42 and 57 with "tech-fil" air filter in zinc-plated steel wire (orange splash guard); D = 70 with "tech-foam" air filter in polyurethane foam mesh (polyester base), air filtration 40 µ (grey splash guard).
- **SFP.70-BA+F+a**: with "tech-foam" air filter in polyurethane foam mesh (polyester base), air filtration 40 µ (grey splash guard).

Zinc-plated steel sheet bayonet.
Chrome-plated steel safety chain.

MAXIMUM CONTINUOUS WORKING TEMPERATURE
100°C.

FEATURES AND APPLICATIONS
SFP+a breather caps come complete with splash guard device (ELESA originale design) that prevents oil loss and are particularly suitable for use where oil is violently agitated and could be splashed against the breather cap.

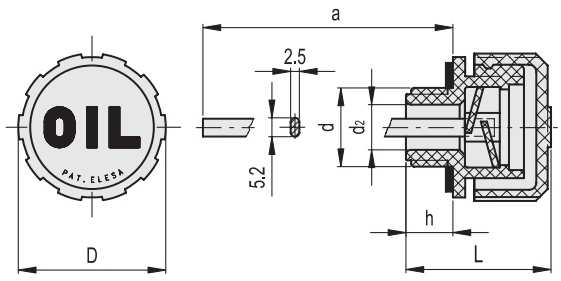
TECHNICAL DATA
Air flow rate for each model can be determined from the graph calculating the difference between the pressure inside and outside the reservoir.

SPECIAL EXECUTIONS ON REQUEST
- Cover, RAL 2004 orange, without "OIL" mark.
- Black cover with or without "OIL" mark.



ELESA Original design

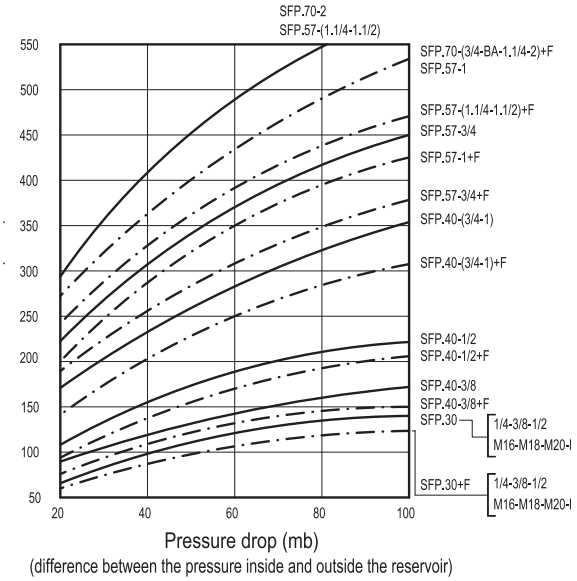
SFP+a

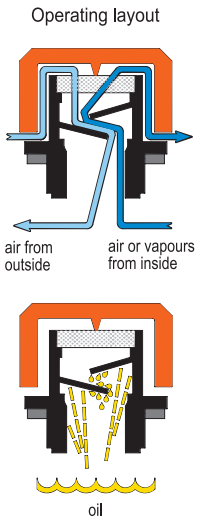


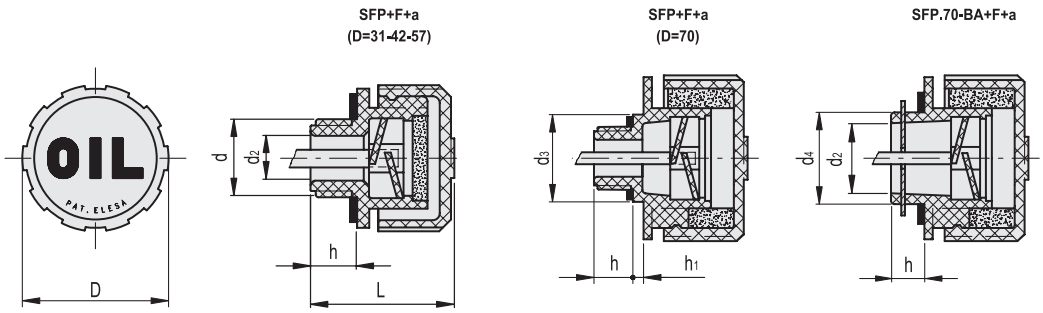
SFP+a

Code	Description	d	D	L	d2	h	a	⚖
53946	SFP.30-16x1.5+a	M16x1.5	31	29.5	10	9.5	188	30
53966	SFP.30-18x1.5+a	M18x1.5	31	29.5	10	9.5	188	30
53983	SFP.30-20x1.5+a	M20x1.5	31	29.5	12	9.5	188	31
53993	SFP.30-22x1.5+a	M22x1.5	31	29.5	12	9.5	188	31
53936	SFP.30-1/4+a	G 1/4	31	29.5	8	9.5	188	30
54011	SFP.30-3/8+a	G 3/8	31	29.5	10	9.5	188	30
54111	SFP.30-1/2+a	G 1/2	31	29.5	12	9.5	188	30
54211	SFP.40-3/4+a	G 3/4	42	36.5	18	11.5	184	42
54311	SFP.40-1+a	G 1	42	36.5	18	11.5	184	44
54411	SFP.57-1¼+a	G1 1/4	57	44	28	16	184	63
54511	SFP.57-1½+a	G1 1/2	57	44	28	16	184	65
54877	SFP.70-2+a	G 2	70	59	23	17	179	106

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SFP+F+a

Code	Description	d	D	L	d2	d3	h	h1	a	⚖
53956	SFP.30-16x1.5+F+a	M16x1.5	31	29.5	10	-	9.5	-	188	34
53976	SFP.30-18x1.5+F+a	M18x1.5	31	29.5	10	-	9.5	-	188	34
53989	SFP.30-20x1.5+F+a	M20x1.5	31	29.5	12	-	9.5	-	188	32
53999	SFP.30-22x1.5+F+a	M22x1.5	31	29.5	12	-	9.5	-	188	33
53939	SFP.30-1/4+F+a	G 1/4	31	29.5	8	-	9.5	-	188	31
54031	SFP.30-3/8+F+a	G 3/8	31	29.5	10	-	9.5	-	188	33
54131	SFP.30-1/2+F+a	G 1/2	31	29.5	12	-	9.5	-	188	34
54231	SFP.40-3/4+F+a	G 3/4	42	36.5	18	-	11.5	-	184	50
54331	SFP.40-1+F+a	G 1	42	36.5	18	-	11.5	-	184	50
54431	SFP.57-1¼+F+a	G1 1/4	57	44	28	-	16	-	184	75
54531	SFP.57-1½+F+a	G1 1/2	57	44	28	-	16	-	184	75
54853	SFP.70-3/4+F+a	G 3/4	70	63	16	35	15	6	173	100
54863	SFP.70-1¼+F+a	G1 1/4	70	59	23	-	17	-	179	105
54879	SFP.70-2+F+a	G 2	70	59	23	-	17	-	179	110

SFP.70-BA+F+a

Code	Description	D	L	d2	d4	h	a	⚖
54883	SFP.70-BA+F+a	70	56	30	39	14	179	100

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Breather caps

with splash guard, technopolymer

MATERIAL

Polyamide based (PA) technopolymer.
- Cover: RAL 2004 orange, semi-matte finish, marked "OIL".
- Threaded connector: black colour, semi-matte finish.

PACKING RING

NBR synthetic rubber.

SPLASH GUARD

Technopolymer.

STANDARD EXECUTIONS

- **SFP-EX**: without air filter (black splash guard).
- **SFP+F-EX**: with "tech-foam" air filter in polyurethane foam mesh (polyester base), air filtration 40 µ (grey splash guard).

ATEX DIRECTIVE COMPLIANCE

The breather caps of the SFP-EX series comply with Health and Safety Requirements intended in 94/9/EC ATEX European Directive (explosive atmospheres) for equipments in Group II, category 2GD.
II 2 G D IIB T6, marked on the SFP-EX breather caps, represents the identification according to ATEX directive.
II: group of substances for which the product is suitable
2: identification of the category
G: identification of the type of explosive atmosphere (Gases or vapours)
D: identification of the type of explosive atmosphere (Dust)
IIB: group of explosive gases
T6: temperature class
Ambient and/or fluid temperature: -30 ÷ +80°C
The declaration of conformity to European Directives of this product is available and it is part of the product itself.

FEATURES AND APPLICATIONS

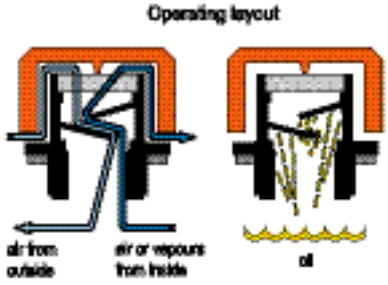
SFP-EX breather caps come complete with splash guard device (ELESA original design) that prevents oil loss and are particularly suitable for use where oil is violently agitated and could be splashed against breather cap.

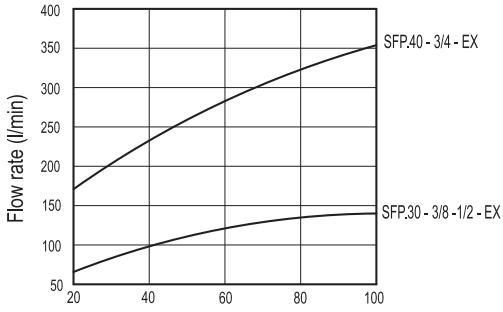
TECHNICAL DATA

Air flow rate for each model can be determined from the graph calculating the difference between the pressure inside and outside the reservoir.

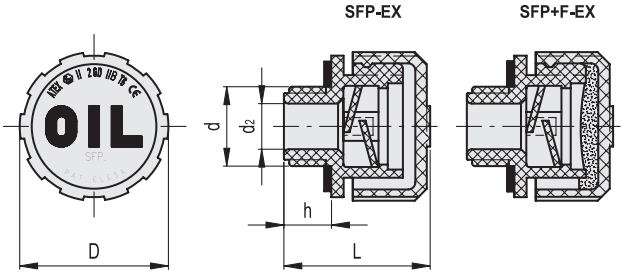


ELESA Original design





(difference between the pressure inside and outside the reservoir)



SFP-EX

Code	Description	d	D	L	d2	h	⚖
54001-EX	SFP.30-3/8-EX	G 3/8	31	29.5	10	9.5	11
54101-EX	SFP.30-1/2-EX	G 1/2	31	29.5	12	9.5	11
54201-EX	SFP.40-3/4-EX	G 3/4	42	36.5	18	11.5	22

SFP+F-EX

Code	Description	d	D	L	d2	h	⚖
54022-EX	SFP.30-3/8+F-EX	G 3/8	31	29.5	10	9.5	13
54122-EX	SFP.30-1/2+F-EX	G 1/2	31	29.5	12	9.5	15
54222-EX	SFP.40-3/4+F-EX	G 3/4	42	36.5	18	11.5	28

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Breather caps

with splash guard and flat dipstick, technopolymer

MATERIAL
Polyamide based (PA) technopolymer.
- Cover: RAL 2004 orange, semi-matte finish, marked "OIL".
- Threaded connector: black colour, semi-matte finish.

PACKING RING
NBR synthetic rubber.

FLAT DIPSTICK
Flat section phosphatised steel.
On request and for sufficient quantities dipstick can be supplied in different lengths and/or complete with MAX-MIN level lines.

SPLASH GUARD
Technopolymer.

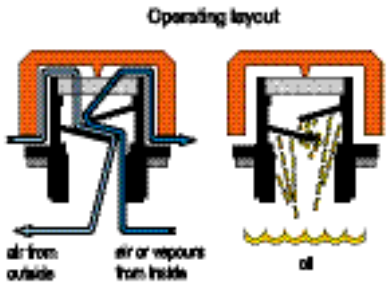
ATEX DIRECTIVE COMPLIANCE
The breather caps of the SFP+a-EX series comply with Health and Safety Requirements intended in 94/9/EC ATEX European Directive (explosive atmospheres) for equipments in Group II, category 2GD.
II 2 G D IIB T6, marked on the SFP-EX breather caps, represents the identification according to ATEX directive.
II: group of substances for which the product is suitable
2: identification of the category
G: identification of the type of explosive atmosphere (Gases or vapours)
D: identification of the type of explosive atmosphere (Dust)
IIB: group of explosive gases
T6: temperature class
Ambient and/or fluid temperature: -30 ÷ +80°C
Every product codes will be supplied with declaration of conformity to European Directives.

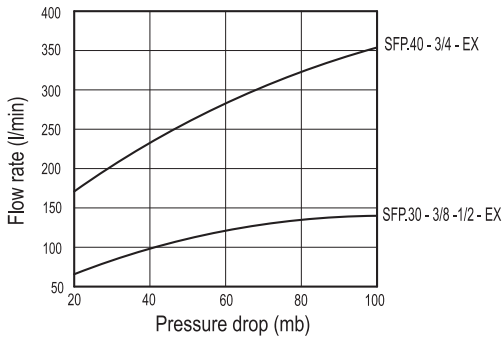
FEATURES AND APPLICATIONS
SFP+a-EX breather caps come complete with splash guard device (ELESA original design) that prevents oil loss and are particularly suitable for use where oil is violently agitated and could be splashed against breather cap.

TECHNICAL DATA
Air flow rate for each model can be determined from the graph calculating the difference between the pressure inside and outside the reservoir.

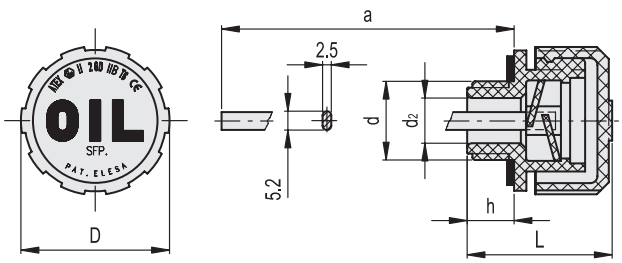


ELESA Original design





(difference between the pressure inside and outside the reservoir)



Code	Description	d	D	L	d2	h	a	⚖
54011-EX	SFP.30-3/8+a-EX	G 3/8	31	29.5	10	9.5	188	30
54111-EX	SFP.30-1/2+a-EX	G 1/2	31	29.5	12	9.5	188	30
54211-EX	SFP.40-3/4+a-EX	G 3/4	42	36.5	18	11.5	184	42

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Breather caps with vacuum breaker valve

Technopolymer



ELESA Original design

MATERIAL

Polypropylene based (PP) technopolymer.
- Cover: red colour (TVD-EPDM), green (TVD-FKM).

Graphic symbol "valve" tampoprinted in black colour.
- Avoid contact with solvents, alcohol or detergents containing alcohol to preserve tampoprinted graphic symbol.

Threaded connector: black colour.

STANDARD EXECUTIONS

- **TVD-FKM**: flat packing ring and FKM membrane gasket, hardness 70 Shore A.
- **TVD-EPDM**: flat packing ring and EPDM membrane gasket, hardness 70 Shore A.

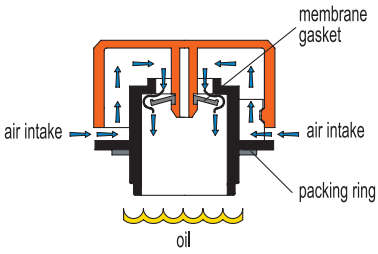
MAXIMUM CONTINUOUS WORKING TEMPERATURE

50°C.

FEATURES AND APPLICATIONS

TVD. breather caps with vacuum breaker valve are suitable for reservoirs and tanks for liquid transport.
The membrane retaining system allows a quick emptying out of the reservoir by letting in big quantities of air through the cap. Thus avoiding the vacuum inside the reservoir, slowing down the liquid exit.
The pre-set pressure of the membrane gasket stops any liquid loss when the reservoir is shaken (for example during transportation).
The liquid pressure on the gasket guarantees a perfect seal of the cap, for example in case of overturning of the reservoir.

Operating layout



The membrane gasket warps and lets air inside the reservoir due to the effect of the vacuum which is created by the liquid discharge.

DEPRESSION	FLOW RATE	
	FKM	EPDM
50 mb	360 l/min	370 l/min
40 mb	320 l/min	330 l/min
30 mb	260 l/min	280 l/min
20 mb	210 l/min	230 l/min
10 mb	140 l/min	160 l/min
5 mb	110 l/min	130 l/min

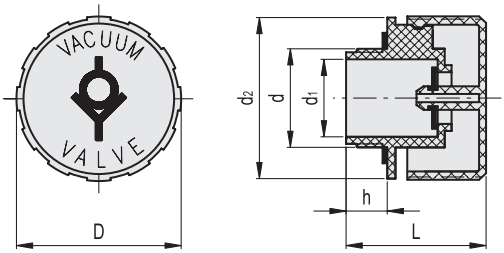
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RESISTANCE TO CHEMICAL AGENTS

Tests carried out under standard laboratory conditions at 23°C.
Values to be considered only as guidelines.
Please contact ELESA Technical Department for further chemical resistance details to particular liquids not reported in the table.

CHEMICAL AGENTS	EPDM	FKM	PP
POOR ACIDS	●	●	●
STRONG ACIDS	●	▲	●
CONC. ACETIC ACID 40%	●	▲	●
CONC. HYDROCHLORIC ACID 10%	●	●	●
CONC. NITRIC ACID 10%	▲	●	■
CONC. SULPHURIC ACID 20%	▲	●	●
ALCOHOL	●	▲	●
ALDEHYDE (FORMALDEHYDE)	●	▲	●
AMMONIA	●	▲	●
POOR BASES	●	●	●
STRONG BASES	●	▲	●
BENZOL	▲	●	▲
KETONES (Acetone, Methyl Ethyl Ketone)	●	▲	●
ESTERS	●	▲	●
GLYCOL	●	●	●
ALIPHATIC HYDROCARBONS (Petrol, Gas oil, Ethane, Propane, Butane)	▲	●	■
AROMATIC HYDROCARBONS (Toluol, Xylol)	▲	●	■
ANIMAL AND VEGETAL OILS AND GREASES	▲	●	●
MINERAL OIL AND GREASES	▲	●	■

Resistance: Good ● Fair ■ Poor ▲



Code	Description	d	D	L	d1	d2	h	⚖
61011	TVD.70-1¼-FKM	G1 1/4	70	59	33	68.5	17	80
61021	TVD.70-1¼-EPDM	G1 1/4	70	59	33	68.5	17	80

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Breather cap

push-fit, technopolymer

MATERIAL
Polyamide based (PA) technopolymer.
- Cover: RAL 2004 orange, semi-matte finish, marked "OIL".
- Threaded connector: black colour, semi-matte finish.

MOUNTING
Push-fit on pipes with max outside diameter of 39 mm and min inside diameter of 32 mm.

CLIP
Black-oxide steel.

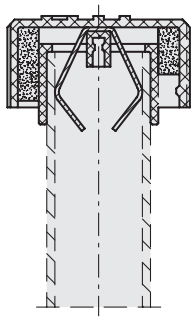
RING-SHAPED AIR FILTER
"Tech-foam" polyurethane foam mesh (polyester base), air filtration 40 µ.

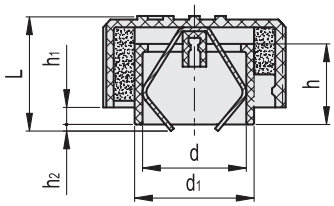
MAXIMUM CONTINUOUS WORKING TEMPERATURE
100°C.

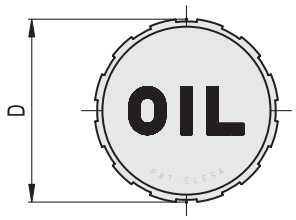
SPECIAL EXECUTIONS ON REQUEST
- Cover, RAL 2004 orange, without "OIL" mark.
- Black cover with or without "OIL" mark.



ELESA Original design







Code	Description	d	D	L	d1	h	h1	h2	⚖
54761	SFN.70-PF+F	39.5	70	43	45.5	27.5	2.5	6.5	67

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Valve breather caps

Technopolymer

MATERIAL
Polyamide based (PA) technopolymer.
- Cover: RAL 2004 orange, semi-matte finish, with graphic symbol "valve".
- Threaded connector: black colour, semi-matte finish.

PACKING RING
NBR synthetic rubber.

SEALING DISK
Technopolymer with NBR synthetic rubber O-ring.

SPRING
Stainless steel.

STANDARD EXECUTIONS
- **SFV-10 mb**: valve (sealing disk) opens when pressure exceeds 0.010 bar (set at 10 mb).
- **SFV-100 mb**: valve (sealing disk) opens when pressure exceeds 0.100 bar (set at 100 mb).

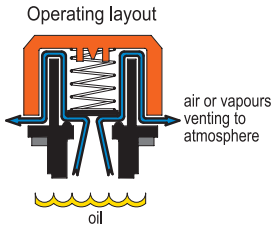
MAXIMUM CONTINUOUS WORKING TEMPERATURE
100°C.

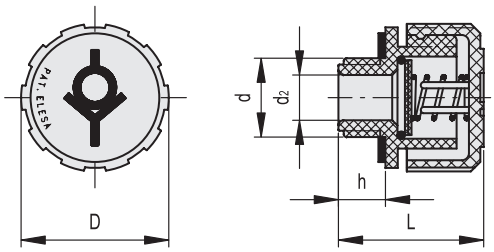
FEATURES AND APPLICATIONS
SFV. valve breather caps are particularly suitable for all those applications (speed reducers, variators or compressors) when the internal air pressure must not exceed a certain value (10 or 100 mb). In these cases, the safety valve of the cap allows the expulsion of the exceeding air in the reservoir, thus re-establishing the pressure values for which the valve is set.
Sealing disc (closed in normal pressure conditions) prevents dust from getting in and oil-losses.

SPECIAL EXECUTIONS ON REQUEST
Black cover.



ELESA Original design





Code	Description	Code	Description	d	D	L	d2	h	⚖
54611	SFV.16x1.5 10mb	54616	SFV.16x1.5 100mb	M16x1.5	31	29.5	10	9.5	12
54621	SFV.18x1.5 10mb	54626	SFV.18x1.5 100mb	M18x1.5	31	29.5	10	9.5	12
54631	SFV.20x1.5 10mb	54636	SFV.20x1.5 100mb	M20x1.5	31	29.5	10	9.5	12
54641	SFV.22x1.5 10mb	54646	SFV.22x1.5 100mb	M22x1.5	31	29.5	10	9.5	13
54651	SFV.1/4 10mb	54656	SFV.1/4 100mb	G 1/4	31	29.5	8	9.5	11
54661	SFV.3/8 10mb	54666	SFV.3/8 100mb	G 3/8	31	29.5	10	9.5	12
54671	SFV.1/2 10mb	54676	SFV.1/2 100mb	G 1/2	31	29.5	10	9.5	12
54681	SFV.3/4 10mb	54686	SFV.3/4 100mb	G 3/4	42	36.5	17	11.5	23
54691	SFV.1 10mb	54696	SFV.1 100mb	G 1	42	36.5	17	11.5	25

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Pressurised breather caps

with double valve, technopolymer

MATERIAL
Polyamide based (PA) technopolymer.
- Cover: RAL 2004 orange, semi-matte finish, with graphic symbol "valve".
- Threaded connector: black colour, semi-matte finish.

PACKING RING
NBR synthetic rubber.

OVERPRESSURE VALVE
Technopolymer with NBR synthetic rubber O-ring and stainless steel spring.
Set at around 0.350 bar (on request 0.700 bar).

SUCTION VALVE
Technopolymer sealing disk with NBR synthetic rubber O-ring and stainless steel spring.
Set at around 0.030 bar.

RING-SHAPED AIR FILTER
"Tech-foam" polyurethane foam mesh (polyester base), air filtration 40 µ.

FLAT DIPSTICK
Flat section phosphatised steel.
On request and for sufficient quantities dipstick can be supplied in different lengths and/or complete with MAX-MIN level lines.

STANDARD EXECUTIONS
- **SFW+F**: without flat dipstick.
- **SFW-BA+F**: with zinc-plated steel sheet bayonet, without flat dipstick. Chrome-plated steel safety chain.
- **SFW+F+a**: with flat dipstick.
- **SFW-BA+F+a**: with zinc-plated steel sheet bayonet and flat dipstick. Chrome-plated steel safety chain.

MAXIMUM CONTINUOUS WORKING TEMPERATURE
100°C.

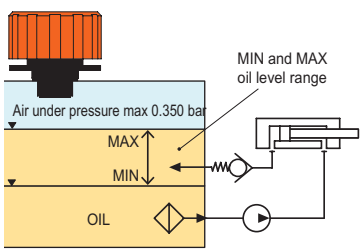
SPECIAL EXECUTIONS ON REQUEST
- Black cover.
- Threaded connector also with NPT thread (National Taper pipe Thread - ANSI-ASME B1-20) for the codes marked with # in the table.



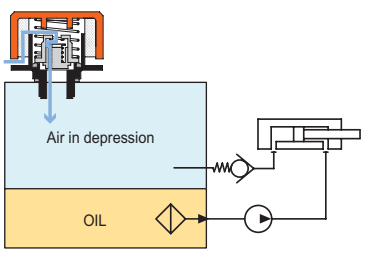
ELESA Original design



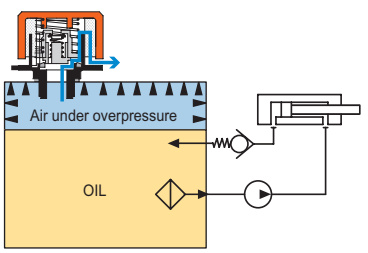
SFW. pressurised breather cap functioning in a hydraulic circuit



Normal working conditions



When in the reservoir a depression around 0.030 bar is produced, a flux of air entering the reservoir through the suction valve takes place.



When in the reservoir an over pressure exceeding 0.350 (or 0.700) bar is produced, a flux of air is discharged through the safety valve.

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SFW. Pressurised breather caps

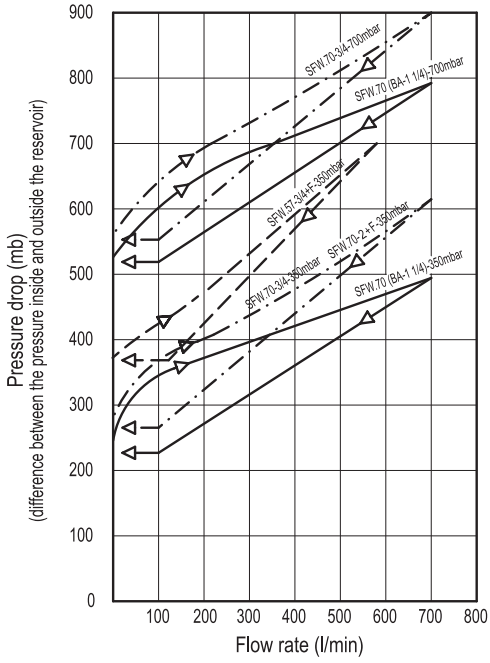
FEATURES

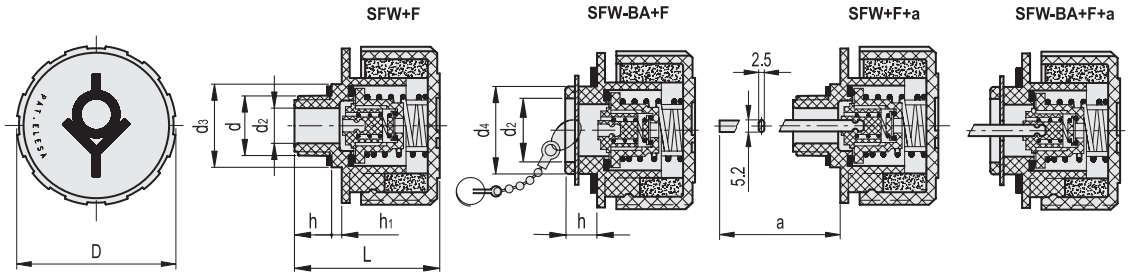
The use of SFW. pressurised breather caps which create a pressure plenum chamber right above the oil level within tested limit conditions, in order to avoid any reservoir deformation, offers the following advantages:

- reduces reservoir air volume intake keeping clean oil and filter
- improves suction pump action during working conditions reducing cavitation phenomenon
- prevents fluid leakage when the system is part of a mobile unit
- reduces foam in fluid.

TECHNICAL DATA

Air flow rate for each model can be determined from the graph calculating the difference between the pressure inside and outside the reservoir.





SFW+F

Code	Description	d	D	L	d2	d3	h	h1	⚖
54801	SFW.57-3/4+F-350 mb	G 3/4	57	48	16	35	13	6	67
54911	SFW.70-3/4+F-350 mb#	G 3/4	70	63	16	35	15	6	98
54921	SFW.70-1¼+F-350 mb	G1 1/4	70	59	23	-	17	-	101
54931	SFW.70-2+F-350 mb	G 2	70	59	23	-	17	-	108

SFW-BA+F

Code	Description	D	L	d2	d4	h	⚖
54941	SFW.70-BA+F-350 mb	70	56	30	39	14	105

SFW-BA+F+a

Code	Description	D	L	d2	d4	h	a	⚖
54943	SFW.70-BA+F+a-350 mb	70	56	30	39	14	195	124

SFW+F+a

Code	Description	d	D	L	d2	d3	h	h1	a	⚖
54913	SFW.70-3/4+F+a-350 mb#	G 3/4	70	63	16	35	15	6	188	117
54923	SFW.70-1¼+F+a-350 mb	G1 1/4	70	59	23	-	17	-	195	120

Types available on request with NPT thread (National Taper pipe Thread - ANSI-ASME B1-20).

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RoHS PA POM +100° -30°

Pressurised breather caps

with double valve and vandal-proof device, technopolymer



ELESA Original design

MATERIAL
- Cover: polyamide based (PA) technopolymer, black colour, matte finish. Graphic symbol "double valve".
- Threaded connector: acetal based technopolymer (POM), black colour, matte finish.

PACKING RING
NBR synthetic rubber.

OVERPRESSURE VALVE
Technopolymer with NBR synthetic rubber O-ring and stainless steel spring.
Set at around 0.350 bar (on request 0.700 bar).

SUCTION VALVE
Technopolymer sealing disk with NBR synthetic rubber O-ring and stainless steel spring.
Set at around 0.030 bar.

RING-SHAPED AIR FILTER
"Tech-foam" polyurethane foam mesh (polyester base), air filtration 40 µ.

KEY
Acetal resin-based (POM) technopolymer, red colour, with stainless steel anti-intrusion-profile insert. Folding. On request it can be supplied in black colour too.

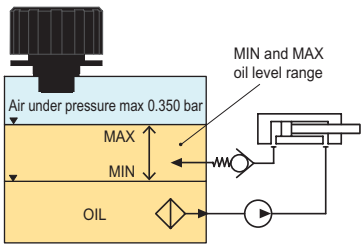
MAXIMUM CONTINUOUS WORKING TEMPERATURE
100°C.

"VANDAL-PROOF" SAFETY DEVICE (ELESA PATENT)
It is especially designed to prevent the cap from being unscrewed without permission. It is provided with a "controlled-torque" mechanism which guarantees the best seal of the packing ring.

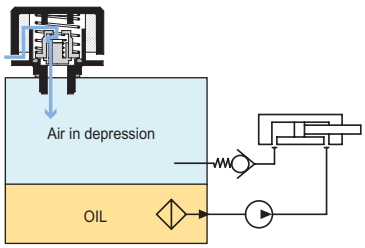
SPECIAL EXECUTIONS ON REQUEST
Flat dipstick, flat section phosphatised steel.

APPLICATIONS
SFW-VP pressurised breather caps are suitable for material handling equipment, machines for the agriculture sector and in general for those machines which remain unattended.
Thanks to its small dimensions, the key can be kept together with others (e.g. starting key of the engine).

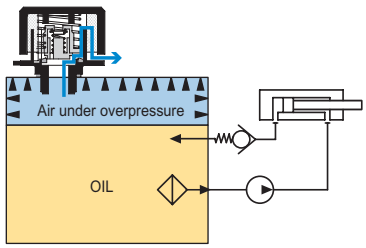
SFW.VP pressurised breather cap functioning in a hydraulic circuit



Normal working conditions



When in the reservoir a depression around 0.030 bar is produced, a flux of air entering the reservoir through the suction valve takes place.



When in the reservoir an over pressure exceeding 0.350 (or 0.700) bar is produced, a flux of air is discharged through the safety valve.

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SFW-VP

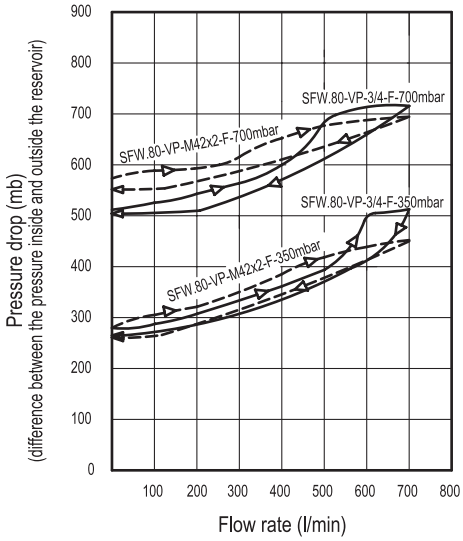
Pressurised breather caps

FEATURES

The use of SFW-VP pressurised breather cap which create a pressure plenum chamber right above the oil level within tested limit conditions, in order to avoid any reservoir deformation, offers also other advantages (see features of the breather caps type SFW. on page 1712).

TECHNICAL DATA

Air flow rate for each model can be determined from the graph calculating the difference between the pressure inside and outside the reservoir.



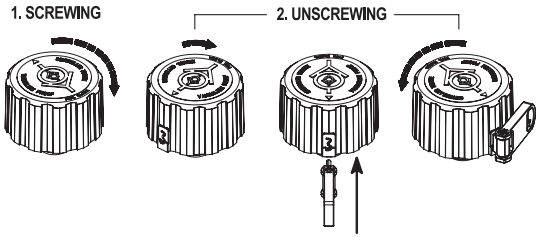
"VANDAL-PROOF" SAFETY DEVICE FUNCTIONING

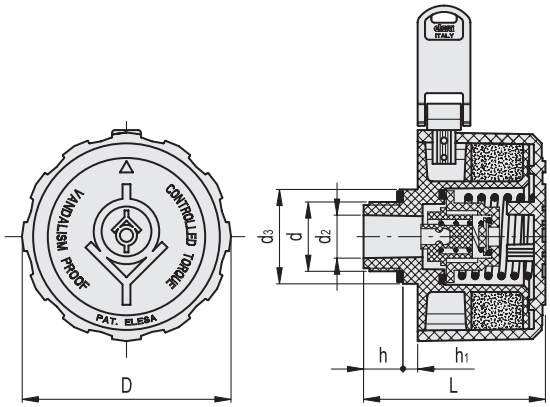
- Cap screwing.

Take out the key and screw the cap clockwise until the friction-click controlled torque mechanism is engaged so that to guarantee the best sealing of the packing ring. The maximum torque is reached at the first mechanism release (click).
After that, the cap can neither be screwed (to protect the packing ring) nor unscrewed (to protect the cap from any tampering attempt).
WARNING: during screwing the key must not be inserted.

- Cap unscrewing.

Turn the cap clockwise until one of the two resistance points is reached. Only at one of these two positions the key, which couples the cover to the threaded connector, can be competely inserted and the cap can be unscrewed.





Code	Description	d	D	L	d2	d3	h	h1	⚖
54961	SFW.80-VP-3/4-F-350mb	G 3/4	80	68	16	36	15	5.5	140
54967	SFW.80-VP-M42x2-F-350mb	M42x2	80	74	32	47	21	4	150

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Pressurised breather caps

with double valve and threaded connector, steel



MATERIAL
- Cover: steel sheet, with chrome plating superficial treatment.
- Flange: zinc-plated steel sheet.
- Threaded connector: zinc-plated steel.

PACKING RING
NBR synthetic rubber.

OVERPRESSURE VALVE (ONLY FOR SMW.)
Technopolymer with NBR synthetic rubber O-ring and stainless steel spring.
Set at around 0.350 bar (0.700 bar on request).

SUCTION VALVE (ONLY FOR SMW.)
Technopolymer sealing disk with NBR synthetic rubber O-ring and stainless steel spring.
Set at around 0.030 bar.

RING-SHAPED AIR FILTER
Tech-foam 40 µ.

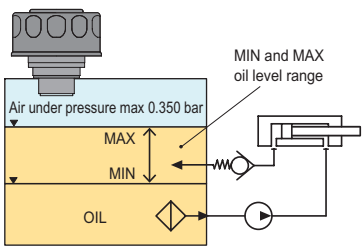
FILTER SETTING SPRING (ONLY FOR SMN.)
Zinc-plated steel.

STANDARD EXECUTIONS
- **SMN.**: breather cap.
- **SMW.**: double-valve breather cap.

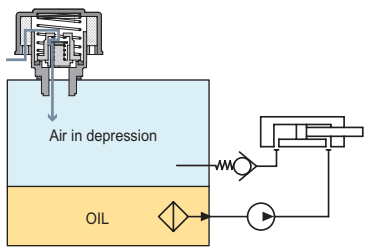
MAXIMUM CONTINUOUS WORKING TEMPERATURE
100°C.

SPECIAL EXECUTIONS ON REQUEST
With dipstick for fluid level indication (only for SMW.).

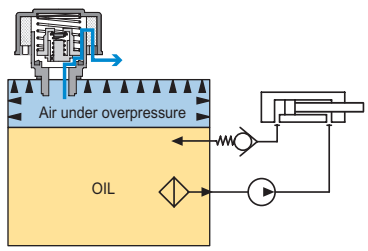
SMW. pressurised breather cap functioning in a hydraulic circuit



Normal working conditions



When in the reservoir a depression around 0.030 bar is produced, a flux of air entering the reservoir through the suction valve takes place.



When in the reservoir an over pressure exceeding 0.350 (or 0.700) bar is produced, a flux of air is discharged through the safety valve.

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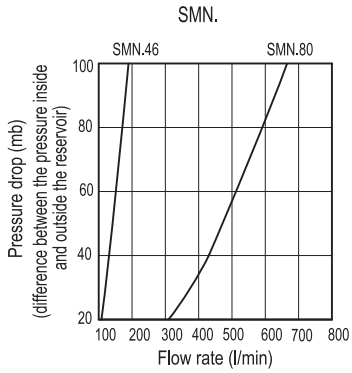
SMN. SMW. | Pressurised breather caps

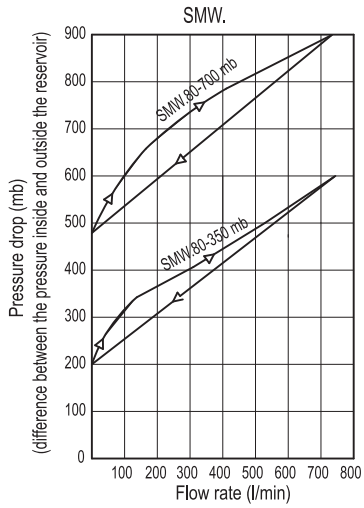
FEATURES AND APPLICATIONS

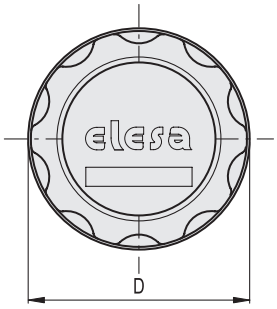
Double-valve breather cap SMW. creates a pressure plenum chamber right above the oil level within given limit conditions in order to avoid any reservoir deformation.
Advantages:
- it reduces reservoir air volume intake keeping clean fluid and filter;
- it improves suction pump action under working conditions reducing cavitation phenomenon;
- it prevents fluid leakage when the system is part of a mobile unit;
- it reduces foam in fluid.

TECHNICAL DATA

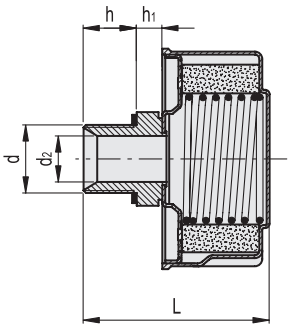
Air flow rate for the different executions of breather caps can be obtained from the diagram on the basis of the difference of air pressure inside and outside the reservoir.



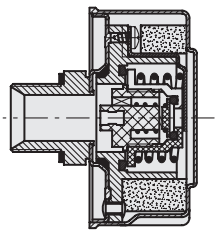




SMN.



SMW.



SMN.

Code	Description	d	D	L	d2	h	h1	⚖
156833	SMN.46-1/4-F40	G 1/4	47	51	7	10	5	57
156883	SMN.80-3/4-F40	G 3/4	81	70	17	16	12	239

SMW.

Code	Description	d	D	L	d2	h	h1	⚖
156983	SMW.80-3/4-F40-350mb	G 3/4	81	70	17	16	12	308

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Pressurised breather caps

with double valve and bayonet assembly, steel



MATERIAL
- Cover: steel sheet, with chrome plating superficial treatment.
- Flange: zinc-plated steel sheet.
- Bayonet and flange with bayonet: zinc-plated steel sheet.

PACKING RINGS
- SMN.46: two flat packing rings in rubber-impregnated cork and one in NBR synthetic rubber.
- SMN.80 SMW.80: three flat packing rings in rubber-impregnated cork.

OVERPRESSURE VALVE (ONLY FOR SMW-BA)
Technopolymer with NBR synthetic rubber O-ring and stainless steel spring.
Set at around 0.350 bar (0.700 bar on request).

SUCTION VALVE (ONLY FOR SMW-BA)
Technopolymer sealing disk with NBR synthetic rubber O-ring and stainless steel spring.
Set at around 0.030 bar.

RING-SHAPED AIR FILTER
Tech-foam 40 µ.

FILTER SETTING SPRING (ONLY FOR SMN-BA)
Zinc-plated steel.

FILTRATION BASKET
Electro zinc-plated steel, degree of filtration 800 µ.

SAFETY CHAIN (ONLY FOR SMN.80-BA/SMW.80-BA)
Brass

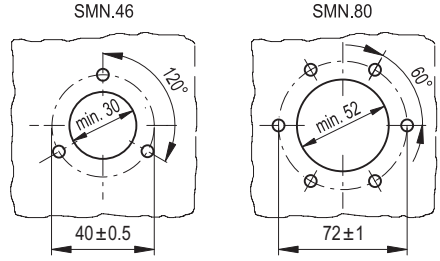
STANDARD EXECUTIONS
- **SMN-BA**: breather cap.
- **SMW-BA**: double-valve breather cap.

MAXIMUM CONTINUOUS WORKING TEMPERATURE
100°C.

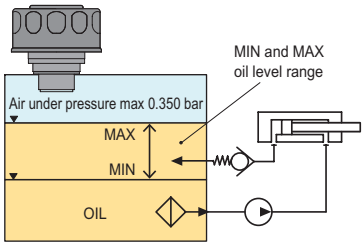
SPECIAL EXECUTIONS ON REQUEST
With dipstick for fluid level indication (only for SMW-BA).

MOUNTING
- SMN.46: by means of three glossy zinc-plated steel screws with screwdriver slot head M5x12, supplied.
- SMN.80 SMW.80: by means of six glossy zinc-plated steel screws with screwdriver slot head M5x12, supplied.

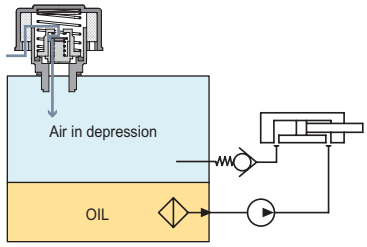
Drilling templates



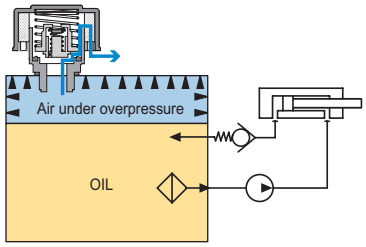
SMW-BA pressurised breather cap functioning in a hydraulic circuit



Normal working conditions



When in the reservoir a depression around 0.030 bar is produced, a flux of air entering the reservoir through the suction valve takes place.



When in the reservoir an over pressure exceeding 0.350 (or 0.700) bar is produced, a flux of air is discharged through the safety valve.

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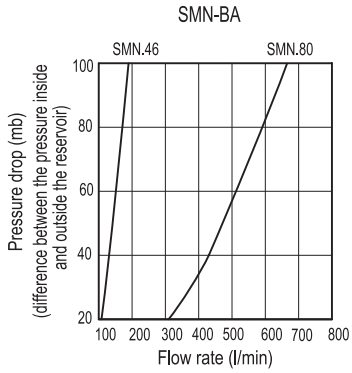
SMN-BA SMW-BA | Pressurised breather caps

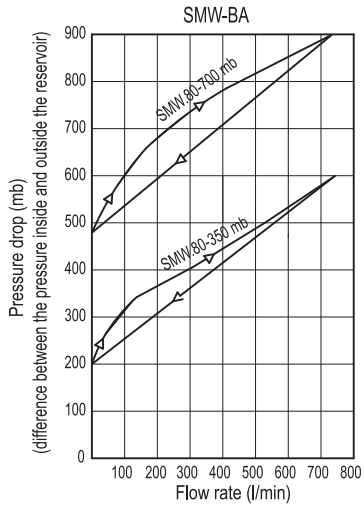
FEATURES AND APPLICATIONS

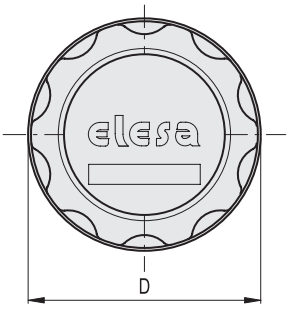
Double-valve breather caps SMW.BA with bayonet assembly creates a pressure plenum chamber right above the oil level within given limit conditions in order to avoid any reservoir deformation.
Advantages:
- it reduces reservoir air volume intake keeping clean fluid and filter;
- it improves suction pump action under working conditions reducing cavitation phenomenon;
- it prevents fluid leakage when the system is part of a mobile unit;
- it reduces foam in fluid.

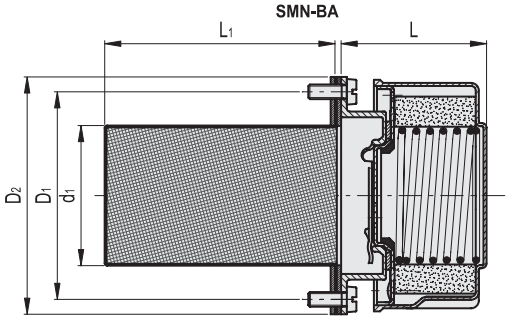
TECHNICAL DATA

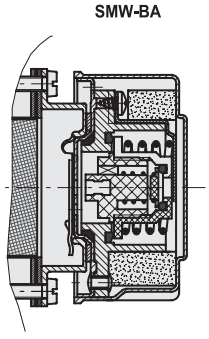
Air flow rate for the different executions of breather caps can be obtained from the diagram on the basis of the difference of air pressure inside and outside the reservoir. Tests carried out without filtration basket.











SMN-BA

Code	Description	D	D1	D2	L	L1	d1	⚖
156836	SMN.46-BA-F40	47	40	52	42	66	27	91
156886	SMN.80-BA-F40	81	72	83	55	80	49	370

SMW-BA

Code	Description	D	D1	D2	L	L1	d1	⚖
156986	SMW.80-BA-F40-350mb	81	72	83	55	80	49	410

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RoHS PA PP +90° 0°

Flange

for threaded cap, technopolymer

MATERIAL
- Flange: glass-fibre reinforced polyamide based (PA) technopolymer with threaded connector.
- Basket: polypropylene based (PP) technopolymer.

COLOUR
Black, matte finish.

PACKING RINGS
Cork impregnated MGS based rubber.

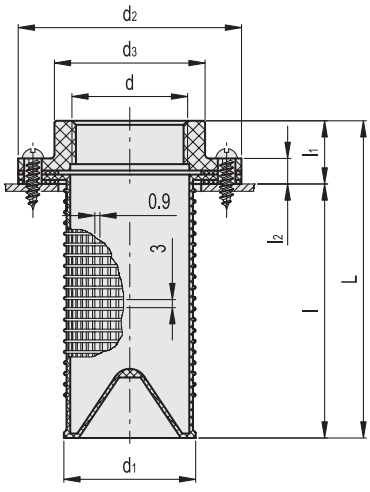
MOUNTING
By means of six zinc-plated steel self-tapping screws TC-N10 (Ø 4.8x19) UNI 6951-DIN 7971, supplied.

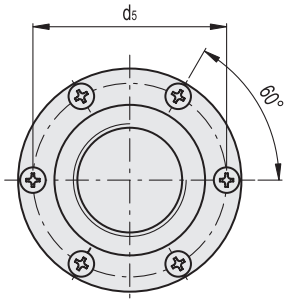
NOTE
The breather cap to be coupled to the flange is not included in the supply and has to be ordered sepatately.
Depending on the customer's requirements, can be used breather caps type SFN. (see page 1698), SFP. (see page 1702), SFW. (see page 1712).

SPECIAL EXECUTIONS ON REQUEST
Threaded flange without basket (FRF).

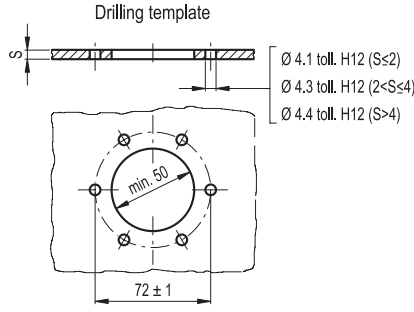


ELESA Original design









Code	Description	d	L	d1	d2	d3	d5	l	l1	l2	⚖
9101	FRF+C	G 1¼	118	49	83	56	72	93.5	24.5	10.5	105

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Flange

for bayonet cap, technopolymer

MATERIAL
- Flange: zinc-plated steel with bayonet connector.
- Basket: polypropylene based (PP) technopolymer, black colour.

PACKING RINGS
Cork impregnated MGS based rubber.

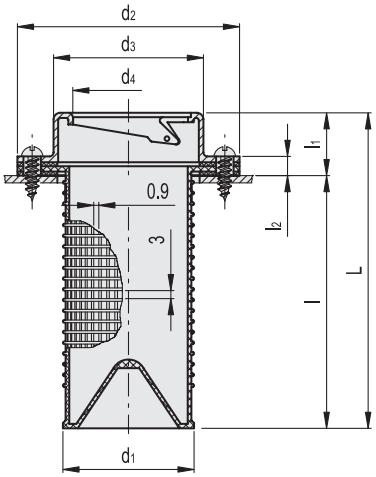
MOUNTING
By means of six zinc-plated steel self-tapping screws TC-N10 (Ø 4.8x19) UNI 6951-DIN 7971, supplied.

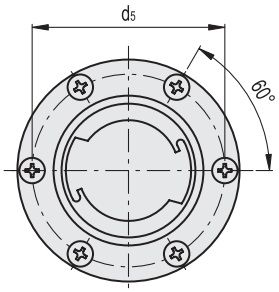
NOTE
The breather cap to be coupled to the flange is not included in the supply and has to be ordered sepatately.
Depending on the customer's requirements, can be used breather caps type SFN. (see page 1698), SFP. (see page 1702), SFW. (see page 1712).

SPECIAL EXECUTIONS ON REQUEST
Flange with bayonet connector without basket (FRB).

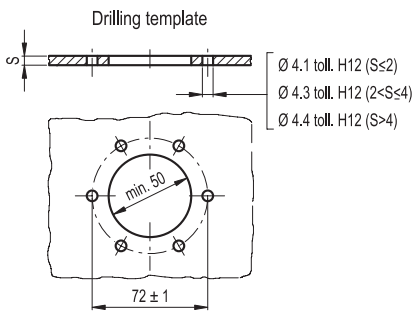


ELESA Original design









Code	Description	L	d1	d2	d3	d4	d5	l	l1	l2	⚖
9201	FRB+C	114.5	49	83	58	39	72	94.5	20	7	125

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RoHS PA PP +100° 0°

Side mount

for threaded cap, technopolymer



ELESA Original design

MATERIAL
- Mount: polyamide based (PA) technopolymer with NBR synthetic rubber packing ring.
- Flange: glass-fibre reinforced polyamide based (PA) technopolymer, threaded connector with flat gasket in cork impregnated MGS based rubber
- Basket: polypropylene based (PP) technopolymer.

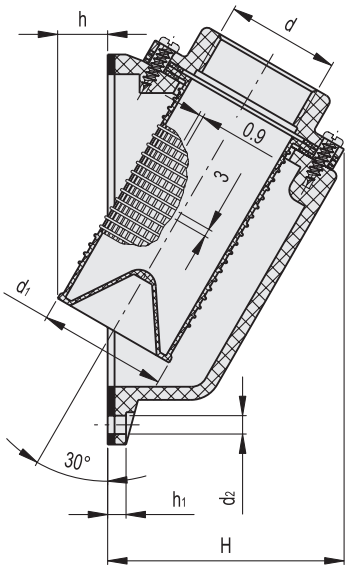
COLOUR
Black, matte finish.

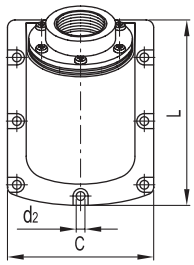
MOUNTING
Flange and basket are fitted to the mount by means of six zinc-plated steel self-tapping screws TC-N10 (Ø 4.8x19) UNI 6951-DIN 7971, supplied.
The mount is fitted to the reservoir by means of seven M6 screws and relative washers (not supplied).
Maximum recommended tightening torque: 8 Nm.

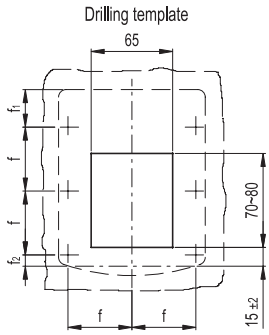
NOTE
The breather cap to be coupled to the flange is not included in the supply and has to be ordered sepatately.
Depending on the customer's requirements, can be used breather caps type SFN. (see page 1698),SFP. (see page 1702),SFW. (see page 1712).

SPECIAL EXECUTIONS ON REQUEST
Mount with threaded flange without basket (PLRF).









Code	Description	d	L	C	H	d1	d2	h	h1	f	f1	f2	⚖
49411	PLRF+C	G 1¼	148.5	117	92	49	7	18	7	51	30	9	335

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PLRB+C

Side mount

for bayonet cap, technopolymer

MATERIAL

- Mount: polyamide based (PA) technopolymer with NBR synthetic rubber packing ring.
- Flange: zinc-plated steel, bayonet with flat gasket in cork impregnated MGS based rubber.
- Basket: polypropylene based (PP) technopolymer.

COLOUR

Black, matte finish.

MOUNTING

Flange and basket are fitted to the mount by means of six zinc-plated steel self-tapping screws TC-N10 (Ø 4.8x19) UNI 6951-DIN 7971, supplied.
The mount is fitted to the reservoir by means of seven M6 screws and relative washers (not supplied).
Maximum recommended tightening torque: 8 Nm.

NOTE

The breather cap to be coupled to the flange is not included in the supply and has to be ordered sepatately.
Depending on the customer's requirements, can be used breather caps type SFN. (see page 1698),SFP. (see page 1702),SFW. (see page 1712).

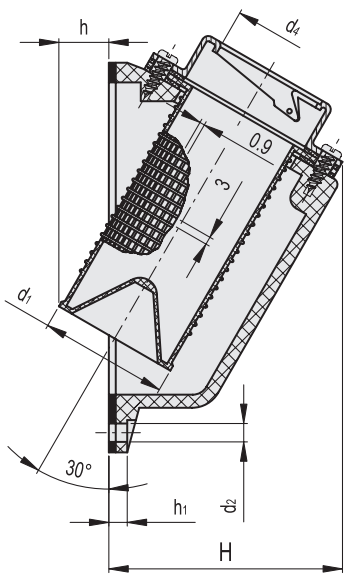
SPECIAL EXECUTIONS ON REQUEST

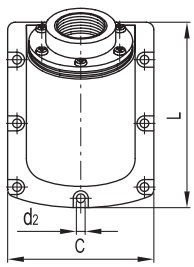
Mount with bayonet flange without basket (PLRB).

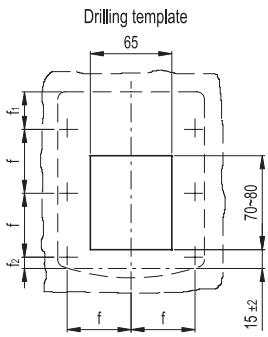


ELESA Original design









Code	Description	L	C	H	d1	d2	d4	h	h1	f	f1	f2	⚖
49401	PLRB+C	148.5	117	90	49	7	39	18	7	51	30	9	355

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Oil level indicators

Technopolymer

MATERIAL
Polyamide based (PA) technopolymer, black or red colour, glossy finish (HGFT/SL only black colour).

WINDOW
Transparent polyamide based (PA-T/AR) technopolymer.

PACKING RING
NBR synthetic rubber.

STANDARD EXECUTIONS
- **HGFT.**: with matte anodised aluminium star-shaped contrast screen with red central level point.
- **HGFT/SL**: without contrast screen.

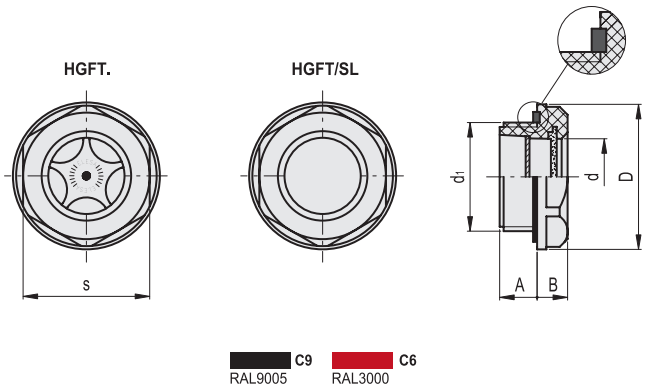
MAXIMUM CONTINUOUS WORKING TEMPERATURE
100°C at 3 bar pressure.

NOTE
For use with other fluids with special additives, please contact ELESA Sales Department.

ACCESSORIES ON REQUEST
Brass nut type GH. (see page 1743) for fitting to reservoirs with wall thickness smaller than 5 mm.



ELESA Original design



HGFT.

Code	Description	Code	Description	d1	A	B	D	d	s	Tightening torque [Nm]	⚖
14441	HGFT.10-3/8 C9	14444	HGFT.10-3/8 C6	G 3/8	8	7	24	11	22	4÷8	4
14461	HGFT.13-1/2 C9	14464	HGFT.13-1/2 C6	G 1/2	10	8.5	28	14.5	24	6÷8	6
14481	HGFT.16-3/4 C9	14484	HGFT.16-3/4 C6	G 3/4	9.5	8.5	35	18	32	8÷10	10
14521	HGFT.21-1 C9	14524	HGFT.21-1 C6	G 1	11	9.5	42.5	23	38	10÷12	15
14541	HGFT.25-1¼ C9	14544	HGFT.25-1¼ C6	G1 1/4	11	9	50	30	46	12÷15	30
14561	HGFT.40-2 C9	14564	HGFT.40-2 C6	G 2	12	11	68	40	62	12÷15	60

HGFT/SL

Code	Description	d1	A	B	D	d	s	Tightening torque [Nm]	⚖
14446	HGFT.10/SL-3/8	G 3/8	8	7	24	11	22	4÷8	3
14466	HGFT.13/SL-1/2	G 1/2	10	8.5	28	14.5	24	6÷8	5
14486	HGFT.16/SL-3/4	G 3/4	9.5	8.5	35	18	32	8÷10	9
14526	HGFT.21/SL-1	G 1	11	9.5	42.5	23	38	10÷12	14
14546	HGFT.25/SL-1¼	G1 1/4	11	9	50	30	46	12÷15	29
14566	HGFT.40/SL-2	G 2	12	11	68	40	62	12÷15	59

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HGFT-EX

Oil level indicators

Technopolymer

MATERIAL
Polyamide based (PA) technopolymer, black colour, glossy finish.

WINDOW
Transparent polyamide based (PA-T/AR) technopolymer.

PACKING RING
NBR synthetic rubber.

STANDARD EXECUTIONS
- **HGFT-EX**: with matte anodised aluminium star-shaped contrast screen with red central level point.
- **HGFT/SL-EX**: without contrast screen.

ATEX DIRECTIVE COMPLIANCE
The level indicators of the HGFT-EX series comply with Health and Safety Requirements intended in 94/9/EC ATEX European Directive (explosive atmospheres) for equipments in Group II, category 2GD.
Level indicators have "kX" protection degree and can therefore be mounted on equipment protected by means of "immersion in liquid", without lowering protection degree.
II 2 G D k T6 X, marked on the HGFT-EX level indicators, represents the identification according to ATEX directive.
II: group of substances for which the product is suitable
2: identification of the category
G: identification of the type of explosive atmosphere (Gases or vapours)
D: identification of the type of explosive atmosphere (Dust)
kX: protection degree by means of immersion in liquid
IIB: explosive gases group (only for HGFT.16)
T6: temperature class
Ambient and/or fluid temperature: -30 to +80°C
The declaration of conformity to European Directives of this product is available and it is part of the product itself.

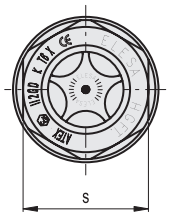


ELESA Original design

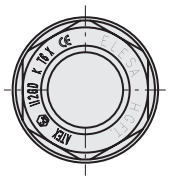
NOTE
For use with other fluids with special additives, please contact ELESA Sales Department.

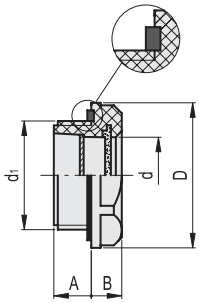
ACCESSORIES ON REQUEST
Brass nut type GH. (see page 1743) for fitting to reservoirs with wall thickness smaller than 5 mm.

HGFT-EX



HGFT/SL-EX





HGFT-EX

Code	Description	d1	A	B	D	d	s	Tightening torque [Nm]	⚖
14441-EX	HGFT.10-3/8-C9-EX	G 3/8	8	7	24	11	22	4÷8	4
14461-EX	HGFT.13-1/2-C9-EX	G 1/2	10	8.5	28	14.5	24	6÷8	6
14481-EX	HGFT.16-3/4-C9-EX	G 3/4	9.5	8.5	35	18	32	8÷10	10

HGFT/SL-EX

Code	Description	d1	A	B	D	d	s	Tightening torque [Nm]	⚖
14446-EX	HGFT.10/SL-3/8-C9-EX	G 3/8	8	7	24	11	22	4÷8	3
14466-EX	HGFT.13/SL-1/2-C9-EX	G 1/2	10	8.5	28	14.5	24	6÷8	5
14486-EX	HGFT.16/SL-3/4-C9-EX	G 3/4	9.5	8.5	35	18	32	8÷10	9

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Oil level sight glasses

Aluminum / natural glass, up to 100°C



SPECIFICATION

Types

- Type **A**: with contrast screen, blank
- Type **AS**: with contrast screen, black anodized
- Type **B**: without contrast screen, blank
- Type **BS**: without contrast screen, black anodized

Body
Aluminium

- Type A and B: fine turned, blank
- Type AS and BS: fine turned, black anodized

Contrast screen
Technopolymer (Polysulfon)

- temperature resistant up to **100 °C**
- Sight glass Float-glass
- Sealing ring rubber NBR (Perbunan)

INFORMATION

Oil level sight glasses GN 743 offer genuine glass of high stability and scratch proof. The sealing is achieved with an O-ring on the **periphery** and not on the face edge of the glass. Leak tightness is therefore not affected by axial pressures.
The outside diameter of these oil level sight glasses with recessed hexagon is chosen to match mounting holes for tube connections according to DIN 3852.
The seal is housed in a groove and it can therefore not be lost. In addition, this groove prevents the seal from being extruded when the sight glass is tightened.
Oil level sight glasses GN 743 can be used on pressurised oil tanks. Tests regarding maximum pressure are available on request.
Assembly instruction:
For mounting on walls of less than 4 mm thickness please use a fixing nut GH. (see page 1743).

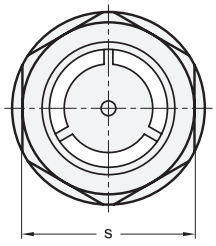
- RoHS compliant (only types AS and BS)

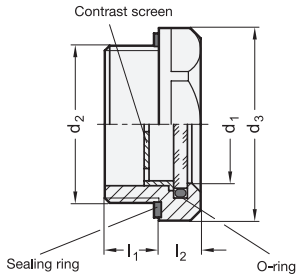
ACCESSORY

- Fixing nut GH. (see page 1743)

ON REQUEST

- EPDM seal





*Complete with type index of the Oil level sight glasses
A AS B BS

GN 743

Description	d1	d2	d3	l1	l2	s	⚖
GN 743-7-M14x1,5-*	7	M 14 x 1.5	20	7.5	6.5	18	6
GN 743-11-M16x1,5-*	11	M 16 x 1.5	22	8	7.5	20	10
GN 743-14-M20x1,5-*	14	M 20 x 1.5	26	8.5	7.5	23	12
GN 743-18-M26x1,5-*	18	M 26 x 1.5	32	9	8	30	18
GN 743-18-M27x1,5-*	18	M 27 x 1.5	32	9	8	30	18
GN 743-24-M33x1,5-*	24	M 33 x 1.5	40	11	8.5	36	26
GN 743-32-M40x1,5-*	32	M 40 x 1.5	50	12	9	46	39
GN 743-32-M42x1,5-*	32	M 42 x 1.5	50	12	9	46	48
GN 743-7-G1/4-*	7	G 1/4	20	7.5	6.5	18	9
GN 743-11-G3/8-*	11	G 3/8	22	8	7.5	20	10
GN 743-14-G1/2-*	14	G 1/2	26	8.5	7.5	23	12
GN 743-18-G3/4-*	18	G 3/4	32	9	8	30	18
GN 743-24-G1-*	24	G 1	40	11	8.5	36	26
GN 743-32-G11/4-*	32	G 1 1/4	50	12	9	46	40
GN 743-32-G11/2-*	32	G 1 1/2	60	13	9	55	80

Weight type A

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GN 743.1

Oil level sight glasses

Aluminum / natural glass, up to 180°C

SPECIFICATION

Types

- Type **A**: with contrast screen, blank
- Type **AS**: with contrast screen, black anodized
- Type **B**: without contrast screen, blank
- Type **BS**: without contrast screen, black anodized

Body
Aluminium

- Type A and B: fine turned, blank
- Type AS and BS: fine turned, black anodized

Contrast screen
Technopolymer (Polysulfon)

- temperature resistant up to **180 °C**
- Sight glass ESG-glass
- Sealing ring rubber FPM (Viton®)

Identification by not black finish of the sealing ring



INFORMATION

Oil level sight glasses GN 743.1 offer genuine glass of high stability and scratch proof. The sealing is achieved with an O-ring on the **periphery** and not on the face edge of the glass. Leak tightness is therefore not affected by axial pressures.
The outside diameter of these oil level sight glasses with recessed hexagon is chosen to match mounting holes for tube connections according to DIN 3852.
The seal is housed in a groove and it can therefore not be lost. In addition, this groove prevents the seal from being extruded when the sight glass is tightened.
Oil level sight glasses GN 743.1 can be used on pressurised oil tanks. Tests regarding maximum pressure are available on request.
Assembly instruction:
For mounting on walls of less than 4 mm thickness please use a fixing nut GH. (see page 1743).

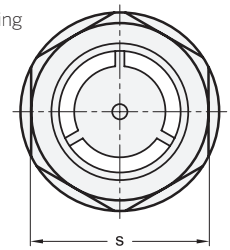
- RoHS compliant (only types AS and BS)

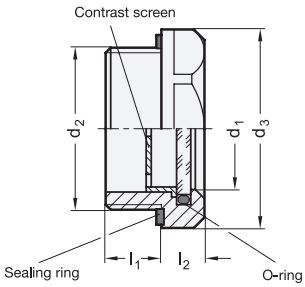
ACCESSORY

- Fixing nut GH. (see page 1743)

ON REQUEST

- EPDM seal





*Complete with type index of the Oil level sight glasses

A AS B BS

GN 743.1

Description	d1	d2	d3	l1	l2	s	⚖
GN 743.1-7-M14x1,5-*	7	M 14 x 1.5	20	7.5	6.5	18	6
GN 743.1-11-M16x1,5-*	11	M 16 x 1.5	22	8	7.5	20	8
GN 743.1-14-M20x1,5-*	14	M 20 x 1.5	26	8.5	7.5	23	10
GN 743.1-18-M26x1,5-*	18	M 26 x 1.5	32	9	8	30	18
GN 743.1-18-M27x1,5-*	18	M 27 x 1.5	32	9	8	30	18
GN 743.1-24-M33x1,5-*	24	M 33 x 1.5	40	11	8.5	36	26
GN 743.1-32-M40x1,5-*	32	M 40 x 1.5	50	12	9	46	45
GN 743.1-32-M42x1,5-*	32	M 42 x 1.5	50	12	9	46	43
GN 743.1-7-G1/4-*	7	G 1/4	20	7.5	6.5	18	6
GN 743.1-11-G3/8-*	11	G 3/8	22	8	7.5	20	9
GN 743.1-14-G1/2-*	14	G 1/2	26	8.5	7.5	23	12
GN 743.1-18-G3/4-*	18	G 3/4	32	9	8	30	18
GN 743.1-24-G1-*	24	G 1	40	11	8.5	36	31
GN 743.1-32-G11/4-*	32	G 1 1/4	50	12	9	46	45
GN 743.1-32-G11/2-*	32	G 1 1/2	60	13	9	55	91

Weight type A

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Oil level sight glasses

Brass / natural glass, up to 100°C

SPECIFICATION

Types

- Type **A**: with contrast screen
- Type **B**: without contrast screen

Body
Brass
CuZn40Pb2

Contrast screen
Technopolymer (Polysulfon)

- temperature resistant up to **100 °C**
- Sight glass Float-glass
- Sealing ring rubber NBR (Perbunan)



INFORMATION

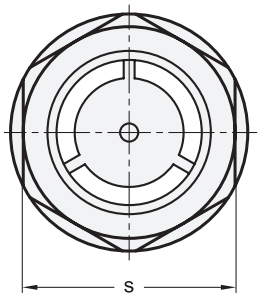
Oil level sight glasses GN 743.2 offer genuine glass of high stability and scratch proof. The sealing is achieved with an O-ring on the **periphery** and not on the face edge of the glass. Leak tightness is therefore not affected by axial pressures.
The outside diameter of these oil level sight glasses with recessed hexagon is chosen to match mounting holes for tube connections according to DIN 3852.
The seal is housed in a groove and it can therefore not be lost. In addition, this groove prevents the seal from being extruded when the sight glass is tightened.
Oil level sight glasses GN 743.2 can be used on pressurised oil tanks. Tests regarding maximum pressure are available on request.
Assembly instruction:
For mounting on walls of less than 4 mm thickness please use a fixing nut GH. (see page 1743).

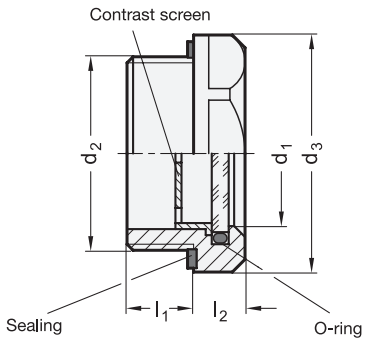
ACCESSORY

- Fixing nut GH. (see page 1743)

ON REQUEST

- EPDM seal





*Complete with type index of the Oil level sight glasses

A with contrast screen

B without contrast screen

GN 743.2

Description	d1	d2	d3	l1	l2	s	⚖
GN 743.2-11-M16x1,5-*	11	M 16 x 1.5	22	8	7.5	20	19
GN 743.2-14-M20x1,5-*	14	M 20 x 1.5	26	8.5	7.5	23	23
GN 743.2-18-M26x1,5-*	18	M 26 x 1.5	32	9	8	30	44
GN 743.2-18-M27x1,5-*	18	M 27 x 1.5	32	9	8	30	46
GN 743.2-24-M33x1,5-*	24	M 33 x 1.5	40	11	8.5	36	70
GN 743.2-11-G3/8-*	11	G 3/8	22	8	7.5	20	20
GN 743.2-14-G1/2-*	14	G 1/2	26	8.5	7.5	23	23
GN 743.2-18-G3/4-*	18	G 3/4	32	9	8	30	44
GN 743.2-24-G1-*	24	G 1	40	11	8.5	36	69

Weight type A

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GN 743.3

Oil level sight glasses

Brass / natural glass, up to 180 °C

SPECIFICATION

Types

- Type **A**: with contrast screen
- Type **B**: without contrast screen

Body
Brass
CuZn40Pb2

Contrast screen
Technopolymer (Polysulfon)

- temperature resistant up to **180 °C**
- Sight glass ESG-glass
- Sealing ring rubber FPM (Viton®)

Identification by not black finish of the sealing ring



INFORMATION

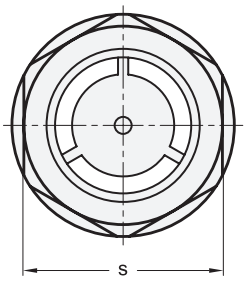
Oil level sight glasses GN 743.3 offer genuine glass of high stability and scratch proof. The sealing is achieved with an O-ring on the **periphery** and not on the face edge of the glass. Leak tightness is therefore not affected by axial pressures.
The outside diameter of these oil level sight glasses with recessed hexagon is chosen to match mounting holes for tube connections according to DIN 3852.
The seal is housed in a groove and it can therefore not be lost. In addition, this groove prevents the seal from being extruded when the sight glass is tightened.
Oil level sight glasses GN 743.3 can be used on pressurised oil tanks. Tests regarding maximum pressure are available on request.
Assembly instruction:
For mounting on walls of less than 4 mm thickness please use a fixing nut GH. (see page 1743).

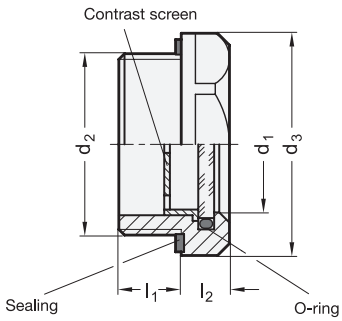
ACCESSORY

- Fixing nut GH. (see page 1743)

ON REQUEST

- EPDM seal





*Complete with type index of the Oil level sight glasses

A	B
with contrast screen	without contrast screen

GN 743.3

Description	d1	d2	d3	l1	l2	s	⚖
GN 743.3-11-M16x1,5-A	11	M 16 x 1.5	22	8	7.5	20	19
GN 743.3-14-M20x1,5-A	14	M 20 x 1.5	26	8.5	7.5	23	23
GN 743.3-18-M26x1,5-A	18	M 26 x 1.5	32	9	8	30	44
GN 743.3-18-M27x1,5-A	18	M 27 x 1.5	32	9	8	30	46
GN 743.3-24-M33x1,5-A	24	M 33 x 1.5	40	11	8.5	36	70
GN 743.3-11-G3/8-A	11	G 3/8	22	8	7.5	20	20
GN 743.3-14-G1/2-A	14	G 1/2	26	8.5	7.5	23	23
GN 743.3-18-G3/4-A	18	G 3/4	32	9	8	30	43
GN 743.3-24-G1-A	24	G 1	40	11	8.5	36	65

Weight type A

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GN 743.4

Stainless Steel-
Oil level sight glasses

Natural glass, up to 100 °C



SPECIFICATION

Types

- Type **A**: with contrast screen
- Type **B**: without contrast screen

Body
Stainless Steel AISI 303

Contrast screen (Type A)
Technopolymer (Polysulfan)

Circlip (Type B)
Stainless Steel AISI 301

- temperature resistant up to **100 °C**
- Sight glass Float-glass
- Sealing ring rubber NBR (Perbunan ®)

INFORMATION

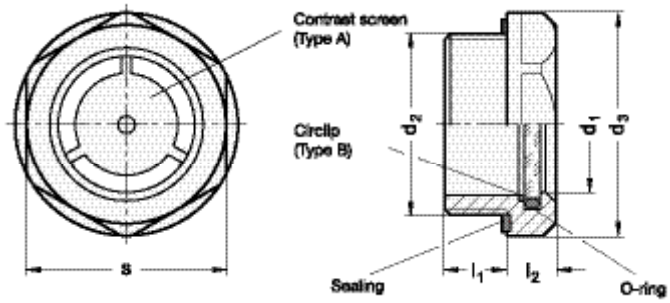
Stainless Steel-Oil level sight glasses GN 743.4 offer genuine glass of high stability and scratch proof. The sealing is achieved with an O-ring on the **periphery** and not on the face edge of the glass. Leak tightness is therefore not affected by axial pressures.
The outside diameter of these oil level sight glasses with recessed hexagon is chosen to match mounting holes for tube connections according to DIN 3852.
The seal is housed in a groove and it can therefore not be lost. In addition, this groove prevents the seal from being extruded when the sight glass is tightened.
Stainless Steel-Oil level sight glasses GN 743.4 can be used on pressurised oil tanks. Tests regarding maximum pressure are available on request.

ON REQUEST

- EPDM seal

TECHNICAL INFORMATION

- Elastomer characteristics (see page A32)
- Stainless Steel characteristics (see page A26)



*Complete with type index of the Oil level sight glasses

A	B
with contrast screen	without contrast screen

GN 743.4 **STAINLESS STEEL**

Description	d1	d2	d3	l1	l2	s	⚖
GN 743.4-11-M16x1,5-*	11	M 16 x 1.5	22	8	7.5	20	20
GN 743.4-14-M20x1,5-*	14	M 20 x 1.5	26	8.5	7.5	23	20
GN 743.4-18-M26x1,5-*	18	M 26 x 1.5	32	9	8	30	40
GN 743.4-24-M33x1,5-*	24	M 33 x 1.5	40	11	8.5	36	63
GN 743.4-32-M42x1,5-*	32	M 42 x 1.5	50	12	9	46	101
GN 743.4-11-G3/8-*	11	G 3/8	22	8	7.5	20	20
GN 743.4-14-G1/2-*	14	G 1/2	26	8.5	7.5	23	52
GN 743.4-18-G3/4-*	18	G 3/4	32	9	8	30	55
GN 743.4-24-G1-*	24	G 1	40	11	8.5	36	61
GN 743.4-32-G11/4-*	32	G 1 1/4	50	12	9	46	99

Weight type A

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GN 743.5

Stainless Steel-
Oil level sight glasses

Natural glass, up to 180 °C



SPECIFICATION

Types

- Type **A**: with contrast screen
- Type **B**: without contrast screen

Body
Stainless Steel AISI 303

Contrast screen (Type A)
Technopolymer (Polysulfan)

Circlip (Type B)
Stainless Steel AISI 301

- temperature resistant up to **180 °C**
- Sight glass ESG-glass
- Sealing ring rubber FPM (Viton®)

Identification by not black finish of the sealing ring

INFORMATION

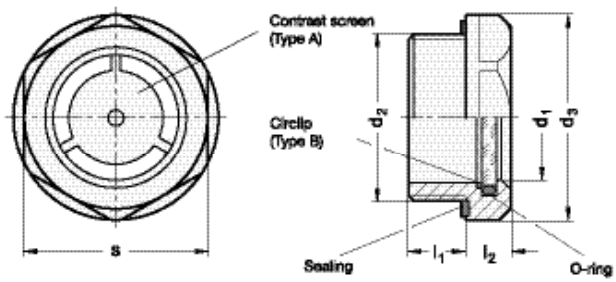
Stainless Steel-Oil level sight glasses GN 743.5 offer genuine glass of high stability and scratch proof. The sealing is achieved with an O-ring on the periphery and not on the face edge of the glass. Leak tightness is therefore not affected by axial pressures.
The outside diameter of these oil level sight glasses with recessed hexagon is chosen to match mounting holes for tube connections according to DIN 3852.
The seal is housed in a groove and it can therefore not be lost. In addition, this groove prevents the seal from being extruded when the sight glass is tightened.
Stainless Steel-Oil level sight glasses GN 743.5 can be used on pressurised oil tanks. Tests regarding maximum pressure are available on request.

ON REQUEST

- EPDM seal

TECHNICAL INFORMATION

- Elastomer characteristics (see page A32)
- Stainless Steel characteristics (see page A26)



*Complete with type index of the Oil level sight glasses

A
with contrast screen

B
without contrast screen

GN 743.5 — **STAINLESS STEEL**

Description	d1	d2	d3	l1	l2	s	⚖
GN 743.5-11-M16x1,5-*	11	M 16 x 1.5	22	8	7.5	20	19
GN 743.5-14-M20x1,5-*	14	M 20 x 1.5	26	8.5	7.5	23	20
GN 743.5-18-M26x1,5-*	18	M 26 x 1.5	32	9	8	30	42
GN 743.5-24-M33x1,5-*	24	M 33 x 1.5	40	11	8.5	36	64
GN 743.5-32-M42x1,5-*	32	M 42 x 1.5	50	12	9	46	90
GN 743.5-11-G3/8-*	11	G 3/8	22	8	7.5	20	19
GN 743.5-14-G1/2-*	14	G 1/2	26	8.5	7.5	23	23
GN 743.5-18-G3/4-*	18	G 3/4	32	9	8	30	41
GN 743.5-24-G1-*	24	G 1	40	11	8.5	36	64
GN 743.5-32-G11/4-*	32	G 1 1/4	50	12	9	46	102

Weight type A

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ATEX-Sight glasses

Aluminium / Natural glass

SPECIFICATION

Body
Aluminium
Surface fine turned

Sight glass
ESG-glass

Sealing ring
rubber FPM (Viton®)

Circlip
Stainless Steel AISI 301

Temperature range:
-20 °C up to +150 °C



INFORMATION

ATEX-Sight glasses GN 743.6 are suitable for use in an explosion risk environment. They comply with the guidelines 94/9/EG. Detailed documentation is available and forms part of an order for this product.
A detailed operating instruction is included.
In addition, the body is provided with an ATEX-label.
Further salient points of the oil level sight glasses GN 743.6 are:
Genuine glass of high stability and scratch proof. The sealing is achieved with an O-ring on the **periphery** and not on the face edge of the glass. Leak tightness is therefore not affected by axial pressures.
The sealing ring is embedded in a radial groove and cannot drop out, nor can it be extruded when tightening torque is applied.
Sight glasses GN 743.6 can be used on pressurised oil tanks. Tests regarding maximum pressure are available on request.
Assembly instruction:
For mounting on walls of less than 4 mm thickness please use a fixing nut GH. (see page 1743).

ACCESSORY

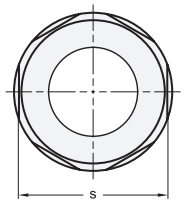
- Fixing nut GH. (see page 1743)

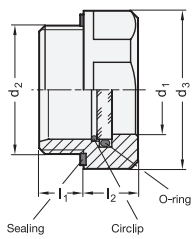
ON REQUEST

- EPDM seal

TECHNICAL INFORMATION

- Elastomer characteristics (see page A32)
- Stainless Steel characteristics (see page A26)





GN 743.6

Description	d1	d2	d3	l1	l2	s	⚖
GN 743.6-11-M16x1,5	11	M 16 x 1.5	22	8	8	20	18
GN 743.6-14-M20x1,5	14	M 20 x 1.5	26	8.5	9	23	20
GN 743.6-18-M26x1,5	18	M 26 x 1.5	32	9	11	30	21
GN 743.6-18-M27x1,5	18	M 27 x 1.5	32	9	11	30	22
GN 743.6-18-M27x2	18	M 27 x 2	32	9	11	30	22
GN 743.6-11-G3/8	11	G 3/8	22	8	8	20	20
GN 743.6-14-G1/2	14	G 1/2	26	8.5	9	23	20
GN 743.6-18-G3/4	18	G 3/4	32	9	11	30	35

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GN 743.7

Oil level sight glasses

Brass / natural glass, resistant up to 100 °C

SPECIFICATION

Types

- Type **A**: with contrast screen
- Type **B**: without contrast screen

Body
Brass
CuZn40Pb2

Contrast screen
Technopolymer (Polysulfon)

- temperature resistant up to **100 °C**
- Sight glass Float-glass
- O-Ring rubber NBR (Perbunan)

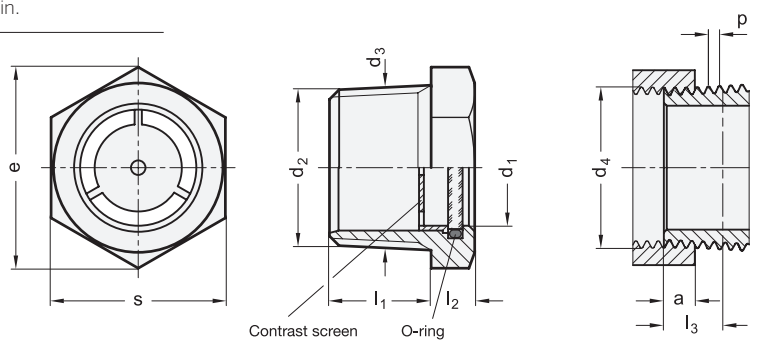


INFORMATION

The conical thread of the oil level sight glasses GN 743.7 makes a metallic seal possible. When tightening the conical male thread R it blocks itself with the appropriate cylindrical female thread Rp.
With the datum plane a the R-male thread has the same thread diameter as the Rp-female thread, so that it can be screwed in by hand. The strong tightening by means of a tool increases the length of engagement and seals the screw connection. Additionally a sealant (hemp or teflon band) is usually used. The R-thread is „roughened", so that the sealant does not shift when screwing in.

ON REQUEST

- EPDM O-rings



GN 743.7

Description	d1	d2	a	d3	d4	e	l1	l2	l3	s	p	⚖
GN 743.7-11-R3/8-A	11	R 3/8	6.4	16.7	Rp 3/8	22	13	6	10.1	19	1.34	19
GN 743.7-14-R1/2-A	14	R 1/2	8.2	21	Rp 1/2	27.5	17	7	13.2	24	1.81	40
GN 743.7-18-R3/4-A	18	R 3/4	9.5	26.4	Rp 3/4	31	18	8	14.5	27	1.81	50
GN 743.7-24-R1-A	24	R 1	10.4	33.2	Rp 1	40.5	21	9	16.8	36	2.3	91
GN 743.7-32-R11/4-A	32	R 1 1/4	12.7	42	Rp 1 1/4	53	24	9	19.1	46	2.3	149
GN 743.7-11-R3/8-B	11	R 3/8	6.4	16.7	Rp 3/8	22	13	6	10.1	19	1.34	20
GN 743.7-14-R1/2-B	14	R 1/2	8.2	21	Rp 1/2	27.5	17	7	13.2	24	1.81	33
GN 743.7-18-R3/4-B	18	R 3/4	9.5	26.4	Rp 3/4	31	18	8	14.5	27	1.81	49
GN 743.7-24-R1-B	24	R 1	10.4	33.2	Rp 1	40.5	21	9	16.8	36	2.3	91
GN 743.7-32-R11/4-B	32	R 1 1/4	12.7	42	Rp 1 1/4	53	24	9	19.1	46	2.3	140
GN 743.7-32-11/4NPT-B	32	1 1/4 NPT	10.7	42.2	1 1/4 NPT	51.5	23	9	-	44.5	2.21	133
GN 743.7-11-3/8NPT-A	11	3/8 NPT	6.1	17.1	3/8 NPT	22	15	6	-	19.1	1.41	19
GN 743.7-14-1/2NPT-A	14	1/2 NPT	8.1	21.2	1/2 NPT	27.5	16	7	-	23.8	1.81	31
GN 743.7-18-3/4NPT-A	18	3/4 NPT	8.6	26.6	3/4 NPT	33	18	8	-	28.6	1.81	55
GN 743.7-24-1NPT-A	24	1 NPT	10.2	33.7	1 NPT	41.5	22	8	-	34.9	2.21	73
GN 743.7-32-11/4NPT-A	32	1 1/4 NPT	10.7	42.2	1 1/4 NPT	51.5	23	9	-	44.5	2.21	135
GN 743.7-11-3/8NPT-B	11	3/8 NPT	6.1	17.1	3/8 NPT	22	15	6	-	19.1	1.41	200
GN 743.7-14-1/2NPT-B	14	1/2 NPT	8.1	21.2	1/2 NPT	27.5	16	7	-	23.8	1.81	34
GN 743.7-18-3/4NPT-B	18	3/4 NPT	8.6	26.6	3/4 NPT	33	18	8	-	28.6	1.81	60
GN 743.7-24-1NPT-B	24	1 NPT	10.2	33.7	1 NPT	41.5	22	8	-	34.9	2.21	83
GN 743.7-32-11/4NPT-B	32	1 1/4 NPT	10.7	42.2	1 1/4 NPT	51.5	23	9	-	44.5	2.21	133

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Oil level sight glasses

Brass / natural glass, resistant up to 180 °C

SPECIFICATION

Types

- Type **A**: with contrast screen
- Type **B**: without contrast screen

Body
Brass
CuZn40Pb2

Contrast screen
Technopolymer (Polysulfon)

- temperature resistant up to **180 °C**
- Sight glass ESG-glass
- O-Ring rubber FPM (Viton®)

Identification by not black finish of the sealing ring

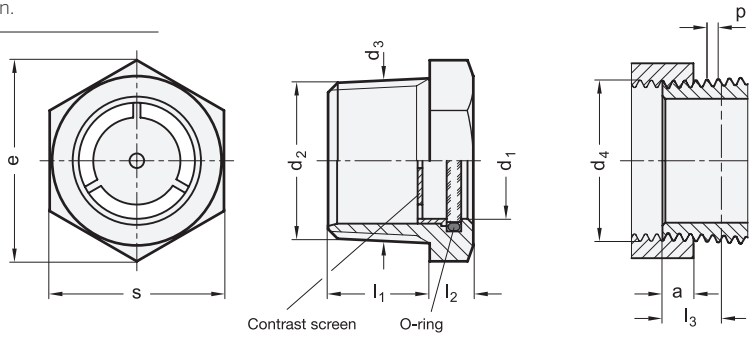


INFORMATION

The conical thread of the oil level sight glasses GN 743.8 makes a metallic seal possible. When tightening the conical male thread R it blocks itself with the appropriate cylindrical female thread Rp.
With the datum plane a the R-male thread has the same thread diameter as the Rp-female thread, so that it can be screwed in by hand. The strong tightening by means of a tool increases the length of engagement and seals the screw connection. Additionally a sealant (hemp or teflon band) is usually used. The R-thread is „roughened", so that the sealant does not shift when screwing in.

ON REQUEST

- EPDM O-rings



GN 743.8

Description	d1	d2	a	d3	d4	e	l1	l2	l3	s	p	⚖
GN 743.8-11-R3/8-A	11	R 3/8	6.4	16.7	Rp 3/8	22	13	6	10.1	19	1.34	19
GN 743.8-14-R1/2-A	14	R 1/2	8.2	21	Rp 1/2	27.5	17	7	13.2	24	1.81	34
GN 743.8-18-R3/4-A	18	R 3/4	9.5	26.4	Rp 3/4	31	18	8	14.5	27	1.81	49
GN 743.8-24-R1-A	24	R 1	10.4	33.2	Rp 1	40.5	21	9	16.8	36	2.3	92
GN 743.8-32-R11/4-A	32	R 1 1/4	12.7	42	Rp 1 1/4	53	24	9	19.1	46	2.3	140
GN 743.8-11-R3/8-B	11	R 3/8	6.4	16.7	Rp 3/8	22	13	6	10.1	19	1.34	22
GN 743.8-14-R1/2-B	14	R 1/2	8.2	21	Rp 1/2	27.5	17	7	13.2	24	1.81	40
GN 743.8-18-R3/4-B	18	R 3/4	9.5	26.4	Rp 3/4	31	18	8	14.5	27	1.81	60
GN 743.8-24-R1-B	24	R 1	10.4	33.2	Rp 1	40.5	21	9	16.8	36	2.3	80
GN 743.8-32-R11/4-B	32	R 1 1/4	12.7	42	Rp 1 1/4	53	24	9	19.1	46	2.3	140
GN 743.8-32-11/4NPT-B	32	1 1/4 NPT	10.7	42.2	1 1/4 NPT	51.5	23	9	-	44.5	2.21	140
GN 743.8-11-3/8NPT-A	11	3/8 NPT	6.1	17.1	3/8 NPT	22	15	6	-	19.1	1.41	27
GN 743.8-14-1/2NPT-A	14	1/2 NPT	8.1	21.2	1/2 NPT	27.5	16	7	-	23.8	1.81	34
GN 743.8-18-3/4NPT-A	18	3/4 NPT	8.6	26.6	3/4 NPT	33	18	8	-	28.6	1.81	55
GN 743.8-24-1NPT-A	24	1 NPT	10.2	33.7	1 NPT	41.5	22	8	-	34.9	2.21	100
GN 743.8-32-11/4NPT-A	32	1 1/4 NPT	10.7	42.2	1 1/4 NPT	51.5	23	9	-	44.5	2.21	150
GN 743.8-11-3/8NPT-B	11	3/8 NPT	6.1	17.1	3/8 NPT	22	15	6	-	19.1	1.41	20
GN 743.8-14-1/2NPT-B	14	1/2 NPT	8.1	21.2	1/2 NPT	27.5	16	7	-	23.8	1.81	32
GN 743.8-18-3/4NPT-B	18	3/4 NPT	8.6	26.6	3/4 NPT	33	18	8	-	28.6	1.81	60
GN 743.8-24-1NPT-B	24	1 NPT	10.2	33.7	1 NPT	41.5	22	8	-	34.9	2.21	140
GN 743.8-32-11/4NPT-B	32	1 1/4 NPT	10.7	42.2	1 1/4 NPT	51.5	23	9	-	44.5	2.21	140

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HGFT-PR

Oil level indicators

with prismatic window, technopolymer

MATERIAL
Polyamide based (PA) technopolymer, black colour, glossy finish.

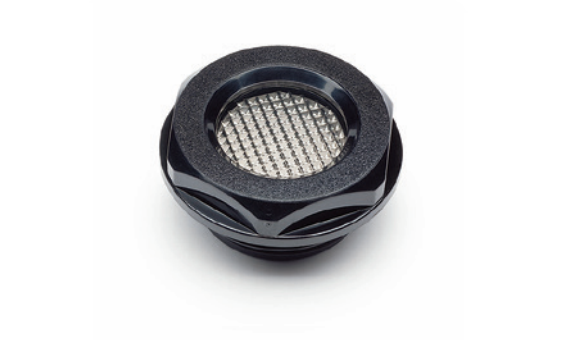
PRISMATIC WINDOW
Transparent polyamide based (PA-T/AR) technopolymer. The window consists of a continuous series of prisms which provide a clear and immediate reading of the level of the oil contained in the reservoir.

PACKING RING
NBR synthetic rubber.

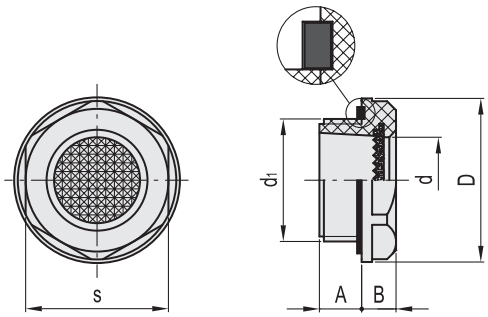
MAXIMUM CONTINUOUS WORKING TEMPERATURE
100°C at 3 bar pressure.

NOTE
For use with other fluids with special additives, please contact ELESA Sales Department.

ACCESSORIES ON REQUEST
Brass nut type GH. (see page 1743) for fitting to reservoirs with wall thickness smaller than 5 mm.



ELESA Original design



Code	Description	d1	A	B	D	d	s	Tightening torque [Nm]	
14462	HGFT.13/PR-1/2-C9	G 1/2	10	8.5	28	14.5	24	6÷8	5
14482	HGFT.16/PR-3/4-C9	G 3/4	9.5	8.5	35	18	32	8÷10	9
14522	HGFT.21/PR-1-C9	G 1	11	9.5	42.5	23	38	10÷12	14
14542	HGFT.25/PR-1¼-C9	G1 1/4	11	9	50	30	46	12÷15	30

HGFT-HT-PR

Oil level indicators

with prismatic window, high temperatures, technopolymer

MATERIAL
Polyamide based (PA) technopolymer, black colour, glossy finish.

PRISMATIC WINDOW
Transparent sulphonic based technopolymer. The window consists of a continuous series of prisms which provide a clear and immediate reading of the level of the oil contained in the reservoir.

PACKING RING
FKM type VITON®*.

MAXIMUM CONTINUOUS WORKING TEMPERATURE
140°C at 7 bar pressure.

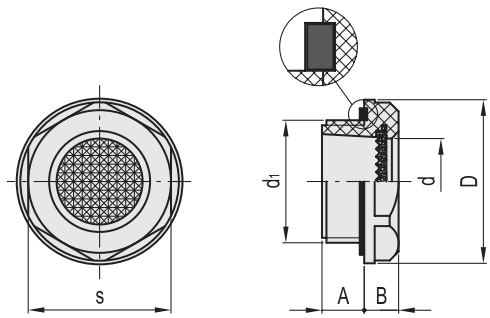
*** Registered trademark by DuPont Dow Elastomers.**

NOTE
For use with other fluids with special additives, please contact ELESA Sales Department.

ACCESSORIES ON REQUEST
Brass nut type GH. (see page 1743) for fitting to reservoirs with wall thickness smaller than 5 mm.



ELESA Original design



Code	Description	d1	A	B	D	d	s	Tightening torque [Nm]	
14463	HGFT.13/HT-PR-1/2	G 1/2	10	8.5	28	14.5	24	6÷8	5
14483	HGFT.16/HT-PR-3/4	G 3/4	9.5	8.5	35	18	32	8÷10	9
14523	HGFT.21/HT-PR-1	G 1	11	9.5	42.5	23	38	10÷12	14

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Breather strainers

with Stainless Steel mesh

SPECIFICATION

Body

- Aluminium **AL**
- Stainless Steel AISI 303 **NI**

Strainer
Stainless Steel mesh
AISI 304

Strainer bezel
Plastic Polyamide (PA)

- glass fibre reinforced
- temperature resistant up to 100 °C

Sealing / O-Ring
Rubber NBR (Perbunan ®)

INFORMATION

Breather strainers GN 7403 are used in enclosure and device construction. Inserted into the wall of the enclosure, they ensure pressure equilibrium between the inside of the enclosure and the outside.
Any dirt and dust particles carried by the medium (usually gas) are prevented from exiting depending on the mesh size. This protects the insides of sensitive devices and machinery parts from dirt and pollution and also protects the environment from any exiting dust.
The outside diameter of the enclosure with the recessed hexagon matches the bolt mounting holes for DIN 3852 threaded pipe connectors.
The sealing ring is embedded in a radial and plane-sided recess which makes the seal captive and prevents it from being squeezed out during tightening.
Assembly instruction:
For mounting on walls of less than 4 mm thickness, please use mounting nut GH. (see page 1743).



ACCESSORY

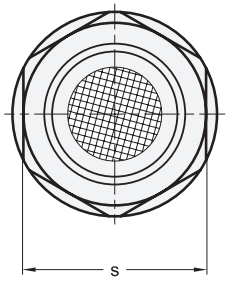
- Mounting nut GH. (see page 1743)

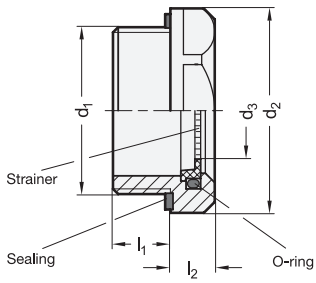
ON REQUEST

- Body in brass
- Other mesh size
- Other material for the strainer

TECHNICAL INFORMATION

- Elastomer characteristics (see page A32)
- Plastic characteristics (see page A2)





GN 7403-AL

Description	d1	Mesh size in µm	d2	d3	l1	l2	s	⚖
GN 7403-AL-G1/2-100	G1/2	100	26	10	8.5	7.5	23	11
GN 7403-AL-G1/2-500	G1/2	500	26	10	8.5	7.5	23	11
GN 7403-AL-G3/4-100	G3/4	100	32	14	9	8	30	17
GN 7403-AL-G3/4-500	G3/4	500	32	14	9	8	30	17
GN 7403-AL-G1-100	G1	100	40	20	11	8.5	36	28
GN 7403-AL-G1-500	G1	500	40	20	11	8.5	36	20
GN 7403-AL-M20x1,5-100	M20x1.5	100	26	10	8.5	7.5	23	10
GN 7403-AL-M20x1,5-500	M20x1.5	500	26	10	8.5	7.5	23	10
GN 7403-AL-M26x1,5-100	M26x1.5	100	32	14	9	8	30	17
GN 7403-AL-M26x1,5-500	M26x1.5	500	32	14	9	8	30	17
GN 7403-AL-M33x1,5-100	M33x1.5	100	40	20	11	8.5	36	20
GN 7403-AL-M33x1,5-500	M33x1.5	500	40	20	11	8.5	36	20

GN 7403-NI

STAINLESS STEEL

Description	d1	Mesh size in µm	d2	d3	l1	l2	s	⚖
GN 7403-NI-G1/2-100	G1/2	100	26	10	8.5	7.5	23	23
GN 7403-NI-G1/2-500	G1/2	500	26	10	8.5	7.5	23	20
GN 7403-NI-G3/4-100	G3/4	100	32	14	9	8	30	38
GN 7403-NI-G3/4-500	G3/4	500	32	14	9	8	30	38
GN 7403-NI-G1-100	G1	100	40	20	11	8.5	36	59
GN 7403-NI-G1-500	G1	500	40	20	11	8.5	36	66
GN 7403-NI-M20x1,5-100	M20x1.5	100	26	10	8.5	7.5	23	20
GN 7403-NI-M20x1,5-500	M20x1.5	500	26	10	8.5	7.5	23	20
GN 7403-NI-M26x1,5-100	M26x1.5	100	32	14	9	8	30	38
GN 7403-NI-M26x1,5-500	M26x1.5	500	32	14	9	8	30	37
GN 7403-NI-M33x1,5-100	M33x1.5	100	40	20	11	8.5	36	59
GN 7403-NI-M33x1,5-500	M33x1.5	500	40	20	11	8.5	36	59

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GN 7405

Stainless Steel-Strainer fittings

SPECIFICATION

Types

- Type **A**: Fitting with female thread on both ends
- Type **B**: Fitting with female / male thread

Housing
Stainless Steel AISI 304 **NI**

Strainer
Stainless Steel mesh
AISI 304

Strainer bezel
Plastic (Polyamide PA)

- glass fibre reinforced
- temperature resistant up to 100 °C

O-ring
NBR (Perbunan)



INFORMATION

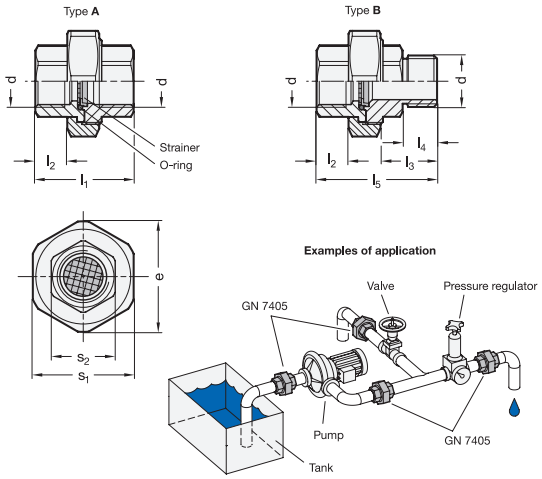
GN 7405 Stainless Steel-Strainer fittings are suited for assembly into piping systems as upstream or downstream protection devices. Depending on the mesh size, particles carried by liquid or gaseous media can be prevented from passing through. Units or housing interiors are thereby protected from foreign objects which can impair function or durability due to their size.
The housing is separately bolted through a union nut, making assembly/disassembly easier and allowing the strainer insert to be exchanged if necessary.
Replacement or maintenance Stainless Steel-Strainers are available under the GN 7403.1 (see page 1738) standard.

ACCESSORY

- Stainless Steel-Strainers GN 7403.1 (see page 1738)

TECHNICAL INFORMATION

- Elastomer characteristics (see page A32)
- Plastic characteristics (see page A2)
- Stainless Steel characteristics (see page A26)



GN 7405 — **STAINLESS STEEL**

Description	d	Mesh size in µm	e	l1	l2	l3	l4	l5	s1	s2	Differential pressure Δ 1 bar Flow volume in l/min. Water 100 µm	Differential pressure Δ 1 bar Flow volume in l/min. Water 500 µm	Hydraulic oil (HPL 46) 100 µm	Hydraulic oil (HPL 46) 500 µm	⚖
GN 7405-NI-G3/8-A-100	G3/8	100	40	36.5	12	-	-	-	36	22	21	25	7	18	140
GN 7405-NI-G3/8-A-500	G3/8	500	40	36.5	12	-	-	-	36	22	21	25	7	18	140
GN 7405-NI-G1/2-A-100	G1/2	100	45	40	13	-	-	-	41	26	48	61	15.5	38.5	168
GN 7405-NI-G1/2-A-500	G1/2	500	45	40	13	-	-	-	41	26	48	61	15.5	38.5	168
GN 7405-NI-G3/4-A-100	G3/4	100	55	46	15	-	-	-	50	34	96	104	30	77.5	303
GN 7405-NI-G3/4-A-500	G3/4	500	55	46	15	-	-	-	50	34	96	104	30	77.5	303
GN 7405-NI-G3/8-B-100	G3/8	100	40	36.5	12	21	12	45	36	22	21	25	7	18	140
GN 7405-NI-G3/8-B-500	G3/8	500	40	36.5	12	21	12	45	36	22	21	25	7	18	140
GN 7405-NI-G1/2-B-100	G1/2	100	45	40	13	23	14	49	41	26	48	61	15.5	38.5	188
GN 7405-NI-G1/2-B-500	G1/2	500	45	40	13	23	14	49	41	26	48	61	15.5	38.5	187
GN 7405-NI-G3/4-B-100	G3/4	100	55	46	15	25	16	55	50	34	96	104	30	77.5	333
GN 7405-NI-G3/4-B-500	G3/4	500	55	46	15	25	16	55	50	34	96	104	30	77.5	333

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GN 7403.1

Stainless Steel-Strainers



SPECIFICATION

Strainer
Stainless Steel mesh **NI**
AISI 304

Strainer bezel
Plastic (Polyamide PA)

- glass fibre reinforced
- temperature resistant up to 100 °C

INFORMATION

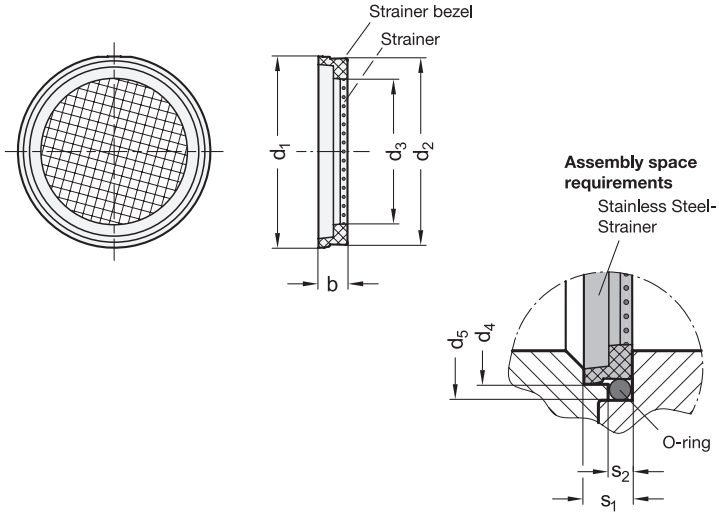
GN 7403.1 Stainless-Steel-Strainers are adapted for use as replacements for GN 7405 (see page 1737) strainer fittings. They are also suitable for the application-specific assembly of upstream or downstream protection devices.
Depending on the mesh size, particles carried by liquid or gaseous media can be prevented from passing through. Units or housing interiors are thereby protected from foreign objects which can impair function or durability due to their size.
The assembly space required is shown in the drawing. An additional O-ring is generally mounted at the circumference as a seal.

ON REQUEST

- other mesh sizes
- Plastic strainer mesh

TECHNICAL INFORMATION

- Plastic characteristics (see page A2)
- Stainless Steel characteristics (see page A26)



GN 7403.1 **STAINLESS STEEL**

Description	Nominal size	Mesh size in µm	b	d1	d2	d3	d4 +0.1	d5 ±0.05	s1 +0.1	s2 -0.1	Suitable O-ring	Suitable for nominal size d of GN 7405	⚖
GN 7403.1-NI-14-100	14	100	4	16.6	15.7	10	16.6	18.7	4	2	16x2	G3/8	32
GN 7403.1-NI-14-500	14	500	4	16.6	15.7	10	16.6	18.7	4	2	16x2	G3/8	32
GN 7403.1-NI-18-100	18	100	4	20.6	19.7	14	20.6	22.7	4	2	20x2	G1/2	35
GN 7403.1-NI-18-500	18	500	4	20.6	19.7	14	20.6	22.7	4	2	20x2	G1/2	35
GN 7403.1-NI-24-100	24	100	4	26.6	25.7	20	26.6	28.7	4	2	26x2	G3/4	30
GN 7403.1-NI-24-500	24	500	4	26.6	25.7	20	26.6	28.7	4	2	26x2	G3/4	30

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Oil level sight glasses

Aluminium / crystal-clear plastic



SPECIFICATION

Types

- Type **A**: with prismatic effect (only d_1 = 14/18/24)
- Type **B**: without contrast screen (all sizes)
- Type **C**: with red marking ring (only d_1 = 11/14/18/24)

Body
Aluminium
fine turned

Sight glass
Plastic

- crystal-clear Polymide (PA-T)
- temperature resistant up to 110 °C

Red marking ring
pad printing

Sealing ring
Rubber NBR (Perbunan)

INFORMATION

Oil level sight glasses GN 744 use the so called prismatic effect of a cat's eye to display the oil level unaffected by oil colour or oil viscosity. The advantage of this effect is particularly obvious in the case of under or overfilling or for inspection under unfavourable light conditions.
The seal is housed in a radial groove in the aluminium body and hence cannot be lost. In addition it cannot be extruded when thigtening the sight glass.
Oil level sight glasses GN 744 can also be used on pressurised tanks. Data of pressure an vacuum pressure tests is available.
Assembly instruction:
For mounting on walls of less than 4 mm thickness please use a fixing nut GH. (see page 1743)

ACCESSORY

- Fixing nut GH. (see page 1743)

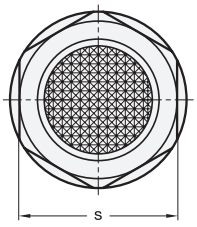
ON REQUEST

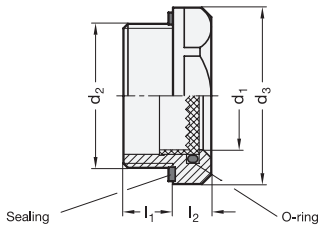
- EPDM seal

TECHNICAL INFORMATION

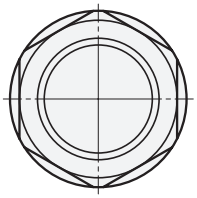
- Elastomer characteristics (see page A32)
- Plastic characteristics (see page A2)

Type A

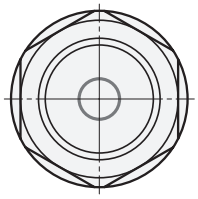




Type B



Type C



GN 744

Description	d1	d2	d3	l1	l2	s	⚖
GN 744-14-G1/2-A	14	G 1/2	26	8.5	7.5	23	12
GN 744-14-M20x1,5-A	14	M 20 x 1.5	26	8.5	7.5	23	5
GN 744-18-G3/4-A	18	G 3/4	32	9	8	30	15
GN 744-18-M26x1,5-A	18	M 26 x 1.5	32	9	8	30	15
GN 744-18-M27x1,5-A	18	M 27 x 1.5	32	9	8	30	16
GN 744-24-G1-A	24	G 1	40	11	8.5	36	23
GN 744-24-M33x1,5-A	24	M 33 x 1.5	40	11	8.5	36	30
GN 744-7-G1/4-B	7	G 1/4	20	7.5	6.5	18	5
GN 744-7-M12x1,5-B	7	M 12 x 1.5	20	7.5	6.5	18	5
GN 744-11-G3/8-B	11	G 3/8	22	8	7.5	20	6
GN 744-11-M16x1,5-B	11	M 16 x 1.5	22	8	7.5	20	6
GN 744-14-G1/2-B	14	G 1/2	26	8.5	7.5	23	8
GN 744-14-M20x1,5-B	14	M 20 x 1.5	26	8.5	7.5	23	8
GN 744-18-G3/4-B	18	G 3/4	32	9	8	30	15

GN 744

Description	d1	d2	d3	l1	l2	s	⚖
GN 744-18-M26x1,5-B	18	M 26 x 1.5	32	9	8	30	14
GN 744-18-M27x1,5-B	18	M 27 x 1.5	32	9	8	30	16
GN 744-24-G1-B	24	G 1	40	11	8.5	36	22
GN 744-24-M33x1,5-B	24	M 33 x 1.5	40	11	8.5	36	23
GN 744-11-G3/8-C	11	G 3/8	22	8	7.5	20	6
GN 744-11-M16x1,5-C	11	M 16 x 1.5	22	8	7.5	20	6
GN 744-14-G1/2-C	14	G 1/2	26	8.5	7.5	23	8
GN 744-14-M20x1,5-C	14	M 20 x 1.5	26	8.5	7.5	23	8
GN 744-18-G3/4-C	18	G 3/4	32	9	8	30	15
GN 744-18-M26x1,5-C	18	M 26 x 1.5	32	9	8	30	14
GN 744-18-M27x1,5-C	18	M 27 x 1.5	32	9	8	30	16
GN 744-24-G1-C	24	G 1	40	11	8.5	36	22
GN 744-24-M33x1,5-C	24	M 33 x 1.5	40	11	8.5	36	23

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Oil level indicators

Technopolymer

MATERIAL
Transparent polyamide based (PA-T) technopolymer. Avoid contact with alcohol or detergents containing alcohol.

STAR-SHAPED CONTRAST SCREEN
Matte anodised aluminium with red central level point.

PACKING RING
NBR synthetic rubber.

MAXIMUM CONTINUOUS WORKING TEMPERATURE
100°C.

FEATURES
The particular shape of the magnifying lens increases and improves visibility even from side positions.

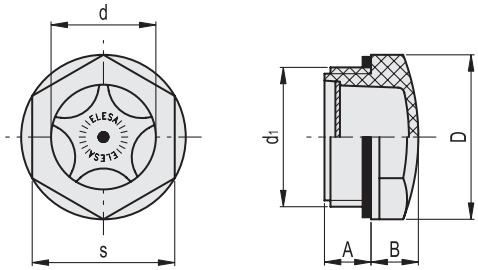
TECHNICAL DATA
The tightening torque indicated in the table guarantees an optimal tightness, keeping the packing ring in the correct position.

NOTE
For use with other fluids with special additives, please contact ELESA Sales Department.

ACCESSORIES ON REQUEST
Brass nut type GH. (see page 1743) for fitting to reservoirs with wall thickness smaller than 5 mm.



ELESA Original design



Code	Description	d1	A	B	D	d	s	Tightening torque [Nm]	⚖
13661	HFTX.11-M16x1.5	M16x1.5	8	7	22	11	19	2÷3	4
13681	HFTX.14-M20x1.5	M20x1.5	9.5	8	26	14	22	8÷10	5
13701	HFTX.18-M25x1.5	M25x1.5	8	9	31.5	18	27	8÷10	8
13726	HFTX.21-M26x1.5	M26x1.5	13	9	31.5	18	27	8÷10	8
13711	HFTX.19-M27x1.5	M27x1.5	9	9	31.5	20	27	8÷10	8
13731	HFTX.22-M30x1.5	M30x1.5	9	10	35	22	30	8÷10	10
13751	HFTX.26-M35x1.5	M35x1.5	11	10	40	25	34	8÷10	13
13771	HFTX.31-M40x1.5	M40x1.5	11.5	13	47	30	40.5	8÷10	20
13651	HFTX.9-1/4	G 1/4	10	6	18	9	15	2÷3	3
13671	HFTX.12-3/8	G 3/8	7.5	7	22	11	19	3÷5	4
13691	HFTX.15-1/2	G 1/2	10.5	8	26	14	22	4÷6	5
13721	HFTX.20-3/4	G 3/4	10.5	9	31.5	20	27	6÷8	8
13741	HFTX.24-1	G 1	11	10	40	25	34	8÷10	12
13761	HFTX.30-1¼	G1 1/4	11.5	13	47.5	30	40.5	8÷10	20

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HFTX-PR

Oil level indicators

with prismatic window, technopolymer

MATERIAL
Transparent polyamide based (PA-T) technopolymer. Avoid contact with alcohol or detergents containing alcohol.
The window consists of a continuous series of prisms which provide a clear and immediate reading of the level of the oil contained in the reservoir.

PACKING RING
NBR synthetic rubber.

MAXIMUM CONTINUOUS WORKING TEMPERATURE
100°C.

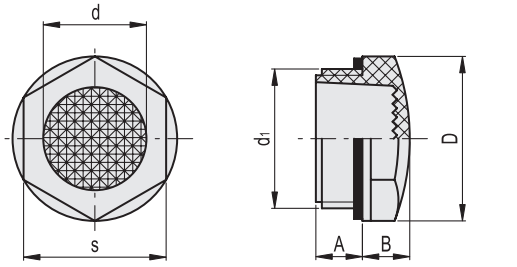
TECHNICAL DATA
The tightening torque indicated in the table guarantees an optimal tightness, keeping the packing ring in the correct position.

NOTE
For use with other fluids with special additives, please contact ELESA Sales Department.

ACCESSORIES ON REQUEST
Brass nut type GH. (see page 1743) for fitting to reservoirs with wall thickness smaller than 5 mm.



ELESA Original design



Code	Description	d1	A	B	D	d	s	Tightening torque [Nm]	
13652	HFTX.9/PR-1/4	G 1/4	10	6	18	9	15	2÷3	3
13672	HFTX.12/PR-3/8	G 3/8	7.5	7	22	11	19	3÷5	4
13692	HFTX.15/PR-1/2	G 1/2	10.5	8	26	14	22	4÷6	5
13722	HFTX.20/PR-3/4	G 3/4	10.5	9	31.5	20	27	6÷8	8
13742	HFTX.24/PR-1	G 1	11	10	40	25	34	8÷10	12

HFTR-PR

Oil level indicators

with prismatic window, technopolymer

MATERIAL
Transparent polyamide based (PA-T) technopolymer. Avoid contact with alcohol or detergents containing alcohol.
The window consists of a continuous series of prisms which provide a clear and immediate reading of the level of the oil contained in the reservoir.

PACKING RING
NBR synthetic rubber
The positioning of the packing ring in its housing guarantees a high tightening torque.

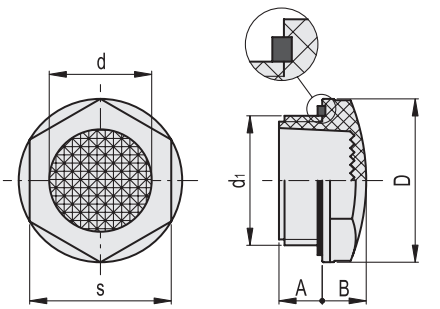
MAXIMUM CONTINUOUS WORKING TEMPERATURE
100°C.

NOTE
For use with other fluids with special additives, please contact ELESA Sales Department.

ACCESSORIES ON REQUEST
Brass nut GH. (see page 1743) for fitting to reservoirs with wall thickness smaller than 5 mm.



ELESA Original design



Code	Description	d1	A	B	D	d	s	Tightening torque [Nm]	
14692	HFTR.15/PR-1/2	G 1/2	10.5	9	28	15	24	8÷10	6
14722	HFTR.20/PR-3/4	G 3/4	10.5	10.5	35	20	32	10÷12	9
14742	HFTR.24/PR-1	G 1	11	13.5	42.5	24	38	10÷12	13
14762	HFTR.30/PR-1¼	G1 1/4	19	16	52	30.5	41	12÷14	21

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HRT.

Oil level indicators

push-fit, technopolymer

MATERIAL
Polyamide based (PA) technopolymer, black colour, matte finish.

WINDOW
Transparent polyamide based (PA-T/AR) technopolymer.

CONTRAST SCREEN
White lacquered aluminium with red level line.

PACKING RING
NBR synthetic rubber O-Ring.

MAXIMUM CONTINUOUS WORKING TEMPERATURE
100°C.

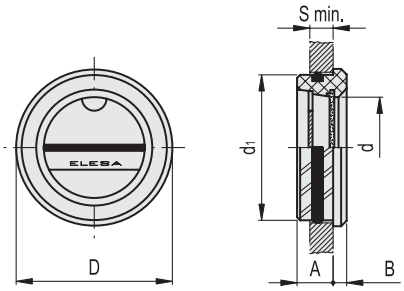
FEATURES AND APPLICATIONS
The push-fit assembly is guaranteed by optimized ribbings.
Sealing is guaranteed by the O-ring.
HRT. oil level indicators push-fit are particularly suitable for assembly on reservoirs with limited pressure.

NOTE
For use with other fluids with special additives, please contact ELESA Sales Department.

ASSEMBLY INSTRUCTIONS
Chamfer hole 1x45° and grease slightly the outside surface of the O-ring to make assembly easier.



ELESA Original design



Code	Description	d1	A	B	D	d	Smin	Mounting hole d1 H11	⚖
10751	HRT.15-26	26	9	4.5	28	14.5	6	26	6
10756	HRT.20-32	32	10.5	4.5	36	18	8	32	10
10761	HRT.25-38	38	11	5	42	23	8	38	12
10766	HRT.40-60	60	11	5.5	64	40	9	60	29

HRT-T

Oil level indicators

push- fit with temperature reading, technopolymer

MATERIAL
Polyamide based (PA) technopolymer, black colour, matte finish.

WINDOW
Transparent polyamide based (PA-T/AR) technopolymer.

CONTRAST SCREEN WITH BIMETALLIC THERMOMETER
Graduated scale up to 100°C to read oil temperature, even when oil level is at minimum, thanks to the conductivity of the aluminium contrast screen.

PACKING RING
NBR synthetic rubber O-Ring.

MAXIMUM CONTINUOUS WORKING TEMPERATURE
100°C.

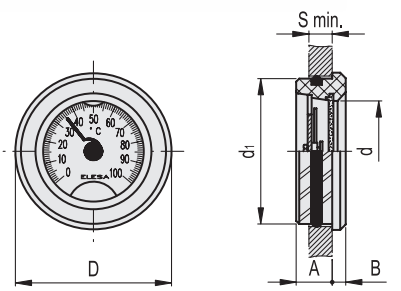
FEATURES AND APPLICATIONS
The push-fit assembly is guaranteed by optimized ribbings.
Sealing is guaranteed by the O-ring.
HRT-T oil level indicators push-fit are particularly suitable for assembly on reservoirs with limited pressure.

NOTE
For use with other fluids with special additives, please contact ELESA Sales Department.

ASSEMBLY INSTRUCTIONS
Chamfer hole 1x45° and grease slightly the outside surface of the O-ring to make assembly easier.



ELESA Original design



Code	Description	d1	A	B	D	d	Smin	Mounting hole d1 H11	⚖
10781	HRT.25/T-38	38	11	5	42	23	8	38	12
10786	HRT.40/T-60	60	11	5.5	64	40	9	60	29

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HE.

Oil level indicators

push- fit, polycarbonate

MATERIAL
Transparent high mechanical resistance polycarbonate. Not suitable for use with oils with additives and solvents. Avoid contact with alcohol or detergents containing alcohol.

CONTRAST SCREEN
White lacquered aluminium with red level line.

PACKING RING
NBR synthetic rubber O-Ring.

MAXIMUM CONTINUOUS WORKING TEMPERATURE
100°C.

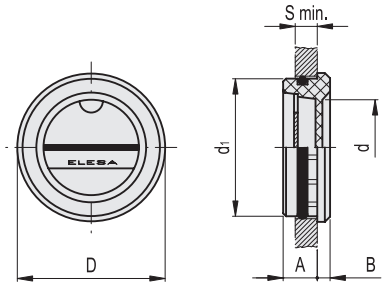
FEATURES AND APPLICATIONS
The push-fit assembly is guaranteed by optimized ribbings.
Sealing is guaranteed by the O-ring.
HE. oil level indicators push-fit are particularly suitable for assembly on reservoirs with limited pressure.

NOTE
For use with other fluids with special additives, please contact ELESA Sales Department.

ASSEMBLY INSTRUCTIONS
Chamfer hole 1x45° and grease slightly the outside surface of the O-ring to make assembly easier.



ELESA Original design



Code	Description	d1	A	B	D	d	Smin	Mounting hole d1 H11	⚖
11401	HE.17	17	6.5	3	18	9	5	17	2
11501	HE.20	20	8	3	21	12	6	20	3
11601	HE.26	26	7.5	3.5	28	17	6	26	5
11701	HE.30	30	8	4	32	20	7	30	7
11801	HE.35	35	9	4	38	25	8	35	10
11901	HE.40	40	10	4.5	43	28	9	40	13
12001	HE.45	45	11	5.5	47	32	9	45	18

GH.

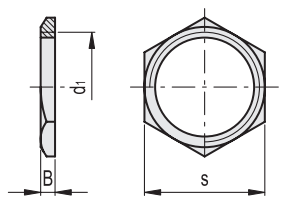
Nuts

Brass

MATERIAL
Brass.

FEATURES AND APPLICATIONS
GH. nuts can be used for fitting the following indicators to reservoirs with thin walls (thickness smaller than 5 mm):
- HGFT. (see page 1724)
- HGFT-EX (see page 1725)
- GN 743 (see page 1726)
- GN 743.1 (see page 1727)
- GN 743.2 (see page 1728)
- GN 743.3 (see page 1729)
- GN 743.4 (see page 1730)
- GN 743.5 (see page 1731)
- GN 743.6 (see page 1732)
- HGFT-PR (see page 1735)
- HGFT-HT-PR (see page 1735)
- GN 744 (see page 1739)
- HFTX (see page 1740)
- HFTX-PR (see page 1741)
- HCFE (see page 1745)
- HCFE-C (see page 1745)
- HCFE-EX (see page 1746)





Code	Description	d1	B	s	⚖
14991	GH. 1/4	G 1/4	6	19	9
15001	GH. 3/8	G 3/8	3	19	3
15011	GH. 1/2	G 1/2	4	26	8
15021	GH. 3/4	G 3/4	5	31	12
15031	GH. 1	G 1	4.5	37	14
15041	GH. 1¼	G1 1/4	5	46	23
15051	GH. 2	G 2	6	65	50

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Oil level sight glasses

Aluminium / Perspex / without thread

SPECIFICATION

Types

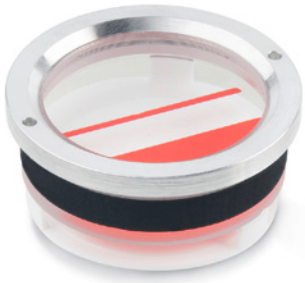
- Type **A**: without oil level mark
- Type **B**: with oil level mark

Ring nut
Aluminium

Sight glass
Perspex (PMMA)
temperature resistant up to 80 °C

Sealing ring
Rubber NBR (Perbunan)

Contrast screen
Plastic
white, with red oil level marks



INFORMATION

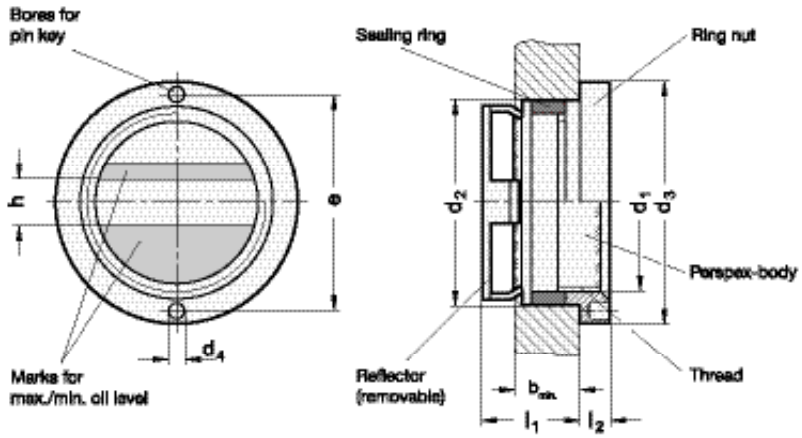
This oil level glass GN 537 does not require a thread.
The oil level sight glass is inserted into the bore d_2 to H11. By simply tightening the ring nut using the pin key the seal is pressed against the contact surface which, at the same time, will hold the sight glass in position. For removal reverse the procedure.
Their application is limited to non-pressurised or only slightly pressurised tanks.

ACCESSORY

- Pin key for installation GN 537.1 (Code no. see table)

TECHNICAL INFORMATION

- Elastomer characteristics (see page A32)



GN 537

Description	d_1 Window glass	d_2 Bore Ø	b min.	d_3	d_4	e ±0.1	h	l_1	l_2	Code no. pin key for installation	⚖
GN 537-16-20-A	16	20	9	25	2.2	21	5	15	3.5	GN 537.1-21	8
GN 537-22-28-A	22	28	10	35	3	30	6	15	4.5	GN 537.1-30	17
GN 537-32-38-A	32	38	12	45	3	40	8	18	5.5	GN 537.1-40	34
GN 537-50-58-A	50	58	14	64	3	58.5	10	22	5.5	GN 537.1-58.5	80
GN 537-16-20-B	16	20	9	25	2.2	21	5	15	3.5	GN 537.1-21	8
GN 537-22-28-B	22	28	10	35	3	30	6	15	4.5	GN 537.1-30	17
GN 537-32-38-B	32	38	12	45	3	40	8	18	5.5	GN 537.1-40	30
GN 537-50-58-B	50	58	14	64	3	58.5	10	22	5.5	GN 537.1-58.5	80

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HCFE.

RoHS PA +100° -30°

Oil circulation sights

Technopolymer

MATERIAL
Transparent polyamide based (PA-T) technopolymer. Avoid contact with alcohol or detergents containing alcohol.

PACKING RING
NBR synthetic rubber.

MAXIMUM CONTINUOUS WORKING TEMPERATURE
100°C.

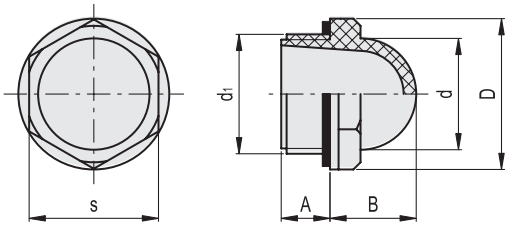
TECHNICAL DATA
The tightening torque indicated in the table guarantees an optimal tightness, keeping the packing ring in the correct position.

NOTE
For use with other fluids with special additives, please contact ELESA Sales Department.

ACCESSORIES ON REQUEST
Brass nut type GH. (see page 1743) for fitting to reservoirs with wall thickness smaller than 5 mm.



ELESA Original design



Code	Description	d1	A	B	D	d	s	Tightening torque [Nm]	
10851	HCFE.12-3/8	G 3/8	7.5	13	22.5	15	19	3÷5	4
10901	HCFE.15-1/2	G 1/2	10.5	16	26	19	22	4÷6	5
11001	HCFE.20-3/4	G 3/4	10.5	19.5	31.5	25	27	6÷8	8
11101	HCFE.24-1	G 1	11	24	42	31	36	8÷10	18
11111	HCFE.30-1¼	G1 1/4	11.5	26.5	46.5	38	40.5	12÷15	22

HCFE-C

RoHS PA-T +100° -30°

Oil circulation sights

Technopolymer

MATERIAL
Transparent polyamide based (PA-T) technopolymer. Avoid contact with alcohol or detergents containing alcohol.

CIRCLE FOR OIL LEVEL CHECK
Delimited by a small red coloured externally tampoprinted circle. Tampoprinting resistant to oils with additives, greases, alkali and white spirit; resistant to abrasions under normal working conditions. Avoid contact with solvents, alcohol or detergents containing alcohol.

PACKING RING
NBR synthetic rubber.

MAXIMUM CONTINUOUS WORKING TEMPERATURE
100°C.

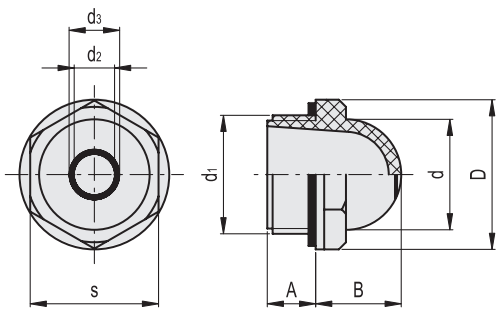
TECHNICAL DATA
The tightening torque indicated in the table guarantees an optimal tightness, keeping the packing ring in the correct position.

NOTE
For use with other fluids with special additives, please contact ELESA Sales Department.

ACCESSORIES ON REQUEST
Brass nut type GH. (see page 1743) for fitting to reservoirs with wall thickness smaller than 5 mm.



ELESA Original design



Code	Description	d1	A	B	D	d	d2	d3	s	Tightening torque [Nm]	
10906	HCFE.15/C-1/2	G 1/2	10.5	16	26	19	6	7	22	4÷6	5
11006	HCFE.20/C-3/4	G 3/4	10.5	19.5	31.5	25	11	12	27	6÷8	8
11106	HCFE.24/C-1	G 1	11	24	42	31	14	15	36	8÷10	18

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Oil circulation sights

Technopolymer

MATERIAL
Transparent polyamide based (PA-T) technopolymer. Avoid contact with alcohol or detergents containing alcohol.

PACKING RING
NBR synthetic rubber.

ATEX DIRECTIVE COMPLIANCE
The level indicators of the HCFE-EX series comply with Health and Safety Requirements intended in 94/9/EC ATEX European Directive (explosive atmospheres) for equipments in Group II, category 2GD.
Level indicators have "kX" protection degree and can therefore be mounted on equipment protected by means of "immersion in liquid", without lowering protection degree.
II 2 G D k T6, marked on the HCFE-EX level indicators, represents the identification according to ATEX directive.
II: group of substances for which the product is suitable
2: identification of the category
G: identification of the type of explosive atmosphere (Gases or vapours)
D: identification of the type of explosive atmosphere (Dust)
k: protection degree by means of immersion in liquid
IIB: explosive gases group (only for HCFE.20)
T6: temperature class
Ambient and/or fluid temperature: -30 to +80°C
The declaration of conformity to European Directives of this product is available and it is part of the product itself.

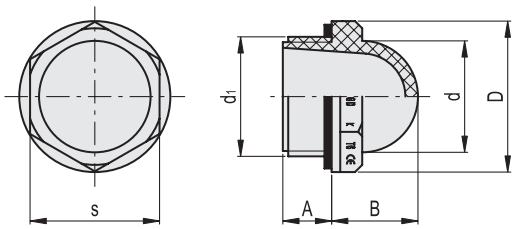
TECHNICAL DATA
The tightening torque indicated in the table guarantees an optimal tightness, keeping the packing ring in the correct position.

NOTE
For use with other fluids with special additives, please contact ELESA Sales Department.

ACCESSORIES ON REQUEST
Brass nut type GH. (see page 1743) for fitting to reservoirs with wall thickness smaller than 5 mm.



ELESA Original design



Code	Description	d1	A	B	D	d	s	Tightening torque [Nm]	⚖
10851-EX	HCFE.12-3/8-EX	G 3/8	7.5	13	22.5	15	19	3÷5	4
10901-EX	HCFE.15-1/2-EX	G 1/2	10.5	16	26	19	22	4÷6	5
11001-EX	HCFE.20-3/4-EX	G 3/4	10.5	19.5	31.5	25	27	6÷8	8

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Visual flow indicators

Technopolymer ends



ENDS
Polypropylene based (PP) technopolymer, black colour, matte finish.

AXIS AND ROTOR PROPELLER
Polypropylene based (PP) technopolymer, red colour.

TUBULAR WINDOW
PYREX® glass, high-resistance, also suitable for use with glycol-based solutions.
Maximum visibility of the flow from all angles.

TIE RODS
Nickel-plated brass.

PACKING RINGS
NBR synthetic rubber.

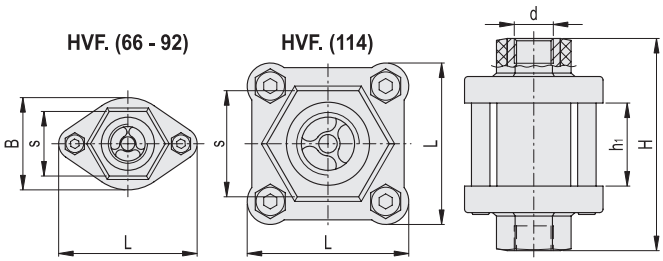
THREADED FITTINGS
Brass bosses with cylindrical gas thread according to UNI ISO 228/1.

MAXIMUM CONTINUOUS WORKING TEMPERATURE
100° C.

FEATURES AND APPLICATIONS
The indicator can be mounted in any position.
In case of mounting on rigid tubes, it is recommended to place the indicator perfectly aligned with the tubes.
The indicator operates with two-way liquid flows.
For rotating the propeller it is required a minimum fluid flow rate (Q**) depending on the type of fluid and its viscosity (shown in cSt, see table)

SPECIAL EXECUTIONS ON REQUEST
- AISI 316 stainless steel bosses.
- Bosses with NPT conical threads.
- Axis and rotor propeller in blue colour.

* Registered trademark by Corning Inc.



Code	Description	d	H	L	B	h1	s	Q max* l/min	P max # Bar	Q** l/min H2O	Q** l/min 0÷40 cSt	Q** l/min 41÷150 cSt	ΔP max ## Bar	⚖
111301	HVF.66-1/4	1/4	66	44	27	22	20	10	25	0.6	2.5	3.5	0.15	74
111311	HVF.92-3/8	3/8	92	60	40	36	28	20	15	1.2	3	4	0.25	176
111321	HVF.92-1/2	1/2	92	60	40	36	28	40	15	1.2	3	4	0.3	167
111331	HVF.114-3/4	3/4	114	70	-	46	46	60	12	2.1	3.7	5	0.17	663
111341	HVF.114-1	1	114	70	-	46	46	80	12	2.1	3.7	5	0.15	667

***** Maximum flow rate

Maximum pressure

****** Minimum flow rate to start the rotor for fluids of different viscosity

Pressure drop due to the indicator presence

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Column Indicators

Series	Features
HCZ. page 1752 	With or without incorporated thermometer. With or without SUPER-technopolymer protection frame. Zinc-plated steel assembly screws. Hole centre distance 76, 127, 254 mm
HCZ-VT page 1754 	For applications requiring corrosion resistance with no need of using stainless steel screws. With or without incorporated thermometer. With or without SUPER-technopolymer protection frame. SUPER-technopolymer assembly screws. Hole centre distance 76, 127, 254 mm
HCX. page 1756 	With or without incorporated thermometer. Zinc-plated steel assembly screws. Hole centre distance 76, 127, 254 mm
HCX-SST page 1758 	For applications requiring corrosion resistance. With or without incorporated thermometer. Stainless steel assembly screws. Hole centre distance 76, 127, 254 mm
HCX-AR page 1763 	For applications with fluids containing alcohol. With or without incorporated thermometer. Zinc-plated steel assembly screws. Hole centre distance 76, 127, 254 mm
HCX-BW-SST page 1762 	For applications with hot water. Without thermometer. Stainless steel assembly screws. Hole centre distance 76, 127, 254 mm
HCX-VT page 1760 	For applications requiring corrosion resistance with no need of using stainless steel screws. With or without incorporated thermometer. SUPER-technopolymer assembly screws. Hole centre distance 127, 254 mm

Series	Features
HCX-LT page 1769 	With float for indirect level reading. Zinc-plated steel assembly screws. Hole centre distance 254 mm
HCX-PT page 1764 	With or without incorporated thermometer. SUPER-technopolymer protection frame. Zinc-plated steel assembly screws (HCX-PT), stainless steel (HCX-PT-SST), SUPER-technopolymer (HCX-PT-VT). Hole centre distance 76, 127, 254 mm.
HCX-P page 1766 	With or without incorporated thermometer. Zinc-alloy protection frame. Zinc-plated steel assembly screws. Hole centre distance 127 mm
HCK. page 1770 	Aluminium protection frame. With or without transparent polycarbonate protection frame. Zinc-plated steel assembly screws. Hole centre distance 76, 127, 176, 254, 381, 508 mm
HCK-GL page 1772 	For applications with water/glycol-based solutions. Aluminium protection frame and transparent polycarbonate front protection. Zinc-plated or stainless steel assembly screws. Hole centre distance 76, 127, 176, 254, 381, 508 mm
SLCK page 1774 	For the electric control of a fluid level for HCK. and HCK-GL
HCL. page 1776 	With aluminium protection frame. Zinc-plated steel assembly screws. Hole centre distance 300, 400, 500 mm

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Column Indicators

Series		Features
HCX-ST page 1778		With MAX temperature electrical sensor. Zinc-plated steel assembly screws. Hole centre distance 127, 254 mm
HCX-STL page 1780		With electrical probe for indirect temperature reading by means of analogue signal. Zinc-plated steel assembly screws. Hole centre distance 127, 254 mm
HCX-E page 1782		With MIN level electrical sensor. Zinc-plated steel assembly screws. Hole centre distance 127, 254 mm
HCX-E-ST page 1784		With MIN level and MAX temperature electrical sensors. Zinc-plated steel assembly screws. Hole centre distance 127, 254 mm
HCX-E-STL page 1786		With MIN level electrical sensor and electrical probe for indirect temperature reading by means of analogue signal. Zinc-plated steel assembly screws. Hole centre distance 127, 254 mm
HCV-ST page 1788		With MAX temperature electrical sensor. Zinc-plated steel assembly screws. Hole centre distance 127, 254 mm
HCV-STL page 1790		With electrical probe for indirect temperature reading by means of analogue signal. Zinc-plated steel assembly screws. Hole centre distance 127, 254 mm

Series		Features
HCV-E page 1792		With MIN level electrical sensor. Zinc-plated steel assembly screws. Hole centre distance 127, 254 mm
HCV-E-ST page 1794		With MIN level and MAX temperature electrical sensors. Zinc-plated steel assembly screws. Hole centre distance 127, 254 mm
HCV-E-STL page 1796		With MIN level electrical sensor and electrical probe for indirect temperature reading by means of analogue signal. Zinc-plated steel assembly screws. Hole centre distance 127, 254 mm
HCY-E page 1798		With MIN level electrical sensor. Nickel-plated brass assembly screws. Hole centre distance 76, 127, 254 mm
HCY-E-ST page 1800		With MIN level and MAX temperature electrical sensors. Nickel-plated brass assembly screws. Hole centre distance 76, 127, 254 mm
HFL-E page 1802		Level electrical sensor with float. Assembly by means of flange or threaded coupler.
HFLT-E page 1804		Level electrical sensor with float. Assembly by means of flange or threaded coupler.

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Column level indicators

with or without protection frame, technopolymer

MATERIAL
Transparent polyamide based (PA-T) technopolymer. Resistant to shocks, solvents, oils with additives, aliphatic and aromatic hydrocarbons, petrol, naphtha, phosphoric esters.
Avoid contact with alcohol and detergents containing alcohol.

PROTECTION FRAME
Glass-fibre reinforced polyamide (PA) SUPER-technopolymer, black colour, matte finish. Supplied assembled, removable by a screwdriver.

SCREWS AND NUTS
Zinc-plated steel.

PACKING RINGS
Step-shaped for the seal on the reservoir walls and NBR synthetic rubber O-ring screw underhead.
Suggested roughness of the packing ring application surface Ra = 3 µm.

CONTRAST SCREEN
White lacquered aluminium. The housing, in the appropriate external rear slot, guarantees the best protection from direct contact with fluid.
It can be taken out from the inclined side, before assembly to allow the insertion of level lines or words.

STANDARD EXECUTIONS
- **HCZ**: without thermometer and without protection frame.
- **HCZ/T**: with thermometer incorporated, without protection frame.
- **HCZ-P**: without thermometer, with protection frame.
- **HCZ/T-P**: with thermometer incorporated and protection frame.

MAXIMUM CONTINUOUS WORKING TEMPERATURE
90°C (with oil).

FEATURES AND PERFORMANCES
Ultrasound welding to guarantee a perfect seal.
Lens effect for a better visibility of the fluid level and temperature.
Special openings in the protection frame provide maximum fluid level visibility even from side positions.
All shocks are absorbed by the frame that transmits them directly onto the wall of the reservoir.

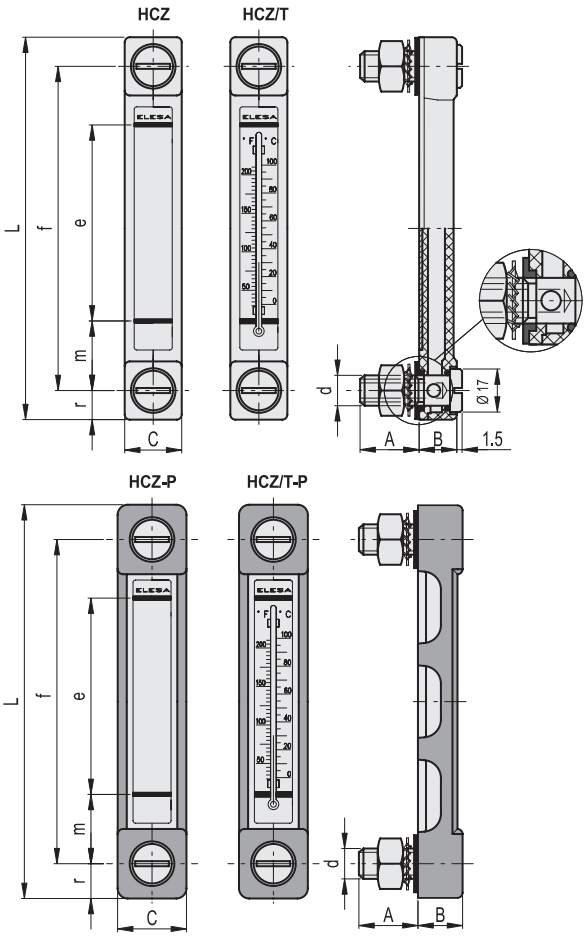
TECHNICAL DATA
In laboratory tests carried out with mineral oil type CB68 (according to ISO 3498) at 23°C for a limited period of time, the weld stood up to: 18 bar (HCZ.76 and HCZ.127) 12 bar (HCZ.254).
For use with other fluids and under different pressure and temperature conditions, please contact ELESA Technical Department.
In any case we suggest to verify the suitability of the product under the actual working conditions.

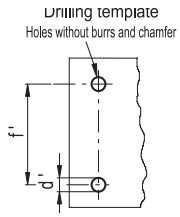
SPECIAL EXECUTIONS ON REQUEST
- HCZ.127: with M10 screws and nuts.
- UV resistant transparent technopolymer indicators.



ELESA Original design

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HCZ.

Code	Description	f	d	A	B	C	L	e	m	r	d'-0.2	f'±0.2	C# [Nm]	⚖
11382	HCZ.76	76	M10	22	15	22	99	40	18	11.5	10.5	76	12	90
11385	HCZ.127	127	M12	22	15	22	150	80	23	11.5	12.5	127	12	120
11388	HCZ.254	254	M12	22	15	24	278	203	25	12.5	12.5	254	12	150

HCZ/T

Code	Description	f	d	A	B	C	L	e	m	r	d'-0.2	f'±0.2	Thermometer scale°C	Thermometer scale°F	C# [Nm]	⚖
11383	HCZ.76/T	76	M10	22	15	22	99	40	18	11.5	10.5	76	20÷100	68÷210	12	91
11386	HCZ.127/T	127	M12	22	15	22	150	80	23	11.5	12.5	127	0÷100	32÷210	12	121
11389	HCZ.254/T	254	M12	22	15	24	278	203	25	12.5	12.5	254	0÷100	32÷210	12	170

HCZ-P

Code	Description	f	d	A	B	C	L	e	m	r	d'-0.2	f'±0.2	C# [Nm]	⚖
11392	HCZ.76-P	76	M10	22	17.5	27	105	40	18	14.5	10.5	76	12	101
11395	HCZ.127-P	127	M12	22	17.5	27	156	80	23	14.5	12.5	127	12	138
11398	HCZ.254-P	254	M12	22	17.5	29	284	203	25	15.5	12.5	254	12	150

HCZ/T-P

Code	Description	f	d	A	B	C	L	e	m	r	d'-0.2	f'±0.2	Thermometer scale°C	Thermometer scale°F	C# [Nm]	⚖
11393	HCZ.76/T-P	76	M10	22	17.5	27	105	40	18	14.5	10.5	76	20÷100	68÷210	12	102
11396	HCZ.127/T-P	127	M12	22	17.5	27	156	80	23	14.5	12.5	127	0÷100	32÷210	12	139
11399	HCZ.254/T-P	254	M12	22	17.5	29	284	203	25	15.5	12.5	254	0÷100	32÷210	12	150

Maximum tightening torque.

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Column level indicators

SUPER-technopolymer assembly screws, with or without protection frame



ELESA Original design

MATERIAL
Transparent polyamide based (PA-T) technopolymer. Highly resistant to shocks, solvents, oils with additives, aliphatic and aromatic hydrocarbons, petrol, naphtha, phosphoric esters.
Avoid contact with alcohol or detergents containing alcohol.

PROTECTION FRAME
Glass-fibre reinforced polyamide (PA) SUPER-technopolymer, black colour, matte finish. Supplied assembled, removable by a screwdriver.

SCREWS
Glass-fibre reinforced polyamide (PA) SUPER-technopolymer, lightweight and high mechanical strength.
Anticorrosive material: suitable even in the presence of liquid or humidity.
Resistant to several washing cycles with solvents and detergents, for this reason it is suitable for applications in the pharmaceutical or food industry.

NUTS AND WASHERS
AISI 304 stainless steel.

PACKING RINGS
Step-shaped for the seal on the reservoir walls and NBR synthetic rubber O-ring screw underhead.
Suggested roughness of the packing ring application surface Ra = 3 µm.

CONTRAST SCREEN
White lacquered aluminium. The housing, in the appropriate external rear slot, guarantees the best protection from direct contact with fluid.
It can be taken out from the inclined side, before assembly to allow the insertion of level lines or words.

STANDARD EXECUTIONS
- **HCZ-VT**: without thermometer and without protection frame.
- **HCZ/T-VT**: with thermometer incorporated, without protection frame.
- **HCZ-P-VT**: without thermometer, with protection frame.
- **HCZ/T-P-VT**: with thermometer incorporated and protection frame.

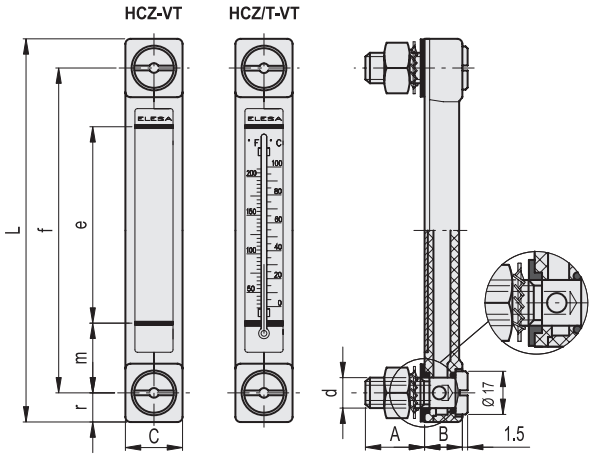
MAXIMUM CONTINUOUS WORKING TEMPERATURE
90°C (with oil).

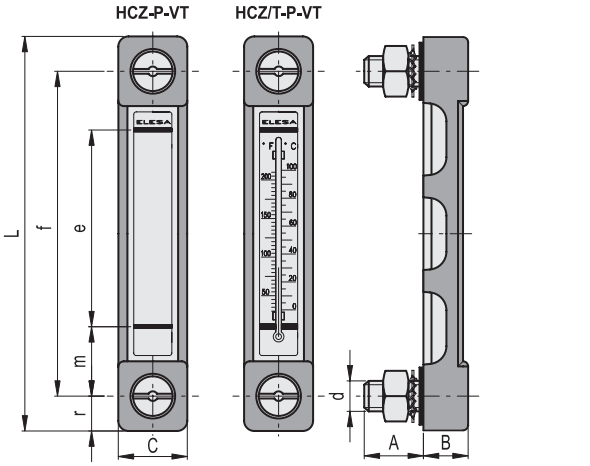
SPECIAL EXECUTIONS ON REQUEST
UV resistant transparent technopolymer indicators.

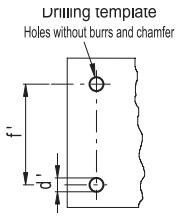
FEATURES AND PERFORMANCES
Thanks to the SUPER-technopolymer screws, HCZ-VT column level indicator can be used in corrosion resistance applications where stainless steel is not necessary.
The special slotted head of the SUPER-technopolymer screws is especially designed to reach an optimum tightening of the packing rings by applying an adequate tightening torque (ELESA patent) thus avoiding unnecessary stress to the screws.
Ultrasound welding to guarantee a perfect seal.
Lens effect for a better visibility of the fluid level and temperature.
Special openings in the protection frame provide maximum fluid level visibility even from side positions.
All shocks are absorbed by the frame that transmits them directly onto the wall of the reservoir.

TECHNICAL DATA
Considering the SUPER-technopolymer screws, the maximum working pressure cannot be higher than 5 bar at 20°C and 2 bar at 90°C.
For higher pressure values use HCZ-SST with stainless steel screws.
For use with other fluids and under different pressure and temperature conditions, please contact ELESA Technical Department.
In any case we suggest to verify the suitability of the product under the actual working conditions.

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HCZ-VT

Code	Description	f	d	A	B	C	L	e	m	r	d'-0.2	f'±0.2	C# [Nm]	⚖
111382	HCZ.76-VT-M12	76	M12	23.5	15	22	99	40	18	11.5	12.5	76	6	67
111385	HCZ.127-VT-M12	127	M12	23.5	15	22	150	80	23	11.5	12.5	127	6	78
111388	HCZ.254-VT-M12	254	M12	23.5	15	24	278	203	25	12.5	12.5	254	6	110

HCZ/T-VT

Code	Description	f	d	A	B	C	L	e	m	r	d'-0.2	f'±0.2	Thermometer scale°C	Thermometer scale°F	C# [Nm]	⚖
111383	HCZ.76/T-VT-M12	76	M12	23.5	15	22	99	40	18	11.5	12.5	76	20÷100	68÷210	6	68
111386	HCZ.127/T-VT-M12	127	M12	23.5	15	22	150	80	23	11.5	12.5	127	0÷100	32÷210	6	79
111389	HCZ.254/T-VT-M12	254	M12	23.5	15	24	278	203	25	12.5	12.5	254	0÷100	32÷210	6	111

HCZ-P-VT

Code	Description	f	d	A	B	C	L	e	m	r	d'-0.2	f'±0.2	C# [Nm]	⚖
111392	HCZ.76-P-VT-M12	76	M12	23.5	17.5	27	105	40	18	14.5	12.5	76	6	85
111395	HCZ.127-P-VT-M12	127	M12	23.5	17.5	27	156	80	23	14.5	12.5	127	6	104
111398	HCZ.254-P-VT-M12	254	M12	23.5	17.5	29	284	203	25	15.5	12.5	254	6	169

HCZ/T-P-VT

Code	Description	f	d	A	B	C	L	e	m	r	d'-0.2	f'±0.2	Thermometer scale°C	Thermometer scale°F	C# [Nm]	⚖
111393	HCZ.76/T-P-VT-M12	76	M12	23.5	17.5	27	105	40	18	14.5	12.5	76	20÷100	68÷210	6	86
111396	HCZ.127/T-P-VT-M12	127	M12	23.5	17.5	27	156	80	23	14.5	12.5	127	0÷100	32÷210	6	105
111399	HCZ.254/T-P-VT-M12	254	M12	23.5	17.5	29	284	203	25	15.5	12.5	254	0÷100	32÷210	6	170

Maximum tightening torque

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Column level indicators

Technopolymer

MATERIAL
Transparent polyamide based (PA-T) technopolymer. Highly resistant to shocks, solvents, oils with additives, aliphatic and aromatic hydrocarbons, petrol, naphtha, phosphoric esters.
Avoid contact with alcohol or detergents containing alcohol.

SCREWS, NUTS AND WASHERS
Zinc-plated steel.

PACKING RINGS
NBR synthetic rubber O-Ring.
Suggested roughness of the packing ring application surface Ra = 3 µm.

CONTRAST SCREEN
White lacquered aluminium. The housing, in the appropriate external rear slot, guarantees the best protection from direct contact with fluid.
It can be taken out from the inclined side, before assembly to allow the insertion of level lines or words.

STANDARD EXECUTIONS
- **HCX.**: without thermometer.
- **HCX/T**: with incorporated thermometer.

MOUNTING
When fitting is not possible from the inside of the reservoir and the walls are not thick enough, the screws can be used together with Fast Mounting Kit (see page 1768).

MAXIMUM CONTINUOUS WORKING TEMPERATURE
90°C (with oil).

FEATURES AND PERFORMANCES
Ultrasound welding to guarantee a perfect seal.
Maximum fluid level visibility even from side positions.
Lens effect for a better visibility of the fluid level and temperature.

TECHNICAL DATA
In laboratory tests carried out with mineral oil type CB68 (according to ISO 3498) at 23°C for a limited period of time, the weld stood up to: 18 bar (HCX.76 e HCX.127) 12 bar (HCX.254).
For use with other fluids and under different pressure and temperature conditions, please contact ELESA Technical Department.
In any case we suggest to verify the suitability of the product under the actual working conditions.

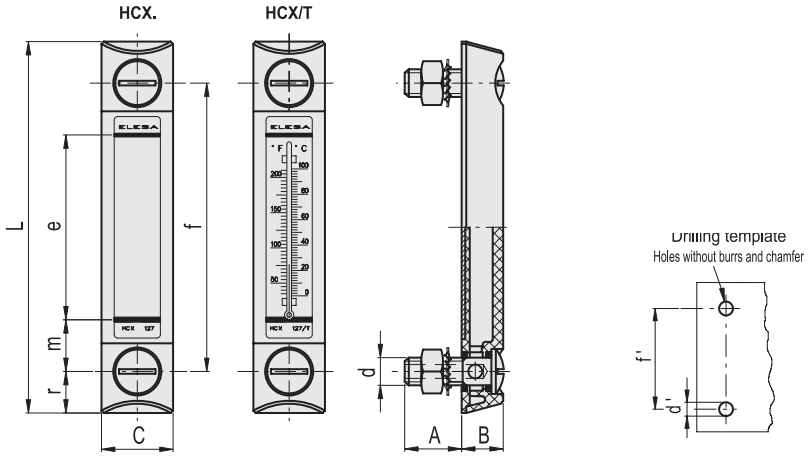
OTHER STANDARD EXECUTIONS
- HCX-AR (see page 1763) for use with fluids containing alcohol.
- HCX-BW-SST (see page 1762) for use with hot water.
- HCX-PT (see page 1764) with SUPER-technopolymer protection frame.

SPECIAL EXECUTIONS ON REQUEST
- UV resistant transparent technopolymer indicators.
- Indicators with two red ball-shaped floats (only for the execution without thermometer).
- Indicators with cylindrical or step-shaped (NBR or FKM) packing rings (instead of OR) for mounting on reservoirs having rough surfaces or in any case not perfectly flat.



ELESA Original design

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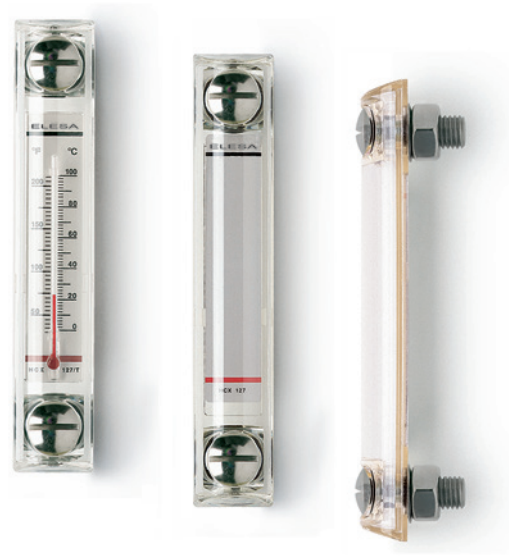
Code	Description	f	d	A	B	C	L	e	m	r	d'-0.2	f'±0.2	Thermometer scale°C	Thermometer scale°F	C# [Nm]	⚖
11341	HCX.76-M10	76	M10	22	16	27	107	40	18	15.5	10.5	76	-	-	12	87
11346	HCX.76/T-M10	76	M10	22	16	27	107	40	18	15.5	10.5	76	20÷100	68÷210	12	87
11349	HCX.127-M10	127	M10	23	18	31	161	80	23	17	10.5	127	-	-	12	138
11354	HCX.127/T-M10	127	M10	23	18	31	161	80	23	17	10.5	127	0÷100	32÷210	12	138
11351	HCX.127-M12	127	M12	23	18	31	161	80	23	17	12.5	127	-	-	12	138
11356	HCX.127/T-M12	127	M12	23	18	31	161	80	23	17	12.5	127	0÷100	32÷210	12	138
11361	HCX.254-M12	254	M12	21	18	35	291	203	26	18.5	12.5	254	-	-	10	185
11366	HCX.254/T-M12	254	M12	21	18	35	291	203	26	18.5	12.5	254	0÷100	32÷210	10	185

Maximum tightening torque

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Column level indicators

stainless steel assembly screws, technopolymer



ELESA Original design

MATERIAL
Transparent polyamide based (PA-T) technopolymer. Highly resistant to shocks, solvents, oils with additives, aliphatic and aromatic hydrocarbons, petrol, naphtha, phosphoric esters.
Avoid contact with alcohol or detergents containing alcohol.

SCREWS, NUTS AND WASHERS
AISI 303 stainless steel screws, AISI 304 stainless steel nuts and washers.

PACKING RINGS
FKM type VITON®*O-Ring.
Suggested roughness of the packing ring application surface Ra = 3 µm.

CONTRAST SCREEN
White lacquered aluminium. The housing, in the appropriate external rear slot, guarantees the best protection from direct contact with fluid.
It can be taken out from the inclined side, before assembly to allow the insertion of level lines or words.

STANDARD EXECUTIONS
- **HCX-SST**: without thermometer.
- **HCX/T-SST**: with incorporated thermometer.

MOUNTING
When fitting is not possible from the inside of the reservoir and the walls are not thick enough, the screws can be used together with Fast Mounting Kit (see page 1768).

MAXIMUM CONTINUOUS WORKING TEMPERATURE
90°C (with oil).

FEATURES AND PERFORMANCES
Ultrasound welding to guarantee a perfect seal.
Maximum fluid level visibility even from side positions.
Lens effect for a better visibility of the fluid level and temperature.

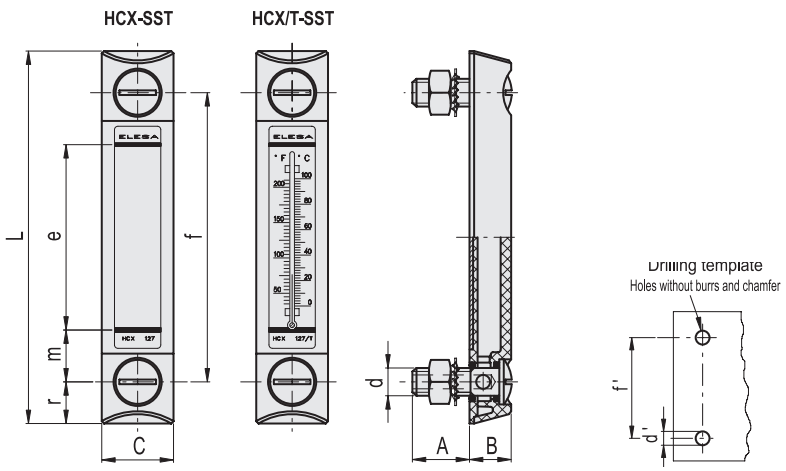
TECHNICAL DATA
In laboratory tests carried out with mineral oil type CB68 (according to ISO 3498) at 23°C for a limited period of time, the weld stood up to: 18 bar (HCX.76-SST and HCX.127-SST) 12 bar (HCX.254-SST).
For use with other fluids and under different pressure and temperature conditions, please contact ELESA Technical Department.
In any case we suggest to verify the suitability of the product under the actual working conditions.

OTHER STANDARD EXECUTIONS
- HCX-AR (see page 1763) for use with fluids containing alcohol.
- HCX-BW-SST (see page 1762) for use with hot water.
- HCX-PT (see page 1764) with SUPER-technopolymer protection frame.

SPECIAL EXECUTIONS ON REQUEST
- UV resistant transparent technopolymer indicators.
- Indicators with two red ball-shaped floats (only for the execution without thermometer).
- Indicators with cylindrical or step-shaped (NBR or FKM) packing rings (instead of OR) for mounting on reservoirs having rough surfaces or in any case not perfectly flat.

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STAINLESS STEEL

Code	Description	f	d	A	B	C	L	e	m	r	d'-0.2	f'±0.2	Thermometer scale°C	Thermometer scale°F	C# [Nm]	⚖
11343	HCX.76-SST-M10	76	M10	22	16	27	107	40	18	15.5	10.5	76	-	-	12	87
11348	HCX.76/T-SST-M10	76	M10	22	16	27	107	40	18	15.5	10.5	76	20÷100	68÷210	12	87
11353	HCX.127-SST-M12	127	M12	23	18	31	161	80	23	17	12.5	127	-	-	12	138
11358	HCX.127/T-SST-M12	127	M12	23	18	31	161	80	23	17	12.5	127	0÷100	32÷210	12	138
11363	HCX.254-SST-M12	254	M12	21	18	35	291	203	26	18.5	12.5	254	-	-	10	185
11368	HCX.254/T-SST-M12	254	M12	21	18	35	291	203	26	18.5	12.5	254	0÷100	32÷210	10	185

Maximum tightening torque

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Column level indicators

SUPER-technopolymer assembly screws

MATERIAL
Transparent polyamide based (PA-T) technopolymer. Highly resistant to shocks, solvents, oils with additives, aliphatic and aromatic hydrocarbons, petrol, naphtha, phosphoric esters.
Avoid contact with alcohol or detergents containing alcohol.

SCREWS
Glass-fibre reinforced polyamide based (PA) SUPER-technopolymer

NUTS AND WASHERS
AISI 304 stainless steel.

PACKING RINGS
NBR synthetic rubber (on request FKM) O-Ring.
Suggested roughness of the packing ring application surface Ra = 3 µm.

CONTRAST SCREEN
White lacquered aluminium. The housing, in the appropriate external rear slot, guarantees the best protection from direct contact with fluid. It can be taken out from the inclined side, before assembly to allow the insertion of level lines or words.

STANDARD EXECUTIONS
- **HCX-VT**: without thermometer.
- **HCX/T-VT**: with incorporated thermometer.

MAXIMUM CONTINUOUS WORKING TEMPERATURE
90°C (with oil).

FEATURES AND PERFORMANCES
Thanks to the SUPER-technopolymer screws, HCX/VT column level indicator can be used in corrosion resistance applications where stainless steel is not necessary.
The special slotted head of the SUPER-technopolymer screws is especially designed to reach an optimum tightening of the packing rings by applying an adequate tightening torque (ELESA patent) thus avoiding unnecessary stress to the screws.
Ultrasound welding to guarantee a perfect seal.
Maximum fluid level visibility even from side positions.
Lens effect for a better visibility of the fluid level and temperature.

TECHNICAL DATA
In laboratory tests carried out with mineral oil type CB68 (according to ISO 3498) at 23°C for a limited period of time, the weld stood up to: 18 bar (HCX.127-VT) 12 bar (HCX.254-VT).
Considering the SUPER-technopolymer screws, the maximum working pressure cannot be higher than 5 bar at 20°C and 2 bar at 90°C.
For use with other fluids and under different pressure and temperature conditions, please contact ELESA Technical Department.
In any case we suggest to verify the suitability of the product under the actual working conditions.

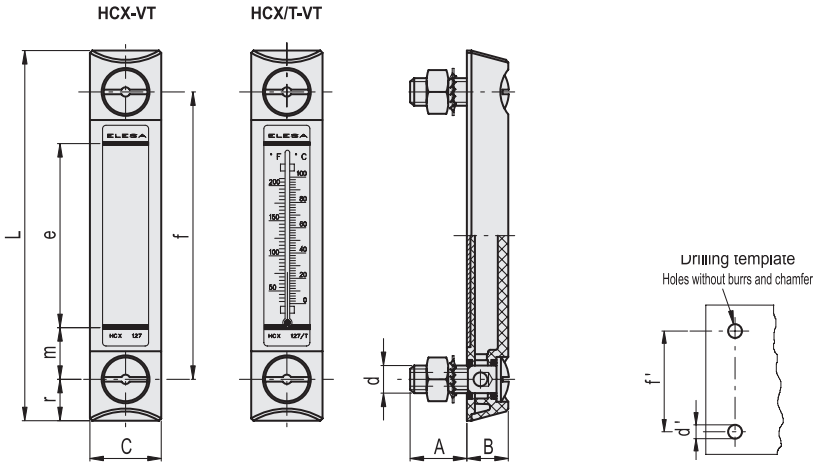
ANOTHER STANDARD EXECUTION
HCX-PT (see page 1764) with SUPER-technopolymer protection frame.

SPECIAL EXECUTIONS ON REQUEST
- UV resistant transparent technopolymer indicators.
- Indicators with two red ball-shaped floats (only for the execution without thermometer).
- Indicators with cylindrical or step-shaped (NBR or FKM) packing rings (instead of OR) for mounting on reservoirs having rough surfaces or in any case not perfectly flat.



ELESA Original design

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Code	Description	f	d	A	B	C	L	e	m	r	d'-0.2	f'±0.2	Thermometer scale°C	Thermometer scale°F	C# [Nm]	⚖
111351	HCX.127-VT-M12	127	M12	23	18	31	161	80	23	17	12.5	127	-	-	6	94
111361	HCX.127/T-VT-M12	127	M12	23	18	31	161	80	23	17	12.5	127	0÷100	32÷210	6	94
111371	HCX.254-VT-M12	254	M12	21	18	35	291	203	26	18.5	12.5	254	-	-	6	141
111381	HCX.254/T-VT-M12	254	M12	21	18	35	291	203	26	18.5	12.5	254	0÷100	32÷210	6	141

Maximum tightening torque

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Column level indicators

for hot water, technopolymer

MATERIAL

Transparent polyamide based (PA-T) technopolymer. Highly resistant to shocks, solvents, oils with additives, aliphatic and aromatic hydrocarbons, petrol, naphtha, phosphoric esters.
Avoid contact with alcohol or detergents containing alcohol.
The special technopolymer used for HCX-BW-SST column level indicator allows to use it even in circuits working with very hot water and prevents milk effect on the transparent surface.

SCREWS, NUTS AND WASHERS

AISI 303 stainless steel screws, AISI 304 stainless steel nuts and washers.

PACKING RINGS

FKM type VITON®*O-Ring.
Suggested roughness of the packing ring application surface Ra = 3 µm.

CONTRAST SCREEN

White lacquered aluminium. The housing, in the appropriate external rear slot, guarantees the best protection from direct contact with fluid. It can be taken out from the inclined side, before assembly to allow the insertion of level lines or words.

MOUNTING

When fitting is not possible from the inside of the reservoir and the walls are not thick enough, the screws can be used together with Fast Mounting Kit (see page 1768).

MAXIMUM CONTINUOUS WORKING TEMPERATURE

80°C with peaks of 90°C.

FEATURES AND PERFORMANCES

Ultrasound welding to guarantee a perfect seal.
Maximum fluid level visibility even from side positions.
Lens effect for a better visibility of the fluid level.

TECHNICAL DATA

In laboratory tests carried out with mineral oil type CB68 (according to ISO 3498) at 23°C for a limited period of time, the weld stood up to 10 bar.
For use with other fluids and under different pressure and temperature conditions, please contact ELESA Technical Department.
In any case we suggest to verify the suitability of the product under the actual working conditions.

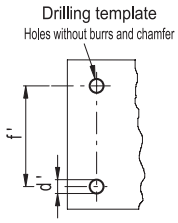
SPECIAL EXECUTIONS ON REQUEST

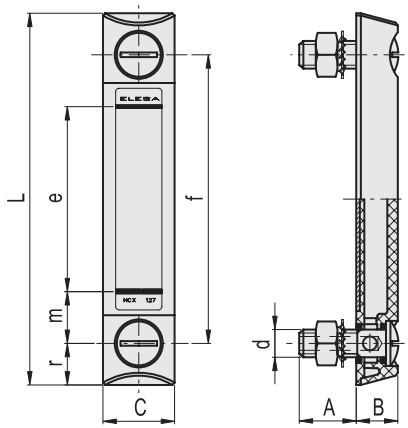
- Level indicators with SUPER-technopolymer protection frame.
- Indicators with two red ball-shaped floats (only for the execution without thermometer).

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ELESA Original design





STAINLESS STEEL

Code	Description	f	d	A	B	C	L	e	m	r	d'-0.2	f'±0.2	C# [Nm]	⚖
11345	HCX.76-BW-SST-M10	76	M10	22	16	27	107	40	18	15.5	10.5	76	8	87
11355	HCX.127-BW-SST-M12	127	M12	23	18	31	161	80	23	17	12.5	127	8	138
11365	HCX.254-BW-SST-M12	254	M12	21	18	35	291	203	26	18.5	12.5	254	8	185

Maximum tightening torque

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Column level indicators

for use with fluids containing alcohol, technopolymer

MATERIAL
Transparent polyamide based (PA-T/AR) technopolymer. Highly resistant to shocks, solvents, oils with additives, aliphatic and aromatic hydrocarbons, petrol, naphtha, phosphoric esters, additives and detergents containing alcohol.

SCREWS, NUTS AND WASHERS
Zinc-plated steel.

PACKING RINGS
NBR synthetic rubber O-Ring.
Suggested roughness of the packing ring application surface Ra = 3 µm.

CONTRAST SCREEN
White lacquered aluminium. The housing, in the appropriate external rear slot, guarantees the best protection from direct contact with fluid. It can be taken out from the inclined side, before assembly to allow the insertion of level lines or words.

STANDARD EXECUTIONS
- **HCX-AR**: without thermometer.
- **HCX/T-AR**: with incorporated thermometer.

MOUNTING
When fitting is not possible from the inside of the reservoir and the walls are not thick enough, the screws can be used together with Fast Mounting Kit (see page 1768).

MAXIMUM CONTINUOUS WORKING TEMPERATURE
80°C.

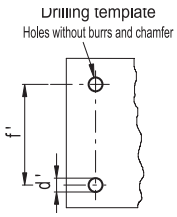
FEATURES AND PERFORMANCES
Ultrasound welding to guarantee a perfect seal.
Maximum fluid level visibility even from side positions.
Lens effect for a better visibility of the fluid level and temperature.

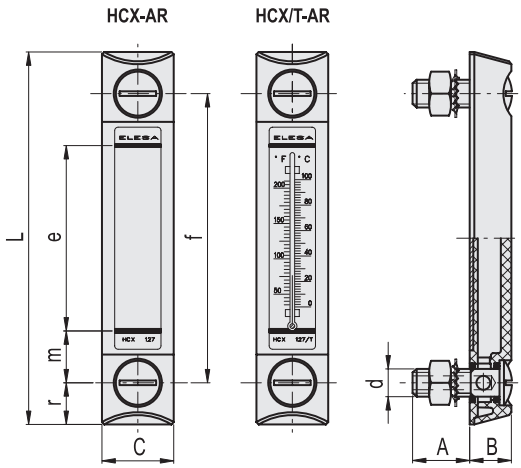
TECHNICAL DATA
In laboratory tests carried out with mineral oil type CB68 (according to ISO 3498) at 23°C for a limited period of time, the weld stood up to: 13 bar (HCX.76-AR and HCX.127-AR) 10 bar (HCX.254-AR).
For use with other fluids and under different pressure and temperature conditions, please contact ELESA Technical Department.
In any case we suggest to verify the suitability of the product under the actual working conditions.

SPECIAL EXECUTIONS ON REQUEST
- Level indicators with with SUPER-technopolymer protection frame.
- Indicators with two red ball-shaped floats (only for the execution without thermometer).
- Indicators with cylindrical or step-shaped (NBR or FKM) packing rings (instead of OR) for mounting on reservoirs having rough surfaces or in any case not perfectly flat.



ELESA Original design





Code	Description	f	d	A	B	C	L	e	m	r	d'-0.2	f'±0.2	Thermometer scale°C	Thermometer scale°F	C# [Nm]	⚖
11342	HCX.76-AR-M10	76	M10	22	16	27	107	40	18	15.5	10.5	76	-	-	8	87
11347	HCX.76/T-AR-M10	76	M10	22	16	27	107	40	18	15.5	10.5	76	20÷100	68÷210	8	87
11352	HCX.127-AR-M12	127	M12	23	18	31	161	80	23	17	12.5	127	-	-	8	138
11357	HCX.127/T-AR-M12	127	M12	23	18	31	161	80	23	17	12.5	127	0÷100	32÷210	8	138
11362	HCX.254-AR-M12	254	M12	21	18	35	291	203	26	18.5	12.5	254	-	-	8	185
11367	HCX.254/T-AR-M12	254	M12	21	18	35	291	203	26	18.5	12.5	254	0÷100	32÷210	8	185

Maximum tightening torque

Column level indicators

with SUPER-technopolymer protection frame



ELESA Original design

INDICATOR BODY
Transparent polyamide based (PA-T) technopolymer. Highly resistant to shocks, solvents, oils with additives, aliphatic and aromatic hydrocarbons, petrol, naphtha, phosphoric esters.
Avoid contact with alcohol or detergents containing alcohol.

PROTECTION FRAME
Glass-fibre reinforced polyamide based (PA) SUPER-technopolymer, black colour, matte finish. Supplied assembled, removable by a screwdriver.

SCREWS, NUTS AND WASHERS
- Zinc-plated steel. (HCX-PT).
- AISI 303 stainless steel screws, AISI 304 stainless steel nuts and washers. (HCX-PT-SST).
- Glass-fibre reinforced polyamide based (PA) SUPER-technopolymer screws, AISI 304 stainless steel nuts and washers. (HCX-PT-VT).

PACKING RINGS
- NBR synthetic rubber O-Ring. (HCX-PT and HCX-PT-VT).
- FKM type VITON®*O-Ring. (HCX-PT-SST).

Suggested roughness of the packing ring application surface Ra = 3 µm.

CONTRAST SCREEN
White lacquered aluminium. The housing, in the appropriate external rear slot, guarantees the best protection from direct contact with fluid. It can be taken out from the inclined side, before assembly to allow the insertion of level lines or words.

STANDARD EXECUTIONS
- **HCX-PT**: without thermometer. Zinc-plated steel screws, nuts and washers.
- **HCX/T-PT**: with incorporated thermometer. Zinc-plated steel screws, nuts and washers.
- **HCX-PT-SST**: without thermometer. AISI 303 stainless steel screws, AISI 304 stainless steel nuts and washers.
- **HCX/T-PT-SST**: with incorporated thermometer. AISI 303 stainless steel screws, AISI 304 stainless steel nuts and washers.
- **HCX-PT-VT**: without thermometer. Glass-fibre reinforced polyamide based (PA) SUPER-technopolymer screws, AISI 304 stainless steel nuts and washers.
- **HCX/T-PT-VT**: with incorporated thermometer. Glass-fibre reinforced polyamide based (PA) SUPER-technopolymer screws, AISI 304 stainless steel nuts and washers.

MOUNTING
When fitting is not possible from the inside of the reservoir and the walls are not thick enough, the screws can be used together with Fast Mounting Kit (see page 1768).

MAXIMUM CONTINUOUS WORKING TEMPERATURE
90°C (with oil).

FEATURES AND PERFORMANCES
Ultrasound welding to guarantee a perfect seal.
Lens effect for a better visibility of the fluid level and temperature.
Special openings in the protection frame provide maximum fluid level visibility even from side positions.
All shocks are absorbed by the frame that transmits them directly onto the wall of the reservoir.

TECHNICAL DATA
In laboratory tests carried out with mineral oil type CB68 (according to ISO 3498) at 23°C for a limited period of time, the weld stood up to: 18 bar (HCX.76-PT e HCX.127-PT) 12 bar (HCX.254-PT).
For use with other fluids and under different pressure and temperature conditions, please contact ELESA Technical Department.
In any case we suggest to verify the suitability of the product under the actual working conditions.

OTHER STANDARD EXECUTIONS
- HCX-AR (see page 1761) for use with fluids containing alcohol.
- HCX-BW-SST (see page 1760) for use with hot water.

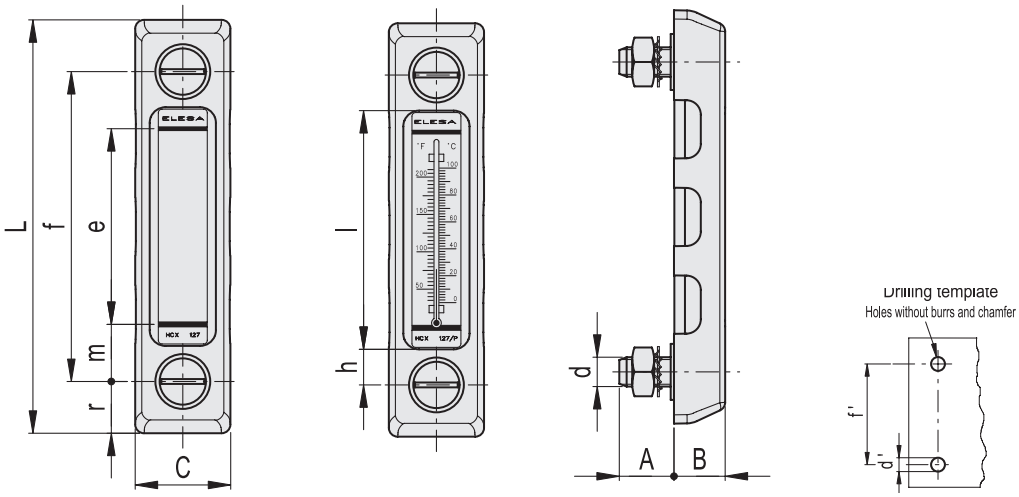
SPECIAL EXECUTIONS ON REQUEST
- UV resistant transparent technopolymer indicators.
- Indicators with two red ball-shaped floats (only for the execution without thermometer).
- Indicators with cylindrical or step-shaped (NBR or FKM) packing rings (instead of OR) for mounting on reservoirs having rough surfaces or in any case not perfectly flat.

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HCX-PT
HCX-PT-SST
HCX-PT-VT

HCX/T-PT
HCX/T-PT-SST
HCX/T-PT-VT



HCX-PT - HCX/T-PT

Code	Description	f	d	A	B	C	L	e	h	l	m	r	d'-0.2	f'±0.2	Thermometer scale°C	Thermometer scale°F	C# [Nm]	⚖
11332	HCX.76-PT-M10	76	M10	20	19	35.5	115	40	13.5	49	18	19.5	10.5	76	-	-	12	117
11336	HCX.76/T-PT-M10	76	M10	20	19	35.5	115	40	13.5	49	18	19.5	10.5	76	20÷100	68÷210	12	117
11372	HCX.127-PT-M12	127	M12	22	21	39	169	80	15	96	23	21	12.5	127	-	-	12	191
11377	HCX.127/T-PT-M12	127	M12	22	21	39	169	80	15	96	23	21	12.5	127	0÷100	32÷210	12	191
11359	HCX.254-PT-M12	254	M12	21	21.5	44.5	301	203	18	218	26	23.5	12.5	254	-	-	12	288
11369	HCX.254/T-PT-M12	254	M12	21	21.5	44.5	301	203	18	218	26	23.5	12.5	254	0÷100	32÷210	12	288

HCX-PT-SST - HCX/T-PT-SST **STAINLESS STEEL**

Code	Description	f	d	A	B	C	L	e	h	l	m	r	d'-0.2	f'±0.2	Thermometer scale°C	Thermometer scale°F	C# [Nm]	⚖
11334	HCX.76-PT-SST-M10	76	M10	20	19	35.5	115	40	13.5	49	18	19.5	10.5	76	-	-	12	119
11338	HCX.76/T-PT-SST-M10	76	M10	20	19	35.5	115	40	13.5	49	18	19.5	10.5	76	20÷100	68÷210	12	119
11373	HCX.127-PT-SST-M12	127	M12	22	21	39	169	80	15	96	23	21	12.5	127	-	-	12	193
11378	HCX.127/T-PT-SST-M12	127	M12	22	21	39	169	80	15	96	23	21	12.5	127	0÷100	32÷210	12	193
11360	HCX.254-PT-SST-M12	254	M12	21	21.5	44.5	301	203	18	218	26	23.5	12.5	254	-	-	12	290
11370	HCX.254/T-PT-SST-M12	254	M12	21	21.5	44.5	301	203	18	218	26	23.5	12.5	254	0÷100	32÷210	12	290

HCX-PT-VT - HCX/T-PT-VT

Code	Description	f	d	A	B	C	L	e	h	l	m	r	d'-0.2	f'±0.2	Thermometer scale°C	Thermometer scale°F	C# [Nm]	⚖
111353	HCX.127-PT-VT-M12	127	M12	22	21	39	169	80	15	96	23	21	12.5	127	-	-	6	147
111363	HCX.127/T-PT-VT-M12	127	M12	22	21	39	169	80	15	96	23	21	12.5	127	0÷100	32÷210	6	147
111373	HCX.254-PT-VT-M12	254	M12	21	21.5	44.5	301	203	18	218	26	23.5	12.5	254	-	-	6	248
111379	HCX.254/T-PT-VT-M12	254	M12	21	21.5	44.5	301	203	18	218	26	23.5	12.5	254	0÷100	32÷210	6	248

Maximum tightening torque

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Column level indicators

technopolymer, with zinc alloy protection frame



ELESA Original design

MATERIAL
Transparent polyamide based (PA-T) technopolymer. High resistance to shocks, solvents, oils with additives, aliphatic and aromatic hydrocarbons, petrol, naphtha, phosphoric esters.
Avoid contact with alcohol or detergents containing alcohol.

PROTECTION FRAME
Zinc-alloy, sandblasted and treated finish.

SCREWS, NUTS AND WASHERS
Zinc-plated steel.

PACKING RINGS
Step-shaped for the seal on the reservoir walls and NBR synthetic rubber O-ring screw underhead.

CONTRAST SCREEN
White lacquered aluminium. The housing, in the appropriate external rear slot, guarantees the best protection from direct contact with fluid. It can be taken out from the inclined side, before assembly to allow the insertion of level lines or words.

STANDARD EXECUTIONS
- **HCX-P**: without thermometer.
- **HCX/T-P**: with incorporated thermometer.

MOUNTING
When fitting is not possible from the inside of the reservoir and the walls are not thick enough, the screws can be used together with Fast Mounting Kit (see page 1768).

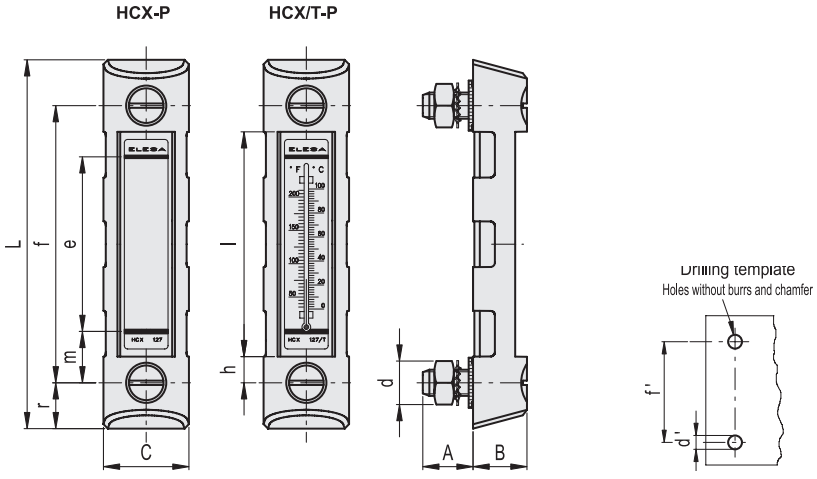
MAXIMUM CONTINUOUS WORKING TEMPERATURE
90°C (with oil).

FEATURES AND PERFORMANCES
Ultrasound welding to guarantee a perfect seal.
Lens effect for a better visibility of the fluid level and temperature.
Special openings in the protection frame provide maximum fluid level visibility even from side positions.
All shocks are absorbed by the frame that transmits them directly onto the wall of the reservoir

TECHNICAL DATA
In laboratory tests carried out with mineral oil type CB68 (according to ISO 3498) at 23°C for a limited period of time, the weld stood up to 18 bar.
For use with other fluids and under different pressure and temperature conditions, please contact ELESA Technical Department.
In any case we suggest to verify the suitability of the product under the actual working conditions.

SPECIAL EXECUTIONS ON REQUEST
- Level indicators for use with fluids containing alcohol or with hot water.
- UV resistant transparent technopolymer indicators.
- Protection frame with indicators type HCX-SST (see page 1758), HCX-BW-SST (see page 1762), HCX-AR (see page 1763).
- Indicators with two red ball-shaped floats (only for the execution without thermometer).
- Indicators with cylindrical or step-shaped (NBR or FKM) packing rings (instead of OR) for mounting on reservoirs having rough surfaces or in any case not perfectly flat.

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Code	Description	f	d	A	B	C	L	e	h	l	m	r	d'-0.2	f'±0.2	C# [Nm]	⚖
11371	HCX.127-P-M12	127	M12	22	25	39	169	80	12	103	23	21	12.5	127	12	279
11376	HCX.127/T-P-M12	127	M12	22	25	39	169	80	12	103	23	21	12.5	127	12	281

Maximum tightening torque

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Fast Mounting Kit

Steel and rubber

NUT
Zinc-plated steel.

PACKING RING
NBR synthetic rubber.

FEATURES
The FM kit (fast mounting kit) has been designed for mounting level indicators series HCX. from the outside where nuts cannot be fitted from the inside of the reservoir.



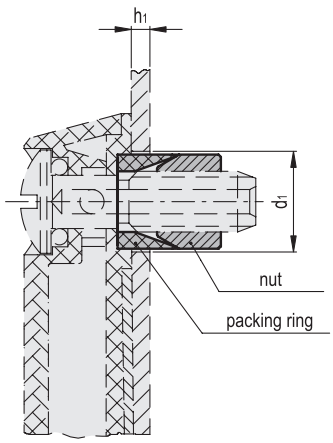
ASSEMBLY OF THE INDICATOR WITH THE FM KIT (FAST MOUNTING KIT)

- Arrange the holes d_1 as reported in the table and make sure that the holes in the plate do not have any burs, especially inside the reservoir.
- Unscrew the nuts from the HCX. indicator and take out the washers supplied with the standard execution, put the packing ring inside and screw the nuts (with or without O-Ring according to the thickness h_1).
- Before assembly of the indicator on the reservoir, slightly tighten the nut by hand against the packing ring.

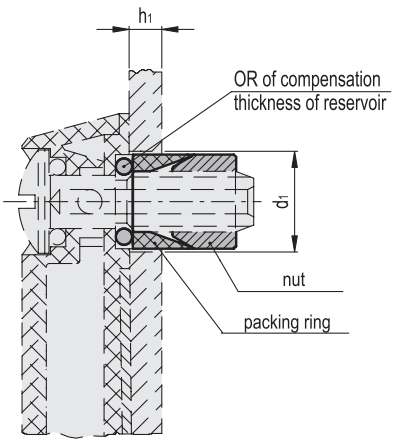
We advise you, then, to deform slightly the threaded end of the screw in order to prevent the nut from falling into the reservoir while disassembling the indicator.

- To disassemble the indicator from the reservoir, just rotate the screw 3/4 of a turn keeping the plastic part of the indicator under tension (pulling).

$1.5 < h_1 < 4.7$
(assembly without O-ring)



$4.7 < h_1 < 6.3$
(assembly with O-ring)



Code	Description	d_1 +0.1	Without O-ring h_1 min	Without O-ring h_1 max	With O-ring h_1 min	With O-ring h_1 max	Tightening torque max. [Nm]
31801	FM-HCX.76-M10-KIT	16	1.5	4.7	4.7	6.3	7
31811	FM-HCX.127-254-M12-KIT	17.5	1.5	4.7	4.7	6.3	7

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Column level indicator

with float for indirect level reading, technopolymer

MATERIAL
Transparent polyamide based (PA-T) technopolymer. High resistance to shocks, solvents, oils with additives, aliphatic and aromatic hydrocarbons, petrol, naphtha, phosphoric esters.
Avoid contact with alcohol or detergents containing alcohol.

SCREWS, NUTS AND WASHERS
Zinc-plated steel.

PACKING RINGS
NBR synthetic rubber O-Ring.
Suggested roughness of the packing ring application surface Ra = 3 µm.

FLOAT
Ebonite, black colour.

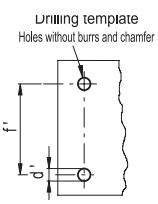
CONTRAST SCREEN
White lacquered aluminium. The housing, in the appropriate external rear slot, guarantees the best protection from direct contact with fluid. It can be taken out from the inclined side, before assembly to allow the insertion of level lines or words.

MOUNTING
When fitting is not possible from the inside of the reservoir and the walls are not thick enough, the screws can be used together with Fast Mounting Kit (see page 1768).

MAXIMUM CONTINUOUS WORKING TEMPERATURE
90°C (with oil).

FEATURES AND PERFORMANCES
HCX-LT column level indicator allows the fluid level reading by means of a float when, due to the particular design of the system, the fluid level cannot be seen directly from the lower part of the indicator.
The plastic foam float is moved upward by the fluid contained in the reservoir. This system allows an indirect reading of the level.
The red line on the lacquered contrast screen is visible only when the float is in its lowest position (minimum fluid level = m).
Ultrasound welding to guarantee a perfect seal.
Maximum fluid level visibility even from side positions.
Lens effect for a better visibility of the fluid level.

TECHNICAL DATA
In laboratory tests carried out with mineral oil type CB68 (according to ISO 3498) at 23°C for a limited period of time, the weld stood up to 12 bar.
For use with other fluids and under different pressure and temperature conditions, please contact ELESA Technical Department.
In any case we suggest to verify the suitability of the product under the actual working conditions.



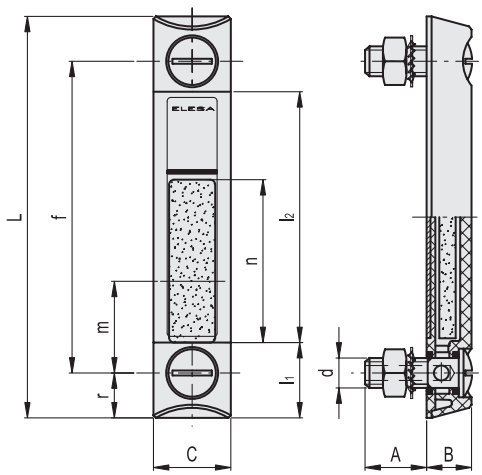


ELESA Original design

SPECIAL EXECUTIONS ON REQUEST
Level indicators with SUPER-technopolymer protection frame.
UV resistant transparent technopolymer indicators.

ASSEMBLY INSTRUCTIONS
To ensure proper assembly of the indicator, please follow these instructions:
1. Set the minimum oil level of your reservoir.
2. Drill two holes on the reservoir wall. The lower hole axis should be drilled at "m" distance (see table) under the minimum oil level.

"m" is the minimum oil level allowed. This is the level from which the float starts to be moved upward.
The value "m" is calculated with an oil density of 875 Kg/m³ at 15°C.
If the red line of the contrast screen appears, the oil level is under its minimum level allowed.



Code	Description	f	d	A	B	C	L	l1	l2	m*	n	r	d'-0.2	f'±0.2	C# [Nm]	⚖
11364	HCX.254-LT-M12	254	M12	21	18	35	291	32	225	46	140	18.5	12.5	254	6	215

***** See assembly instructions

Maximum tightening torque

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Column level indicators

with or without transparent protection, technopolymer

ASSEMBLY ENDS
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour.

SUPPORT
Aluminium in natural colour.

LEVEL COLUMN WINDOW
Polycarbonate transparent tube.
Maximum fluid level visibility even from side positions

SCREWS, NUTS AND WASHERS
Zinc-plated steel.

PACKING RINGS
NBR rubber O-Ring.

GRADUATED CONTRAST SCREEN
White lacquered aluminium. It can be taken out before assembly to allow the insertion of level lines or words.
Fitted to the aluminium support.

STANDARD EXECUTIONS
- **HCK:** with transparent front protection (against accidental shocks), in polycarbonate (PC), extractable for cleaning operations.
- **HCK-NP:** without transparent front protection.

MAXIMUM CONTINUOUS WORKING TEMPERATURE
100°C (with oil).

TECHNICAL DATA
In laboratory tests carried out with mineral oil type CB68 (according to ISO 3498) at 23°C for a limited period of time, the values of pressure resistance were much higher than 35 bar.
If you need to use the indicator with other oils or fluids and under different pressure and temperature conditions, please contact ELESA+GANTER Technical Department.
In any case we suggest to verify the suitability of the product under the actual working conditions.

SPECIAL EXECUTIONS ON REQUEST
- Column level window in transparent methylmatacrylate (PMMA) for max 70°C use.
- AISI 303 stainless steel screws with hexagon socket.
- Polyamide based technopolymer float (from HCK.127) red colour.
- Expanded NBR float (from HCK.176) black colour with AISI 316 stainless steel spiral for special executions, viscous liquids, high temperatures.
- Column level window with visibility (l2) superior to 452 mm and holes centre distance (f) for fixing up to 1.500 mm.
- Electric sensor bracket pre-set at the following temperatures: 50°C, 60°C, 70°C, 80°C.
- Packing rings in special material depending on the customer's needs.
- Built-in thermometer with red indication line.
- External scale thermometer (Fig. 1) with internal probe for fluid temperature.
- SLCK electric level sensor (Fig.2, from HCK.127) which can be fitted along the axis of the indicator according to the actual needs. With right (DX) or left (SX) connectors, normally closed (NC), normally open (NO).
- Special screw with nickel-plated brass tap (Fig. 3) to be fitted to the lower assembly end for any maintenance operation requiring the indicator exclusion.



ELESA Original design

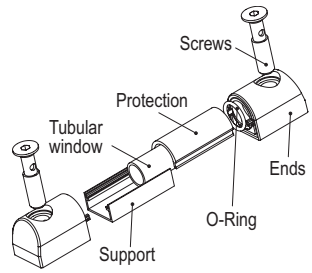


Fig.1

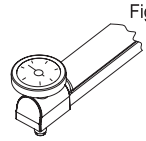


Fig.2

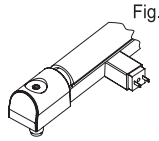
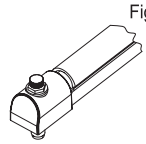
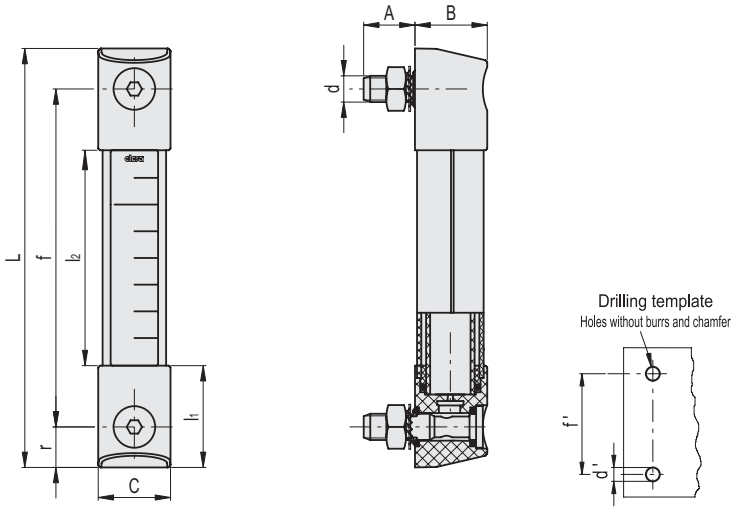


Fig.3



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HCK **HCK-NP**

Code	Description	Code	Description	f	d	A	B	C	L	l1	l2	r	d'-0.2	f'	C# [Nm]	⚖
111001	HCK.76-M10	111001-NP	HCK.76-M10-NP	76	M10	20	33	33	113	35.5	42	18.5	10.5	76 ±0.2	12	183
111011	HCK.127-M12	111011-NP	HCK.127-M12-NP	127	M12	20	33	33	164	46.5	71	18.5	12.5	127±0.5	12	220
111021	HCK.176-M12	111021-NP	HCK.176-M12-NP	176	M12	20	33	33	213	46.5	120	18.5	12.5	176±0.5	12	250
111031	HCK.254-M12	111031-NP	HCK.254-M12-NP	254	M12	20	33	33	291	46.5	198	18.5	12.5	254±0.5	12	298
111041	HCK.381-M12	111041-NP	HCK.381-M12-NP	381	M12	20	33	33	418	46.5	325	18.5	12.5	381±0.5	12	377
111051	HCK.508-M12	111051-NP	HCK.508-M12-NP	508	M12	20	33	33	545	46.5	452	18.5	12.5	508±0.5	12	455

Maximum tightening torque

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Column level indicators

with transparent protection for glycol-based solutions, technopolymer

ASSEMBLY ENDS
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour.

SUPPORT
Aluminium in natural colour.

LEVEL COLUMN WINDOW
Transparent tube in PYREX®* glass, also suitable for use with glycol-based solutions.
Maximum fluid level visibility even from side positions

TRANSPARENT FRONT PROTECTION (AGAINST ACCIDENTAL SHOCKS)
Polycarbonate (PC), extractable for cleaning operations

SCREWS, NUTS AND WASHERS
- **HCK-GL:** : zinc-plated steel screws with hexagon socket, nuts and washers.
- **HCK-GL-SST:** : AISI 303 stainless steel screws with hexagon socket, AISI 304 stainless steel nuts and washers.

PACKING RINGS
- **HCK-GL:** : NBR rubber O-Ring
- **HCK-GL-SST:** : FKM type VITON®** synthetic rubber O-Ring.

GRADUATED CONTRAST SCREEN
White lacquered aluminium. It can be taken out before assembly to allow the insertion of level lines or words.
Fitted to the aluminium support.

MAXIMUM CONTINUOUS WORKING TEMPERATURE
- **HCK-GL-SST**: 100°C (with oil, water, glycol-based solutions).
- **HCK-GL-SST**: 130°C (with oil, water, glycol-based solutions). In laboratory tests these indicators showed an excellent resistance to temperatures up to 150/160°C for many hours with pressures of 5/6 bar.

SPECIAL EXECUTIONS ON REQUEST
- Polyamide based technopolymer float (from HCK.127) red colour.
- Expanded NBR float (from HCK.176) black colour with AISI 316 stainless steel spiral for special executions, viscous liquids, high temperatures.
- Column level window with visibility (l2) superior to 452 mm and holes centre distance (f) for fixing up to 1.500 mm.
- Electric sensor bracket pre-set at the following temperatures: 50°C, 60°C, 70°C, 80°C.
- Packing rings in special material depending on the customer's needs.
- Built-in thermometer with red indication line.
- External scale thermometer (Fig. 1) with internal probe for fluid temperature.
- SLCK electric level sensor (Fig.2, from HCK.127) which can be fitted along the axis of the indicator according to the actual needs. With right (DX) or left (SX) connectors, normally closed (NC), normally open (NO).
- Special screw with nickel-plated brass tap (Fig. 3) to be fitted to the lower assembly end for any maintenance operation requiring the indicator exclusion.

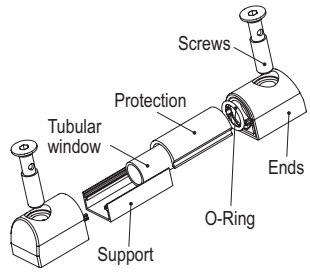
*** Registered trademark by Corning Inc.**

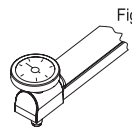
**** Registered trademark by DuPont Dow Elastomers.**

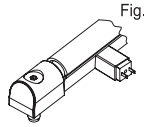


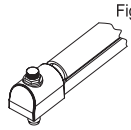
ELESA Original design

TECHNICAL DATA
In laboratory tests carried out with mineral oil type CB68 (according to ISO 3498) at 23°C for a limited period of time, the values of pressure resistance were much higher than 35 bar.
If you need to use the indicator with other oils or fluids and under different pressure and temperature conditions, please contact ELESA+GANTER Technical Department.
In any case we suggest to verify the suitability of the product under the actual working conditions.

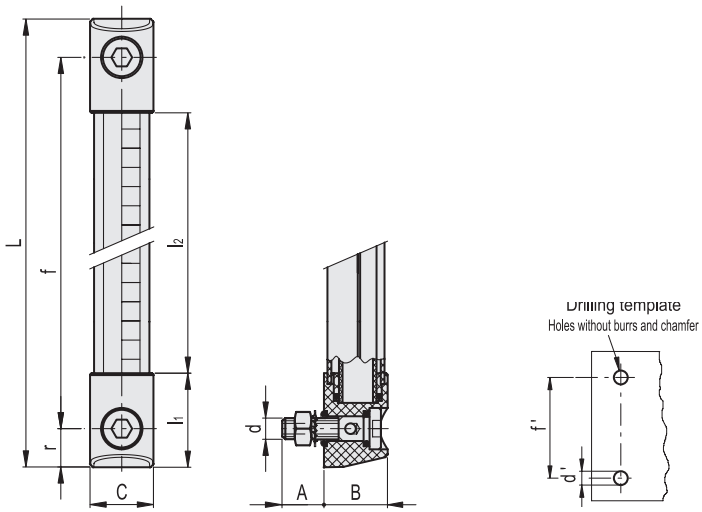



Fig.1


Fig.2


Fig.3

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HCK-GL

Code	Description	f	d	A	B	C	L	l1	l2	r	d'-0.2	f'	C# [Nm]	⚖
111004	HCK.76-GL-M10	76	M10	20	33	33	113	35.5	42	18.5	10.5	76 ±0.2	12	183
111014	HCK.127-GL-M12	127	M12	20	33	33	164	46.5	71	18.5	12.5	127±0.5	12	220
111024	HCK.176-GL-M12	176	M12	20	33	33	213	46.5	120	18.5	12.5	176±0.5	12	250
111034	HCK.254-GL-M12	254	M12	20	33	33	291	46.5	198	18.5	12.5	254±0.5	12	298
111044	HCK.381-GL-M12	381	M12	20	33	33	418	46.5	325	18.5	12.5	381±0.5	12	377
111054	HCK.508-GL-M12	508	M12	20	33	33	545	46.5	452	18.5	12.5	508±0.5	12	455

HCK-GL-SST **STAINLESS STEEL**

Code	Description	f	d	A	B	C	L	l1	l2	r	d'-0.2	f'	C# [Nm]	⚖
111005	HCK.76-GL-SST-M10	76	M10	20	33	33	113	35.5	42	18.5	10.5	76 ±0.2	12	183
111015	HCK.127-GL-SST-M12	127	M12	20	33	33	164	46.5	71	18.5	12.5	127±0.5	12	220
111025	HCK.176-GL-SST-M12	176	M12	20	33	33	213	46.5	120	18.5	12.5	176±0.5	12	250
111035	HCK.254-GL-SST-M12	254	M12	20	33	33	291	46.5	198	18.5	12.5	254±0.5	12	298
111045	HCK.381-GL-SST-M12	381	M12	20	33	33	418	46.5	325	18.5	12.5	381±0.5	12	377
111055	HCK.508-GL-SST-M12	508	M12	20	33	33	545	46.5	452	18.5	12.5	508±0.5	12	455

Maximum tightening torque

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Kit for the electric control of a fluid level

for HCK. and HCK-GL column level indicators

SENSOR HOLDER BRACKET
In polyamide based (PA) technopolymer, black colour, watertight, with a built-in relay (reed) with two conductors wired to the two-pin connector. It can be moved along the axis of the indicator and secured in the preferred position with the appropriate screw (set screw) in technopolymer.

ELECTRIC SENSOR
- NO: the electric circuit closes on reaching the preset level.
- NC: the electric circuit opens on reaching the preset level.

CONNECTOR
With built-in cable gland and contact holders.Properly set, it offers an effective product protection against water sprays (IP 65 protection class according to EN 60529 table on page A23) that can be increased during installation with the necessary adjustments. NBR synthetic rubber packing rings.

FLOAT
Polypropylene based (PP) technopolymer, max temperature limit 80° C or polyamide based (PA) technopolymer, max temperature limit 120°C, max chemical compatibility, black colour.
The float incorporates a magnetic element to activate the electric contact. When the float reaches the intervention level set by the user, by suitably positioning the sensor holder along the axis of the indicator, the electrical contact activates.
Max operating pressure 2 bar (operation with oil).

SPACERS
In polyamide based (PA) technopolymer. Essential in cases where the reservoir is made out of ferromagnetic material in order to prevent the interaction between the magnet and the metal mass of the reservoir.

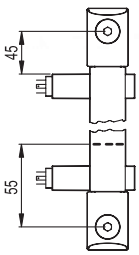
KIT
The kit includes one or two sensor holder brackets, a float, 4 O-rings (2 FKM for HCK-GL and 2 NBR for HCK) and two spacers.
It is possible to apply more than one kit to get the electric control of different levels, consistently with the height of the transparent column.

STANDARD EXECUTIONS
For applications with temperatures up to 80°C: polypropylene based (PP) technopolymer float.
- **SLCK-NO**: with electric contact normally open.
- **SLCK-NC**: with electric contact normally closed.
- **SLCK-NO-NC**: with one electric contact normally open and one electric contact normally closed.
- **SLCK-NC-NC**: with two electric contacts normally closed.
- **SLCK-NO-NO**: with two electric contacts normally open.

For applications with temperatures up to 120°C: polyamide based (PA) technopolymer float.
- **SLCK-HT-NO**: with electrical contact normally open.
- **SLCK-HT-NC**: with electrical contact normally closed.
- **SLCK-HT-NO-NC**: with one electrical contact normally open and one electric contact normally closed.
- **SLCK-HT-NC-NC**: with two electrical contacts normally closed.
- **SLCK-HT-NO-NO**: with two electrical contacts normally opened.

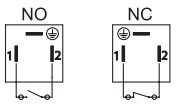


Fig.1



ELESA Original design

FEATURES AND PERFORMANCES
With the application of the SLCK kit, HCK. and HCK-GL column level indicators provide an electric signal when the fluid level reaches the level of preset intervention, besides the visual control of the level. The electric control of the level can be applied on all versions of HCK. from the version with 127 mm hole centre distance while always maintaining the visibility of fluid level even from side positions.
In the highest position, the sensor holder must be positioned at least 45 mm below the axis of the high screw (Fig.1), so that the switching takes place correctly.
In the lowest position, the fluid level which determines the switching of the electric circuit is about 55 mm above the axis of the low screw of fluid supply (data referring to mineral oil type CB68, according to ISO 3498, temperature 23°C) (Fig. 1).
The sensor holder is arranged to be installed to the left with respect to the axis of the indicator. However, if required it can also be mounted on the right. The connector can be rotated by 90° in four positions when wiring.
For a correct assembly see Warnings (on page 1775).



Level sensor electric characteristics	
Tension feed	AC/DC
Electric contacts	NO normally open NC normally close
Maximum applicable voltage	230 Vdc / Vac
Max. opening capacity (CC CA)	2 A
Maximum commutable power	40 W / VA
Cable gland	Pg 7 (for cables in sheath with Ø 6 or 7 mm)
Conductors cross-section	Max. 1.5 mm^2
Do not mount this indicator in proximity to magnetic fields.	

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SLCK

Kit for the electric control of a fluid level

KIT ASSEMBLY INSTRUCTIONS

- Remove the assembly end of the indicator (Fig. 2).
- Insert the sensor holder bracket (Fig.3).
- Insert the float with the word "up" to the top and relocate the assembly end in place (Fig.4).
- Clamp the bracket with the set screw to the desired position (Fig. 5).
- Install the indicator on the reservoir using the spacers included in the supply (necessary in case of reservoir made out of ferromagnetic material in order to avoid interaction between the magnet and the metal mass (Fig.6).
- Assemble the two-pin connector (Fig. 7).

TWO-PIN CONNECTOR ASSEMBLY INSTRUCTIONS

1. Remove the connector from the sensor holder bracket by unscrewing the axial set screw, take off the contact holder and unscrew the cable gland as required.
2. Slip on the cable into the connector and connect the wires to the terminals of the contact holder.
3. Assemble by pressing the contact holder into the connector (the contact holder can be rotated by 90° in four positions to have a different orientation of the connector).
4. Screw again the connector to the sensor holder by means of the axial set screw and then tighten the cable gland.

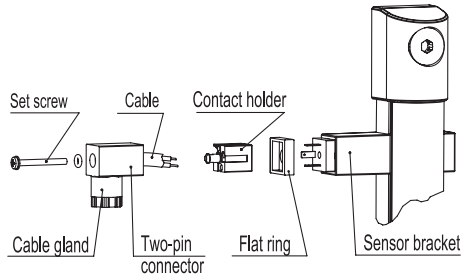
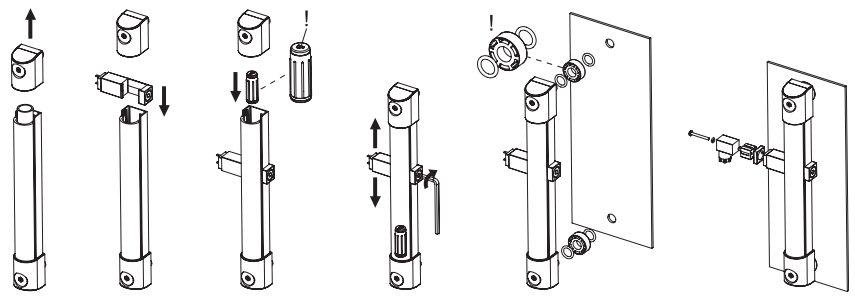
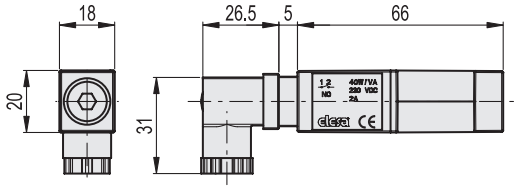


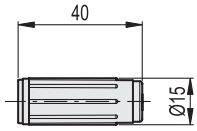
Fig.2 Fig.3 Fig.4 Fig.5 Fig.6 Fig.7



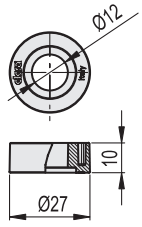
Sensor holder bracket



Float



Spacers



Code	Description	Code	Description	⚖
110081	SLCK-NO	110082	SLCK-HT-NO	235
110083	SLCK-NC	110084	SLCK-HT-NC	235
110085	SLCK-NO-NC	110086	SLCK-HT-NO-NC	235
110087	SLCK-NC-NC	110088	SLCK-HT-NC-NC	235
110089	SLCK-NO-NO	110090	SLCK-HT-NO-NO	235

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Column level indicators

with U shaped protection, technopolymer



ASSEMBLY ENDS
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour.

SUPPORT
Aluminium in natural colour. It can be turned by 90°C where necessary.

LEVEL COLUMN WINDOW
Polymethylmatacrylate transparent tube.

SCREWS
Zinc-plated steel with hexagon socket.

PACKING RINGS
NBR synthetic rubber O-Ring.

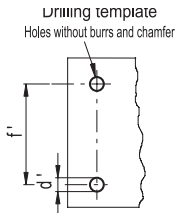
GRADUATED CONTRAST SCREEN
Plastic material, resistant to oils and greases. Fitted to the aluminium protection by means of an adhesive tape.

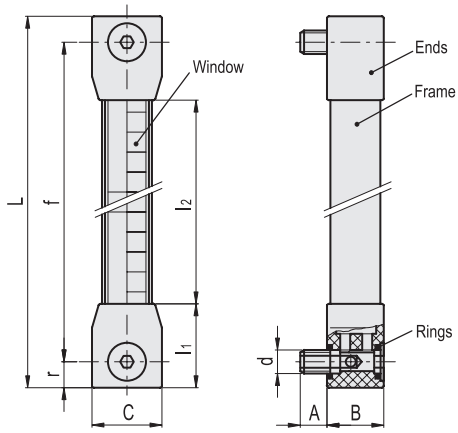
MAXIMUM CONTINUOUS WORKING TEMPERATURE
70°C (with oil or water).

TECHNICAL DATA
In laboratory tests carried out with mineral oil type CB68 (according to ISO 3498) at 23°C for a limited period of time, the weld stood up to: 30 bar (HCL.300), 25 bar (HCL.400) and 20 bar (HCL.500).
For use with other fluids and under different pressure and temperature conditions, please contact ELESA Technical Department.
In any case we suggest to verify the suitability of the product under the actual working conditions.

SPECIAL EXECUTIONS ON REQUEST
- Column level indicators with tubes and assembly ends in different materials for the use with special fluids and/or at high temperatures.
- AISI 316 stainless steel or nickel-plated brass screws.
- Polyamide based (PA) technopolymer float, red colour to highlight the level also from a long distance.
- Column level indicators with fitting centre-holes up to 2000 mm.
- HCL-E column oil level indicators including float, minimum level signal, normally closed contacts (NC), normally open (NO) or CHANGE OVER.
- Adjustable level sensors which can be placed along the axis of the indicator, with right (DX) or left (SX) connectors, normally closed (NC), normally open (NO) or CHANGE OVER contacts.
- EPDM or FKM type VITON®* packing rings.

*** Registered trademark by DuPont Dow Elastomers.**





Code	Description	f	d	A	B	C	L	l1	l2	r	d'-0.2	f'±0.2	C# [Nm]	⚖
111211	HCL-300-M12	300	M12	13.5	28.5	35	326	42	242	13	12.5	300	15	227
111221	HCL-400-M12	400	M12	13.5	28.5	35	426	42	342	13	12.5	400	15	268
111231	HCL-500-M12	500	M12	13.5	28.5	35	526	42	442	13	12.5	500	15	306

Maximum tightening torque

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Warnings for an effective protection of the Reed switches

The electric features on the Reed switches, shown in the descriptive tables, are supplied by the manufacturers. For a Reed switch connection, it is recommended to pay special attention to the type of load to which the switch is going to be connected. Inductive, capacitive or lamp loads may produce surges during operation, for their own nature. These surges may damage the Reed switch or drastically reduce its operating life.

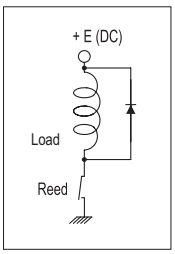
Inductive load

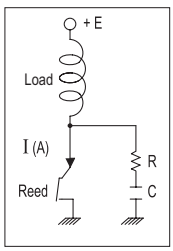
When a Reed switch is used to guide an inductive load such as engines and solenoid valves, the energy stored in the load may cause an inverse voltage when the Reed contact breaks. The voltage depends on the inductance value. The following circuits provide a protection in the cases hereunder mentioned.

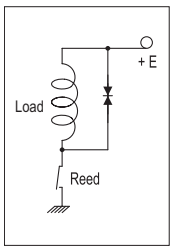
In case of continous voltage, it is enough to introduce a diode in parallel to the load respecting the polarity, to advoid any damage to the Reed switch.

In case of alternating voltage, it is possible to use a resistance and a capacitance in parallel to the Reed switch. The capacitance and resistance values come out from the following formula.

An alternative solution may be to use a varistor in parallel to the load.





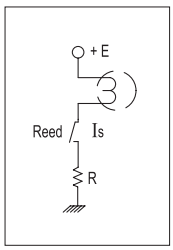


$$C\,[\mu F] = \frac{I^2}{10}$$

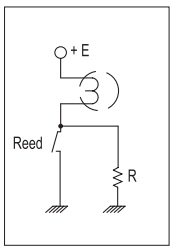
$$R\,[\Omega] = \frac{E}{10 \cdot I\,(1 + \frac{E}{50})}$$

Lamp load

In case of a tungsten filament lamp, the filament resistance is 10 times smaller when the lamp is switched off (cold filament) than in case of the lamp switched on (hot filament). After the Reed contact commutation and after the lamp turning on, for a short time the in-rush current is 10 times higher than the one circulating in steady state. This flow may damage the Reed contact or jeopardise its duration. In this case, the solution is to introduce a resistance in series to the Reed switch, thus cutting the maximum value of the current, or a resistance in parallel to the Reed switch, to keep the filament hot (by increasing the resistance) without causing the lamp to turn on.



R = Protection resistance
It must be properly chosen so that
Is < 0.5 A

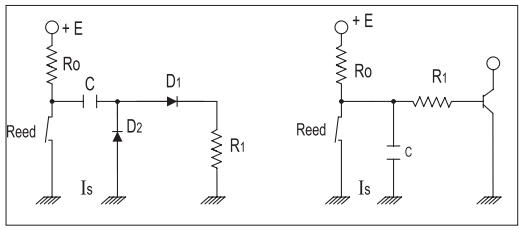


$$R < \frac{\text{Filament resistance}}{3}$$

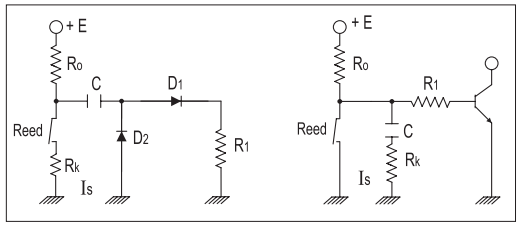
Capacitive load

The in-rush current flowing during charge and discharge of the capacitor will cause deterioration of the Reed contacts in case when a capacitor is connected in series or in parallel with a Reed switch in a closed circuit. In this situation, the easiest and more effective solution is to position a resistance in series to the Reed switch or, in general, a resistance properly set in order to cut the maximum value of the currents of charge and discharge. Here are two examples of a circuit: the energy, stored in the capacitive load "C", generates rush currents discharging through the Reed contact. The use of a properly calibrated resistance reduces the value of these currents and protects the operating life of the Reed contact.

Circuit without protection



Circuit with protection

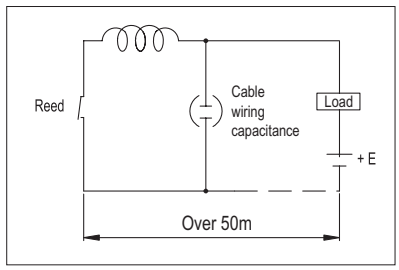


R_k is the resistance limiting the surges.
The R_k resistance value depends on the circuit electric configuration.
As a general rule:

$$Is = \frac{V \text{ stored in the load}}{{}_kR\ [K\Omega]} < 0{,}1\ A$$

Wiring capacitance

In case a Reed switch is connected to a load by a cable, over a long distance, the cable static capacitance will affect the Reed switch. In case the cable length exceeds 50 metres, it is recommended to use a protection for assuring a longer operating life of the Reed switch (although it depends on the type of cable used). In this situation an inductance in series to the Reed switch or a small resistance (current limiting resistance of 10 to 500 ohms) can be inserted.



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RoHS PA-T IP65 +90° -30°

Column level indicators

with MAX temperature electrical sensor, technopolymer



ELESA Original design

MATERIAL
Transparent polyamide based (PA-T) technopolymer. Highly resistant to shocks, solvents, oils with additives, aliphatic and aromatic hydrocarbons, petrol, naphtha, phosphoric esters.
Avoid contact with alcohol or detergents containing alcohol.

SCREW, NUTS AND WASHERS
Zinc-plated steel.

PACKING RINGS
NBR synthetic rubber O-Ring.
Suggested roughness of the packing ring application surface Ra = 3 µm.

MAX TEMPERATURE ELECTRICAL SENSOR (80°C)
Zinc-plated screw with built-in sensor.
Temperature of intervention is 80°C.
For a correct assembly see Warnings (see page 1777).

SWIVELLING TWO-PIN CONNECTOR
With built-in cable gland and contact holder. Front or side output (right or left) including protection against water sprays (protection class IP 65 according to EN 60529 table on page A23) that can be increased during installation with the necessary adjustments. Flat NBR synthetic rubber packing rings.

CONTRAST SCREEN
White lacquered aluminium. The housing, in the appropriate external rear slot, guarantees the best protection from direct contact with fluid. It can be taken out from the inclined side, before assembly to allow the insertion of level lines or words.

STANDARD EXECUTIONS
- **HCX-ST-NO**: with electrical contact normally open.
- **HCX-ST-NC**: with electrical contact normally closed.

MOUNTING
When fitting is not possible from the inside of the reservoir and the walls are not thick enough, the screws can be used together with Fast Mounting Kit (see page 1768).

MAXIMUM CONTINUOUS WORKING TEMPERATURE
90°C (with oil).

SPECIAL EXECUTIONS ON REQUEST
- Level indicators with SUPER-technopolymer protection frame.
- Level indicators for use with fluids containing alcohol or with hot water.
- UV resistant transparent technopolymer indicators.
- Temperature electrical sensor with pre-set temperatures different from 80°C.
- Indicators with two red ball-shaped floats.

FEATURES AND PERFORMANCES
This column level indicator generates an electric signal when the temperature reaches the pre-set degrees (80°C).
Ultrasound welding to guarantee a perfect seal.
Maximum fluid level visibility even from side positions.
Lens effect for a better visibility of the fluid level and temperature.

TECHNICAL DATA
In laboratory tests carried out with mineral oil type CB68 (according to ISO 3498) at 23°C for a limited period of time, the weld stood up to: 18 bar (HCX.127-ST) 12 bar (HCX.254-ST).
For use with other fluids and under different pressure and temperature conditions, please contact ELESA Technical Department.
In any case we suggest to verify the suitability of the product under the actual working conditions.

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FUNCTIONING

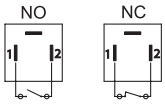
- HCX-ST-NO with electrical contact normally open.

Electrical temperature sensor: the electrical circuit is closed when the pre-set temperature at 80°C is reached.

- HCX-ST-NC with electrical contacts normally closed.

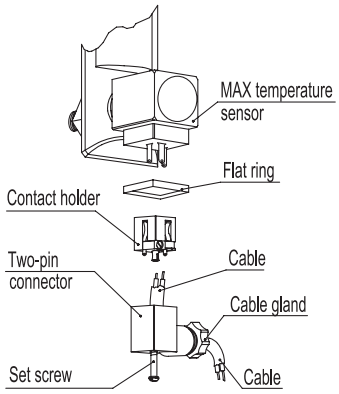
Electrical temperature sensor: the electrical circuit is open when the pre-set temperature at 80°C is reached.

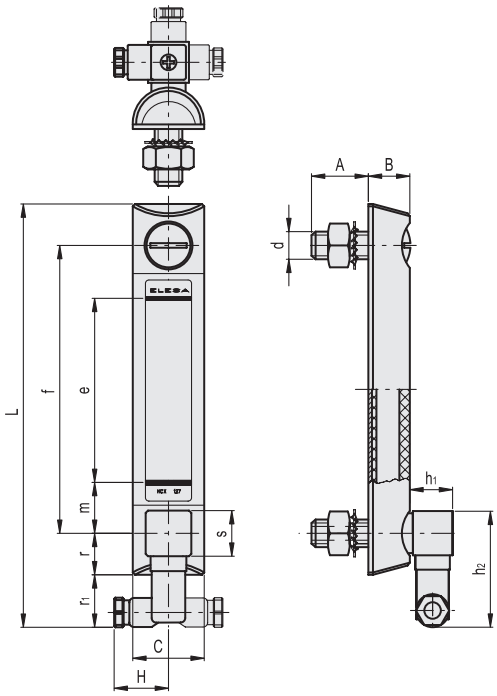
Electrical features	MAX temperature sensor	
Tension feed	AC/DC	
Electric contacts	NO normally open NC normally closed	
Voltage / Maximum current	250 Vac - 10 A	(resisteve loads)
	48 Vdc - 5 A	
Cable gland	Pg 7 (for cables in sheath with Ø 6 or 7 mm)	
Conductors cross-section	Max 1.5 mm^2	

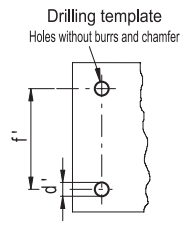


TWO-PIN CONNECTOR ASSEMBLY INSTRUCTIONS

1. Remove the connector from the indicator by unscrewing the set screw placed in the bottom, take the contact holder out and loosen the cable gland.
2. Slip on the two-pole cable into the connector (standard connector) and connect the wires to the terminals nr. 1 and nr. 2 of the contact holder.
3. Assemble by pressing the contact holder into the connector in the required position.
4. Screw the connectors to the indicator and then tighten the cable glands.







Code	Description	f	d	A	B	C	H	L	e	h1	h2	m	r	r1	s	d'-0.2	f'±0.2	C# [Nm]	⚖
11161	HCX.127-ST-NO-M12	127	M12	23	18	31	27	187	80	21	54	23	17	26	22	12.5	127	12	220
11162	HCX.127-ST-NC-M12	127	M12	23	18	31	27	187	80	21	54	23	17	26	22	12.5	127	12	220
11171	HCX.254-ST-NO-M12	254	M12	21	18	35	27	315	203	21	54	26	18.5	24	22	12.5	254	10	265
11172	HCX.254-ST-NC-M12	254	M12	21	18	35	27	315	203	21	54	26	18.5	24	22	12.5	254	10	265

Maximum tightening torque

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RoHS PA-T IP65 +90° -30°

Column level indicators

with temperature electrical probe, technopolymer



ELESA Original design

MATERIAL
Transparent polyamide based (PA-T) technopolymer. Highly resistant to shocks, solvents, oils with additives, aliphatic and aromatic hydrocarbons, petrol, naphtha, phosphoric esters.
Avoid contact with alcohol or detergents containing alcohol.

SCREW, NUTS AND WASHERS
Zinc-plated steel.

PACKING RINGS
NBR synthetic rubber O-Ring.
Suggested roughness of the packing ring application surface Ra = 3 µm.

TEMPERATURE ELECTRICAL PROBE
Zinc-plated steel screw with built-in probe. The probe is made out of a platinum resistor whose ohmic resistance changes according to the temperature.
For a correct assembly see Warnings (see page 1777).

SWIVELLING TWO-PIN CONNECTOR
With built-in cable gland and contact holder. Front or side output (right or left) including protection against water sprays (protection class IP 65 according to EN 60529 table on page A23) that can be increased during installation with the necessary adjustments. Flat NBR synthetic rubber packing rings.

CONTRAST SCREEN
White lacquered aluminium. The housing, in the appropriate external rear slot, guarantees the best protection from direct contact with fluid.
It can be taken out from the inclined side, before assembly to allow the insertion of level lines or words.

MOUNTING
When fitting is not possible from the inside of the reservoir and the walls are not thick enough, the screws can be used together with Fast Mounting Kit (see page 1768).

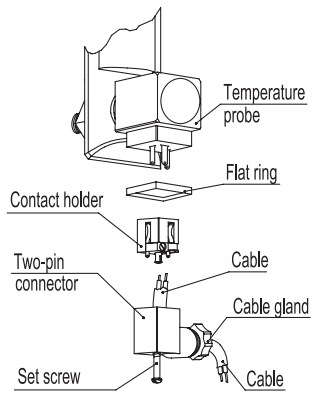
MAXIMUM CONTINUOUS WORKING TEMPERATURE
90°C (with oil).

FEATURES AND PERFORMANCES
This column level indicator generates an analogic electric signal of the oil temperature.
Ultrasound welding to guarantee a perfect seal.
Maximum fluid level visibility even from side positions.
Lens effect for a better visibility of the fluid level and temperature.

TECHNICAL DATA
In laboratory tests carried out with mineral oil type CB68 (according to ISO 3498) at 23°C for a limited period of time, the weld stood up to: 18 bar (HCX.127-STL) 12 bar (HCX.254-STL).
For use with other fluids and under different pressure and temperature conditions, please contact ELESA Technical Department.
In any case we suggest to verify the suitability of the product under the actual working conditions.

SPECIAL EXECUTIONS ON REQUEST
- Level indicators for use with fluids containing alcohol or with hot water.
- UV resistant transparent technopolymer indicators.
- Indicators with two red ball-shaped floats.

TWO-PIN CONNECTOR ASSEMBLY INSTRUCTIONS
1. Remove the connector from the indicator by unscrewing the set screw placed in the bottom, take the contact holder out and loosen the cable gland.
2. Slip on the two-pole cable into the connector (standard connector) and connect the wires to the terminals nr. 1 and nr. 2 of the contact holder.
3. Assemble by pressing the contact holder into the connector in the required position.
4. Screw the connectors to the indicator and then tighten the cable glands.



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FUNCTIONING OF THE TEMPERATURE ELECTRICAL PROBE

The working principle of the temperature probe is to measure the variation of resistance of a platinum element: 100 ohm = 0°C, 138.4 ohm = 100°C.

The function between temperature (T) and resistance (R) is approximately linear over a small temperature range: for example, if you assume that it is linear over the 0° to 100°C range, the error at 50°C is 0.4°C.

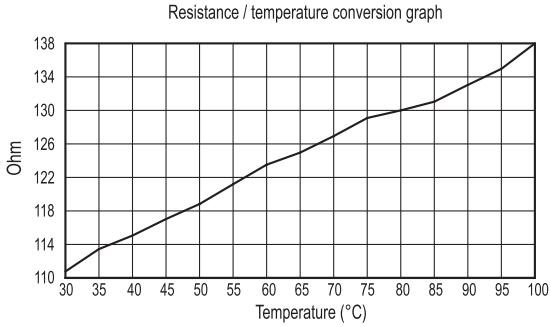
For precision measurement, it is necessary to linearise the resistance to give an accurate temperature. The most recent definition of the function between resistance and temperature is International Temperature Standard 90 (ITS-90). The function between resistance and temperature, obtained in laboratory tests, measuring directly the resistance value on the contacts is shown in the graph.

We suggest, anyway, to set the system in order to compensate both heat dissipation and cable resistance.

A 1°C temperature change will cause a 0.384 ohm change in resistance, so even a small error in measurement of the resistance (for example, the resistance of the wires leading to the sensor) can cause a large error in the measurement of the temperature.

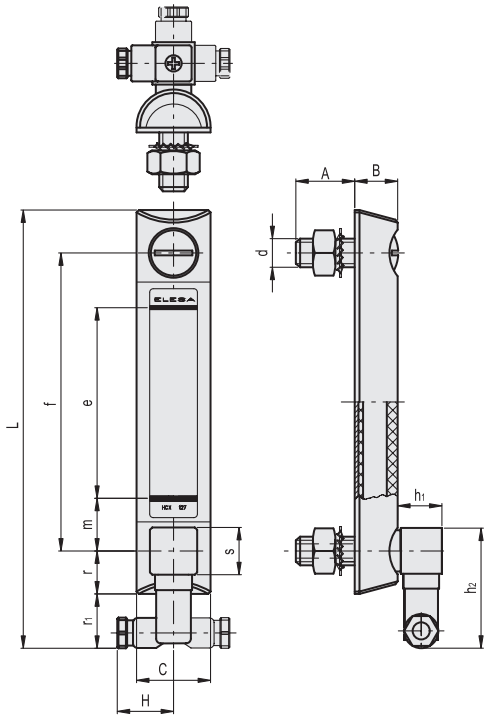
Because of the low signal levels, it is important to keep any cables away from electric cables, motors, switchgear and other devices that may emit magnetic or electrical noise. Using screened cable, with the screen grounded at one end, may help to reduce interference.

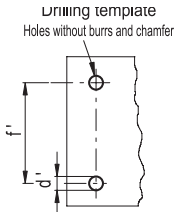
When using long cables, it is necessary to check that the measuring equipment is able to handle the cable resistance.



Electrical features	Temperature probe
Tension feed	AC/DC
Maximum current	2 mA
Cable gland	Pg 7 (for cables in sheath with Ø 6 or 7 mm)
Conductors cross-section	Max 1.5 mm^2







Code	Description	f	d	A	B	C	H	L	e	h1	h2	m	r	r1	s	d'-0.2	f'±0.2	C# [Nm]	⚖
11166	HCX.127-STL-M12	127	M12	23	18	31	27	187	80	21	54	23	17	26	22	12.5	127	12	220
11176	HCX.254-STL-M12	254	M12	21	18	35	27	315	203	21	54	26	18.5	24	22	12.5	254	10	265

Maximum tightening torque

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RoHS IP65 PA-T PA +90° -30°

Column level indicators

with MIN level electrical sensor, technopolymer

MATERIAL
Transparent polyamide based (PA-T) technopolymer. Highly resistant to shocks, solvents, oils with additives, aliphatic and aromatic hydrocarbons, petrol, naphtha, phosphoric esters.

SCREWS, NUTS AND WASHERS
Zinc-plated steel.

PACKING RINGS
NBR synthetic rubber O-Ring.
Suggested roughness of the packing ring application surface Ra = 3 µm.

FLOAT
Polyamide based (PA) expanded technopolymer, black colour, with a built-in magnetic element to activate the electric contact when the oil level drops to a minimum; alarm threshold located at about 50 mm from the centre of the lower nut (in presence of mineral oil type CB68, according to ISO 3498, at 23°C).

SENSOR BRACKET
Watertight in polypropylene based (PP) technopolymer, black colour, with a built-in relay (reed) with two conductors wired to the two-pin connector.
For a correct assembly see Warnings (on page 1777).

SWIVELLING TWO-PIN CONNECTOR
With built-in cable gland and contact holder. Front or side output (right or left) including protection against water sprays (protection class IP 65 according to EN 60529 table see page A23).

CONTRAST SCREEN
White lacquered aluminium. The housing, in the appropriate external rear slot, guarantees the best protection from direct contact with fluid. It can be taken out from the inclined side, before assembly to allow the insertion of level lines or words.

STANDARD EXECUTIONS
- **HCX-E-NO**: with electrical contact normally open.
- **HCX-E-NC**: with electrical contact normally closed.

MOUNTING
When fitting is not possible from the inside of the reservoir and the walls are not thick enough, the screws can be used together with Fast Mounting Kit (see page 1768).

MAXIMUM CONTINUOUS WORKING TEMPERATURE
90°C (with oil).

FEATURES AND PERFORMANCES
The column level indicator HCX-E, in addition to the visual control, generates an electric signal when the oil level drops to a minimum.
Ultrasound welding to guarantee a perfect seal.
Maximum fluid level visibility even from side positions.
Lens effect for a better visibility of the fluid level and temperature.

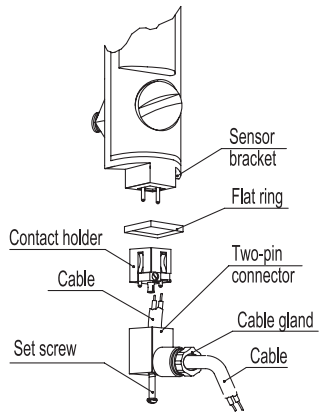
TECHNICAL DATA
In laboratory tests carried out with mineral oil type CB68 (according to ISO 3498) at 23°C for a limited period of time, the weld stood up to 13 bar.
For use with other fluids and under different pressure and temperature conditions, please contact ELESA Technical Department.
In any case we suggest to verify the suitability of the product under the actual working conditions.



ELESA Original design

SPECIAL EXECUTIONS ON REQUEST
- Level indicators for use with fluids containing alcohol.
- UV resistant transparent technopolymer indicators.

TWO-PIN CONNECTOR ASSEMBLY INSTRUCTIONS
1. Remove the connector from the indicator by unscrewing the set screw placed in the bottom, take the contact holder out and loosen the cable gland.
2. Slip on the two-pole cable into the connector (standard connector) and connect the wires to the terminals nr. 1 and nr. 2 of the contact holder.
3. Assemble by pressing the contact holder into the connector in the required position.
4. Screw the connectors to the indicator and then tighten the cable glands.

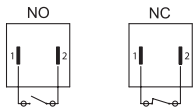


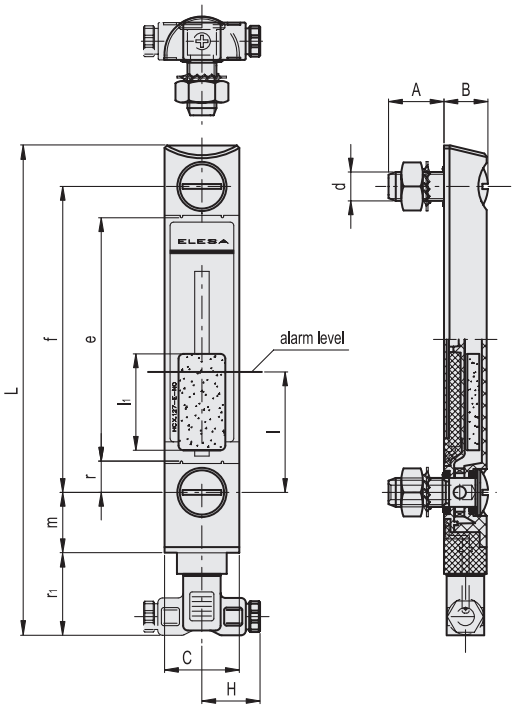
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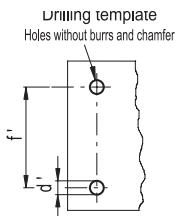
FUNCTIONING OF THE MIN LEVEL ELECTRICAL SENSOR

- HCX-E-NO: the electrical circuit is closed when the minimum level is reached.
- HCX-E-NC: the electrical circuit is open when the minimum level is reached.

Electrical features	MIN level sensor
Tension feed	AC/DC
Electric contacts	NO normally open NC normally close
Maximum applicable voltage	NO: 150 Vac, 100 Vdc NC: 150Vac, 150 Vdc
Maximum switching current	1 A
Maximum current	NO: 1A NC: 2A
Maximum switching power	NO: 10 Va NC: 20 Va
Cable gland	Pg 7 (for cables in sheath with Ø 6 or 7 mm)
Conductors cross-section	Max. 1.5 mm^2
Do not mount this indicator in proximity to magnetic fields.	







Code	Description	f	d	A	B	C	H	L	e	l	l1	m	r	r1	d'-0.2	f'±0.2	C# [Nm]	⚖
11141	HCX.127-E-NO-M12	127	M12	23	20	32	26	202	101	50	40	25	13	32.5	12.5	127	12	150
11142	HCX.127-E-NC-M12	127	M12	23	20	32	26	202	101	50	40	25	13	32.5	12.5	127	12	150
11145	HCX.254-E-NO-M12	254	M12	23	20	31	25	328	228	50	40	25	13	32.5	12.5	254	12	177
11146	HCX.254-E-NC-M12	254	M12	23	20	31	25	328	228	50	40	25	13	32.5	12.5	254	12	177

Maximum tightening torque

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RoHS IP65 PA-T PA +90° -30°

Column level indicators

with MIN level and MAX temperature electrical sensors, technopolymer



ELESA Original design

MATERIAL
Transparent polyamide based (PA-T) technopolymer. Highly resistant to shocks, solvents, oils with additives, aliphatic and aromatic hydrocarbons, petrol, naphtha, phosphoric esters.
Avoid contact with alcohol or detergents containing alcohol.

SCREW, NUTS AND WASHERS
Zinc-plated steel.

PACKING RINGS
NBR synthetic rubber O-Ring.
Suggested roughness of the packing ring application surface Ra = 3 µm.

FLOAT
Polyamide based (PA) expanded technopolymer, black colour, with a built-in magnetic element to activate the electric contact when the oil level drops to a minimum; alarm threshold located at about 50 mm from the centre of the lower nut (in presence of mineral oil type CB68, according to ISO 3498, at 23°C).

SENSOR BRACKET
Watertight in polypropylene based (PP) technopolymer, black colour, with a built-in relay (reed) with two conductors wired to the two-pin connector.
For a correct assembly see Warnings (on page 1777).

MAX TEMPERATURE ELECTRICAL SENSOR (80°C)
Zinc-plated screw with built-in sensor.
Temperature of intervention is 80°C.

SWIVELLING TWO-PIN CONNECTORS
With built-in cable glands and contact holders. Front or side output (right or left) including protection against water sprays (protection class IP 65 according to EN 60529 table on page A23) that can be increased during installation with the necessary adjustments. Flat NBR synthetic rubber packing rings.

CONTRAST SCREEN
White lacquered aluminium. The housing, in the appropriate external rear slot, guarantees the best protection from direct contact with fluid. It can be taken out from the inclined side, before assembly to allow the insertion of level lines or words.

STANDARD EXECUTIONS
- **HCX-E-ST-NO**: with electrical contact normally open.
- **HCX-E-ST-NC**: with electrical contact normally closed.

MOUNTING
When fitting is not possible from the inside of the reservoir and the walls are not thick enough, the screws can be used together with Fast Mounting Kit (see page 1768).

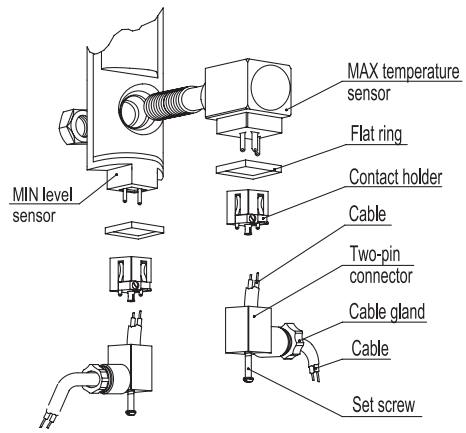
MAXIMUM CONTINUOUS WORKING TEMPERATURE
90°C (with oil).

SPECIAL EXECUTIONS ON REQUEST
- Level indicators for use with fluids containing alcohol.
- UV resistant transparent technopolymer indicators.
- Temperature electrical sensor with pre-set temperatures different from 80°C.

FEATURES AND PERFORMANCES
This column level indicator generates two electric signals: one when the oil goes down to the minimum level allowed and the other one when the temperature reaches the pre-set degrees (80°C).

TECHNICAL DATA
In laboratory tests carried out with mineral oil type CB68 (according to ISO 3498) at 23°C for a limited period of time, the weld stood up to 13 bar.
For use with other fluids and under different pressure and temperature conditions, please contact ELESA Technical Department.
In any case we suggest to verify the suitability of the product under the actual working conditions.

TWO-PIN CONNECTORS ASSEMBLY INSTRUCTIONS
1. Remove the connectors from the indicator by unscrewing the set screw placed in the bottom, take the contact holders out and loosen the cable glands.
2. Slip on the two-pole cable into the connectors (standard connectors) and connect the wires to the terminals nr. 1 and nr. 2 of the relative contact holders.
3. Assemble by pressing the contact holders into the realtive connectors in the required position.
4. Screw the connectors to the indicator and then tighten the cable glands.



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FUNCTIONING OF THE ELECTRICAL SENSORS

- HCX-E-ST-NO with electrical contacts normally open.

MIN level electrical sensor: the electrical circuit is closed when the minimum level is reached.

MAX temperature electrical sensor: the electrical circuit is closed when the pre-set temperature at 80°C is reached.

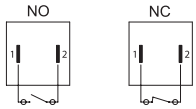
- HCX-E-ST-NC with electrical contacts normally closed.

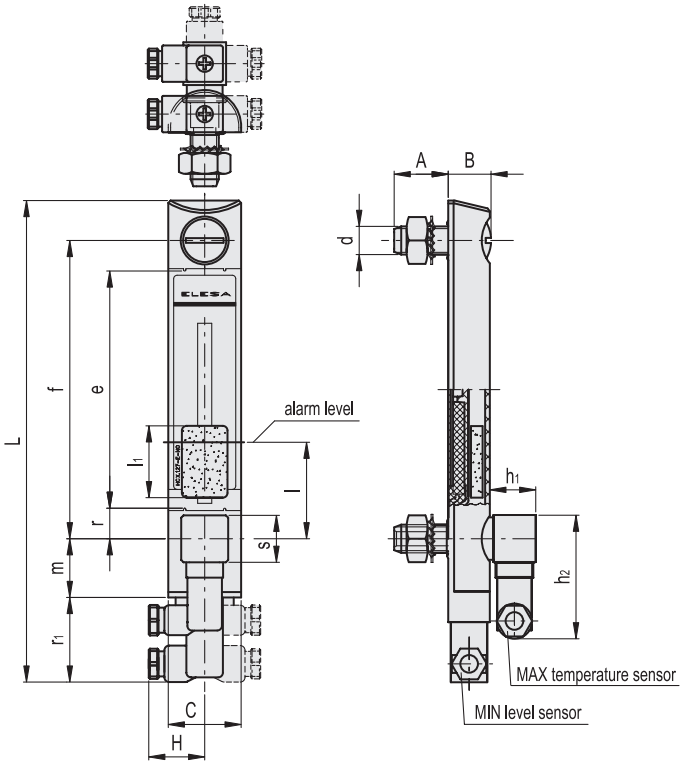
MIN level electrical sensor: the electrical circuit is open when the minimum level is reached.

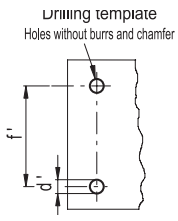
MAX temperature electrical sensor: the electrical circuit is open when the pre-set temperature at 80°C is reached.

Electrical features	MAX temperature sensor	
Tension feed	AC/DC	
Electric contacts	NO normally open NC normally close	
Voltage / Maximum current	250 Vac - 10 A	(resisteve loads)
	48 Vdc - 5 A	
Cable gland	Pg 7 (for cables in sheath with Ø 6 or 7 mm)	
Conductors cross-section	Max. 1.5 mm^2	
Do not mount this indicator in proximity to magnetic fields.		

Electrical features	MIN level sensor
Tension feed	AC/DC
Electric contacts	NO normally open NC normally close
Maximum applicable voltage	NO: 150 Vac, 100 Vdc NC: 150Vac, 150 Vdc
Maximum switching current	1 A
Maximum current	NO: 1A NC: 2A
Maximum switching power	NO: 10 Va NC: 20 Va
Cable gland	Pg 7 (for cables in sheath with Ø 6 or 7 mm)
Conductors cross-section	Max. 1.5 mm^2







Code	Description	f	d	A	B	C	H	L	e	h1	h2	l	l1	m	r	r1	s	d'-0.2	f'±0.2	C# [Nm]	⚖
11151	HCX.127-E-ST-NO-M12	127	M12	23	20	31.5	25	202	101	21	54	50	40	25	13	32.5	22	12.5	127	12	235
11152	HCX.127-E-ST-NC-M12	127	M12	23	20	31.5	25	202	101	21	54	50	40	25	13	32.5	22	12.5	127	12	235
11153	HCX.254-E-ST-NO-M12	254	M12	23	20	31	25	328	228	21	54	50	40	25	13	32.5	22	12.5	254	12	262
11154	HCX.254-E-ST-NC-M12	254	M12	23	20	31	25	328	228	21	54	50	40	25	13	32.5	22	12.5	254	12	262

Maximum tightening torque

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RoHS IP65 PA-T PA +90° -30°

Column level indicators

with MIN level electrical sensor and temperature electrical probe, technopolymer

MATERIAL
Transparent polyamide based (PA-T) technopolymer. Highly resistant to shocks, solvents, oils with additives, aliphatic and aromatic hydrocarbons, petrol, naphtha, phosphoric esters.
Avoid contact with alcohol or detergents containing alcohol.

SCREW, NUTS AND WASHERS
Zinc-plated steel.

PACKING RINGS
NBR synthetic rubber O-Ring.
Suggested roughness of the packing ring application surface Ra = 3 µm.

FLOAT
Polyamide based (PA) expanded technopolymer, black colour, with a built-in magnetic element to activate the electric contact when the oil level drops to a minimum; alarm threshold located at about 50 mm from the centre of the lower nut (in presence of mineral oil type CB68, according to ISO 3498, at 23°C).

SENSOR BRACKET
Watertight in polypropylene based (PP) technopolymer, black colour, with a built-in relay (reed) with two conductors wired to the two-pin connector.
For a correct assembly see Warnings (on page 1777).

TEMPERATURE ELECTRICAL PROBE
Zinc-plated steel screw with built-in probe. The probe is made out of a platinum resistor whose ohmic resistance changes according to the temperature.

SWIVELLING TWO-PIN CONNECTORS
With built-in cable glands and contact holders. Front or side output (right or left) including protection against water sprays (protection class IP 65 according to EN 60529 table on page A23) that can be increased during installation with the necessary adjustments. Flat NBR synthetic rubber packing rings.

CONTRAST SCREEN
White lacquered aluminium. The housing, in the appropriate external rear slot, guarantees the best protection from direct contact with fluid. It can be taken out from the inclined side, before assembly to allow the insertion of level lines or words.

STANDARD EXECUTIONS
- **HCX-E-STL-NO**: with electrical contact normally open.
- **HCX-E-STL-NC**: with electrical contact normally closed.

MOUNTING
When fitting is not possible from the inside of the reservoir and the walls are not thick enough, the screws can be used together with Fast Mounting Kit (see page 1768).

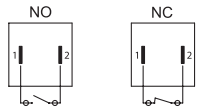
MAXIMUM CONTINUOUS WORKING TEMPERATURE
90°C (with oil).

SPECIAL EXECUTIONS ON REQUEST
UV resistant transparent technopolymer indicators.



ELESA Original design

FUNCTIONING OF THE MIN LEVEL ELECTRICAL SENSOR
- HCX-E-STL-NO: the electrical circuit is closed when the minimum level is reached.
- HCX-E-STL-NC: the electrical circuit is open when the minimum level is reached.



Electrical features	MIN level sensor
Tension feed	AC/DC
Electric contacts	NO normally open NC normally closed
Maximum applicable voltage	NO: 150 Vac, 100 Vdc NC: 150 Vac, 150 Vdc
Maximum switching current	1 A
Maximum current	NO: 1A NC: 2A
Maximum switching power	NO: 10 Va NC: 20 Va
Cable gland	Pg 7 (for cables in sheath with Ø 6 or 7 mm)
Conductors cross-section	Max. 1.5 mm^2
Do not mount this indicator in proximity to magnetic fields.	



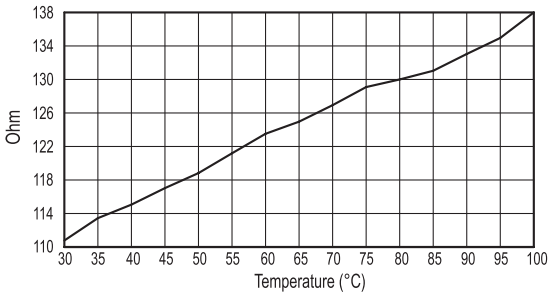
Electrical features	Temperature probe
Tension feed	DC
Maximum current	2 mA
Cable gland	Pg 7 (for cables in sheath with Ø 6 or 7 mm)
Conductors cross-section	Max. 1.5 mm^2

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FUNCTIONING OF THE TEMPERATURE ELECTRICAL PROBE

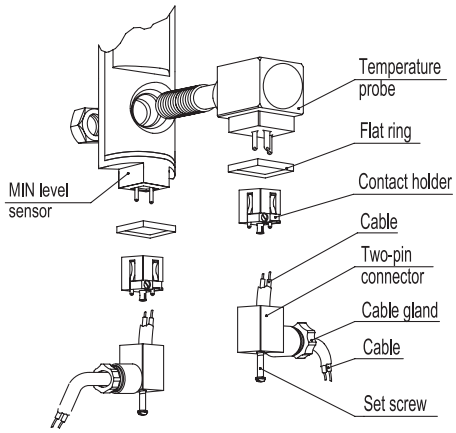
The working principle of the temperature probe is to measure the variation of resistance of a platinum element: 100 ohm = 0°C, 138.4 ohm = 100°C.
The function between temperature (T) and resistance (R) is approximately linear over a small temperature range: for example, if you assume that it is linear over the 0° to 100°C range, the error at 50°C is 0.4°C.
For precision measurement, it is necessary to linearise the resistance to give an accurate temperature. The most recent definition of the function between resistance and temperature is International Temperature Standard 90 (ITS-90). The function between resistance and temperature, obtained in laboratory tests, measuring directly the resistance value on the contacts is shown in the graph.
We suggest, anyway, to set the system in order to compensate both heat dissipation and cable resistance.
A 1°C temperature change will cause a 0.384 ohm change in resistance, so even a small error in measurement of the resistance (for example, the resistance of the wires leading to the sensor) can cause a large error in the measurement of the temperature.
Because of the low signal levels, it is important to keep any cables away from electric cables, motors, switchgear and other devices that may emit magnetic or electrical noise. Using screened cable, with the screen grounded at one end, may help to reduce interference.
When using long cables, it is necessary to check that the measuring equipment is able to handle the cable resistance.

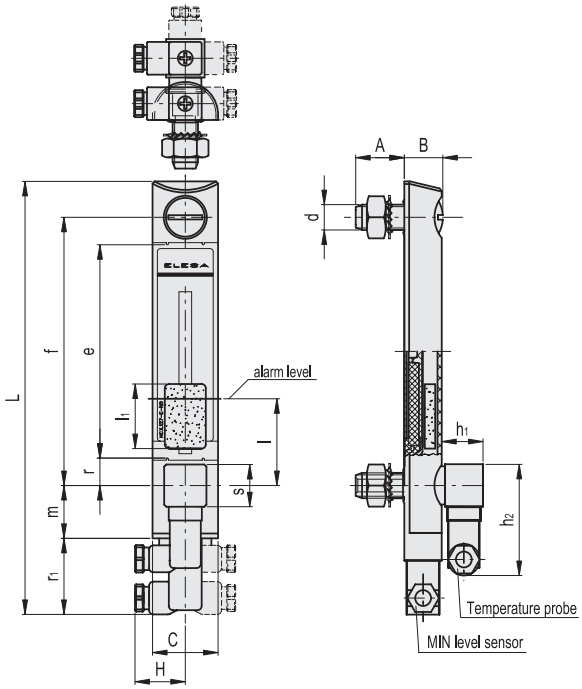
Resistance / temperature conversion graph



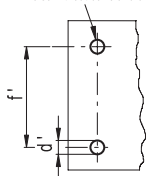
TWO-PIN CONNECTORS ASSEMBLY INSTRUCTIONS

1. Remove the connectors from the indicator by unscrewing the set screw placed in the bottom, take the contact holders out and loosen the cable glands.
2. Slip on the two-pole cable into the connectors (standard connectors) and connect the wires to the terminals nr. 1 and nr. 2 of the relative contact holders.
3. Assemble by pressing the contact holders into the realtive connectors in the required position.
4. Screw the connectors to the indicator and then tighten the cable glands.





Drilling template
Holes without burrs and chamfer



Code	Description	f	d	A	B	C	H	L	e	h1	h2	l	l1	m	r	r1	s	d'-0.2	f'±0.2	C# [Nm]	⚖
11156	HCX.127-E-STL-NO-M12	127	M12	23	20	31.5	25	202	101	21	54	50	40	25	13	32.5	22	12.5	127	12	236
11157	HCX.127-E-STL-NC-M12	127	M12	23	20	31.5	25	202	101	21	54	50	40	25	13	32.5	22	12.5	127	12	236
11158	HCX.254-E-STL-NO-M12	254	M12	23	20	31	25	328	228	21	54	50	40	25	13	32.5	22	12.5	254	12	263
11159	HCX.254-E-STL-NC-M12	254	M12	23	20	31	25	328	228	21	54	50	40	25	13	32.5	22	12.5	254	12	263

Maximum tightening torque

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Always mention the source when reproducing our drawings.

RoHS IP65 PA-T PA +90° -30°

Column level indicators

with MAX temperature electrical sensor

MATERIAL
Transparent polyamide based (PA-T) technopolymer. Highly resistant to shocks, solvents, oils with additives, aliphatic and aromatic hydrocarbons, petrol, naphtha, phosphoric esters.
Avoid contact with alcohol or detergents containing alcohol.

SCREWS, NUTS AND WASHERS
Zinc-plated steel.

PACKING RINGS
Step-shaped for the seal on the reservoir walls and NBR synthetic rubber O-ring under screw head.
Suggested roughness of the packing ring application surface Ra = 3 µm.

SENSOR BRACKET
Watertight in glass-fibre reinforced polyamide based (PA) technopolymer, black colour, with MAX temperature sensor (80°C).
For a correct assembly see Warnings (on page 1777).

SWIVELLING CONNECTOR
With built-in cable gland and contact holder. Front or axial output (high or low) ensuring protection against water sprays (protection class IP 65 according to table EN 60529 table on page A23).

CONTRAST SCREEN
White lacquered aluminium. The housing, in the appropriate external rear slot, guarantees the best protection from direct contact with fluid. It can be taken out from the inclined side, before assembly to allow the insertion of level lines or words.

STANDARD EXECUTIONS
- **HCV-ST-NO**: with electric contact normally open (NO).
- **HCV-ST-NC**: with electric contact normally closed (NC).

MAXIMUM CONTINUOUS WORKING TEMPERATURE
90°C (with oil).

FEATURES AND PERFORMANCES
In addition to the visual control, HCV-ST column level indicator, generates an electric signal when the temperature reaches the pre-set degrees (80°C).
Ultrasound welding to guarantee a perfect seal.
Maximum fluid level visibility even from side positions.
Lens effect for a better visibility of the fluid level.

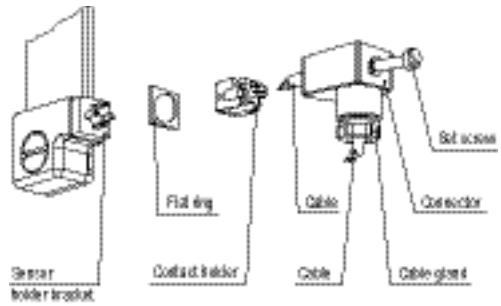
TECHNICAL DATA
In laboratory tests carried out with mineral oil type CB68 (according to ISO 3498) at 23°C for a limited period of time, the weld stood up to: 18 bar (HCV.127) 12 bar (HCV.254).
For use with other fluids and under different pressure and temperature conditions, please contact ELESA Technical Department.
In any case we suggest to verify the suitability of the product under the actual working conditions.

SPECIAL EXECUTIONS ON REQUEST
- Level indicators with stainless steel screws, nuts and washers.
- Level indicators for use with fluids containing alcohol.
- UV resistant transparent technopolymer level indicators.
- MAX temperature electrical sensor with trigger threshold at 70°C or 90°C.



ELESA Original design

CONNECTOR ASSEMBLY INSTRUCTIONS
1. Remove the connector from the indicator by unscrewing the set screw placed on the connector, take the contact holders out and loosen the cable gland.
2. Slip on the cable into the connector (standard connector) and connect the wires to the terminals 3 and earth of the contact holder.
3. Assemble by pressing the contact holder into the connector in the required position.
4. Screw the connectors to the indicator and then tighten the cable glands.

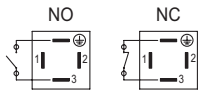


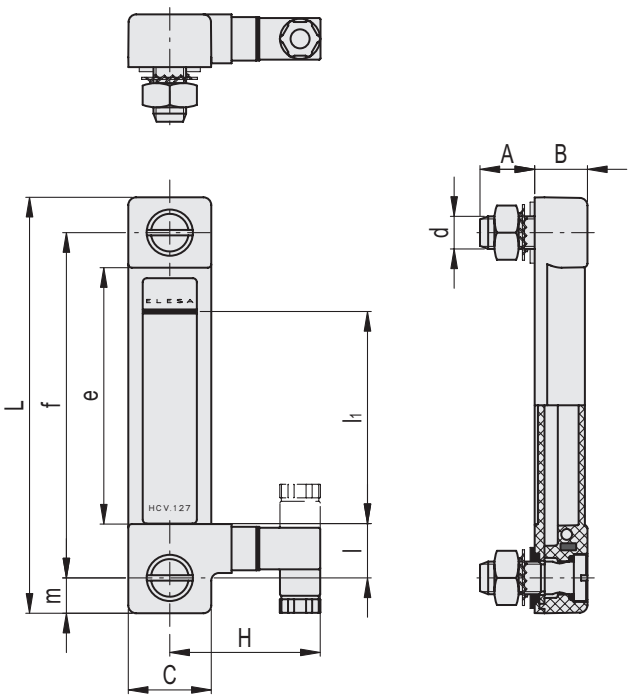
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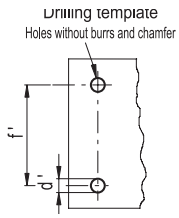
FUNCTIONING OF THE MAX LEVEL ELECTRICAL SENSOR

- HCV-ST-NO: the electrical contact closes when the pre-set temperature is reached at 80°C.
- HCV-ST-NC: the electrical contact opens when the pre-set temperature at 80°C is reached.

Electrical features	MAX temperature sensor	
Tension feed	AC/DC	
Electric contacts	NO normally open NC normally closed	
Voltage / Maximum current	250 Vac - 2 A	(resisteve loads)
	115 Vac- 3A	
	24 Vdc - 3 A	
	12 Vdc - 4 A	
Minimum current	50 mA	
Cable gland	Pg 7 (for cables in sheath with Ø 6 or 7 mm)	
Conductors cross-section	Max. 1.5 mm^2	







Code	Description	f	d	A	B	C	H	L	e	l	l1	m	d'-0.2	f'±0.2	C# [Nm]	⚖
11112	HCV.127-ST-NO-M12	127	M12	20	19.5	30.5	55	153	97	20	78.5	13	12.5	127	12	149
11113	HCV.127-ST-NC-M12	127	M12	20	19.5	30.5	55	153	97	20	78.5	13	12.5	127	12	149
11122	HCV.254-ST-NO-M12	254	M12	20	19.5	30.5	55	280	224	20	205.5	13	12.5	254	12	176
11123	HCV.254-ST-NC-M12	254	M12	20	19.5	30.5	55	280	224	20	205.5	13	12.5	254	12	176

Maximum tightening torque

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RoHS IP65 PA-T PA +90° -30°

Column level indicators

with temperature electrical probe

MATERIAL
Transparent polyamide based (PA-T) technopolymer. Highly resistant to shocks, solvents, oils with additives, aliphatic and aromatic hydrocarbons, petrol, naphtha, phosphoric esters.
Avoid contact with alcohol or detergents containing alcohol.

SCREWS, NUTS AND WASHERS
Zinc-plated steel.

PACKING RINGS
Step-shaped for the seal on the reservoir walls and NBR synthetic rubber O-ring under screw head.
Suggested roughness of the packing ring application surface Ra = 3 µm.

TEMPERATURE PROBE BRACKET
Watertight in glass-fibre reinforced polyamide based (PA) technopolymer, black colour, with temperature electrical probe, made out of a platinum resistor whose ohmic resistance changes according to the temperature.
For a correct assembly see Warnings (on page 1777).

SWIVELLING CONNECTOR
With built-in cable gland and contact holder. Front or axial output (high or low) ensuring protection against water sprays (protection class IP 65 according to table EN 60529 table on page A23).

CONTRAST SCREEN
White lacquered aluminium. The housing, in the appropriate external rear slot, guarantees the best protection from direct contact with fluid. It can be taken out from the inclined side, before assembly to allow the insertion of level lines or words.

MAXIMUM CONTINUOUS WORKING TEMPERATURE
90°C (with oil).

FEATURES AND PERFORMANCES
In addition to the visual control, HCV-STL column level indicator generates an analogue electric signal of oil temperature.
Ultrasound welding to guarantee a perfect seal.
Maximum fluid level visibility even from side positions.
Lens effect for a better visibility of the fluid level.

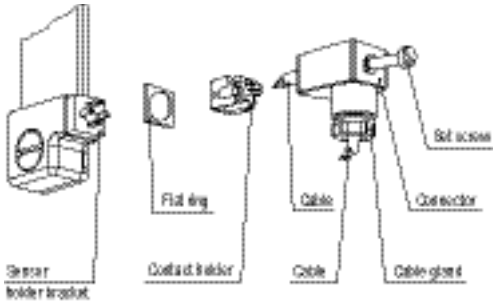
TECHNICAL DATA
In laboratory tests carried out with mineral oil type CB68 (according to ISO 3498) at 23°C for a limited period of time, the weld stood up to: 18 bar (HCV.127) 12 bar (HCV.254).
For use with other fluids and under different pressure and temperature conditions, please contact ELESA Technical Department.
In any case we suggest to verify the suitability of the product under the actual working conditions.

SPECIAL EXECUTIONS ON REQUEST
- Level indicators with stainless steel screws, nuts and washers.
- Level indicators for use with fluids containing alcohol.
- UV resistant transparent technopolymer level indicators.



ELESA Original design

CONNECTOR ASSEMBLY INSTRUCTIONS
1. Remove the connector from the indicator by unscrewing the set screw placed on the connector, take the contact holders out and loosen the cable gland.
2. Slip on the cable into the connector (standard connector) and connect the wires to the terminals 3 and earth of the contact holder.
3. Assemble by pressing the contact holder into the connector in the required position.
4. Screw the connectors to the indicator and then tighten the cable glands.



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FUNCTIONING OF THE TEMPERATURE ELECTRICAL PROBE

The working principle of the temperature probe is to measure the variation of resistance of a platinum element: 100 ohm = 0°C, 138.4 ohm = 100°C.

The function between temperature (T) and resistance (R) is approximately linear over a small temperature range: for example, if you assume that it is linear over the 0° to 100°C range, the error at 50°C is 0.4°C.

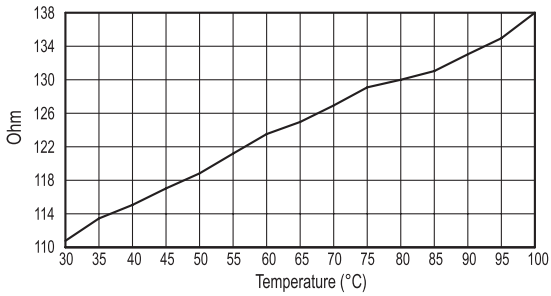
For precision measurement, it is necessary to linearise the resistance to give an accurate temperature. The most recent definition of the function between resistance and temperature is International Temperature Standard 90 (ITS-90). The function between resistance and temperature, obtained in laboratory tests, measuring directly the resistance value on the contacts is shown in the graph. We suggest, anyway, to set the system in order to compensate both heat dissipation and cable resistance.

A 1°C temperature change will cause a 0.384 ohm change in resistance, so even a small error in measurement of the resistance (for example, the resistance of the wires leading to the sensor) can cause a large error in the measurement of the temperature.

Because of the low signal levels, it is important to keep any cables away from electric cables, motors, switchgear and other devices that may emit magnetic or electrical noise. Using screened cable, with the screen grounded at one end, may help to reduce interference.

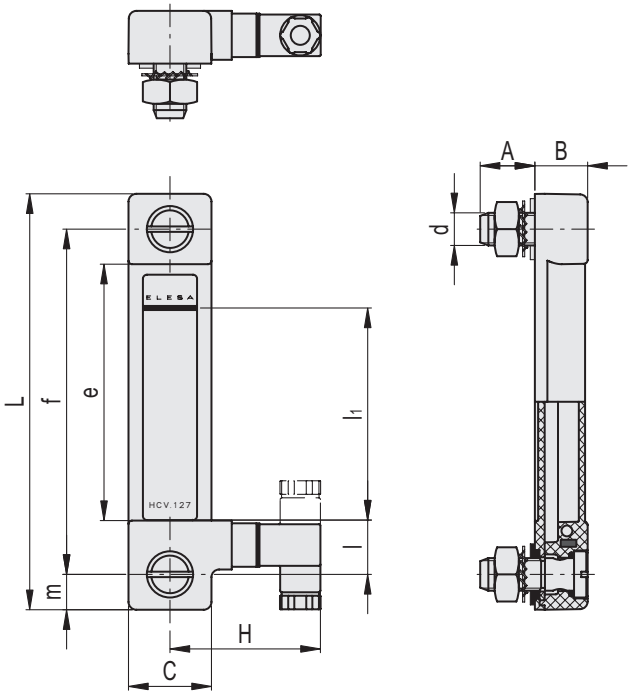
When using long cables, it is necessary to check that the measuring equipment is able to handle the cable resistance.

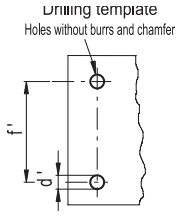
Resistance / temperature conversion graph



Electrical features	Temperature probe
Tension feed	AC/DC
Maximum current	1mA
Cable gland	Pg 7 (for cables in sheath with Ø 6 or 7 mm)
Conductors cross-section	Max. 1.5 mm²
Do not mount this indicator in proximity to magnetic fields.	







Code	Description	f	d	A	B	C	H	L	e	l	l1	m	d'-0.2	f'±0.2	C# [Nm]	⚖
11114	HCV.127-STL-M12	127	M12	20	19.5	30.5	55	153	97	20	78.5	13	12.5	127	12	149
11124	HCV.254-STL-M12	254	M12	20	19.5	30.5	55	280	224	20	205.5	13	12.5	254	12	176

Maximum tightening torque

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RoHS IP65 PA-T PA +90° -30°

Column level indicators

with MIN level electrical sensor

MATERIAL
Transparent polyamide based (PA-T) technopolymer. Highly resistant to shocks, solvents, oils with additives, aliphatic and aromatic hydrocarbons, petrol, naphtha, phosphoric esters.
Avoid contact with alcohol or detergents containing alcohol.

SCREWS, NUTS AND WASHERS
Zinc-plated steel.

PACKING RINGS
Step-shaped for the seal on the reservoir walls and NBR synthetic rubber O-ring under screw head.
Suggested roughness of the packing ring application surface Ra = 3 µm.

FLOAT
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, with a built-in magnetic element to activate the electric contact when the float reaches the contact threshold located at about 50 mm above the axis of the lower screw (data referred to mineral oil type CB68, according to ISO 3498, temperature 23°C).

SENSOR BRACKET
Watertight in glass-fibre reinforced polyamide based (PA) technopolymer, black colour, with a built-in relay (reed) with two conductors (NO and NC versions) at the output or three connectors (SW version).
For a correct assembly see Warnings (on page 1777).

SWIVELLING CONNECTOR
With built-in cable gland and contact holder. Front or axial output (high or low) ensuring protection against water sprays (protection class IP 65 according to table EN 60529 table on page A23).

CONTRAST SCREEN
White lacquered aluminium. The housing, in the appropriate external rear slot, guarantees the best protection from direct contact with fluid. It can be taken out from the inclined side, before assembly to allow the insertion of level lines or words.

STANDARD EXECUTIONS
- **HCV-E-NO**: with electric contact normally open (NO).
- **HCV-E-NC**: with electric contact normally closed (NC).
- **HCV-E-SW**: with change-over electrical contact (SW).

MAXIMUM CONTINUOUS WORKING TEMPERATURE
90°C (with oil).

FEATURES AND PERFORMANCES
The column level indicator HCV-E, in addition to the visual control, generates an electric signal when the oil level drops to a minimum.
Ultrasound welding to guarantee a perfect seal.
Thanks to the side output of the connector, HCV-E level indicator allows to minimise the level of intervention of the sensor.
Maximum fluid level visibility even from side positions.
Lens effect for a better visibility of the fluid level.

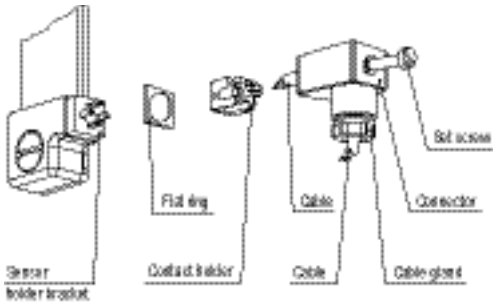
TECHNICAL DATA
In laboratory tests carried out with mineral oil type CB68 (according to ISO 3498) at 23°C for a limited period of time, the weld stood up to: 18 bar (HCV.127) 12 bar (HCV.254).
For use with other fluids and under different pressure and temperature conditions, please contact ELESA Technical Department.
In any case we suggest to verify the suitability of the product under the actual working conditions.



ELESA Original design

SPECIAL EXECUTIONS ON REQUEST
- Level indicators with stainless steel screws, nuts and washers.
- Level indicators for use with fluids containing alcohol.
- UV resistant transparent technopolymer level indicators.

CONNECTOR ASSEMBLY INSTRUCTIONS
1. Remove the connector from the indicator by unscrewing the set screw placed on the connector, take the contact holders out and loosen the cable gland.
2. Slip on the cable into the connector (standard connector) and connect the wires to the terminals 1 and 2 (NO and NC version) or 1,2 and 3 (SW version) of the contact holder.
3. Assemble by pressing the contact holder into the connector in the required position.
4. Screw the connectors to the indicator and then tighten the cable glands.

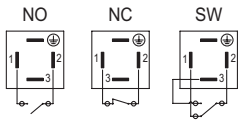


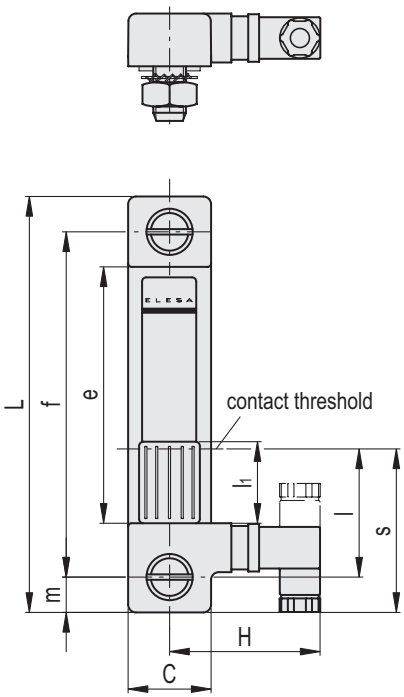
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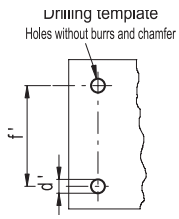
FUNCTIONING OF THE MIN LEVEL ELECTRICAL SENSOR

- HCV-E-NO: the electrical contact closes on reaching the minimum level.
- HCV-E-NC: the electrical contact is opened when it reaches the minimum level.
- HCV-E-SW (change-over electrical contact): the electrical contact switches between the two terminals.

Electrical features	MIN level sensor
Tension feed	AC/DC
Electric contacts	NO normally open NC normally closed SW change-over contact
Maximum applicable voltage	NO: 140 Vac, 200 Vdc NC: 140 Vac, 150 Vdc SW: 140 Vac, 150 Vdc
Maximum switching current	1 A
Maximum current	NO: 1.2A NC: 2A SW: 2A
Maximum commutable power	NO: 10 Va NC: 20 Va SW: 20 Va
Cable gland	Pg 7 (for cables in sheath with Ø 6 or 7 mm)
Conductors cross-section	Max. 1.5 mm^2
Do not mount this indicator in proximity to magnetic fields.	







Code	Description	f	d	A	B	C	H	L	e	l	l1	m	s	d'-0.2	f'±0.2	C# [Nm]	⚖
11131	HCV.127-E-NO-M12	127	M12	20	19.5	30.5	55	153	97	50	30	13	63	12.5	127	12	153
11132	HCV.127-E-NC-M12	127	M12	20	19.5	30.5	55	153	97	50	30	13	63	12.5	127	12	153
11133	HCV.127-E-SW-M12	127	M12	20	19.5	30.5	55	153	97	50	30	13	63	12.5	127	12	153
11135	HCV.254-E-NO-M12	254	M12	20	19.5	30.5	55	280	224	50	30	13	63	12.5	254	12	180
11136	HCV.254-E-NC-M12	254	M12	20	19.5	30.5	55	280	224	50	30	13	63	12.5	254	12	180
11137	HCV.254-E-SW-M12	254	M12	20	19.5	30.5	55	280	224	50	30	13	63	12.5	254	12	180

Maximum tightening torque

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HCV-E-ST

RoHS IP65 PA-T PA +90° -30°

Column level indicators

with MIN level and MAX temperature electrical sensors

MATERIAL
Transparent polyamide based (PA-T) technopolymer. Highly resistant to shocks, solvents, oils with additives, aliphatic and aromatic hydrocarbons, petrol, naphtha, phosphoric esters.
Avoid contact with alcohol or detergents containing alcohol.

SCREWS, NUTS AND WASHERS
Zinc-plated steel.

PACKING RINGS
Step-shaped for the seal on the reservoir walls and NBR synthetic rubber O-ring under screw head.
Suggested roughness of the packing ring application surface Ra = 3 µm.

FLOAT
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, with a built-in magnetic element to activate the electric contact when the float reaches the contact threshold located at about 50 mm above the axis of the lower screw (data referred to mineral oil type CB68, according to ISO 3498, temperature 23°C).

BRACKET WITH LEVEL AND TEMPERATURE SENSORS.
Watertight in glass-fibre reinforced polyamide based (PA) technopolymer, black colour, with a built-in relay (reed) with two conductors and a MAX temperature sensor (80°C).
For a correct assembly see Warnings (on page 1777).

SWIVELLING CONNECTOR
With built-in cable gland and contact holder. Front or axial output (high or low) ensuring protection against water sprays (protection class IP 65 according to table EN 60529 table on page A23).

CONTRAST SCREEN
White lacquered aluminium. The housing, in the appropriate external rear slot, guarantees the best protection from direct contact with fluid. It can be taken out from the inclined side, before assembly to allow the insertion of level lines or words.

STANDARD EXECUTIONS
- **HCV-E-ST-NO**: with electric contacts normally open (NO).
- **HCV-E-ST-NC**: with electric contacts normally closed (NC).

MAXIMUM CONTINUOUS WORKING TEMPERATURE
90°C (with oil).

FEATURES AND PERFORMANCES
In addition to the visual control, HCV-E-ST column level indicator, generates also an electric signal when the oil level drops to a minimum and an electric signal when the temperature reaches the max pre-set degrees (80°C).
Ultrasound welding to guarantee a perfect seal.
Thanks to the side output of the connector, HCV-E-ST level indicator allows to minimise the level of intervention of the sensor.
Maximum fluid level visibility even from side positions.
Lens effect for a better visibility of the fluid level.

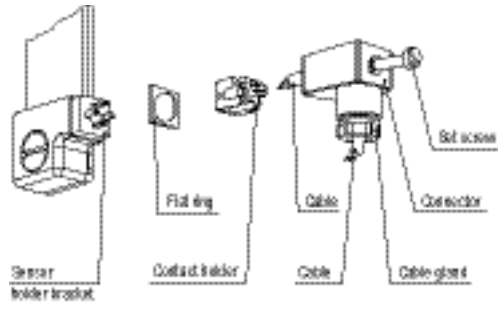
TECHNICAL DATA
In laboratory tests carried out with mineral oil type CB68 (according to ISO 3498) at 23°C for a limited period of time, the weld stood up to: 18 bar (HCV.127) 12 bar (HCV.254).
For use with other fluids and under different pressure and temperature conditions, please contact ELESA Technical Department.
In any case we suggest to verify the suitability of the product under the actual working conditions.



ELESA Original design

SPECIAL EXECUTIONS ON REQUEST
- Level indicators with stainless steel screws, nuts and washers.
- Level indicators for use with fluids containing alcohol.
- UV resistant transparent technopolymer level indicators.
- MAX temperature electrical sensor with trigger threshold at 70°C or 90°C.

CONNECTOR ASSEMBLY INSTRUCTIONS
1. Remove the connector from the indicator by unscrewing the set screw placed on the connector, take the contact holders out and loosen the cable gland.
2. Slip on the cable into the connector (standard connector) and connect the wires to the terminals 1 and 2 for the functioning of the MIN level sensor, to the terminals 3 and earth for the functioning of the MAX temperature sensor.
3. Assemble by pressing the contact holder into the connector in the required position.
4. Screw the connectors to the indicator and then tighten the cable glands.



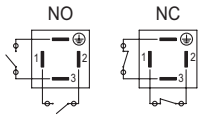
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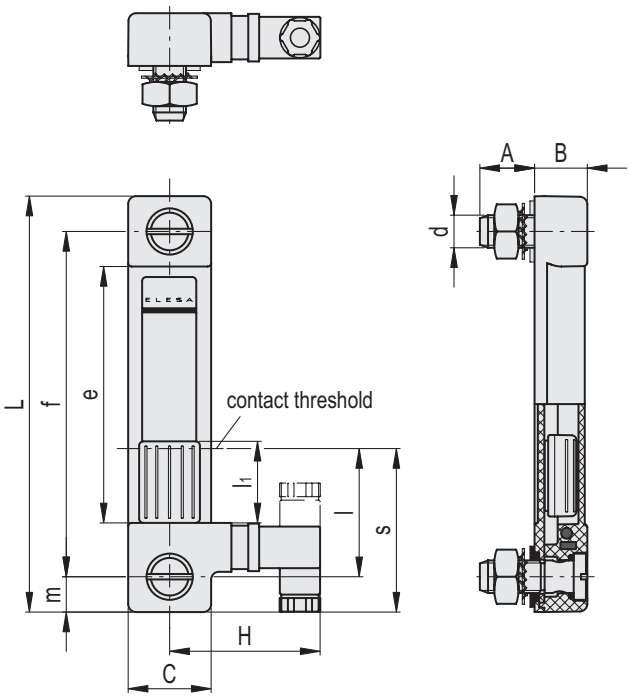
FUNCTIONING OF THE SENSOR

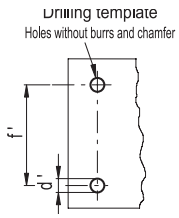
- HCV-E-ST-NO: the electrical contact closes when the minimum level and/or the pre-set temperature at 80°C is reached.
- HCV-E-ST-NC: the electrical contact opens when the minimum level and/or the pre-set temperature at 80°C is reached.

Electrical features	MAX temperature sensor	
Tension feed	AC/DC	
Electric contacts	NO normally open NC normally closed	
Voltage / Maximum current	250 Vac - 2 A	(resisteve loads)
	115 Vac- 3A	
	24 Vdc - 3 A	
	12 Vdc - 4 A	
Minimum current	50 mA	
Cable gland	Pg 7 (for cables in sheath with Ø 6 or 7 mm)	
Conductors cross-section	Max. 1.5 mm^2	

Electrical features	MIN level sensor
Tension feed	AC/DC
Electric contacts	NO normally open NC normally closed
Maximum applicable voltage	NO: 140 Vac, 200 Vdc NC: 140Vac, 150 Vdc
Maximum switching current	1 A
Maximum current	NO: 1.2A NC: 2A
Maximum commutable power	NO: 10 Va NC: 20 Va
Cable gland	Pg 7 (for cables in sheath with Ø 6 or 7 mm)
Conductors cross-section	Max. 1.5 mm^2
Do not mount this indicator in proximity to magnetic fields.	







Code	Description	f	d	A	B	C	H	L	e	l	l1	m	s	d'-0.2	f'±0.2	C# [Nm]	⚖
11115	HCV.127-E-ST-NO-M12	127	M12	20	19.5	30.5	55	153	97	50	30	13	63	12.5	127	12	153
11116	HCV.127-E-ST-NC-M12	127	M12	20	19.5	30.5	55	153	97	50	30	13	63	12.5	127	12	153
11125	HCV.254-E-ST-NO-M12	254	M12	20	19.5	30.5	55	280	224	50	30	13	63	12.5	254	12	180
11126	HCV.254-E-ST-NC-M12	254	M12	20	19.5	30.5	55	280	224	50	30	13	63	12.5	254	12	180

Maximum tightening torque

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RoHS IP65 PA-T PA +90° -30°

Column level indicators

with MIN level electrical sensor and temperature electrical probe



ELESA Original design

MATERIAL
Transparent polyamide based (PA-T) technopolymer. Highly resistant to shocks, solvents, oils with additives, aliphatic and aromatic hydrocarbons, petrol, naphtha, phosphoric esters.
Avoid contact with alcohol or detergents containing alcohol.

SCREWS, NUTS AND WASHERS
Zinc-plated steel.

PACKING RINGS
Step-shaped for the seal on the reservoir walls and NBR synthetic rubber O-ring under screw head.
Suggested roughness of the packing ring application surface Ra = 3 µm.

FLOAT
Glass-fibre reinforced polyamide based (PA) technopolymer, black colour, with a built-in magnetic element to activate the electric contact when the float reaches the contact threshold located at about 50 mm above the axis of the lower screw (data referred to mineral oil type CB68, according to ISO 3498, temperature 23°C).

BRACKET WITH LEVEL SENSOR AND TEMPERATURE PROBE
Watertight in glass-fibre reinforced polyamide based (PA) technopolymer, black colour, with a built-in relay (reed) with two conductors and a temperature electrical probe, made out of a platinum resistor whose ohmic resistance changes according to the temperature.
For a correct assembly see Warnings (on page 1777).

SWIVELLING CONNECTOR
With built-in cable gland and contact holder. Front or axial output (high or low) ensuring protection against water sprays (protection class IP 65 according to table EN 60529 table on page A23).

CONTRAST SCREEN
White lacquered aluminium. The housing, in the appropriate external rear slot, guarantees the best protection from direct contact with fluid. It can be taken out from the inclined side, before assembly to allow the insertion of level lines or words.

STANDARD EXECUTIONS
- **HCV-E-STL-NO**: with electric contact normally open (NO).
- **HCV-E-STL-NC**: with electric contact normally closed (NC).

MAXIMUM CONTINUOUS WORKING TEMPERATURE
90°C (with oil).

FEATURES AND PERFORMANCES
In addition to the visual control, HCV-E-STL column level indicator generates an electric signal when the oil level drops to a minimum and an analogic electric signal of the oil temperature. Ultrasound welding to guarantee a perfect seal. Thanks to the side output of the connector, HCV-E-STL level indicator allows to minimise the level of intervention of the sensor. Maximum fluid level visibility even from side positions. Lens effect for a better visibility of the fluid level.

TECHNICAL DATA
In laboratory tests carried out with mineral oil type CB68 (according to ISO 3498) at 23°C for a limited period of time, the weld stood up to: 18 bar (HCV.127) 12 bar (HCV.254). For use with other fluids and under different pressure and temperature conditions, please contact ELESA Technical Department. In any case we suggest to verify the suitability of the product under the actual working conditions.

SPECIAL EXECUTIONS ON REQUEST
- Level indicators with stainless steel screws, nuts and washers.
- Level indicators for use with fluids containing alcohol.
- UV resistant transparent technopolymer level indicators.

FUNCTIONING OF THE TEMPERATURE ELECTRICAL PROBE
The working principle of the temperature probe is to measure the variation of resistance of a platinum element: 100 ohm = 0°C, 138.4 ohm = 100°C.
The function between temperature (T) and resistance (R) is approximately linear over a small temperature range: for example, if you assume that it is linear over the 0° to 100°C range, the error at 50°C is 0.4°C.
For precision measurement, it is necessary to linearise the resistance to give an accurate temperature. The most recent definition of the function between resistance and temperature is International Temperature Standard 90 (ITS-90). The function between resistance and temperature, obtained in laboratory tests, measuring directly the resistance value on the contacts is shown in the graph. We suggest, anyway, to set the system in order to compensate both heat dissipation and cable resistance.
A 1°C temperature change will cause a 0.384 ohm change in resistance, so even a small error in measurement of the resistance (for example, the resistance of the wires leading to the sensor) can cause a large error in the measurement of the temperature.
Because of the low signal levels, it is important to keep any cables away from electric cables, motors, switchgear and other devices that may emit magnetic or electrical noise. Using screened cable, with the screen grounded at one end, may help to reduce interference.
When using long cables, it is necessary to check that the measuring equipment is able to handle the cable resistance.

Electrical features	Temperature probe
Tension feed	AC/DC
Maximum current	1mA
Cable gland	Pg 7 (for cables in sheath with Ø 6 or 7 mm)
Conductors cross-section	Max. 1.5 mm^2
Do not mount this indicator in proximity to magnetic fields.	

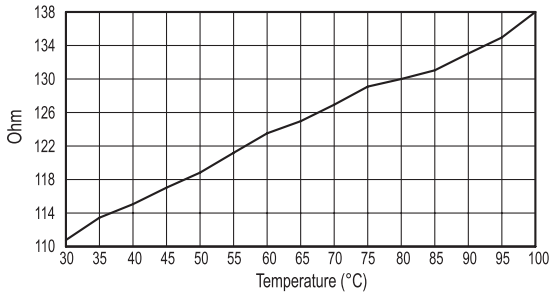
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FUNCTIONING OF THE MIN LEVEL ELECTRICAL SENSOR

- HCV-E-STL-NO: the electrical contact closes on reaching the minimum level.
- HCV-E-STL-NC: the electrical contact is opened when it reaches the minimum level.

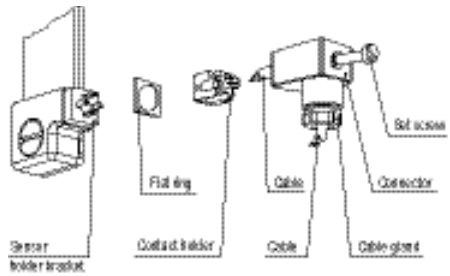
Electrical features	MIN level sensor
Tension feed	AC/DC
Electric contacts	NO normally open NC normally closed
Maximum applicable voltage	NO: 140 Vac, 200 Vdc NC: 140Vac, 150 Vdc
Maximum switching current	1 A
Maximum current	NO: 1.2A NC: 2A
Maximum commutable power	NO: 10 Va NC: 20 Va
Cable gland	Pg 7 (for cables in sheath with Ø 6 or 7 mm)
Conductors cross-section	Max. 1.5 mm^2
Do not mount this indicator in proximity to magnetic fields.	

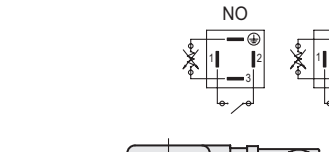
Resistance / temperature conversion graph

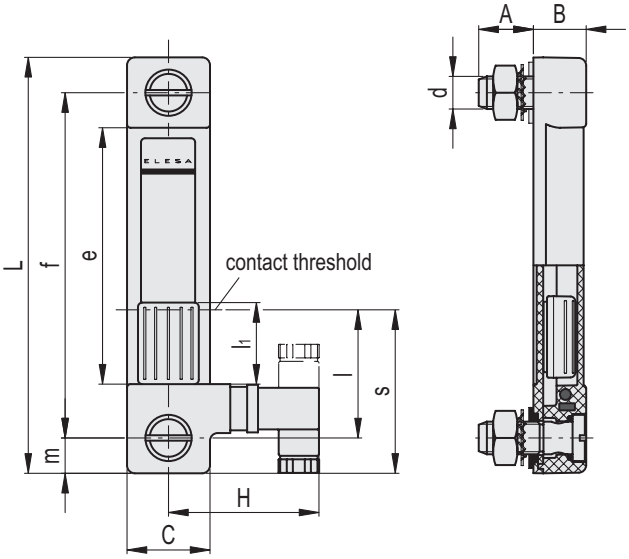


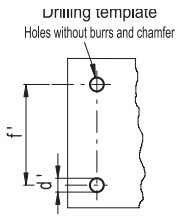
CONNECTOR ASSEMBLY INSTRUCTIONS

1. Remove the connector from the indicator by unscrewing the set screw placed on the connector, take the contact holders out and loosen the cable gland.
2. Slip on the cable into the connector (standard connector) and connect the wires to the terminals 1 and 2 for the functioning of the MIN level sensor, to the terminals 3 and earth for the functioning of the temperature probe.
3. Assemble by pressing the contact holder into the connector in the required position.
4. Screw the connectors to the indicator and then tighten the cable glands.









Code	Description	f	d	A	B	C	H	L	e	l	l1	m	s	d'-0.2	f'±0.2	C# [Nm]	⚖
11117	HCV.127-E-STL-NO-M12	127	M12	20	19.5	30.5	55	153	97	50	30	13	63	12.5	127	12	153
11118	HCV.127-E-STL-NC-M12	127	M12	20	19.5	30.5	55	153	97	50	30	13	63	12.5	127	12	153
11127	HCV.254-E-STL-NO-M12	254	M12	20	19.5	30.5	55	280	224	50	30	13	63	12.5	254	12	180
11128	HCV.254-E-STL-NC-M12	254	M12	20	19.5	30.5	55	280	224	50	30	13	63	12.5	254	12	180

Maximum tightening torque

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RoHS PA-T IP65 +80° -20°

Column level indicators

with MIN level electrical sensor, technopolymer

MATERIAL
Transparent polyamide based (PA-T) technopolymer. Highly resistant to shocks, solvents, oils with additives, aliphatic and aromatic hydrocarbons, petrol, naphtha, phosphoric esters.
Avoid contact with alcohol or detergents containing alcohol.

SCREWS
Nickel-plated brass with hexagon socket.

PACKING RINGS
NBR synthetic rubber O-Ring.

FLOAT
Polyamide based (PA) technopolymer in red colour, with a built-in magnetic element to activate the electric contact when the oil level drops to the minimum set at 40mm over the screw axis (dimension I).

SENSOR BRACKET
Watertight, black colour, with a built-in relay (reed).
For a correct assembly see Warnings (see page 1777).

CONNECTOR
Right side output including protection against water sprays (protection class IP 65 according to EN 60529 table on page A23).

CONTRAST SCREEN
White lacquered aluminium. The housing, in the appropriate external rear slot, guarantees the best protection from direct contact with fluid.
It can be taken out before assembly to allow the insertion of level lines or words.

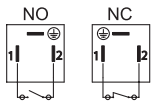
STANDARD EXECUTIONS
- **HCY-E-NO**: with electrical contact normally open.
- **HCY-E-NC**: with electrical contact normally closed.

MAXIMUM CONTINUOUS WORKING TEMPERATURE
80°C (with oil).

TECHNICAL DATA
In laboratory tests carried out with mineral oil type CB68 (according to ISO 3498) at 23°C for a limited period of time, the weld stood up to: 14 bar (HCY.76), 9 bar (HCY.127) and 8 bar (HCY.254).
For use with other fluids and under different pressure and temperature conditions, please contact ELESA Technical Department.
In any case we suggest to verify the suitability of the product under the actual working conditions.

SPECIAL EXECUTIONS ON REQUEST
- Column level indicators in different materials (polycarbonate), for use with special fluids and/or at high temperatures.
- AISI 316 stainless steel or nickel-plated brass screws
- Column level indicators with change-over electrical contact.



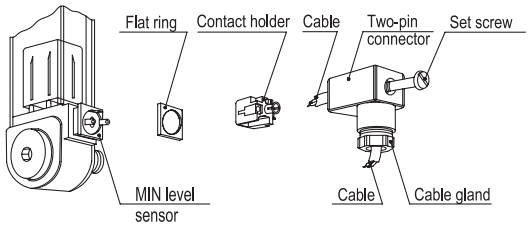


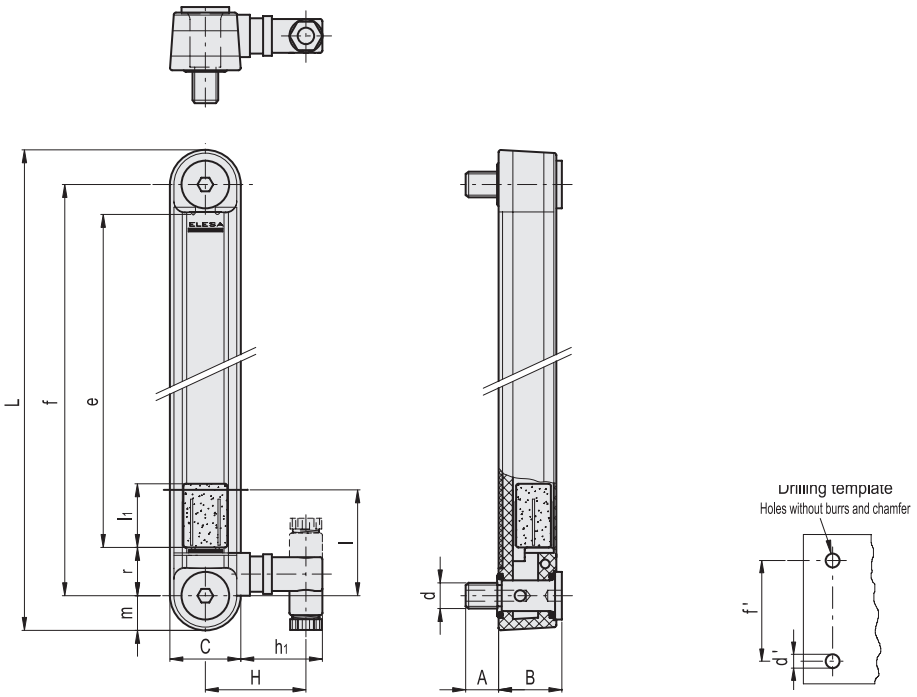
Electrical features	MIN level sensor
Tension feed	AC/DC
Electric contacts	NO normally open NC normally closed
Maximum applicable voltage	NO: 150 Vac, 150 Vdc NC: 230Vac, 230 Vdc
Maximum commutable opening capacity	NO: 1A NC: 2A
Maximum commutable power	NO: 20 W / 20 V.A. NC: 40 W / 40 V.A.
Cable gland	Pg 7 (for cables in sheath with Ø 6 or 7 mm)
Conductors cross-section	Max. 1.5 mm^2
Do not mount this indicator in proximity to magnetic fields.	

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TWO-PIN CONNECTOR ASSEMBLY INSTRUCTIONS

1. Remove the connector from the indicator by unscrewing the set screw placed in the bottom, take the contact holder out and loosen the cable gland.
2. Slip on the two-pole cable into the connector (standard connector) and connect the wires to the terminals nr. 1 and nr. 2 of the contact holder.
3. Assemble by pressing the contact holder into the connector in the required position.
4. Screw the connectors to the indicator and then tighten the cable glands.





Code	Description	f	d	A	A1	B	C	H	L	e	h1	l	l1	m	r	d'-0.2	f'±0.2	C# [Nm]	⚖
111101	HCY.76-E-NO-M10	76	M10	16	16	29	32	46	108	41	37	40	17	16	20	10.5	76	12	150
111102	HCY.76-E-NC-M10	76	M10	16	16	29	32	46	108	41	37	40	17	16	20	10.5	76	12	150
111111	HCY.127-E-NO-M12	127	M12	16	16	29	32	46	159	93	37	40	29	16	20	12.5	127	12	170
111112	HCY.127-E-NC-M12	127	M12	16	16	29	32	46	159	93	37	40	29	16	20	12.5	127	12	170
111121	HCY.254-E-NO-M12	254	M12	16	16	29	32	46	286	219	37	40	29	16	20	12.5	254	10	215
111122	HCY.254-E-NC-M12	254	M12	16	16	29	32	46	286	219	37	40	29	16	20	12.5	254	10	215

Maximum tightening torque

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Column level indicators

with MIN level and MAX temperature electrical sensors, technopolymer



MATERIAL
Transparent polyamide based (PA-T) technopolymer. Highly resistant to shocks, solvents, oils with additives, aliphatic and aromatic hydrocarbons, petrol, naphtha, phosphoric esters.
Avoid contact with alcohol or detergents containing alcohol.

SCREWS
Nickel-plated brass with hexagon socket.

PACKING RINGS
NBR synthetic rubber O-Ring.

FLOAT
Polyamide based (PA) technopolymer in red colour, with a built-in magnetic element to activate the electric contact when the oil level drops to the minimum set at 40mm over the screw axis (dimension I).

MIN LEVEL ELECTRICAL SENSOR
It generates an electric signal when the oil level reaches the minimum level.
The inside of the cavity where the sensor is contained is completely resinated in order to increase the thermal and electric insulation.

CONNECTOR
Right side output including protection against water sprays (protection class IP 65 according to EN 60529 on page A23).

MAX TEMPERATURE ELECTRICAL SENSOR (80°C)
It is set at a standard intervention temperature of 80°C, placed close to a metallic plate which serves as a conductor of the heat of the fluid for a faster transmission and a lower dissipation. The inside of the cavity where the sensor is contained is completely resinated in order to increase the thermal and electric insulation.
For a correct assembly see Warnings (on page 1777).

CONTRAST SCREEN
White lacquered aluminium. The housing, in the appropriate external rear slot, guarantees the best protection from direct contact with fluid.
It can be taken out before assembly to allow the insertion of level lines or words.

SCREW-COVERS
Polyamide based technopolymer, grey colour.

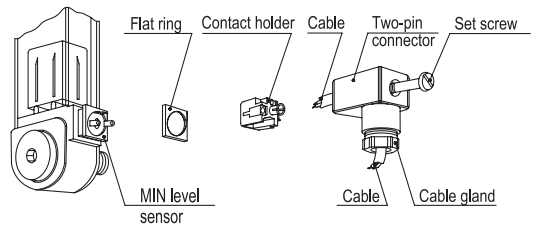
STANDARD EXECUTIONS
- **HCY-E-ST-NO**: with electrical contact normally open.
- **HCY-E-ST-NC**: with electrical contact normally closed.

MAXIMUM CONTINUOUS WORKING TEMPERATURE
80°C (with oil).

TECHNICAL DATA
In laboratory tests carried out with mineral oil type CB68 (according to ISO 3498) at 23°C for a limited period of time, the weld stood up to: 14 bar (HCY.76), 9 bar (HCY.127) and 8 bar (HCY.254).
For use with other fluids and under different pressure and temperature conditions, please contact ELESA Technical Department.
In any case we suggest to verify the suitability of the product under the actual working conditions.

SPECIAL EXECUTIONS ON REQUEST
- Column level indicators in different materials (polycarbonate), for use with special fluids and/or at high temperatures.
- AISI 316 stainless steel or nickel-plated brass screws
- Column level indicators with change-over electrical contact.
- Execution with PT100 temperature electrical probe for connection to PLC.
- Electrical sensors set at the following temperatures: 50°, 60°, 70°C.

TWO-PIN CONNECTOR ASSEMBLY INSTRUCTIONS
1. Remove the connector from the indicator by unscrewing the set screw placed in the bottom, take the contact holder out and loosen the cable gland.
2. Slip on the two-pole cable into the connector (standard connector) and connect the wires to the terminals nr. 1 and nr. 2 of the contact holder.
3. Assemble by pressing the contact holder into the connector in the required position.
4. Screw the connectors to the indicator and then tighten the cable glands.

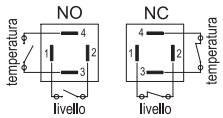


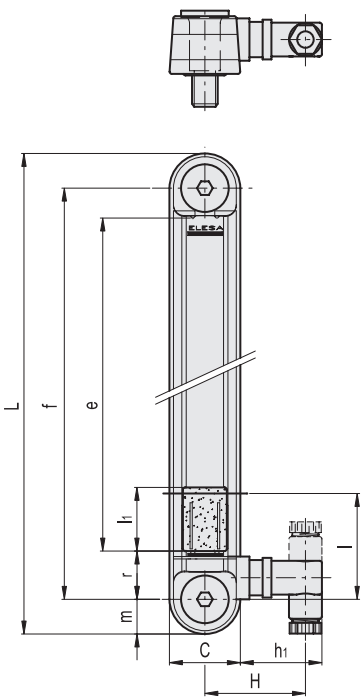
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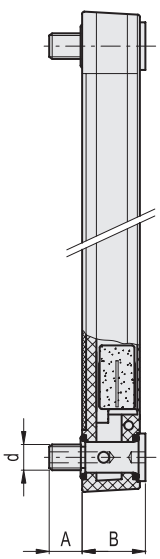
HCY-E-ST | Column level indicators

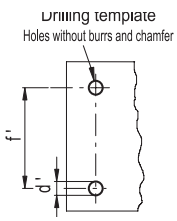
Electrical features	MIN level sensor
Tension feed	AC/DC
Electric contacts	NO normally open NC normally closed
Maximum applicable voltage	NO: 150 Vac, 150 Vdc NC: 230Vac, 230 Vdc
Maximum commutable opening capacity	NO: 1A NC: 2A
Maximum commutable power	NO: 20 W / 20 V.A. NC: 40 W / 40 V.A.
Cable gland	Pg 7 (for cables in sheath with Ø 6 or 7 mm)
Conductors cross-section	Max. 1.5 mm^2

Electrical features	MAX temperature sensor	
Tension feed	AC/DC	
Electric contacts	NO normally open NC normally closed	
Voltage / Maximum applicable voltage	250 Vac- 10 A	(resisteve loads)
	60 Vdc - 3 A	
Cable gland	Pg 7 (for cables in sheath with Ø 6 or 7 mm)	
Conductors cross-section	Max. 1.5 mm^2	
Do not mount this indicator in proximity to magnetic fields.		









Code	Description	f	d	A	A1	B	C	H	L	e	h1	l	l1	m	r	d'-0.2	f'±0.2	C# [Nm]	⚖
111151	HCY.76-E-ST-NO-M12	76	M12	22	16	29	32	46	108	41	37	40	17	16	20	10.5	76	12	175
111152	HCY.76-E-ST-NC-M12	76	M12	22	16	29	32	46	108	41	37	40	17	16	20	10.5	76	12	175
111161	HCY.127-E-ST-NO-M12	127	M12	22	16	29	32	46	159	93	37	40	29	16	20	12.5	127	12	173
111162	HCY.127-E-ST-NC-M12	127	M12	22	16	29	32	46	159	93	37	40	29	16	20	12.5	127	12	173
111171	HCY.254-E-ST-NO-M12	254	M12	22	16	29	32	46	286	219	37	40	29	16	20	12.5	254	10	240
111172	HCY.254-E-ST-NC-M12	254	M12	22	16	29	32	46	286	219	37	40	29	16	20	12.5	254	10	240

Maximum tightening torque

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RoHS PA IP65 +80° -20°

Rapid levels with float

Technopolymer



MATERIAL
Polyamide-based (PA) technopolymer, grey colour.

PACKING RINGS
- TPE flat gasket (HFL-EF).
- NBR synthetic rubber O-Ring (HFL-ER).

CONNECTOR WITH SENSOR BLOCK
Right side output including protection against water sprays (protection class IP 65 according to EN 60529 table on page A23).
For a correct assembly see Warnings (on page 1777).

DIPSTICK
AISI 304 stainless steel tube, fastened to the body by a nickel-plated brass coupler.

FLOAT
NBR synthetic rubber.

STANDARD EXECUTIONS
- **HFL-EF**: assembly by means of a flange with 3 holes at 120° for 3 zinc-plated steel screws with hexagon socket, supplied. It can be assembled also with 2 holes at 180°.
- **HFL-ER**: assembly by means of a 1" Gas threaded coupler.

MAXIMUM CONTINUOUS WORKING TEMPERATURE
80°C.

FEATURES AND APPLICATIONS
HFL-E rapid levels show a minimum or maximum default level, according to the application needs.
Highly versatile, these rapid levels allow to define the most accurate set point by simply disassembling the dipstick float and cutting the dipstick exactly where needed, according to the specifications shown in the table.
Free from magnetic parts, the float is integral to the dipstick making this level indicator ideal for use in tanks containing dirty liquids, water, oil, coolant oil, also with iron metal parts or foams. Moreover, the operation is independent of the fluid electrical conductivity.
To ensure utmost safety, the electrical components are separated from the tank and perfectly sealed by means of ultrasound welding.

SPECIAL EXECUTIONS ON REQUEST
- Level indicators in different materials for use with particularly aggressive fluids and/or maximum working temperature up to 120°C.
- Dipsticks in different lengths and/or in AISI 316 stainless steel.
- Float with through holes to allow positioning according to different needs, avoiding cutting the dipstick.
- Double dipstick and double float manufactured for double minimum and maximum level reading.

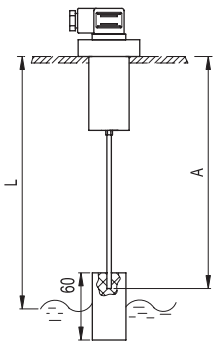


Table for cutting dipstick

Control quote L = (mm)	Dipstick cut quote for minimum level A = (mm)
120	116
140	137
160	158
180	179
200	200
220	221
240	242
260	263
280	284
300	305
320	326
340	347
360	368
380	389
400	410
420	431
440	452
460	473
480	494
500	515

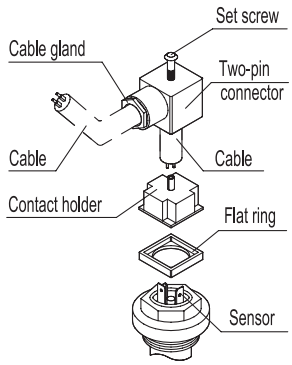
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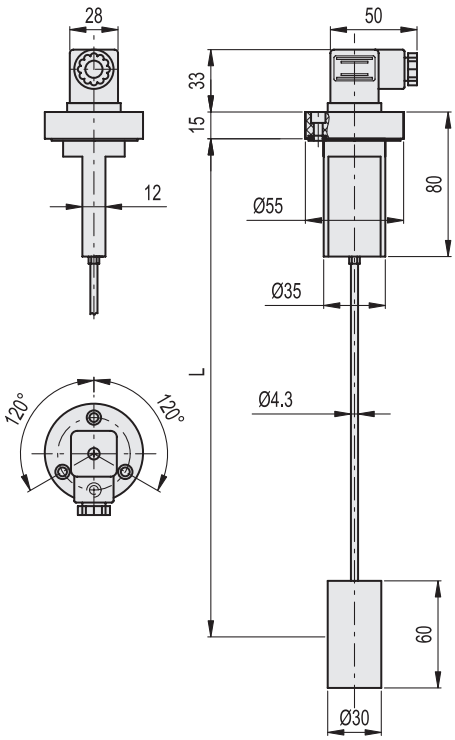
Electrical features	
Tension feed	AC/DC
Electric contacts	NO normally open in the presence of liquid NC normally closed|Pin the presence of liquid
Maximum commutable voltage	230 Vdc, 230 Vac
Maximum opening capacity	3 A
Commutable power	60 W 60 VA
Cable gland	Pg 9 / Pg 11 UNIFIED
Conductors cross-section	Max. 1.5 mm^2

TWO-PIN CONNECTOR ASSEMBLY INSTRUCTIONS

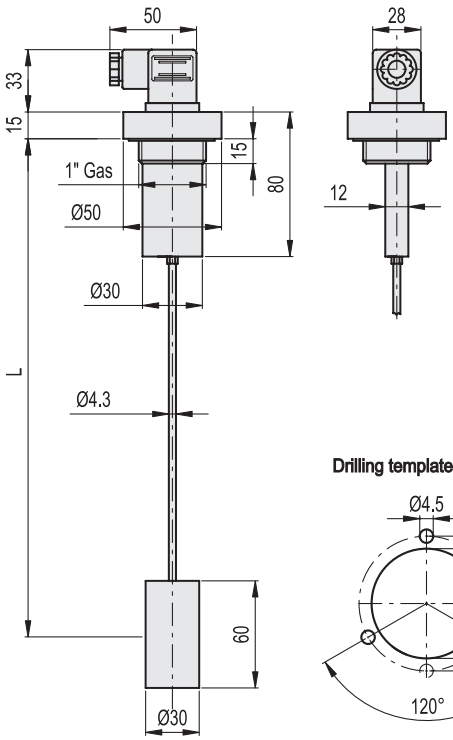
1. Remove the connectors from the indicator by unscrewing the set screw placed in the bottom, take the contact holders out and loosen the cable glands.
2. Slip on the two-pole cable into the connectors (standard connectors) and connect the wires to the terminals nr. 1 and nr. 2 of the relative contact holders.
3. Assemble by pressing the contact holders into the realtive connectors in the required position.
4. Screw the connectors to the indicator and then tighten the cable glands.



HFL-EF



HFL-ER



Drilling template for HFL-EF

HFL-EF

Code	Description	L	⚖
111281	HFL-EF-NO	500	135
111283	HFL-EF-NC	500	135

HFL-ER

Code	Description	L	⚖
111286	HFL-ER-NO	500	135
111288	HFL-ER-NC	500	135

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Rapid levels with float

Technopolymer

MATERIAL
Body, dipstick and float: polyamide based (PA) technopolymer, grey colour.

PACKING RINGS
- TPE flat gasket (HFLT-EF).
- NBR synthetic rubber O-Ring (HFLT-ER).

CONNECTOR
EN 175301-803 (A and C shape) / ISO 4400

DIPSTICK
Featuring two raised scales (for floatation in oil or water)

STANDARD EXECUTIONS
- **HFLT-EF**: assembly by means of a flange with 3 holes at 120° for 3 zinc-plated steel screws with hexagon socket, supplied, and a threaded coupler.
- **HFLT-ER**: assembly by mans of a 1" Gas threaded coupler.

MAXIMUM CONTINUOUS WORKING TEMPERATURE
80° C.

FEATURES AND APPLICATIONS
HFLT-E rapid levels detects a predefined minimum or maximum level, according to the application needs.
Highly versatile, these rapid levels allow to define both the most accurate set point required by simply disassembling the dipstick float and cutting the dipstick exactly where needed, and the kind of operation required, with normally open (NO) or normally closed (NC) contact in presence of liquid, by loosening the fastening nut on the opposite end of the dipstick and positioning the inner magnet according to specific requirements (refer to the adhesive label).
The magnet is generally supplied with normally open (NO) contact in presence of liquid.
Free from magnetic parts, the float is integral to the dipstick making this level indicator ideal for use in tanks containing dirty liquids, water, oil, coolant oil, also with iron metal parts or foams. Moreover, the operation is independent of the fluid electrical conductivity.
To ensure utmost safety, the electrical components are separated from the tank and perfectly sealed by means of ultrasound welding.

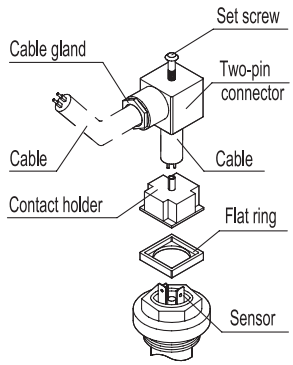
SPECIAL EXECUTIONS ON REQUEST
- Polypropylene body (PP).
- With flange with 6 holes for fastening with cylindrical head screws (supplied), in addition to the threaded body.
- For use with maximum working temperature up to 120°C.

TWO-PIN CONNECTOR ASSEMBLY INSTRUCTIONS
1. Remove the connectors from the indicator by unscrewing the set screw placed in the bottom, take the contact holders out and loosen the cable glands.
2. Slip on the two-pole cable into the connectors (standard connectors) and connect the wires to the terminals nr. 1 and nr. 2 of the relative contact holders.
3. Assemble by pressing the contact holders into the realtive connectors in the required position.
4. Screw the connectors to the indicator and then tighten the cable glands.





Electrical features	
Tension feed	AC/DC
Electric contacts	NO normally open in the presence of liquid NC normally closed in the presence of liquid
Maximum commutable voltage	230 Vdc, 230 Vac
Maximum opening capacity	2 A
Commutable power	40 W 40 VA
Cable gland	Pg 9 / Pg 11 UNIFIED
Conductors cross-section	Max. 1.5 mm^2

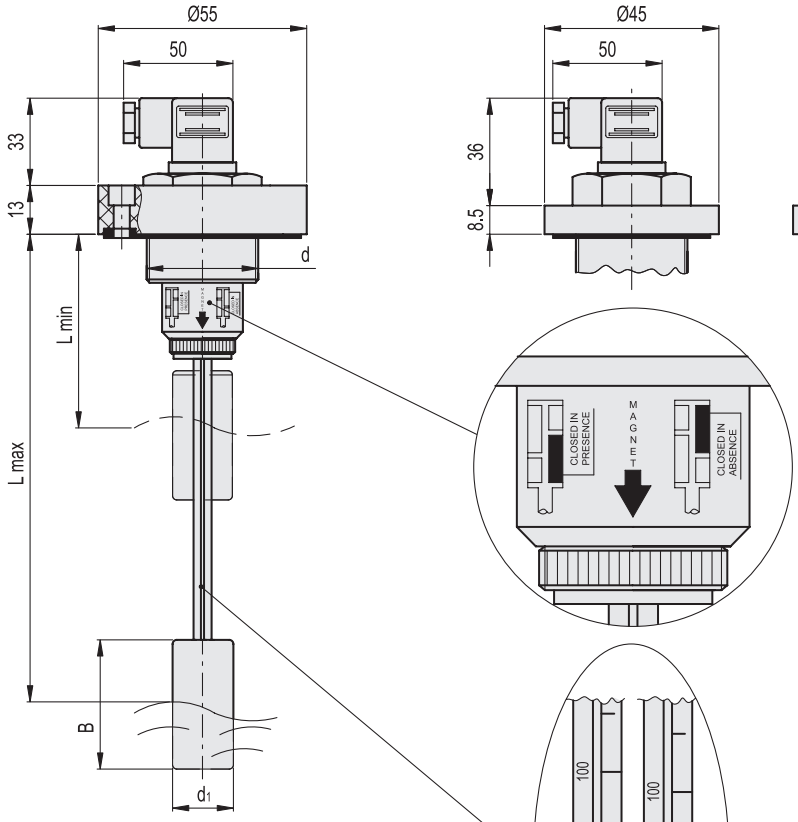


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HFLT-E

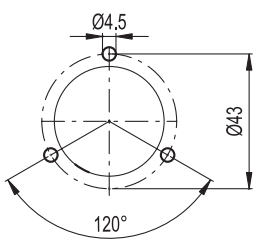
Rapid levels with float

HFLT-EF



HFLT-ER

Drilling template for HFLT-EF



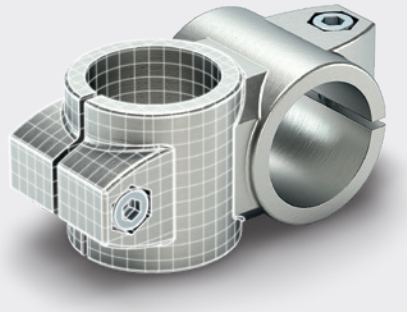
HFLT-EF

Code	Description	d	B	Lmin	Lmax	d1	⚖
111276	HFLT-EF-3/4	G 3/4	50	75	250	23	110
111278	HFLT-EF-1	G 1	60	85	360	30	110

HFLT-ER

Code	Description	d	B	Lmin	Lmax	d1	⚖
111271	HFLT-ER-3/4	G 3/4	50	75	250	23	110
111273	HFLT-ER-1	G 1	60	85	360	30	110

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DESIGNED
FOR ENGINEERING

16 Tube clamp connectors



Tube clamp connectors

Linear actuators

Clamp mountings

Tube clamp connectors

Tube clamp connectors are clamping components made of **aluminum** or **Stainless Steel** which offer the facility for simply and rapidly constructing jigs, fixtures and operating systems using standard round and square section tubings.

The vast range of clamp connectors in split monoblock or multi-part form offer almost unlimited possibilities.

Split monoblock clamp connectors give very robust and sturdy tubular constructions. For this purpose only precision tubings DIN 2391, with an outside diameter which lies within relatively tight tolerances, should be used.
(Construction tubes GN 990 see page 1902).

Multi-part clamp connectors (consisting of two or more separate parts) are not tied to tight tolerances as they can be used with square tubes (Construction tubes GN 990 see page 1902) thus allowing incorporation into already existing systems.

As clamping screws there is a choice of either cap head screws to DIN 912 or adjustable clamping kits GN 911 if repeated removal and re-installation is required. As for nuts, hexagon nuts DIN 985 (ISO 10511) which are self-locking with polyamide ring are recommended.

The clamping points are provided on **both sides** with sockets, cast in the component, which give a free choice for positioning hexagon nuts and clamping connectors.

Within the tube clamp connectors range there are numerous clamping components available...

The tube clamp connector program offers a wide range of components that can be used in connection with **linear actuators** (tubes with adjustable spindle) see page 1910 and following pages.

Two-way connector clamps
(see page 1812)

Flanged two-way connector clamps
(see page 1820)

Flanged connector clamps
(see page 1821)

Base plate connector clamps
(see page 1827)

Flanged base plate connector clamps
(see page 1832)

T-Angle connector clamps
(see page 1834)

Tube connectors
(see page 1843)

Swivel clamp connectors
(see page 1847)

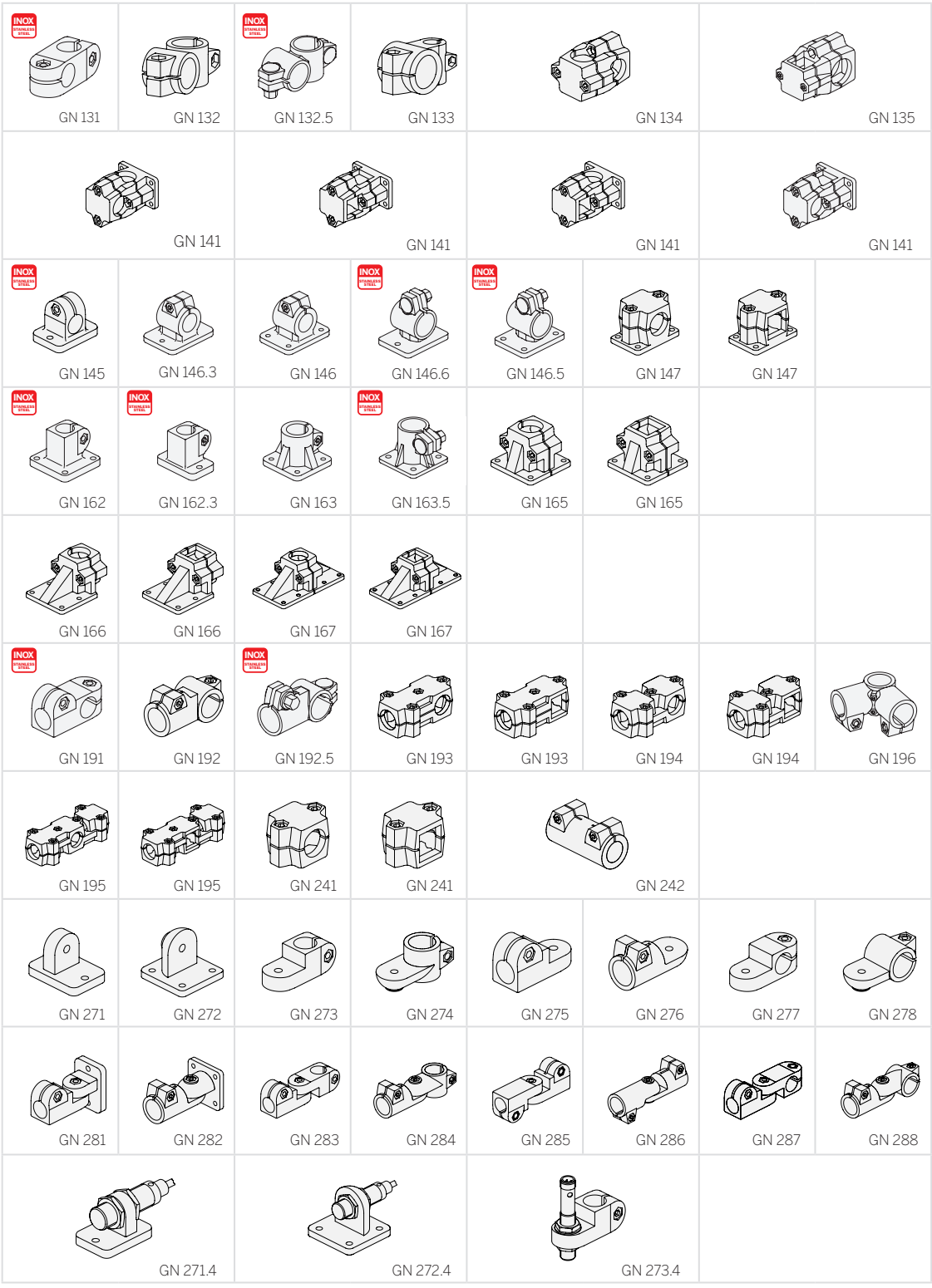
Swivel clamp connector joints
(see page 1859)

Sensor holders
(see page 1872)

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Tube clamp connectors

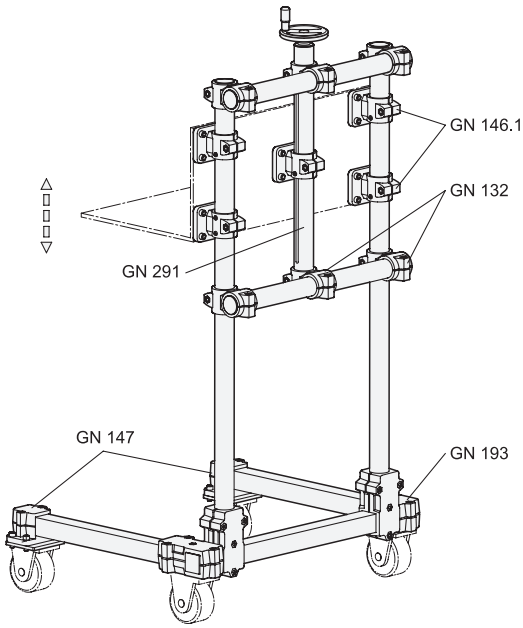
Design shapes



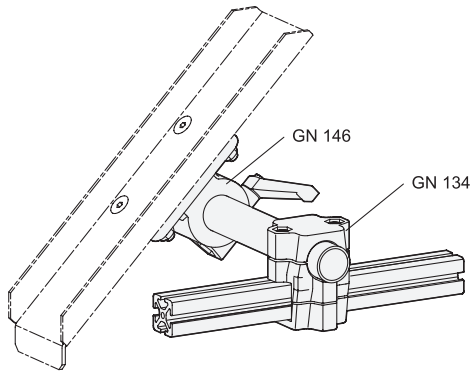
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Tube clamp connectors

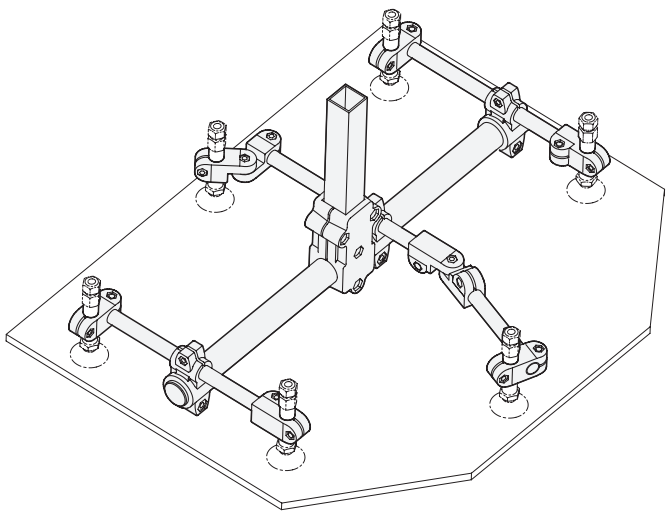
Installation examples

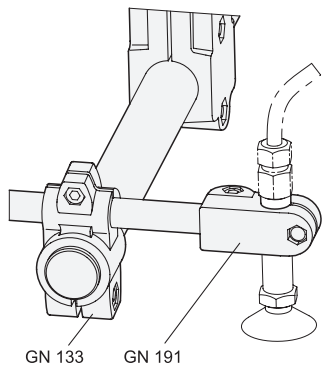


Mobile lifting table



Workpiece chute
Transfer to aluminum profile system



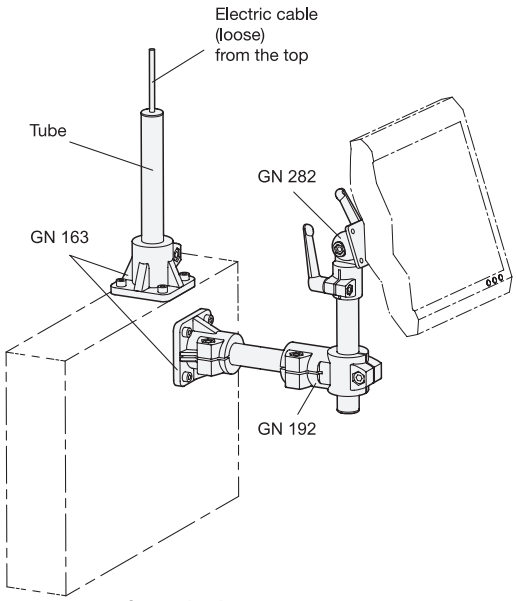


Vacuum gripper

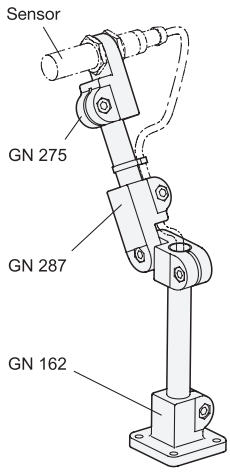
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Tube clamp connectors

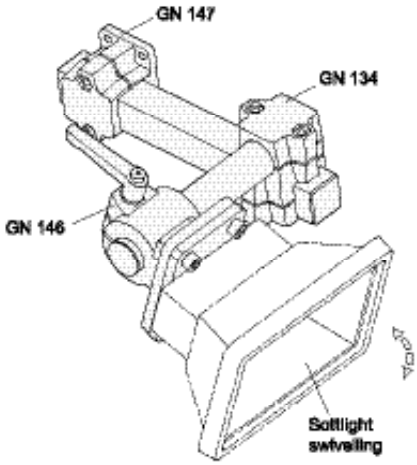
Installation examples



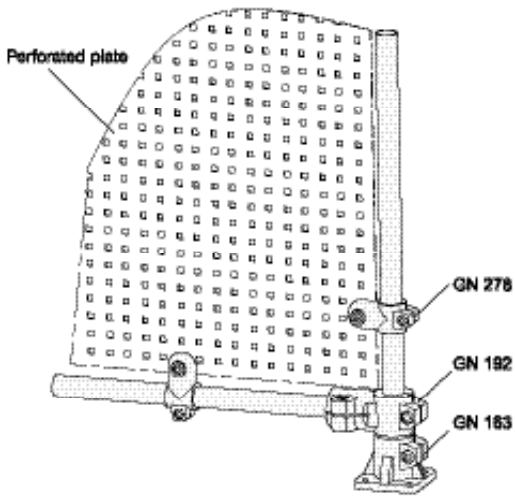
Screen holder



Sensor holder



Holder for spotlight



Safety fence

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Two-way connector clamps

Aluminium / Stainless Steel



SPECIFICATION

Identification No.

No. **2**: with 2 Stainless Steel-Clamping screws DIN 912

Version in Aluminium
plastic coated
black, RAL 9005, textured finish **SW**
blank **BL**
matt shot-blasted

Version in Stainless Steel NI

AISI CF-8
matt shot-blasted

Clamping bores mechanically machined

Socket cap screw DIN 912
Stainless Steel AISI 304

Hexagon nuts DIN 985
Stainless Steel AISI 304

INFORMATION

The clamping bores of GN 131 two-way connector clamps are mechanically machined and designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively.
The standard version of the clamping screws are socket cap screws with hexagonal socket DIN 912. They can be replaced by clamping kits GN 911 (see page 1874) / GN 911.3 (see page 1875) (article code see table of dimensions).

ACCESSORY

- Clamping kits GN 911 (see page 1874) / GN 911.3 (see page 1875)

ON REQUEST

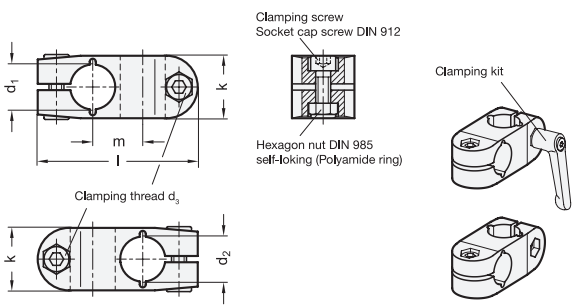
- d_1 / d_2 with different bores

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)

*Complete with colour index of the Two-way connector clamps (SW or BL)

SW	BL
RAL9005	blank



GN 131

Description	d1	d2	d3	k	l	m	Clamping kits for d3	⚖
GN 131-B10-B10-2-*	B 10	B 10	M 6	25	64	20	GN 911-M6-22	180
GN 131-B12-B12-2-*	B 12	B 12	M 6	25	64	20	GN 911-M6-22	203
GN 131-B14-B14-2-*	B 14	B 14	M 6	25	64	20	GN 911-M6-22	190
GN 131-B15-B15-2-*	B 15	B 15	M 6	25	64	20	GN 911-M6-22	190
GN 131-B16-B16-2-*	B 16	B 16	M 6	25	64	20	GN 911-M6-22	170
GN 131-B18-B18-2-*	B 18	B 18	M 6	25	64	20	GN 911-M6-22	148

Weight BL

GN 131-NI

STAINLESS STEEL

Description	d1	d2	d3	k	l	m	Clamping kits for d3	⚖
GN 131-B12-B12-2-NI	B 12	B 12	M 6	25	64	20	GN 911.3-M6-22	203
GN 131-B14-B14-2-NI	B 14	B 14	M 6	25	64	20	GN 911.3-M6-22	190
GN 131-B15-B15-2-NI	B 15	B 15	M 6	25	64	20	GN 911.3-M6-22	190
GN 131-B16-B16-2-NI	B 16	B 16	M 6	25	64	20	GN 911.3-M6-22	170
GN 131-B18-B18-2-NI	B 18	B 18	M 6	25	64	20	GN 911.3-M6-22	148
GN 131-B20-B20-2-NI	B 20	B 20	M 6	25	64	20	GN 911.3-M6-22	140

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GN 132.5

Stainless Steel-
Two-way connector clamps



SPECIFICATION

Types

- Type **A**: without sealing
- Type **B**: with sealing

Stainless Steel

- AISI CF-8
- matt shot-blasted

Clamping bores
mechanically machined

Carriage bolt DIN 603
Stainless Steel A2

Cap nuts DIN 917
Stainless Steel A2

Sealings

Washers
Plastic (Polyacetal POM)

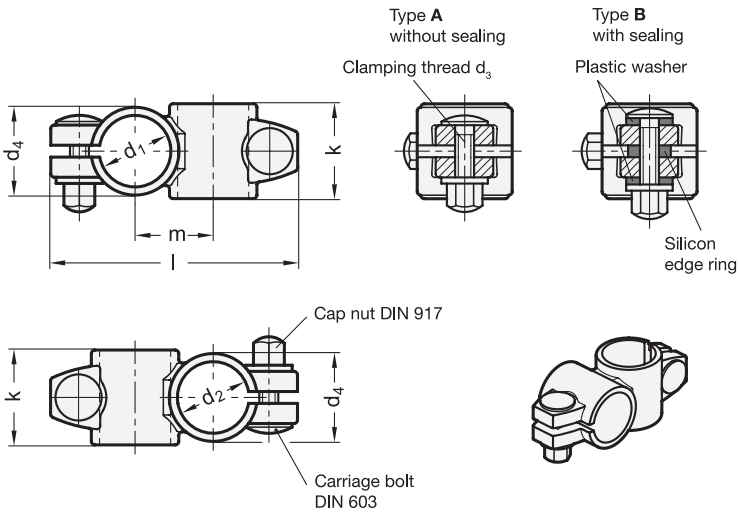
Edge ring
Silicon, 40 ... 60 Shore A

INFORMATION

The clamping bores of GN 132.5 Stainless Steel-Two-way connector clamps are mechanically machined and designed for construction tubings GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively.
The shape of the clamping screws / nuts prevents the formation of wetness due to dammed-up water. The designs with sealing (Type B) also seals bore holes and threads.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



GN 132.5 STAINLESS STEEL

Description	d1	d2	k	d3	d4	l	m	⚖
GN 132.5-B30-B30-40-A	B 30	B 30	40	M 8	37	104	33	296
GN 132.5-B30-B30-40-B	B 30	B 30	40	M 8	37	104	33	296
GN 132.5-B50-B50-65-A	B 50	B 50	65	M 10	60	150	53	312
GN 132.5-B50-B50-65-B	B 50	B 50	65	M 10	60	150	53	312

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GN 132

Two-way connector clamps

Aluminium



SPECIFICATION

Identification No.

No. **2**: with 2 Stainless Steel-Clamping screws DIN 912

Aluminium

plastic coated
black, RAL 9005, textured finish **SW**

blank
matt shot-blasted **BL**

Clamping bores mechanically machined

Socket cap screw DIN 912
Stainless Steel AISI 304

Hexagon nuts DIN 985
Stainless Steel AISI 304

INFORMATION

The clamping bores of GN 132 two-way connector clamps are mechanically machined and designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively.
The standard version of the clamping screws are socket cap screws with hexagonal socket DIN 912. They can be replaced by clamping kits GN 911 (see page 1874) (article code see table of dimensions).

TECHNICAL INFORMATION

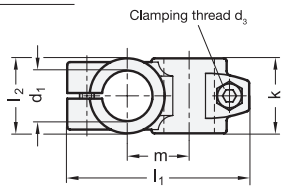
- Stainless Steel characteristics (see page A26)

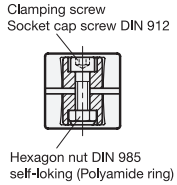
ACCESSORY

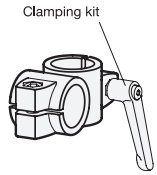
- Clamping kits GN 911 (see page 1874)

ON REQUEST

- Stainless Steel characteristics (see page A26)

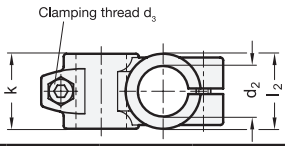


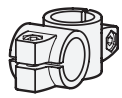




*Complete with colour index of the Two-way connector clamps (SW or BL)

SW	BL
RAL9005	blank





GN 132

Description	d1	d2	k	d3	l1	l2	m	Clamping kits for d3	⚖
GN 132-B20-B20-40-2-*	B 20	B 20	40	M 8	97	40	33	GN 911-M8-32	245
GN 132-B25-B25-40-2-*	B 25	B 25	40	M 8	97	40	33	GN 911-M8-32	220
GN 132-B30-B30-40-2-*	B 30	B 30	40	M 8	97	40	33	GN 911-M8-32	150
GN 132-B30-B30-56-2-*	B 30	B 30	56	M 10	125	56	45	GN 911-M10-40	600
GN 132-B32-B32-56-2-*	B 32	B 32	56	M 10	125	56	45	GN 911-M10-40	620
GN 132-B35-B35-56-2-*	B 35	B 35	56	M 10	125	56	45	GN 911-M10-40	580
GN 132-B40-B40-56-2-*	B 40	B 40	56	M 10	125	56	45	GN 911-M10-40	500
GN 132-B40-B40-65-2-*	B 40	B 40	65	M 10	143	65	53	GN 911-M10-55	890
GN 132-B42-B42-65-2-*	B 42	B 42	65	M 10	143	65	53	GN 911-M10-55	780
GN 132-B45-B45-65-2-*	B 45	B 45	65	M 10	143	65	53	GN 911-M10-55	720
GN 132-B48-B48-65-2-*	B 48	B 48	65	M 10	143	65	53	GN 911-M10-55	700
GN 132-B50-B50-65-2-*	B 50	B 50	65	M 10	143	65	53	GN 911-M10-55	610
GN 132-B50-B50-80-2-*	B 50	B 50	80	M 10	169	80	65	GN 911-M10-55	1460
GN 132-B55-B55-80-2-*	B 55	B 55	80	M 10	169	80	65	GN 911-M10-55	1260
GN 132-B60-B60-80-2-*	B 60	B 60	80	M 10	169	80	65	GN 911-M10-55	1060

Weight BL

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GN 135

Two-way connector clamps

Aluminium / multi part assembly / unequal bore dimensions d1 / s1 and d2 / s2



SPECIFICATION

Identification No.

No. **2**: with 4 Stainless Steel-Clamping screws DIN 912

Aluminium

plastic coated
black, RAL 9005, textured finish **SW**

blank
matt shot-blasted **BL**

Clamping bores not machined

Cap screws DIN 912
Stainless Steel AISI 304

Hexagon nuts DIN 985
Stainless Steel AISI 304

INFORMATION

The clamping bores of GN 135 two-way connector clamps are not machined and specially designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively.
The square designs are also suitable for use in **profile systems**.
The bore holes and squares must be put together such that an adaptation between between different tube cross-sections is possible.
The standard clamping screws are socket cap screws DIN 912. They can be replaced by adjustable clamping kits GN 911 (see page 1874) (article code see table of dimensions).

ACCESSORY

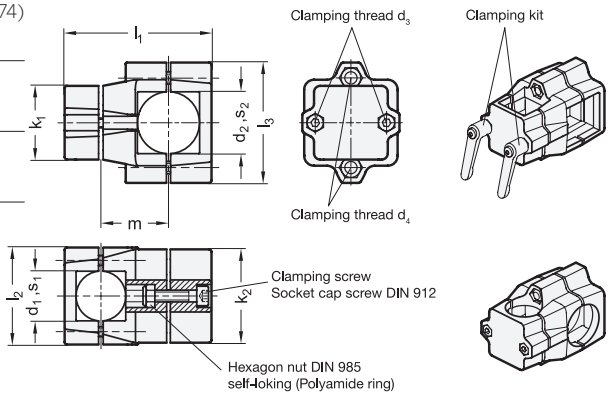
- Clamping kits GN 911 (see page 1874)

ON REQUEST

- other bores and square combinations d1 / s1 and d2 / s2

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



* Complete with colour index of the Two-way connector clamps (SW or BL)

SW	BL
RAL9005	blank

GN 135

Description	d1	s1	d2	s2	k1	k2	d3	d4	l1	l2	l3	m	Clamping kits for d3	Clamping kits for d4	⚖
GN 135-B30-B40-60-2-*	B 30	-	B 40	-	60	76	M 8	M 10	120	79	98	55	GN 911-M8-55	GN 911-M10-55	500
GN 135-B30-B48-60-2-*	B 30	-	B 48	-	60	76	M 8	M 10	120	79	98	55	GN 911-M8-55	GN 911-M10-55	486
GN 135-B30-B50-60-2-*	B 30	-	B 50	-	60	76	M 8	M 10	120	79	98	55	GN 911-M8-55	GN 911-M10-55	479
GN 135-B40-B48-60-2-*	B 40	-	B 48	-	60	76	M 8	M 10	120	79	98	55	GN 911-M8-55	GN 911-M10-55	461
GN 135-B40-B50-60-2-*	B 40	-	B 50	-	60	76	M 8	M 10	120	79	98	55	GN 911-M8-55	GN 911-M10-55	454
GN 135-B30-V40-60-2-*	B 30	-	-	V 40	60	76	M 8	M 10	120	79	98	55	GN 911-M8-55	GN 911-M10-55	900
GN 135-B30-V50-60-2-*	B 30	-	-	V 50	60	76	M 8	M 10	120	79	98	55	GN 911-M8-55	GN 911-M10-55	599
GN 135-B40-V50-60-2-*	B 40	-	-	V 50	60	76	M 8	M 10	120	79	98	55	GN 911-M8-55	GN 911-M10-55	800
GN 135-V30-V40-60-2-*	-	V 30	-	V 40	60	76	M 8	M 10	120	79	98	55	GN 911-M8-55	GN 911-M10-55	900
GN 135-V30-V50-60-2-*	-	V 30	-	V 50	60	76	M 8	M 10	120	79	98	55	GN 911-M8-55	GN 911-M10-55	750
GN 135-V40-V50-60-2-*	-	V 40	-	V 50	60	76	M 8	M 10	120	79	98	55	GN 911-M8-55	GN 911-M10-55	750
GN 135-V30-B40-60-2-*	-	V 30	B 40	-	60	76	M 8	M 10	120	79	98	55	GN 911-M8-55	GN 911-M10-55	600
GN 135-V30-B48-60-2-*	-	V 30	B 48	-	60	76	M 8	M 10	120	79	98	55	GN 911-M8-55	GN 911-M10-55	479
GN 135-V30-B50-60-2-*	-	V 30	B 50	-	60	76	M 8	M 10	120	79	98	55	GN 911-M8-55	GN 911-M10-55	450
GN 135-V40-B48-60-2-*	-	V 40	B 48	-	60	76	M 8	M 10	120	79	98	55	GN 911-M8-55	GN 911-M10-55	447
GN 135-V40-B50-60-2-*	-	V 40	B 50	-	60	76	M 8	M 10	120	79	98	55	GN 911-M8-55	GN 911-M10-55	830

Weight BL

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Two-way connector clamps

Aluminium, different bore diameter d1 / d2



SPECIFICATION

Identification No.

No. **2**: with 2 Stainless Steel-Clamping screws DIN 912

Aluminium

plastic coated
black, RAL 9005, textured finish **SW**

blank
matt shot-blasted **BL**

Clamping bores mechanically machined

Socket cap screw DIN 912
Stainless Steel AISI 304

Hexagon nuts DIN 985
Stainless Steel AISI 304

INFORMATION

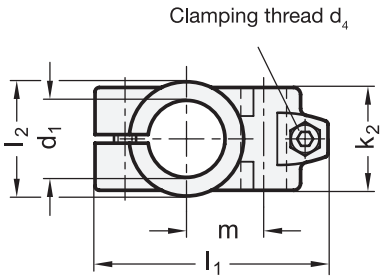
The clamping bores of GN 133 two-way connector clamps are mechanically machined and designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively.
The standard version of the clamping screws are socket cap screws with hexagonal socket DIN 912. They can be replaced by clamping kits GN 911 (see page 1874) (article code see table of dimensions).

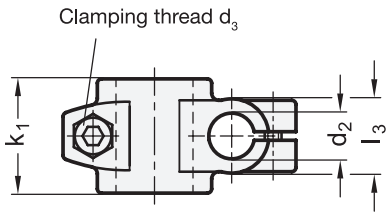
ACCESSORY

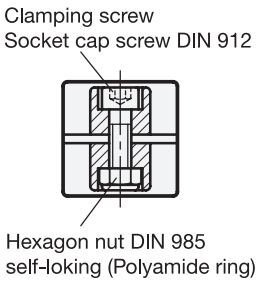
- Clamping kits GN 911 (see page 1874)

TECHNICAL INFORMATION

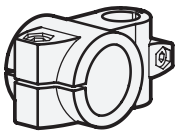
- Stainless Steel characteristics (see page A26)











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GN 133

Two-way connector clamps

*Complete with colour index of the Two-way connector clamps (SW or BL)

SW	BL
RAL9005	blank

GN 133

Description	d1	d2	d3	d4	k1	k2	l1	l2	l3	m	Clamping kits for d3	Clamping kits for d4	⚖
GN 133-B20-B12-2-*	B 20	B 12	M 8	M 6	40	36	81.5	40	26	27	GN 911-M8-32	GN 911-M6-25	175
GN 133-B20-B14-2-*	B 20	B 14	M 8	M 6	40	36	81.5	40	26	27	GN 911-M8-32	GN 911-M6-25	174
GN 133-B20-B16-2-*	B 20	B 16	M 8	M 6	40	36	81.5	40	26	27	GN 911-M8-32	GN 911-M6-25	170
GN 133-B20-B18-2-*	B 20	B 18	M 8	M 6	40	36	81.5	40	26	27	GN 911-M8-32	GN 911-M6-25	170
GN 133-B25-B12-2-*	B 25	B 12	M 8	M 6	40	36	81.5	40	26	27	GN 911-M8-32	GN 911-M6-25	160
GN 133-B25-B14-2-*	B 25	B 14	M 8	M 6	40	36	81.5	40	26	27	GN 911-M8-32	GN 911-M6-25	155
GN 133-B25-B16-2-*	B 25	B 16	M 8	M 6	40	36	81.5	40	26	27	GN 911-M8-32	GN 911-M6-25	150
GN 133-B25-B18-2-*	B 25	B 18	M 8	M 6	40	36	81.5	40	26	27	GN 911-M8-32	GN 911-M6-25	145
GN 133-B30-B12-2-*	B 30	B 12	M 8	M 6	40	36	81.5	40	26	27	GN 911-M8-32	GN 911-M6-25	135
GN 133-B30-B14-2-*	B 30	B 14	M 8	M 6	40	36	81.5	40	26	27	GN 911-M8-32	GN 911-M6-25	128
GN 133-B30-B16-2-*	B 30	B 16	M 8	M 6	40	36	81.5	40	26	27	GN 911-M8-32	GN 911-M6-25	128
GN 133-B30-B18-2-*	B 30	B 18	M 8	M 6	40	36	81.5	40	26	27	GN 911-M8-32	GN 911-M6-25	124
GN 133-B40-B20-2-*	B 40	B 20	M 10	M 8	65	59	122	65	40	45	GN 911-M10-55	GN 911-M8-32	600
GN 133-B40-B25-2-*	B 40	B 25	M 10	M 8	65	59	122	65	40	45	GN 911-M10-55	GN 911-M8-32	600
GN 133-B40-B30-2-*	B 40	B 30	M 10	M 8	65	59	122	65	40	45	GN 911-M10-55	GN 911-M8-32	570
GN 133-B42-B20-2-*	B 42	B 20	M 10	M 8	65	59	122	65	40	45	GN 911-M10-55	GN 911-M8-32	550
GN 133-B42-B25-2-*	B 42	B 25	M 10	M 8	65	59	122	65	40	45	GN 911-M10-55	GN 911-M8-32	600
GN 133-B42-B30-2-*	B 42	B 30	M 10	M 8	65	59	122	65	40	45	GN 911-M10-55	GN 911-M8-32	600
GN 133-B45-B20-2-*	B 45	B 20	M 10	M 8	65	59	122	65	40	45	GN 911-M10-55	GN 911-M8-32	510
GN 133-B45-B25-2-*	B 45	B 25	M 10	M 8	65	59	122	65	40	45	GN 911-M10-55	GN 911-M8-32	510
GN 133-B45-B30-2-*	B 45	B 30	M 10	M 8	65	59	122	65	40	45	GN 911-M10-55	GN 911-M8-32	510
GN 133-B48-B20-2-*	B 48	B 20	M 10	M 8	65	59	122	65	40	45	GN 911-M10-55	GN 911-M8-32	475
GN 133-B48-B25-2-*	B 48	B 25	M 10	M 8	65	59	122	65	40	45	GN 911-M10-55	GN 911-M8-32	475
GN 133-B48-B30-2-*	B 48	B 30	M 10	M 8	65	59	122	65	40	45	GN 911-M10-55	GN 911-M8-32	475
GN 133-B50-B20-2-*	B 50	B 20	M 10	M 8	65	59	122	65	40	45	GN 911-M10-55	GN 911-M8-32	505
GN 133-B50-B25-2-*	B 50	B 25	M 10	M 8	65	59	122	65	40	45	GN 911-M10-55	GN 911-M8-32	480
GN 133-B50-B30-2-*	B 50	B 30	M 10	M 8	65	59	122	65	40	45	GN 911-M10-55	GN 911-M8-32	450

Weight BL

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Two-way connector clamps

Aluminium / multi part assembly, same bore dimensions d_1/d_2 and s_1/s_2



SPECIFICATION

Identification No.

No. **2**: with 4 Stainless Steel-Clamping screws DIN 912

Aluminium

plastic coated
black, RAL 9005, textured finish **SW**

blank
matt shot-blasted **BL**

Clamping bores not machined

Socket cap screw DIN 912
Stainless Steel AISI 304

Hexagon nuts DIN 985
Stainless Steel AISI 304

INFORMATION

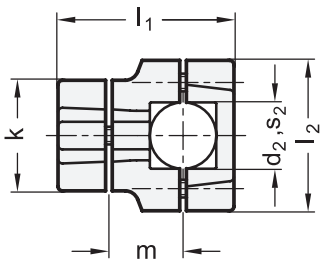
The clamping bores of the flanged two-way connector clamps GN 134 are not machined and specially designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively.
The square designs are also suitable for use in **profile systems**. Bores and square bores of the same nominal size can be assembled in any combination. For instance, nominal size 20 has the following combination options: B20-B20, B20-V20, V20-B20 and V20-V20.
The standard clamping screws are socket cap screws DIN 912. They can be replaced by adjustable clamping kits GN 911 (see page 1874) (article code see table of dimensions).

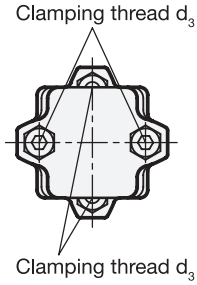
ACCESSORY

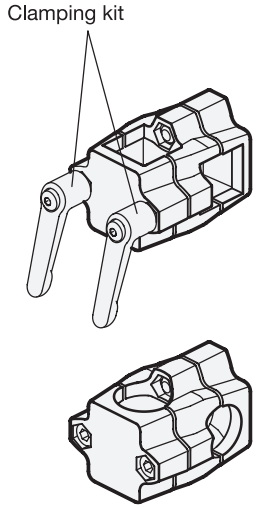
- Clamping kits GN 911 (see page 1874)

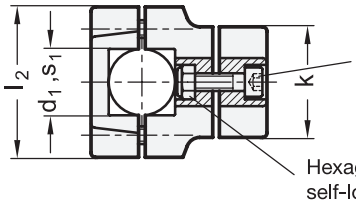
TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)









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GN 134

Two-way connector clamps

*Complete with colour index of the Two-way connector clamps (SW or BL)

SW	BL
RAL9005	blank

GN 134

Description	d1	s1	d2	s2	k	d3	l1	l2	m	Clamping kits for d3	⚖
GN 134-B20-B20-50-2-*	B 20	-	B 20	-	50	M 8	79.5	68	33.5	GN 911-M8-35	352
GN 134-B25-B25-50-2-*	B 25	-	B 25	-	50	M 8	79.5	68	33.5	GN 911-M8-35	330
GN 134-B30-B30-50-2-*	B 30	-	B 30	-	50	M 8	79.5	68	33.5	GN 911-M8-35	310
GN 134-B30-B30-60-2-*	B 30	-	B 30	-	60	M 8	109	79	50	GN 911-M8-55	700
GN 134-B32-B32-60-2-*	B 32	-	B 32	-	60	M 8	109	79	50	GN 911-M8-55	690
GN 134-B35-B35-60-2-*	B 35	-	B 35	-	60	M 8	109	79	50	GN 911-M8-55	680
GN 134-B40-B40-60-2-*	B 40	-	B 40	-	60	M 8	109	79	50	GN 911-M8-55	620
GN 134-B40-B40-76-2-*	B 40	-	B 40	-	76	M 10	125	98	55	GN 911-M10-63	890
GN 134-B42-B42-76-2-*	B 42	-	B 42	-	76	M 10	125	98	55	GN 911-M10-63	945
GN 134-B45-B45-76-2-*	B 45	-	B 45	-	76	M 10	125	98	55	GN 911-M10-63	915
GN 134-B48-B48-76-2-*	B 48	-	B 48	-	76	M 10	125	98	55	GN 911-M10-63	915
GN 134-B50-B50-76-2-*	B 50	-	B 50	-	76	M 10	125	98	55	GN 911-M10-63	885
GN 134-B20-V20-50-2-*	B 20	-	-	V 20	50	M 8	79.5	68	33.5	GN 911-M8-35	350
GN 134-B25-V25-50-2-*	B 25	-	-	V 25	50	M 8	79.5	68	33.5	GN 911-M8-35	310
GN 134-B30-V30-50-2-*	B 30	-	-	V 30	50	M 8	79.5	68	33.5	GN 911-M8-35	310
GN 134-B30-V30-60-2-*	B 30	-	-	V 30	60	M 8	109	79	50	GN 911-M8-55	680
GN 134-B35-V35-60-2-*	B 35	-	-	V 35	60	M 8	109	79	50	GN 911-M8-55	640
GN 134-B40-V40-60-2-*	B 40	-	-	V 40	60	M 8	109	79	50	GN 911-M8-55	580
GN 134-B40-V40-76-2-*	B 40	-	-	V 40	76	M 10	125	98	55	GN 911-M8-55	950
GN 134-B45-V45-76-2-*	B 45	-	-	V 45	76	M 10	125	98	55	GN 911-M10-63	835
GN 134-B50-V50-76-2-*	B 50	-	-	V 50	76	M 10	125	98	55	GN 911-M10-63	773
GN 134-V20-V20-50-2-*	-	V 20	-	V 20	50	M 8	79.5	68	33.5	GN 911-M8-35	350
GN 134-V25-V25-50-2-*	-	V 25	-	V 25	50	M 8	79.5	68	33.5	GN 911-M8-35	325
GN 134-V30-V30-50-2-*	-	V 30	-	V 30	50	M 8	79.5	68	33.5	GN 911-M8-35	300
GN 134-V30-V30-60-2-*	-	V 30	-	V 30	60	M 8	109	79	50	GN 911-M8-55	660
GN 134-V35-V35-60-2-*	-	V 35	-	V 35	60	M 8	109	79	50	GN 911-M8-55	620
GN 134-V40-V40-60-2-*	-	V 40	-	V 40	60	M 8	109	79	50	GN 911-M8-55	560
GN 134-V40-V40-76-2-*	-	V 40	-	V 40	76	M 10	125	98	55	GN 911-M10-63	945
GN 134-V45-V45-76-2-*	-	V 45	-	V 45	76	M 10	125	98	55	GN 911-M10-63	825
GN 134-V50-V50-76-2-*	-	V 50	-	V 50	76	M 10	125	98	55	GN 911-M10-63	825
GN 134-V20-B20-50-2-*	-	V 20	B 20	-	50	M 8	79.5	68	33.5	GN 911-M8-35	350
GN 134-V25-B25-50-2-*	-	V 25	B 25	-	50	M 8	79.5	68	33.5	GN 911-M8-35	330
GN 134-V30-B30-50-2-*	-	V 30	B 30	-	50	M 8	79.5	68	33.5	GN 911-M8-35	314
GN 134-V30-B30-60-2-*	-	V 30	B 30	-	60	M 8	109	79	50	GN 911-M8-55	680
GN 134-V35-B35-60-2-*	-	V 35	B 35	-	60	M 8	109	79	50	GN 911-M8-55	640
GN 134-V40-B40-60-2-*	-	V 40	B 40	-	60	M 8	109	79	50	GN 911-M8-55	580
GN 134-V40-B40-76-2-*	-	V 40	B 40	-	76	M 10	125	98	55	GN 911-M10-63	890
GN 134-V45-B45-76-2-*	-	V 45	B 45	-	76	M 10	125	98	55	GN 911-M10-63	835
GN 134-V50-B50-76-2-*	-	V 50	B 50	-	76	M 10	125	98	55	GN 911-M10-63	830

Weight BL

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Flanged two-way connector clamps

Aluminium / multi part assembly



SPECIFICATION

Identification No.

No. **2**: with Stainless Steel-Clamping screw DIN 912

Aluminium

plastic coated
black, RAL 9005, textured finish **SW**

blank
matt shot-blasted **BL**

Clamping bores not machined

Socket cap screw DIN 912
Stainless Steel AISI 304

Hexagon nuts DIN 985
Stainless Steel AISI 304

INFORMATION

The clamping bores of GN 141 flanged two-way connector clamps are not machined and specially designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively. The square designs are also suitable for use in **profile systems**. Bores and square bores of the same nominal size can be assembled in any combination. For instance, nominal size 20 has the following combination options: B20-B20, B20-V20, V20-B20 and V20-V20. The standard clamping screws are socket cap screws DIN 912. They can be replaced by adjustable clamping kits GN 911 (see page 1874) (article code see table of dimensions).

ACCESSORY

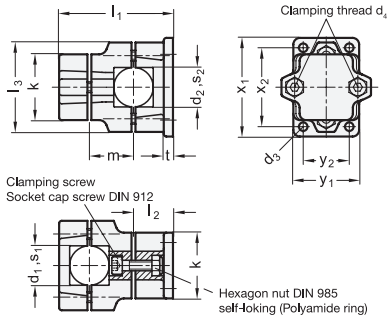
- Clamping kits GN 911 (see page 1874)

TECHNICAL INFORMATION

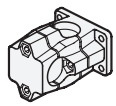
- Stainless Steel characteristics (see page A26)

* Complete with colour index of the Flanged two-way connector clamps (SW or BL)

SW	BL
RAL9005	blank







GN 141

Description	d1	s1	d2	s2	d3	d4	k	l1	l2	l3	m	t	x1	x2	y1	y2	Clamping kits for d4	⚖
GN 141-B20-V20-2-*	B 20	-	-	V 20	6.5	M 8	50	86	30	68	36	7	75	60	50	35	GN 911-M8-35	395
GN 141-B25-V25-2-*	B 25	-	-	V 25	6.5	M 8	50	86	30	68	36	7	75	60	50	35	GN 911-M8-35	375
GN 141-B30-V30-2-*	B 30	-	-	V 30	6.5	M 8	50	86	30	68	36	7	75	60	50	35	GN 911-M8-35	355
GN 141-B40-V40-2-*	B 40	-	-	V 40	11	M 10	76	136	46	98	55	14	115	90	76	50	GN 911-M10-63	1000
GN 141-B45-V45-2-*	B 45	-	-	V 45	11	M 10	76	136	46	98	55	14	115	90	76	50	GN 911-M10-63	945
GN 141-B50-V50-2-*	B 50	-	-	V 50	11	M 10	76	136	46	98	55	14	115	90	76	50	GN 911-M10-63	920
GN 141-V20-V20-2-*	-	V 20	-	V 20	6.5	M 8	50	86	30	68	36	7	75	60	50	35	GN 911-M8-35	390
GN 141-V25-V25-2-*	-	V 25	-	V 25	6.5	M 8	50	86	30	68	36	7	75	60	50	35	GN 911-M8-35	365
GN 141-V30-V30-2-*	-	V 30	-	V 30	6.5	M 8	50	86	30	68	36	7	75	60	50	35	GN 911-M8-35	340
GN 141-V40-V40-2-*	-	V 40	-	V 40	11	M 10	76	136	46	98	55	14	115	90	76	50	GN 911-M10-63	1090
GN 141-V45-V45-2-*	-	V 45	-	V 45	11	M 10	76	136	46	98	55	14	115	90	76	50	GN 911-M10-63	1040
GN 141-V50-V50-2-*	-	V 50	-	V 50	11	M 10	76	136	46	98	55	14	115	90	76	50	GN 911-M10-63	975
GN 141-V20-B20-2-*	-	V 20	B 20	-	6.5	M 8	50	86	30	68	36	7	75	60	50	35	GN 911-M8-35	395
GN 141-V25-B25-2-*	-	V 25	B 25	-	6.5	M 8	50	86	30	68	36	7	75	60	50	35	GN 911-M8-35	375
GN 141-V30-B30-2-*	-	V 30	B 30	-	6.5	M 8	50	86	30	68	36	7	75	60	50	35	GN 911-M8-35	355
GN 141-V40-B40-2-*	-	V 40	B 40	-	11	M 10	76	136	46	98	55	14	115	90	76	50	GN 911-M10-63	1030
GN 141-V45-B45-2-*	-	V 45	B 45	-	11	M 10	76	136	46	98	55	14	115	90	76	50	GN 911-M10-63	980
GN 141-V50-B50-2-*	-	V 50	B 50	-	11	M 10	76	136	46	98	55	14	115	90	76	50	GN 911-M10-63	950

Weight BL

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Flanged connector clamps

Aluminium / Stainless Steel, with 2 mounting holes



SPECIFICATION

Identification No.

No. **2**: with Stainless Steel-Clamping screw DIN 912

Version in Aluminium

plastic coated
black, RAL 9005, textured finish **SW**

blank
matt shot-blasted **BL**

Version in Stainless Steel NI

AISI CF-8
matt shot-blasted

Clamping bores mechanically machined

Socket cap screw DIN 912
Stainless Steel AISI 304

Hexagon nuts DIN 985
Stainless Steel AISI 304

INFORMATION

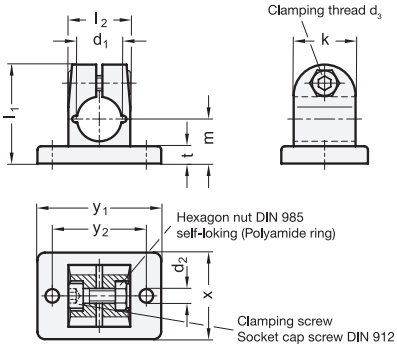
The clamping bores of GN 145 flanged connector clamps are mechanically machined and designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively.
GN 145 flanged connector clamps are also suitable for mounting on **profile systems**.
The standard version of the clamping screw is a socket cap screw with hexagonal socket DIN 912. It can be replaced by a clamping kits GN 911 (see page 1874) / GN 911.3 (see page 1875) (article code see table of dimensions).

ACCESSORY

- Clamping kits GN 911 (see page 1874) / GN 911.3 (see page 1875) (article code see table of dimensions).

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



*Complete with colour index of the Flanged connector clamps (SW or BL)

SW RAL9005 **BL** blank

GN 145

Description	d1	d2	d3	k	l1	l2	m	t	x	y1	y2	Clamping kits for d3
GN 145-B10-2-*	B 10	5.5	M 6	25	40	25	18	7	35	50	38	GN 911-M6-22
GN 145-B12-2-*	B 12	5.5	M 6	25	40	25	18	7	35	50	38	GN 911-M6-22
GN 145-B14-2-*	B 14	5.5	M 6	25	40	25	18	7	35	50	38	GN 911-M6-22
GN 145-B15-2-*	B 15	5.5	M 6	25	40	25	18	7	35	50	38	GN 911-M6-22
GN 145-B16-2-*	B 16	5.5	M 6	25	40	25	18	7	35	50	38	GN 911-M6-22
GN 145-B18-2-*	B 18	5.5	M 6	25	40	25	18	7	35	50	38	GN 911-M6-22

Weight BL

GN 145-NI

STAINLESS STEEL

Description	d1	d2	d3	k	l1	l2	m	t	x	y1	y2	Clamping kits for d3	⚖
GN 145-B12-2-NI	B 12	5.5	M 6	25	40	25	18	7	35	50	38	GN 911.3-M6-22	180
GN 145-B14-2-NI	B 14	5.5	M 6	25	40	25	18	7	35	50	38	GN 911.3-M6-22	170
GN 145-B15-2-NI	B 15	5.5	M 6	25	40	25	18	7	35	50	38	GN 911.3-M6-22	170
GN 145-B16-2-NI	B 16	5.5	M 6	25	40	25	18	7	35	50	38	GN 911.3-M6-22	164
GN 145-B18-2-NI	B 18	5.5	M 6	25	40	25	18	7	35	50	38	GN 911.3-M6-22	159
GN 145-B20-2-NI	B 20	5.5	M 6	25	40	25	18	7	35	50	38	GN 911.3-M6-22	153

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Flanged connector clamps

Aluminium / with 4 retaining bores

SPECIFICATION

Identification No.

No. **2**: with Stainless Steel-Clamping screw DIN 912

Aluminium

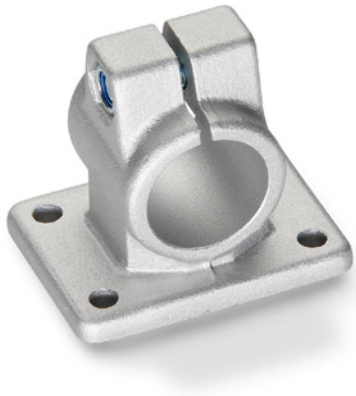
plastic coated
black, RAL 9005, textured finish **SW**

blank
matt shot-blasted **BL**

Clamping bores mechanically machined

Socket cap screw DIN 912
Stainless Steel AISI 304

Hexagon nuts DIN 985
Stainless Steel AISI 304



INFORMATION

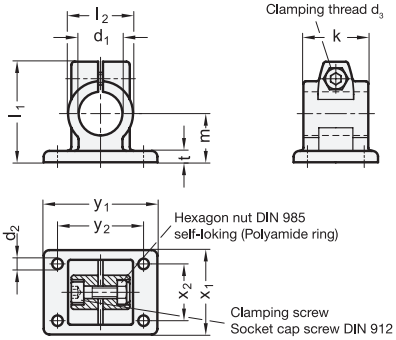
The clamping bores of GN 146 flanged connector clamps are mechanically machined and designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively.
The standard version of the clamping screw is a socket cap screw with hexagonal socket DIN 912. It can be replaced by a clamping kit GN 911 (see page 1874) (article code see table of dimensions).

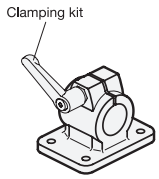
ACCESSORY

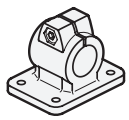
- Clamping kit GN 911 (see page 1874)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)







*Complete with colour index of the Flanged connector clamps (SW or BL)

SW	BL
RAL9005	blank

GN 146

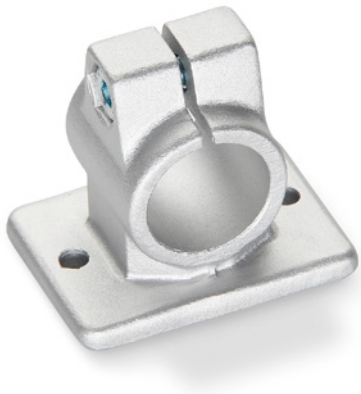
Description	d1	k	d2	d3	l1	l2	m	t	x1	x2	y1	y2	Clamping kits for d3	⚖
GN 146-B20-40-2-*	B 20	40	6.5	M 8	62	40	30	7	52	35	70	53	GN 911-M8-32	194
GN 146-B25-40-2-*	B 25	40	6.5	M 8	62	40	30	7	52	35	70	53	GN 911-M8-32	179
GN 146-B30-40-2-*	B 30	40	6.5	M 8	62	40	30	7	52	35	70	53	GN 911-M8-32	160
GN 146-B30-56-2-*	B 30	56	8.5	M 10	83	56	42	10	78	52	108	82	GN 911-M10-40	510
GN 146-B32-56-2-*	B 32	56	8.5	M 10	83	56	42	10	78	52	108	82	GN 911-M10-40	476
GN 146-B35-56-2-*	B 35	56	8.5	M 10	83	56	42	10	78	52	108	82	GN 911-M10-40	480
GN 146-B40-56-2-*	B 40	56	8.5	M 10	83	56	42	10	78	52	108	82	GN 911-M10-40	435
GN 146-B40-65-2-*	B 40	65	11	M 10	95	65	50	14	92	62	128	98	GN 911-M10-55	790
GN 146-B42-65-2-*	B 42	65	11	M 10	95	65	50	14	92	62	128	98	GN 911-M10-55	760
GN 146-B45-65-2-*	B 45	65	11	M 10	95	65	50	14	92	62	128	98	GN 911-M10-55	736
GN 146-B48-65-2-*	B 48	65	11	M 10	95	65	50	14	92	62	128	98	GN 911-M10-55	694
GN 146-B50-65-2-*	B 50	65	11	M 10	95	65	50	14	92	62	128	98	GN 911-M10-55	680
GN 146-B50-80-2-*	B 50	80	11	M 10	112	80	60	14	110	74	154	118	GN 911-M10-55	1300
GN 146-B55-80-2-*	B 55	80	11	M 10	112	80	60	14	110	74	154	118	GN 911-M10-55	1220
GN 146-B60-80-2-*	B 60	80	11	M 10	112	80	60	14	110	74	154	118	GN 911-M10-55	1120

Weight BL

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Flanged connector clamps

Aluminium / with 2 retaining bores



SPECIFICATION

Identification No.

No. **2**: with Stainless Steel-Clamping screw DIN 912

Aluminium

plastic coated
black, RAL 9005, textured finish **SW**

blank
matt shot-blasted **BL**

Clamping bores mechanically machined

Socket cap screw DIN 912
Stainless Steel AISI 304

Hexagon nuts DIN 985
Stainless Steel AISI 304

INFORMATION

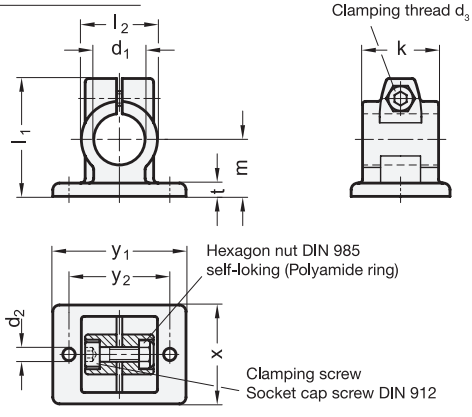
The clamping bores of GN 146.3 flanged connector clamps are mechanically machined and designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively.
GN 146.3 flanged connector clamps are also suitable for mounting on **profile systems**.
The standard version of the clamping screw is a socket cap screw with hexagonal socket DIN 912. It can be replaced by a clamping kit GN 911 (see page 1874) (article code see table of dimensions).

ACCESSORY

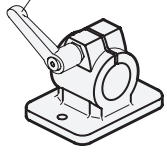
- Clamping kits GN 911 (see page 1874)

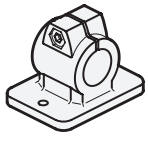
TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



Clamping kit





*Complete with colour index of the Flanged connector clamps (SW or BL)

SW RAL9005 BL blank

GN 146.3

Description	d1	k	d2	d3	l1	l2	m	t	x	y1	y2	Clamping kits for d3	⚖
GN 146.3-B20-40-2-*	B 20	40	6.5	M 8	62	40	30	7	52	70	53	GN 911-M8-32	180
GN 146.3-B25-40-2-*	B 25	40	6.5	M 8	62	40	30	7	52	70	53	GN 911-M8-32	180
GN 146.3-B30-40-2-*	B 30	40	6.5	M 8	62	40	30	7	52	70	53	GN 911-M8-32	160
GN 146.3-B30-56-2-*	B 30	56	8.5	M 10	83	56	42	10	78	108	82	GN 911-M10-40	450
GN 146.3-B32-56-2-*	B 32	56	8.5	M 10	83	56	42	10	78	108	82	GN 911-M10-40	480
GN 146.3-B35-56-2-*	B 35	56	8.5	M 10	83	56	42	10	78	108	82	GN 911-M10-40	480
GN 146.3-B40-56-2-*	B 40	56	8.5	M 10	83	56	42	10	78	108	82	GN 911-M10-40	420

Weight BL

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GN 146.5

Stainless Steel-Flanged connector clamps

with 4 holes



SPECIFICATION

Types

- Type **A**: without sealing
- Type **B**: with sealing

Stainless Steel

- AISI CF-8
- matt shot-blasted

Clamping bores mechanically machined

Carriage bolt DIN 603
Stainless Steel A2

Cap nuts DIN 917
Stainless Steel A2

Sealings

Washers
Plastic (Polyacetal POM)

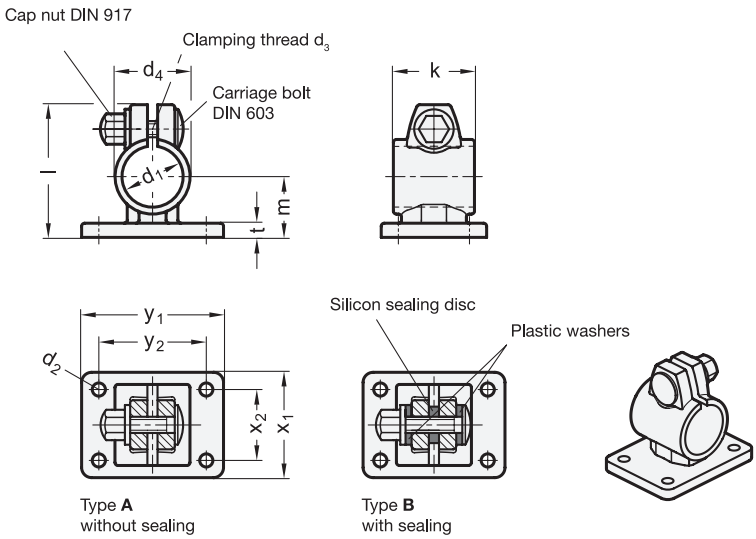
Edge ring
Silicon, 40 ... 60 Shore A

INFORMATION

The clamping bores of GN 146.5 Stainless Steel-Flanged connector clamps are mechanically machined and designed for construction tubings GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively.
The shape of the clamping screws / nuts prevents the formation of wetness due to dammed-up water. The designs with sealing (Type B) also seals bore holes and threads.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



GN 146.5 **STAINLESS STEEL**

Description	d_1	k	d_2	d_3	d_4	l	m	t	x_1	x_2	y_1	y_2	⚖
GN 146.5-B30-40-A	B 30	40	6.5	M 8	37	65	30	7	52	35	71	53	270
GN 146.5-B30-40-B	B 30	40	6.5	M 8	37	65	30	7	52	35	71	53	270
GN 146.5-B50-65-A	B 50	65	10.7	M 10	60	98.5	50	9	92	62	128	98	1081
GN 146.5-B50-65-B	B 50	65	10.7	M 10	60	98.5	50	9	92	62	128	98	1081

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GN 146.6

Stainless Steel-Flanged connector clamps

with 2 holes



SPECIFICATION

Types

- Type **A**: without sealing
- Type **B**: with sealing

Stainless Steel

- AISI CF-8
- matt shot-blasted

Clamping bores
mechanically machined

Carriage bolt DIN 603
Stainless Steel A2

Cap nuts DIN 917
Stainless Steel A2

Sealings

Washers
Plastic (Polyacetal POM)

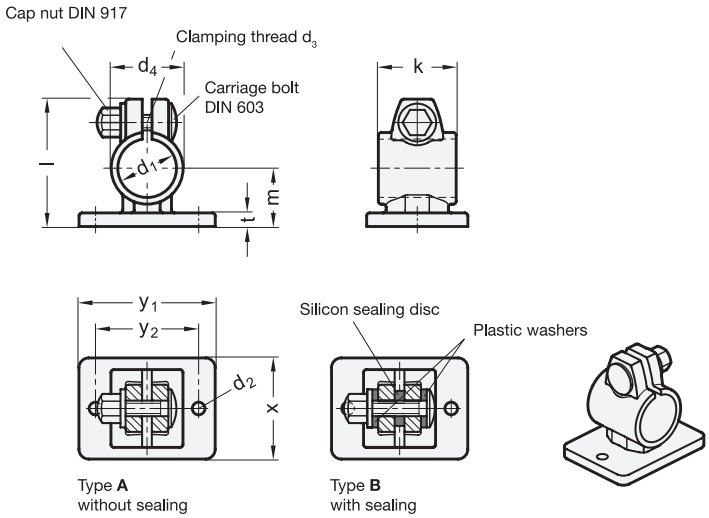
Edge ring
Silicon, 40 ... 60 Shore A

INFORMATION

The clamping bores of GN 146.6 Stainless Steel-Flanged connector clamps are mechanically machined and designed for construction tubings GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively.
The shape of the clamping screws / nuts prevents the formation of wetness due to dammed-up water. The designs with sealing (Type B) also seals bore holes and threads.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



GN 146.6 — **STAINLESS STEEL**

Description	d1	k	d2	d3	d4	l	m	t	x1	x2	y1	y2	⚖
GN 146.6-B30-40-A	B 30	40	6.5	M 8	37	65	30	7	52	32	71	53	300
GN 146.6-B30-40-B	B 30	40	6.5	M 8	37	65	30	7	52	32	71	53	270

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Flanged connector clamps

Aluminum / split assembly, with 4 mounting holes

SPECIFICATION

Identification No.

No. **2**: with 2 Stainless Steel-Clamping screws DIN 912

Aluminium

plastic coated
black, RAL 9005, textured finish **SW**

blank
matt shot-blasted **BL**

Clamping bores not machined

Socket cap screws DIN 912
Stainless Steel AISI 304

Hexagon nuts DIN 985
Stainless Steel AISI 304



INFORMATION

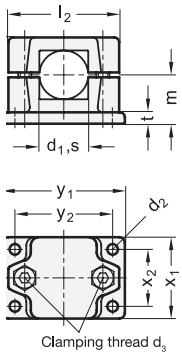
The clamping bores of GN 147 flanged connector clamps are not machined and specially designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively. The square designs are also suitable for use in **profile systems**. The standard version of the clamping screw is a socket cap screw with hexagonal socket DIN 912. It can be replaced by a clamping kit GN 911 (see page 1874) (article code see table of dimensions).

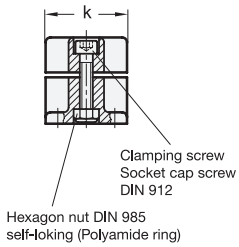
ACCESSORY

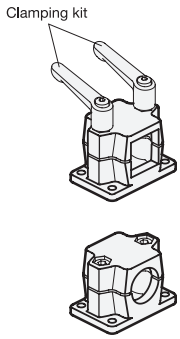
- Clamping kits GN 911 (see page 1874)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)







*Complete with colour index of the Flanged connector clamps (SW or BL)

SW RAL9005 BL blank

GN 147

Description	d1	s	d2	d3	k	l1	l2	m	t	x1	x2	y1	y2	Clamping kits for d3	⚖
GN 147-B20-2-*	B 20	-	6.5	M 8	50	53	68	30	7	50	35	75	60	GN 911-M8-45	245
GN 147-B25-2-*	B 25	-	6.5	M 8	50	53	68	30	7	50	35	75	60	GN 911-M8-45	240
GN 147-B30-2-*	B 30	-	6.5	M 8	50	53	68	30	7	50	35	75	60	GN 911-M8-45	190
GN 147-B40-2-*	B 40	-	11	M 10	76	81.5	98	46.5	14	76	50	115	90	GN 911-M10-70	665
GN 147-B42-2-*	B 42	-	11	M 10	76	81.5	98	46.5	14	76	50	115	90	GN 911-M10-70	650
GN 147-B45-2-*	B 45	-	11	M 10	76	81.5	98	46.5	14	76	50	115	90	GN 911-M10-70	640
GN 147-B48-2-*	B 48	-	11	M 10	76	81.5	98	46.5	14	76	50	115	90	GN 911-M10-70	631
GN 147-B50-2-*	B 50	-	11	M 10	76	81.5	98	46.5	14	76	50	115	90	GN 911-M10-70	620
GN 147-V20-2-*	-	V 20	6.5	M 8	50	53	68	30	7	50	35	75	60	GN 911-M8-45	240
GN 147-V25-2-*	-	V 25	6.5	M 8	50	53	68	30	7	50	35	75	60	GN 911-M8-45	230
GN 147-V30-2-*	-	V 30	6.5	M 8	50	53	68	30	7	50	35	75	60	GN 911-M8-45	220
GN 147-V40-2-*	-	V 40	11	M 10	76	81.5	98	46.5	14	76	50	115	90	GN 911-M10-70	700
GN 147-V45-2-*	-	V 45	11	M 10	76	81.5	98	46.5	14	76	50	115	90	GN 911-M10-70	625
GN 147-V50-2-*	-	V 50	11	M 10	76	81.5	98	46.5	14	76	50	115	90	GN 911-M10-70	595

Weight BL

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Base plate connector clamps

Aluminium / Stainless Steel, with 4 mounting holes



SPECIFICATION

Identification No.

No. **2**: with Stainless Steel-Clamping screw DIN 912

Version in Aluminium

plastic coated
black, RAL 9005, textured finish **SW**

blank
matt shot-blasted **BL**

Version in Stainless Steel NI

AISI CF-8
matt shot-blasted

Clamping bores mechanically machined

Socket cap screws DIN 912
Stainless Steel AISI 304

Hexagon nuts DIN 985
Stainless Steel AISI 304

INFORMATION

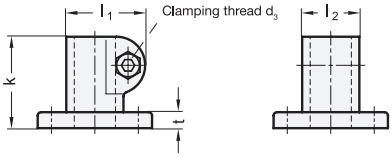
Clamping bores of the base plate clamps GN 162 are mechanically machined and designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively. The standard version of the clamping screw is a socket cap screw with hexagonal socket DIN 912. It can be replaced by a clamping kits GN 911 (see page 1874) / GN 911.3 (see page 1875) (article code see table of dimensions).

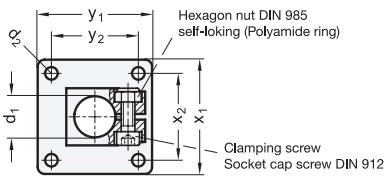
ACCESSORY

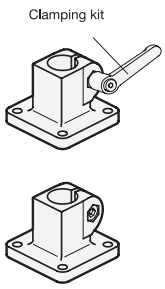
- Clamping kits GN 911 (see page 1874) / GN 911.3 (see page 1875)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)







* Complete with colour index of the Base plate connector clamps (SW or BL)

SW	BL
RAL9005	blank

GN 162

Description	d1	d2	d3	k	l1	l2	t	x1	x2	y1	y2	Clamping kits for d3
GN 162-B10-2-*	B 10	5.5	M 6	40	34.5	25	7	50	38	50	38	GN 911-M6-22
GN 162-B12-2-*	B 12	5.5	M 6	40	34.5	25	7	50	38	50	38	GN 911-M6-22
GN 162-B14-2-*	B 14	5.5	M 6	40	34.5	25	7	50	38	50	38	GN 911-M6-22
GN 162-B15-2-*	B 15	5.5	M 6	40	34.5	25	7	50	38	50	38	GN 911-M6-22
GN 162-B16-2-*	B 16	5.5	M 6	40	34.5	25	7	50	38	50	38	GN 911-M6-22
GN 162-B18-2-*	B 18	5.5	M 6	40	34.5	25	7	50	38	50	38	GN 911-M6-22

Weight BL

GN 162-NI

STAINLESS STEEL

Description	d1	d2	d3	k	l1	l2	t	x1	x2	y1	y2	Clamping kits for d3	⚖
GN 162-B12-2-NI	B 12	5.5	M 6	40	34.5	25	7	50	38	50	38	GN 911.3-M6-22	238
GN 162-B14-2-NI	B 14	5.5	M 6	40	34.5	25	7	50	38	50	38	GN 911.3-M6-22	227
GN 162-B15-2-NI	B 15	5.5	M 6	40	34.5	25	7	50	38	50	38	GN 911.3-M6-22	213
GN 162-B16-2-NI	B 16	5.5	M 6	40	34.5	25	7	50	38	50	38	GN 911.3-M6-22	207
GN 162-B18-2-NI	B 18	5.5	M 6	40	34.5	25	7	50	38	50	38	GN 911.3-M6-22	200
GN 162-B20-2-NI	B 20	5.5	M 6	40	34.5	25	7	50	38	50	38	GN 911.3-M6-22	180

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Base plate connector clamps

Aluminium / Stainless Steel, with 2 mounting holes



SPECIFICATION

Identification No.

No. **2**: with Stainless Steel-Clamping screw DIN 912

Version in Aluminium

plastic coated
black, RAL 9005, textured finish **SW**

blank
matt shot-blasted **BL**

Version in Stainless Steel NI

AISI CF-8
matt shot-blasted

Clamping bores mechanically machined

Socket cap screws DIN 912
Stainless Steel AISI 304

Hexagon nuts DIN 985
Stainless Steel AISI 304

INFORMATION

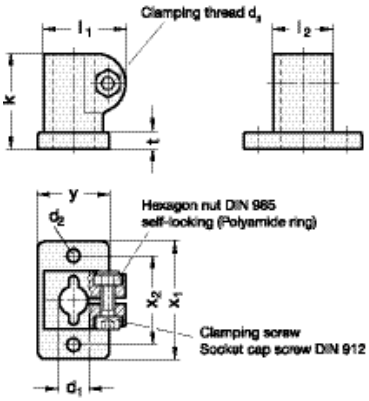
The clamping bore of the base plate connector clamps GN 162.3 is mechanically machined and designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively.
GN 162.3 base plate connector clamps are also suitable for mounting on **profile systems**.
The standard version of the clamping screw is a socket cap screw with hexagonal socket DIN 912. It can be replaced by a clamping kits GN 911 (see page 1874) / GN 911.3 (see page 1875) (article code see table of dimensions).

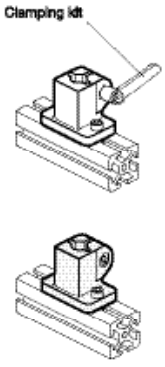
ACCESSORY

- Clamping kits GN 911 (see page 1874) / GN 911.3 (see page 1875)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)





* Complete with colour index of the Base plate connector clamps (SW or BL)

SW	BL
RAL9005	blank

GN 162.3

Description	d1	d2	d3	k	l1	l2	t	x1	x2	y	Clamping kits for d3	⚖
GN 162.3-B10-2-*	B 10	5.5	M 6	40	34.5	25	7	50	38	30	GN 911-M6-22	120
GN 162.3-B12-2-*	B 12	5.5	M 6	40	34.5	25	7	50	38	30	GN 911-M6-22	110
GN 162.3-B14-2-*	B 14	5.5	M 6	40	34.5	25	7	50	38	30	GN 911-M6-22	90
GN 162.3-B15-2-*	B 15	5.5	M 6	40	34.5	25	7	50	38	30	GN 911-M6-22	80
GN 162.3-B16-2-*	B 16	5.5	M 6	40	34.5	25	7	50	38	30	GN 911-M6-22	73
GN 162.3-B18-2-*	B 18	5.5	M 6	40	34.5	25	7	50	38	30	GN 911-M6-22	60

Weight BL

GN 162.3-NI

STAINLESS STEEL

Description	d1	d2	d3	k	l1	l2	t	x1	x2	y	Clamping kits for d3	⚖
GN 162.3-B12-2-NI	B 12	5.5	M 6	40	34.5	25	7	50	38	30	GN 911.3-M6-22	194
GN 162.3-B14-2-NI	B 14	5.5	M 6	40	34.5	25	7	50	38	30	GN 911.3-M6-22	185
GN 162.3-B15-2-NI	B 15	5.5	M 6	40	34.5	25	7	50	38	30	GN 911.3-M6-22	186
GN 162.3-B16-2-NI	B 16	5.5	M 6	40	34.5	25	7	50	38	30	GN 911.3-M6-22	174
GN 162.3-B18-2-NI	B 18	5.5	M 6	40	34.5	25	7	50	38	30	GN 911.3-M6-22	162

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GN 163

Base plate connector clamps

Aluminium

SPECIFICATION

Identification No.

No. **2**: with Stainless Steel-Clamping screw DIN 912

Aluminium

plastic coated
black, RAL 9005, textured finish **SW**

blank
matt shot-blasted **BL**

Clamping bores mechanically machined

Socket cap screws DIN 912
Stainless Steel AISI 304

Hexagon nuts DIN 985
Stainless Steel AISI 304



INFORMATION

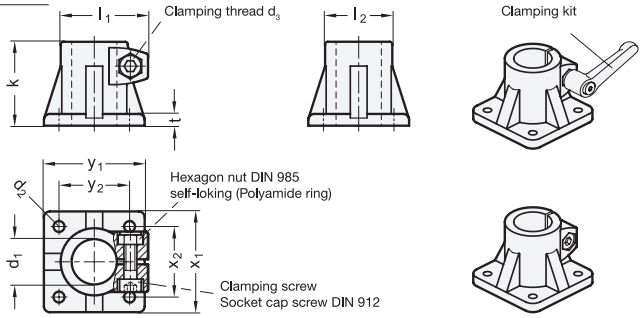
The clamping bores of GN 163 base plate connector clamps are mechanically machined and specially designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively.
The standard version of the clamping screw is a socket cap screw with hexagonal socket DIN 912. It can be replaced by a clamping kit GN 911 (see page 1874) (article code see table of dimensions).

ACCESSORY

- Clamping kit GN 911 (see page 1874)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



* Complete with colour index of the Base plate connector clamps (SW or BL)

SW	BL
RAL9005	blank

GN 163

Description	d1	k	d2	d3	l1	l2	t	x1	x2	y1	y2	Clamping kits for d3	⚖
GN 163-B20-50-2-*	B 20	50	6.5	M 8	52	40	7	60	42	60	42	GN 911-M8-32	199
GN 163-B25-50-2-*	B 25	50	6.5	M 8	52	40	7	60	42	60	42	GN 911-M8-32	176
GN 163-B30-50-2-*	B 30	50	6.5	M 8	52	40	7	60	42	60	42	GN 911-M8-32	149
GN 163-B30-70-2-*	B 30	70	8.5	M 10	68	56	10	90	64	90	64	GN 911-M10-40	510
GN 163-B32-70-2-*	B 32	70	8.5	M 10	68	56	10	90	64	90	64	GN 911-M10-40	505
GN 163-B35-70-2-*	B 35	70	8.5	M 10	68	56	10	90	64	90	64	GN 911-M10-40	485
GN 163-B40-70-2-*	B 40	70	8.5	M 10	68	56	10	90	64	90	64	GN 911-M10-40	437
GN 163-B40-85-2-*	B 40	85	11	M 10	77.5	65	14	105	74	105	74	GN 911-M10-55	850
GN 163-B42-85-2-*	B 42	85	11	M 10	77.5	65	14	105	74	105	74	GN 911-M10-55	829
GN 163-B45-85-2-*	B 45	85	11	M 10	77.5	65	14	105	74	105	74	GN 911-M10-55	775
GN 163-B48-85-2-*	B 48	85	11	M 10	77.5	65	14	105	74	105	74	GN 911-M10-55	740
GN 163-B50-85-2-*	B 50	85	11	M 10	77.5	65	14	105	74	105	74	GN 911-M10-55	710
GN 163-B55-100-2-*	B 55	100	11	M 10	92	80	14	125	89	125	89	GN 911-M10-55	1020
GN 163-B60-100-2-*	B 60	100	11	M 10	92	80	14	125	89	125	89	GN 911-M10-55	910

Weight BL

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Stainless Steel-Base plate connector clamps

SPECIFICATION

Types

- Type **A**: without sealing
- Type **B**: with sealing

Stainless Steel

- AISI CF-8
- matt shot-blasted

Clamping bores
mechanically machined

Carriage bolt DIN 603
Stainless Steel A2

Cap nuts DIN 917
Stainless Steel A2

Sealings

Washers
Plastic (Polyacetal POM)

Edge ring
Silicon, 40 ... 60 Shore A

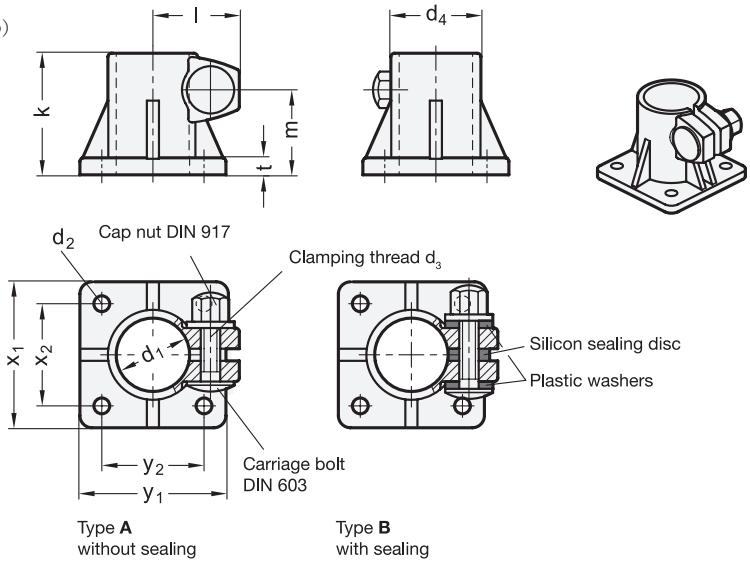


INFORMATION

The clamping bores of the Stainless Steel-Base plate connector clamps GN 163.5 are mechanically machined and designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively.
The shape of the clamping screws / nuts prevents the formation of wetness due to dammed-up water. The designs with sealing (Type B) also seals bore holes and threads.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



GN 163.5 **STAINLESS STEEL**

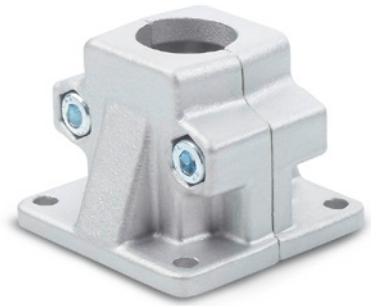
Description	d1	k	d2	d3	d4	l	m	t	x1	x2	y1	y2	⚖
GN 163.5-B30-50-A	B 30	50	6.5	M 8	37	36	35	6.5	60	42	60	42	265
GN 163.5-B30-50-B	B 30	50	6.5	M 8	37	36	35	6.5	60	42	60	42	265
GN 163.5-B50-85-A	B 50	85	10.7	M 10	60	48.5	60	9	105	74	105	74	305
GN 163.5-B50-85-B	B 50	85	10.7	M 10	60	48.5	60	9	105	74	105	74	305

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GN 165

Base plate connector clamps

Aluminum / split assembly



SPECIFICATION

Identification No.

No. **2**: with 2 Stainless Steel-Clamping screws DIN 912

Aluminium

plastic coated
black, RAL 9005, textured finish **SW**

blank
matt shot-blasted **BL**

Clamping bores not machined

Socket cap screws DIN 912
Stainless Steel AISI 304

Hexagon nuts DIN 985
Stainless Steel AISI 304

INFORMATION

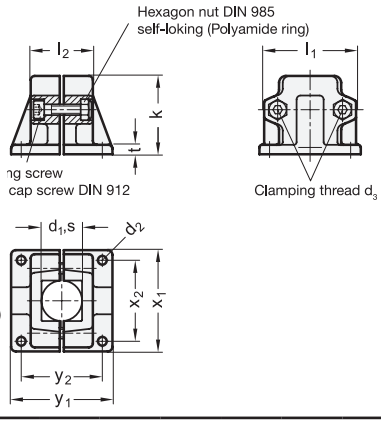
The clamping bores of the base plate connector clamps GN 165 are not machined and specially designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively. The square versions are also suitable for **profile systems**. The standard clamping screws are socket cap screws DIN 912. They can be replaced by adjustable clamping kit GN 911 (see page 1874) (article code see table of dimensions).

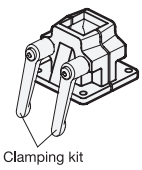
ACCESSORY

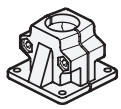
- Clamping kit GN 911 (see page 1874)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)




Clamping kit



* Complete with colour index of the Base plate connector clamps (SW or BL)

SW	BL
RAL9005	blank

GN 165

Description	d1	s	d2	d3	k	l1	l2	t	x1	x2	y1	y2	Clamping kits for d3	⚖
GN 165-B20-2-*	B 20	-	7	M 8	58	69	46	7	75	60	75	60	GN 911-M8-40	300
GN 165-B25-2-*	B 25	-	7	M 8	58	69	46	7	75	60	75	60	GN 911-M8-40	295
GN 165-B30-2-*	B 30	-	7	M 8	58	69	46	7	75	60	75	60	GN 911-M8-40	290
GN 165-B40-2-*	B 40	-	11	M 10	91	98	70	14	115	90	119	90	GN 911-M10-63	945
GN 165-B42-2-*	B 42	-	11	M 10	91	98	70	14	115	90	119	90	GN 911-M10-63	905
GN 165-B45-2-*	B 45	-	11	M 10	91	98	70	14	115	90	119	90	GN 911-M10-63	878
GN 165-B48-2-*	B 48	-	11	M 10	91	98	70	14	115	90	119	90	GN 911-M10-63	840
GN 165-B50-2-*	B 50	-	11	M 10	91	98	70	14	115	90	119	90	GN 911-M10-63	810
GN 165-V20-2-*	-	V 20	7	M 8	58	69	46	7	75	60	75	60	GN 911-M8-40	300
GN 165-V25-2-*	-	V 25	7	M 8	58	69	46	7	75	60	75	60	GN 911-M8-40	285
GN 165-V30-2-*	-	V 30	7	M 8	58	69	46	7	75	60	75	60	GN 911-M8-40	270
GN 165-V40-2-*	-	V 40	11	M 10	91	98	70	14	115	90	119	90	GN 911-M10-63	920
GN 165-V45-2-*	-	V 45	11	M 10	91	98	70	14	115	90	119	90	GN 911-M10-63	885
GN 165-V50-2-*	-	V 50	11	M 10	91	98	70	14	115	90	119	90	GN 911-M10-63	880

Weight BL

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Off-set base plate connector clamps

Aluminium / split assembly



SPECIFICATION

Identification No.

No. **2**: with 2 Stainless Steel-Clamping screws DIN 912

Aluminium

plastic coated
black, RAL 9005, textured finish **SW**

blank
matt shot-blasted **BL**

Clamping bores not machined

Socket cap screws DIN 912
Stainless Steel AISI 304

Hexagon nuts DIN 985
Stainless Steel AISI 304

INFORMATION

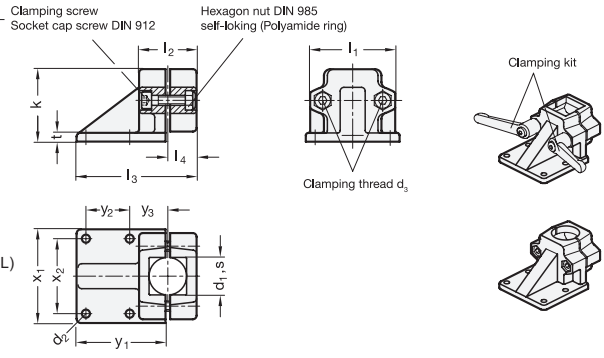
The clamping bores of GN 166 off-set base plate connector clamps are not machined and specially designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively.
The square designs are also suitable for use in **profile systems**.
The standard version of the clamping screws are socket cap screws with hexagonal socket DIN 912. They can be replaced by clamping kits GN 911 (see page 1874) (article code see table of dimensions).

ACCESSORY

- Clamping kits GN 911 (see page 1874)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



*Complete with colour index of the Off-set base plate connector clamps (SW or BL)

SW	BL
RAL9005	blank

GN 166

Description	d1	s	d2	d3	k	l1	l2	l3	l4	t	x1	x2	y1	y2	y3	Clamping kits for d3	⚖
GN 166-B20-2-*	B 20	-	7	M 8	58	69	46	96	23	7	75	60	72	35	30	GN 911-M8-40	297
GN 166-B25-2-*	B 25	-	7	M 8	58	69	46	96	23	7	75	60	72	35	30	GN 911-M8-40	291
GN 166-B30-2-*	B 30	-	7	M 8	58	69	46	96	23	7	75	60	72	35	30	GN 911-M8-40	286
GN 166-B40-2-*	B 40	-	11	M 10	91	98	70	145	35	14	115	90	108	50	45	GN 911-M10-63	870
GN 166-B42-2-*	B 42	-	11	M 10	91	98	70	145	35	14	115	90	108	50	45	GN 911-M10-63	850
GN 166-B45-2-*	B 45	-	11	M 10	91	98	70	145	35	14	115	90	108	50	45	GN 911-M10-63	840
GN 166-B48-2-*	B 48	-	11	M 10	91	98	70	145	35	14	115	90	108	50	45	GN 911-M10-63	830
GN 166-B50-2-*	B 50	-	11	M 10	91	98	70	145	35	14	115	90	108	50	45	GN 911-M10-63	815
GN 166-V20-2-*	-	V 20	7	M 8	58	69	46	96	23	7	75	60	72	35	30	GN 911-M8-40	290
GN 166-V25-2-*	-	V 25	7	M 8	58	69	46	96	23	7	75	60	72	35	30	GN 911-M8-40	280
GN 166-V30-2-*	-	V 30	7	M 8	58	69	46	96	23	7	75	60	72	35	30	GN 911-M8-40	270
GN 166-V40-2-*	-	V 40	11	M 10	91	98	70	145	35	14	115	90	108	50	45	GN 911-M10-63	840
GN 166-V45-2-*	-	V 45	11	M 10	91	98	70	145	35	14	115	90	108	50	45	GN 911-M10-63	815
GN 166-V50-2-*	-	V 50	11	M 10	91	98	70	145	35	14	115	90	108	50	45	GN 911-M10-63	775

Weight BL

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GN 167

Wide base plate connector clamps

Aluminium / split assembly

SPECIFICATION

Identification No.

No. **2**: with 2 Stainless Steel-Clamping screws DIN 912

Aluminium

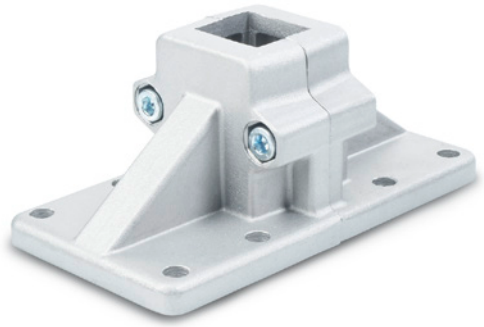
plastic coated
black, RAL 9005, textured finish **SW**

blank
matt shot-blasted **BL**

Clamping bores not machined

Socket cap screws DIN 912
Stainless Steel AISI 304

Hexagon nuts DIN 985
Stainless Steel AISI 304



INFORMATION

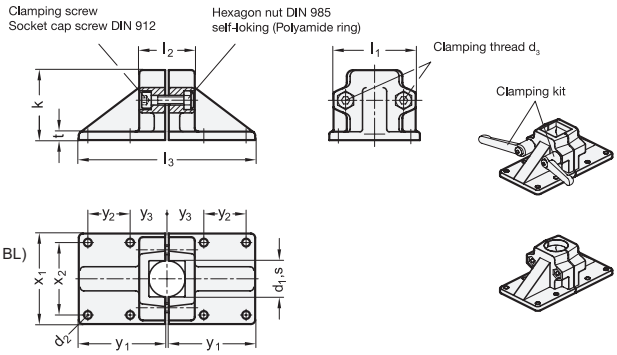
The clamping bores of GN 167 wide base plate connector clamps are not machined and specially designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively. The square designs are also suitable for use in **profile systems**. The standard version of the clamping screws are socket cap screws with hexagonal socket DIN 912. They can be replaced by clamping kits GN 911 (see page 1874) (article code see table of dimensions).

ACCESSORY

- Clamping kits GN 911 (see page 1874)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



*Complete with colour index of the Wide base plate connector clamps (SW or BL)

SW RAL9005 BL blank

GN 167

Description	d1	s	d2	d3	k	l1	l2	l3	t	x1	x2	y1	y2	y3	Clamping kits for d3	⚖
GN 167-B20-2-*	B 20	-	7	M 8	58	69	46	146	7	75	60	72	35	30	GN 911-M8-40	394
GN 167-B25-2-*	B 25	-	7	M 8	58	69	46	146	7	75	60	72	35	30	GN 911-M8-40	388
GN 167-B30-2-*	B 30	-	7	M 8	58	69	46	146	7	75	60	72	35	30	GN 911-M8-40	384
GN 167-B40-2-*	B 40	-	11	M 10	91	98	70	218	14	75	60	72	35	30	GN 911-M8-40	222
GN 167-B42-2-*	B 42	-	11	M 10	91	98	70	218	14	115	90	108	50	45	GN 911-M10-63	1194
GN 167-B45-2-*	B 45	-	11	M 10	91	98	70	218	14	115	90	108	50	45	GN 911-M10-63	1182
GN 167-B48-2-*	B 48	-	11	M 10	91	98	70	218	14	115	90	108	50	45	GN 911-M10-63	1172
GN 167-B50-2-*	B 50	-	11	M 10	91	98	70	218	14	115	90	108	50	45	GN 911-M10-63	1154
GN 167-V20-2-*	-	V 20	7	M 8	58	69	46	146	7	75	60	72	35	30	GN 911-M8-40	398
GN 167-V25-2-*	-	V 25	7	M 8	58	69	46	146	7	75	60	72	35	30	GN 911-M8-40	374
GN 167-V30-2-*	-	V 30	7	M 8	58	69	46	146	7	75	60	72	35	30	GN 911-M8-40	368
GN 167-V40-2-*	-	V 40	11	M 10	91	98	70	218	14	115	90	108	50	45	GN 911-M10-63	1176
GN 167-V45-2-*	-	V 45	11	M 10	91	98	70	218	14	115	90	108	50	45	GN 911-M10-63	1148
GN 167-V50-2-*	-	V 50	11	M 10	91	98	70	218	14	115	90	108	50	45	GN 911-M10-63	1094

Weight BL

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T-Angle connector clamps

Aluminium / Stainless Steel



SPECIFICATION

Identification No.

No. **2**: with two Stainless Steel-Clamping screws DIN 912

Version in Aluminium

plastic coated
black, RAL 9005, textured finish **SW**

blank
matt shot-blasted **BL**

Version in Stainless Steel NI

AISI CF-8
matt shot-blasted

Clamping bores mechanically machined

Socket cap screws DIN 912
Stainless Steel AISI 304

Hexagon nuts DIN 985
Stainless Steel AISI 304

INFORMATION

The clamping bores of the T-Angle connector clamps GN 191 are mechanically machined and designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively.
The standard version of the clamping screw is a socket cap screw with hexagonal socket DIN 912. It can be replaced by a clamping kits GN 911 (see page 1874) / GN 911.3 (see page 1875) (article code see table of dimensions).

ACCESSORY

- Clamping kits GN 911 (see page 1874) / GN 911.3 (see page 1875)

ON REQUEST

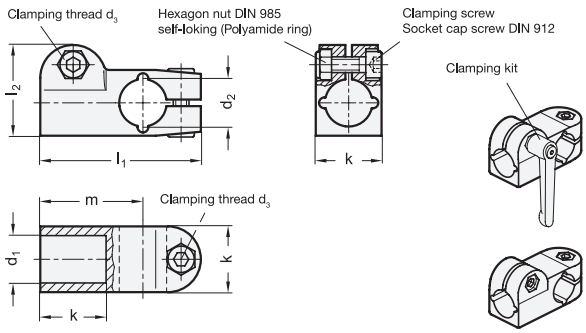
- d_1 / d_2 with different bores

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)

*Complete with colour index of the T-angle connector clamps (SW or BL)

SW	BL
RAL9005	blank



GN 191

Description	d1	d2	d3	k	l1	l2	m	Clamping kits for d3	⚖
GN 191-B10-B10-2-*	B 10	B 10	M 6	25	61	34.5	39	GN 911-M6-22	97
GN 191-B12-B12-2-*	B 12	B 12	M 6	25	61	34.5	39	GN 911-M6-22	93
GN 191-B14-B14-2-*	B 14	B 14	M 6	25	61	34.5	39	GN 911-M6-22	86
GN 191-B15-B15-2-*	B 15	B 15	M 6	25	61	34.5	39	GN 911-M6-22	86
GN 191-B16-B16-2-*	B 16	B 16	M 6	25	61	34.5	39	GN 911-M6-22	84
GN 191-B18-B18-2-*	B 18	B 18	M 6	25	61	34.5	39	GN 911-M6-22	84

Weight BL

GN 191-NI **STAINLESS STEEL**

Description	d1	d2	d3	k	l1	l2	m	Clamping kits for d3	⚖
GN 191-B12-B12-2-NI	B 12	B 12	M 6	25	61	34.5	39	GN 911.3-M6-22	240
GN 191-B14-B14-2-NI	B 14	B 14	M 6	25	61	34.5	39	GN 911.3-M6-22	220
GN 191-B15-B15-2-NI	B 15	B 15	M 6	25	61	34.5	39	GN 911.3-M6-22	210
GN 191-B16-B16-2-NI	B 16	B 16	M 6	25	61	34.5	39	GN 911.3-M6-22	200
GN 191-B18-B18-2-NI	B 18	B 18	M 6	25	61	34.5	39	GN 911.3-M6-22	175
GN 191-B20-B20-2-NI	B 20	B 20	M 6	25	61	34.5	39	GN 911.3-M6-22	171

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T-Angle connector clamps

Aluminium / multi part assembly

SPECIFICATION

Identification No.

No. **2**: with 6 Stainless Steel-Clamping screws DIN 912

Aluminium

plastic coated
black, RAL 9005, textured finish **SW**

blank **BL**
matt shot-blasted

Clamping bores not machined

Socket cap screws DIN 912
Stainless Steel AISI 304

Hexagon nuts DIN 985
Stainless Steel AISI 304



INFORMATION

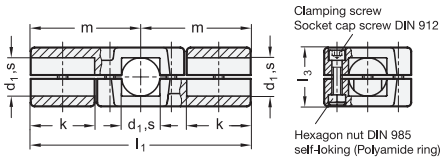
The clamping bores of the T-Angle connector clamps GN 195 are not machined and specially designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively. The square designs are also suitable for use in **profile systems**. The standard clamping screws are socket cap screws DIN 912. They can be replaced by adjustable clamping kits GN 911 (see page 1874) (article code see table of dimensions).

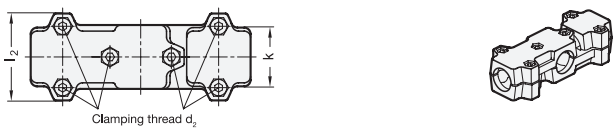
ACCESSORY

- Clamping kits GN 911 (see page 1874)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)





*Complete with colour index of the T-angle connector clamps (SW or BL)

SW	BL
RAL9005	blank

GN 195

Description	d1	s	k	d2	l1	l2	l3	m	Clamping kits for d2	⚖
GN 195-B20-50-2-*	B 20	-	50	M 8	172	68	46	86	GN 911-M8-40	600
GN 195-B25-50-2-*	B 25	-	50	M 8	172	68	46	86	GN 911-M8-40	585
GN 195-B30-50-2-*	B 30	-	50	M 8	172	68	46	86	GN 911-M8-40	565
GN 195-B30-60-2-*	B 30	-	60	M 8	203	79	59	101.5	GN 911-M8-55	1160
GN 195-B32-60-2-*	B 32	-	60	M 8	203	79	59	101.5	GN 911-M8-55	1159
GN 195-B35-60-2-*	B 35	-	60	M 8	203	79	59	101.5	GN 911-M8-55	1109
GN 195-B40-60-2-*	B 40	-	60	M 8	203	79	59	101.5	GN 911-M8-55	1076
GN 195-B40-76-2-*	B 40	-	76	M 10	254	98	70	127	GN 911-M10-63	1590
GN 195-B42-76-2-*	B 42	-	76	M 10	254	98	70	127	GN 911-M10-63	1586
GN 195-B45-76-2-*	B 45	-	76	M 10	254	98	70	127	GN 911-M10-63	1550
GN 195-B48-76-2-*	B 48	-	76	M 10	254	98	70	127	GN 911-M10-63	1510
GN 195-B50-76-2-*	B 50	-	76	M 10	254	98	70	127	GN 911-M10-63	1470
GN 195-V20-50-2-*	-	V 20	50	M 8	172	68	46	86	GN 911-M8-40	600
GN 195-V25-50-2-*	-	V 25	50	M 8	172	68	46	86	GN 911-M8-40	565
GN 195-V30-50-2-*	-	V 30	50	M 8	172	68	46	86	GN 911-M8-40	530
GN 195-V30-60-2-*	-	V 30	60	M 8	203	79	59	101.5	GN 911-M8-55	787
GN 195-V35-60-2-*	-	V 35	60	M 8	203	79	59	101.5	GN 911-M8-55	761
GN 195-V40-60-2-*	-	V 40	60	M 8	203	79	59	101.5	GN 911-M8-55	723
GN 195-V40-76-2-*	-	V 40	76	M 10	254	98	70	127	GN 911-M10-63	1550
GN 195-V45-76-2-*	-	V 45	76	M 10	254	98	70	127	GN 911-M10-63	1480
GN 195-V50-76-2-*	-	V 50	76	M 10	254	98	70	127	GN 911-M10-63	1390

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T-Angle connector clamps

Aluminium

SPECIFICATION

Identification No.

No. **2**: with two Stainless Steel-Clamping screws DIN 912

Aluminium

plastic coated
black, RAL 9005, textured finish **SW**

blank
matt shot-blasted **BL**

Clamping bores mechanically machined

Socket cap screws DIN 912
Stainless Steel AISI 304

Hexagon nuts DIN 985
Stainless Steel AISI 304



INFORMATION

The clamping bores of GN 192 T-Angle connector clamps are mechanically machined and designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively.
The standard version of the clamping screw is a socket cap screw with hexagonal socket DIN 912. It can be replaced by a clamping kits GN 911 (see page 1874) (article code see table of dimensions).

ACCESSORY

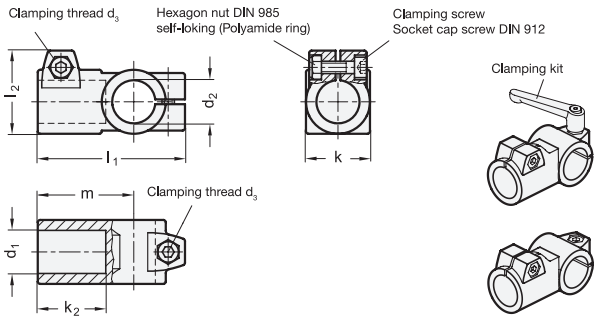
- Clamping kits GN 911 (see page 1874)

ON REQUEST

- d_1 / d_2 with different bores

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



*Complete with colour index of the T-angle connector clamps (SW or BL)

SW	BL
RAL9005	blank

GN 192

Description	d1	d2	k1	d3	k2	l1	l2	m	Clamping kits for d3	⚖
GN 192-B20-B20-40-2-*	B 20	B 20	40	M 8	42.5	92	52	60	GN 911-M8-32	250
GN 192-B25-B25-40-2-*	B 25	B 25	40	M 8	42.5	92	52	60	GN 911-M8-32	231
GN 192-B30-B30-40-2-*	B 30	B 30	40	M 8	42.5	92	52	60	GN 911-M8-32	186
GN 192-B30-B30-56-2-*	B 30	B 30	56	M 10	62	129	69	88	GN 911-M8-32	661
GN 192-B32-B32-56-2-*	B 32	B 32	56	M 10	62	129	69	88	GN 911-M10-40	619
GN 192-B35-B35-56-2-*	B 35	B 35	56	M 10	62	129	69	88	GN 911-M10-40	570
GN 192-B40-B40-56-2-*	B 40	B 40	56	M 10	62	129	69	88	GN 911-M10-40	481
GN 192-B40-B40-65-2-*	B 40	B 40	65	M 10	75	148	77.5	103	GN 911-M10-40	922
GN 192-B42-B42-65-2-*	B 42	B 42	65	M 10	75	148	77.5	103	GN 911-M10-55	889
GN 192-B45-B45-65-2-*	B 45	B 45	65	M 10	75	148	77.5	103	GN 911-M10-55	732
GN 192-B48-B48-65-2-*	B 48	B 48	65	M 10	75	148	77.5	103	GN 911-M10-55	676
GN 192-B50-B50-65-2-*	B 50	B 50	65	M 10	75	148	77.5	103	GN 911-M10-55	660
GN 192-B50-B50-80-2-*	B 50	B 50	80	M 10	80	177	92	125	GN 911-M10-55	1460
GN 192-B55-B55-80-2-*	B 55	B 55	80	M 10	80	177	92	125	GN 911-M10-55	1260
GN 192-B60-B60-80-2-*	B 60	B 60	80	M 10	80	177	92	125	GN 911-M10-55	1000

Weight BL

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GN 192.5

Stainless Steel-T-Angle connector clamps



SPECIFICATION

Types

- Type **A**: without sealing
- Type **B**: with sealing

Stainless Steel

- AISI CF-8
- matt shot-blasted

Clamping bores mechanically machined

Carriage bolt DIN 603
Stainless Steel A2

Cap nuts DIN 917
Stainless Steel A2

Sealings

Washers
Plastic (Polyacetal POM)

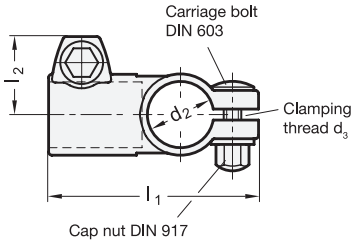
Edge ring
Silicon, 40 ... 60 Shore A

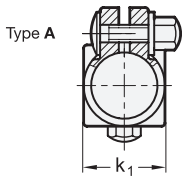
INFORMATION

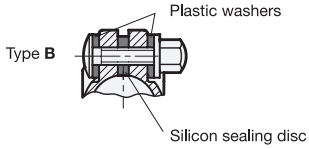
The clamping bores of the Stainless Steel-T-Angle connector clamps GN 192.5 are mechanically machined and designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively.
The shape of the clamping screws / nuts prevents the formation of wetness due to dammed-up water. The designs with sealing (Type B) also seals bore holes and threads.

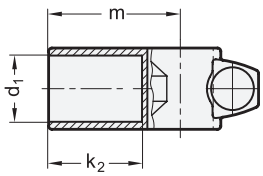
TECHNICAL INFORMATION

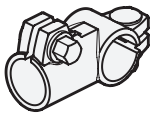
- Stainless Steel characteristics (see page A26)











GN 192.5 — **STAINLESS STEEL**

Description	d1	d2	k1	d3	k2	l1	l2	m	⚖
GN 192.5-B30-B30-37-A	B 30	B 30	37	M 8	42	96	35	60	320
GN 192.5-B30-B30-37-B	B 30	B 30	37	M 8	42	96	35	60	320
GN 192.5-B50-B50-65-A	B 50	B 50	65	M 10	75	151.5	48.5	103	350
GN 192.5-B50-B50-65-B	B 50	B 50	65	M 10	75	151.5	48.5	103	350

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T-Angle connector clamps

Aluminium / split assembly



SPECIFICATION

Identification No.

No. **2**: with 4 Stainless Steel-Clamping screws DIN 912

Aluminium

plastic coated
black, RAL 9005, textured finish **SW**

blank
matt shot-blasted **BL**

Clamping bores not machined

Socket cap screws DIN 912
Stainless Steel AISI 304

Hexagon nuts DIN 985
Stainless Steel AISI 304

INFORMATION

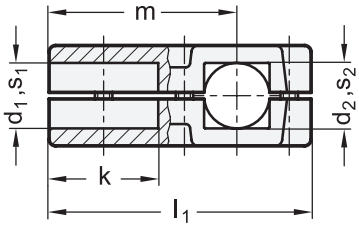
The clamping bores of the T-Angle connector clamps GN 193 are not machined and designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively. The versions with square bores are also suitable for **profile systems**. Bores and square bores of the same nominal size can be assembled in any combination. For instance, nominal size 20 has the following combination options: B20-B20, B20-V20, V20-B20 and V20-V20. The standard version of the clamping screw is a socket cap screw with hexagonal socket DIN 912. It can be replaced by a clamping kit GN 911 (see page 1874) (article code see table of dimensions).

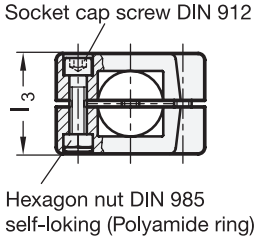
ACCESSORY

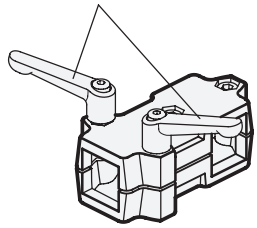
- Clamping kit GN 911 (see page 1874)

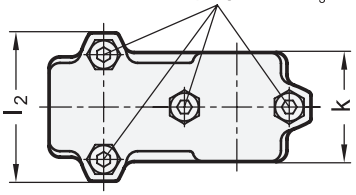
TECHNICAL INFORMATION

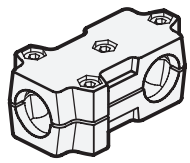
- Stainless Steel characteristics (see page A26)











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GN 193

T-Angle connector clamps

*Complete with colour index of the T-angle connector clamps (SW or BL)

SW RAL9005

BL blank

GN 193

Description	d1	s1	d2	s2	k	d3	l1	l2	l3	m	Clamping kits for d3	⚖
GN 193-B20-B20-50-2-*	B 20	-	B 20	-	50	M 8	120	68	46	85	GN 911-M8-40	446
GN 193-B25-B25-50-2-*	B 25	-	B 25	-	50	M 8	120	68	46	85	GN 911-M8-40	436
GN 193-B30-B30-50-2-*	B 30	-	B 30	-	50	M 8	120	68	46	85	GN 911-M8-40	422
GN 193-B30-B30-60-2-*	B 30	-	B 30	-	60	M 8	141	79	59	101.5	GN 911-M8-55	800
GN 193-B32-B32-60-2-*	B 32	-	B 32	-	60	M 8	141	79	59	101.5	GN 911-M8-55	773
GN 193-B35-B35-60-2-*	B 35	-	B 35	-	60	M 8	141	79	59	101.5	GN 911-M8-55	750
GN 193-B40-B40-60-2-*	B 40	-	B 40	-	60	M 8	141	79	59	101.5	GN 911-M8-55	720
GN 193-B40-B40-76-2-*	B 40	-	B 40	-	76	M 10	176	98	70	126	GN 911-M10-63	1198
GN 193-B42-B42-76-2-*	B 42	-	B 42	-	76	M 10	176	98	70	126	GN 911-M10-63	1188
GN 193-B45-B45-76-2-*	B 45	-	B 45	-	76	M 10	176	98	70	126	GN 911-M10-63	1164
GN 193-B48-B48-76-2-*	B 48	-	B 48	-	76	M 10	176	98	70	126	GN 911-M10-63	1134
GN 193-B50-B50-76-2-*	B 50	-	B 50	-	76	M 10	176	98	70	126	GN 911-M10-63	1104
GN 193-B20-V20-50-2-*	B 20	-	-	V 20	50	M 8	120	68	46	85	GN 911-M8-40	476
GN 193-B25-V25-50-2-*	B 25	-	-	V 25	50	M 8	120	68	46	85	GN 911-M8-40	452
GN 193-B30-V30-50-2-*	B 30	-	-	V 30	50	M 8	120	68	46	85	GN 911-M8-40	428
GN 193-B30-V30-60-2-*	B 30	-	-	V 30	60	M 8	141	79	59	101.5	GN 911-M8-55	443
GN 193-B35-V35-60-2-*	B 35	-	-	V 35	60	M 8	141	79	59	101.5	GN 911-M8-55	443
GN 193-B40-V40-60-2-*	B 40	-	-	V 40	60	M 8	141	79	59	101.5	GN 911-M8-55	443
GN 193-B40-V40-76-2-*	B 40	-	-	V 40	76	M 10	176	98	70	126	GN 911-M10-63	1133
GN 193-B45-V45-76-2-*	B 45	-	-	V 45	76	M 10	176	98	70	126	GN 911-M10-63	1118
GN 193-B50-V50-76-2-*	B 50	-	-	V 50	76	M 10	176	98	70	126	GN 911-M10-63	1086
GN 193-V20-V20-50-2-*	-	V 20	-	V 20	50	M 8	120	68	46	85	GN 911-M8-40	430
GN 193-V25-V25-50-2-*	-	V 25	-	V 25	50	M 8	120	68	46	85	GN 911-M8-40	420
GN 193-V30-V30-50-2-*	-	V 30	-	V 30	50	M 8	120	68	46	85	GN 911-M8-40	410
GN 193-V30-V30-60-2-*	-	V 30	-	V 30	60	M 8	141	79	59	101.5	GN 911-M8-55	750
GN 193-V35-V35-60-2-*	-	V 35	-	V 35	60	M 8	141	79	59	101.5	GN 911-M8-55	660
GN 193-V40-V40-60-2-*	-	V 40	-	V 40	60	M 8	141	79	59	101.5	GN 911-M8-55	660
GN 193-V40-V40-76-2-*	-	V 40	-	V 40	76	M 10	176	98	70	126	GN 911-M10-63	1158
GN 193-V45-V45-76-2-*	-	V 45	-	V 45	76	M 10	176	98	70	126	GN 911-M10-63	1104
GN 193-V50-V50-76-2-*	-	V 50	-	V 50	76	M 10	176	98	70	126	GN 911-M10-63	1054
GN 193-V20-B20-50-2-*	-	V 20	B 20	-	50	M 8	120	68	46	85	GN 911-M8-40	450
GN 193-V25-B25-50-2-*	-	V 25	B 25	-	50	M 8	120	68	46	85	GN 911-M8-40	430
GN 193-V30-B30-50-2-*	-	V 30	B 30	-	50	M 8	120	68	46	85	GN 911-M8-40	410
GN 193-V30-B30-60-2-*	-	V 30	B 30	-	60	M 8	141	79	59	101.5	GN 911-M8-55	480
GN 193-V35-B35-60-2-*	-	V 35	B 35	-	60	M 8	141	79	59	101.5	GN 911-M8-55	395
GN 193-V40-B40-60-2-*	-	V 40	B 40	-	60	M 8	141	79	59	101.5	GN 911-M8-55	395
GN 193-V40-B40-76-2-*	-	V 40	B 40	-	76	M 10	176	98	70	126	GN 911-M10-63	1150
GN 193-V45-B45-76-2-*	-	V 45	B 45	-	76	M 10	176	98	70	126	GN 911-M10-63	1110
GN 193-V50-B50-76-2-*	-	V 50	B 50	-	76	M 10	176	98	70	126	GN 911-M10-63	1070

Weight BL

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T-Angle connector clamps

Aluminium / multi part assembly



SPECIFICATION

Identification No.

No. **2**: with 4 Stainless Steel-Clamping screws DIN 912

Aluminium

plastic coated
black, RAL 9005, textured finish **SW**

blank **BL**
matt shot-blasted

Clamping bores not machined

Socket cap screw DIN 912
Stainless Steel AISI 304

Hexagon nuts DIN 985
Stainless Steel AISI 304

INFORMATION

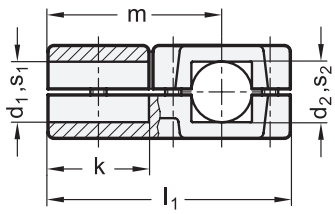
The clamping bores of the T-Angle connector clamps GN 194 are not machined and designed for construction tubings GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively. The versions with square bores are also suitable for **profile systems**. Bores and square bores of the same nominal size can be assembled in any combination. For instance, nominal size 20 has the following combination options: B20-B20, B20-V20, V20-B20 and V20-V20. The standard clamping screws are socket cap screws DIN 912. They can be replaced by adjustable clamping kits GN 911 (see page 1874) (article code see table of dimensions).

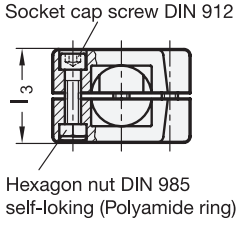
ACCESSORY

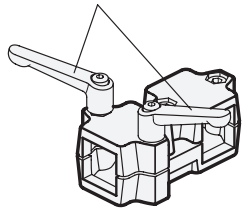
- Clamping kits GN 911 (see page 1874)

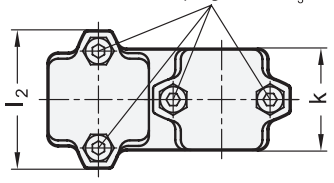
TECHNICAL INFORMATION

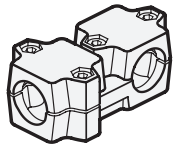
- Stainless Steel characteristics (see page A26)











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GN 194

T-Angle connector clamps

*Complete with colour index of the T-angle connector clamps (SW or BL)

SW	BL
RAL9005	blank

GN 194

Description	d1	s1	d2	s2	k	d3	l1	l2	l3	m	Clamping kits for d3	⚖
GN 194-B20-B20-50-2-*	B 20	-	B 20	-	50	M 8	120	68	46	85	GN 911-M8-40	423
GN 194-B25-B25-50-2-*	B 25	-	B 25	-	50	M 8	120	68	46	85	GN 911-M8-40	412
GN 194-B30-B30-50-2-*	B 30	-	B 30	-	50	M 8	120	68	46	85	GN 911-M8-40	399
GN 194-B30-B30-60-2-*	B 30	-	B 30	-	60	M 8	141	79	59	101.5	GN 911-M8-55	448
GN 194-B32-B32-60-2-*	B 32	-	B 32	-	60	M 8	141	79	59	101.5	GN 911-M8-55	773
GN 194-B35-B35-60-2-*	B 35	-	B 35	-	60	M 8	141	79	59	101.5	GN 911-M8-55	742
GN 194-B40-B40-60-2-*	B 40	-	B 40	-	60	M 8	141	79	59	101.5	GN 911-M8-55	700
GN 194-B40-B40-76-2-*	B 40	-	B 40	-	76	M 10	176	98	70	126	GN 911-M10-63	752
GN 194-B42-B42-76-2-*	B 42	-	B 42	-	76	M 10	176	98	70	126	GN 911-M10-63	752
GN 194-B45-B45-76-2-*	B 45	-	B 45	-	76	M 10	176	98	70	126	GN 911-M10-63	1080
GN 194-B48-B48-76-2-*	B 48	-	B 48	-	76	M 10	176	98	70	126	GN 911-M10-63	1055
GN 194-B50-B50-76-2-*	B 50	-	B 50	-	76	M 10	176	98	70	126	GN 911-M10-63	1028
GN 194-B50-B50-76-2-*	B 50	-	B 50	-	76	M 10	176	98	70	126	GN 911-M10-63	1028
GN 194-B20-V20-50-2-*	B 20	-	-	V 20	50	M 8	120	68	46	85	GN 911-M8-40	395
GN 194-B25-V25-50-2-*	B 25	-	-	V 25	50	M 8	120	68	46	85	GN 911-M8-40	395
GN 194-B30-V30-50-2-*	B 30	-	-	V 30	50	M 8	120	68	46	85	GN 911-M8-55	342
GN 194-B30-V30-60-2-*	B 30	-	-	V 30	60	M 8	141	79	59	101.5	GN 911-M8-55	760
GN 194-B35-V35-60-2-*	B 35	-	-	V 35	60	M 8	141	79	59	101.5	GN 911-M8-55	583
GN 194-B40-V40-60-2-*	B 40	-	-	V 40	60	M 8	141	79	59	101.5	GN 911-M10-63	680
GN 194-B40-V40-76-2-*	B 40	-	-	V 40	76	M 10	176	98	70	126	GN 911-M10-63	1110
GN 194-B45-V45-76-2-*	B 45	-	-	V 45	76	M 10	176	98	70	126	GN 911-M10-63	1065
GN 194-B50-V50-76-2-*	B 50	-	-	V 50	76	M 10	176	98	70	126	GN 911-M10-63	1015
GN 194-V20-V20-50-2-*	-	V 20	-	V 20	50	M 8	120	68	46	85	GN 911-M8-40	419
GN 194-V25-V25-50-2-*	-	V 25	-	V 25	50	M 8	120	68	46	85	GN 911-M8-40	398
GN 194-V30-V30-50-2-*	-	V 30	-	V 30	50	M 8	120	68	46	85	GN 911-M8-55	376
GN 194-V30-V30-60-2-*	-	V 30	-	V 30	60	M 8	141	79	59	101.5	GN 911-M8-55	581
GN 194-V35-V35-60-2-*	-	V 35	-	V 35	60	M 8	141	79	59	101.5	GN 911-M8-55	555
GN 194-V40-V40-60-2-*	-	V 40	-	V 40	60	M 8	141	79	59	101.5	GN 911-M10-63	650
GN 194-V40-V40-76-2-*	-	V 40	-	V 40	76	M 10	176	98	70	126	GN 911-M10-63	650
GN 194-V45-V45-76-2-*	-	V 45	-	V 45	76	M 10	176	98	70	126	GN 911-M10-63	1036
GN 194-V50-V50-76-2-*	-	V 50	-	V 50	76	M 10	176	98	70	126	GN 911-M10-63	975
GN 194-V20-B20-50-2-*	-	V 20	B 20	-	50	M 8	120	68	46	85	GN 911-M10-63	436
GN 194-V25-B25-50-2-*	-	V 25	B 25	-	50	M 8	120	68	46	85	GN 911-M8-40	417
GN 194-V30-B30-50-2-*	-	V 30	B 30	-	50	M 8	120	68	46	85	GN 911-M8-55	397
GN 194-V30-B30-60-2-*	-	V 30	B 30	-	60	M 8	141	79	59	101.5	GN 911-M8-55	580
GN 194-V35-B35-60-2-*	-	V 35	B 35	-	60	M 8	141	79	59	101.5	GN 911-M8-55	559
GN 194-V40-B40-60-2-*	-	V 40	B 40	-	60	M 8	141	79	59	101.5	GN 911-M10-63	540
GN 194-V40-B40-76-2-*	-	V 40	B 40	-	76	M 10	176	98	70	126	GN 911-M10-63	1100
GN 194-V45-B45-76-2-*	-	V 45	B 45	-	76	M 10	176	98	70	126	GN 911-M10-63	1060
GN 194-V50-B50-76-2-*	-	V 50	B 50	-	76	M 10	176	98	70	126	GN 911-M10-63	1005

Weight BL

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Angle connector clamps

Aluminium

SPECIFICATION

Identification No.

No. **2**: with 2 Stainless Steel-Clamping screws DIN 912

Aluminium

plastic coated
black, RAL 9005, textured finish **SW**

blank
matt shot-blasted **BL**

Socket cap screws DIN 912
Stainless Steel AISI 304

Hexagon nuts DIN 985
Stainless Steel AISI 304

Grub screws DIN 913
Stainless Steel AISI 304



INFORMATION

The clamping bores of the Angle connector clamps GN 196 are specially designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively.
The standard clamping screws are socket cap screws DIN 912. They can be replaced by adjustable clamping kits GN 911 (see page 1874) (article code see table of dimensions).

ACCESSORY

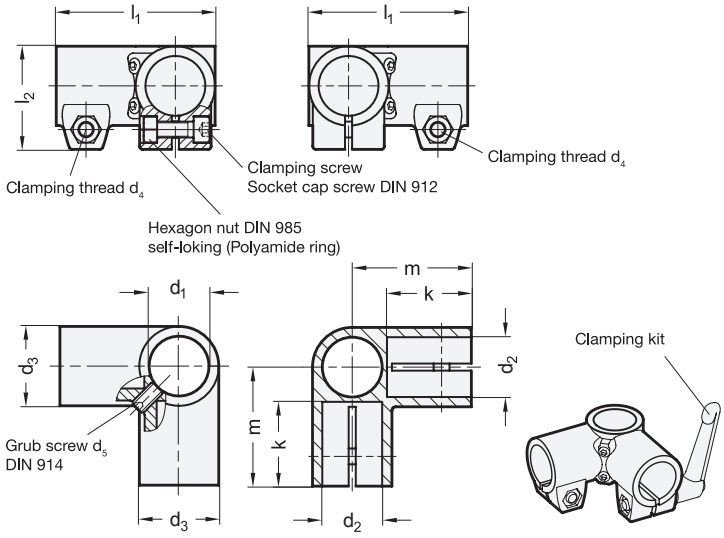
- Clamping kits GN 911 (see page 1874)

ON REQUEST

- d_1 / d_2 with different bores

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



GN 196

Description	d1	d2	k Clamping length	d3	d4	d5	m	l1	l2	Clamping kits for d4	⚖
GN 196-B20-B20-2-BL	B 20	B 20	40	40	M 8	M 8	60	80	52	GN 911-M8-32	345
GN 196-B20-B20-2-SW	B 20	B 20	40	40	M 8	M 8	60	80	52	GN 911-M8-32	345
GN 196-B25-B25-2-BL	B 25	B 25	40	40	M 8	M 8	60	80	52	GN 911-M8-32	287
GN 196-B25-B25-2-SW	B 25	B 25	40	40	M 8	M 8	60	80	52	GN 911-M8-32	287
GN 196-B30-B30-2-BL	B 30	B 30	40	40	M 8	M 8	60	80	52	GN 911-M8-32	216
GN 196-B30-B30-2-SW	B 30	B 30	40	40	M 8	M 8	60	80	52	GN 911-M8-32	216

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Tube connector joints

Aluminium / split assembly

SPECIFICATION

Identification No.

No. **2**: with 2 Stainless Steel-Clamping screws DIN 912

Aluminium

plastic coated
black, RAL 9005, textured finish **SW**

blank
matt shot-blasted **BL**

Clamping bores not machined

Socket cap screws DIN 912
Stainless Steel AISI 304

Hexagon nuts DIN 985
Stainless Steel AISI 304



INFORMATION

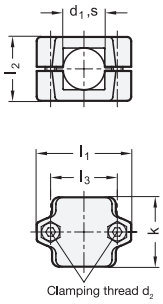
The clamping bores of GN 241 tube connector joints are not machined and specially designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively. GN 231 tube supports are also suitable for mounting on **profile systems**.
The standard clamping screws are socket cap screws DIN 912. They can be replaced by adjustable clamping kits GN 911 (see page 1874) (article code see table of dimensions).

ACCESSORY

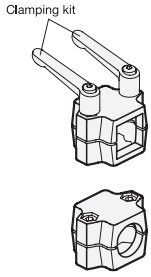
- Clamping kits GN 911 (see page 1874)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)







*Complete with colour index of the Tube connector joints (SW or BL)

SW	BL
RAL9005	blank

GN 241

Description	d1	s	k	d2	l1	l2	l3	Clamping kits for d2	⚖
GN 241-B20-50-2-*	B 20	-	50	M 8	68	46	48	GN 911-M8-40	195
GN 241-B25-50-2-*	B 25	-	50	M 8	68	46	48	GN 911-M8-40	190
GN 241-B30-50-2-*	B 30	-	50	M 8	68	46	48	GN 911-M8-40	190
GN 241-B30-60-2-*	B 30	-	60	M 8	79	59	58	GN 911-M8-55	390
GN 241-B32-60-2-*	B 32	-	60	M 8	79	59	58	GN 911-M8-55	380
GN 241-B35-60-2-*	B 35	-	60	M 8	79	59	58	GN 911-M8-55	360
GN 241-B40-60-2-*	B 40	-	60	M 8	79	59	58	GN 911-M8-55	350
GN 241-B40-76-2-*	B 40	-	76	M 10	98	70	73	GN 911-M10-63	505
GN 241-B42-76-2-*	B 42	-	76	M 10	98	70	73	GN 911-M10-63	505
GN 241-B45-76-2-*	B 45	-	76	M 10	98	70	73	GN 911-M10-63	505
GN 241-B48-76-2-*	B 48	-	76	M 10	98	70	73	GN 911-M10-63	505
GN 241-B50-76-2-*	B 50	-	76	M 10	98	70	73	GN 911-M10-63	505
GN 241-V20-50-2-*	-	V 20	50	M 8	68	46	48	GN 911-M8-40	180
GN 241-V25-50-2-*	-	V 25	50	M 8	68	46	48	GN 911-M8-40	180
GN 241-V30-50-2-*	-	V 30	50	M 8	68	46	48	GN 911-M8-40	180
GN 241-V30-60-2-*	-	V 30	60	M 8	79	59	58	GN 911-M8-55	360
GN 241-V35-60-2-*	-	V 35	60	M 8	79	59	58	GN 911-M8-55	350
GN 241-V40-60-2-*	-	V 40	60	M 8	79	59	58	GN 911-M8-55	300
GN 241-V40-76-2-*	-	V 40	76	M 10	98	70	73	GN 911-M10-63	450
GN 241-V45-76-2-*	-	V 45	76	M 10	98	70	73	GN 911-M10-63	450
GN 241-V50-76-2-*	-	V 50	76	M 10	98	70	73	GN 911-M10-63	450

Weight BL

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Tube supports

Aluminium / split assembly



SPECIFICATION

Identification No.

No. **2**: with 2 Stainless Steel-Clamping screws DIN 912

Aluminium

plastic coated
black, RAL 9005, textured finish **SW**

blank
matt shot-blasted **BL**

Clamping bores not machined

Socket cap screws DIN 912
Stainless Steel AISI 304

Hexagon nuts DIN 985
Stainless Steel AISI 304

INFORMATION

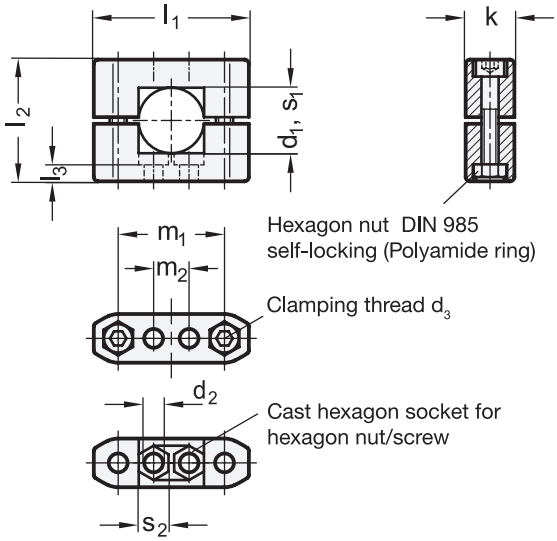
The clamping bores of GN 231 tube supports are not machined and specially designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively.
GN 231 tube supports are also suitable for mounting on **profile systems**.
The standard clamping screws are socket cap screws DIN 912. They can be replaced by adjustable clamping kits GN 911 (see page 1874) (article code see table of dimensions).

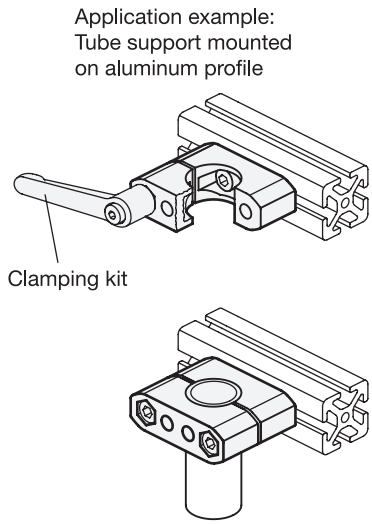
ACCESSORY

- Clamping kits GN 911 (see page 1874)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)





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*Complete with colour index of the Tube supports (SW or BL)

SW	BL
RAL9005	blank

GN 231

Description	d1	s1	d2	d3	k	l1	l2	l3	m1	m2	s2	Clamping kits for d3	⚖
GN 231-B8-2-*	B 8	-	6.2	M 6	17	52	38	3.5	36	10.5	10	GN 911-M6-32	140
GN 231-B10-2-*	B 10	-	6.2	M 6	17	52	38	3.5	36	10.5	10	GN 911-M6-32	106
GN 231-B12-2-*	B 12	-	6.2	M 6	17	52	38	3.5	36	10.5	10	GN 911-M6-32	100
GN 231-B14-2-*	B 14	-	6.2	M 6	17	52	38	3.5	36	10.5	10	GN 911-M6-32	90
GN 231-B15-2-*	B 15	-	6.2	M 6	17	52	38	3.5	36	10.5	10	GN 911-M6-32	80
GN 231-B16-2-*	B 16	-	6.2	M 6	17	52	38	3.5	36	10.5	10	GN 911-M6-32	70
GN 231-B18-2-*	B 18	-	6.2	M 6	17	52	38	3.5	36	10.5	10	GN 911-M6-32	60
GN 231-B20-2-*	B 20	-	8.5	M 8	22	70	55	4	48	16	13	GN 911-M8-50	160
GN 231-B25-2-*	B 25	-	8.5	M 8	22	70	55	4	48	16	13	GN 911-M8-50	160
GN 231-B30-2-*	B 30	-	8.5	M 8	22	70	55	4	48	16	13	GN 911-M8-50	160
GN 231-B40-2-*	B 40	-	11	M 10	27	100	80	5	73	30	17	GN 911-M10-70	420
GN 231-B42-2-*	B 42	-	11	M 10	27	100	80	5	73	30	17	GN 911-M10-70	400
GN 231-B45-2-*	B 45	-	11	M 10	27	100	80	5	73	30	17	GN 911-M10-70	385
GN 231-B48-2-*	B 48	-	11	M 10	27	100	80	5	73	30	17	GN 911-M10-70	375
GN 231-B50-2-*	B 50	-	11	M 10	27	100	80	5	73	30	17	GN 911-M10-80	359
GN 231-B55-2-*	B 55	-	11	M 10	27	100	90	5	78	30	17	GN 911-M10-80	350
GN 231-B60-2-*	B 60	-	11	M 10	27	100	90	5	78	30	17	GN 911-M10-80	270
GN 231-V8-2-*	-	V 8	6.2	M 6	17	52	38	3.5	36	10.5	10	GN 911-M6-32	110
GN 231-V10-2-*	-	V 10	6.2	M 6	17	52	38	3.5	36	10.5	10	GN 911-M6-32	106
GN 231-V12-2-*	-	V 12	6.2	M 6	17	52	38	3.5	36	10.5	10	GN 911-M6-32	100
GN 231-V14-2-*	-	V 14	6.2	M 6	17	52	38	3.5	36	10.5	10	GN 911-M6-32	90
GN 231-V15-2-*	-	V 15	6.2	M 6	17	52	38	3.5	36	10.5	10	GN 911-M6-32	80
GN 231-V16-2-*	-	V 16	6.2	M 6	17	52	38	3.5	36	10.5	10	GN 911-M6-32	70
GN 231-V18-2-*	-	V 18	6.2	M 6	17	52	38	3.5	36	10.5	10	GN 911-M6-32	60
GN 231-V20-2-*	-	V 20	8.5	M 8	22	70	55	4	48	16	13	GN 911-M8-50	170
GN 231-V25-2-*	-	V 25	8.5	M 8	22	70	55	4	48	16	13	GN 911-M8-50	170
GN 231-V30-2-*	-	V 30	8.5	M 8	22	70	55	4	48	16	13	GN 911-M8-50	155
GN 231-V40-2-*	-	V 40	11	M 10	27	100	80	5	73	30	17	GN 911-M10-70	380
GN 231-V45-2-*	-	V 45	11	M 10	27	100	80	5	73	30	17	GN 911-M10-70	360
GN 231-V50-2-*	-	V 50	11	M 10	27	100	80	5	73	30	17	GN 911-M10-70	340
GN 231-V55-2-*	-	V 55	11	M 10	27	100	90	5	78	30	17	GN 911-M10-80	320
GN 231-V60-2-*	-	V 60	11	M 10	27	100	90	5	78	30	17	GN 911-M10-80	300

Weight BL

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Tube connector joints

Aluminum

SPECIFICATION

Identification No.

No. **2**: with 2 Stainless Steel-Clamping screws DIN 912

Aluminium

plastic coated
black, RAL 9005, textured finish **SW**

blank
matt shot-blasted **BL**

Clamping bores mechanically machined

Socket cap screw DIN 912
Stainless Steel AISI 304

Hexagon nuts DIN 985
Stainless Steel AISI 304



INFORMATION

The clamping bores of GN 242 tube connector joints are mechanically machined and designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively.
The standard version of the clamping screws are socket cap screws with hexagonal socket DIN 912. They can be replaced by clamping kits GN 911 (see page 1874) (article code see table of dimensions).

ACCESSORY

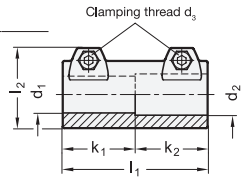
- Clamping kits GN 911 (see page 1874)

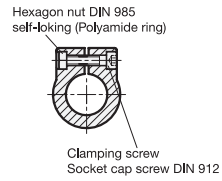
ON REQUEST

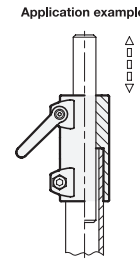
- d_1 / d_2 with different bores

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)

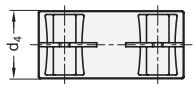


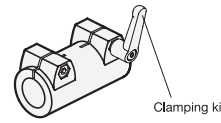




*Complete with colour index of the Tube connector joints (SW or BL)

SW	BL
RAL9005	blank





GN 242

Description	d1	d2	d3	d4	k1	k2	l1	l2	Clamping kits for d3	⚖
GN 242-B20-B20-2-*	B 20	B 20	M 8	40	45	45	90	52	GN 911-M8-32	290
GN 242-B20-B25-2-*	B 20	B 25	M 8	40	45	45	90	52	GN 911-M8-32	290
GN 242-B20-B30-2-*	B 20	B 30	M 8	40	45	45	90	52	GN 911-M8-32	260
GN 242-B25-B25-2-*	B 25	B 25	M 8	40	45	45	90	52	GN 911-M8-32	242
GN 242-B25-B30-2-*	B 25	B 30	M 8	40	45	45	90	52	GN 911-M8-32	214
GN 242-B30-B30-2-*	B 30	B 30	M 8	40	45	45	90	52	GN 911-M8-32	202
GN 242-B40-B40-2-*	B 40	B 40	M 10	65	70	70	140	77.5	GN 911-M10-55	960
GN 242-B40-B45-2-*	B 40	B 45	M 10	65	70	70	140	77.5	GN 911-M10-55	869
GN 242-B40-B48-2-*	B 40	B 48	M 10	65	70	70	140	77.5	GN 911-M10-55	865
GN 242-B40-B50-2-*	B 40	B 50	M 10	65	70	70	140	77.5	GN 911-M10-55	834
GN 242-B42-B42-2-*	B 42	B 42	M 10	65	70	70	140	77.5	GN 911-M10-55	802
GN 242-B42-B48-2-*	B 42	B 48	M 10	65	70	70	140	77.5	GN 911-M10-55	800
GN 242-B42-B50-2-*	B 42	B 50	M 10	65	70	70	140	77.5	GN 911-M10-55	772
GN 242-B45-B45-2-*	B 45	B 45	M 10	65	70	70	140	77.5	GN 911-M10-55	760
GN 242-B45-B50-2-*	B 45	B 50	M 10	65	70	70	140	77.5	GN 911-M10-55	737
GN 242-B48-B48-2-*	B 48	B 48	M 10	65	70	70	140	77.5	GN 911-M10-55	700
GN 242-B50-B50-2-*	B 50	B 50	M 10	65	70	70	140	77.5	GN 911-M10-55	680

Weight BL

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Swivel clamp connector bases

Aluminum

SPECIFICATION

Aluminium

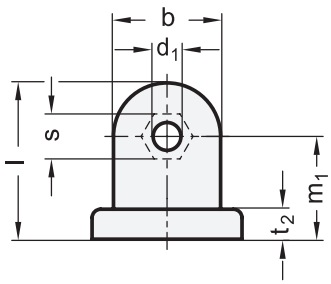
plastic coated
black, RAL 9005, textured finish **SW**

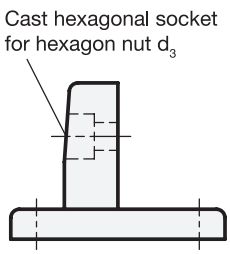
blank **BL**
matt shot-blasted

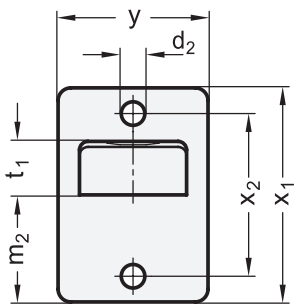
INFORMATION

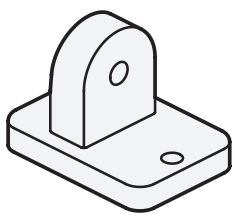
Swivel clamp connector bases GN 271 can be assembled with the swivel clamp connectors GN 273 (see page 1849), GN 275 (see page 1854) or GN 277 (see page 1855) to create swivel clamp connector joints.
GN 271 swivel clamp connector bases are also suitable for mountings on **profile systems**.











GN 271

Description	b	d1	d2	d3	l	m1	m2	t1	t2	s	x1	x2	y	⚖
GN 271-25-BL	25	6.5	5.5	M 6	36.5	24	25	12.5	7	10	50	38	35	44
GN 271-25-SW	25	6.5	5.5	M 6	36.5	24	25	12.5	7	10	50	38	35	44

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GN 272

RoHS

Swivel clamp connector bases

Aluminum

SPECIFICATION

Types

- Type **OZ**: without centring step (smooth)
- Type **MZ**: with centring step
- Type **AV**: with male serration
- Type **IV**: with female serration

Aluminium

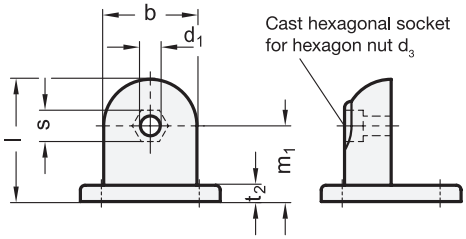
plastic coated
black RAL 9005, textured finish **SW**

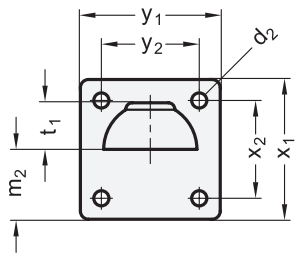
blank **BL**
matt shot-blasted

INFORMATION

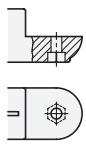
GN 272 swivel clamp connector bases can be assembled with swivel clamp connectors GN 274 (see page 1850), GN 276 (see page 1852) or GN 278 (see page 1856) to create swivel clamp connector joints.



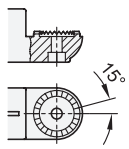


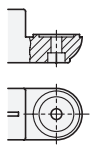


Type **OZ**
without centring step
(smooth)

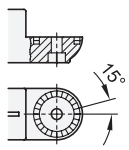


Type **AV**
with male serration





Type **MZ**
with centring step



Type **IV**
with female serration

GN 272

Description	b	d1	d2	d3	l	m1	m2	t1	t2	s	x1	x2	y1	y2	⚖
GN 272-40-AV-BL	40	8.5	6.5	M 8	52.5	32.5	30	20	7	13	60	42	60	42	120
GN 272-40-AV-SW	40	8.5	6.5	M 8	52.5	32.5	30	20	7	13	60	42	60	42	120
GN 272-65-AV-BL	65	10.2	11	M 10	84.5	52	52.5	32.5	14	17	105	74	105	74	555
GN 272-65-AV-SW	65	10.2	11	M 10	84.5	52	52.5	32.5	14	17	105	74	105	74	555
GN 272-40-MZ-BL	40	8.5	6.5	M 8	52.5	32.5	30	20	7	13	60	42	60	42	120
GN 272-40-MZ-SW	40	8.5	6.5	M 8	52.5	32.5	30	20	7	13	60	42	60	42	120
GN 272-65-MZ-BL	65	10.2	11	M 10	84.5	52	52.5	32.5	14	17	105	74	105	74	555
GN 272-65-MZ-SW	65	10.2	11	M 10	84.5	52	52.5	32.5	14	17	105	74	105	74	555
GN 272-40-IV-BL	40	8.5	6.5	M 8	52.5	32.5	30	20	7	13	60	42	60	42	110
GN 272-40-IV-SW	40	8.5	6.5	M 8	52.5	32.5	30	20	7	13	60	42	60	42	110
GN 272-65-IV-BL	65	10.2	11	M 10	84.5	52	52.5	32.5	14	17	105	74	105	74	535
GN 272-65-IV-SW	65	10.2	11	M 10	84.5	52	52.5	32.5	14	17	105	74	105	74	535
GN 272-40-OZ-BL	40	8.5	6.5	M 8	52.5	32.5	30	20	7	13	60	42	60	42	120
GN 272-40-OZ-SW	40	8.5	6.5	M 8	52.5	32.5	30	20	7	13	60	42	60	42	120
GN 272-65-OZ-BL	65	10.2	11	M 10	84.5	52	52.5	32.5	14	17	105	74	105	74	555
GN 272-65-OZ-SW	65	10.2	11	M 10	84.5	52	52.5	32.5	14	17	105	74	105	74	555

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GN 273

Swivel clamp connectors

Aluminium



SPECIFICATION

Identification No.

No. **2**: with Stainless Steel-Clamping screw DIN 912

Aluminium

plastic coated
black RAL 9005, textured finish **SW**

blank **BL**
matt shot-blasted

Clamping bore mechanically machined

Socket cap screws DIN 912
Stainless Steel AISI 304

Hexagon nuts DIN 985
Stainless Steel AISI 304

INFORMATION

The clamping bore of GN 273 swivel clamp connectors is mechanically machined and designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively.

The standard version of the clamping screw is a socket cap screw with hexagonal socket DIN 912. It can be replaced by a clamping kit GN 911 (see page 1874) (article code see table of dimensions).

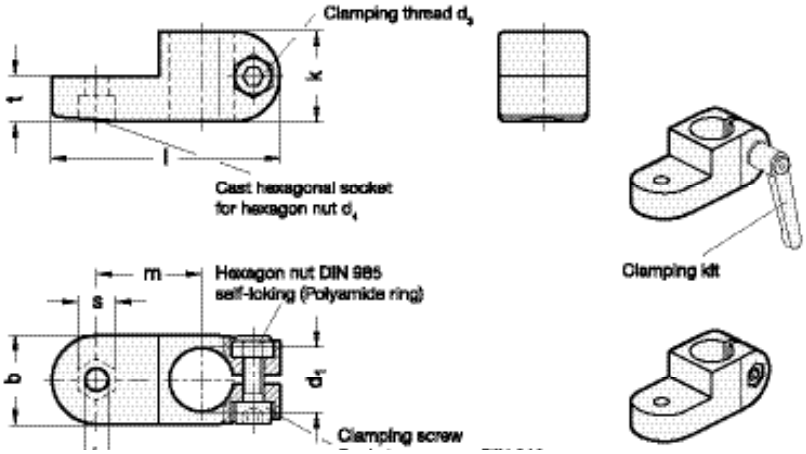
GN 273 swivel clamp connectors can be assembled with swivel clamp connectors GN 271 (see page 1847), GN 275 (see page 1854) or GN 277 (see page 1855) to create swivel clamp connector joints.

ACCESSORY

- Clamping kits GN 911 (see page 1874)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see pag



GN 273

Description	d1	b	d2	d3	d4	k	l	m	s	t	Clamping kits for d3	⚖
GN 273-B12-2-SW	B 12	25	6.5	M 6	M 6	25	64	29.5	10	12.5	GN 911-M6-22	65
GN 273-B12-2-BL	B 12	25	6.5	M 6	M 6	25	64	29.5	10	12.5	GN 911-M6-22	65
GN 273-B14-2-SW	B 14	25	6.5	M 6	M 6	25	64	29.5	10	12.5	GN 911-M6-22	62
GN 273-B14-2-BL	B 14	25	6.5	M 6	M 6	25	64	29.5	10	12.5	GN 911-M6-22	62
GN 273-B16-2-SW	B 16	25	6.5	M 6	M 6	25	64	29.5	10	12.5	GN 911-M6-22	60
GN 273-B16-2-BL	B 16	25	6.5	M 6	M 6	25	64	29.5	10	12.5	GN 911-M6-22	60
GN 273-B18-2-SW	B 18	25	6.5	M 6	M 6	25	64	29.5	10	12.5	GN 911-M6-22	55
GN 273-B18-2-BL	B 18	25	6.5	M 6	M 6	25	64	29.5	10	12.5	GN 911-M6-22	55

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Swivel clamp connectors

Aluminium



SPECIFICATION

Identification No.

No. **2**: with Stainless Steel-clamping screw DIN 912

Types

- Type **OZ**: without centring step (smooth)
- Type **MZ**: with centring step
- Type **AV**: with male serration
- Type **IV**: with female serration

Aluminium

plastic coated
black RAL 9005, textured finish **SW**

blank **BL**
matt shot-blasted

Clamping bore mechanically machined

Socket cap screws DIN 912
Stainless Steel AISI 304

Hexagon nuts DIN 985
Stainless Steel AISI 304

INFORMATION

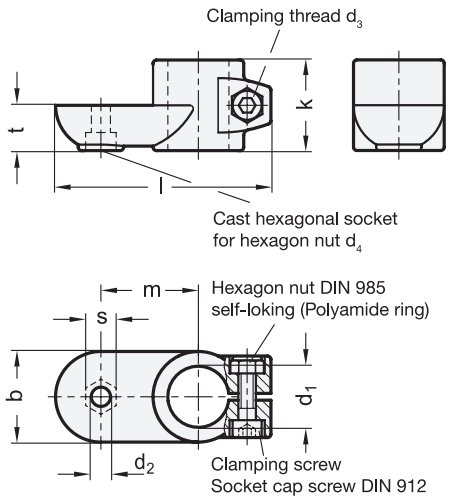
The clamping bore of the swivel clamp connectors GN 274 is mechanically machined and designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively.
The standard version of the clamping screw is a socket cap screw with hexagonal socket DIN 912. It can be replaced by a clamping kit GN 911 (see page 1874) (article code see table of dimensions).
GN 274 swivel clamp connectors can be assembled with swivel clamp connectors GN 272 (see page 1848), GN 276 (see page 1852) or GN 278 (see page 1856) to create swivel clamp connector joints.

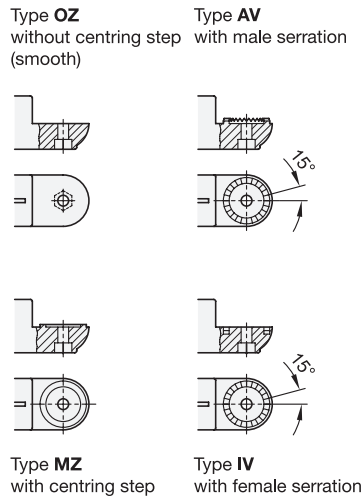
ACCESSORY

- Clamping kits GN 911 (see page 1874)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)





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GN 274

Swivel clamp connectors

*Complete with colour index of the Swivel clamp connectors (SW or BL)

SW	BL
RAL9005	blank

GN 274

Description	d1	b	d2	d3	d4	k	l	m	s	t	Clamping kits for d3	⚖
GN 274-B20-OZ-2-*	B 20	40	8.5	M 8	M 8	40	95	43	13	20	GN 911-M8-32	190
GN 274-B25-OZ-2-*	B 25	40	8.5	M 8	M 8	40	95	43	13	20	GN 911-M8-32	164
GN 274-B30-OZ-2-*	B 30	40	8.5	M 8	M 8	40	95	43	13	20	GN 911-M8-32	150
GN 274-B40-OZ-2-*	B 40	65	10.5	M 10	M 10	65	148	70	17	32.5	GN 911-M10-55	710
GN 274-B42-OZ-2-*	B 42	65	10.5	M 10	M 10	65	148	70	17	32.5	GN 911-M10-55	685
GN 274-B45-OZ-2-*	B 45	65	10.5	M 10	M 10	65	148	70	17	32.5	GN 911-M10-55	650
GN 274-B48-OZ-2-*	B 48	65	10.5	M 10	M 10	65	148	70	17	32.5	GN 911-M10-55	610
GN 274-B50-OZ-2-*	B 50	65	10.5	M 10	M 10	65	148	70	17	32.5	GN 911-M10-55	585
GN 274-B20-MZ-2-*	B 20	40	8.5	M 8	M 8	40	95	43	13	20	GN 911-M8-32	190
GN 274-B25-MZ-2-*	B 25	40	8.5	M 8	M 8	40	95	43	13	20	GN 911-M8-32	170
GN 274-B30-MZ-2-*	B 30	40	8.5	M 8	M 8	40	95	43	13	20	GN 911-M8-32	150
GN 274-B40-MZ-2-*	B 40	65	10.5	M 10	M 10	65	148	70	17	32.5	GN 911-M10-55	700
GN 274-B42-MZ-2-*	B 42	65	10.5	M 10	M 10	65	148	70	17	32.5	GN 911-M10-55	690
GN 274-B45-MZ-2-*	B 45	65	10.5	M 10	M 10	65	148	70	17	32.5	GN 911-M10-55	655
GN 274-B48-MZ-2-*	B 48	65	10.5	M 10	M 10	65	148	70	17	32.5	GN 911-M10-55	615
GN 274-B50-MZ-2-*	B 50	65	10.5	M 10	M 10	65	148	70	17	32.5	GN 911-M10-55	585
GN 274-B20-AV-2-*	B 20	40	8.5	M 8	M 8	40	95	43	13	20	GN 911-M8-32	185
GN 274-B25-AV-2-*	B 25	40	8.5	M 8	M 8	40	95	43	13	20	GN 911-M8-32	170
GN 274-B30-AV-2-*	B 30	40	8.5	M 8	M 8	40	95	43	13	20	GN 911-M8-32	150
GN 274-B40-AV-2-*	B 40	65	10.5	M 10	M 10	65	148	70	17	32.5	GN 911-M10-55	710
GN 274-B42-AV-2-*	B 42	65	10.5	M 10	M 10	65	148	70	17	32.5	GN 911-M10-55	690
GN 274-B45-AV-2-*	B 45	65	10.5	M 10	M 10	65	148	70	17	32.5	GN 911-M10-55	655
GN 274-B48-AV-2-*	B 48	65	10.5	M 10	M 10	65	148	70	17	32.5	GN 911-M10-55	620
GN 274-B50-AV-2-*	B 50	65	10.5	M 10	M 10	65	148	70	17	32.5	GN 911-M10-55	585
GN 274-B20-IV-2-*	B 20	40	8.5	M 8	M 8	40	95	43	13	20	GN 911-M8-32	180
GN 274-B25-IV-2-*	B 25	40	8.5	M 8	M 8	40	95	43	13	20	GN 911-M8-32	160
GN 274-B30-IV-2-*	B 30	40	8.5	M 8	M 8	40	95	43	13	20	GN 911-M8-32	160
GN 274-B40-IV-2-*	B 40	65	10.5	M 10	M 10	65	148	70	17	32.5	GN 911-M10-55	690
GN 274-B42-IV-2-*	B 42	65	10.5	M 10	M 10	65	148	70	17	32.5	GN 911-M10-55	665
GN 274-B45-IV-2-*	B 45	65	10.5	M 10	M 10	65	148	70	17	32.5	GN 911-M10-55	635
GN 274-B48-IV-2-*	B 48	65	10.5	M 10	M 10	65	148	70	17	32.5	GN 911-M10-55	600
GN 274-B50-IV-2-*	B 50	65	10.5	M 10	M 10	65	148	70	17	32.5	GN 911-M10-55	570

Weight BL

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Swivel clamp connectors

Aluminium



SPECIFICATION

Identification No.

No. **2**: with Stainless Steel-Clamping screw DIN 912

Types

- Type **OZ**: without centring step (smooth)
- Type **MZ**: with centring step
- Type **AV**: with male serration
- Type **IV**: with female serration

Aluminium

plastic coated
black RAL 9005, textured finish **SW**

blank **BL**
matt shot-blasted

Clamping bore mechanically machined

Socket cap screws DIN 912
Stainless Steel AISI 304

Hexagon nuts DIN 985
Stainless Steel AISI 304

INFORMATION

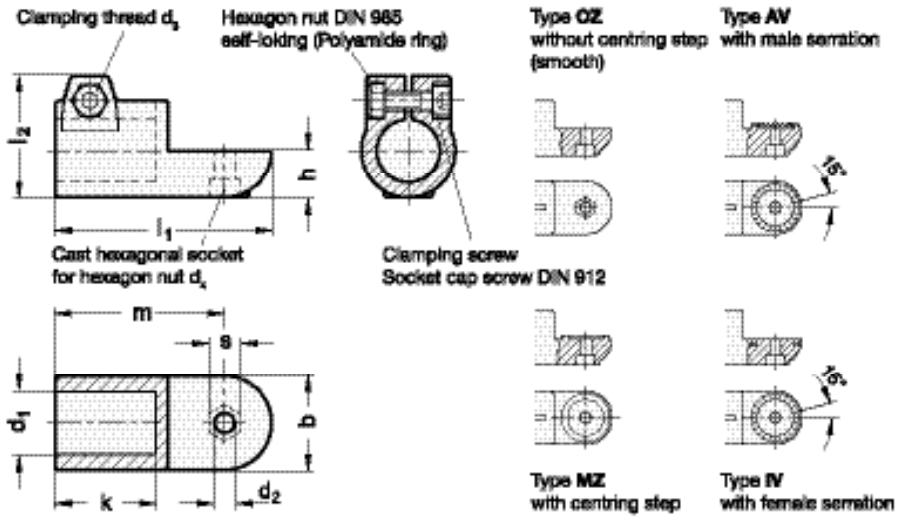
The clamping bore of GN 276 swivel clamp connectors is mechanically machined and designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively.
The standard version of the clamping screw is a socket cap screw with hexagonal socket DIN 912. It can be replaced by a clamping kit GN 911 (see page 1874) (article code see table of dimensions).
GN 276 swivel clamp connnectors can be assembled with swivel clamp connectors GN 272 (see page 1848), GN 274 (see page 1850) or GN 278 (see page 1856) to create swivel clamp connector joints.

ACCESSORY

- Clamping kits GN 911 (see page 1874)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



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GN 276

Swivel clamp connectors

*Complete with colour index of the Swivel clamp connectors (SW or BL)

SW	BL
RAL9005	blank

GN 276

Description	d1	b	d2	d3	d4	h	k	l1	l2	m	s	Clamping kits for d3	⚖
GN 276-B20-OZ-2-*	B 20	40	8.5	M 8	M 8	20	42.5	92	52	72	13	GN 911-M8-32	210
GN 276-B25-OZ-2-*	B 25	40	8.5	M 8	M 8	20	42.5	92	52	72	13	GN 911-M8-32	185
GN 276-B30-OZ-2-*	B 30	40	8.5	M 8	M 8	20	42.5	92	52	72	13	GN 911-M8-32	160
GN 276-B40-OZ-2-*	B 40	65	10.5	M 10	M 10	32.5	74	148	77.5	115	17	GN 911-M10-55	775
GN 276-B42-OZ-2-*	B 42	65	10.5	M 10	M 10	32.5	74	148	77.5	115	17	GN 911-M10-55	750
GN 276-B45-OZ-2-*	B 45	65	10.5	M 10	M 10	32.5	74	148	77.5	115	17	GN 911-M10-55	725
GN 276-B48-OZ-2-*	B 48	65	10.5	M 10	M 10	32.5	74	148	77.5	115	17	GN 911-M10-55	675
GN 276-B50-OZ-2-*	B 50	65	10.5	M 10	M 10	32.5	74	148	77.5	115	17	GN 911-M10-55	650
GN 276-B20-MZ-2-*	B 20	40	8.5	M 8	M 8	20	42.5	92	52	72	13	GN 911-M8-32	210
GN 276-B25-MZ-2-*	B 25	40	8.5	M 8	M 8	20	42.5	92	52	72	13	GN 911-M8-32	190
GN 276-B30-MZ-2-*	B 30	40	8.5	M 8	M 8	20	42.5	92	52	72	13	GN 911-M8-32	160
GN 276-B40-MZ-2-*	B 40	65	10.5	M 10	M 10	32.5	74	148	77.5	115	17	GN 911-M10-55	765
GN 276-B42-MZ-2-*	B 42	65	10.5	M 10	M 10	32.5	74	148	77.5	115	17	GN 911-M10-55	755
GN 276-B45-MZ-2-*	B 45	65	10.5	M 10	M 10	32.5	74	148	77.5	115	17	GN 911-M10-55	705
GN 276-B48-MZ-2-*	B 48	65	10.5	M 10	M 10	32.5	74	148	77.5	115	17	GN 911-M10-55	665
GN 276-B50-MZ-2-*	B 50	65	10.5	M 10	M 10	32.5	74	148	77.5	115	17	GN 911-M10-55	630
GN 276-B20-AV-2-*	B 20	40	8.5	M 8	M 8	20	42.5	92	52	72	13	GN 911-M8-32	210
GN 276-B25-AV-2-*	B 25	40	8.5	M 8	M 8	20	42.5	92	52	72	13	GN 911-M8-32	190
GN 276-B30-AV-2-*	B 30	40	8.5	M 8	M 8	20	42.5	92	52	72	13	GN 911-M8-32	165
GN 276-B40-AV-2-*	B 40	65	10.5	M 10	M 10	32.5	74	148	77.5	115	17	GN 911-M10-55	770
GN 276-B42-AV-2-*	B 42	65	10.5	M 10	M 10	32.5	74	148	77.5	115	17	GN 911-M10-55	755
GN 276-B45-AV-2-*	B 45	65	10.5	M 10	M 10	32.5	74	148	77.5	115	17	GN 911-M10-55	715
GN 276-B48-AV-2-*	B 48	65	10.5	M 10	M 10	32.5	74	148	77.5	115	17	GN 911-M10-55	665
GN 276-B50-AV-2-*	B 50	65	10.5	M 10	M 10	32.5	74	148	77.5	115	17	GN 911-M10-55	660
GN 276-B20-IV-2-*	B 20	40	8.5	M 8	M 8	20	42.5	92	52	72	13	GN 911-M8-32	200
GN 276-B25-IV-2-*	B 25	40	8.5	M 8	M 8	20	42.5	92	52	72	13	GN 911-M8-32	180
GN 276-B30-IV-2-*	B 30	40	8.5	M 8	M 8	20	42.5	92	52	72	13	GN 911-M8-32	180
GN 276-B40-IV-2-*	B 40	65	10.5	M 10	M 10	32.5	74	148	77.5	115	17	GN 911-M10-55	760
GN 276-B42-IV-2-*	B 42	65	10.5	M 10	M 10	32.5	74	148	77.5	115	17	GN 911-M10-55	740
GN 276-B45-IV-2-*	B 45	65	10.5	M 10	M 10	32.5	74	148	77.5	115	17	GN 911-M10-55	700
GN 276-B48-IV-2-*	B 48	65	10.5	M 10	M 10	32.5	74	148	77.5	115	17	GN 911-M10-55	655
GN 276-B50-IV-2-*	B 50	65	10.5	M 10	M 10	32.5	74	148	77.5	115	17	GN 911-M10-55	650

Weight BL

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Swivel clamp connectors

Aluminium

SPECIFICATION

Identification No.

No. **2**: with Stainless Steel-Clamping screw DIN 912

Aluminium

plastic coated
black RAL 9005, textured finish **SW**

blank **BL**
matt shot-blasted

Clamping bore mechanically machined

Socket cap screws DIN 912
Stainless Steel AISI 304

Hexagon nuts DIN 985
Stainless Steel AISI 304



INFORMATION

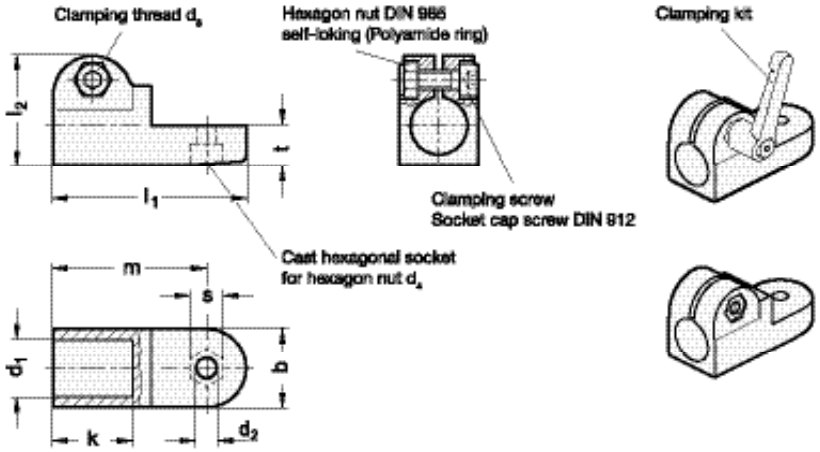
The clamping bore of GN 275 swivel clamp connectors is mechanically machined and designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively.
The standard version of the clamping screw is a socket cap screw with hexagonal socket DIN 912. It can be replaced by a clamping kit GN 911 (see page 1874) (article code see table of dimensions).
GN 275 swivel clamp connectors can be assembled with swivel clamp connectors GN 271 (see page 1847), GN 273 (see page 1849) or GN 277 (see page 1855) to create swivel clamp connector joints.

ACCESSORY

- Clamping kits GN 911 (see page 1874)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



GN 275

Description	d1	b	d2	d3	d4	k	l1	l2	m	s	t	Clamping kits for d3	⚖
GN 275-B12-2-BL	B 12	25	6.5	M 6	M 6	25	61	34.5	48.5	10	12.5	GN 911-M6-22	74
GN 275-B12-2-SW	B 12	25	6.5	M 6	M 6	25	61	34.5	48.5	10	12.5	GN 911-M6-22	74
GN 275-B14-2-BL	B 14	25	6.5	M 6	M 6	25	61	34.5	48.5	10	12.5	GN 911-M6-22	70
GN 275-B14-2-SW	B 14	25	6.5	M 6	M 6	25	61	34.5	48.5	10	12.5	GN 911-M6-22	70
GN 275-B16-2-BL	B 16	25	6.5	M 6	M 6	25	61	34.5	48.5	10	12.5	GN 911-M6-22	68
GN 275-B16-2-SW	B 16	25	6.5	M 6	M 6	25	61	34.5	48.5	10	12.5	GN 911-M6-22	68
GN 275-B18-2-BL	B 18	25	6.5	M 6	M 6	25	61	34.5	48.5	10	12.5	GN 911-M6-22	64
GN 275-B18-2-SW	B 18	25	6.5	M 6	M 6	25	61	34.5	48.5	10	12.5	GN 911-M6-22	65

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GN 277

Swivel clamp connectors

Aluminium



SPECIFICATION

Identification No.

No. **2**: with Stainless Steel-Clamping screw DIN 912

Aluminium

plastic coated
black RAL 9005, textured finish **SW**

blank **BL**
matt shot-blasted

Clamping bore mechanically machined

Socket cap screws DIN 912
Stainless Steel AISI 304

Hexagon nuts DIN 985
Stainless Steel AISI 304

INFORMATION

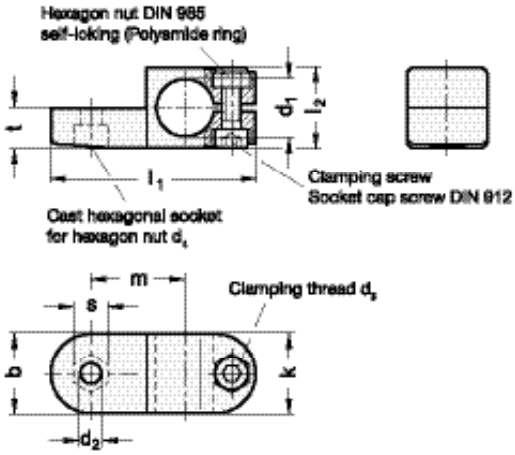
The clamping bore of GN 277 swivel clamp connectors is mechanically machined and designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively.
The standard version of the clamping screw is a socket cap screw with hexagonal socket DIN 912. It can be replaced by a clamping kit GN 911 (see page 1874) (article code see table of dimensions).
GN 277 swivel clamp connectors can be assembled with swivel clamp connectors GN 271 (see page 1847), GN 273 (see page 1849) or GN 275 (see page 1854) to create swivel clamp connector joints.

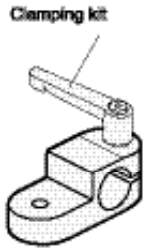
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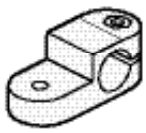
- Clamping kits GN 911 (see page 1874)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)







GN 277

Description	d1	b	d2	d3	d4	k	l1	l2	m	s	t	Clamping kits for d3	⚖
GN 277-B12-2-BL	B 12	25	6.5	M 6	M 6	25	64	25	29.5	10	12.5	GN 911-M6-22	63
GN 277-B12-2-SW	B 12	25	6.5	M 6	M 6	25	64	25	29.5	10	12.5	GN 911-M6-23	63
GN 277-B14-2-BL	B 14	25	6.5	M 6	M 6	25	64	25	29.5	10	12.5	GN 911-M6-24	60
GN 277-B14-2-SW	B 14	25	6.5	M 6	M 6	25	64	25	29.5	10	12.5	GN 911-M6-25	60
GN 277-B16-2-BL	B 16	25	6.5	M 6	M 6	25	64	25	29.5	10	12.5	GN 911-M6-26	59
GN 277-B16-2-SW	B 16	25	6.5	M 6	M 6	25	64	25	29.5	10	12.5	GN 911-M6-27	59
GN 277-B18-2-BL	B 18	25	6.5	M 6	M 6	25	64	25	29.5	10	12.5	GN 911-M6-28	56
GN 277-B18-2-SW	B 18	25	6.5	M 6	M 6	25	64	25	29.5	10	12.5	GN 911-M6-29	56

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Swivel clamp connectors

Aluminium

SPECIFICATION

Identification No.

No. **2**: with Stainless Steel-Clamping screw DIN 912

Types

- Type **OZ**: without centring step (smooth)
- Type **MZ**: with centring step
- Type **AV**: with male serration
- Type **IV**: with female serration

Aluminium

plastic coated
black RAL 9005, textured finish **SW**

blank **BL**
matt shot-blasted

Clamping bore mechanically machined

Socket cap screws DIN 912
Stainless Steel AISI 304

Hexagon nuts DIN 985
Stainless Steel AISI 304



INFORMATION

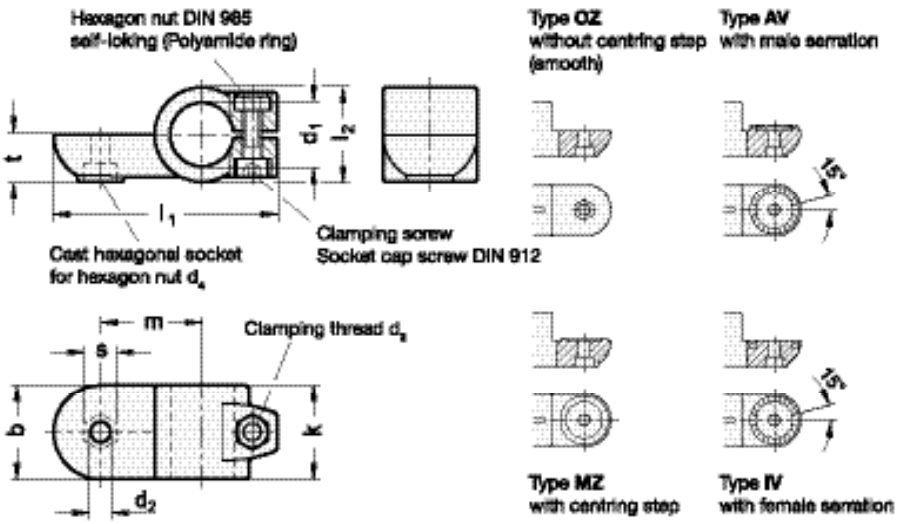
The clamping bore of GN 278 swivel clamp connectors is mechanically machined and designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively.
The standard version of the clamping screw is a socket cap screw with hexagonal socket DIN 912. It can be replaced by a clamping kit GN 911 (see page 1874) (article code see table of dimensions).
GN 278 swivel clamp connectors can be assembled with swivel clamp connectors GN 272 (see page 1848), GN 274 (see page 1850) or GN 278 (see page 1856) to create swivel clamp connector joints.

ACCESSORY

- Clamping kits GN 911 (see page 1874)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



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GN 278

Swivel clamp connectors

*Complete with colour index of the Swivel clamp connectors (SW or BL)

SW	BL
RAL9005	blank

GN 278

Description	d1	b	d2	d3	d4	k	l1	l2	m	s	t	Clamping kits for d3	⚖
GN 278-B20-OZ-2-*	B 20	40	8.5	M 8	M 8	40	95	40	43	13	20	GN 911-M8-32	185
GN 278-B25-OZ-2-*	B 25	40	8.5	M 8	M 8	40	95	40	43	13	20	GN 911-M8-32	170
GN 278-B30-OZ-2-*	B 30	40	8.5	M 8	M 8	40	95	40	43	13	20	GN 911-M8-32	145
GN 278-B40-OZ-2-*	B 40	65	10.5	M 10	M 10	65	148	65	70	17	32.5	GN 911-M10-55	705
GN 278-B42-OZ-2-*	B 42	65	10.5	M 10	M 10	65	148	65	70	17	32.5	GN 911-M10-55	675
GN 278-B45-OZ-2-*	B 45	65	10.5	M 10	M 10	65	148	65	70	17	32.5	GN 911-M10-55	645
GN 278-B48-OZ-2-*	B 48	65	10.5	M 10	M 10	65	148	65	70	17	32.5	GN 911-M10-55	610
GN 278-B50-OZ-2-*	B 50	65	10.5	M 10	M 10	65	148	65	70	17	32.5	GN 911-M10-55	585
GN 278-B20-MZ-2-*	B 20	40	8.5	M 8	M 8	40	95	40	43	13	20	GN 911-M8-32	185
GN 278-B25-MZ-2-*	B 25	40	8.5	M 8	M 8	40	95	40	43	13	20	GN 911-M8-32	170
GN 278-B30-MZ-2-*	B 30	40	8.5	M 8	M 8	40	95	40	43	13	20	GN 911-M8-32	145
GN 278-B40-MZ-2-*	B 40	65	10.5	M 10	M 10	65	148	65	70	17	32.5	GN 911-M10-55	695
GN 278-B42-MZ-2-*	B 42	65	10.5	M 10	M 10	65	148	65	70	17	32.5	GN 911-M10-55	675
GN 278-B45-MZ-2-*	B 45	65	10.5	M 10	M 10	65	148	65	70	17	32.5	GN 911-M10-55	645
GN 278-B48-MZ-2-*	B 48	65	10.5	M 10	M 10	65	148	65	70	17	32.5	GN 911-M10-55	605
GN 278-B50-MZ-2-*	B 50	65	10.5	M 10	M 10	65	148	65	70	17	32.5	GN 911-M10-55	575
GN 278-B20-AV-2-*	B 20	40	8.5	M 8	M 8	40	95	40	43	13	20	GN 911-M8-32	190
GN 278-B25-AV-2-*	B 25	40	8.5	M 8	M 8	40	95	40	43	13	20	GN 911-M8-32	170
GN 278-B30-AV-2-*	B 30	40	8.5	M 8	M 8	40	95	40	43	13	20	GN 911-M8-32	150
GN 278-B40-AV-2-*	B 40	65	10.5	M 10	M 10	65	148	65	70	17	32.5	GN 911-M10-55	690
GN 278-B42-AV-2-*	B 42	65	10.5	M 10	M 10	65	148	65	70	17	32.5	GN 911-M10-55	675
GN 278-B45-AV-2-*	B 45	65	10.5	M 10	M 10	65	148	65	70	17	32.5	GN 911-M10-55	640
GN 278-B48-AV-2-*	B 48	65	10.5	M 10	M 10	65	148	65	70	17	32.5	GN 911-M10-55	600
GN 278-B50-AV-2-*	B 50	65	10.5	M 10	M 10	65	148	65	70	17	32.5	GN 911-M10-55	580
GN 278-B20-IV-2-*	B 20	40	8.5	M 8	M 8	40	95	40	43	13	20	GN 911-M8-32	180
GN 278-B25-IV-2-*	B 25	40	8.5	M 8	M 8	40	95	40	43	13	20	GN 911-M8-32	160
GN 278-B30-IV-2-*	B 30	40	8.5	M 8	M 8	40	95	40	43	13	20	GN 911-M8-32	140
GN 278-B40-IV-2-*	B 40	65	10.5	M 10	M 10	65	148	65	70	17	32.5	GN 911-M10-55	685
GN 278-B42-IV-2-*	B 42	65	10.5	M 10	M 10	65	148	65	70	17	32.5	GN 911-M10-55	665
GN 278-B45-IV-2-*	B 45	65	10.5	M 10	M 10	65	148	65	70	17	32.5	GN 911-M10-55	620
GN 278-B48-IV-2-*	B 48	65	10.5	M 10	M 10	65	148	65	70	17	32.5	GN 911-M10-55	585
GN 278-B50-IV-2-*	B 50	65	10.5	M 10	M 10	65	148	65	70	17	32.5	GN 911-M10-55	565

Weight BL

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Swivel clamp connectors

Aluminium / split assembly

SPECIFICATION

Identification No.

No. **2**: with Stainless Steel-clamping screw DIN 912

Type

- Type **OZ**: without centring step

Aluminium

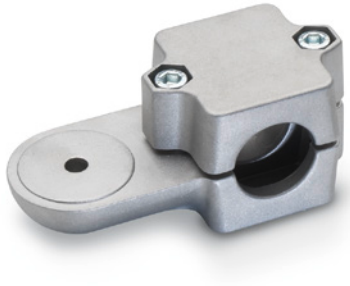
plastic coated
black RAL 9005, textured finish **SW**

blank **BL**
matt shot-blasted

Clamping bore not machined

Socket cap screws DIN 912
Stainless Steel AISI 304

Hexagon nuts DIN 985
Stainless Steel AISI 304



INFORMATION

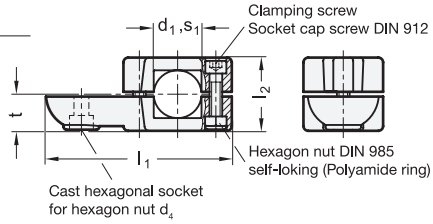
The clamping bore of GN 279 swivel clamp connectors is not machined and designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively.
The square designs are also suitable for use in **profile systems**.
The standard version of the clamping screws are socket cap screws with hexagonal socket DIN 912. They can be replaced by clamping kits GN 911 (see page 1874) (article code see table of dimensions).
Two GN 279 swivel clamp connectors can be combined to GN 289 (see page 1870) swivel clamp connector joints.
GN 279 swivel clamp connectors can be assembled with swivel clamp connectors GN 272 (see page 1848), GN 274 (see page 1850) or GN 276 (see page 1852) to create swivel clamp connector joints.

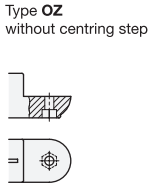
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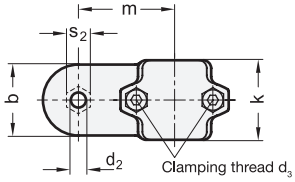
- Clamping kits GN 911 (see page 1874)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)







*Complete with colour index of the Swivel clamp connectors (SW or BL)

SW	BL
RAL9005	blank

GN 279

Description	d1	s1	b	d2	d3	k	l1	l2	m	s2	t	Clamping kits for d3	⚖
GN 279-B40-OZ-2-*	B 40	-	65	10.5	M 10	76	166.5	70	85	17	35	GN 911-M10-63	861
GN 279-B42-OZ-2-*	B 42	-	65	10.5	M 10	76	166.5	70	85	17	35	GN 911-M10-63	840
GN 279-B45-OZ-2-*	B 45	-	65	10.5	M 10	76	166.5	70	85	17	35	GN 911-M10-63	829
GN 279-B48-OZ-2-*	B 48	-	65	10.5	M 10	76	166.5	70	85	17	35	GN 911-M10-63	808
GN 279-B50-OZ-2-*	B 50	-	65	10.5	M 10	76	166.5	70	85	17	35	GN 911-M10-63	800
GN 279-V40-OZ-2-*	-	V 40	65	10.5	M 10	76	166.5	70	85	17	35	GN 911-M10-63	952
GN 279-V45-OZ-2-*	-	V 45	65	10.5	M 10	76	166.5	70	85	17	35	GN 911-M10-63	908
GN 279-V50-OZ-2-*	-	V 50	65	10.5	M 10	76	166.5	70	85	17	35	GN 911-M10-63	868

Weight BL

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Swivel clamp connector joints

Aluminium



SPECIFICATION

Identification No.

No. **2**: with 2 Stainless Steel-Clamping screws DIN 912

Aluminium

plastic coated
black RAL 9005, textured finish **SW**

blank **BL**
matt shot-blasted

Clamping bore mechanically machined

Socket cap screws DIN 912
Stainless Steel AISI 304

Hexagon nuts DIN 985
Stainless Steel AISI 304

INFORMATION

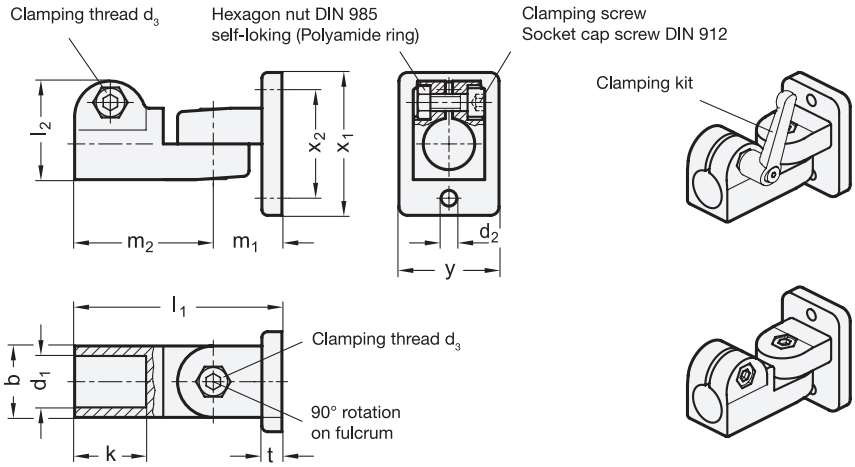
GN 281 swivel clamp connector joints are an assembly of the swivel clamp connectors GN 271 (see page 1847) and GN 275 (see page 1854).
The clamping bore is mechanically machined and designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively.
The standard version of the clamping screws are socket cap screws with hexagonal socket DIN 912. They can be replaced by adjustable clamping levers GN 911 (see page 1874) (see table of dimensions).

ACCESSORY

- Clamping kits GN 911 (see page 1874)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



GN 281

Description	d1	b	d2	d3	k	l1	l2	m1	m2	t	x1	x2	y	Clamping kits for d3	⚖
GN 281-B12-2-BL	B 12	25	5.5	M 6	25	72.5	34.5	24	48.5	7	50	38	35	GN 911-M6-22	126
GN 281-B12-2-SW	B 12	25	5.5	M 6	25	72.5	34.5	24	48.5	7	50	38	35	GN 911-M6-22	126
GN 281-B14-2-BL	B 14	25	5.5	M 6	25	72.5	34.5	24	48.5	7	50	38	35	GN 911-M6-22	122
GN 281-B14-2-SW	B 14	25	5.5	M 6	25	72.5	34.5	24	48.5	7	50	38	35	GN 911-M6-22	122
GN 281-B16-2-BL	B 16	25	5.5	M 6	25	72.5	34.5	24	48.5	7	50	38	35	GN 911-M6-22	120
GN 281-B16-2-SW	B 16	25	5.5	M 6	25	72.5	34.5	24	48.5	7	50	38	35	GN 911-M6-22	120
GN 281-B18-2-BL	B 18	25	5.5	M 6	25	72.5	34.5	24	48.5	7	50	38	35	GN 911-M6-22	116
GN 281-B18-2-SW	B 18	25	5.5	M 6	25	72.5	34.5	24	48.5	7	50	38	35	GN 911-M6-22	116

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Swivel clamp connector joints

Aluminium

SPECIFICATION

Identification No.

No. **2**: with 2 Stainless Steel-clamping screws DIN 912

Types

- Type **S**: stepless adjustment
- Type **T**: adjustment by 15°- division (serration)

Aluminium

plastic coated
black RAL 9005, textured finish **SW**

blank **BL**
matt shot-blasted

Clamping bore mechanically machined

Socket cap screws DIN 912
Stainless Steel AISI 304

Hexagon nuts DIN 985
Stainless Steel AISI 304

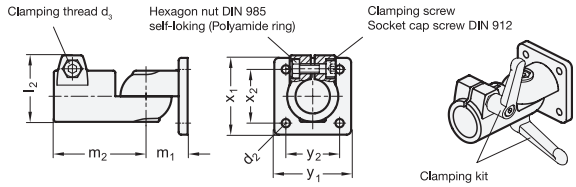


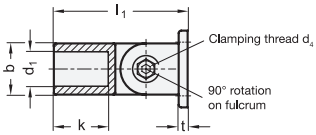
INFORMATION

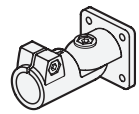
The swivel clamp connector joints GN 282 are an assembly of of the swivel clamp connectors GN 272 (see page 1848) and GN 276 (see page 1852).
For the type with stepless adjustment (Type S) swivel clamp connectors with a centring step are used.
The clamping bore is mechanically machined and designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively.
The standard clamping screws are socket cap screws DIN 912. They can be replaced by clamping kits GN 911 (see page 1874) (article code see table of dimensions).

ACCESSORY

- Clamping kits GN 911 (see page 1874)







*Complete with colour index of the Swivel clamp connector joints (SW or BL)

SW	BL
RAL9005	blank

GN 282

Description	d1	b	d2	d3	d4	k	l1	l2	m1	m2	t	x1	x2	y1	y2	Clamping kits for d3	Clamping kits for d4	⚖
GN 282-B20-S-2-*	B 20	40	6.5	M 8	M 8	42.5	104.5	52	32.5	72	7	60	42	60	42	GN 911-M8-32	GN 911-M8-35	342
GN 282-B25-S-2-*	B 25	40	6.5	M 8	M 8	42.5	104.5	52	32.5	72	7	60	42	60	42	GN 911-M8-32	GN 911-M8-35	323
GN 282-B30-S-2-*	B 30	40	6.5	M 8	M 8	42.5	104.5	52	32.5	72	7	60	42	60	42	GN 911-M8-32	GN 911-M8-35	300
GN 282-B40-S-2-*	B 40	65	11	M 10	M 10	74	167	77.5	52	115	14	105	74	105	74	GN 911-M10-55	GN 911-M10-63	1380
GN 282-B42-S-2-*	B 42	65	11	M 10	M 10	74	167	77.5	52	115	14	105	74	105	74	GN 911-M10-55	GN 911-M10-63	1340
GN 282-B45-S-2-*	B 45	65	11	M 10	M 10	74	167	77.5	52	115	14	105	74	105	74	GN 911-M10-55	GN 911-M10-63	1300
GN 282-B48-S-2-*	B 48	65	11	M 10	M 10	74	167	77.5	52	115	14	105	74	105	74	GN 911-M10-55	GN 911-M10-63	1255
GN 282-B50-S-2-*	B 50	65	11	M 10	M 10	74	167	77.5	52	115	14	105	74	105	74	GN 911-M10-55	GN 911-M10-63	1200
GN 282-B20-T-2-*	B 20	40	6.5	M 8	M 8	42.5	104.5	52	32.5	72	7	60	42	60	42	GN 911-M8-35	GN 911-M8-35	342
GN 282-B25-T-2-*	B 25	40	6.5	M 8	M 8	42.5	104.5	52	32.5	72	7	60	42	60	42	GN 911-M8-35	GN 911-M8-35	323
GN 282-B30-T-2-*	B 30	40	6.5	M 8	M 8	42.5	104.5	52	32.5	72	7	60	42	60	42	GN 911-M8-35	GN 911-M8-35	298
GN 282-B40-T-2-*	B 40	65	11	M 10	M 10	74	167	77.5	52	115	14	105	74	105	74	GN 911-M10-55	GN 911-M10-63	1390
GN 282-B42-T-2-*	B 42	65	11	M 10	M 10	74	167	77.5	52	115	14	105	74	105	74	GN 911-M10-55	GN 911-M10-63	1345
GN 282-B45-T-2-*	B 45	65	11	M 10	M 10	74	167	77.5	52	115	14	105	74	105	74	GN 911-M10-55	GN 911-M10-63	1310
GN 282-B48-T-2-*	B 48	65	11	M 10	M 10	74	167	77.5	52	115	14	105	74	105	74	GN 911-M10-55	GN 911-M10-63	1265
GN 282-B50-T-2-*	B 50	65	11	M 10	M 10	74	167	77.5	52	115	14	105	74	105	74	GN 911-M10-55	GN 911-M10-63	1255

Weight BL

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GN 283

Swivel clamp connector joints

Aluminium

SPECIFICATION

Identification No.

No. **2**: with 3 Stainless Steel-Clamping screws DIN 912

Aluminium

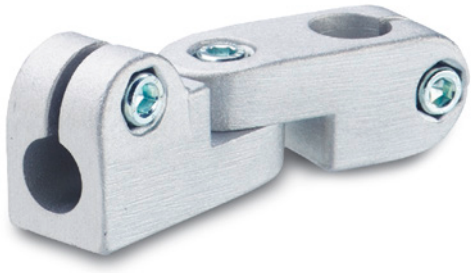
plastic coated
black RAL 9005, textured finish **SW**

blank **BL**
matt shot-blasted

Clamping bores mechanically machined

Socket cap screws DIN 912
Stainless Steel AISI 304

Hexagon nuts DIN 985
Stainless Steel AISI 304



INFORMATION

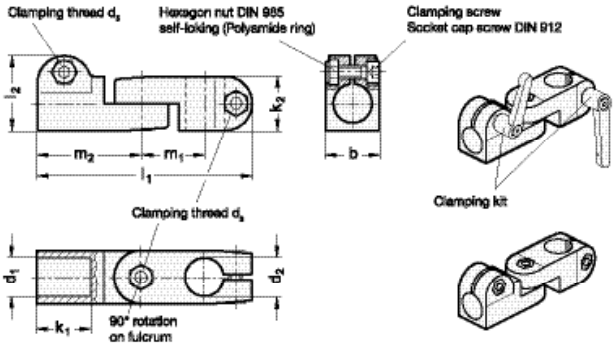
GN 283 swivel clamp connector joints are an assembly of the swivel clamp connectors GN 273 (see page 1849) and GN 275 (see page 1854). Since the swivel clamp connectors have an identical swivel width "b", all bores "d_1 / d_2" can be combined as required.
The clamping bore is mechanically machined and designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively.
The standard version of the clamping screws are socket cap screws with hexagonal socket DIN 912. They can be replaced by clamping kits GN 911 (see page 1874) (see table of dimensions).

ACCESSORY

- Clamping kits GN 911 (see page 1874)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



*Complete with colour index of the Swivel clamp connector joints (SW or BL)

SW	BL
RAL9005	blank

GN 283

Description	d1	d2	b	d3	k1	k2	l1	l2	m1	m2	Clamping kits for d3	⚖
GN 283-B12-B12-2-*	B 12	B 12	25	M 6	25	25	100	34.5	29.5	48.5	GN 911-M6-22	146
GN 283-B12-B14-2-*	B 12	B 14	25	M 6	25	25	100	34.5	29.5	48.5	GN 911-M6-22	146
GN 283-B12-B16-2-*	B 12	B 16	25	M 6	25	25	100	34.5	29.5	48.5	GN 911-M6-22	146
GN 283-B12-B18-2-*	B 12	B 18	25	M 6	25	25	100	34.5	29.5	48.5	GN 911-M6-22	146
GN 283-B14-B12-2-*	B 14	B 12	25	M 6	25	25	100	34.5	29.5	48.5	GN 911-M6-22	146
GN 283-B14-B14-2-*	B 14	B 14	25	M 6	25	25	100	34.5	29.5	48.5	GN 911-M6-22	146
GN 283-B14-B16-2-*	B 14	B 16	25	M 6	25	25	100	34.5	29.5	48.5	GN 911-M6-22	146
GN 283-B14-B18-2-*	B 14	B 18	25	M 6	25	25	100	34.5	29.5	48.5	GN 911-M6-22	146
GN 283-B16-B12-2-*	B 16	B 12	25	M 6	25	25	100	34.5	29.5	48.5	GN 911-M6-22	146
GN 283-B16-B14-2-*	B 16	B 14	25	M 6	25	25	100	34.5	29.5	48.5	GN 911-M6-22	146
GN 283-B16-B16-2-*	B 16	B 16	25	M 6	25	25	100	34.5	29.5	48.5	GN 911-M6-22	146
GN 283-B16-B18-2-*	B 16	B 18	25	M 6	25	25	100	34.5	29.5	48.5	GN 911-M6-22	146
GN 283-B18-B12-2-*	B 18	B 12	25	M 6	25	25	100	34.5	29.5	48.5	GN 911-M6-22	146
GN 283-B18-B14-2-*	B 18	B 14	25	M 6	25	25	100	34.5	29.5	48.5	GN 911-M6-22	146
GN 283-B18-B16-2-*	B 18	B 16	25	M 6	25	25	100	34.5	29.5	48.5	GN 911-M6-22	146
GN 283-B18-B18-2-*	B 18	B 18	25	M 6	25	25	100	34.5	29.5	48.5	GN 911-M6-22	127

Weight BL

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Swivel clamp connector joints

Aluminium

SPECIFICATION

Identification No.

No. **2**: with 3 Stainless Steel-Clamping screws DIN 912

Aluminium

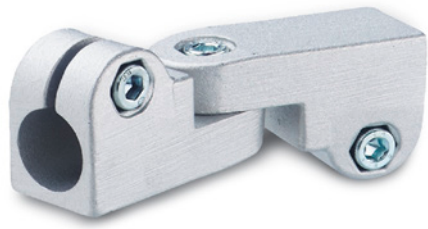
plastic coated
black RAL 9005, textured finish **SW**

blank **BL**
matt shot-blasted

Clamping bores mechanically machined

Socket cap screws DIN 912
Stainless Steel AISI 304

Hexagon nuts DIN 985
Stainless Steel AISI 304



INFORMATION

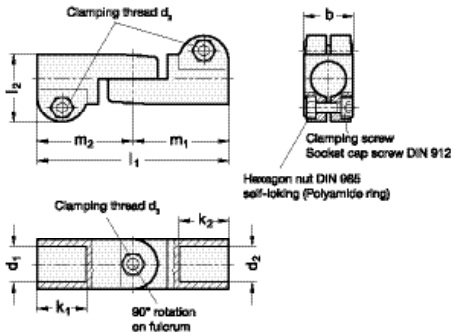
GN 285 swivel clamp connector joints are an assembly of two GN 275 (see page 1854) swivel clamp connectors.
Since the swivel clamp connectors have an identical swivel width "b", all bores „d1 / d2" can be combined as required.
The clamping bore is mechanically machined and designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively.
The standard version of the clamping screws are socket cap screws with hexagonal socket DIN 912. They can be replaced by adjustable clamping levers GN 911 (see page 1874) (see table of dimensions).

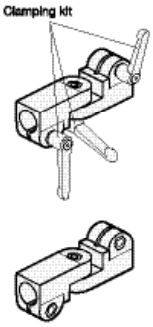
ACCESSORY

- Clamping kits GN 911 (see page 1874)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)





*Complete with colour index of the Swivel clamp connector joints (SW or BL)

SW	BL
RAL9005	blank

GN 285

Description	d1	d2	b	d3	k1	k2	l1	l2	m1	m2	Clamping kits for d3	⚖
GN 285-B12-B12-2-*	B 12	B 12	25	M 6	25	25	97	34.5	48.5	48.5	GN 911-M6-22	156
GN 285-B12-B14-2-*	B 12	B 14	25	M 6	25	25	97	34.5	48.5	48.5	GN 911-M6-22	146
GN 285-B12-B16-2-*	B 12	B 16	25	M 6	25	25	97	34.5	48.5	48.5	GN 911-M6-22	146
GN 285-B12-B18-2-*	B 12	B 18	25	M 6	25	25	97	34.5	48.5	48.5	GN 911-M6-22	146
GN 285-B14-B12-2-*	B 14	B 12	25	M 6	25	25	97	34.5	48.5	48.5	GN 911-M6-22	146
GN 285-B14-B14-2-*	B 14	B 14	25	M 6	25	25	97	34.5	48.5	48.5	GN 911-M6-22	146
GN 285-B14-B16-2-*	B 14	B 16	25	M 6	25	25	97	34.5	48.5	48.5	GN 911-M6-22	146
GN 285-B14-B18-2-*	B 14	B 18	25	M 6	25	25	97	34.5	48.5	48.5	GN 911-M6-22	146
GN 285-B16-B12-2-*	B 16	B 12	25	M 6	25	25	97	34.5	48.5	48.5	GN 911-M6-22	146
GN 285-B16-B14-2-*	B 16	B 14	25	M 6	25	25	97	34.5	48.5	48.5	GN 911-M6-22	146
GN 285-B16-B16-2-*	B 16	B 16	25	M 6	25	25	97	34.5	48.5	48.5	GN 911-M6-22	144
GN 285-B16-B18-2-*	B 16	B 18	25	M 6	25	25	97	34.5	48.5	48.5	GN 911-M6-22	144
GN 285-B18-B12-2-*	B 18	B 12	25	M 6	25	25	97	34.5	48.5	48.5	GN 911-M6-22	146
GN 285-B18-B14-2-*	B 18	B 14	25	M 6	25	25	97	34.5	48.5	48.5	GN 911-M6-22	146
GN 285-B18-B16-2-*	B 18	B 16	25	M 6	25	25	97	34.5	48.5	48.5	GN 911-M6-22	146
GN 285-B18-B18-2-*	B 18	B 18	25	M 6	25	25	97	34.5	48.5	48.5	GN 911-M6-22	136

Weight BL

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GN 287

Swivel clamp connector joints

Aluminium

SPECIFICATION

Identification No.

No. **2**: with 3 Stainless Steel-Clamping screws DIN 912

Aluminium

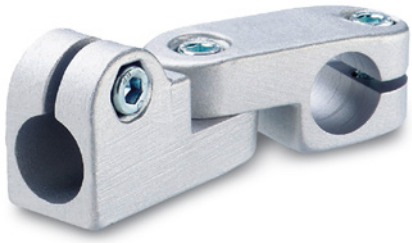
plastic coated
black RAL 9005, textured finish **SW**

blank **BL**
matt shot-blasted

Clamping bores mechanically machined

Socket cap screws DIN 912
Stainless Steel AISI 304

Hexagon nuts DIN 985
Stainless Steel AISI 304



INFORMATION

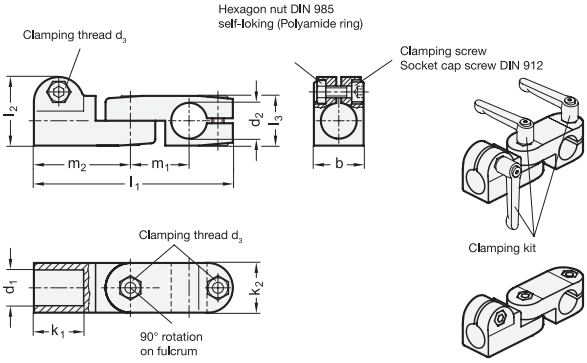
GN 287 swivel clamp connector joints are an assembly of swivel clamp connectors GN 275 (see page 1854), and GN 277 (see page 1855).
Since the swivel clamp connectors have an identical swivel width "b", all bores "d_1/d_2" can be combined as required.
The clamping bore is mechanically machined and designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively.
The standard version of the clamping screws are socket cap screws with hexagonal socket DIN 912. They can be replaced by adjustable clamping levers GN 911 (see page 1874) (see table of dimensions).

ACCESSORY

- Clamping kits GN 911 (see page 1874)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



*Complete with colour index of the Swivel clamp connector joints (SW or BL)

SW	BL
RAL9005	blank

GN 287

Description	d1	d2	b	d3	k1	k2	l1	l2	l3	m1	m2	Clamping kits for d3	⚖
GN 287-B12-B12-2-*	B 12	B 12	25	M 6	25	25	100	34.5	25	29.5	48.5	GN 911-M6-22	145
GN 287-B12-B14-2-*	B 12	B 14	25	M 6	25	25	100	34.5	25	29.5	48.5	GN 911-M6-22	145
GN 287-B12-B16-2-*	B 12	B 16	25	M 6	25	25	100	34.5	25	29.5	48.5	GN 911-M6-22	145
GN 287-B12-B18-2-*	B 12	B 18	25	M 6	25	25	100	34.5	25	29.5	48.5	GN 911-M6-22	145
GN 287-B14-B12-2-*	B 14	B 12	25	M 6	25	25	100	34.5	25	29.5	48.5	GN 911-M6-22	140
GN 287-B14-B14-2-*	B 14	B 14	25	M 6	25	25	100	34.5	25	29.5	48.5	GN 911-M6-22	140
GN 287-B14-B16-2-*	B 14	B 16	25	M 6	25	25	100	34.5	25	29.5	48.5	GN 911-M6-22	135
GN 287-B14-B18-2-*	B 14	B 18	25	M 6	25	25	100	34.5	25	29.5	48.5	GN 911-M6-22	130
GN 287-B16-B12-2-*	B 16	B 12	25	M 6	25	25	100	34.5	25	29.5	48.5	GN 911-M6-22	145
GN 287-B16-B14-2-*	B 16	B 14	25	M 6	25	25	100	34.5	25	29.5	48.5	GN 911-M6-22	140
GN 287-B16-B16-2-*	B 16	B 16	25	M 6	25	25	100	34.5	25	29.5	48.5	GN 911-M6-22	135
GN 287-B16-B18-2-*	B 16	B 18	25	M 6	25	25	100	34.5	25	29.5	48.5	GN 911-M6-22	130
GN 287-B18-B12-2-*	B 18	B 12	25	M 6	25	25	100	34.5	25	29.5	48.5	GN 911-M6-22	145
GN 287-B18-B14-2-*	B 18	B 14	25	M 6	25	25	100	34.5	25	29.5	48.5	GN 911-M6-22	140
GN 287-B18-B16-2-*	B 18	B 16	25	M 6	25	25	100	34.5	25	29.5	48.5	GN 911-M6-22	135
GN 287-B18-B18-2-*	B 18	B 18	25	M 6	25	25	100	34.5	25	29.5	48.5	GN 911-M6-22	130

Weight BL

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Swivel clamp connector joints

Aluminium

SPECIFICATION

Identification No.

No. **2**: with 3 Stainless Steel-Clamping screws DIN 912

Types

- Type **S**: stepless adjustment
- Type **T**: adjustment by 15°-division (serration)

Aluminium

plastic coated
black RAL 9005, textured finish **SW**

blank **BL**
matt shot-blasted

Clamping bores mechanically machined

Socket cap screws DIN 912
Stainless Steel AISI 304

Hexagon nuts DIN 985
Stainless Steel AISI 304



INFORMATION

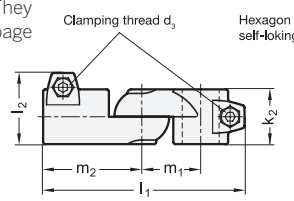
GN 284 swivel clamp connector joints are an assembly of the swivel clamp connectors GN 274 (see page 1850) and GN 276 (see page 1852). For the type with stepless adjustment (Type S) swivel clamp connectors with a centring step are used. Within the identical swivel width "b", all bores „d_1 / d_2" can be combined as required.
The clamping bore is mechanically machined and designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively. The standard version of the clamping screws are socket cap screws with hexagonal socket DIN 912. They can be replaced by adjustable clamping levers GN 911 (see page 1874) (see table of dimensions).

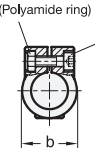
ACCESSORY

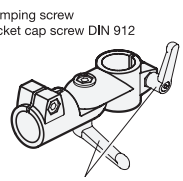
- Clamping kits GN 911 (see page 1874)

TECHNICAL INFORMATION

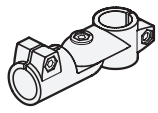
- Stainless Steel characteristics (see page A26)

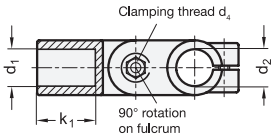






Clamping kit





*Complete with colour index of the Swivel clamp connector joints (SW or BL)

SW	BL
RAL9005	blank

GN 284

Description	d1	d2	b	d3	d4	k1	k2	l1	l2	m1	m2	Clamping kits for d3	Clamping kits for d4	⚖
GN 284-B20-B20-S-2-*	B 20	B 20	40	M 8	M 8	42.5	40	147	52	43	72	GN 911-M8-32	GN 911-M8-35	405
GN 284-B20-B25-S-2-*	B 20	B 25	40	M 8	M 8	42.5	40	147	52	43	72	GN 911-M8-32	GN 911-M8-35	405
GN 284-B20-B30-S-2-*	B 20	B 30	40	M 8	M 8	42.5	40	147	52	43	72	GN 911-M8-32	GN 911-M8-35	405
GN 284-B25-B20-S-2-*	B 25	B 20	40	M 8	M 8	42.5	40	147	52	43	72	GN 911-M8-32	GN 911-M8-35	405
GN 284-B25-B25-S-2-*	B 25	B 25	40	M 8	M 8	42.5	40	147	52	43	72	GN 911-M8-32	GN 911-M8-35	405
GN 284-B25-B30-S-2-*	B 25	B 30	40	M 8	M 8	42.5	40	147	52	43	72	GN 911-M8-32	GN 911-M8-35	405
GN 284-B30-B20-S-2-*	B 30	B 20	40	M 8	M 8	42.5	40	147	52	43	72	GN 911-M8-32	GN 911-M8-35	405
GN 284-B30-B25-S-2-*	B 30	B 25	40	M 8	M 8	42.5	40	147	52	43	72	GN 911-M8-32	GN 911-M8-35	405
GN 284-B30-B30-S-2-*	B 30	B 30	40	M 8	M 8	42.5	40	147	52	43	72	GN 911-M8-32	GN 911-M8-35	325
GN 284-B40-B40-S-2-*	B 40	B 40	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1500
GN 284-B40-B42-S-2-*	B 40	B 42	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1500
GN 284-B40-B45-S-2-*	B 40	B 45	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1500
GN 284-B40-B48-S-2-*	B 40	B 48	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1500
GN 284-B40-B50-S-2-*	B 40	B 50	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1500
GN 284-B50-B48-T-2-*	B 50	B 48	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1380
GN 284-B50-B50-T-2-*	B 50	B 50	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1280

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GN 284

Swivel clamp connector joints

*Complete with colour index of the Swivel clamp connector joints (SW or BL)

SW	BL
RAL9005	blank

GN 284

Description	d1	d2	b	d3	d4	k1	k2	l1	l2	m1	m2	Clamping kits for d3	Clamping kits for d4	⚖
GN 284-B42-B40-S-2-*	B 42	B 40	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1485
GN 284-B42-B42-S-2-*	B 42	B 42	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1470
GN 284-B42-B45-S-2-*	B 42	B 45	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1435
GN 284-B42-B48-S-2-*	B 42	B 48	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1410
GN 284-B42-B50-S-2-*	B 42	B 50	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1370
GN 284-B45-B40-S-2-*	B 45	B 40	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1400
GN 284-B45-B42-S-2-*	B 45	B 42	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1380
GN 284-B45-B45-S-2-*	B 45	B 45	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1360
GN 284-B45-B48-S-2-*	B 45	B 48	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1355
GN 284-B45-B50-S-2-*	B 45	B 50	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1340
GN 284-B48-B40-S-2-*	B 48	B 40	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1400
GN 284-B48-B42-S-2-*	B 48	B 42	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1400
GN 284-B48-B45-S-2-*	B 48	B 45	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1400
GN 284-B48-B48-S-2-*	B 48	B 48	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1350
GN 284-B48-B50-S-2-*	B 48	B 50	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1350
GN 284-B50-B40-S-2-*	B 50	B 40	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1380
GN 284-B50-B42-S-2-*	B 50	B 42	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1380
GN 284-B50-B45-S-2-*	B 50	B 45	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1380
GN 284-B50-B48-S-2-*	B 50	B 48	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1380
GN 284-B50-B50-S-2-*	B 50	B 50	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1270
GN 284-B20-B20-T-2-*	B 20	B 20	40	M 8	M 8	42.5	40	147	52	43	72	GN 911-M8-32	GM 911-M8-35	410
GN 284-B20-B25-T-2-*	B 20	B 25	40	M 8	M 8	42.5	40	147	52	43	72	GN 911-M8-32	GM 911-M8-35	405
GN 284-B20-B30-T-2-*	B 20	B 30	40	M 8	M 8	42.5	40	147	52	43	72	GN 911-M8-32	GM 911-M8-35	405
GN 284-B25-B20-T-2-*	B 25	B 20	40	M 8	M 8	42.5	40	147	52	43	72	GN 911-M8-32	GM 911-M8-35	405
GN 284-B25-B25-T-2-*	B 25	B 25	40	M 8	M 8	42.5	40	147	52	43	72	GN 911-M8-32	GM 911-M8-35	380
GN 284-B25-B30-T-2-*	B 25	B 30	40	M 8	M 8	42.5	40	147	52	43	72	GN 911-M8-32	GM 911-M8-35	360
GN 284-B30-B20-T-2-*	B 30	B 20	40	M 8	M 8	42.5	40	147	52	43	72	GN 911-M8-32	GM 911-M8-35	405
GN 284-B30-B25-T-2-*	B 30	B 25	40	M 8	M 8	42.5	40	147	52	43	72	GN 911-M8-32	GM 911-M8-35	405
GN 284-B30-B30-T-2-*	B 30	B 30	40	M 8	M 8	42.5	40	147	52	43	72	GN 911-M8-32	GM 911-M8-35	330
GN 284-B40-B40-T-2-*	B 40	B 40	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1510
GN 284-B40-B42-T-2-*	B 40	B 42	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1500
GN 284-B40-B45-T-2-*	B 40	B 45	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1500
GN 284-B40-B48-T-2-*	B 40	B 48	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1500
GN 284-B40-B50-T-2-*	B 40	B 50	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1500
GN 284-B42-B40-T-2-*	B 42	B 40	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1485
GN 284-B42-B42-T-2-*	B 42	B 42	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1480
GN 284-B42-B45-T-2-*	B 42	B 45	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1435
GN 284-B42-B48-T-2-*	B 42	B 48	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1410
GN 284-B42-B50-T-2-*	B 42	B 50	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1370
GN 284-B45-B40-T-2-*	B 45	B 40	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1400
GN 284-B45-B42-T-2-*	B 45	B 42	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1380
GN 284-B45-B45-T-2-*	B 45	B 45	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1380
GN 284-B45-B48-T-2-*	B 45	B 48	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1380
GN 284-B45-B50-T-2-*	B 45	B 50	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1380
GN 284-B48-B40-T-2-*	B 48	B 40	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1400
GN 284-B48-B42-T-2-*	B 48	B 42	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1400
GN 284-B48-B45-T-2-*	B 48	B 45	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1400
GN 284-B48-B48-T-2-*	B 48	B 48	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1400
GN 284-B48-B50-T-2-*	B 48	B 50	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1400
GN 284-B50-B40-T-2-*	B 50	B 40	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1380
GN 284-B50-B42-T-2-*	B 50	B 42	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1380
GN 284-B50-B45-T-2-*	B 50	B 45	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1380
GN 284-B50-B48-T-2-*	B 50	B 48	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1380
GN 284-B50-B50-T-2-*	B 50	B 50	65	M 10	M 10	74	65	230	77.5	70	115	GN 911-M10-55	GN 911-M10-63	1280

Weight BL

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Swivel clamp connector joints

Aluminium

SPECIFICATION

Identification No.

No. **2**: with 3 Stainless Steel-Clamping screws DIN 912

Types

- Type **S**: stepless adjustment
- Type **T**: adjustment by 15°-division (serration)

Aluminium

plastic coated
black RAL 9005, textured finish **SW**

blank **BL**
matt shot-blasted

Clamping bores mechanically machined

Socket cap screws DIN 912
Stainless Steel AISI 304

Hexagon nuts DIN 985
Stainless Steel AISI 304



INFORMATION

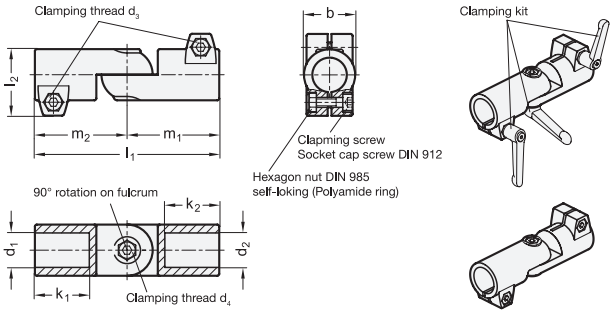
GN 276 swivel clamp connector joints are an assembly of two GN 276 (see page 1852) swivel clamp connectors.
For the type with stepless adjustment (Type S) swivel clamp connectors with a centring step are used. Within the identical swivel width „b", all bores „d1/ d2" can be combined as required. The clamping bore is mechanically machined and designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively.
The standard version of the clamping screws are socket cap screws with hexagonal socket DIN 912. They can be replaced by adjustable clamping levers GN 911 (see page 1874) (see table of dimensions).

ACCESSORY

- Clamping kits GN 911 (see page 1874)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



*Complete with colour index of the Swivel clamp connector joints (SW or BL)

SW	BL
RAL9005	blank

GN 286

Description	d1	d2	b	d3	d4	k1	k2	l1	l2	m1	m2	Clamping kits for d3	Clamping kits for d4	⚖
GN 286-B20-B20-S-2-*	B 20	B 20	40	M 8	M 8	42.5	42.5	144	52	72	72	GN 911-M8-32	GN 911-M8-35	430
GN 286-B20-B25-S-2-*	B 20	B 25	40	M 8	M 8	42.5	42.5	144	52	72	72	GN 911-M8-32	GN 911-M8-35	430
GN 286-B20-B30-S-2-*	B 20	B 30	40	M 8	M 8	42.5	42.5	144	52	72	72	GN 911-M8-32	GN 911-M8-35	430
GN 286-B25-B20-S-2-*	B 25	B 20	40	M 8	M 8	42.5	42.5	144	52	72	72	GN 911-M8-32	GN 911-M8-35	435
GN 286-B25-B25-S-2-*	B 25	B 25	40	M 8	M 8	42.5	42.5	144	52	72	72	GN 911-M8-32	GN 911-M8-35	390
GN 286-B25-B30-S-2-*	B 25	B 30	40	M 8	M 8	42.5	42.5	144	52	72	72	GN 911-M8-32	GN 911-M8-35	330
GN 286-B30-B20-S-2-*	B 30	B 20	40	M 8	M 8	42.5	42.5	144	52	72	72	GN 911-M8-32	GN 911-M8-35	430
GN 286-B30-B25-S-2-*	B 30	B 25	40	M 8	M 8	42.5	42.5	144	52	72	72	GN 911-M8-32	GN 911-M8-35	430
GN 286-B30-B30-S-2-*	B 30	B 30	40	M 8	M 8	42.5	42.5	144	52	72	72	GN 911-M8-32	GN 911-M8-35	340
GN 286-B40-B40-S-2-*	B 40	B 40	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1575
GN 286-B40-B42-S-2-*	B 40	B 42	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1558
GN 286-B40-B45-S-2-*	B 40	B 45	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1355
GN 286-B40-B48-S-2-*	B 40	B 48	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1355
GN 286-B40-B50-S-2-*	B 40	B 50	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1355
GN 286-B50-B50-T-2-*	B 50	B 50	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1590

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GN 286

Swivel clamp connector joints

*Complete with colour index of the Swivel clamp connector joints (SW or BL)

SW	BL
RAL9005	blank

GN 286

Description	d1	d2	b	d3	d4	k1	k2	l1	l2	m1	m2	Clamping kits for d3	Clamping kits for d4	⚖
GN 286-B42-B40-S-2-*	B 42	B 40	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1560
GN 286-B42-B42-S-2-*	B 42	B 42	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1540
GN 286-B42-B45-S-2-*	B 42	B 45	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1500
GN 286-B42-B48-S-2-*	B 42	B 48	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1460
GN 286-B42-B50-S-2-*	B 42	B 50	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1435
GN 286-B45-B40-S-2-*	B 45	B 40	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1520
GN 286-B45-B42-S-2-*	B 45	B 42	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1500
GN 286-B45-B45-S-2-*	B 45	B 45	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1500
GN 286-B45-B48-S-2-*	B 45	B 48	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1420
GN 286-B45-B50-S-2-*	B 45	B 50	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1395
GN 286-B48-B40-S-2-*	B 48	B 40	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1510
GN 286-B48-B42-S-2-*	B 48	B 42	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1500
GN 286-B48-B45-S-2-*	B 48	B 45	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1500
GN 286-B48-B48-S-2-*	B 48	B 48	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1440
GN 286-B48-B50-S-2-*	B 48	B 50	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1370
GN 286-B50-B40-S-2-*	B 50	B 40	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1466
GN 286-B50-B42-S-2-*	B 50	B 42	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1456
GN 286-B50-B45-S-2-*	B 50	B 45	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1406
GN 286-B50-B48-S-2-*	B 50	B 48	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1366
GN 286-B50-B50-S-2-*	B 50	B 50	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1575
GN 286-B20-B20-T-2-*	B 20	B 20	40	M 8	M 8	42.5	42.5	144	52	72	72	GN 911-M8-32	GN 911-M8-35	435
GN 286-B20-B25-T-2-*	B 20	B 25	40	M 8	M 8	42.5	42.5	144	52	72	72	GN 911-M8-32	GN 911-M8-35	435
GN 286-B20-B30-T-2-*	B 20	B 30	40	M 8	M 8	42.5	42.5	144	52	72	72	GN 911-M8-32	GN 911-M8-35	435
GN 286-B25-B20-T-2-*	B 25	B 20	40	M 8	M 8	42.5	42.5	144	52	72	72	GN 911-M8-32	GN 911-M8-35	430
GN 286-B25-B25-T-2-*	B 25	B 25	40	M 8	M 8	42.5	42.5	144	52	72	72	GN 911-M8-32	GN 911-M8-35	430
GN 286-B25-B30-T-2-*	B 25	B 30	40	M 8	M 8	42.5	42.5	144	52	72	72	GN 911-M8-32	GN 911-M8-35	430
GN 286-B30-B20-T-2-*	B 30	B 20	40	M 8	M 8	42.5	42.5	144	52	72	72	GN 911-M8-32	GN 911-M8-35	430
GN 286-B30-B25-T-2-*	B 30	B 25	40	M 8	M 8	42.5	42.5	144	52	72	72	GN 911-M8-32	GN 911-M8-35	430
GN 286-B30-B30-T-2-*	B 30	B 30	40	M 8	M 8	42.5	42.5	144	52	72	72	GN 911-M8-32	GN 911-M8-35	320
GN 286-B40-B40-T-2-*	B 40	B 40	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1590
GN 286-B40-B42-T-2-*	B 40	B 42	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1558
GN 286-B40-B45-T-2-*	B 40	B 45	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1558
GN 286-B40-B48-T-2-*	B 40	B 48	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1558
GN 286-B40-B50-T-2-*	B 40	B 50	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1558
GN 286-B42-B40-T-2-*	B 42	B 40	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1570
GN 286-B42-B42-T-2-*	B 42	B 42	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1550
GN 286-B42-B45-T-2-*	B 42	B 45	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1520
GN 286-B42-B48-T-2-*	B 42	B 48	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1475
GN 286-B42-B50-T-2-*	B 42	B 50	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1460
GN 286-B45-B40-T-2-*	B 45	B 40	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1530
GN 286-B45-B42-T-2-*	B 45	B 42	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1515
GN 286-B45-B45-T-2-*	B 45	B 45	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1500
GN 286-B45-B48-T-2-*	B 45	B 48	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1430
GN 286-B45-B50-T-2-*	B 45	B 50	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1420
GN 286-B48-B40-T-2-*	B 48	B 40	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1510
GN 286-B48-B42-T-2-*	B 48	B 42	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1510
GN 286-B48-B45-T-2-*	B 48	B 45	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1500
GN 286-B48-B48-T-2-*	B 48	B 48	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1500
GN 286-B48-B50-T-2-*	B 48	B 50	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1500
GN 286-B50-B40-T-2-*	B 50	B 40	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1471
GN 286-B50-B42-T-2-*	B 50	B 42	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1456
GN 286-B50-B45-T-2-*	B 50	B 45	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1416
GN 286-B50-B48-T-2-*	B 50	B 48	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1366
GN 286-B50-B50-T-2-*	B 50	B 50	65	M 10	M 10	74	74	230	77.5	115	115	GN 911-M10-55	GN 911-M10-63	1300

Weight BL

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Swivel clamp connector joints

Aluminium

SPECIFICATION

Identification No.

No. **2**: with 3 Stainless Steel-Clamping screws DIN 912

Types

- Type **S**: stepless adjustment
- Type **T**: adjustment by 15°-division (serration)

Aluminium

plastic coated
black RAL 9005, textured finish **SW**

blank **BL**
matt shot-blasted

Clamping bores mechanically machined

Socket cap screws DIN 912
Stainless Steel AISI 304

Hexagon nuts DIN 985
Stainless Steel AISI 304



INFORMATION

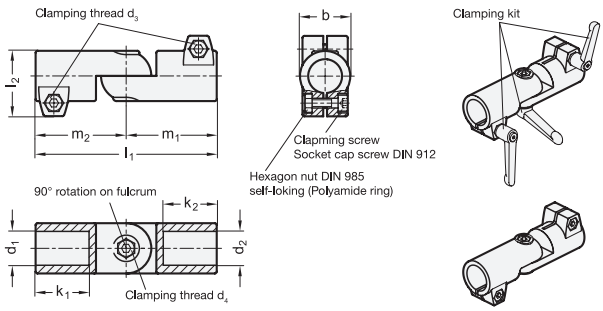
GN 288 swivel clamp connector joints are an assembly of swivel clamp connectors GN 276 (see page 1852) and GN 278 (see page 1856) to create swivel clamp connector joints.
For the type with stepless adjustment (Type S) swivel clamp connectors with a centring step are used. Within the identical swivel width "b", all bores "d_1/d_2" can be combined as required. The clamping bores are mechanically machined and designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively.
The standard version of the clamping screws are socket cap screws with hexagonal socket DIN 912. They can be replaced by adjustable clamping lever GN 911 (see page 1874) (see table of dimensions).

ACCESSORY

- Clamping kits GN 911 (see page 1874)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



*Complete with colour index of the Swivel clamp connector joints (SW or BL)

SW	BL
RAL9005	blank

GN 288

Description	d1	d2	b	d3	d4	k1	k2	l1	l2	l3	m1	m2	Clamping kits for d3	Clamping kits for d4	⚖
GN 288-B20-B20-S-2-*	B 20	B 20	40	M 8	M 8	42.5	40	147	52	40	43	72	GN 911-M8-32	GN 911-M8-35	410
GN 288-B20-B25-S-2-*	B 20	B 25	40	M 8	M 8	42.5	40	147	52	40	43	72	GN 911-M8-32	GN 911-M8-35	410
GN 288-B20-B30-S-2-*	B 20	B 30	40	M 8	M 8	42.5	40	147	52	40	43	72	GN 911-M8-32	GN 911-M8-35	350
GN 288-B25-B20-S-2-*	B 25	B 20	40	M 8	M 8	42.5	40	147	52	40	43	72	GN 911-M8-32	GN 911-M8-35	375
GN 288-B25-B25-S-2-*	B 25	B 25	40	M 8	M 8	42.5	40	147	52	40	43	72	GN 911-M8-32	GN 911-M8-35	375
GN 288-B25-B30-S-2-*	B 25	B 30	40	M 8	M 8	42.5	40	147	52	40	43	72	GN 911-M8-32	GN 911-M8-35	375
GN 288-B30-B20-S-2-*	B 30	B 20	40	M 8	M 8	42.5	40	147	52	40	43	72	GN 911-M8-32	GN 911-M8-35	325
GN 288-B30-B25-S-2-*	B 30	B 25	40	M 8	M 8	42.5	40	147	52	40	43	72	GN 911-M8-32	GN 911-M8-35	325
GN 288-B30-B30-S-2-*	B 30	B 30	40	M 8	M 8	42.5	40	147	52	40	43	72	GN 911-M8-32	GN 911-M8-35	325
GN 288-B40-B40-S-2-*	B 40	B 40	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1500
GN 288-B40-B42-S-2-*	B 40	B 42	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1500
GN 288-B40-B45-S-2-*	B 40	B 45	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1500
GN 288-B40-B48-S-2-*	B 40	B 48	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1500
GN 288-B40-B50-S-2-*	B 40	B 50	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1490

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GN 288

Swivel clamp connector joints

*Complete with colour index of the Swivel clamp connector joints (SW or BL)

SW RAL9005 | BL blank

GN 288

Description	d1	d2	b	d3	d4	k1	k2	l1	l2	l3	m1	m2	Clamping kits for d3	Clamping kits for d4	⚖
GN 288-B42-B40-S-2-*	B 42	B 40	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1470
GN 288-B42-B42-S-2-*	B 42	B 42	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1465
GN 288-B42-B45-S-2-*	B 42	B 45	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1460
GN 288-B42-B48-S-2-*	B 42	B 48	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1455
GN 288-B42-B50-S-2-*	B 42	B 50	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1450
GN 288-B45-B40-S-2-*	B 45	B 40	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1410
GN 288-B45-B42-S-2-*	B 45	B 42	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1405
GN 288-B45-B45-S-2-*	B 45	B 45	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1400
GN 288-B45-B48-S-2-*	B 45	B 48	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1395
GN 288-B45-B50-S-2-*	B 45	B 50	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1390
GN 288-B48-B40-S-2-*	B 48	B 40	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1270
GN 288-B48-B42-S-2-*	B 48	B 42	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1265
GN 288-B48-B45-S-2-*	B 48	B 45	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1260
GN 288-B48-B48-S-2-*	B 48	B 48	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1255
GN 288-B48-B50-S-2-*	B 48	B 50	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1250
GN 288-B50-B40-S-2-*	B 50	B 40	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1275
GN 288-B50-B42-S-2-*	B 50	B 42	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1275
GN 288-B50-B45-S-2-*	B 50	B 45	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1270
GN 288-B50-B48-S-2-*	B 50	B 48	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1275
GN 288-B50-B50-S-2-*	B 50	B 50	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1275
GN 288-B20-B20-T-2-*	B 20	B 20	40	M 8	M 8	42.5	40	147	52	40	43	72	GN 911-M8-32	GN 911-M8-35	420
GN 288-B20-B25-T-2-*	B 20	B 25	40	M 8	M 8	42.5	40	147	52	40	43	72	GN 911-M8-32	GN 911-M8-35	420
GN 288-B20-B30-T-2-*	B 20	B 30	40	M 8	M 8	42.5	40	147	52	40	43	72	GN 911-M8-32	GN 911-M8-35	420
GN 288-B25-B20-T-2-*	B 25	B 20	40	M 8	M 8	42.5	40	147	52	40	43	72	GN 911-M8-32	GN 911-M8-35	380
GN 288-B25-B25-T-2-*	B 25	B 25	40	M 8	M 8	42.5	40	147	52	40	43	72	GN 911-M8-32	GN 911-M8-35	380
GN 288-B25-B30-T-2-*	B 25	B 30	40	M 8	M 8	42.5	40	147	52	40	43	72	GN 911-M8-32	GN 911-M8-35	375
GN 288-B30-B20-T-2-*	B 30	B 20	40	M 8	M 8	42.5	40	147	52	40	43	72	GN 911-M8-32	GN 911-M8-35	345
GN 288-B30-B25-T-2-*	B 30	B 25	40	M 8	M 8	42.5	40	147	52	40	43	72	GN 911-M8-32	GN 911-M8-35	340
GN 288-B30-B30-T-2-*	B 30	B 30	40	M 8	M 8	42.5	40	147	52	40	43	72	GN 911-M8-32	GN 911-M8-35	330
GN 288-B40-B40-T-2-*	B 40	B 40	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1510
GN 288-B40-B42-T-2-*	B 40	B 42	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1510
GN 288-B40-B45-T-2-*	B 40	B 45	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1500
GN 288-B40-B48-T-2-*	B 40	B 48	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1500
GN 288-B40-B50-T-2-*	B 40	B 50	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1490
GN 288-B42-B40-T-2-*	B 42	B 40	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1470
GN 288-B42-B42-T-2-*	B 42	B 42	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1480
GN 288-B42-B45-T-2-*	B 42	B 45	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1460
GN 288-B42-B48-T-2-*	B 42	B 48	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1455
GN 288-B42-B50-T-2-*	B 42	B 50	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1450
GN 288-B45-B40-T-2-*	B 45	B 40	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1410
GN 288-B45-B42-T-2-*	B 45	B 42	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1410
GN 288-B45-B45-T-2-*	B 45	B 45	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1410
GN 288-B45-B48-T-2-*	B 45	B 48	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1395
GN 288-B45-B50-T-2-*	B 45	B 50	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1390
GN 288-B48-B40-T-2-*	B 48	B 40	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1270
GN 288-B48-B42-T-2-*	B 48	B 42	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1265
GN 288-B48-B45-T-2-*	B 48	B 45	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1260
GN 288-B48-B48-T-2-*	B 48	B 48	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1255
GN 288-B48-B50-T-2-*	B 48	B 50	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1255
GN 288-B50-B40-T-2-*	B 50	B 40	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1275
GN 288-B50-B42-T-2-*	B 50	B 42	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1275
GN 288-B50-B45-T-2-*	B 50	B 45	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1270
GN 288-B50-B48-T-2-*	B 50	B 48	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1265
GN 288-B50-B50-T-2-*	B 50	B 50	65	M 10	M 10	74	65	230	77.5	65	70	115	GN 911-M10-55	GN 911-M10-63	1255

Weight BL

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Swivel clamp connector joints

Aluminium / with two-part clamp pieces

SPECIFICATION

Identification No.

No. **2**: with 5 Stainless Steel-Clamping screws DIN 912

Type

Type **S**: stepless adjustment

Aluminium

plastic coated
black RAL 9005, textured finish **SW**

blank **BL**
matt shot-blasted

Clamping bores not machined

Socket cap screws DIN 912
Stainless Steel AISI 304

Hexagon nuts DIN 985
Stainless Steel AISI 304



INFORMATION

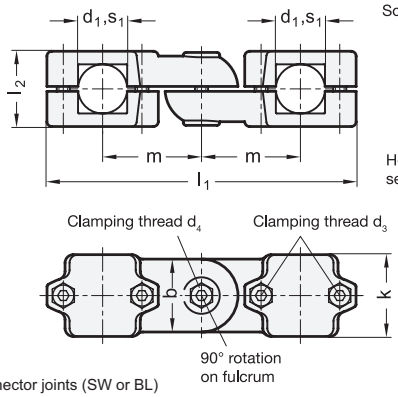
GN 289 swivel clamp connector joints are an assembly of two GN 279 (see page 1858) swivel clamp connectors.
The clamping bores of the swivel clamp connector joints GN 289 are not machined and designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively.
The swivel clamp connectors have an identical swivel width "b", so that all bores „d1/s1" and „d2/s2" can be combined as required.
The standard version of the clamping screws are socket cap screws with hexagonal socket DIN 912. They can be replaced by adjustable clamping levers GN 911 (see page 1874) (see table of dimensions).

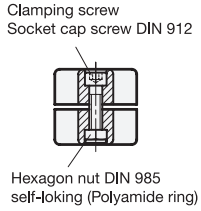
ACCESSORY

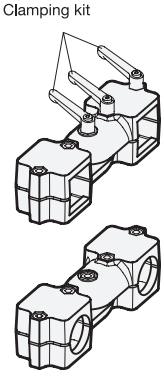
- Clamping kits GN 911 (see page 1874)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)







*Complete with colour index of the Swivel clamp connector joints (SW or BL)

SW	BL
RAL9005	blank

GN 289

Description	d1	s1	d2	s2	b	d3	d4	k	l1	l2	m	Clamping kits for d3	Clamping kits for d4	⚖
GN 289-B40-B40-S-2-*	B 40	-	B 40	-	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1855
GN 289-B40-B42-S-2-*	B 40	-	B 42	-	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1731
GN 289-B40-B45-S-2-*	B 40	-	B 45	-	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1720
GN 289-B40-B48-S-2-*	B 40	-	B 48	-	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1699
GN 289-B40-B50-S-2-*	B 40	-	B 50	-	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1691
GN 289-B42-B40-S-2-*	B 42	-	B 40	-	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1979
GN 289-B42-B42-S-2-*	B 42	-	B 42	-	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1855
GN 289-B42-B45-S-2-*	B 42	-	B 45	-	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1844
GN 289-B42-B48-S-2-*	B 42	-	B 48	-	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1823
GN 289-B42-B50-S-2-*	B 42	-	B 50	-	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1815

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GN 289

Swivel clamp connector joints

*Complete with colour index of the Swivel clamp connector joints (SW or BL)

SW	BL
RAL9005	blank

GN 289

Description	d1	s1	d2	s2	b	d3	d4	k	l1	l2	m	Clamping kits for d3	Clamping kits for d4	⚖
GN 289-B45-B40-S-2-*	B 45	-	B 40	-	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1979
GN 289-B45-B42-S-2-*	B 45	-	B 42	-	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1855
GN 289-B45-B45-S-2-*	B 45	-	B 45	-	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1844
GN 289-B45-B48-S-2-*	B 45	-	B 48	-	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1823
GN 289-B45-B50-S-2-*	B 45	-	B 50	-	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1815
GN 289-B48-B40-S-2-*	B 48	-	B 40	-	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1823
GN 289-B48-B42-S-2-*	B 48	-	B 42	-	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1699
GN 289-B48-B45-S-2-*	B 48	-	B 45	-	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1688
GN 289-B48-B48-S-2-*	B 48	-	B 48	-	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1760
GN 289-B48-B50-S-2-*	B 48	-	B 50	-	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1659
GN 289-B50-B40-S-2-*	B 50	-	B 40	-	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1823
GN 289-B50-B42-S-2-*	B 50	-	B 42	-	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1760
GN 289-B50-B45-S-2-*	B 50	-	B 45	-	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1699
GN 289-B50-B48-S-2-*	B 50	-	B 48	-	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1680
GN 289-B50-B50-S-2-*	B 50	-	B 50	-	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1760
GN 289-B50-V40-S-2-*	B 50	-	-	V 40	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1803
GN 289-B50-V45-S-2-*	B 50	-	-	V 45	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1759
GN 289-B50-V50-S-2-*	B 50	-	-	V 50	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1719
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GN 289-B45-V45-S-2-*	B 45	-	-	V 45	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1788
GN 289-B45-V50-S-2-*	B 45	-	-	V 50	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1748
GN 289-B40-V40-S-2-*	B 40	-	-	V 40	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1843
GN 289-B40-V45-S-2-*	B 40	-	-	V 45	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1799
GN 289-B40-V50-S-2-*	B 40	-	-	V 50	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1759
GN 289-V40-B40-S-2-*	-	V 40	B 40	-	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	2000
GN 289-V40-B42-S-2-*	-	V 40	B 42	-	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1967
GN 289-V40-B45-S-2-*	-	V 40	B 45	-	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1832
GN 289-V40-B48-S-2-*	-	V 40	B 48	-	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1811
GN 289-V40-B50-S-2-*	-	V 40	B 50	-	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1803
GN 289-V45-B40-S-2-*	-	V 45	B 40	-	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1799
GN 289-V45-B42-S-2-*	-	V 45	B 42	-	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1823
GN 289-V45-B45-S-2-*	-	V 45	B 45	-	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1788
GN 289-V45-B48-S-2-*	-	V 45	B 48	-	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1767
GN 289-V45-B50-S-2-*	-	V 45	B 50	-	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1759
GN 289-V50-B40-S-2-*	-	V 50	B 40	-	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1883
GN 289-V50-B42-S-2-*	-	V 50	B 42	-	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1759
GN 289-V50-B45-S-2-*	-	V 50	B 45	-	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1748
GN 289-V50-B48-S-2-*	-	V 50	B 48	-	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1727
GN 289-V50-B50-S-2-*	-	V 50	B 50	-	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1719
GN 289-V50-V40-S-2-*	-	V 50	-	V 40	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1871
GN 289-V50-V45-S-2-*	-	V 50	-	V 45	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1827
GN 289-V50-V50-S-2-*	-	V 50	-	V 50	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1787
GN 289-V40-V40-S-2-*	-	V 40	-	V 40	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1740
GN 289-V40-V45-S-2-*	-	V 40	-	V 45	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1711
GN 289-V40-V50-S-2-*	-	V 40	-	V 50	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1700
GN 289-V45-V40-S-2-*	-	V 45	-	V 40	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1911
GN 289-V45-V45-S-2-*	-	V 45	-	V 45	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1867
GN 289-V45-V50-S-2-*	-	V 45	-	V 50	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1827
GN 289-V50-V40-S-2-*	-	V 50	-	V 40	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1871
GN 289-V50-V45-S-2-*	-	V 50	-	V 45	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1827
GN 289-V50-V50-S-2-*	-	V 50	-	V 50	65	M 10	M 10	76	268	70	85	GN 911-M10-55	GN 911-M10-63	1787

Weight BL

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GN 271.4

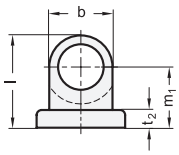
Sensor holders

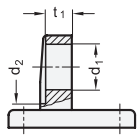
Aluminium

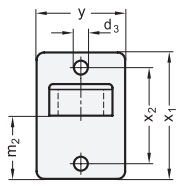
SPECIFICATION

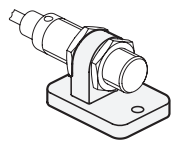
Aluminium
plastic coated
black, RAL 9005, textured finish **SW**











GN 271.4

Description	d1	b	d2	d3	l	m1	m2	t1	t2	x1	x2	y	⚖
GN 271.4-B12-25-SW	B 12	25	30	5.5	36.5	24	25	11.5	7	50	38	35	40
GN 271.4-B18-25-SW	B 18	25	30	5.5	36.5	24	25	11.5	7	50	38	35	38

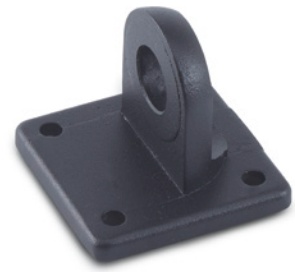
GN 272.4

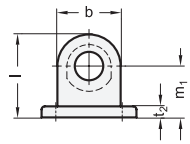
Sensor holders

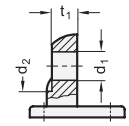
Aluminium

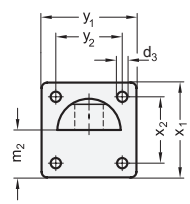
SPECIFICATION

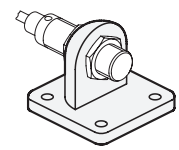
Aluminium
plastic coated
black, RAL 9005, textured finish **SW**











GN 272.4

Description	d1	b	d2	d3	l	m1	m2	t1	t2	x1	x2	y1	y2	⚖
GN 272.4-B18-40-SW	B 18	40	50	6.5	52.5	32.5	30	10	7	60	42	60	42	110
GN 272.4-B30-40-SW	B 30	40	50	6.5	52.5	32.5	30	10	7	60	42	60	42	100

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GN 273.4

Sensor holders

Aluminium



SPECIFICATION

Identification No.

No. **2**: with Stainless Steel-Clamping screw DIN 912

Aluminium
plastic coated
black, RAL 9005, textured finish **SW**

Clamping bore mechanically machined

Socket cap screw DIN 912
Stainless Steel AISI 304

Hexagon nuts DIN 985
Stainless Steel AISI 304

INFORMATION

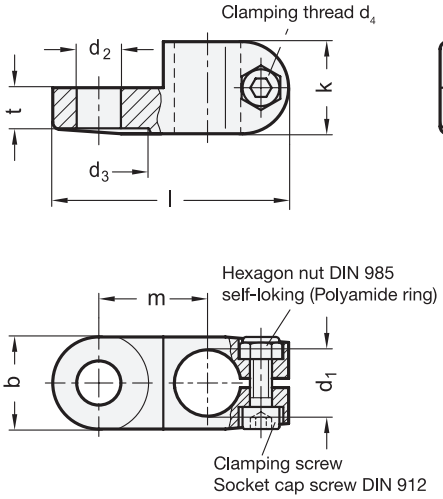
The clamping bore of the sensor holders GN 273.4 is mechanically machined and designed for construction tubes GN 990 (see page 1902) or DIN 2391, DIN 2395 and DIN 2462 respectively.
The standard version of the clamping screws are socket cap screws with hexagonal socket DIN 912. They can be replaced by adjustable clamping levers GN 911 (see page 1874) (see table of dimensions).
The Aluminium design guarantees a highly safe and secure clamping action and safe positioning.

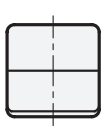
ACCESSORY

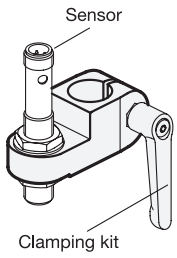
- Clamping kits GN 911 (see page 1874)

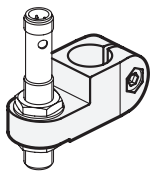
TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)









GN 273.4

Description	d1	d2	b	d3	d4	k	l	m	t -0.5	Clamping kits for d4	⚖
GN 273.4-B12-B12-2-SW	B 12	B 12	25	27	M 6	25	64	29.5	11	GN 911-M6-22	77
GN 273.4-B12-B18-2-SW	B 12	B 18	25	27	M 6	25	64	29.5	11	GN 911-M6-22	77
GN 273.4-B14-B12-2-SW	B 14	B 12	25	27	M 6	25	64	29.5	11	GN 911-M6-22	60
GN 273.4-B14-B18-2-SW	B 14	B 18	25	27	M 6	25	64	29.5	11	GN 911-M6-22	60
GN 273.4-B16-B12-2-SW	B 16	B 12	25	27	M 6	25	64	29.5	11	GN 911-M6-22	62
GN 273.4-B16-B18-2-SW	B 16	B 18	25	27	M 6	25	64	29.5	11	GN 911-M6-22	60
GN 273.4-B18-B12-2-SW	B 18	B 12	25	27	M 6	25	64	29.5	11	GN 911-M6-22	60
GN 273.4-B18-B18-2-SW	B 18	B 18	25	27	M 6	25	64	29.5	11	GN 911-M6-22	60

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Clamping lever kits

adjustable, for connector clamps

SPECIFICATION

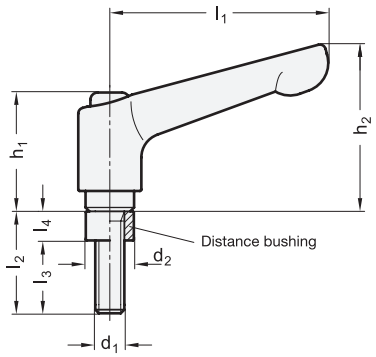
Handle
Zinc die casting
plastic coated
silver, RAL 9006, textured finish

Threaded stud / Distance bushing
Stainless Steel AISI 303

INFORMATION

The clamping kits GN 911 replace the hexagon socket screws DIN 912 of the connector clamps.
The table of dimensions of the connector clamps shows the corresponding clamping kits for each clamping thread.
The distance bushing is included part of the order.





GN 911

Description	d1	l2	d2	l1	l3	l4	h1	h2	⚖
GN 911-M6-22	M 6	22	9.9	45	19	3	24.5	35	51
GN 911-M6-25	M 6	25	9.9	45	22	3	24.5	35	53
GN 911-M6-32	M 6	32	9.9	45	29	3	24.5	35	55
GN 911-M8-32	M 8	32	12.9	63	27.5	4.5	31	45	103
GN 911-M8-35	M 8	35	12.9	63	30.5	4.5	31	45	105
GN 911-M8-40	M 8	40	12.9	63	35.5	4.5	31	45	107
GN 911-M8-45	M 8	45	12.9	63	40.5	4.5	31	45	109
GN 911-M8-50	M 8	50	12.9	63	45.5	4.5	31	45	111
GN 911-M8-55	M 8	55	12.9	63	50.5	4.5	31	45	115
GN 911-M10-40	M 10	40	16.9	78	34.5	5.5	36	55	174
GN 911-M10-50	M 10	50	16.9	78	44.5	5.5	36	55	179
GN 911-M10-55	M 10	55	16.9	78	49.5	5.5	36	55	180
GN 911-M10-63	M 10	63	16.9	78	57.5	5.5	36	55	183
GN 911-M10-70	M 10	70	16.9	78	64.5	5.5	36	55	188
GN 911-M10-80	M 10	80	16.9	78	74.5	5.5	36	55	197

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GN 911.3

Stainless Steel-
Clamping lever kits

adjustable, for connector clamps



SPECIFICATION

Handle
Stainless Steel precision casting

- AISI CF-8
- matt shot-blasted

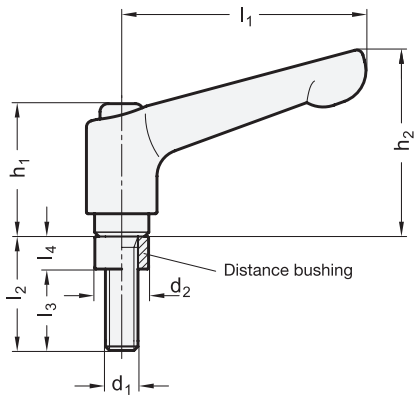
Threaded stud / Distance bushing
Stainless Steel AISI 303

INFORMATION

The clamping kits GN 911.3 replace the hexagon socket screws DIN 912 of the connector clamps.
The table of dimensions of the connector clamps shows the corresponding clamping kits for each clamping thread.
The distance bushing is included part of the order.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



GN 911.3 **STAINLESS STEEL**

Description	d1	l2	d2	l1	l3	l4	h1	h2	⚖
GN 911.3-M6-22	M 6	22	9.9	45	19	3	24.5	35	50

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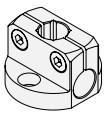
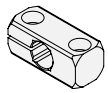
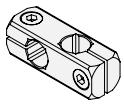
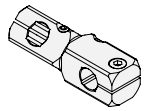
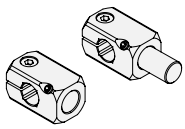
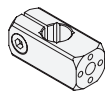
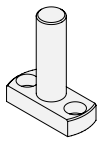
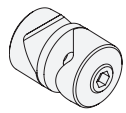
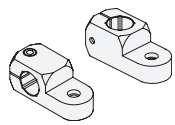
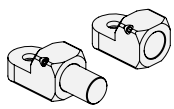
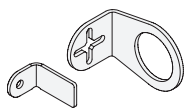
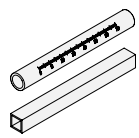
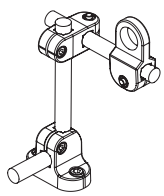
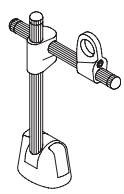
Clamp mountings

Range

With clamp mountings, tubes and rods can be fixed with better clamping pressure with minimum space requirement.
Standardized hole spacings and thread dimensions make the replacement of mounting clamps very simple and efficient during assembly.
In particular, swivel clamp mountings can be combined to jointed clamp mountings.

The aluminum-alloy used for the clamp mountings has excellent strength and good chemical resistance. The version with a black anodized surface is additionally protected against corrosion. Technopolymer bases and clamps are lightweight and resistant to solvents, oils, greases and other chemical agents. The special knurling on the tube of MSR. prevents the risk of free rotation of the tube itself. Together with fastening and clamping screws made from corrosion resistant A2 stainless steel the use under unfavorable ambient conditions is possible.

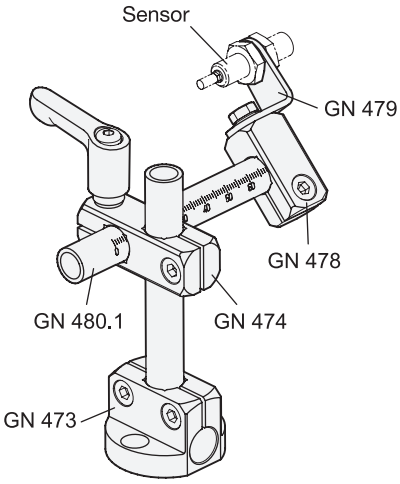
Accessories such as sensor plates, retaining rods and tubes as well as clamping kits complete the range. If required, a suitable retaining magnet (GN 51.6 see page 2032) is available to facilitate rapid repositioning.
Positioning of sensors, scanners, reflectors, cameras, coolant pipes and air nozzles is a typical practical application.

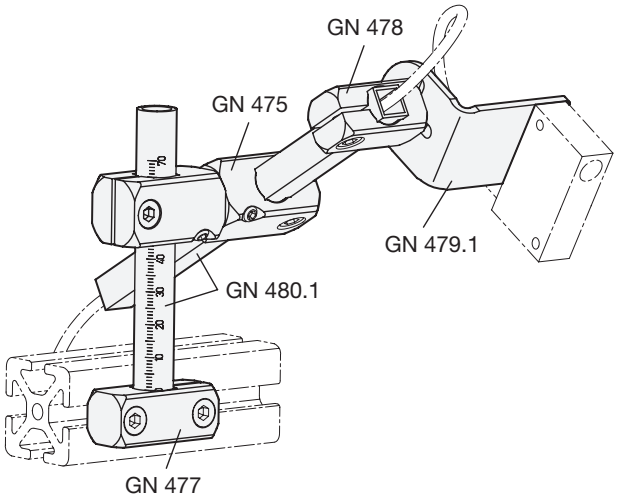
Base plate clamp mountings GN 473 (see page 1878) Aluminium		**Clamp mountings** GN 477 (see page 1879) Aluminium	
Two-way clamp mountings GN 474 (see page 1880) Aluminium		**Twistable two-way clamp mountings** GN 475 (see page 1882) Aluminium	
T-Clamp mountings GN 476 (see page 1883) Aluminium		**Attachment clamp mountings** GN 478 (see page 1884) Aluminium	
Flanged bolts GN 480 (see page 1185) Steel zinc plated		**Twistable two-way clamp mountings** GN 490 (see page 1886) Aluminium	
Swivel clamp connector bases GN 485 (see page 1887) Aluminium		**Swivel clamp mountings** GN 482 (see page 1890) Aluminium	
T-Swivel clamp mountings GN 483 (see page 1891) Aluminium		**Attachment clamp mountings** GN 484 (see page 1892) Aluminium	
Sensor holders GN 479 (see page 1895) **Retaining plates** GN 479.1 (see page 1896)		**Retaining rods Retaining tubes** GN 480.1 (see page 1994)	
Connecting clamps MSX. (see page 1906) Technopolymer		**Connecting clamps** MSR. (see page 1908) Technopolymer	

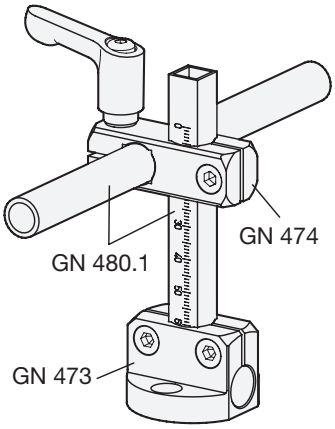
elesa+GANTER
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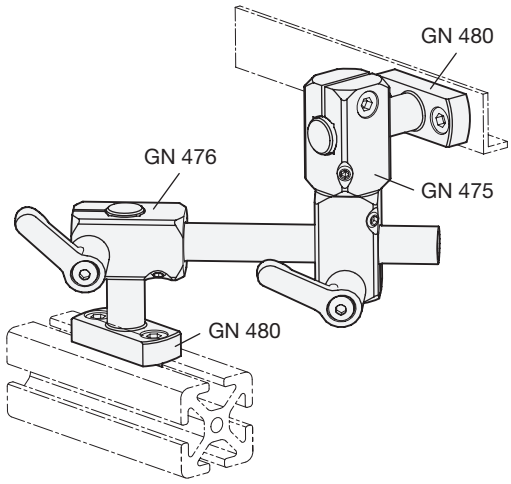
Clamp mountings

Application example

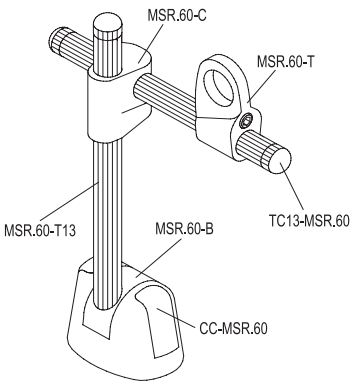




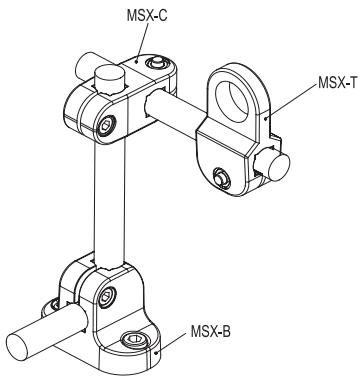




MSR.



MSX.



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Base plate clamp mountings

Aluminium

SPECIFICATION

Aluminium

- matt, slide ground **MT**
- anodized, black **ELS**

Socket cap screws DIN 912
Stainless Steel AISI 304



INFORMATION

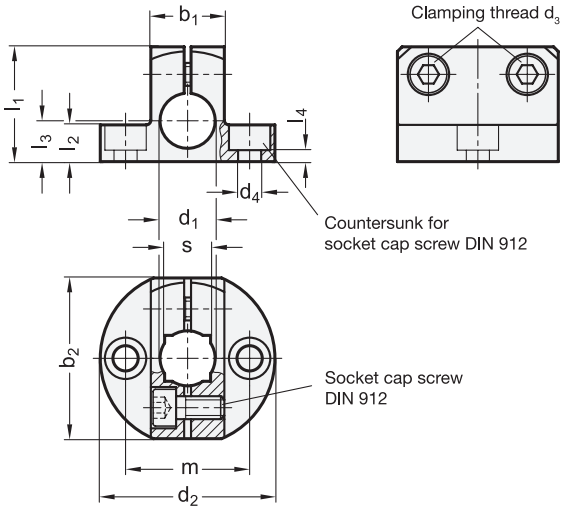
The base plate clamp mountings GN 473 have a horizontal and a vertical clamping bore. The vertical clamping bore is additionally fitted with a square.
The bore distance m of the base plate mountings GN 473 is matched with the clamp mountings GN 477 (see page 1879) and the flanged bolts GN 480 (see page 1885) as well as retaining magnets GN 51.6 (see page 2032).
The standard version of the clamping screw is a socket cap screw with hexagonal socket DIN 912. It can be replaced by an adjustable clamping kits GN 511 (see page 1893) (see table of dimensions).

TECHNICAL INFORMATION

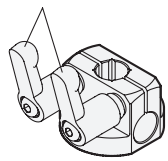
- Stainless Steel characteristics (see page A26)

ACCESSORY

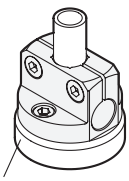
- Clamping kits GN 511 (see page 1893)



Clamping kit GN 511



Application example



*Complete with Finish of the Base plate clamp mountings (MT or ELS)

MT matt, slide ground

ELS anodized, black

GN 473

Description	d1 For shaft tolerance h11	b1	b2	d2	d3	d4	l1	l2	l3	l4	m	s	Clamping kits for d3	⚖
GN 473-B8-*	B 8	14	29	31.5	M 4	M 4	20	7	7	3	22	-	GN 511-M4-14	23
GN 473-B10-*	B 10	16	35	38	M 5	M 5	24	8	8	2.5	27	8	GN 511-M5-16	33
GN 473-B12-*	B 12	16	35	38	M 5	M 5	25	8	8	2.5	27	10	GN 511-M5-16	36
GN 473-B15-*	B 15	20	41	45	M 6	M 6	30	10	10	4	32	12	GN 511-M6-20	57
GN 473-B16-*	B 16	20	41	45	M 6	M 6	31	10	10	4	32	-	GN 511-M6-20	57
GN 473-B20-*	B 20	25	44	50	M 6	M 6	35	12.5	12.5	6.5	36	16	GN 511-M6-25	76

Weight ELS

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Clamp mountings

Aluminium

SPECIFICATION

Aluminium

- matt, slide ground **MT**
- anodized, black **ELS**

Clamping kits GN 511 (see page 1893)

Zinc die casting

Inserts / Distance bushings
Stainless Steel AISI 303



INFORMATION

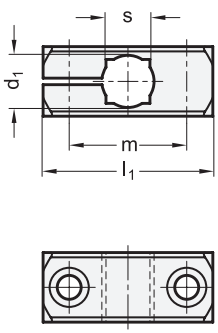
The clamp mountings GN 477 have no thread. Fixing or clamping is made via two threads on the attachment side. The bore distance m of the clamp mountings GN 477 is matched with the foot clamp mountings GN 473 (see page 1878) and the flanged bolts GN 480 (see page 1885) as well as retaining magnets GN 51.6 (see page 2032).

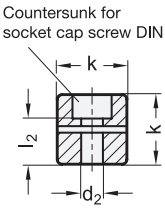
TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)

ACCESSORY

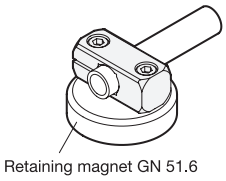
- Clamping kits GN 511 (see page 1893)







Application example



GN 477

Description	d1 For shaft tolerance h11	k	d2	l1	l2	m	s	Clamping kits for d2	⚖
GN 477-B8-ELS	B 8	14	M 4	31.5	10	22	-	GN 511-M4-20	11
GN 477-B8-MT	B 8	14	M 4	31.5	10	22	-	GN 511-M4-20	11
GN 477-B10-ELS	B 10	16	M 5	38	10.5	27	8	GN 511-M5-25	18
GN 477-B10-MT	B 10	16	M 5	38	10.5	27	8	GN 511-M5-25	17
GN 477-B12-ELS	B 12	16	M 5	38	10.5	27	10	GN 511-M5-25	16
GN 477-B12-MT	B 12	16	M 5	38	10.5	27	10	GN 511-M5-25	16
GN 477-B15-ELS	B 15	20	M 6	45	14	32	12	GN 511-M6-25	31
GN 477-B15-MT	B 15	20	M 6	45	14	32	12	GN 511-M6-25	30
GN 477-B16-ELS	B 16	20	M 6	45	14	32	-	GN 511-M6-25	29
GN 477-B16-MT	B 16	20	M 6	45	14	32	-	GN 511-M6-25	29
GN 477-B20-ELS	B 20	25	M 6	50	19	36	16	GN 511-M6-32	52
GN 477-B20-MT	B 20	25	M 6	50	19	36	16	GN 511-M6-32	52

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Two-way clamp mountings

Aluminium

SPECIFICATION

Aluminium

- matt, slide ground **MT**
- anodized, black **ELS**

Socket cap screws DIN 912
Stainless Steel AISI 304

INFORMATION

The standard version of the clamping screw is a socket cap screw with hexagonal socket DIN 912. It can be replaced by an adjustable clamping kit GN 511 (see page 1893) (see table of dimensions).

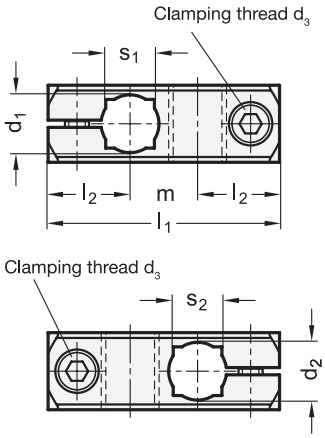
TECHNICAL INFORMATION

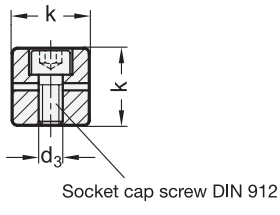
- Stainless Steel characteristics (see page A26)

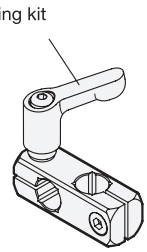
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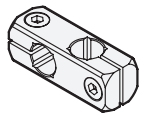
- Clamping kits GN 511 (see page 1893)











*Complete with Finish of the Two-way clamp mountings (MT or ELS)

MT matt, slide ground

ELS anodized, black

GN 474

Description	d1 For shaft tolerance h11	d2 For shaft tolerance h11	k	d3	l1	l2	m	s1	s2	Clamping kits for d3	⚖
GN 474-B8-B8-*	B 8	B 8	14	M 4	37	13.5	10	-	-	GN 511-M4-14	16
GN 474-B10-B10-*	B 10	B 10	16	M 5	46	17	12	8	8	GN 511-M5-16	25
GN 474-B10-B8-*	B 10	B 8	16	M 5	46	17	12	8	-	GN 511-M5-16	27
GN 474-B12-B12-*	B 12	B 12	16	M 5	48	17	14	10	10	GN 511-M5-16	25
GN 474-B12-B8-*	B 12	B 8	16	M 5	48	17	14	10	-	GN 511-M5-16	27
GN 474-B15-B10-*	B 15	B 10	20	M 6	58	20.5	17	12	8	GN 511-M6-20	51
GN 474-B15-B12-*	B 15	B 12	20	M 6	58	20.5	17	12	10	GN 511-M6-20	49
GN 474-B15-B15-*	B 15	B 15	20	M 6	58	20.5	17	12	12	GN 511-M6-20	44
GN 474-B16-B12-*	B 16	B 12	20	M 6	59	20.5	18	-	10	GN 511-M6-20	49
GN 474-B16-B16-*	B 16	B 16	20	M 6	59	20.5	18	-	-	GN 511-M6-20	44
GN 474-B20-B15-*	B 20	B 15	25	M 6	65	21.5	22	16	12	GN 511-M6-25	80
GN 474-B20-B16-*	B 20	B 16	25	M 6	65	21.5	22	16	-	GN 511-M6-25	77
GN 474-B20-B20-*	B 20	B 20	25	M 6	65	21.5	22	16	16	GN 511-M6-25	67

Weight ELS

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GN 474.1

Two-way clamp mountings

Aluminium

SPECIFICATION

Aluminium

- matt, tumbled finish **MT**
- anodized black **ELS**

Socket cap screws DIN 912
Stainless Steel AISI 304

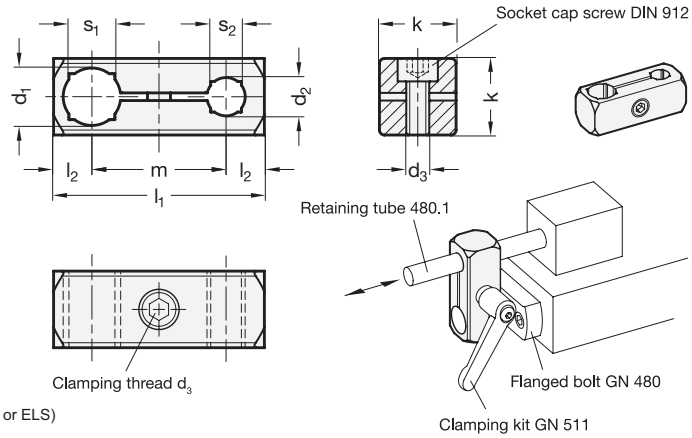
INFORMATION

The standard version of the clamping screw is a socket cap screw with hexagonal socket DIN 912. It can be replaced by a clamping kit GN 511 (see page 1893).

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)





* Complete with Finish of the Two-way clamp mountings (MT or ELS)

MT	ELS
matt, tumbled ground	anodized, black

GN 474.1

Description	d1 For shaft tolerance h11	d2 For shaft tolerance h11	k	d3	l1	l2	m	s1	s2	Clamping kits for d3	⚖
GN 474.1-B8-B8-*	B 8	B 8	14	M 4	38	7	24	-	-	GN 511-M4-14	16
GN 474.1-B10-B8-*	B 10	B 10	16	M 5	44	8	28	8	-	GN 511-M5-16	24
GN 474.1-B10-B10-*	B 10	B 10	16	M 5	44	8	28	8	8	GN 511-M5-16	23
GN 474.1-B12-B8-*	B 12	B 8	16	M 5	45	8	29	10	-	GN 511-M5-16	23
GN 474.1-B12-B10-*	B 12	B 10	16	M 5	45	8	29	10	8	GN 511-M5-16	21
GN 474.1-B12-B12-*	B 12	B 12	16	M 5	45	8	29	10	10	GN 511-M5-16	21
GN 474.1-B15-B10-*	B 15	B 10	20	M 6	55	10	35	12	8	GN 511-M6-20	45
GN 474.1-B15-B12-*	B 15	B 12	20	M 6	55	10	35	12	10	GN 511-M6-20	43
GN 474.1-B15-B15-*	B 15	B 15	20	M 6	55	10	35	12	12	GN 511-M6-20	40
GN 474.1-B16-B10-*	B 16	B 10	20	M 6	55	10	35	-	8	GN 511-M6-20	42
GN 474.1-B16-B12-*	B 16	B 12	20	M 6	55	10	35	-	10	GN 511-M6-20	42
GN 474.1-B16-B15-*	B 16	B 15	20	M 6	55	10	35	-	12	GN 511-M6-20	38
GN 474.1-B16-B16-*	B 16	B 16	20	M 6	55	10	35	-	-	GN 511-M6-20	38
GN 474.1-B20-B12-*	B 20	B 12	25	M 6	66	12.5	41	16	10	GN 511-M6-25	75
GN 474.1-B20-B15-*	B 20	B 15	25	M 6	66	12.5	41	16	12	GN 511-M6-25	75
GN 474.1-B20-B16-*	B 20	B 16	25	M 6	66	12.5	41	16	-	GN 511-M6-25	74
GN 474.1-B20-B20-*	B 20	B 20	25	M 6	66	12.5	41	16	16	GN 511-M6-25	66

Weight ELS

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Twistable two-way clamp mountings

Aluminium

SPECIFICATION

Aluminium

- matt, slide ground **MT**
- anodized, black **ELS**

Socket cap screws DIN 912
Stainless Steel AISI 304

Grub screw DIN 915
Stainless Steel AISI 304

Clamping kits GN 511 (see page 1893)



INFORMATION

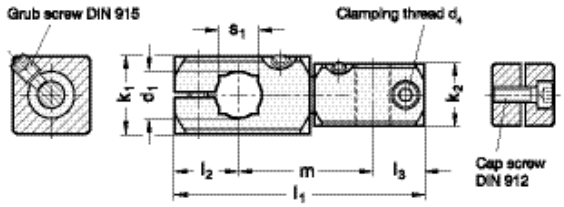
Twistable two-way clamp mountings GN 475 connect rods and tubes within the clamp mounting system under any adjustable angle. With the angle adjustment released, the clamp mounting halves stay connected with formlocking effect.
The standard version of the clamping screws at the clamping threads d_3 and d_4 are socket cap screws with hexagonal socket DIN 912. They can be replaced by an adjustable clamping lever GN 511 (see page 1893).

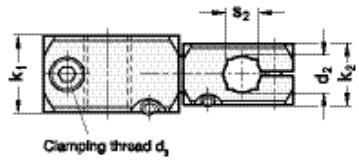
TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)

ACCESSORY

- Clamping kits GN 511 (see page 1893)







*Complete with Finish of the Twistable two-way clamp mountings (MT or ELS)

MT	ELS
matt, slide ground	anodized, black

GN 475

Description	d1 For shaft tolerance h11	d2 For shaft tolerance h11	k1	k2	d3	d4	l1	l2	l3	m	s1	s2	Clamping kits for d3	Clamping kits for d4	⚖
GN 475-B8-B8-*	B 8	B 8	16	16	M 4	M 4	52.5	13	13	26.5	-	-	GN 511-M4-16	GN 511-M4-16	34
GN 475-B10-B8-*	B 10	B 8	20	16	M 5	M 4	58	15.5	13	29.5	8	-	GN 511-M5-20	GN 511-M4-16	50
GN 475-B10-B10-*	B 10	B 10	20	20	M 5	M 5	63.5	15.5	15.5	32.5	8	8	GN 511-M5-20	GN 511-M5-20	65
GN 475-B12-B8-*	B 12	B 8	20	16	M 5	M 4	62	16.5	13	32.5	10	-	GN 511-M5-20	GN 511-M4-16	54
GN 475-B12-B12-*	B 12	B 12	20	20	M 5	M 5	71.5	16.5	16.5	38.5	10	10	GN 511-M5-20	GN 511-M5-20	73
GN 475-B15-B10-*	B 15	B 10	25	20	M 6	M 5	75.5	20	15.5	40	12	8	GN 511-M6-25	GN 511-M5-20	105
GN 475-B15-B12-*	B 15	B 12	25	20	M 6	M 5	79.5	20	16.5	43	12	10	GN 511-M6-25	GN 511-M5-20	108
GN 475-B15-B15-*	B 15	B 15	25	25	M 6	M 6	87.5	20	20	47.5	12	12	GN 511-M6-25	GN 511-M6-25	143
GN 475-B16-B12-*	B 16	B 12	25	20	M 6	M 5	81	20	16.5	44.5	-	10	GN 511-M6-25	GN 511-M5-20	112
GN 475-B16-B16-*	B 16	B 16	25	25	M 6	M 6	90.5	20	20	50.5	-	-	GN 511-M6-25	GN 511-M6-25	139
GN 475-B20-B15-*	B 20	B 15	30	25	M 6	M 6	95	22	20	53	16	12	GN 511-M6-30	GN 511-M6-25	193
GN 475-B20-B16-*	B 20	B 16	30	25	M 6	M 6	96.5	22	20	54.5	16	-	GN 511-M6-30	GN 511-M6-25	196
GN 475-B20-B20-*	B 20	B 20	30	30	M 6	M 6	102.5	22	22	58.5	16	16	GN 511-M6-30	GN 511-M6-30	242

Weight ELS

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GN 476

T-Clamp mountings

Aluminium



SPECIFICATION

Types

- Type **A**: with bore
- Type **W**: with bolt

Aluminium

- matt, slide ground **MT**
- anodized, black **ELS**

Bolt (Type W)
Stainless Steel AISI 303

Socket cap screw DIN 912
Stainless Steel AISI 304

Grub screw DIN 913 (Type A)
Stainless Steel AISI 304

Grub screw DIN 915 (Type W)
Stainless Steel AISI 304

Clamping kits GN 511 (see page 1893)

INFORMATION

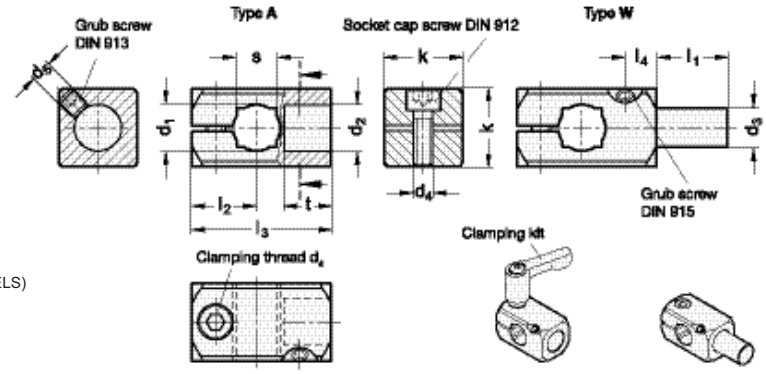
The T-Clamp mountings GN 476 (Type W) are an alternative to twistable two-way clamp mountings GN 475 (see page 1882) if high angular forces are required.
The standard version of the clamping screw at the clamping thread d_4 is a socket cap screw with hexagonal socket DIN 912. It can be replaced by an adjustable clamping lever GN 511 (see page 1893) (description see table of dimensions).

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)

ACCESSORY

- Clamping kits GN 511 (see page 1893)



* Complete with Finish of the T-Clamp mountings (MT or ELS)

MT	ELS
matt, slide ground	anodized, black

GN 476

Description	d1 For shaft tolerance h11	d2	d3	k	d4	d5	l1	l2	l3	l4	t	s	Clamping kits for d4	⚖
GN 476-B8-B8-A-*	B 8	B 8	-	16	M 4	M 4	16	13	26	5.5	8	-	GN 511-M4-16	20
GN 476-B10-B10-A-*	B 10	B 10	-	20	M 5	M 5	17	15.5	31.5	7	10	8	GN 511-M5-20	28
GN 476-B12-B12-A-*	B 12	B 12	-	20	M 5	M 5	19	16.5	35.5	8	12	10	GN 511-M5-20	28
GN 476-B15-B15-A-*	B 15	B 15	-	25	M 6	M 6	21	20	43.5	10	15	12	GN 511-M6-25	54
GN 476-B16-B16-A-*	B 16	B 16	-	25	M 6	M 6	24	20	45	11	16	-	GN 511-M6-25	54
GN 476-B20-B20-A-*	B 20	B 20	-	30	M 6	M 6	26	22	51	12	18	16	GN 511-M6-30	80
GN 476-B8-8-W-*	B 8	-	8	16	M 4	M 4	16	13	26	5.5	8	-	GN 511-M4-16	25
GN 476-B10-10-W-*	B 10	-	10	20	M 5	M 5	17	15.5	31.5	7	10	8	GN 511-M5-20	45
GN 476-B12-12-W-*	B 12	-	12	20	M 5	M 5	19	16.5	35.5	8	12	10	GN 511-M5-20	57
GN 476-B15-15-W-*	B 15	-	15	25	M 6	M 6	21	20	43.5	10	15	12	GN 511-M6-25	103
GN 476-B16-16-W-*	B 16	-	16	25	M 6	M 6	24	20	45	11	16	-	GN 511-M6-25	120
GN 476-B20-20-W-*	B 20	-	20	30	M 6	M 6	26	22	51	12	18	16	GN 511-M6-30	191

Weight ELS

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Clamp mountings

Aluminium

SPECIFICATION

Aluminium

- matt, slide ground **MT**
- anodized, black **ELS**

Socket cap screw DIN 912
Stainless Steel AISI 304

Clamping kits GN 511 (see page 1893)

- Zinc die casting
- Inserts / Distance bushings, Stainless Steel AISI 303

INFORMATION

Attachment clamp mountings GN 478 are primarily designed for mounting sensor holders GN 479 (see page 1895) and retaining plates GN 479.1 (see page 1896). They are fitted with a central thread and with d_1 = B15 bore and higher, an additional bore template 4 x M4. The standard clamping screw is a socket cap screw with hexagonal socket DIN 912. It can be replaced by an clamping kit GN 511 (see page 1893) (see table of dimensions).

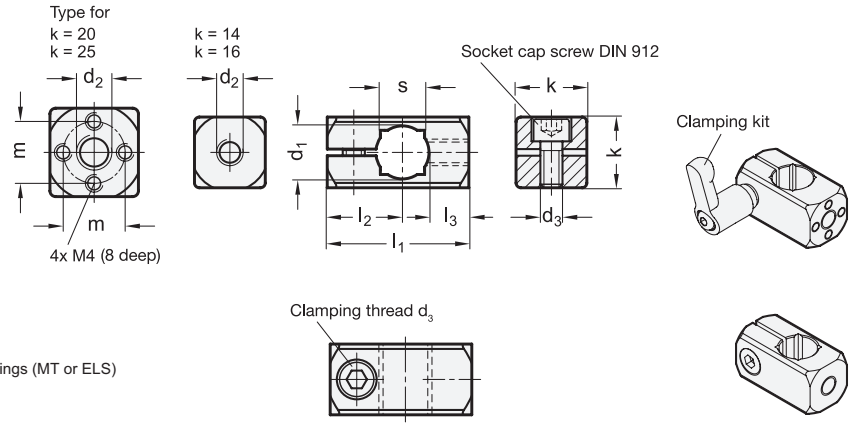
TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)

ACCESSORY

- Clamping kits GN 511 (see page 1893)





*Complete with Finish of the Clamp mountings (MT or ELS)

MT	ELS
matt, slide ground	anodized, black

GN 478

Description	d1 For shaft tolerance h11	d2	d3	k	m	l1	l2	l3	s	Clamping kits for d3	⚖
GN 478-B8-M5-*	B 8	M 5	M 4	14	-	25	13.5	7.5	-	GN 511-M4-14	11
GN 478-B10-M5-*	B 10	M 5	M 5	16	-	30	17	8	8	GN 511-M5-16	16
GN 478-B10-M6-*	B 10	M 6	M 5	16	-	30	17	8	8	GN 511-M5-16	16
GN 478-B10-M8-*	B 10	M 8	M 5	16	-	30	17	8	8	GN 511-M5-16	16
GN 478-B12-M5-*	B 12	M 5	M 5	16	-	32	17	9	10	GN 511-M5-16	16
GN 478-B12-M6-*	B 12	M 6	M 5	16	-	32	17	9	10	GN 511-M5-16	17
GN 478-B12-M8-*	B 12	M 8	M 5	16	-	32	17	9	10	GN 511-M5-16	17
GN 478-B15-M6-*	B 15	M 6	M 6	20	14	40	20.5	12	12	GN 511-M6-20	32
GN 478-B15-M8-*	B 15	M 8	M 6	20	14	40	20.5	12	12	GN 511-M6-20	31
GN 478-B16-M6-*	B 16	M 6	M 6	20	14	40	20.5	11.5	-	GN 511-M6-20	31
GN 478-B16-M8-*	B 16	M 8	M 6	20	14	40	20.5	11.5	-	GN 511-M6-20	30
GN 478-B20-M8-*	B 20	M 8	M 6	25	17	45	21.5	12	16	GN 511-M6-25	51
GN 478-B20-M10-*	B 20	M 10	M 6	25	17	45	21.5	12	16	GN 511-M6-25	50

Weight ELS

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GN 480

Flanged bolts

for clamp mountings

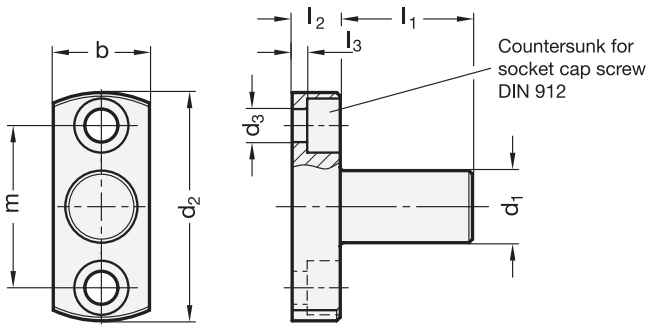
SPECIFICATION

Steel zinc plated, blue passivated

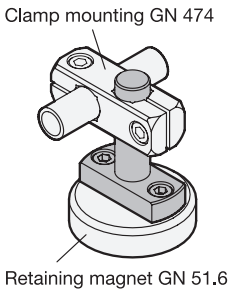
INFORMATION

GN 480 Flanged bolts are used in connection with clamp mountings, as foot or as connecting element, e.g. for adjustments in width or height.
With their low flange height, they provide an alternative for the foot clamp mounting GN 473 (see page 1878) in applications where clamping is required at low height above the clamping surface.
The bore distance m of the flanged bolts GN 480 is matched with the clamp mountings GN 473 (see page 1878) and GN 477 (see page 1879) as well as with retaining magnets GN 51.6 (see page 2032).





Application example



GN 480

Description	d1 h9	l1	b	d2	d3	l2	l3	m	⚖
GN 480-8-18	8	18	14	31.5	M 4	6	2	22	23
GN 480-8-32	8	32	14	31.5	M 4	6	2	22	40
GN 480-10-21	10	21	16	38	M 5	8	2.5	27	43
GN 480-10-37	10	37	16	38	M 5	8	2.5	27	52
GN 480-12-22	12	22	16	38	M 5	8	2.5	27	49
GN 480-12-39	12	39	16	38	M 5	8	2.5	27	64
GN 480-15-27,5	15	27.5	20	45	M 6	10	4	32	94
GN 480-15-47,5	15	47.5	20	45	M 6	10	4	32	122
GN 480-16-28	16	28	20	45	M 6	10	4	32	100
GN 480-16-49	16	49	20	45	M 6	10	4	32	133
GN 480-20-35	20	35	25	50	M 6	10	4	36	166
GN 480-20-60	20	60	25	50	M 6	10	4	36	240

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Twistable two-way clamp mountings

Aluminium

SPECIFICATION

Types

- Type **A**: with cylinder head screw DIN 912
- Type **B**: with adjustable clamping lever GN 300.1 (see page 324)

Aluminium

plain, matte tumbled finish **MT**
plastic coated

black, RAL 9005, textured finish **SW**

Socket cap screws DIN 912
Stainless Steel AISI 304

Hexagon nuts DIN 985
Stainless Steel AISI 304

Adjustable clamping lever GN 300.1 (see page 324)

Zinc die casting
plastic coated
silver, RAL 9006, textured finish

Inserts / Distance bushing
Stainless Steel AISI 303

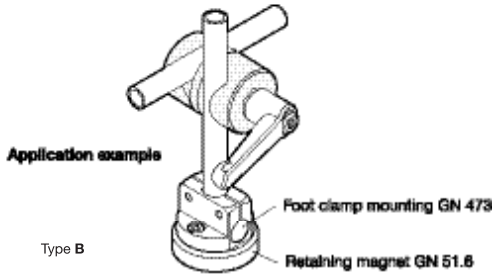
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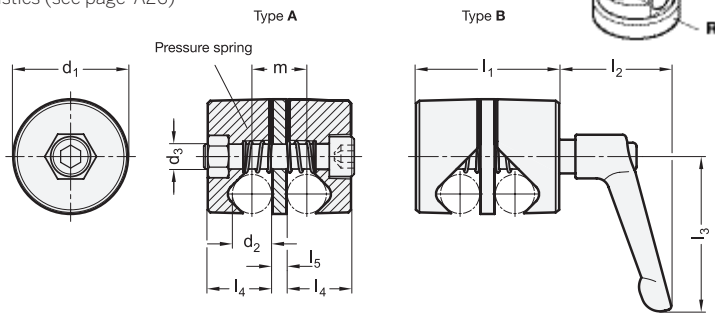
Twistable two-way clamp mountings GN 490 clamp the rods or tubes via a prism, allowing a greater Ø tolerance to be bridged. The pressure spring makes clamping and releasing easier.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)







GN 490

Description	d1	d2	d3	l1	l2	l3	l4	l5	m	⚖
GN 490-28-8-A-MT	28	8	M 6	33	-	-	14	5	13	52
GN 490-28-8-A-SW	28	8	M 6	33	-	-	14	5	13	52
GN 490-32-10-A-MT	32	10	M 8	45	-	-	20	5	15	95
GN 490-32-10-A-SW	32	10	M 8	45	-	-	20	5	15	96
GN 490-36-12-A-MT	36	12	M 8	47	-	-	21	5	17	118
GN 490-36-12-A-SW	36	12	M 8	47	-	-	21	5	17	118
GN 490-46-16-A-MT	46	16	M 10	57	-	-	25.5	6	22	221
GN 490-46-16-A-SW	46	16	M 10	57	-	-	25.5	6	22	225
GN 490-28-8-B-MT	28	8	M 6	33	35	45	14	5	13	89
GN 490-28-8-B-SW	28	8	M 6	33	35	45	14	5	13	85
GN 490-32-10-B-MT	32	10	M 8	45	45	63	20	5	15	172
GN 490-32-10-B-SW	32	10	M 8	45	45	63	20	5	15	173
GN 490-36-12-B-MT	36	12	M 8	47	45	63	21	5	17	193
GN 490-36-12-B-SW	36	12	M 8	47	45	63	21	5	17	195
GN 490-46-16-B-MT	46	16	M 10	57	55	78	25.5	6	22	354
GN 490-46-16-B-SW	46	16	M 10	57	55	78	25.5	6	22	354

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Swivel clamp connector bases

Aluminium



SPECIFICATION

Aluminium

- matt, tumbled finish **MT**
- anodized, black **ELS**

INFORMATION

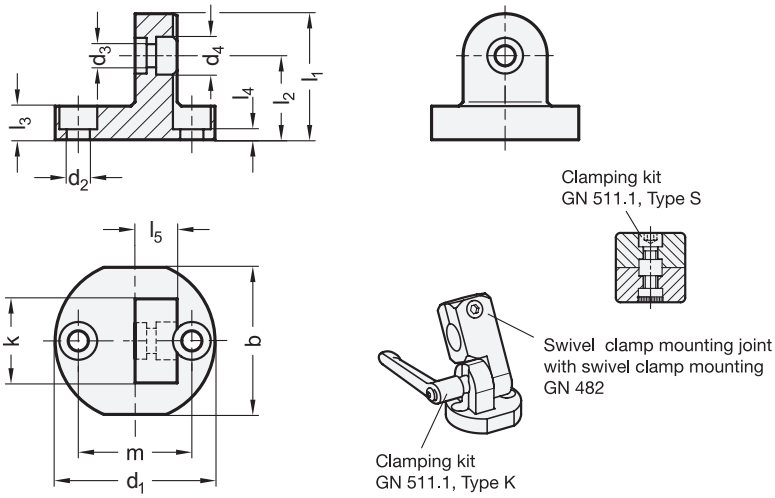
Swivel clamp connector bases GN 485 can be combined with swivel clamp mountings GN 482 (see page 1890), T-swivel clamp mountings GN 483 (see page 1891) and attachment clamp mountings GN 484 (see page 1892) with the same k dimensions into swivel clamp mounting joints. Clamping kits GN 511.1 (see page 1894) with screw (type S) and adjustable hand lever (type K) are available to connect the joints and bases (code no. for ordering is shown in the dimensional table).
The center to center mounting hole distance m of the swivel clamp connector bases GN 485 matches the base plate clamp mountings GN 473 (see page 1878), clamp mountings GN 477 (see page 1879), flanged bolts GN 480 (see page 1885) as well as retaining magnets GN 51.6 (see page 2032).

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)

ACCESSORY

- Clamping kits GN 511.1 (see page 1893)



GN 485

Description	k	b	d1	d2	d3	d4	l1	l2	l3	l4	l5	m	Clamping kits for d3 Type K	Clamping kits for d3 Type S	⚖
GN 485-16-MT	16	29	31.5	M 4	4.5	7.5	25	17	7	3	8	22	GN 511.1-M4-16-K	GN 511.1-M4-16-S	18
GN 485-20-MT	20	35	38	M 5	5.5	9	30	20	8	2.5	10	27	GN 511.1-M5-20-K	GN 511.1-M5-20-S	31
GN 485-25-MT	25	41	45	M 6	6.5	10.5	37	24.5	10	4	12.5	32	GN 511.1-M6-25-K	GN 511.1-M6-25-S	55
GN 485-30-MT	30	44	50	M 6	6.5	10.5	44.5	29.5	12.5	6.5	15	36	GN 511.1-M6-30-K	GN 511.1-M6-30-S	90
GN 485-16-ELS	16	29	31.5	M 4	4.5	7.5	25	17	7	3	8	22	GN 511.1-M4-16-K	GN 511.1-M4-16-S	20
GN 485-20-ELS	20	35	38	M 5	5.5	9	30	20	8	2.5	10	27	GN 511.1-M5-20-K	GN 511.1-M5-20-S	33
GN 485-25-ELS	25	41	45	M 6	6.5	10.5	37	24.5	10	4	12.5	32	GN 511.1-M6-25-K	GN 511.1-M6-25-S	57
GN 485-30-ELS	30	44	50	M 6	6.5	10.5	44.5	29.5	12.5	6.5	15	36	GN 511.1-M6-30-K	GN 511.1-M6-30-S	92

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GN 480.7

Stainless Steel-Hose adapters

Barbed fitting / Thread

SPECIFICATION

Stainless Steel

- AISI 304
- blank, unfinished

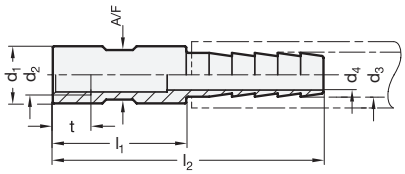
INFORMATION

GN 480.7 hose adapters can attach e.g. air nozzles or coolant nozzles and their feed pipes with clamp mountings and hold them in position. The d_2 / d_3 thread and barbed fitting diameters are compatible with the most common bolt and internal hose diameters. Hose lines are attached to the barbed fitting with suitable hose clamps, securing them against slipping off.

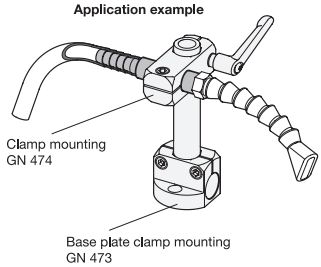
TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)





Application example



GN 480.7 — **STAINLESS STEEL**

Description	d1 h9	d2 - t	d3	d4	l1	l2	A/F	⚖
GN 480.7-D10-M5-4	D 10	M 5 - 8.5	4	2.5	30	48	8	16
GN 480.7-D10-M6-4	D 10	M 6 - 10.5	4	2.5	30	48	8	15
GN 480.7-D10-M5-6	D 10	M 5 - 8.5	6	4.5	30	57	8	19
GN 480.7-D10-M6-6	D 10	M 6 - 10.5	6	4.5	30	57	8	17
GN 480.7-D12-M7-6	D 12	M 7 - 11.5	6	4.5	30	57	10	23
GN 480.7-D12-M8x1-6	D 12	M 8x1 - 10	6	4.5	30	57	10	21
GN 480.7-D12-M7-9	D 12	M 7 - 11.5	9	7	30	63	10	28
GN 480.7-D12-M8x1-9	D 12	M 8x1 - 10	9	7	30	63	10	25
GN 480.7-D15-M10x1-9	D 15	M 10x1 - 10	9	7	35	68	13	40
GN 480.7-D15-G1/8-9	D 15	G 1/8 - 8	9	7	35	68	13	41
GN 480.7-D15-M10x1-10	D 15	M 10x1 - 10	10	8	35	71	13	41
GN 480.7-D15-G1/8-10	D 15	G 1/8 - 8	10	8	35	71	13	42
GN 480.7-D16-M12x1,5-10	D 16	M 12x1.5 - 14	10	8	35	71	14	42
GN 480.7-D16-G1/8-10	D 16	G 1/8 - 8	10	8	35	71	14	49
GN 480.7-D16-M12x1,5-12	D 16	M 12x1.5 - 14	12	9	35	71	14	47
GN 480.7-D16-G1/8-12	D 16	G 1/8 - 8	12	8	35	71	14	59
GN 480.7-D20-M16x1,5-12	D 20	M 16x1.5 - 15	12	9	40	76	18	64
GN 480.7-D20-G3/8-12	D 20	G 3/8 - 12	12	9	40	76	18	60
GN 480.7-D20-G1/4-12	D 20	G 1/4 - 12	12	9	40	76	18	83
GN 480.7-D20-M16x1,5-16	D 20	M 16x1.5 - 15	16	12	40	76	18	68
GN 480.7-D20-G3/8-16	D 20	G 3/8 -12	16	12	40	76	18	69
GN 480.7-D20-G1/4-16	D 20	G 1/4 - 12	16	12	40	76	18	69

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GN 480.8

Stainless Steel-
Thread adapters

Thread / Thread

SPECIFICATION

Stainless Steel

- AISI 304
- blank, unfinished

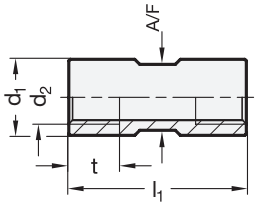
INFORMATION

GN 480.8 thread adapters can attach e.g. air nozzles or coolant nozzles and their feed pipes with clamp mountings and hold them in position.
The d_2 thread diameters are compatible with the most common bolt diameters.

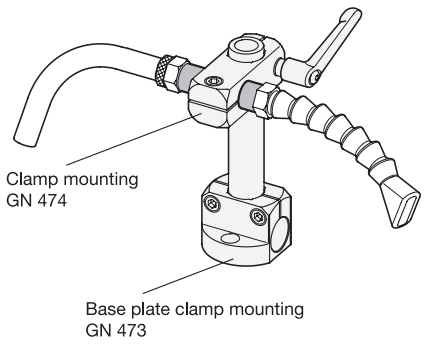
TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)





Application example



GN 480.8 **STAINLESS STEEL**

Description	d1 h9	d2 - t	l1	A/F	⚖
GN 480.8-D10-M5	D 10	M 5 - 8.5	30	8	14
GN 480.8-D10-M6	D 10	M 6 - 10.5	30	8	13
GN 480.8-D12-M7	D 12	M 7 - 11.5	30	10	18
GN 480.8-D12-M8x1	D 12	M 8x1 - 10	30	10	16
GN 480.8-D15-M10x1	D 15	M 10x1 - 10	35	13	29
GN 480.8-D15-G1/8	D 15	G 1/8 - 8	35	13	30
GN 480.8-D16-M12x1,5	D 16	M 12x1.5 - 14	35	14	37
GN 480.8-D16-G1/8	D 16	G 1/8 - 8	35	14	37
GN 480.8-D20-M16x1,5	D 20	M 16x1.5 - 15	40	18	40
GN 480.8-D20-G3/8	D 20	G 3/8 - 12	40	18	36
GN 480.8-D20-G1/4	D 20	G 1/4 - 12	40	18	40

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Swivel clamp mountings

Aluminium

SPECIFICATION

Types

- Type **Q**: Clamping bore transverse to the swivel axis
- Type **P**: Clamping bore parallel to the swivel axis

Aluminium

- matt, slide ground **MT**
- anodized black **ELS**

Cylinder head screws DIN 912
Stainless Steel AISI 304





INFORMATION

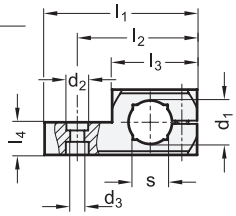
Swivel clamp mountings GN 482 can be combined with T-Swivel clamp mountings GN 483 (see page 1891) and attachment clamp mountings GN 484 (see page 1892)with the same k dimensions into swivel clamp mounting joints. Clamping kits GN 511.1 (see page 1894) with screw (type S) and adjustable hand lever (type K) are available for this combination.
Also, the clamping screw d_4 which is a cylinder head screw with DIN 912 hexagonal recess in the standard design - can be replaced by a clamping kit GN 511 (see page 1893).
The description for ordering is shown in the dimensional table.

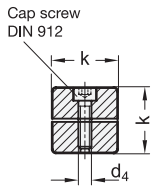
TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)

ACCESSORY

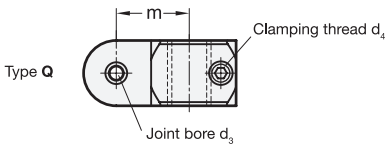
- Clamping kits GN 511 (see page 1893)
- Clamping kits GN 511.1 (see page 1894)

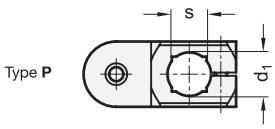


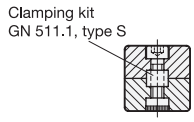












*Complete with Finish of the Swivel clamp mountings (MT or ELS)

MT	ELS
matt, slide ground	anodized, black

GN 482

Description	d1 For shaft tolerance h11	k	d2	d3	d4	l1	l2	l3	m	l4	s	Clamping kits for d3 Type S/K	Clamping kits for d4	⚖
GN 482-B8-16-P-*	B 8	16	7	4.5	M 4	40	32	23	18.5	8	-	GN 511.1-M4-16-S/K	GN 511-M4-16	19
GN 482-B10-20-P-*	B 10	20	8.5	5.5	M 5	50	40	29	23	10	8	GN 511.1-M5-20-S/K	GN 511-M5-20	36
GN 482-B12-20-P-*	B 12	20	8.5	5.5	M 5	50	40	29	23	10	10	GN 511.1-M5-20-S/K	GN 511-M5-20	34
GN 482-B15-25-P-*	B 15	25	10	6.5	M 6	62	49.5	36	29	12.5	12	GN 511.1-M6-25-S/K	GN 511-M6-25	67
GN 482-B16-25-P-*	B 16	25	10	6.5	M 6	62	49.5	36	29	12.5	-	GN 511.1-M6-25-S/K	GN 511-M5-25	66
GN 482-B20-30-P-*	B 20	30	10	6.5	M 6	70	55	39	33.5	15	16	GN 511.1-M6-30-S/K	GN 511-M6-32	99
GN 482-B8-16-Q-*	B 8	16	7	4.5	M 4	40	32	23	18.5	8	-	GN 511.1-M4-16-S/K	GN 511-M4-16	19
GN 482-B10-20-Q-*	B 10	20	8.5	5.5	M 5	50	40	29	23	10	8	GN 511.1-M5-20-S/K	GN 511-M5-20	36
GN 482-B12-20-Q-*	B 12	20	8.5	5.5	M 5	50	40	29	23	10	10	GN 511.1-M5-20-S/K	GN 511-M5-20	35
GN 482-B15-25-Q-*	B 15	25	10	6.5	M 6	62	49.5	36	29	12.5	12	GN 511.1-M6-25-S/K	GN 511-M6-25	60
GN 482-B16-25-Q-*	B 16	25	10	6.5	M 6	62	49.5	36	29	12.5	-	GN 511.1-M6-25-S/K	GN 511-M5-25	65
GN 482-B20-30-Q-*	B 20	30	10	6.5	M 6	70	55	39	33.5	15	16	GN 511.1-M6-30-S/K	GN 511-M6-32	99

Weight ELS

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GN 483

T-swivel clamp mountings

Aluminium

SPECIFICATION

Types

- Type **A**: with bore
- Type **W**: with bolt

Aluminium

- matt, slide ground **MT**
- anodized black **ELS**

Bolt (Type W)
Steel zinc-plated, blue passivated

Grub screw DIN 913 (Type A)
Stainless Steel AISI 304

Grub screw DIN 915 (Type W)
Stainless Steel AISI 304

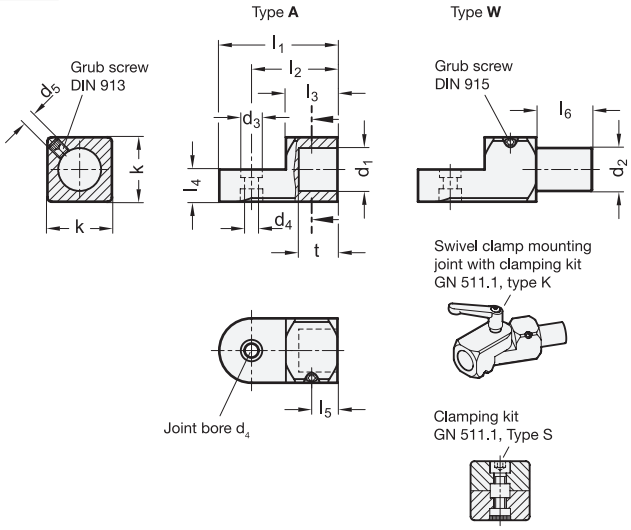
INFORMATION

T-Swivel clamp mountings GN 483 can be combined with swivel clamp mountings GN 482 (see page 1890) and attachment clamp mountings GN 484 (see page 1892) with the same k dimensions into articulated swivel clamp mounting joints. Clamping kits GN 511.1 (see page 1894) with screw, type S and adjustable hand lever, type K are available for this purpose (description see table of dimensions).

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)





*Complete with Finish of the T-Swivel clamp mountings (MT or ELS)

MT	ELS
matt, slide ground	anodized, black

GN 483 — **STAINLESS STEEL**

Description	d1	d2	k	d3	d4	d5	l1	l2	l3	l4	l5	l6	t	Clamping kits for d4 Type S	Clamping kits for d3 Type K	⚖
GN 483-B8-16-A-*	B 8	-	16	7	4.5	M 4	30	22	13	8	5.5	16	8	GN 511.1-M4-16-S	GN 511.1-M4-16-K	12
GN 483-B10-20-A-*	B 10	-	20	8.5	5.5	M 5	38	28	17	10	7	17	10	GN 511.1-M5-20-S	GN 511.1-M5-20-K	20
GN 483-B12-20-A-*	B 12	-	20	8.5	5.5	M 5	38	28	17	10	8	19	12	GN 511.1-M5-20-S	GN 511.1-M5-20-K	20
GN 483-B15-25-A-*	B 15	-	25	10	6.5	M 6	46	33.5	20	12.5	10	21	15	GN 511.1-M6-25-S	GN 511.1-M6-25-K	40
GN 483-B16-25-A-*	B 16	-	25	10	6.5	M 6	46	33.5	20	12.5	11	24	16	GN 511.1-M6-25-S	GN 511.1-M6-25-K	40
GN 483-B20-30-A-*	B 20	-	30	10	6.5	M 6	55	40	24	15	12	26	18	GN 511.1-M6-30-S	GN 511.1-M6-30-K	80
GN 483-8-16-W-*	-	8	16	7	4.5	M 4	30	22	13	8	5.5	16	8	GN 511.1-M4-16-S	GN 511.1-M4-16-K	20
GN 483-10-20-W-*	-	10	20	8.5	5.5	M 5	38	28	17	10	7	17	10	GN 511.1-M5-20-S	GN 511.1-M5-20-K	42
GN 483-12-20-W-*	-	12	20	8.5	5.5	M 5	38	28	17	10	8	19	12	GN 511.1-M5-20-S	GN 511.1-M5-20-K	51
GN 483-15-25-W-*	-	15	25	10	6.5	M 6	46	33.5	20	12.5	10	21	15	GN 511.1-M6-25-S	GN 511.1-M6-25-K	94
GN 483-16-25-W-*	-	16	25	10	6.5	M 6	46	33.5	20	12.5	11	24	16	GN 511.1-M6-25-S	GN 511.1-M6-25-K	106
GN 483-20-30-W-*	-	20	30	10	6.5	M 6	55	40	24	15	12	26	18	GN 511.1-M6-30-S	GN 511.1-M6-30-K	180

Weight ELS

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Attachment clamp mountings

Aluminium

SPECIFICATION

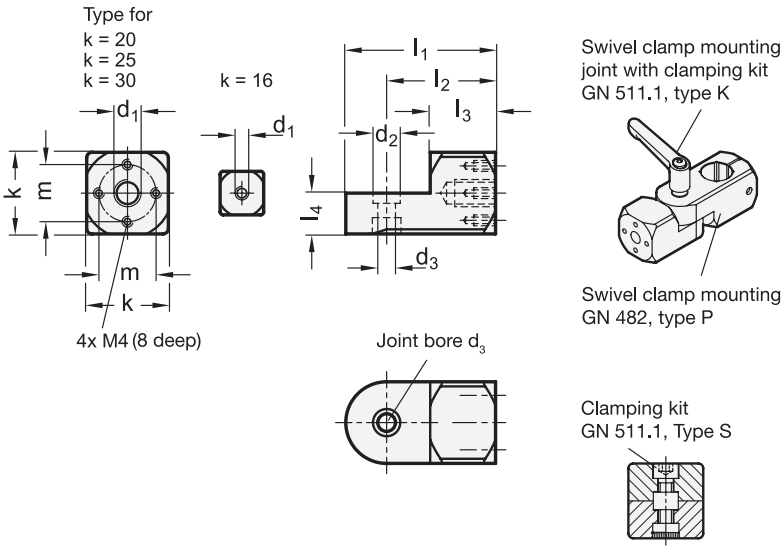
Aluminium

- matt, slide ground **MT**
- anodized black **ELS**

INFORMATION

Attachment clamp mountings GN 484 are primarily designed for mounting sensor holders GN 479 (see page 1895) and retaining plate GN 479.1 (see page 1896). They are fitted with a central thread and for the size with k = 20 and higher, an additional bore template 4 x M4.
Using swivel clamp mountings GN 482 (see page 1890) and T-Swivel clamp mountings GN 483 (see page 1891) with the same k dimensions, attachment clamp mountings GN 484 are easily combined into articulated swivel clamp mounting joints. Clamping kits GN 511.1 (see page 1894) with screw, type S and adjustable hand lever, type K are available for this purpose (description see table of dimensions).





*Complete with Finish of the Attachment clamp mountings (MT or ELS)

MT	ELS
matt, slide ground	anodized, black

GN 484

Description	d1	k	d2	d3	l1	l2	l3	l4	m	Clamping kits for d3 Type S	Clamping kits for d3 Type K	⚖
GN 484-M5-16-*	M 5	16	7	4.5	30	22	13	8	-	GN 511.1-M4-16-S	GN 511.1-M4-16-K	12
GN 484-M6-16-*	M 6	16	7	4.5	30	22	13	8	-	GN 511.1-M4-16-S	GN 511.1-M4-16-K	12
GN 484-M8-16-*	M 8	16	7	4.5	30	22	13	8	-	GN 511.1-M4-16-S	GN 511.1-M4-16-K	11
GN 484-M6-20-*	M 6	20	8.5	5.5	38	28	17	10	14	GN 511.1-M5-20-S	GN 511.1-M5-20-K	24
GN 484-M8-20-*	M 8	20	8.5	5.5	38	28	17	10	14	GN 511.1-M5-20-S	GN 511.1-M5-20-K	23
GN 484-M8-25-*	M 8	25	10	6.5	46	33.5	20	12.5	17	GN 511.1-M6-25-S	GN 511.1-M6-25-K	46
GN 484-M10-25-*	M 10	25	10	6.5	46	33.5	20	12.5	17	GN 511.1-M6-25-S	GN 511.1-M6-25-K	45
GN 484-M8-30-*	M 8	30	10	6.5	55	40	24	15	20	GN 511.1-M6-30-S	GN 511.1-M6-30-K	84
GN 484-M10-30-*	M 10	30	10	6.5	55	40	24	15	20	GN 511.1-M6-30-S	GN 511.1-M6-30-K	82
GN 484-M12-30-*	M 12	30	10	6.5	55	40	24	15	20	GN 511.1-M6-30-S	GN 511.1-M6-30-K	80

Weight ELS

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GN 511

Clamping lever kits

adjustable, for clamp mountings

SPECIFICATION

Handle
Zinc die casting
plastic coated
silver, RAL 9006, textured finish

Insert / Distance bushing
Stainless Steel AISI 303

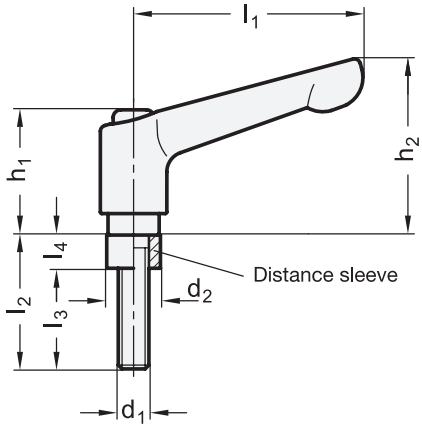
INFORMATION

For clamp mountings, the clamping kits GN 511 replace the hexagon socket screw DIN 912. It is used on all clamping points where repeated clamping actions are required, e.g. for adjusting a stop mechanism. The matching clamping kits for each clamping thread are listed in the dimensional tables of the clamp mountings.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)





GN 511

Description	d1	l2	d2	l1	l3	l4	h1	h2	⚖
GN 511-M4-14	M 4	14	7.5	30	9.5	4.5	24.5	30.5	39
GN 511-M4-16	M 4	16	7.5	30	11.5	4.5	24.5	30.5	39
GN 511-M4-20	M 4	20	7.5	30	15.5	4.5	24.5	30.5	41
GN 511-M5-16	M 5	16	9	30	10	6	24.5	30.5	41
GN 511-M5-20	M 5	20	9	30	14	6	24.5	30.5	41
GN 511-M5-25	M 5	25	9	30	19	6	24.5	30.5	41
GN 511-M6-20	M 6	20	10.5	45	13.5	6.5	24.5	35	41
GN 511-M6-25	M 6	25	10.5	45	18.5	6.5	24.5	35	51
GN 511-M6-30	M 6	30	10.5	45	23.5	6.5	24.5	35	52
GN 511-M6-32	M 6	32	10.5	45	25.5	6.5	24.5	35	52

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Clamping kits

for swivel clamp mountings



SPECIFICATION

Types

- Type **S**: with cylinder head screw DIN 912
- Type **K**: with adjustable hand levers

Handle
Zinc die casting
plastic coated
silver, RAL 9006, textured finish

Threaded insert, distance sleeve,
centering bushing, threaded bushing
Stainless Steel AISI 303

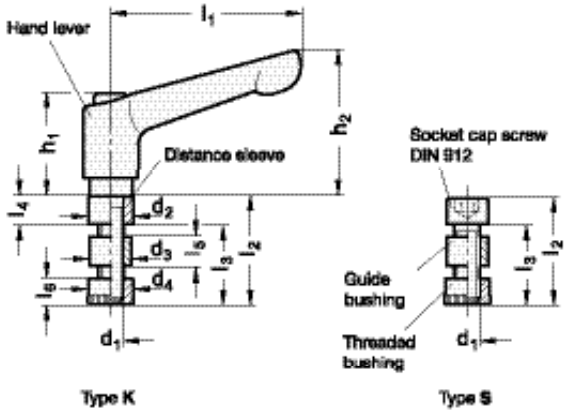
Cylinder head screw DIN 912
Stainless Steel AISI 304

INFORMATION

With clamping kits GN 511.1 swivel clamp mountings GN 482 (see page 1890) can be combined with T-Swivel clamp mountings GN 483 (see page 1891) and attachment clamp mountings GN 484 (see page 1892) with the same k-dimensions into swivel clamp mounting joints.
The centering bush positions the swivel clamp mountings in relation to each other. During assembly, the knurled threaded bushing is inserted by the clamping screw itself and by pressing into one of the two swivel clamp mountings and so serves to clamp the articulated joint.
The matching clamping kits are shown in the dimensional tables of the appropriate swivel clamp mountings.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



GN 511.1

Description	d1	l2	d2	d3	d4	l1	l3	l4	l5	l6	h1	h2	Swivel clamp mounting k dimension	⚖
GN 511.1-M4-16-K	M 4	16	7.5	6.9	7.5	30	11.5	4.5	4	4	24.5	30.5	16	30
GN 511.1-M4-16-S	M 4	16	7.5	6.9	7.5	-	11.5	-	4	4	-	-	16	34
GN 511.1-M5-20-K	M 5	20	9	8.4	9	30	14	6	5	5	24.5	30.5	20	12
GN 511.1-M5-20-S	M 5	20	9	8.4	9	-	14	-	5	5	-	-	20	15
GN 511.1-M6-25-K	M 6	25	10.5	9.9	10.5	45	18.5	6.5	7	6	24.5	35	25	120
GN 511.1-M6-25-S	M 6	25	10.5	9.9	10.5	-	18.5	-	7	6	-	-	25	150
GN 511.1-M6-30-K	M 6	30	10.5	9.9	10.5	45	23.5	6.5	7	6	24.5	35	30	150
GN 511.1-M6-30-S	M 6	30	10.5	9.9	10.5	-	23.5	-	7	6	-	-	30	200

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GN 479

Sensor holders

for clamp mountings with threaded holes GN 478 / GN 484

SPECIFICATION

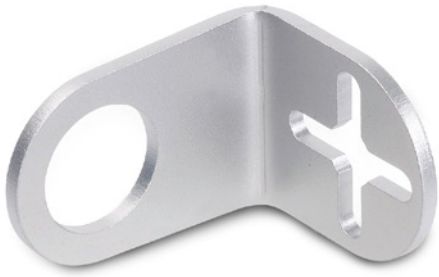
Stainless Steel AISI 303
matt-shot blasted

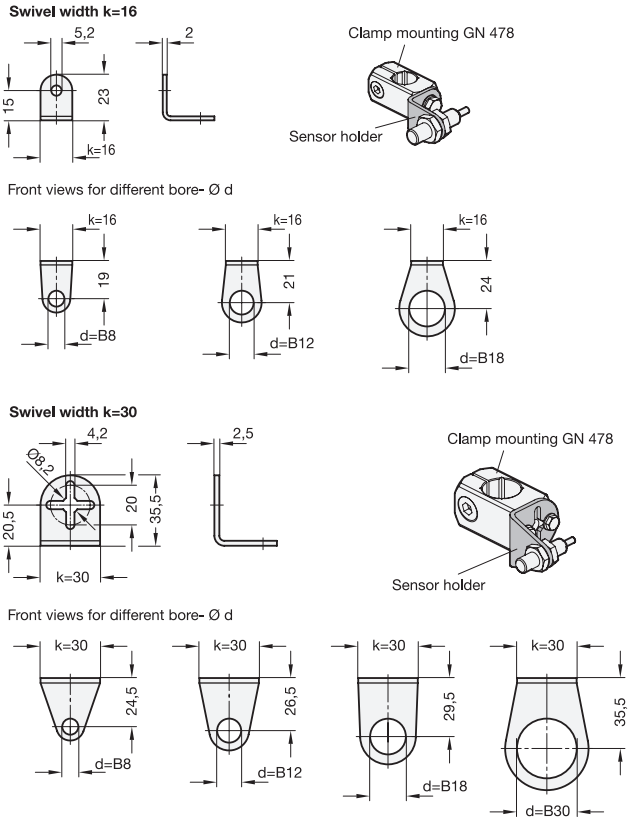
INFORMATION

The sensor holders GN 479 are designed for holding sensors attached with two lock nuts.
The attachment bore matches the central thread of clamp mountings GN 478 (see page 1884) and attachment clamp mountings GN 484 (see page 1892) . For k=30, the cross-shaped slotted holes provide extra adjustability and allow the use of two fixing screws.
Fixing screws have to be ordered separately.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)





GN 479 **STAINLESS STEEL**

Description	d	k	⚖
GN 479-B8-16	B 8	16	9
GN 479-B8-30	B 8	30	24
GN 479-B12-16	B 12	16	10
GN 479-B12-30	B 12	30	26
GN 479-B18-16	B 18	16	13
GN 479-B18-30	B 18	30	30
GN 479-B30-30	B 30	30	36

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Retaining plates

for clamp mountings with threaded holes
GN 478 / GN 484

SPECIFICATION

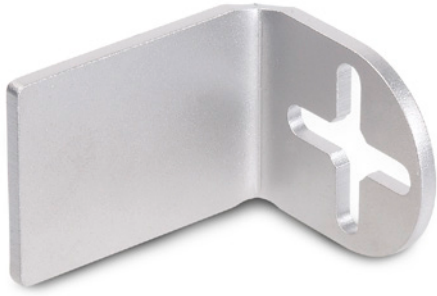
Stainless Steel AISI 303
matt-shot blasted

INFORMATION

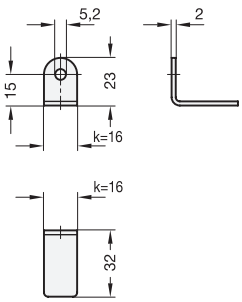
Retaining plates GN 479.1 are designed as universal mounting elements, e.g. for integrating specific hole patterns..
The attachment bore matches the central thread of clamp mountings GN 478 (see page 1884) and attachment clamp mountings GN 484 (see page 1892). For k=30, the cross-shaped slotted holes provide extra adjustability and allow the use of two fixing screws.
Fixing screws have to be ordered separately.

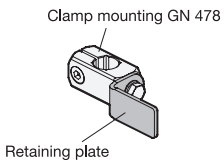
TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)

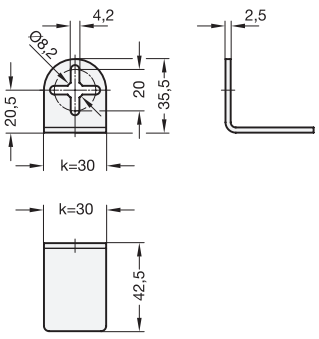


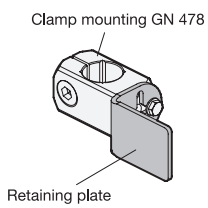
Swivel width k=16





Swivel width k=30





GN 479.1 **STAINLESS STEEL**

Description	k	⚖
GN 479.1-16	16	10
GN 479.1-30	30	37

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GN 960

Angled pieces for profile systems 30 / 40 / 45

for slot widhts 8 / 10, assembly with T-Nuts / T-Slot bolts



SPECIFICATION

Types

- Type **A**: without assembly set, without cover
- Type **B**: with assembly set, with cover
- Type **C**: with assembly set, without cover

Aluminium
Die casting

matt shot-blasted **MT**

plastic coated
black, RAL 9005, textured finish **SW**
silver, RAL 9006, textured finish **SR**

T-Slot bolt GN 505.4 (see page 980)
with Hexagon flange nut DIN 6923
Steel
zinc plated, blue passivated

T-Nuts GN 505 (see page 979)
with Socket head cap screw DIN 7984
Steel
zinc plated, blue passivated

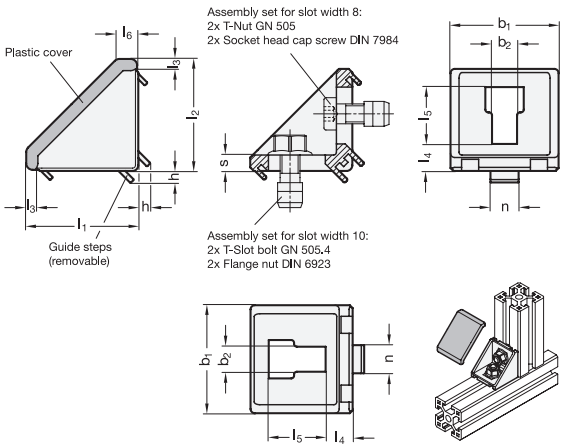
Cover
Plastic (Polyamide PA)
black, matt

INFORMATION

To fix the angle pieces GN 960 in place, insert the assembly sets into the profile slot through the opening. When tightened, the nut or screw will be cross-positioned and so anchored in the slot.
For crossing profiles or when using the angle piece with elements without slot, the superfluous guide steps can be simply broken out.
After assembly, the cover caps are snapped into place via four lugs. They lend the angle piece an attractive appearance and protect against dirt.
Even after repeated use, the cover caps will remain firmly in place inside the angle pieces thanks to the elastic snap-type lugs. If required, these are also available individually under standard GN 963 (see page 1900).

TECHNICAL INFORMATION

- Plastic characteristics (see page A2)



*Complete with Finish of the Angle pieces for profile systems

MT	SW	SR
matt	RAL9005	RAL9006

GN 960

Description	b Nominal size	b Actual size	n	l1	l2	b2	h	l3	l4	l5	l6	s	⚖
GN 960-30-8-30-30-A-*	30	28	8	30	30	6.3	2.1	-	9.7	10.4	6.8	5.9	23
GN 960-40-10-40-40-A-*	40	38	10	40	40	8.5	4.1	-	9.5	20	7.2	5.6	37
GN 960-45-10-45-45-A-*	45	43	10	45	45	8.5	4.1	-	15.7	18.7	11.5	9.7	63
GN 960-30-8-30-30-B-*	30	28	8	30	30	6.3	2.1	3	9.7	10.4	6.8	5.9	40
GN 960-40-10-40-40-B-*	40	38	10	40	40	8.5	4.1	4	9.5	20	7.2	5.6	80
GN 960-45-10-45-45-B-*	45	43	10	45	45	8.5	4.1	4	15.7	18.7	11.5	9.7	110
GN 960-30-8-30-30-C-*	30	28	8	30	30	6.3	2.1	-	9.7	10.4	6.8	5.9	40
GN 960-40-10-40-40-C-*	40	38	10	40	40	8.5	4.1	-	9.5	20	7.2	5.6	80
GN 960-45-10-45-45-C-*	45	43	10	45	45	8.5	4.1	-	15.7	18.7	11.5	9.7	110

Weight SW

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Angled pieces for profile systems 30 / 40

for slot widths 6 / 8, assembly with T-nuts with guide step GN 506



SPECIFICATION

Types

- Type **A**: without assembly set, without cover
- Type **B**: with assembly set, with cover
- Type **C**: with assembly set, without cover

Aluminium
Die casting

matt shot-blasted **MT**

plastic coated
black, RAL 9005, textured finish **SW**
silver, RAL 9006, textured finish **SR**

T-Nuts with guide step GN 506 (see page 982)
Steel
zinc plated, blue passivated

Slotted fillister head screw ISO 7380
Steel
zinc plated, blue passivated

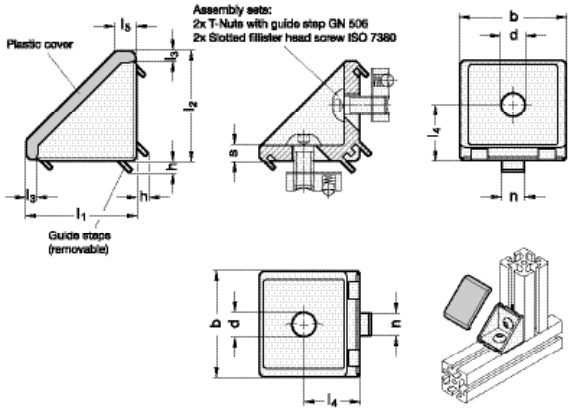
Cover
Plastic (Polyamide PA)
black, matt

INFORMATION

To fix the angle pieces GN 961 in place, first insert the nuts of the assembly set into the profile slot and fix the angle piece with the slotted fillister head screw. The guide step of the nut will then position these in parallel and centered to the slot; the spring element counteracts inadvertent sideways slip.
For crossing profiles or when using the angle piece with elements without slot, the superfluous guide steps can be simply broken out.
After assembly, the cover caps are snapped into place via four lugs. They lend the angle piece an attractive appearance and protect against dirt.
Even after repeated use, the cover caps will remain firmly in place inside the angle pieces thanks to the elastic snap-type lugs. If required, these are also available individually under standard GN 963 (see page 1900).

TECHNICAL INFORMATION

- Plastic characteristics (see page A2)



* Complete with Finish of the Angle pieces for profile systems

MT	SW	SR
matt	RAL9005	RAL9006

GN 961

Description	b Nominal size	b Actual size	n	l1	l2	d	h	l3	l4	l5	s	⚖
GN 961-30-6-30-30-A-*	30	28	6	30	30	6.3	2.6	3	15	6.8	5.9	24
GN 961-40-8-40-40-A-*	40	38	8	40	40	8.5	4.1	4	20	7.2	5.6	40
GN 961-30-6-30-30-B-*	30	28	6	30	30	6.3	2.6	3	15	6.8	5.9	46
GN 961-40-8-40-40-B-*	40	38	8	40	40	8.5	4.1	4	20	7.2	5.6	80
GN 961-30-6-30-30-C-*	30	28	6	30	30	6.3	2.6	3	15	6.8	5.9	40
GN 961-40-8-40-40-C-*	40	38	8	40	40	8.5	4.1	4	20	7.2	5.6	80

Weight SW

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Angles for profile structures

Technopolymer

MATERIAL
Glass-fibre reinforced polyamide based (PA) technopolymer, grey colour similar to RAL 7046, matte finish.

STANDARD EXECUTIONS
- **SQT-A**: with two slots for M8 screws.
- **SQT-F**: with two holes for M8 screws and centering slides.
- **SQT-AF**: with slot and hole for M8 screws and centering slides. In case of assembly with the screws in the slots, we suggest you use screws type UNI 9327.

In case of assembly with the screws in the slots, we suggest you use screws type UNI 9327.

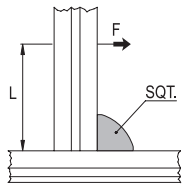
FEATURES AND APPLICATIONS
SQT. connecting angles are particularly suitable for the assembly, in a very easy way, of structures made out of aluminium profiles for safety protections of machines and equipment.
The shape, the sections and the material used guarantee high mechanical characteristics of rigidity, dimensional stability and high resistance to temperature.

TECHNICAL DATA
For the correct use, the stresses applied to the angles must satisfy the conditions indicated hereunder.

Code	Description	Covers for
156101	CO.SQT.40-18	SQT.40-18
156103	CO.SQT.40-25	SQT.40-25
156105	CO.SQT.43-43	SQT.43-43

ACCESSORIES ON REQUEST
Polyester based (PBT) technopolymer covers series CO.SQT, grey colour similar to RAL 7046, semi-glossy finish, in order to avoid any deposit of dirt and dust inside the angles.

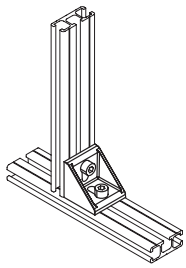
Description	F [N]	F•L [Nm]
SQT.40-18	< 600	< 25
SQT.40-25	< 700	< 30
SQT.43-43	< 750	< 35



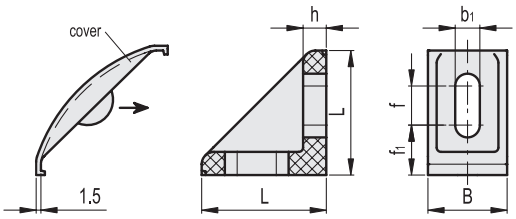


FAMdesign

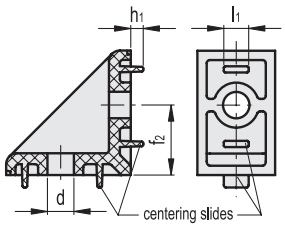




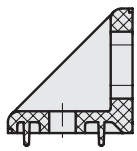
SQT-A



SQT-F



SQT-AF



Code	Description	L	B	h	h1	l1	b1	f	f1	f2	d	C# [Nm]	⚖
156111	SQT.40-18-A-8	40	18.5	7	-	-	8.5	13	14.5	-	-	5	12
156113	SQT.40-18-F-8	40	18.5	7	4	8	-	-	-	22.5	8.5	5	14
156115	SQT.40-18-AF-8	40	18.5	7	4	8	8.5	13	14.5	22.5	8.5	5	13
156121	SQT.40-25-A-8	40	25	7	-	-	8.5	13	14.5	-	-	5	18
156123	SQT.40-25-F-8	40	25	7	4	8	-	-	-	22.5	8.5	5	20
156125	SQT.40-25-AF-8	40	25	7	4	8	8.5	13	14.5	22.5	8.5	5	19
156131	SQT.43-43-A-8	43	43	8	-	-	8.5	13	17	-	-	5	32

Suggested tightening torque for assembly screws.

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Cover caps

for angle pieces for profile systems

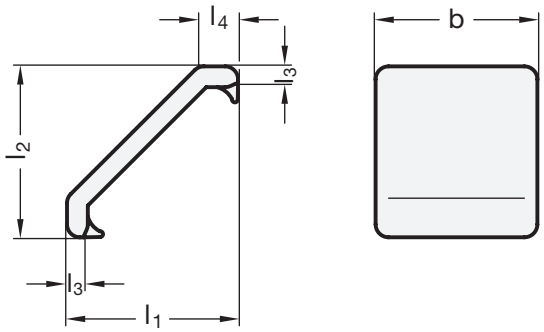
SPECIFICATION

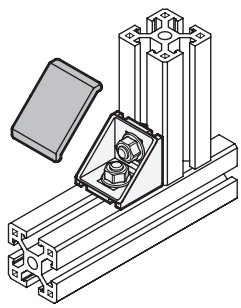
Plastic (Polyamide PA)
black, RAL 9005, textured finish **SW**

INFORMATION

The cover caps GN 963 are suitable for use with angle pieces for profile systems GN 960 (see page 1897) and GN 961 (see page 1898). After assembly the angle pieces, the cover caps are snapped into place via four lugs. They lend the angle piece an attractive appearance and protect against dirt.
Even after repeated use, the cover caps will remain firmly in place inside the angle pieces thanks to the elastic snap-type lugs.







GN 963

Description	b Nominal size	b Actual size	l1	l2	l3	l4	⚖
GN 963-30-30-30-SW	30	28	30	30	3	6.8	3
GN 963-40-40-40-SW	40	38	40	40	4	7.2	6
GN 963-45-45-45-SW	45	43	45	45	4	11.5	9

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GN 991

Tube end plugs

for construction tubes GN 990

SPECIFICATION

Plastic (Polyethylen PE)
black

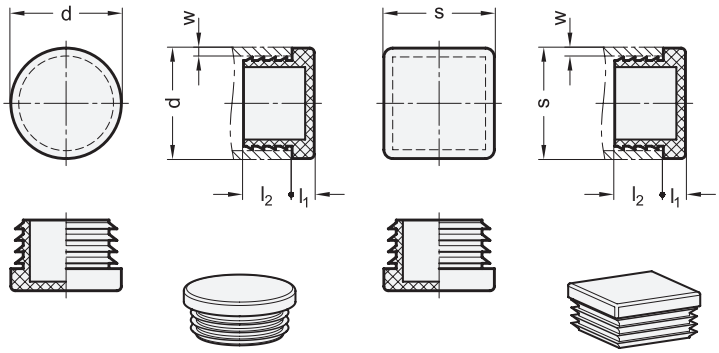
INFORMATION

Tube end plugs GN 991 have been designed for sealing tube ends for safety or optical reasons.
They are pressed into the tube end either by hand or with a mallet.

TECHNICAL INFORMATION

- Plastic characteristics (see page A2)





GN 991

Description	d	w	l1	l2	For tube GN 990	⚖
GN 991-D10	D 10	1 ... 2	3.5	11	D 10	1
GN 991-D12	D 12	1 ... 2	3.5	11	D 12	1
GN 991-D14	D 14	1 ... 2	5	11.5	D 14	1
GN 991-D15	D 15	1 ... 2	3	11.5	D 15	1
GN 991-D16	D 16	1 ... 2	5	11	D 16	1
GN 991-D18	D 18	1 ... 2	5	11.5	D 18	2
GN 991-D20	D 20	1 ... 2	5	11.5	D 20	2
GN 991-D25	D 25	1 ... 2	5	11.5	D 25	3
GN 991-D30	D 30	1 ... 2	5	11.5	D 30	3
GN 991-D32	D 32	1 ... 2	5	12	D 32	4
GN 991-D35	D 35	1 ... 2	5	11.5	D 35	5
GN 991-D40	D 40	1 ... 2	5	11.5	D 40	6
GN 991-D42	D 42	1 ... 2	5	11.5	D 42	6
GN 991-D45	D 45	1 ... 2	5	11	D 45	7
GN 991-D48	D 48	1 ... 2	5	11.5	D 48	8
GN 991-D50	D 50	1 ... 2	5	11.5	D 50	10
GN 991-D55	D 55	1 ... 2	5	14.5	D 55	11
GN 991-D60	D 60	1 ... 2	5	17.5	D 60	14

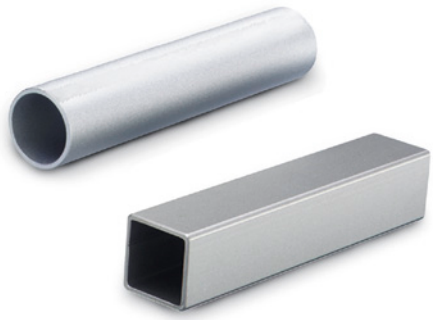
GN 991

Description	s	w	l1	l2	For tube GN 990	⚖
GN 991-V10	V 10	0.8 ... 2.5	4	8	V 10	1
GN 991-V12	V 12	1 ... 2	4	8	V 12	1
GN 991-V16	V 16	1 ... 2.5	5	6.5	V 16	3
GN 991-V20	V 20	1 ... 3	5	6.5	V 20	3
GN 991-V25	V 25	1 ... 3	5	6.5	V 25	4
GN 991-V30	V 30	1 ... 3	5	6.5	V 30	4
GN 991-V35	V 35	1 ... 3	5	9.5	V 35	7
GN 991-V40	V 40	1 ... 3	5	9.5	V 40	10
GN 991-V45	V 45	1 ... 3	5	9.5	V 45	10
GN 991-V50	V 50	2.6 ... 4	5	9.5	V 50	16

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Construction tubes

Steel / Aluminium / Stainless Steel, for tube clamp connectors



SPECIFICATION

Version in Steel ST
zinc plated, blue passivated **ZB**

Version in Aluminium AL

- blank, untreated **BL**
- anodized, natural colour **EL**

Version in Stainless Steel AISI 304 NI

blank, untreated **BL**

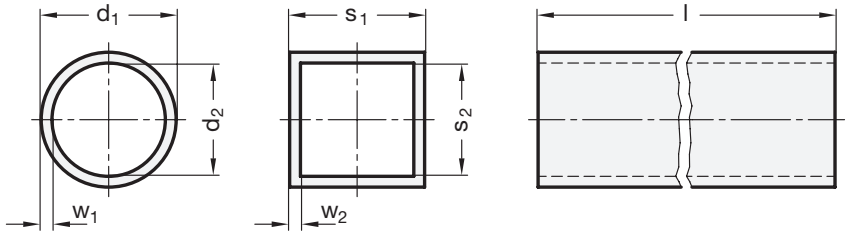
Sawed cross sections deburred blank, i.e. not surface treated

INFORMATION

Construction tubes GN 990 can be supplied in any length up to 3000 mm.
The tolerances specified for the outside diameter of the round construction tubes comply with the requirements for split mono-block connector clamps. Otherwise the tolerances comply with DIN 2391, DIN 2395 and DIN 2462.
Two-piece connector clamps allow obviously larger tolerances on construction tubes.

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A2)



GN 990

Description	d1	s1	l ±0.5	d2	w1	⚖
GN 990-ST-D10-100-ZB	D 10 ±0.1	-	*	7	1.5	31
GN 990-ST-D12-100-ZB	D 12 ±0.1	-	*	9	1.5	40
GN 990-ST-D14-100-ZB	D 14 ±0.1	-	*	11	1.5	46
GN 990-ST-D15-100-ZB	D 15 ±0.1	-	*	12	1.5	52
GN 990-ST-D16-100-ZB	D 16 ±0.1	-	*	13	1.5	54
GN 990-ST-D18-100-ZB	D 18 ±0.1	-	*	15	1.5	61
GN 990-ST-D20-100-ZB	D 20 ±0.1	-	*	16	2	82
GN 990-ST-D25-100-ZB	D 25 ±0.1	-	*	21	2	113
GN 990-ST-D30-100-ZB	D 30 ±0.1	-	*	26	2	138
GN 990-ST-D32-100-ZB	D 32 ±0.15	-	*	28	2	148
GN 990-ST-D35-100-ZB	D 35 ±0.15	-	*	31	2	163
GN 990-ST-D40-100-ZB	D 40 ±0.15	-	*	34	3	274
GN 990-ST-D42-100-ZB	D 42 ±0.2	-	*	36	3	288
GN 990-ST-D45-100-ZB	D 45 ±0.15	-	*	39	3	312
GN 990-ST-D48-100-ZB	D 48 ±0.2	-	*	42	3	334
GN 990-ST-D50-100-ZB	D 50 ±0.2	-	*	44	3	348
GN 990-ST-D55-100-ZB	D 55 ±0.25	-	*	47	4	503
GN 990-ST-D60-100-ZB	D 60 ±0.25	-	*	52	4	552

* available in all lengths from 50 to 3000 mm (in 1 mm steps)

GN 990

Description	s1	l ±0.5	s2	w2	⚖
GN 990-ST-V20-100-ZB	V 20	*	16	2	112
GN 990-ST-V25-100-ZB	V 25	*	21	2	144
GN 990-ST-V30-100-ZB	V 30	*	26	2	175
GN 990-ST-V35-100-ZB	V 35	*	31	2	206
GN 990-ST-V40-100-ZB	V 40	*	34	3	333
GN 990-ST-V45-100-ZB	V 45	*	39	3	380
GN 990-ST-V50-100-ZB	V 50	*	44	3	428

* available in all lengths from 50 to 3000 mm (in 1 mm steps)

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GN 990-AL

Description	d1	s1	l ±0.5	d2	s2	w1	w2	⚖
GN 990-AL-D10-100-BL	D 10 ±0.1	-	*	7	-	1.5	-	11
GN 990-AL-D12-100-BL	D 12 ±0.1	-	*	9	-	1.5	-	14
GN 990-AL-D14-100-BL	D 14 ±0.1	-	*	11	-	1.5	-	16
GN 990-AL-D15-100-BL	D 15 ±0.1	-	*	12	-	1.5	-	18
GN 990-AL-D16-100-BL	D 16 ±0.1	-	*	13	-	1.5	-	18
GN 990-AL-D18-100-BL	D 18 ±0.1	-	*	15	-	1.5	-	21
GN 990-AL-D20-100-BL	D 20 ±0.1	-	*	16	-	2	-	31
GN 990-AL-D25-100-BL	D 25 ±0.1	-	*	21	-	2	-	39
GN 990-AL-D30-100-BL	D 30 ±0.1	-	*	26	-	2	-	48
GN 990-AL-D32-100-BL	D 32 ±0.15	-	*	28	-	2	-	51
GN 990-AL-D35-100-BL	D 35 ±0.15	-	*	31	-	2	-	56
GN 990-AL-D40-100-BL	D 40 ±0.15	-	*	34	-	3	-	93
GN 990-AL-D45-100-BL	D 45 ±0.2	-	*	39	-	3	-	107
GN 990-AL-D48-100-BL	D 48 ±0.2	-	*	42	-	3	-	115
GN 990-AL-D50-100-BL	D 50 ±0.5	-	*	44	-	3	-	120
GN 990-AL-D60-100-BL	D 60 ±0.25	-	*	52	-	4	-	190
GN 990-AL-D10-100-EL	D 10 ±0.1	-	*	7	-	1.5	-	5
GN 990-AL-D12-100-EL	D 12 ±0.1	-	*	9	-	1.5	-	14
GN 990-AL-D14-100-EL	D 14 ±0.1	-	*	11	-	1.5	-	16
GN 990-AL-D15-100-EL	D 15 ±0.1	-	*	12	-	1.5	-	18
GN 990-AL-D16-100-EL	D 16 ±0.1	-	*	13	-	1.5	-	18
GN 990-AL-D18-100-EL	D 18 ±0.1	-	*	15	-	1.5	-	21
GN 990-AL-D20-100-EL	D 20 ±0.1	-	*	16	-	2	-	31
GN 990-AL-D25-100-EL	D 25 ±0.1	-	*	21	-	2	-	39
GN 990-AL-D30-100-EL	D 30 ±0.1	-	*	26	-	2	-	48
GN 990-AL-D32-100-EL	D 32 ±0.15	-	*	28	-	2	-	51
GN 990-AL-D35-100-EL	D 35 ±0.15	-	*	31	-	2	-	56
GN 990-AL-D40-100-EL	D 40 ±0.15	-	*	34	-	3	-	94
GN 990-AL-D45-100-EL	D 45 ±0.2	-	*	39	-	3	-	107
GN 990-AL-D48-100-EL	D 48 ±0.2	-	*	42	-	3	-	115
GN 990-AL-D50-100-EL	D 50 ±0.5	-	*	44	-	3	-	120
GN 990-AL-D60-100-EL	D 60 ±0.25	-	*	52	-	4	-	190
GN 990-AL-V10-100-BL	-	V 10	*	7	7	-	1.5	10
GN 990-AL-V12-100-BL	-	V 12	*	9	9	-	1.5	12
GN 990-AL-V16-100-BL	-	V 16	*	13	13	-	1.5	16
GN 990-AL-V20-100-BL	-	V 20	*	16	16	-	2	39
GN 990-AL-V25-100-BL	-	V 25	*	21	21	-	2	50
GN 990-AL-V30-100-BL	-	V 30	*	26	26	-	2	61
GN 990-AL-V35-100-BL	-	V 35	*	31	31	-	2	71
GN 990-AL-V40-100-BL	-	V 40	*	34	34	-	3	120
GN 990-AL-V45-100-BL	-	V 45	*	39	39	-	3	136
GN 990-AL-V50-100-BL	-	V 50	*	44	44	-	3	152
GN 990-AL-V10-100-EL	-	V 10	*	7	7	-	1.5	10
GN 990-AL-V12-100-EL	-	V 12	*	9	9	-	1.5	12
GN 990-AL-V16-100-EL	-	V 16	*	13	13	-	1.5	16
GN 990-AL-V20-100-EL	-	V 20	*	16	16	-	2	39
GN 990-AL-V25-100-EL	-	V 25	*	21	21	-	2	50
GN 990-AL-V30-100-EL	-	V 30	*	26	26	-	2	61
GN 990-AL-V35-100-EL	-	V 35	*	31	31	-	2	71
GN 990-AL-V40-100-EL	-	V 40	*	34	34	-	3	120
GN 990-AL-V45-100-EL	-	V 45	*	39	39	-	3	137
GN 990-AL-V50-100-EL	-	V 50	*	44	44	-	3	152

* available in all lengths from 50 to 3000 mm (in 1 mm steps)

GN 990-NI **STAINLESS STEEL**

Description	d1	s1	l ±0.5	d2	s2	w1	w2	⚖
GN 990-NI-D10-100-BL	D 10 ±0.1	-	*	7	-	1.5	-	32
GN 990-NI-D12-100-BL	D 12 ±0.1	-	*	9	-	1.5	-	40
GN 990-NI-D14-100-BL	D 14 ±0.1	-	*	11	-	1.5	-	47
GN 990-NI-D15-100-BL	D 15 ±0.1	-	*	12	-	1.5	-	49
GN 990-NI-D16-100-BL	D 16 ±0.1	-	*	13	-	1.5	-	54
GN 990-NI-D18-100-BL	D 18 ±0.1	-	*	15	-	1.5	-	61
GN 990-NI-D20-100-BL	D 20 ±0.1	-	*	16	-	2	-	89
GN 990-NI-D25-100-BL	D 25 ±0.1	-	*	21	-	2	-	114
GN 990-NI-D30-100-BL	D 30 ±0.1	-	*	26	-	2	-	139
GN 990-NI-D32-100-BL	D 32 ±0.15	-	*	28	-	2	-	149
GN 990-NI-D35-100-BL	D 35 ±0.15	-	*	31	-	2	-	164
GN 990-NI-D40-100-BL	D 40 ±0.15	-	*	34	-	3	-	176
GN 990-NI-D42,4-100-BL	D 42.4 (1 1/4")	-	*	37.2	-	2.6	-	253
GN 990-NI-D48,3-100-BL	D 48.3 (1 1/2")	-	*	43.1	-	2.6	-	260
GN 990-NI-D50-100-BL	D 50 ±0.2	-	*	44	-	3	-	350
GN 990-NI-D60-100-BL	D 60 ±0.25	-	*	52	-	4	-	511
GN 990-NI-D60,3-100-BL	D 60.3 (2")	-	*	53.1	-	3.6	-	556
GN 990-NI-V20-100-BL	-	V 20	*	16	16	-	2	120
GN 990-NI-V25-100-BL	-	V 25	*	21	21	-	2	145
GN 990-NI-V30-100-BL	-	V 30	*	26	26	-	2	176
GN 990-NI-V40-100-BL	-	V 40	*	34	34	-	3	335
GN 990-NI-V45-100-BL	-	V 45	*	39	39	-	3	382
GN 990-NI-V50-100-BL	-	V 50	*	44	44	-	3	431

* available in all lengths from 50 to 3000 mm (in 1 mm steps)

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Retaining rods / Retaining tubes

Aluminium / Stainless Steel, for clamp mountings



SPECIFICATION

Types

- Type **OS**: without scale
- Type **LS**: with scale (mm-graduation)

Version in Stainless Steel NI
Retaining rods / tubes, round
Stainless Steel AISI 304
ground

Version in Aluminium AL
Retaining square tubes
Aluminium
anodized natural colour

Longitudinal scale engraved
in laser precision

INFORMATION

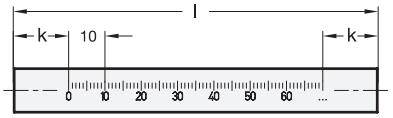
The outside dimensions of the retaining rods / retaining tubes GN 480.1 are matched for use with clamp mountings.
The retaining tubes can also be used as cable lead-through.

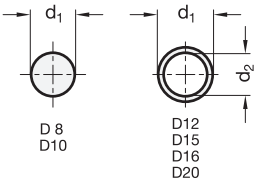
ON REQUEST

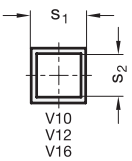
- Special scales

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)







GN 480.1

Description	s1	l	s2	k	⚖
GN 480.1-V10-100-AL-OS	V 10	100	7	15	11
GN 480.1-V10-150-AL-OS	V 10	150	7	15	19
GN 480.1-V10-200-AL-OS	V 10	200	7	15	25
GN 480.1-V10-250-AL-OS	V 10	250	7	15	32
GN 480.1-V10-300-AL-OS	V 10	300	7	15	38
GN 480.1-V10-350-AL-OS	V 10	350	7	15	44
GN 480.1-V10-400-AL-OS	V 10	400	7	15	51
GN 480.1-V12-100-AL-OS	V 12	100	9	15	15
GN 480.1-V12-150-AL-OS	V 12	150	9	15	23
GN 480.1-V12-200-AL-OS	V 12	200	9	15	31
GN 480.1-V12-250-AL-OS	V 12	250	9	15	39
GN 480.1-V12-300-AL-OS	V 12	300	9	15	46
GN 480.1-V12-350-AL-OS	V 12	350	7	15	54
GN 480.1-V12-400-AL-OS	V 12	400	7	15	65
GN 480.1-V16-100-AL-OS	V 16	100	13	20	21
GN 480.1-V16-150-AL-OS	V 16	150	13	20	32
GN 480.1-V16-200-AL-OS	V 16	200	13	20	43
GN 480.1-V16-250-AL-OS	V 16	250	13	20	53
GN 480.1-V16-300-AL-OS	V 16	300	13	20	64
GN 480.1-V16-350-AL-OS	V 16	350	7	15	74
GN 480.1-V16-400-AL-OS	V 16	400	7	15	85

GN 480.1

Description	s1	l	s2	k	⚖
GN 480.1-V10-100-AL-LS	V 10	100	7	15	20
GN 480.1-V10-150-AL-LS	V 10	150	7	15	20
GN 480.1-V10-200-AL-LS	V 10	200	7	15	25
GN 480.1-V10-250-AL-LS	V 10	250	7	15	32
GN 480.1-V10-300-AL-LS	V 10	300	7	15	38
GN 480.1-V10-350-AL-LS	V 10	350	7	15	44
GN 480.1-V10-400-AL-LS	V 10	400	7	15	51
GN 480.1-V12-100-AL-LS	V 12	100	9	15	15
GN 480.1-V12-150-AL-LS	V 12	150	9	15	23
GN 480.1-V12-200-AL-LS	V 12	200	9	15	31
GN 480.1-V12-250-AL-LS	V 12	250	9	15	39
GN 480.1-V12-300-AL-LS	V 12	300	9	15	46
GN 480.1-V12-350-AL-LS	V 12	350	9	15	54
GN 480.1-V12-400-AL-LS	V 12	400	9	15	65
GN 480.1-V16-100-AL-LS	V 16	100	13	20	21
GN 480.1-V16-150-AL-LS	V 16	150	13	20	32
GN 480.1-V16-200-AL-LS	V 16	200	13	20	43
GN 480.1-V16-250-AL-LS	V 16	250	13	20	53
GN 480.1-V16-300-AL-LS	V 16	300	13	20	64
GN 480.1-V16-350-AL-LS	V 16	350	13	20	80
GN 480.1-V16-400-AL-LS	V 16	400	13	20	100

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GN 480.1-NI — **STAINLESS STEEL**

Description	d1	l	d2	k	⚖
GN 480.1-D8-100-NI-OS	D 8	100	-	15	39
GN 480.1-D8-150-NI-OS	D 8	150	-	15	59
GN 480.1-D8-200-NI-OS	D 8	200	-	15	78
GN 480.1-D8-250-NI-OS	D 8	250	-	15	98
GN 480.1-D8-300-NI-OS	D 8	300	-	15	118
GN 480.1-D8-350-NI-OS	D 8	350	-	15	138
GN 480.1-D8-400-NI-OS	D 8	400	-	15	158
GN 480.1-D10-100-NI-OS	D 10	100	-	15	62
GN 480.1-D10-150-NI-OS	D 10	150	-	15	92
GN 480.1-D10-200-NI-OS	D 10	200	-	15	123
GN 480.1-D10-250-NI-OS	D 10	250	-	15	154
GN 480.1-D10-300-NI-OS	D 10	300	-	15	185
GN 480.1-D10-350-NI-OS	D 10	350	-	15	217
GN 480.1-D10-400-NI-OS	D 10	400	-	15	250
GN 480.1-D12-100-NI-OS	D 12	100	9	15	37
GN 480.1-D12-150-NI-OS	D 12	150	9	15	56
GN 480.1-D12-200-NI-OS	D 12	200	9	15	74
GN 480.1-D12-250-NI-OS	D 12	250	9	15	93
GN 480.1-D12-300-NI-OS	D 12	300	9	15	112
GN 480.1-D12-350-NI-OS	D 12	350	9	15	129
GN 480.1-D12-400-NI-OS	D 12	400	9	15	148
GN 480.1-D15-100-NI-OS	D 15	100	12	20	46
GN 480.1-D15-150-NI-OS	D 15	150	12	20	69
GN 480.1-D15-200-NI-OS	D 15	200	12	20	96
GN 480.1-D15-250-NI-OS	D 15	250	12	20	114
GN 480.1-D15-300-NI-OS	D 15	300	12	20	146
GN 480.1-D15-350-NI-OS	D 15	350	12	20	156
GN 480.1-D15-400-NI-OS	D 15	400	12	20	188
GN 480.1-D16-100-NI-OS	D 16	100	13	20	50
GN 480.1-D16-150-NI-OS	D 16	150	13	20	76
GN 480.1-D16-200-NI-OS	D 16	200	13	20	101
GN 480.1-D16-250-NI-OS	D 16	250	13	20	126
GN 480.1-D16-300-NI-OS	D 16	300	13	20	151
GN 480.1-D16-350-NI-OS	D 16	350	13	20	184
GN 480.1-D16-400-NI-OS	D 16	400	13	20	209
GN 480.1-D20-100-NI-OS	D 20	100	16	25	85
GN 480.1-D20-150-NI-OS	D 20	150	16	25	133
GN 480.1-D20-200-NI-OS	D 20	200	16	25	170
GN 480.1-D20-250-NI-OS	D 20	250	16	25	213
GN 480.1-D20-300-NI-OS	D 20	300	16	25	256
GN 480.1-D20-350-NI-OS	D 20	350	16	25	288
GN 480.1-D20-400-NI-OS	D 20	400	16	25	356

GN 480.1-NI — **STAINLESS STEEL**

Description	d1	l	d2	k	⚖
GN 480.1-D8-100-NI-LS	D 8	100	-	15	39
GN 480.1-D8-150-NI-LS	D 8	150	-	15	59
GN 480.1-D8-200-NI-LS	D 8	200	-	15	78
GN 480.1-D8-250-NI-LS	D 8	250	-	15	98
GN 480.1-D8-300-NI-LS	D 8	300	-	15	118
GN 480.1-D8-350-NI-LS	D 8	350	-	15	118
GN 480.1-D8-400-NI-LS	D 8	400	-	15	150
GN 480.1-D10-100-NI-LS	D 10	100	-	15	62
GN 480.1-D10-150-NI-LS	D 10	150	-	15	95
GN 480.1-D10-200-NI-LS	D 10	200	-	15	123
GN 480.1-D10-250-NI-LS	D 10	250	-	15	154
GN 480.1-D10-300-NI-LS	D 10	300	-	15	180
GN 480.1-D10-350-NI-LS	D 10	350	-	15	217
GN 480.1-D10-400-NI-LS	D 10	400	-	15	247
GN 480.1-D12-100-NI-LS	D 12	100	9	15	37
GN 480.1-D12-150-NI-LS	D 12	150	9	15	56
GN 480.1-D12-200-NI-LS	D 12	200	9	15	74
GN 480.1-D12-250-NI-LS	D 12	250	9	15	93
GN 480.1-D12-300-NI-LS	D 12	300	9	15	112
GN 480.1-D12-350-NI-LS	D 12	350	9	15	120
GN 480.1-D12-400-NI-LS	D 12	400	9	15	150
GN 480.1-D15-100-NI-LS	D 15	100	12	20	90
GN 480.1-D15-150-NI-LS	D 15	150	12	20	90
GN 480.1-D15-200-NI-LS	D 15	200	12	20	90
GN 480.1-D15-250-NI-LS	D 15	250	12	20	90
GN 480.1-D15-300-NI-LS	D 15	300	12	20	140
GN 480.1-D15-350-NI-LS	D 15	350	12	20	156
GN 480.1-D15-400-NI-LS	D 15	400	12	20	190
GN 480.1-D16-100-NI-LS	D 16	100	13	20	50
GN 480.1-D16-150-NI-LS	D 16	150	13	20	80
GN 480.1-D16-200-NI-LS	D 16	200	13	20	100
GN 480.1-D16-250-NI-LS	D 16	250	13	20	120
GN 480.1-D16-300-NI-LS	D 16	300	13	20	160
GN 480.1-D16-350-NI-LS	D 16	350	13	20	184
GN 480.1-D16-400-NI-LS	D 16	400	13	20	210
GN 480.1-D20-100-NI-LS	D 20	100	16	25	85
GN 480.1-D20-150-NI-LS	D 20	150	16	25	127
GN 480.1-D20-200-NI-LS	D 20	200	16	25	170
GN 480.1-D20-250-NI-LS	D 20	250	16	25	213
GN 480.1-D20-300-NI-LS	D 20	300	16	25	256
GN 480.1-D20-350-NI-LS	D 20	350	16	25	300
GN 480.1-D20-400-NI-LS	D 20	400	16	25	340

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Connecting clamps

Technopolymer



FM design

STANDARD COMPONENTS

- **MSX-B base**: glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish. Fitting by means of a stainless steel M5 cylindrical-head screw with hexagon socket and nut.
- **MSX-C T-shaped clamp**: glass-fibre reinforced technopolymer, black colour, matte finish. Fitting by means of stainless steel M5 cylindrical-head screws with hexagon socket and nuts.
- **MSX-TA-TB-TC-TD-TE-TF device clamps**: glass-fibre reinforced technopolymer, black colour, matte finish. Fitting by means of a stainless steel M5 cylindrical-head screw with hexagon socket and nut.

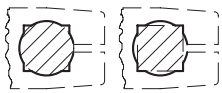
FEATURES AND APPLICATIONS

The geometry of the holes of MSX. series connecting clamps are designed to fit both tubes with round cross section and tubes with square cross section; the latter prevents the elements from rotating (see Fig. 1).

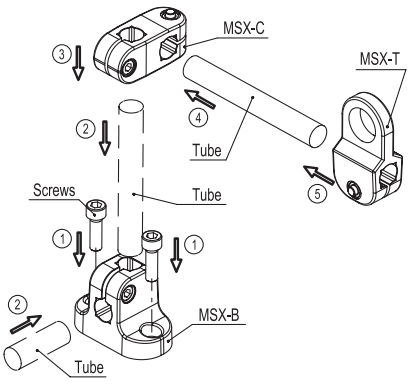
ASSEMBLY INSTRUCTIONS

1. Assemble the base by means of 2 M6 cylindrical head screws with hexagon socket (not supplied).
2. Fit the connecting tube into the hole of the base and clamp it by screwing the set screw. Suggested tightening torque 5Nm.
3. Insert the connecting tube in the shaped hole of the two-way clamp.
4. Fit the other connecting tube into the hole of the two-way clamp.
5. Fit on the connecting tube the proper device clamp, chosen within the six available. After the positioning of the components, clamp them by screwing the set screws. Suggested tightening torque 5Nm.

Fig.1



Assembly instructions



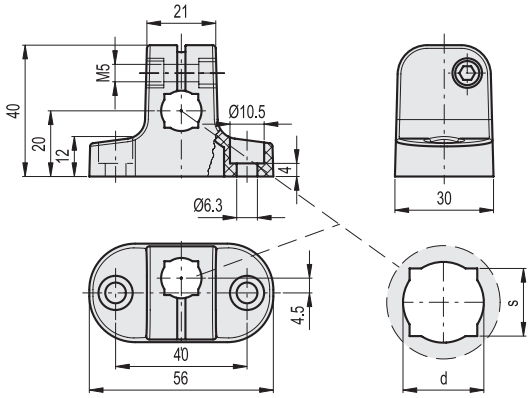


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MSX-B

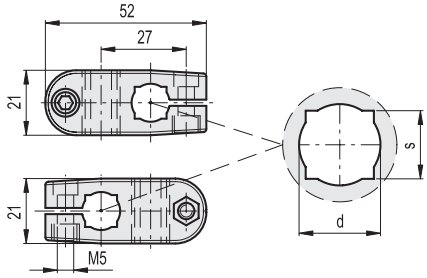
Code	Description	d	s	Pull out resistance# [N]	Rotation resistance# [Nm]	⚖
440101	MSX.56-B-8-10	10	8	900	4	32
440102	MSX.56-B-10-12	12	10	1000	4.5	31
440103	MSX.56-B-12-14	14	12	1100	5	28





MSX-C

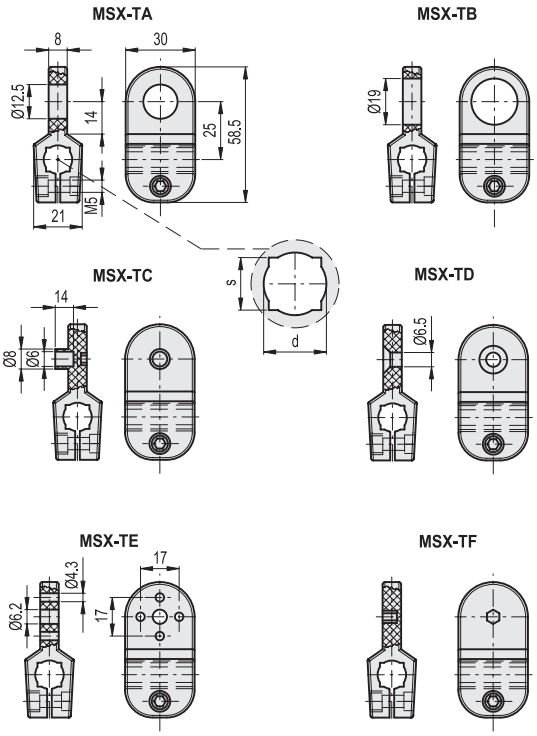
Code	Description	d	s	Pull out resistance# [N]	Rotation resistance# [Nm]	⚖
440121	MSX.56-C-8-10	10	8	900	4.5	24
440122	MSX.56-C-10-12	12	10	1000	5	23
440123	MSX.56-C-12-14	14	12	1100	5.5	20





MSX-TA-TB-TC-TD-TE-TF

Code	Description	d	s	Pull out resistance# [N]	Rotation resistance# [Nm]	⚖
440131	MSX.56-TA-8-10	10	8	900	4	23
440132	MSX.56-TA-10-12	12	10	1000	4.5	22
440133	MSX.56-TA-12-14	14	12	1100	5	21
440135	MSX.56-TB-8-10	10	8	900	4	21
440136	MSX.56-TB-10-12	12	10	1000	4.5	20
440137	MSX.56-TB-12-14	14	12	1100	5	19
440139	MSX.56-TC-8-10	10	8	900	4	25
440140	MSX.56-TC-10-12	12	10	1000	4.5	24
440141	MSX.56-TC-12-14	14	12	1100	5	23
440143	MSX.56-TD-8-10	10	8	900	4	24
440144	MSX.56-TD-10-12	12	10	1000	4.5	23
440145	MSX.56-TD-12-14	14	12	1100	5	22
440147	MSX.56-TE-8-10	10	8	900	4	23
440148	MSX.56-TE-10-12	12	10	1000	4.5	22
440149	MSX.56-TE-12-14	14	12	1100	5	21
440151	MSX.56-TF-8-10	10	8	900	4	24
440152	MSX.56-TF-10-12	12	10	1000	4.5	23
440153	MSX.56-TF-12-14	14	12	1100	5	22



Tests carried out with round tube.

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Connecting clamps

Technopolymer and aluminium



FM design

STANDARD COMPONENTS

- **MSR.60-B base**: glass-fibre reinforced polyamide based (PA) technopolymer, black colour, matte finish.
- **CC-MSR.60 screw covers**:
  technopolymer in six colours, glossy finish.
  Supplied, push-fit assembly, removable by a screwdriver.
  Available also as accessories sold separately (see table CC-MSR).

Code	Description	Boss cap for
440011-*	CC-MSR.60-*	MSR.60-B

* Complete with colour index (C1, ..., C6).

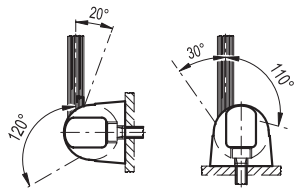
- **MSR.60-C Two-way clamp**: glass-fibre reinforced technopolymer, black colour, matte finish.
- **MSR.60-TA-TB-TC-TD-TE-TF device clamps**: glass-fibre reinforced technopolymer, black colour, matte finish.
- **MSR.60-T13 connecting tubes**:
  aluminium profile available with standard lengths from 100 to 2000 mm.
  On request and for sufficient quantities other lengths are available.
- **Connecting tube closing caps**:
  glass-fibre reinforced technopolymer, black colour, matte finish.
  Supplied, push-fit assembly.
  To be ordered also separately (code 440016 description TC13-MSR.60).

FEATURES AND APPLICATIONS

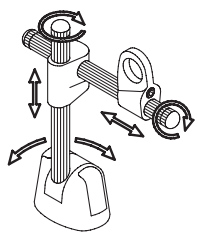
MSR. connecting clamps, designed according to ELESA patent, allow an easy and efficient connection between the components, preventing the risk of rotating freely.
The system allows the axial, perpendicular or angled positioning of the connecting tube to the base.

ADVANTAGES

The slot-shaped connecting tube preventing free rotation.
Tube and components clamped by the aid of only one screw.
Easy adjustments by five degrees of freedom of the clamped devices (see drawing).
Lack of cavities to avoid the deposit of dirt and undesired substances.
Easy identification of the clamped device using different coloured caps on the base.



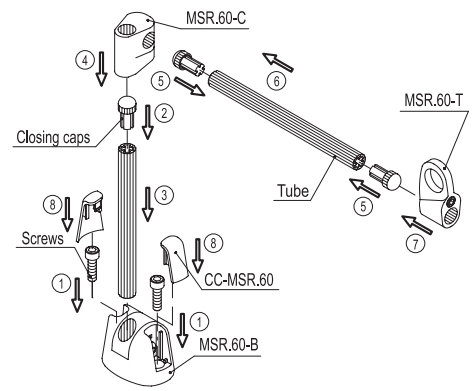
5 degrees of freedom



ASSEMBLY INSTRUCTIONS

1. Assemble the base by means of 2 M6 cylindrical head screws with hexagon socket (not supplied).
2. Fit one of the closing caps to the end of the connecting tube by tapping gently with a plastic mallet until firmly in place. Be careful not to assemble the cap to the end fitted to the base.
3. Insert the connecting tube in the shaped hole of the base and clamp it by screwing the set screw. Suggested tightening torque 5 Nm.
4. Insert the connecting tube in the shaped hole of the two-way clamp.
5. Fit the closing caps to the connecting tube.
6. Insert the connecting tube in the shaped hole of the two-way clamp.
7. Fit on the connecting tube the proper device clamp, chosen within the six available. After the positioning of the components, clamp them by screwing the set screws. Suggested tightening torque 3 Nm. We recommend not to exceed this value.
8. Once the adjustment has been set, fit the screw covers on the base.

Assembly instructions

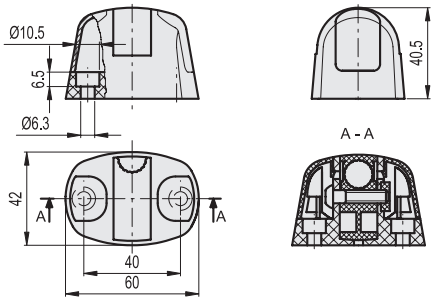


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* Complete with colour index, example: 440001-C9 MSR.60-B-C9

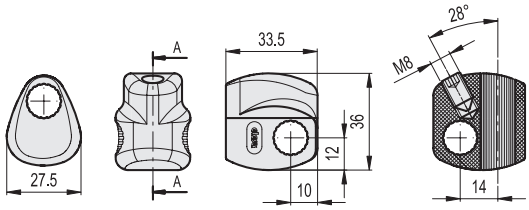
C9	C2	C3	C4	C5	C6
RAL9005	RAL2004	RAL7035	RAL1021	RAL5024	RAL3000



MSR.60-B

Code	Description	Pull out resistance [N]	⚖
440001-*	MSR.60-B-*	300	50





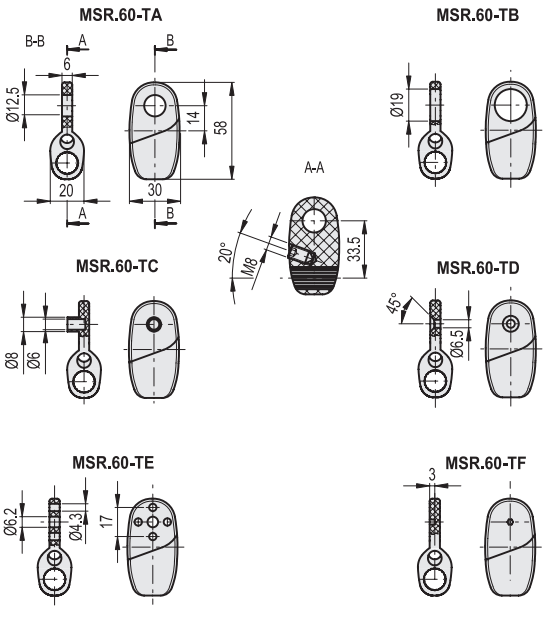
MSR.60-C

Code	Description	Pull out resistance [N]	⚖
440021	MSR.60-C	300	19



MSR.60-TA-TB-TC-TD-TE-TF

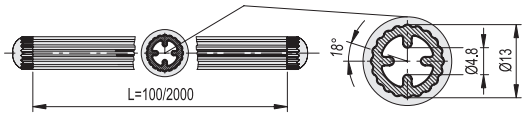
Code	Description	Pull out resistance [N]	⚖
440031	MSR.60-TA	300	18
440032	MSR.60-TB	300	17
440033	MSR.60-TC	300	19
440034	MSR.60-TD	300	18
440035	MSR.60-TE	300	18
440036	MSR.60-TF	300	20





MSR.60-T13

Code	Description	L	⚖
440050	MSR.60-T13-100	100	20
440055	MSR.60-T13-150	150	28
440060	MSR.60-T13-200	200	36
440065	MSR.60-T13-250	250	44
440070	MSR.60-T13-300	300	52
440200	MSR.60-T13-2000*	2000	320

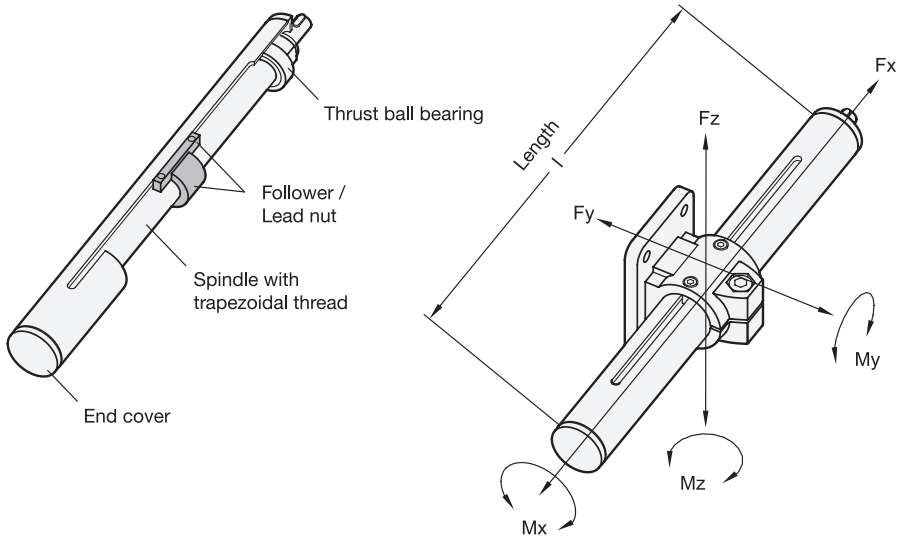


* Supplied without closing caps.

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Linear actuators

Technical description



Ø Linear actuator	Fx in N	Fy in N l = 500	l = 1000	l = 1500	Fz in N l = 500	l = 1000	l = 1500	Mx in Nm	My in Nm	Mz in Nm
18	400	80	-	-	65	-	-	1.5	4.5	4.5
30	850	500	70	15	550	55	10	6.5	15	15
40	1100	2150	250	65	1900	150	50	15	42	42
50	1750	3100	650	150	3100	650	150	29	69	69
60	2600	4550	1500	400	4550	1400	350	45	125	125

The load data are applicable to linear actuators GN 291 (see page 1912), GN 292 (see page 1914), GN 293 (see page 1915) made of Steel (SCR) or Stainless Steel (NI).
The specified forces Fy and Fz cause a flexure of the guide tube of approx. 0.5 mm.

A lead nut moves in axial direction over the ball bearing trapezoidal thread spindle of the linear actuator. The follower ensures the anti-rotation and makes the link to the different linear actuator connectors. The linear actuators have been designed for manual operation (handwheel).

The positioning accuracy is 0.2 mm / 300 mm stroke, the maximum reverse play is 0.1 mm.

Guide tubes are available in chromed Steel (SCR) or Stainless Steel (NI) non-rusting. They are made with the tolerance range of precision steel tubes DIN 2391 or DIN 2462.

A wide variety of different components are available in the tube clamp connector program to fix the linear actuators in place and to upgrade these into linear actuator connectors.

Also, digital position indicators (DD52, see page 721 / DD51, see page 718 / DD52R-E, see page 726 / DD51-E, see page 724) may be attached to measure the displacement or the positioning.

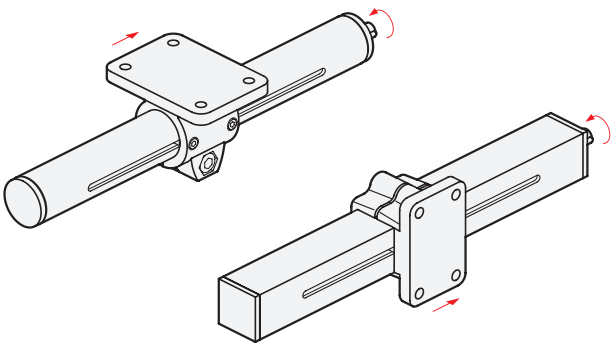
In applications where high torsion forces Mx occur, linear actuators with square tubing or double tube linear actuators should be given preference.

A wide variety of different components from the tube clamp connector program is also available for the square tubings. The linear actuator connectors are composed of two-part elements, with the effect that the precision of the square tubes involves no special requirements.

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Linear actuators

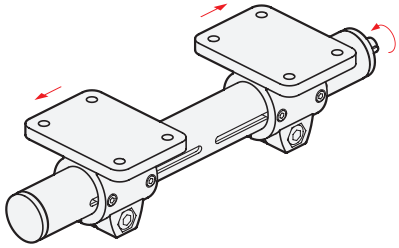
Types



DESCRIPTION

Linear actuator **GN 291** (see page 1912) with right **or** left hand thread, with shaft journal at either one or both ends, with a linear actuator connector **GN 146.1** (see page 1923).

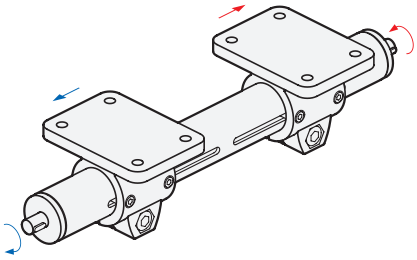
Square linear actuator GN 291.1 (see page 1930) with right **or** left hand thread, shaft journal at either one or both ends, with a linear actuator connector **GN 147.1** (see page 1933).



DESCRIPTION

Linear actuator **GN 292** (see page 1914) with left **and** right hand thread, shaft journal at either one or both ends, with two linear actuator connectors **GN 146.1** (see page 1923), the two connectors move symmetrically.

Square linear actuators **GN 292.1** on request.



DESCRIPTION

Linear actuator **GN 293** (see page 1915) with two separate threaded spindles, each with right **or** left hand thread with two linear actuator connectors **GN 146.1** (see page 1923), the two connectors move independently of one another.

Square linear actuators **GN 293.1** on request.

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Linear actuators

Steel / Stainless Steel, with right or left hand thread

SPECIFICATION

Types

- Type **R1**: Right hand thread, shaft journal at one end
- Type **R2***: Right hand thread, shaft journal at both ends
- Type **L1**: Left hand thread, shaft journal at one end
- Type **L2***: Left hand thread, shaft journal at both ends

* usually not available from stock

Guide tube

Version in Steel
Tube DIN 2391
Steel, chrome-plated **SCR**

Version in Stainless Steel*
Tube DIN 2462
Stainless Steel AISI 304 **NI**

* usually not available from stock

Spindle with trapezoidal thread

- Steel respectively, Stainless Steel AISI 303
- ball bearing

Lead nut
Gunmetal

End cap
Plastic

INFORMATION

In addition to the standard stroke lengths specified in the above table for linear actuators GN 291 any stroke inside the maximum stroke length is available.
Besides the extensive range of tube clamp connectors there are a number of different components for fixing the linear actuators and to build linear actuator connectors.
In order to measure the displacement and positioning of the linear actuator connectors, digital as well as analogue position indicators can be installed and furthermore the guide tube can be provided with a longitudinal scale.



ACCESSORY

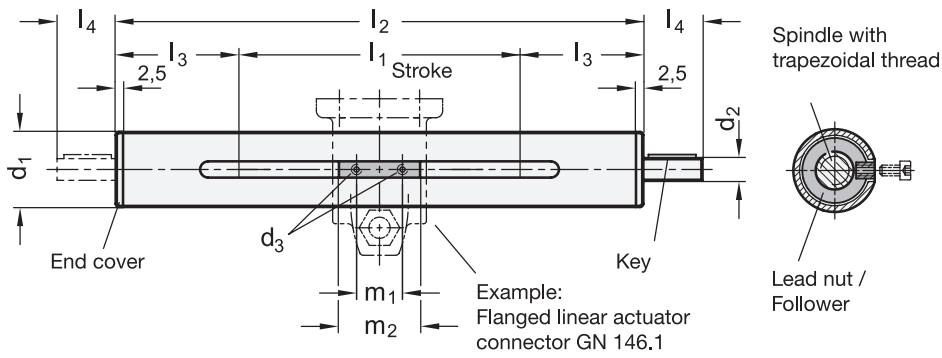
- Linear actuator connectors, tube clamp connectors have to be ordered seperately.

ON REQUEST

- Tube DIN 2462 in Stainless Steel **NI**

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)
- Technical description of Linear actuators (see page 1910)



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GN 291

Description	d1	l1	Max. stroke	Threaded spindle	d2 f7	d3	l2	l3	l4	m1	m2	For key DIN 6885	⚖
GN 291-18-65-R1-SCR	18	65	350	TR10x3	6	M 3	l1+140	70	16	17	24	A2x2x12	230
GN 291-18-165-R1-SCR	18	165	350	TR10x3	6	M 3	l1+140	70	16	17	24	A2x2x12	330
GN 291-18-265-R1-SCR	18	265	350	TR10x3	6	M 3	l1+140	70	16	17	24	A2x2x12	430
GN 291-30-100-R1-SCR	30	100	1250	TR14x4	8	M 4	l1+205	102.5	16	23	38	A2x2x12	780
GN 291-30-150-R1-SCR	30	150	1250	TR14x4	8	M 4	l1+205	102.5	16	23	38	A2x2x12	890
GN 291-30-200-R1-SCR	30	200	1250	TR14x4	8	M 4	l1+205	102.5	16	23	38	A2x2x12	1000
GN 291-30-300-R1-SCR	30	300	1250	TR14x4	8	M 4	l1+205	102.5	16	23	38	A2x2x12	1210
GN 291-40-70-R1-SCR	40	70	1570	TR20x4	12	M 5	l1+235	117.5	17	42	54	A4x4x12	1640
GN 291-40-170-R1-SCR	40	170	1570	TR20x4	12	M 5	l1+235	117.5	17	42	54	A4x4x12	2080
GN 291-40-220-R1-SCR	40	220	1570	TR20x4	12	M 5	l1+235	117.5	17	42	54	A4x4x12	2310
GN 291-40-270-R1-SCR	40	270	1570	TR20x4	12	M 5	l1+235	117.5	17	42	54	A4x4x12	2530
GN 291-40-320-R1-SCR	40	320	1570	TR20x4	12	M 5	l1+235	117.5	17	42	54	A4x4x12	2750
GN 291-50-65-R1-SCR	50	65	1565	TR20x4	12	M 6	l1+240	120	18	42	54	A4x4x12	2410
GN 291-50-115-R1-SCR	50	115	1565	TR20x4	12	M 6	l1+240	120	18	42	54	A4x4x12	2720
GN 291-50-215-R1-SCR	50	215	1565	TR20x4	12	M 6	l1+240	120	18	42	54	A4x4x12	3000
GN 291-50-265-R1-SCR	50	265	1565	TR20x4	12	M 6	l1+240	120	18	42	54	A4x4x12	3670
GN 291-50-315-R1-SCR	50	315	1565	TR20x4	12	M 6	l1+240	120	18	42	54	A4x4x12	3990
GN 291-60-220-R1-SCR	60	220	1520	TR24x5	14	M 8	l1+285	142.5	19	58	70	A5x5x16	5300
GN 291-60-720-R1-SCR	60	720	1520	TR24x5	14	M 8	l1+285	142.5	19	58	70	A5x5x16	10000
GN 291-18-65-L1-SCR	18	65	350	TR10x3	6	M 3	l1+140	70	16	17	24	A2x2x12	230
GN 291-18-165-L1-SCR	18	165	350	TR10x3	6	M 3	l1+140	70	16	17	24	A2x2x12	330
GN 291-18-265-L1-SCR	18	265	350	TR10x3	6	M 3	l1+140	70	16	17	24	A2x2x12	430
GN 291-30-100-L1-SCR	30	100	1250	TR14x4	8	M 4	l1+205	102.5	16	23	38	A2x2x12	780
GN 291-30-150-L1-SCR	30	150	1250	TR14x4	8	M 4	l1+205	102.5	16	23	38	A2x2x12	890
GN 291-30-200-L1-SCR	30	200	1250	TR14x4	8	M 4	l1+205	102.5	16	23	38	A2x2x12	1000
GN 291-30-300-L1-SCR	30	300	1250	TR14x4	8	M 4	l1+205	102.5	16	23	38	A2x2x12	1210
GN 291-40-70-L1-SCR	40	70	1570	TR20x4	12	M 5	l1+235	117.5	17	42	54	A4x4x12	1640
GN 291-40-170-L1-SCR	40	170	1570	TR20x4	12	M 5	l1+235	117.5	17	42	54	A4x4x12	2080
GN 291-40-220-L1-SCR	40	220	1570	TR20x4	12	M 5	l1+235	117.5	17	42	54	A4x4x12	2310
GN 291-40-270-L1-SCR	40	270	1570	TR20x4	12	M 5	l1+235	117.5	17	42	54	A4x4x12	2530
GN 291-40-320-L1-SCR	40	320	1570	TR20x4	12	M 5	l1+235	117.5	17	42	54	A4x4x12	2750
GN 291-50-65-L1-SCR	50	65	1565	TR20x4	12	M 6	l1+240	120	18	42	54	A4x4x12	3000
GN 291-50-115-L1-SCR	50	115	1565	TR20x4	12	M 6	l1+240	120	18	42	54	A4x4x12	2720
GN 291-50-215-L1-SCR	50	215	1565	TR20x4	12	M 6	l1+240	120	18	42	54	A4x4x12	3360
GN 291-50-265-L1-SCR	50	265	1565	TR20x4	12	M 6	l1+240	120	18	42	54	A4x4x12	3670
GN 291-50-315-L1-SCR	50	315	1565	TR20x4	12	M 6	l1+240	120	18	42	54	A4x4x12	3990
GN 291-60-220-L1-SCR	60	220	1520	TR24x5	14	M 8	l1+285	142.5	19	58	70	A5x5x16	5300
GN 291-60-720-L1-SCR	60	720	1520	TR24x5	14	M 8	l1+285	142.5	19	58	70	A5x5x16	9800

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Linear actuators

Steel / Stainless Steel, with right and left hand thread



SPECIFICATION

Types

- Type **RL1**: Shaft journal at one end
- Type **RL2**: Shaft journal at both ends

Guide tube

Version in Steel
Tube DIN 2391
Steel, chrome-plated **SCR**

Version in Stainless Steel*
Tube DIN 2462
Stainless Steel AISI 304 **NI**

* usually not available from stock

Spindle with trapezoidal thread

Steel respectively
Stainless Steel AISI 303

ball bearing

Lead nut
Gunmetal

End cap
Plastic

INFORMATION

In addition to the standard stroke lengths specified in the above table for linear actuators GN 292 any stroke inside the maximum stroke length is available. Besides the extensive range of tube clamp connectors there are a number of different components for fixing the linear actuators and to build linear actuator connectors.
In order to measure the displacement and positioning of the linear actuator connectors, digital as well as analogue position indicators can be installed and furthermore the guide tube can be provided with a longitudinal scale.

ACCESSORY

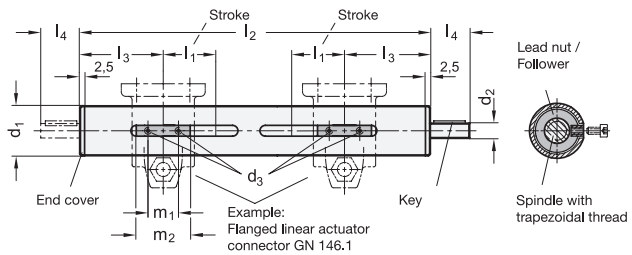
- Linear actuator connectors, tube clamp connectors and accessory have to be ordered seperately.

ON REQUEST

- Special lengths

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)
- Technical description of Linear actuators (see page 1910)



GN 292

Description	d1	l1	Max. stroke	Threaded spindle	d2 f7	d3	l2	l3	l4	m1	m2	For key DIN 6885	⚖
GN 292-18-120-RL1-SCR	18	120*	every 167	TR10x3	6	M 3	2xl1+171	70	16	17	24	A2x2x12	440
GN 292-30-130-RL1-SCR	30	130*	every 601	TR14x4	8	M 4	2xl1+253	102.5	16	23	38	A2x2x12	1250
GN 292-40-205-RL1-SCR	40	205*	every 753	TR20x4	12	M 5	2xl1+299	117.5	17	42	54	A4x4x12	3130
GN 292-40-255-RL1-SCR	40	255*	every 753	TR20x4	12	M 5	2xl1+299	117.5	17	42	54	A4x4x12	3560
GN 292-50-300-RL1-SCR	50	300*	every 748	TR20x4	12	M 6	2xl1+309	120	18	42	54	A4x4x12	6400
GN 292-50-350-RL1-SCR	50	350*	every 748	TR20x4	12	M 6	2xl1+309	120	18	42	54	A4x4x12	6700
GN 292-60-300-RL1-SCR	60	300*	every 715	TR24x5	14	M 8	2xl1+375	142.5	19	58	70	A5x5x16	9900
GN 292-18-120-RL2-SCR	18	120*	every 167	TR10x3	6	M 3	2xl1+171	70	16	17	24	A2x2x12	458
GN 292-30-130-RL2-SCR	30	130*	every 601	TR14x4	8	M 4	2xl1+253	102.5	16	23	38	A2x2x12	1233
GN 292-40-205-RL2-SCR	40	205*	every 753	TR20x4	12	M 5	2xl1+299	117.5	17	42	54	A4x4x12	3057
GN 292-40-255-RL2-SCR	40	255*	every 753	TR20x4	12	M 5	2xl1+299	117.5	17	42	54	A4x4x12	3800
GN 292-50-300-RL2-SCR	50	300*	every 748	TR20x4	12	M 6	2xl1+309	120	18	42	54	A4x4x12	6520
GN 292-50-350-RL2-SCR	50	350*	every 748	TR20x4	12	M 6	2xl1+309	120	18	42	54	A4x4x12	6520
GN 292-60-300-RL2-SCR	60	300*	every 715	TR24x5	14	M 8	2xl1+375	142.5	19	58	70	A5x5x16	7960

* usually not available from stock

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GN 293

Linear actuators

Steel / Stainless Steel, with 2 separate threaded spindles



SPECIFICATION

Types

- Type **RL2**: one spindle right hand thread, one spindle left hand thread
- Type **RR2**: both spindles rigth hand thread
- Type **LL2**: both spindles left hand thread

Guide tube

Version in Steel
Tube DIN 2391
Steel, chrome-plated **SCR**

Version in Stainless Steel*
Tube DIN 2462
Stainless Steel AISI 304 **NI**

* usually not available from stock

Spindle with trapezoidal thread

- Steel respectively
- Stainless Steel AISI 303

ball bearing

Lead nut
Gunmetal

End cap
Plastic

INFORMATION

In addition to the standard stroke lengths specified in the above table for linear actuators GN 293 any stroke inside the maximum stroke length is available. Besides the extensive range of tube clamp connectors there are a number of different components for fixing the linear actuators and to build linear actuator connectors.
In order to measure the displacement and positioning of the linear actuator connectors, digital as well as analogue position indicators can be installed and furthermore the guide tube can be provided with a longitudinal scale.

ACCESSORY

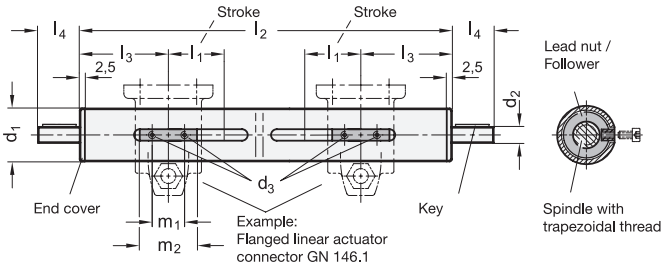
- Linear actuator connectors, tube clamp connectors and accessory have to be ordered seperately.

ON REQUEST

- Special lengths

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)
- Technical description of Linear actuators (see page 1910)



GN 293

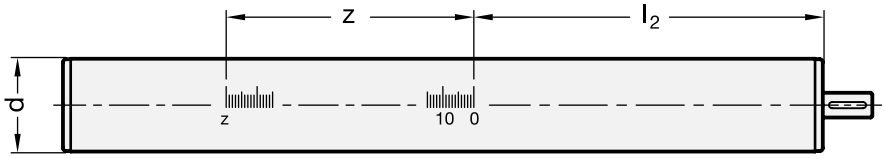
Description	d1	l1	Max. stroke	Threaded spindle	d2 f7	d3	l2	l3	l4	m1	m2	For key DIN 6885	⚖
GN 293-30-100-RL2-SCR	30	100*	every 601	TR14x4	8	M 4	2xl1+253	102.5	16	23	38	A2x2x12	1178
GN 293-30-100-RR2-SCR	30	100*	every 601	TR14x4	8	M 4	2xl1+253	102.5	16	23	38	A2x2x12	1110
GN 293-30-100-LL2-SCR	30	100*	every 601	TR14x4	8	M 4	2xl1+253	102.5	16	23	38	A2x2x12	1110
GN 293-40-170-RL2-SCR	40	170*	every 753	TR20x4	12	M 5	2xl1+299	117.5	17	42	54	A4x4x12	3300
GN 293-40-170-RR2-SCR	40	170*	every 753	TR20x4	12	M 5	2xl1+299	117.5	17	42	54	A4x4x12	3300
GN 293-40-170-LL2-SCR	40	170*	every 753	TR20x4	12	M 5	2xl1+299	117.5	17	42	54	A4x4x12	3300
GN 293-50-200-RL2-SCR	50	200*	every748	TR20x4	12	M 6	2xl1+309	120	18	42	54	A4x4x12	4940
GN 293-50-200-RR2-SCR	50	200*	every748	TR20x4	12	M 6	2xl1+309	120	18	42	54	A4x4x12	4940
GN 293-50-200-LL2-SCR	50	200*	every748	TR20x4	12	M 6	2xl1+309	120	18	42	54	A4x4x12	4940
GN 293-60-250-RL2-SCR	60	250*	every 715	TR24x5	14	M 8	2xl1+375	142.5	19	58	70	A5x5x16	6580
GN 293-60-250-RR2-SCR	60	250*	every 715	TR24x5	14	M 8	2xl1+375	142.5	19	58	70	A5x5x16	6580
GN 293-60-250-LL2-SCR	60	250*	every 715	TR24x5	14	M 8	2xl1+375	142.5	19	58	70	A5x5x16	6580

* usually not available from stock

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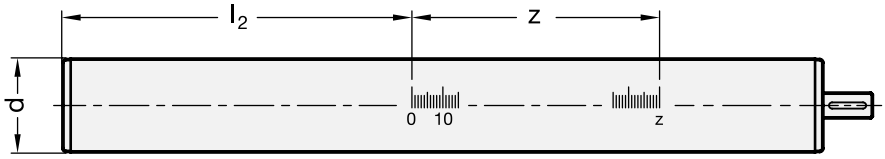
Longitudinal scales GN 299

for standard stroke lengths l1 of the linear actuators GN 291



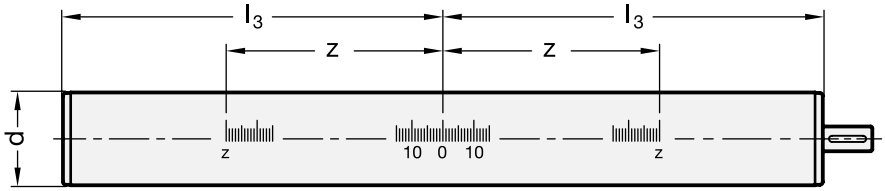
Type **A**

Scale values ascending to the left



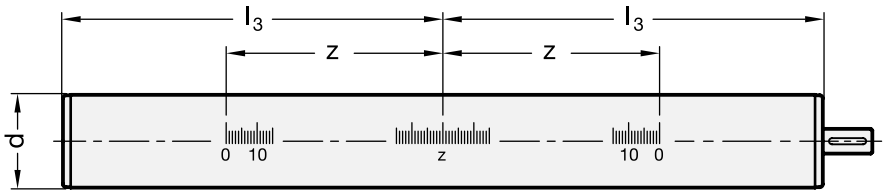
Type **B**

Scale values ascending to the right



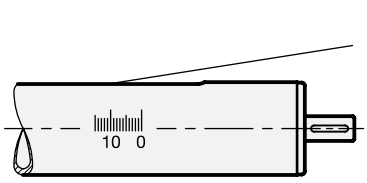
Type **C**

Scale values decreasing towards middle

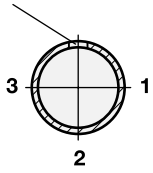


Type **D**

Scale values ascending towards middle



Guide slot for linear actuator connectors



The identification numbers 1, 2 or 3 determine the positioning of the scale relative to the guide slot.

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Longitudinal scales GN 299

for standard stroke lengths l1 of the linear actuators GN 291

SPECIFICATION

Scale engraved
with laser precision

INFORMATION

The longitudinal scales GN 299 of type A and B are normally used in connection with the linear actuators GN 291 (see page 1912) and GN 291.1 (see page 1930). The scales of type C and D are normally used for the linear actuators GN 292 (see page 1914) and GN 293 (see page 1915).
Longitudinal scales can **only** be ordered together with linear actuators.



* Complete with Identifcation no. of the Longitudinal scales

1 **2** **3**

GN 299

Description	d Ø Linear actuator	l1	l2	l3	z Scale length respectively highest figure
GN 299-18-65-A-*	18	65	82.5	147.5	90
GN 299-18-65-B-*	18	65	82.5	147.5	90
GN 299-18-65-C-*	18	65	82.5	147.5	90
GN 299-18-65-D-*	18	65	82.5	147.5	90
GN 299-18-165-A-*	18	165	82.5	247.5	190
GN 299-18-165-B-*	18	165	82.5	247.5	190
GN 299-18-165-C-*	18	165	82.5	247.5	190
GN 299-18-165-D-*	18	165	82.5	247.5	190
GN 299-18-265-A-*	18	265	82.5	347.5	290
GN 299-18-265-B-*	18	265	82.5	347.5	290
GN 299-18-265-C-*	18	265	82.5	347.5	290
GN 299-18-265-D-*	18	265	82.5	347.5	290
GN 299-30-100-A-*	30	100	122.5	222.5	120
GN 299-30-100-B-*	30	100	122.5	222.5	120
GN 299-30-100-C-*	30	100	122.5	222.5	120
GN 299-30-100-D-*	30	100	122.5	222.5	120
GN 299-30-150-A-*	30	150	122.5	272.5	170
GN 299-30-150-B-*	30	150	122.5	272.5	170
GN 299-30-150-C-*	30	150	122.5	272.5	170
GN 299-30-150-D-*	30	150	122.5	272.5	170
GN 299-30-200-A-*	30	200	122.5	322.5	220
GN 299-30-200-B-*	30	200	122.5	322.5	220
GN 299-30-200-C-*	30	200	122.5	322.5	220
GN 299-30-200-D-*	30	200	122.5	322.5	220
GN 299-30-300-A-*	30	300	122.5	422.5	320
GN 299-30-300-B-*	30	300	122.5	422.5	320
GN 299-30-300-C-*	30	300	122.5	422.5	320
GN 299-30-300-D-*	30	300	122.5	422.5	320
GN 299-40-70-A-*	40	70	142.5	217.5	90
GN 299-40-70-B-*	40	70	142.5	217.5	90
GN 299-40-70-C-*	40	70	142.5	217.5	90
GN 299-40-70-D-*	40	70	142.5	217.5	90
GN 299-40-170-A-*	40	170	142.5	317.5	190
GN 299-40-170-B-*	40	170	142.5	317.5	190
GN 299-40-170-C-*	40	170	142.5	317.5	190
GN 299-40-170-D-*	40	170	142.5	317.5	190
GN 299-40-220-A-*	40	220	142.5	367.5	240
GN 299-40-220-B-*	40	220	142.5	367.5	240
GN 299-40-220-C-*	40	220	142.5	367.5	240
GN 299-40-220-D-*	40	220	142.5	367.5	240

GN 299

Description	d Ø Linear actuator	l1	l2	l3	z Scale length respectively highest figure
GN 299-40-270-A-*	40	270	142.5	417.5	290
GN 299-40-270-B-*	40	270	142.5	417.5	290
GN 299-40-270-C-*	40	270	142.5	417.5	290
GN 299-40-270-D-*	40	270	142.5	417.5	290
GN 299-40-320-A-*	40	320	142.5	467.5	340
GN 299-40-320-B-*	40	320	142.5	467.5	340
GN 299-40-320-C-*	40	320	142.5	467.5	340
GN 299-40-320-D-*	40	320	142.5	467.5	340
GN 299-50-65-A-*	50	65	147.5	217.5	90
GN 299-50-65-B-*	50	65	147.5	217.5	90
GN 299-50-65-C-*	50	65	147.5	217.5	90
GN 299-50-65-D-*	50	65	147.5	217.5	90
GN 299-50-115-A-*	50	115	147.5	267.5	190
GN 299-50-115-B-*	50	115	147.5	267.5	190
GN 299-50-115-C-*	50	115	147.5	267.5	190
GN 299-50-115-D-*	50	115	147.5	267.5	190
GN 299-50-215-A-*	50	215	147.5	367.5	240
GN 299-50-215-B-*	50	215	147.5	367.5	240
GN 299-50-215-C-*	50	215	147.5	367.5	240
GN 299-50-215-D-*	50	215	147.5	367.5	240
GN 299-50-265-A-*	50	265	147.5	417.5	290
GN 299-50-265-B-*	50	265	147.5	417.5	290
GN 299-50-265-C-*	50	265	147.5	417.5	290
GN 299-50-265-D-*	50	265	147.5	417.5	290
GN 299-50-315-A-*	50	315	147.5	467.5	340
GN 299-50-315-B-*	50	315	147.5	467.5	340
GN 299-50-315-C-*	50	315	147.5	467.5	340
GN 299-50-315-D-*	50	315	147.5	467.5	340
GN 299-60-220-A-*	60	220	182.5	402.5	240
GN 299-60-220-B-*	60	220	182.5	402.5	240
GN 299-60-220-C-*	60	220	182.5	402.5	240
GN 299-60-220-D-*	60	220	182.5	402.5	240
GN 299-60-720-A-*	60	720	182.5	902.5	740
GN 299-60-720-B-*	60	720	182.5	902.5	740
GN 299-60-720-C-*	60	720	182.5	902.5	740
GN 299-60-720-D-*	60	720	182.5	902.5	740

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Linear actuator connectors

for linear actuators Ø18, for single axis system



SPECIFICATION

Identification No.

No. **2**: with 2 Stainless Steel-Clamping screws DIN 912

Version in Aluminium
plastic coated
black, RAL 9005, textured finish **SW**

Version in Stainless Steel AISI CF-8 NI

- matt shot-blasted
- Bore only with slide bushing (G18)

Clamping bores mechanically machined

Slide bushing
Polyamide

Socket cap screw DIN 912
Stainless Steel AISI 304

Hexagon nuts DIN 985
Stainless Steel AISI 304

INFORMATION

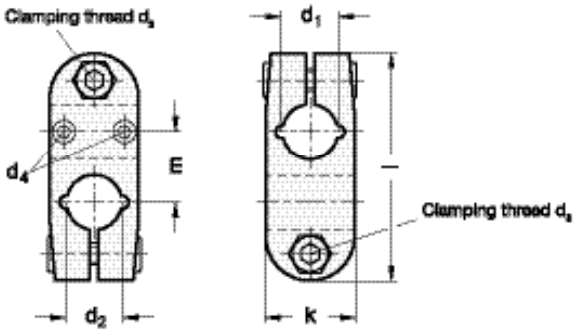
GN 131.1 linear actuator connectors are normally supplied **mounted** only in connection with a linear actuator and for function control.
By means of the clamping screws on the guide bores d_1 / d_2 the movement can either be set or the linear actuator connector can be clamped (after setting of final adjustment).
The standard version of the clamping screws are socket cap screws with hexagonal socket DIN 912. They can be replaced by adjustable clamping levers GN 911 (see page 1874) (see table of dimensions).

ACCESSORY

- Clamping kits GN 911 (see page 1874) / GN 911.3 (see page 1875)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



GN 131.1

Description	d1 Bore B without slide bushing	d1 Bore G with slide bushing	d2	d3	d4	k	l	m	Clamping kits for d3	⚖
GN 131.1-B18-B18-2-SW	B 18	-	B 18	M 6	M 3	25	64	20	GN 911-M6-22	66
GN 131.1-G18-B18-2-SW	-	G 18	B 18	M 6	M 3	25	64	20	GN 911-M6-22	64

GN 131.1-NI **STAINLESS STEEL**

Description	d1 Bore G with slide bushing	d2	d3	d4	k	l	m	Clamping kits for d3	⚖
GN 131.1-G18-B18-2-NI	G 18	B 18	M 6	M 3	25	64	20	GN 911.3-M6-22	142

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GN 131.2

Linear actuator connectors

for linear actuators Ø18, for two-way axis system



SPECIFICATION

Identification No.

No. **2**: with 2 Stainless Steel-Clamping screws DIN 912

Version in Aluminium
plastic coated
black, RAL 9005, textured finish **SW**

Version in Stainless Steel AISI CF-8 NI
- matt shot-blasted

Clamping bores mechanically machined

Slide bushing
Polyamide

Socket cap screw DIN 912
Stainless Steel AISI 304

Hexagon nuts DIN 985
Stainless Steel AISI 304

INFORMATION

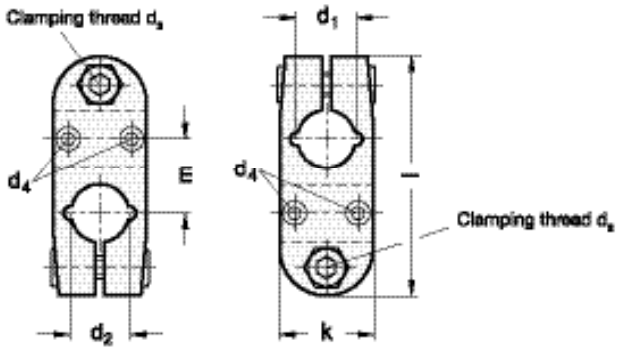
GN 131.2 linear actuator connectors are normally supplied **mounted** only in connection with a linear actuator and for function control.
By means of the clamping screws on the guide bores d_1 / d_2 the movement can either be set or the linear actuator connector can be clamped (after setting of final adjustment).
The standard version of the clamping screws are socket cap screws with hexagonal socket DIN 912. They can be replaced by adjustable clamping levers GN 911.3 (see page 1875) (see table of dimensions).

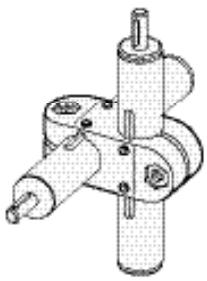
ACCESSORY

- Clamping kits GN 911 (see page 1874) / GN 911.3 (see page 1875)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)





GN 131.2

Description	d_1 Bore B without slide bushing	d_1 Bore G with slide bushing	d_2	d_3	d_4	k	l	m	Clamping kits for d_3	⚖
GN 131.2-B18-B18-2-SW	B 18	-	B 18	M 6	M 3	25	64	20	GN 911-M6-22	62
GN 131.2-G18-G18-2-SW	-	G 18	G 18	M 6	M 3	25	64	20	GN 911-M6-22	62

GN 131.2-NI **STAINLESS STEEL**

Description	d_1 Bore G with slide bushing	d_2	d_3	d_4	k	l	m	Clamping kits for d_3	⚖
GN 131.2-G18-G18-2-NI	G 18	G 18	M 6	M 3	25	64	20	GN 911.3-M6-22	148

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Linear actuator connectors

for linear actuators Ø30, Ø40, Ø50 and Ø60, single axis system

SPECIFICATION

Identification No.

No. **2**: with 2 Stainless Steel-Clamping screws DIN 912

Aluminium
plastic coated
black, RAL 9005, textured finish **SW**

Clamping bores mechanically machined

Slide bushing
Polyamide

Socket cap screw DIN 912
Stainless Steel AISI 304

Hexagon nuts DIN 985
Stainless Steel AISI 304



INFORMATION

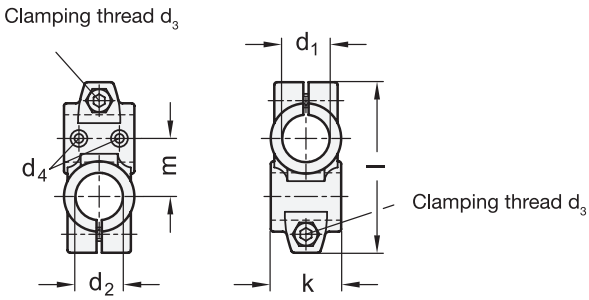
GN 132.1 linear actuator connectors are normally supplied **mounted** only in connection with a linear actuator and for function control.
By means of the clamping screws on the guide bores d_1 / d_2 the movement can either be set or the linear actuator connector can be clamped (after setting of final adjustment).
The standard version of the clamping screws are socket cap screws with hexagonal socket DIN 912. They can be replaced by adjustable clamping kits GN 911 (see page 1874) (see table of dimensions).

ACCESSORY

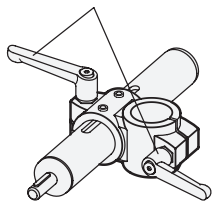
- Clamping kits GN 911 (see page 1874)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



Clamping kit



GN 132.1

Description	d1 Bore B without slide bushing	d1 Bore G with slide bushing	d2	d3	d4	k	l	m	Clamping kits for d3	⚖
GN 132.1-B30-B30-2-SW	B 30	-	B 30	M 8	M 4	40	97	33	GN 911-M8-32	155
GN 132.1-B40-B40-2-SW	B 40	-	B 40	M 10	M 5	56	125	45	GN 911-M10-40	410
GN 132.1-B50-B50-2-SW	B 50	-	B 50	M 10	M 6	65	143	53	GN 911-M10-55	600
GN 132.1-B60-B60-2-SW	B 60	-	B 60	M 10	M 8	80	169	65	GN 911-M10-55	1000
GN 132.1-G30-B30-2-SW	-	G 30	B 30	M 8	M 4	40	97	33	GN 911-M8-32	155
GN 132.1-G40-B40-2-SW	-	G 40	B 40	M 10	M 5	56	125	45	GN 911-M10-40	410
GN 132.1-G50-B50-2-SW	-	G 50	B 50	M 10	M 6	65	143	53	GN 911-M10-55	600
GN 132.1-G60-B60-2-SW	-	G 60	B 60	M 10	M 8	80	169	65	GN 911-M10-55	1000

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GN 132.2

Linear actuator connectors

for linear actuators Ø30, Ø40, Ø50 and Ø60, two-way axis system

SPECIFICATION

Identification No.

No. **2**: with 2 Stainless Steel-Clamping screws DIN 912

Aluminium
plastic coated
black, RAL 9005, textured finish **SW**

Clamping bores mechanically machined

Slide bushing
Polyamide

Socket cap screw DIN 912
Stainless Steel AISI 304

Hexagon nuts DIN 985
Stainless Steel AISI 304



INFORMATION

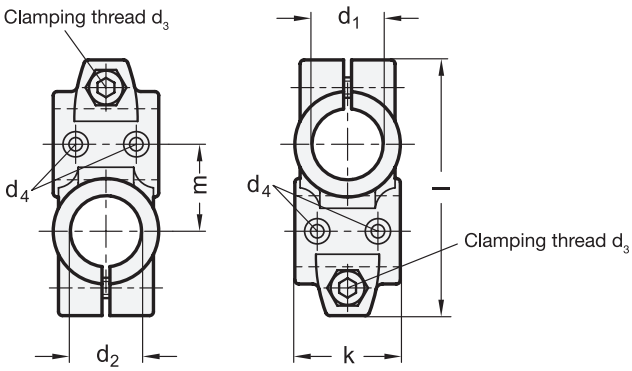
GN 132.2 linear actuator connectors are normally supplied **mounted** only in connection with a linear actuator and for function control.
By means of the clamping screws on the guide bores d_1 / d_2 the movement can either be set or the linear actuator connector can be clamped (after setting of final adjustment).
The standard version of the clamping screws are socket cap screws with hexagonal socket DIN 912. They can be replaced by adjustable clamping levers GN 911 (see page 1874) (see table of dimensions).

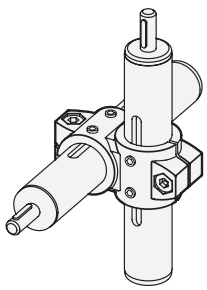
ACCESSORY

- Clamping kits GN 911 (see page 1874)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)





GN 132.2

Description	d_1 Bore B without slide bushing	d_1 Bore G with slide bushing	d_2 Bore B without slide bushing	d_2 Bore G with slide bushing	d_3	d_4	k	l	m	Clamping kits for d_3	⚖
GN 132.2-B30-B30-2-SW	B 30	-	B 30	-	M 8	M 4	40	97	33	GN 911-M8-32	168
GN 132.2-B40-B40-2-SW	B 40	-	B 40	-	M 10	M 5	56	125	45	GN 911-M10-40	500
GN 132.2-B50-B50-2-SW	B 50	-	B 50	-	M 10	M 6	65	143	53	GN 911-M10-55	670
GN 132.2-B60-B60-2-SW	B 60	-	B 60	-	M 10	M 8	80	169	65	GN 911-M10-55	1000
GN 132.2-G30-G30-2-SW	-	G 30	-	G 30	M 8	M 4	40	97	33	GN 911-M8-32	168
GN 132.2-G40-G40-2-SW	-	G 40	-	G 40	M 10	M 5	56	125	45	GN 911-M10-40	400
GN 132.2-G50-G50-2-SW	-	G 50	-	G 50	M 10	M 6	65	143	53	GN 911-M10-55	560
GN 132.2-G60-G60-2-SW	-	G 60	-	G 60	M 10	M 8	80	169	65	GN 911-M10-55	1000

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Flanged linear actuator connectors

Aluminium / Stainless Steel, for linear actuators Ø18



SPECIFICATION

Identification No.

No. **2**: with Stainless Steel-Clamping screw DIN 912

Version in Aluminium
plastic coated
black, RAL 9005, textured finish **SW**

Version in Stainless Steel AISI CF-8 NI

- matt shot-blasted
- Bore only with slide bush (G18)

Guide bore mechanically machined

Slide bushing
Polyamide

Socket cap screws DIN 912
Stainless Steel AISI 304

Hexagon nuts DIN 985
Stainless Steel AISI 304

INFORMATION

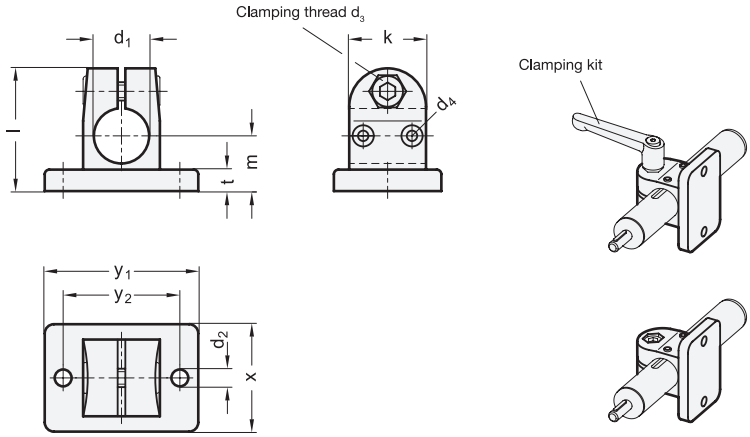
GN 145.1 linear actuator connectors are normally supplied **mounted** only in connection with a linear actuator and for function control.
By means of the clamping screw on the guide bore d1 the movement can either be set or the linear actuator connector can be clamped (after setting of final adjustment).
The standard version of the clamping screws are socket cap screws with hexagonal socket DIN 912. They can be replaced by adjustable clamping kits GN 911 (see page 1874) / GN 911.3 (see page 1875) (see table of dimensions).

ACCESSORY

- Clamping kits GN 911 (see page 1874) / GN 911.3 (see page 1875)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



GN 145.1

Description	d1 Bore B without slide bushing	d1 Bore G with slide bushing	d2	d3	d4	k	l	m	t	x	y1	y2	Clamping kits for d3	⚖
GN 145.1-B18-2-SW	B 18	-	5.5	M 6	M 3	25	40	18	7	35	50	38	GN 911-M6-22	60
GN 145.1-G18-2-SW	-	G 18	5.5	M 6	M 3	25	40	18	7	35	50	38	GN 911-M6-22	60

GN 145.1-NI **STAINLESS STEEL**

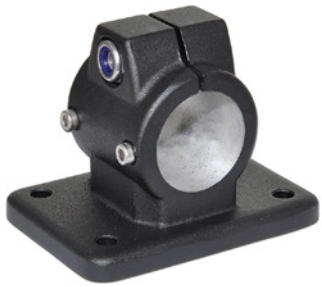
Description	d1 Bore G with slide bushing	d2	d3	d4	k	l	m	t	x	y1	y2	Clamping kits for d3	⚖
GN 145.1-G18-2-NI	G 18	5.5	M 6	M 3	25	40	18	7	35	50	38	GN 911.3-M6-22	145

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GN 146.1

Flanged linear actuator connectors

Aluminium, for linear actuators Ø30, Ø40, Ø50, Ø60



SPECIFICATION

Identification No.

No. **2**: with Stainless Steel-Clamping screw DIN 912

Aluminium
plastic coated
black, RAL 9005, textured finish **SW**

Guide bore mechanically machined

Slide bushing
Polyamide

Socket cap screws DIN 912
Stainless Steel AISI 304

Hexagon nuts DIN 985
Stainless Steel AISI 304

INFORMATION

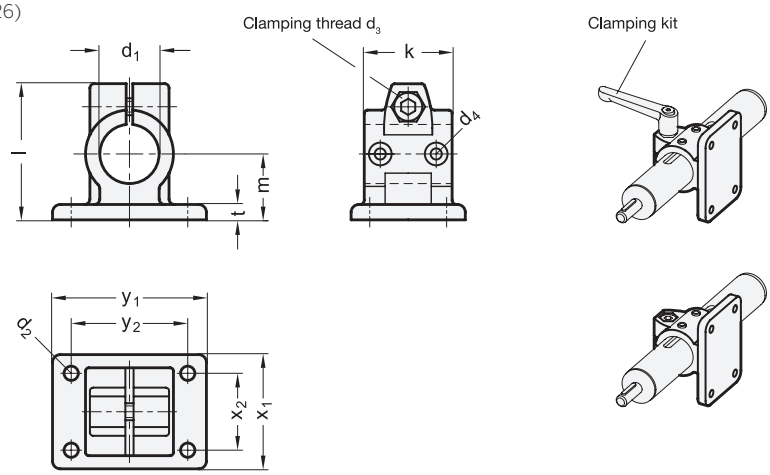
GN 146.1 linear actuator connectors are normally supplied **mounted** only in connection with a linear actuator and for function control.
By means of the clamping screw on the guide bore d_1 the movement can either be set or the linear actuator connector can be clamped (after setting of final adjustment).
The standard version of the clamping screw is a socket cap screw with hexagonal socket DIN 912. It can be replaced by a clamping kit GN 911 (see page 1874) (article code see table of dimensions).

ACCESSORY

- Clamping kits GN 911 (see page 1874)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



GN 146.1

Description	d_1 Bore B without slide bushing	d_1 Bore G with slide bushing	d_2	d_3	d_4	k	l	m	t	x_1	x_2	y_1	y_2	Clamping kits for d_3	⚖
GN 146.1-B30-2-SW	B 30	-	6.5	M 8	M 4	40	62	30	7	52	35	70	53	GN 911-M8-32	154
GN 146.1-B40-2-SW	B 40	-	8.5	M 10	M 5	56	83	42	10	78	52	108	82	GN 911-M10-40	430
GN 146.1-B50-2-SW	B 50	-	11	M 10	M 6	65	95	50	14	92	62	128	98	GN 911-M10-55	675
GN 146.1-B60-2-SW	B 60	-	11	M 10	M 8	80	112	60	14	110	74	154	118	GN 911-M10-55	1130
GN 146.1-G30-2-SW	-	G 30	6.5	M 8	M 4	40	62	30	7	52	35	70	53	GN 911-M8-32	140
GN 146.1-G40-2-SW	-	G 40	8.5	M 10	M 5	56	83	42	10	78	52	108	82	GN 911-M10-40	420
GN 146.1-G50-2-SW	-	G 50	11	M 10	M 6	65	95	50	14	92	62	128	98	GN 911-M10-55	720
GN 146.1-G60-2-SW	-	G 60	11	M 10	M 8	80	112	60	14	110	74	154	118	GN 911-M10-55	1130

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Base plate linear actuator connectors

Aluminium / Stainless Steel, for linear actuators Ø 18



SPECIFICATION

Identification No.

No. **2**: with Stainless Steel-Clamping screw DIN 912

Version in Aluminium
plastic coated
black, RAL 9005, textured finish **SW**

Version in Stainless Steel AISI CF-8 NI

- matt shot-blasted
- Bore only with slide bushing (G18)

Guide bore mechanically machined

Slide bushing
Polyamide

Socket cap screw DIN 912
Stainless Steel AISI 304

Hexagon nuts DIN 985
Stainless Steel AISI 304

INFORMATION

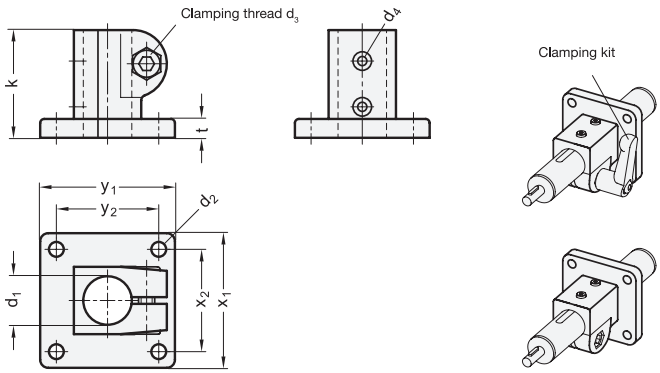
GN 162.1 base plate linear actuator connectors are normally supplied **mounted** only in connection with a linear actuator and for function control.
By means of the clamping screw on the guide bore d_1 the movement can either be set or the linear actuator connector can be clamped (after setting of final adjustment).
The standard version of the clamping screw is a socket cap screw with hexagonal socket DIN 912. It can be replaced by a clamping kit GN 911 (see page 1874) (article code see table of dimensions).

ACCESSORY

- Clamping kits GN 911 (see page 1874) / GN 911.3 (see page 1875)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



GN 162.1

Description	d1 Bore B without slide bushing	d1 Bore G with slide bushing	d2	d3	d4	k	t	x1	x2	y1	y2	Clamping kits for d3	⚖
GN 162.1-B18-2-SW	B 18	-	5.5	M 6	M 3	40	7	50	38	50	38	GN 911-M6-22	75
GN 162.1-G18-2-SW	-	G 18	5.5	M 6	M 3	40	7	50	38	50	38	GN 911-M6-22	79

GN 162.1-NI **STAINLESS STEEL**

Description	d1 Bore G with slide bushing	d2	d3	d4	k	t	x1	x2	y1	y2	Clamping kits for d3	⚖
GN 162.1-G18-2-NI	G 18	5.5	M 6	M 3	40	7	50	38	50	38	GN 911.3-M6-22	190

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GN 163.1

Base plate linear actuator connectors

for linear actuators Ø30, Ø40, Ø50, Ø60

SPECIFICATION

Identification No.

No. **2**: with Stainless Steel-Clamping screw DIN 912

Aluminium
plastic coated
black, RAL 9005, textured finish **SW**

Guide bore mechanically machined

Slide bushing
Polyamide

Socket cap screws DIN 912
Stainless Steel AISI 304

Hexagon nuts DIN 985
Stainless Steel AISI 304



INFORMATION

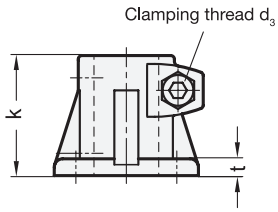
GN 163.1 base plate linear actuator connectors are normally supplied **mounted** only in connection with a linear actuator and for function control.
By means of the clamping screw on the guide bore d1 the movement can either be set or the linear actuator connector can be clamped (after setting of final adjustment).
The standard version of the clamping screw is a socket cap screw with hexagonal socket DIN 912. It can be replaced by a clamping kit GN 911 (see page 1874) (article code see table of dimensions).

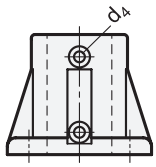
ACCESSORY

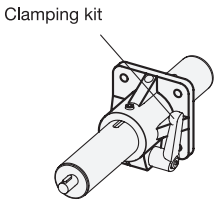
- Clamping kits GN 911 (see page 1874)

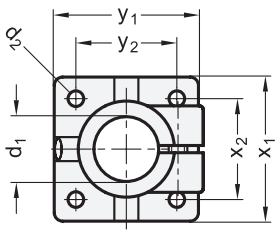
TECHNICAL INFORMATION

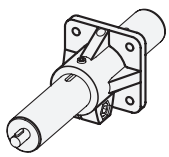
- Stainless Steel characteristics (see page A26)











GN 163.1

Description	d1 Bore B without slide bushing	d1 Bore G with slide bushing	d2	d3	d4	k	t	x1	x2	y1	y2	Clamping kits for d3	⚖
GN 163.1-B30-2-SW	B 30	-	6.5	M 8	M 4	50	7	60	42	60	42	GN 911-M8-32	145
GN 163.1-B40-2-SW	B 40	-	8.5	M 10	M 5	70	10	90	64	90	64	GN 911-M10-40	430
GN 163.1-B50-2-SW	B 50	-	11	M 10	M 6	85	14	105	74	105	74	GN 911-M10-55	711
GN 163.1-B60-2-SW	B 60	-	11	M 10	M 8	100	14	125	89	125	89	GN 911-M10-55	1020
GN 163.1-G30-2-SW	-	G 30	6.5	M 8	M 4	50	7	60	42	60	42	GN 911-M8-32	130
GN 163.1-G40-2-SW	-	G 40	8.5	M 10	M 5	70	10	90	64	90	64	GN 911-M10-40	400
GN 163.1-G50-2-SW	-	G 50	11	M 10	M 6	85	14	105	74	105	74	GN 911-M10-55	650
GN 163.1-G60-2-SW	-	G 60	11	M 10	M 8	100	14	125	89	125	89	GN 911-M10-55	1020

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T-Angle linear actuator connectors

Aluminium / Stainless Steel, for linear actuators Ø18



SPECIFICATION

Identification No.

No. **2**: with 2 Stainless Steel-Clamping screws DIN 912

Version in Aluminium
plastic coated
black, RAL 9005, textured finish **SW**

Version in Stainless Steel AISI CF-8 NI

- matt shot-blasted
- Bore only with slide bush (G18)

Guide bores / Clamping bores
mechanically machined

Slide bushing
Polyamide

Socket cap screw DIN 912
Stainless Steel AISI 304

Hexagon nuts DIN 985
Stainless Steel AISI 304

INFORMATION

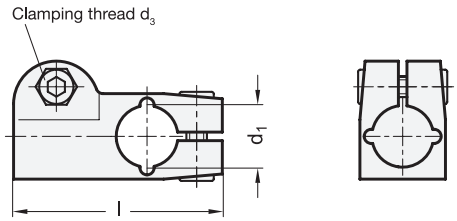
GN 191.1 T-angle linear actuator connectors are normally supplied **mounted** only in connection with a linear actuator and for function control.
By means of the clamping screw on the guide bore d_1 the movement can either be set or the linear actuator connector can be clamped (after setting of final adjustment).
The standard version of the clamping screw is a socket cap screw with hexagonal socket DIN 912. It can be replaced by a clamping kit GN 911 (see page 1874) (article code see table of dimensions).

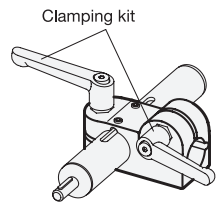
ACCESSORY

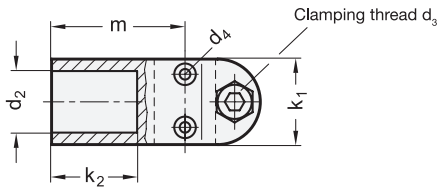
- Clamping kits GN 911 (see page 1874) / GN 911.3 (see page 1875)

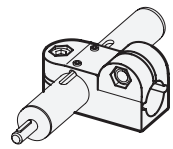
TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)









GN 191.1

Description	d_1 Bore B without slide bushing	d_1 Bore G with slide bushing	d_2	d_3	d_4	k_1	k_2	l	m	Clamping kits for d_3	⚖
GN 191.1-B18-B18-2-SW	B 18	-	B 18	M 6	M 3	25	25	61	39	GN 911-M6-22	77
GN 191.1-G18-B18-2-SW	-	G 18	B 18	M 6	M 3	25	25	61	39	GN 911-M6-22	77

GN 191.1-NI **STAINLESS STEEL**

Description	d_1 Bore G with slide bushing	d_2	d_3	d_4	k_1	k_2	l	m	Clamping kits for d_3	⚖
GN 191.1-G18-B18-2-NI	G 18	B 18	M 6	M 3	25	25	61	39	GN 911.3-M6-22	78

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GN 192.1

T-Angle linear actuator connectors

for linear actuators Ø30, Ø40, Ø50, Ø60



SPECIFICATION

Identification No.

No. **2**: with 2 Stainless Steel-Clamping screws DIN 912

Aluminium
plastic coated
black, RAL 9005, textured finish **SW**

Guide bores / Clamping bores
mechanically machined

Slide bushing
Polyamide

Socket cap screw DIN 912
Stainless Steel AISI 304

Hexagon nuts DIN 985
Stainless Steel AISI 304

INFORMATION

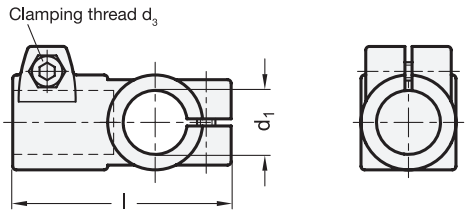
GN 192.1 T-angle linear actuator connectors are normally supplied **mounted** only in connection with a linear actuator and for function control.
By means of the clamping screw on the guide bore d1 the movement can either be set or the linear actuator connector can be clamped (after setting of final adjustment).
The standard version of the clamping screw is a socket cap screw with hexagonal socket DIN 912. It can be replaced by a clamping kit GN 911 (see page 1874) (article code see table of dimensions).

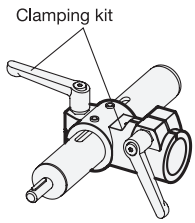
ACCESSORY

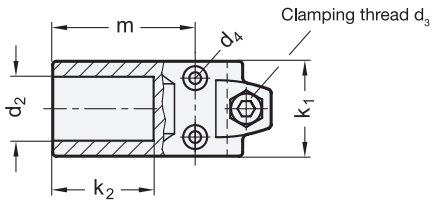
- Clamping kits GN 911 (see page 1874)

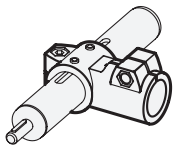
TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)









GN 192.1

Description	d1 Bore B without slide bushing	d1 Bore G with slide bushing	d2	d3	d4	k1	k2	l	m	Clamping kits for d3	⚖
GN 192.1-B30-B30-2-SW	B 30	-	B 30	M 8	M 4	40	42.5	92	60	GN 911-M8-32	185
GN 192.1-B40-B40-2-SW	B 40	-	B 40	M 10	M 5	56	62	129	88	GN 911-M10-40	450
GN 192.1-B50-B50-2-SW	B 50	-	B 50	M 10	M 6	65	75	148	103	GN 911-M10-55	620
GN 192.1-B60-B60-2-SW	B 60	-	B 60	M 10	M 8	80	80	177	125	GN 911-M10-55	1260
GN 192.1-G30-B30-2-SW	-	G 30	B 30	M 8	M 4	40	42.5	92	60	GN 911-M8-32	185
GN 192.1-G40-B40-2-SW	-	G 40	B 40	M 10	M 5	56	62	129	88	GN 911-M10-40	450
GN 192.1-G50-B50-2-SW	-	G 50	B 50	M 10	M 6	65	75	148	103	GN 911-M10-55	620
GN 192.1-G60-B60-2-SW	-	G 60	B 60	M 10	M 8	80	80	177	125	GN 911-M10-55	1260

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Swivel clamp linear actuator connectors

for linear actuators Ø18



SPECIFICATION

Identification No.

No. **2**: with Stainless Steel-Clamping screw DIN 912

Aluminium
plastic coated
black, RAL 9005, textured finish **SW**

Guide bore mechanically machined

Slide bushing
Polyamide

Socket cap screw DIN 912
Stainless Steel AISI 304

Hexagon nuts DIN 985
Stainless Steel AISI 304

INFORMATION

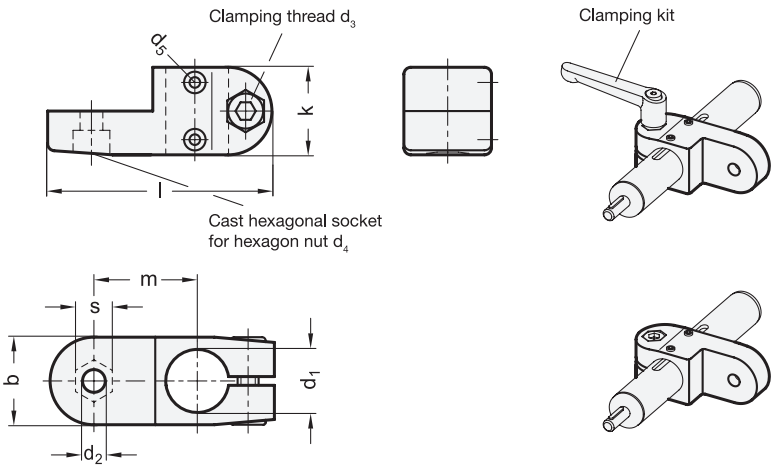
GN 273.1 swivel clamp linear actuator connectors are normally supplied **mounted** only in connection with a linear actuator and for function control.
By means of the clamping screw on the guide bore d_1 the movement can either be set or the linear actuator connector can be clamped (after setting of final adjustment).
The standard version of the clamping screw is a socket cap screw with hexagonal socket DIN 912. It can be replaced by a clamping kit GN 911 (see page 1874) (article code see table of dimensions).

ACCESSORY

- Clamping kits GN 911 (see page 1874)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



GN 273.1

Description	d_1 Bore B without slide bushing	d_1 Bore G with slide bushing	b	d_2	d_3	d_4	d_5	k	l	m	s	Clamping kits for d_3	⚖
GN 273.1-B18-2-SW	B 18	-	25	6.5	M 6	M 6	M 3	25	64	29.5	10	GN 911-M6-22	55
GN 273.1-G18-2-SW	-	G 18	25	6.5	M 6	M 6	M 3	25	64	29.5	10	GN 911-M6-22	53

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GN 274.1

Swivel clamp linear actuator connectors

for linear actuators Ø30, Ø40, Ø50



SPECIFICATION

Identification No.

No. **2**: with Stainless Steel-Clamping screw DIN 912

Types

- Type **OZ**: without centring step (smooth)
- Type **MZ**: with centring step
- Type **AV**: with male serration
- Type **IV**: with female serration

Aluminium
plastic coated
black, RAL 9005, textured finish **SW**

Guide bore mechanically machined

Slide bush
Polyamide

Socket cap screw DIN 912
Stainless Steel AISI 304

Hexagon nuts DIN 985
Stainless Steel AISI 304

INFORMATION

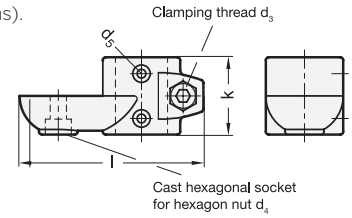
GN 274.1 swivel clamp linear actuator connectors are normally supplied **mounted** only in connection with a linear actuator and for function control.
By means of the clamping screw on the guide bore d_1 the movement can either be set or the linear actuator connector can be clamped (after setting of final adjustment).
The standard version of the clamping screw is a socket cap screw with hexagonal socket DIN 912. It can be replaced by a clamping kit GN 911 (see page 1874) (article code see table of dimensions).

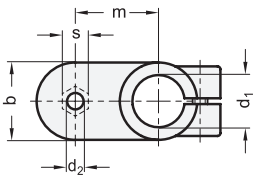
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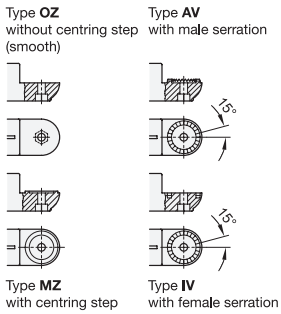
- Clamping kits GN 911 (see page 1874)

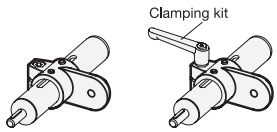
TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)









* Complete with Type of the Swivel clamp linear actuator connectors

OZ **MZ** **AV** **IV**

GN 274.1

Description	d_1 Bore B without slide bushing	d_1 Bore G with slide bushing	b	d_2	d_3	d_4	d_5	k	l	m	s	Clamping kits for d_3	⚖
GN 274.1-B30-*-2-SW	B 30	-	40	8.5	M 8	M 8	M 4	40	95	43	13	GN 911-M8-32	145
GN 274.1-B40-*-2-SW	B 40	-	65	10.5	M 10	M 10	M 5	65	148	70	17	GN 911-M10-55	630
GN 274.1-B50-*-2-SW	B 50	-	65	10.5	M 10	M 10	M 6	65	148	70	17	GN 911-M10-55	700
GN 274.1-G30-*-2-SW	-	G 30	40	8.5	M 8	M 8	M 4	40	95	43	13	GN 911-M8-32	130
GN 274.1-G40-*-2-SW	-	G 40	65	10.5	M 10	M 10	M 5	65	148	70	17	GN 911-M10-55	580
GN 274.1-G50-*-2-SW	-	G 50	65	10.5	M 10	M 10	M 6	65	148	70	17	GN 911-M10-55	670

Weight Type OZ

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Square linear actuators

with right or left hand thread

SPECIFICATION

Types

- Type **R1**: Right hand thread, shaft journal at one end
- Type **R2***: Right hand thread, shaft journal at both ends
- Type **L1**: Left hand thread, shaft journal at one end
- Type **L2***: Left hand thread, shaft journal at both ends

* usually not available from stock

Square tube
Steel, chrome-plated **SCR**

Spindle with trapezoidal thread

- Steel
- ball bearing

Lead nut
Gunmetal

End cap
Plastic



INFORMATION

GN 291.1 Square linear actuators are used if the linear actuator connectors are exposed to high torsion forces.
In addition to the standard stroke lengths specified in the above table for linear actuators any stroke inside the maximum stroke length is available. Besides the extensive range of two-part tube clamp connectors there are a number of different components for fixing the linear actuators and to build linear actuator connectors.
In order to measure the displacement and positioning of the linear actuator connectors, the square tube can be provided with a longitudinal scale.

ACCESSORY

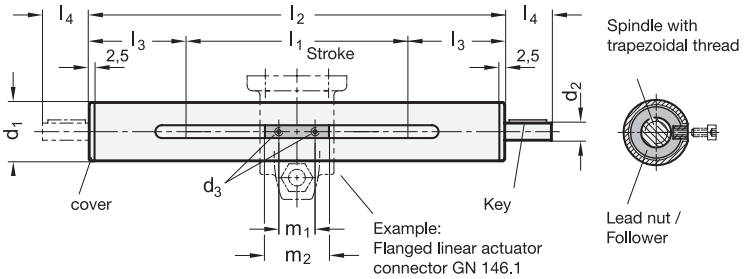
- Linear actuator connectors, tube clamp connectors and accessory have to be ordered separately.

ON REQUEST

- Square linear actuators GN 291.1 made of Stainless Steel.

TECHNICAL INFORMATION

- ISO-Fundamental tolerances (see page A21)



*Complete with Type of the Square linear actuators

R1 R2* L1 L2*

GN 291.1

Description	s	l1	Max. stroke	Threaded spindle	d1 f7	d2	l2	l3	l4	m1	m2	For key DIN 6885	⚖
GN 291.1-30-100-*-SCR	30	100	1250	TR14x4	8	M 4	l1+210	105	16	23	38	A2x2x12	825
GN 291.1-30-150-*-SCR	30	150	1250	TR14x4	8	M 4	l1+210	105	16	23	38	A2x2x12	948
GN 291.1-30-200-*-SCR	30	200	1250	TR14x4	8	M 4	l1+210	105	16	23	38	A2x2x12	1260
GN 291.1-30-300-*-SCR	30	300	1250	TR14x4	8	M 4	l1+210	105	16	23	38	A2x2x12	1300
GN 291.1-40-70-*-SCR	40	70	1570	TR20x4	12	M 5	l1+240	120	17	42	54	A4x4x12	1685
GN 291.1-40-170-*-SCR	40	170	1570	TR20x4	12	M 5	l1+240	120	17	42	54	A4x4x12	2229
GN 291.1-40-220-*-SCR	40	220	1570	TR20x4	12	M 5	l1+240	120	17	42	54	A4x4x12	2492
GN 291.1-40-270-*-SCR	40	270	1570	TR20x4	12	M 5	l1+240	120	17	42	54	A4x4x12	2709
GN 291.1-40-320-*-SCR	40	320	1570	TR20x4	12	M 5	l1+240	120	17	42	54	A4x4x12	3100
GN 291.1-50-65-*-SCR	50	65	1565	TR20x4	12	M 6	l1+245	122.5	18	42	54	A4x4x12	2639
GN 291.1-50-115-*-SCR	50	115	1565	TR20x4	12	M 6	l1+245	122.5	18	42	54	A4x4x12	2820
GN 291.1-50-215-*-SCR	50	215	1565	TR20x4	12	M 6	l1+245	122.5	18	42	54	A4x4x12	3500
GN 291.1-50-265-*-SCR	50	265	1565	TR20x4	12	M 6	l1+245	122.5	18	42	54	A4x4x12	3830
GN 291.1-50-315-*-SCR	50	315	1565	TR20x4	12	M 6	l1+245	122.5	18	42	54	A4x4x12	4190

Weight Type R1

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GN 134.1

Linear actuator connectors

Aluminium, same bore dimensions d_1 / s_1 and d_2 / s_2

SPECIFICATION

Identification No.

No. **2**: with 4 Stainless Steel-Clamping screws DIN 912

Aluminium
plastic coated
black, RAL 9005, textured finish **SW**

Clamping bores not machined

Fastening elements / Transfer elements

- Socket cap screws DIN 912
- Hexagon nuts DIN 985
- Centering bushings, follower

Stainless Steel AISI 304



INFORMATION

GN 134.1 linear actuator connectors are normally supplied **mounted** only in connection with a square linear actuator and for function control.
The fixing bores for the follower are always located in the lid of the bore d_1 and/or the square s_1. Centering bushings in the through-hole eliminate the axial clearance. The width of the s_1 square is dimensionally aligned with the play of the square linear actuators.
The square s_2 of the linear actuator connector is supplied not machined in the standard design.
The standard version of the clamping screws are socket cap screws with hexagonal socket DIN 912. They can be replaced by clamping kits GN 911 (see page 1874) (article code see table of dimensions).

ACCESSORY

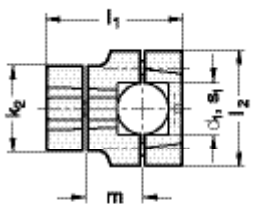
Clamping kits GN 911 (see page 1874)

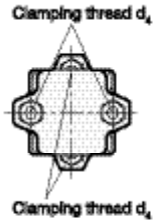
ON REQUEST

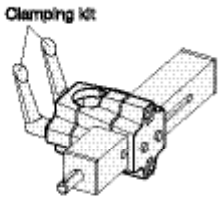
- Linear actuator connectors with little play
- other bore and square combinations
- GN 134.2 linear actuator connectors for double systems

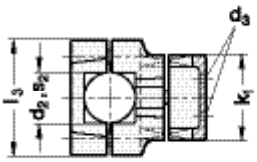
TECHNICAL INFORMATION

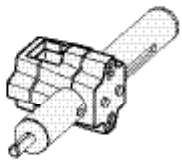
- Stainless Steel characteristics (see page A26)











GN 134.1

Description	d1	s1	d2	s2	d3	d4	k1	k2	l1	l2	l3	m	Clamping kits for d4	⚖
GN 134.1-B30-B30-2-SW	B 30	-	B 30	-	M 4	M 8	50	50	79.5	68	68	33.5	GN 911-M8-32	326
GN 134.1-B40-B40-2-SW	B 40	-	B 40	-	M 5	M 10	76	76	125	98	98	55	GN 911-M10-55	885
GN 134.1-B50-B50-2-SW	B 50	-	B 50	-	M 6	M 10	76	76	125	98	98	55	GN 911-M10-55	975
GN 134.1-B30-V30-2-SW	B 30	-	-	V 30	M 4	M 8	50	50	79.5	68	68	33.5	GN 911-M8-32	314
GN 134.1-B40-V40-2-SW	B 40	-	-	V 40	M 5	M 10	76	76	125	98	98	55	GN 911-M10-55	773
GN 134.1-B50-V50-2-SW	B 50	-	-	V 50	M 6	M 10	76	76	125	98	98	55	GN 911-M10-55	891
GN 134.1-V30-V30-2-SW	-	V 30	-	V 30	M 4	M 8	50	50	79.5	68	68	33.5	GN 911-M8-32	300
GN 134.1-V40-V40-2-SW	-	V 40	-	V 40	M 5	M 10	76	76	125	98	98	55	GN 911-M10-55	920
GN 134.1-V50-V50-2-SW	-	V 50	-	V 50	M 6	M 10	76	76	125	98	98	55	GN 911-M10-55	969
GN 134.1-V30-B30-2-SW	-	V 30	B 30	-	M 4	M 8	50	50	79.5	68	68	33.5	GN 911-M8-32	300
GN 134.1-V40-B40-2-SW	-	V 40	B 40	-	M 5	M 10	76	76	125	98	98	55	GN 911-M10-55	946
GN 134.1-V50-B50-2-SW	-	V 50	B 50	-	M 6	M 10	76	76	125	98	98	55	GN 911-M10-55	980

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Linear actuator connectors

Aluminium / multi part assembly / unequal bore dimensions, d1 / s1 and d2 / s2

SPECIFICATION

Identification No.

No. **2**: with 4 Stainless Steel-Clamping screws DIN 912

Aluminium
plastic coated
black, RAL 9005, textured finish **SW**

Clamping bores not machined

Fastening elements / Transfer elements

- Socket cap screws DIN 912
- Hexagon nuts DIN 985
- Centering bushings, follower

Stainless Steel AISI 304



INFORMATION

GN 135.1 Linear actuator connectors are normally supplied **mounted** only in connection with a square linear actuator and for function control.
The fixing bores for the follower are always located in the lid of the d1 bore and/or the s1 square. Centering bushings in the through-hole eliminate the axial clearance. The width of the s1 square is dimensionally aligned with the play of the square linear actuators.
The square s2 of the linear actuator connector is supplied not machined in the standard design.
The standard version of the clamping screws are socket cap screws with hexagonal socket DIN 912. They can be replaced by clamping kits GN 911 (see page 1874) (article code see table of dimensions).

ACCESSORY

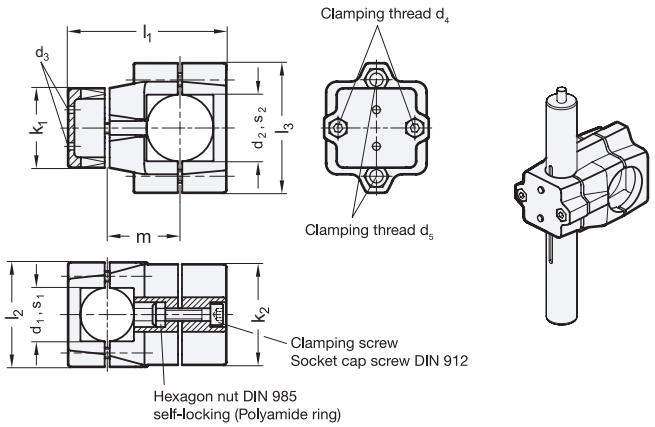
- Clamping kits GN 911 (see page 1874)

ON REQUEST

- Linear actuator connectors with little play
- other bore and square combinations

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)



GN 135.1

Description	d1	s1	d2	s2	d3	d4	d5	k1	k2	l1	l2	l3	m	Clamping kits for d4	Clamping kits for d5	⚖
GN 135.1-B30-V40-2-SW	B 30	-	-	V 40	M 4	M 8	M 10	60	76	120	79	98	55	911-M8-55	911-M10-55	929
GN 135.1-V30-V40-2-SW	-	V 30	-	V 40	M 4	M 8	M 10	60	76	120	79	98	55	911-M8-55	911-M10-55	838
GN 135.1-B30-B40-2-SW	B 30	-	B 40	-	M 4	M 8	M 10	60	76	120	79	98	55	911-M8-55	911-M10-55	869
GN 135.1-V30-B40-2-SW	-	V 30	B 40	-	M 4	M 8	M 10	60	76	120	79	98	55	911-M8-55	911-M10-55	857
GN 135.1-B30-V50-2-SW	B 30	-	-	V 50	M 5	M 8	M 10	60	76	120	79	98	55	911-M8-55	911-M10-55	802
GN 135.1-V30-V50-2-SW	-	V 30	-	V 50	M 5	M 8	M 10	60	76	120	79	98	55	911-M8-55	911-M10-55	789
GN 135.1-B30-B50-2-SW	B 30	-	B 50	-	M 5	M 8	M 10	60	76	120	79	98	55	911-M8-55	911-M10-55	834
GN 135.1-V30-B50-2-SW	-	V 30	B 50	-	M 5	M 8	M 10	60	76	120	79	98	55	911-M8-55	911-M10-55	825
GN 135.1-B40-B50-2-SW	B 40	-	B 50	-	M 6	M 8	M 10	60	76	120	79	98	55	911-M8-55	911-M10-55	813
GN 135.1-V40-B50-2-SW	-	V 40	B 50	-	M 6	M 8	M 10	60	76	120	79	98	55	911-M8-55	911-M10-55	767
GN 135.1-B40-V50-2-SW	B 40	-	-	V 50	M 6	M 8	M 10	60	76	120	79	98	55	911-M8-55	911-M10-55	785
GN 135.1-V40-V50-2-SW	-	V 40	-	V 50	M 6	M 8	M 10	60	76	120	79	98	55	911-M8-55	911-M10-55	737

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GN 147.1

Linear actuators connectors

Aluminum, for square linear actuators



SPECIFICATION

Identification No.

No. **2**: with 2 Stainless Steel-Clamping screws DIN 912

Aluminium
plastic coated
black, RAL 9005, textured finish **SW**

Clamping square not machined

Socket cap screws DIN 912
Stainless Steel AISI 304

Hexagon nuts DIN 985
Stainless Steel AISI 304

INFORMATION

GN 147.1 linear actuator connectors are normally supplied **mounted** only in connection with a square linear actuator and for function control.
The square of the linear actuator connector is supplied not machined in the standard design. Together with the tolerance of the tube, this may result in a relatively large play.
This can be adjusted in one direction using the clamping screws. In the other direction (90° to it), a defined minimum play can be achieved only by appropriate machining (special design) of the square linear actuator connector.
The standard version of the clamping screw is a socket cap screw with hexagonal socket DIN 912. It can be replaced by a clamping kit GN 911 (see page 1874) (article code see table of dimensions).

ACCESSORY

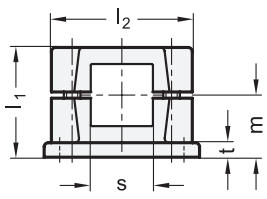
- Clamping kits GN 911 (see page 1874)

ON REQUEST

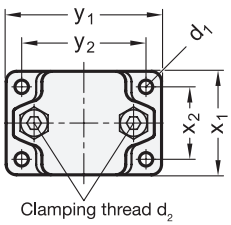
- Linear actuator connectors with little play

TECHNICAL INFORMATION

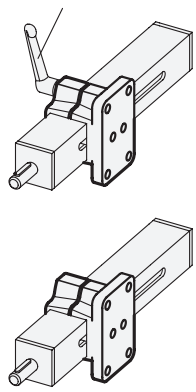
- Stainless Steel characteristics (see page A26)







Clamping kit



GN 147.1

Description	s	d1	d2	d3	k	l1	l2	m	t	x1	x2	y1	y2	Clamping kits for d2	⚖
GN 147.1-V30-2-SW	V 30	6.5	M 8	M 4	50	53	68	30	7	50	35	75	60	GN 911-M8-45	221
GN 147.1-V40-2-SW	V 40	11	M 10	M 5	76	81.5	98	46.5	14	76	50	115	90	GN 911-M10-70	643
GN 147.1-V50-2-SW	V 50	11	M 10	M 6	76	81.5	98	46.5	14	76	50	115	90	GN 911-M10-70	700

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Linear actuator connectors

Aluminum, for square linear actuators



SPECIFICATION

Identification No.

No. **2**: with 2 Stainless Steel-Clamping screws DIN 912

Aluminium
plastic coated
black, RAL 9005, textured finish **SW**

Clamping square not machined

Socket cap screw DIN 912
Stainless Steel AISI 304

Hexagon nuts DIN 985
Stainless Steel AISI 304

INFORMATION

GN 165.1 linear actuator connectors are normally supplied **mounted** only in connection with a square linear actuator and for function control.
The square of the linear actuator connector is supplied not machined in the standard design. Together with the tolerance of the tube, this may result in a relatively large play.
This can be adjusted in one direction using the clamping screws. In the other direction (90° to it), a defined minimum play can be achieved only by appropriate machining (special design) of the square linear actuator connector.
The standard version of the clamping screw is a socket cap screw with hexagonal socket DIN 912. It can be replaced by a clamping kit GN 911 (see page 1874) (article code see table of dimensions).

ACCESSORY

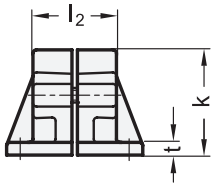
- Clamping kits GN 911 (see page 1874)

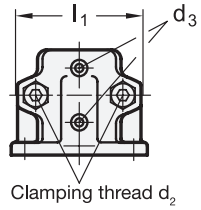
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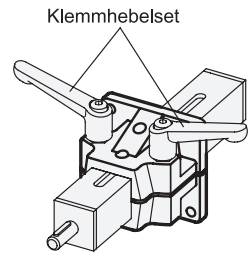
- Linear actuator connectors with little play

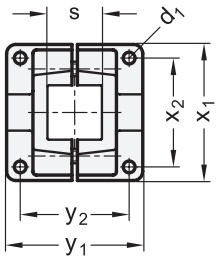
TECHNICAL INFORMATION

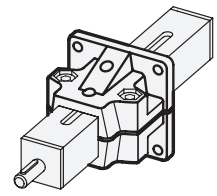
- Stainless Steel characteristics (see page A26)











GN 165.1

Description	s	d1	d2	d3	k	l1	l2	t	x1	x2	y1	y2	Clamping kits for d2	⚖
GN 165.1-V30-2-SW	V 30	6.5	M 8	M 4	58	69	46	7	75	60	75	60	GN 911-M8-32	270
GN 165.1-V40-2-SW	V 40	11	M 10	M 5	91	98	70	14	115	90	119	90	GN 911-M10-55	920
GN 165.1-V50-2-SW	V 50	11	M 10	M 6	91	98	70	14	115	90	119	90	GN 911-M10-55	980

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GN 923.18

Disc handwheel Ø 80

for linear actuators Ø 18

SPECIFICATION

Type
- Type **R**: with revolving handle

Bore code
- Version **K**: with keyway

Aluminium die casting

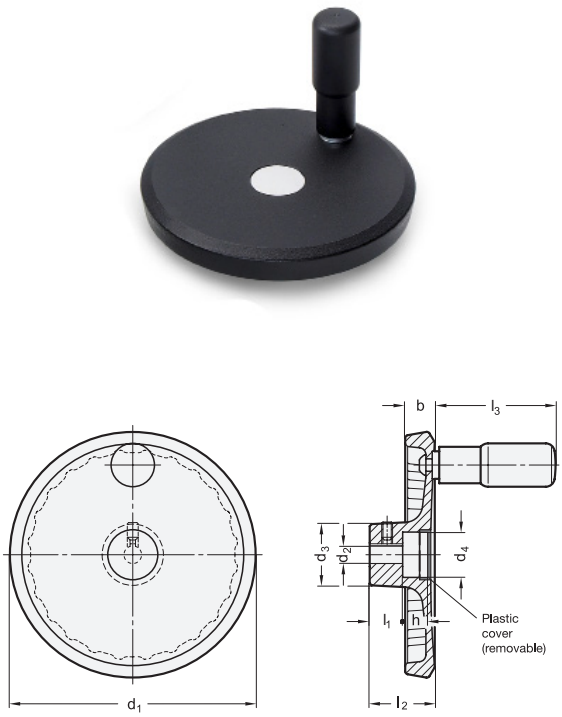
Hub machined
Rim turned

plastic coated
black, RAL 9005, textured finish **SW**

Concentric runout and axial runout deviation
of the rim < 0.4

Revolving handles GN 798.2 (see page 578)
Plastic, Technoplymer
black, matt

INFORMATION
- Linear actuators GN 291 (see page 1912)



GN 923.18

Description	d1	d2	d3	d4	b	h	l1	l2	l3 ≈	Ø Handle GN 798	⚖
GN 923.18-80-K6-R	80	6	26	17	13	7	16	26	43.5	16	150

GN 923.30

Disc handwheel Ø 100

for linear actuators Ø 30

SPECIFICATION

Type
- Type **R**: with revolving handle

Bore code
- Version **K**: with keyway

Aluminium die casting

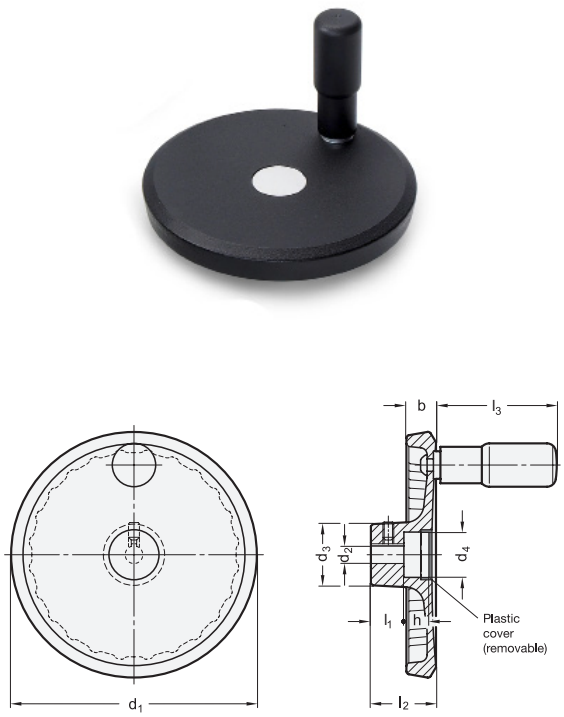
Hub machined
Rim turned

plastic coated
black, RAL 9005, textured finish **SW**

Concentric runout and axial runout deviation
of the rim < 0.4

Revolving handles GN 798.2 (see page 578)
Plastic, Technoplymer
black, matt

INFORMATION
- Linear actuators GN 291 (see page 1912)
- Linear actuators GN 291.1 (see page 1930)



GN 923.30

Description	d1	d2	d3	d4	b	h	l1	l2	l3 ≈	Ø Handle GN 798	⚖
GN 923.30-100-K8-R	100	8	28	22	14	9.5	17	30	58	18	200

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GN 923.40

Disc handwheel Ø 100

for linear actuators Ø 40

SPECIFICATION

Type
- Type **R**: with revolving handle

Bore code
- Version **K**: with keyway

Aluminium die casting

Hub machined
Rim turned

plastic coated
black, RAL 9005, textured finish **SW**

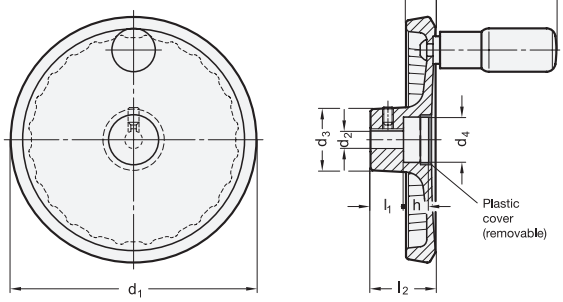
Concentric runout and axial runout deviation
of the rim < 0.4

Revolving handles GN 798.2 (see page 578)
Plastic, Technoplymer
black, matt

INFORMATION

- Linear actuators GN 291 (see page 1912)
- Linear actuators GN 291.1 (see page 1930)





GN 923.40

Description	d1	d2	d3	d4	b	h	l1	l2	l3 ≈	Ø Handle GN 798	⚖
GN 923.40-100-K12-R	100	12	28	22	14	9.5	17	30	61.5	18	180

GN 924.40

Spoked handwheel Ø 125

for linear actuators Ø 40

SPECIFICATION

Type
- Type **R**: with revolving handle

Bore code
- Version **K**: with keyway

Aluminium die casting

Hub machined
Rim turned

plastic coated
black, RAL 9005, textured finish **SW**

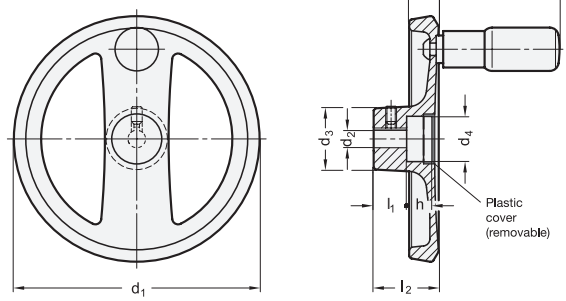
Concentric runout and axial runout deviation
of the rim < 0.4

Revolving handles GN 798.2 (see page 578)
Plastic, Technoplymer
black, matt

INFORMATION

- Linear actuators GN 291 (see page 1912)
- Linear actuators GN 291.1 (see page 1930)





GN 924.40

Description	d1	d2	d3	d4	b	h	l1	l2	l3 ≈	Ø Handle GN 798	⚖
GN 924.40-125-K12-R	125	12	31	23	15	11	18	33.5	61.5	22	340

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GN 924.50

Spoked handwheel Ø 140

for linear actuators Ø 50

SPECIFICATION

Type
- Type **R**: with revolving handle

Bore code
- Version **K**: with keyway

Aluminium die casting

Hub machined
Rim turned

plastic coated
black, RAL 9005, textured finish **SW**

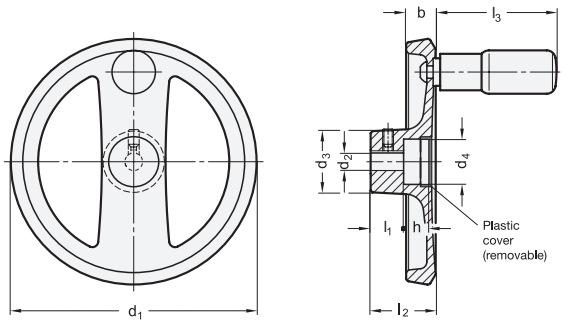
Concentric runout and axial runout deviation
of the rim < 0.4

Revolving handles GN 798.2 (see page 578)
Plastic, Technoplymer
black, matt

INFORMATION

- Linear actuators GN 291 (see pag 1912)
- Linear actuators GN 291.1 (see page 1930)





GN 924.50

Description	d1	d2	d3	d4	b	h	l1	l2	l3 ≈	Ø Handle GN 798	⚖
GN 924.50-140-K12-R	140	12	36	28	16.5	13	19	36.5	76.5	24	410

GN 924.60

Spoked handwheel Ø 160

for linear actuators Ø 60

SPECIFICATION

Type
- Type **R**: with revolving handle

Bore code
- Version **K**: with keyway

Aluminium die casting

Hub machined
Rim turned

plastic coated
black, RAL 9005, textured finish **SW**

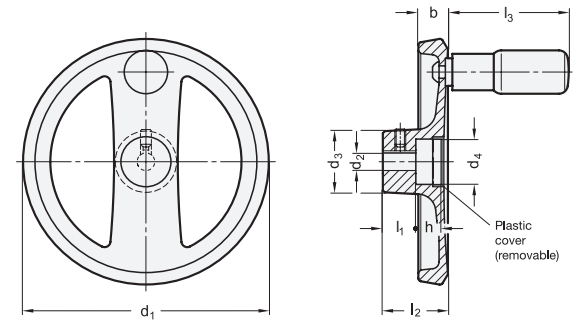
Concentric runout and axial runout deviation
of the rim < 0.4

Revolving handles GN 798.2 (see page 578)
Plastic, Technoplymer
black, matt

INFORMATION

- Linear actuators GN 291 (see page 1912)
- Linear actuators GN 291.1 (see page 1930)





GN 924.60

Description	d1	d2	d3	d4	b	h	l1	l2	l3 ≈	Ø Handle GN 798	⚖
GN 924.60-160-K14-R	160	14	36	30	18	14.5	20	39.5	76.5	24	587

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Installation kits

for position indicators used on linear actuators GN 291, GN 292, GN 293, GN 391

SPECIFICATION

Identification no.

No. **1**: for mechanical position indicators DD52R (see page 721) / DD51 (see page 718)
No. **2**: for electronic position indicators DD52R-E (see page 726) / DD51-E (see page 724)

Adaptor shaft
Steel
blackened

Torque support
Aluminium
black anodized



INFORMATION

The GN 295 installation kits are needed for mounting a position indicator on linear units. The installation kits comprise an adapter shaft and a torque support including attachment screws.
Order mechanical position indicators DD52R (see page 721) / DD51 (see page 718) / DD50 (see page 716) with a counter pitch that corresponds to that of the trapezoidal threaded spindle.
For position indicators DD52R-E (see page 726) / DD51-E (see page 724), the position indicator pitch is programmed.

ACCESSORY

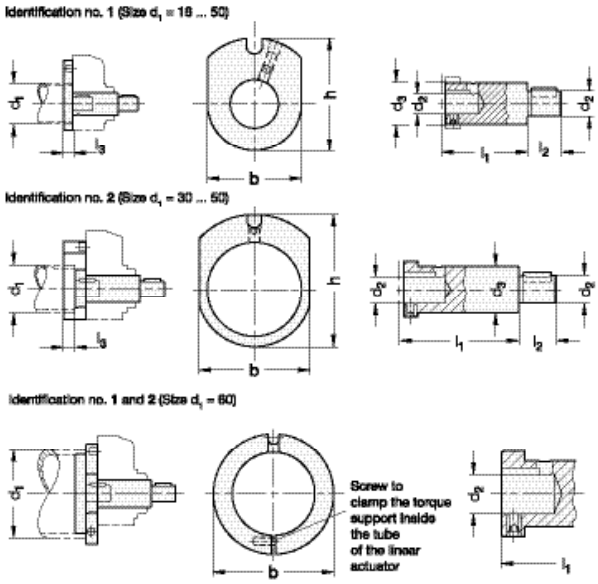
Position indicators and handwheels have to be ordered separately.

ON REQUEST

- Linear actuators with analogue position indicator GA11 / GA12 (see page 695)

TECHNICAL INFORMATION

- ISO-Fundamental tolerances (see page A21)



GN 295

Description	d1	d2 f7	b	d3	h	l1	l2	l3	Position indicator	⚖
GN 295-18-6-1	18	6	24	10	33	28	16	10	DD50	80
GN 295-30-8-1	30	8	35	14	42	35	15	10	DD51 | DD51-E	70
GN 295-30-8-2	30	8	35	14	42	36	15	10	DD51 | DD51-E	82
GN 295-40-12-1	40	12	47	20	56.5	39	16	10	DD52R | DD52R-E	120
GN 295-40-12-2	40	12	47	20	56.5	43	16	10	DD52R | DD52R-E	168
GN 295-50-12-1	50	12	58	20	61	39	17	10	DD52R | DD52R-E	118
GN 295-50-12-2	50	12	58	20	61	43	17	10	DD52R | DD52R-E	162
GN 295-60-14-1	60	14	64	20	-	39	18	-	DD52R | DD52R-E	154
GN 295-60-14-2	60	14	64	20	-	43	18	-	DD52R | DD52R-E	155

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GN 296

Installation kits

for position indicators used on square linear actuators GN 291.1

SPECIFICATION

Coding

- Coding **1**: for mechanical position indicators DD51 (see page 718) / DD52R (see page 721)
- Coding **2**: for electronic position indicators DD52R-E (see page 726) / DD51-E (see page 724)

Adaptor shaft
Steel
blackened

Torque support
Aluminium
blank, ground



INFORMATION

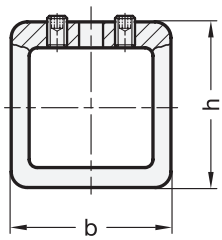
The GN 296 installation kits are needed for mounting a position indicator on linear units. The installation kits comprise an adapter shaft and a torque support including attachment screws.
Order mechanical position indicators DD52R (see page 721) / DD51 (see page 718) / DD50 (see page 716) with a counter pitch that corresponds to that of the trapezoidal threaded spindle.
For position indicators DD52R-E (see page 726) / DD51-E (see page 724), the position indicator pitch is programmed.

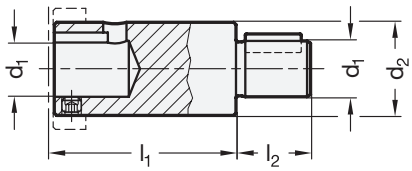
ACCESSORY

- Position indicators and handwheels have to be ordered seperately.

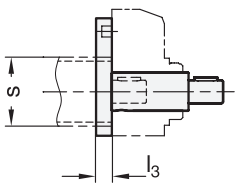
TECHNICAL INFORMATION

- ISO-Fundamental tolerances (see page A21)

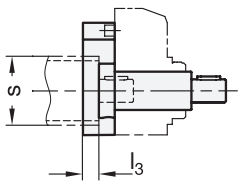




Identification no. **1**



Identification no. **2**



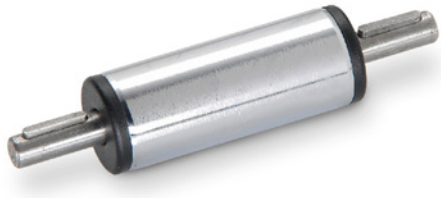
GN 296

Description	s	d1 f7	d2	b	h	l1	l2	l3	For position indicator	⚖
GN 296-30-8-1	30	8	14	40	43.5	35	15	12	DD51	75
GN 296-40-12-1	40	12	20	50	56.5	39	16	12	DD52R	130
GN 296-50-12-1	50	12	20	60	61.5	39	17	12	DD52R	140
GN 296-30-8-2	30	8	14	40	43.5	36	15	12	DD51	58
GN 296-40-12-2	40	12	20	50	56.5	43	16	12	DD52R	123
GN 296-50-12-2	50	12	20	60	61.5	43	17	12	DD52R	133

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GN 391

Drive / Transfer units



SPECIFICATION

Version in Steel
Tube DIN 2391
Steel, chrome-plated **SCR**

Version in Stainless Steel NI
Tube DIN 2462
Stainless Steel AISI 304

Shaft

- Steel respectively Stainless Steel
- ball bearing

End cap
Plastic

INFORMATION

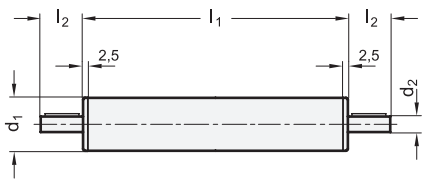
Transfer units GN 391 are normally used in connection with linear actuators (GN 291 see page 1912, GN 292 see page 1914, GN 293 see page 1915). They are designed to transfer the rotary movement for operating the linear actuators to another or a further position.
The transfer unit in the standard length l1 is a special design: It is designed to turn the operating axis for the linear actuators (handwheel) by 90° together with an angular gear.
As in linear actuators, digital position indicators can be fitted.

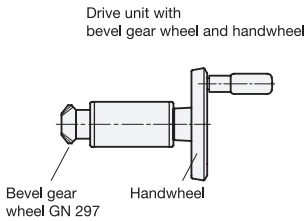
ACCESSORY

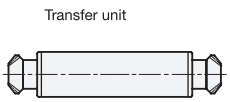
- Bevel gear wheels, handwheels, tube clamp connectors and accessory have to be ordered seperately.

TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Stainless Steel characteristics (see page A26)
- Assembly and application examples of Transfer units (see page 1944)







GN 391-SCR

Description	d1	l1	Transfer units	d2	l2	⚖
GN 391-18-47-SCR	18	47	*	6	16	63
GN 391-30-60-SCR	30	60	*	8	16	180
GN 391-40-93-SCR	40	93	*	12	17	506
GN 391-50-93-SCR	50	93	*	12	18	781

GN 391-NI STAINLESS STEEL

Description	d1	l1	Transfer units	d2	l2	⚖
GN 391-18-47-NI	18	47	*	6	16	65
GN 391-30-60-NI	30	60	*	8	16	185
GN 391-40-93-NI	40	93	*	12	17	528
GN 391-50-93-NI	50	93	*	12	18	772

* according to customer's requirement

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GN 297

Bevel gear wheels

with spiral bevel for linear actuators / transfer units with angular gear

SPECIFICATION

Types

- Type **R**: Bevel gear wheel, right-hand pitch
- Type **L**: Bevel gear wheel, left-hand pitch
- Type **W**: Set of bevel gears, 2 bevel gears, 1 x right-hand, 1 x left-hand pitch
- Type **T**: Set of bevel gears, 3 bevel gears, 1 x right-hand, 2 x left-hand pitch

Steel
hardened

Teeth milled

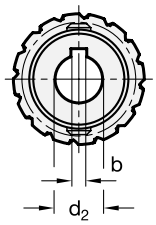


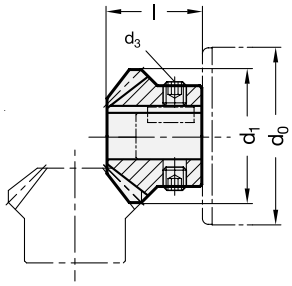
INFORMATION

Bevel gear wheels GN 297 are used for angular / T-gears in connection with linear actuators / transfer units and housings GN 298 (see page 1942).
The spiral bevel facilitates both setting the desired clearance and locating the correct position of the bevel gears. Also, gears set up this way run with extremely low noise levels.
Two bevel gears are needed for an angular gear, three bevel gears are needed for a T-gear. These are available as set in Type W and Type T resp.
Please note that only bevel gears with different pitches can be paired. The transmission ratio is always 1:1, because the bevel gears always have the same number of teeth.

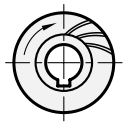
TECHNICAL INFORMATION

- ISO-Fundamental Tolerances (see page A21)
- Assembly and application examples of Transfer units (see page 1944)





Form **R**



Form **L**



GN 297

Description	d0	d1	d2 H7	b	d3	l	⚖
GN 297-14,5-K6-L	18	14.5	K 6	2	M 4	11	9
GN 297-25-K8-L	30	25	K 8	2	M 6	19	36
GN 297-33-K12-L	40 / 50	33	K 12	4	M 6	23.5	72
GN 297-14,5-K6-R	18	14.5	K 6	2	M 4	11	9
GN 297-25-K8-R	30	25	K 8	2	M 6	19	36
GN 297-33-K12-R	40 / 50	33	K 12	4	M 6	23.5	72
GN 297-14,5-K6-T	18	14.5	K 6	2	M 4	11	150
GN 297-25-K8-T	30	25	K 8	2	M 6	19	150
GN 297-33-K12-T	40 / 50	33	K 12	4	M 6	23.5	220
GN 297-14,5-K6-W	18	14.5	K 6	2	M 4	11	20
GN 297-25-K8-W	30	25	K 8	2	M 6	19	75
GN 297-33-K12-W	40 / 50	33	K 12	4	M 6	23.5	160

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GN 298

Housings

for angular gears / T-gears



SPECIFICATION

Types

- Type **W**: Housing for angular gears
- Type **T**: Housing for T-gears

Aluminium gravity die casting

plastic coated
black, RAL 9005, textured finish **SW**

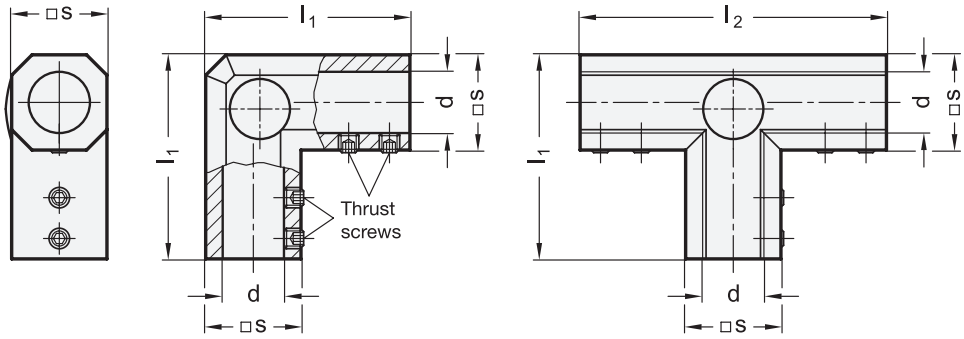
Thrust screws
Stainless Steel

INFORMATION

Housings GN 298 for angular / T-gears are used in connection with bevel gear wheels GN 297 (see page 1942) and linear actuators / transfer units. The angular / T-gears are designed to deflect the rotary movement of a linear actuator / transfer unit by 90°.
An operating instruction with more details and specifications is included with every delivery.

TECHNICAL INFORMATION

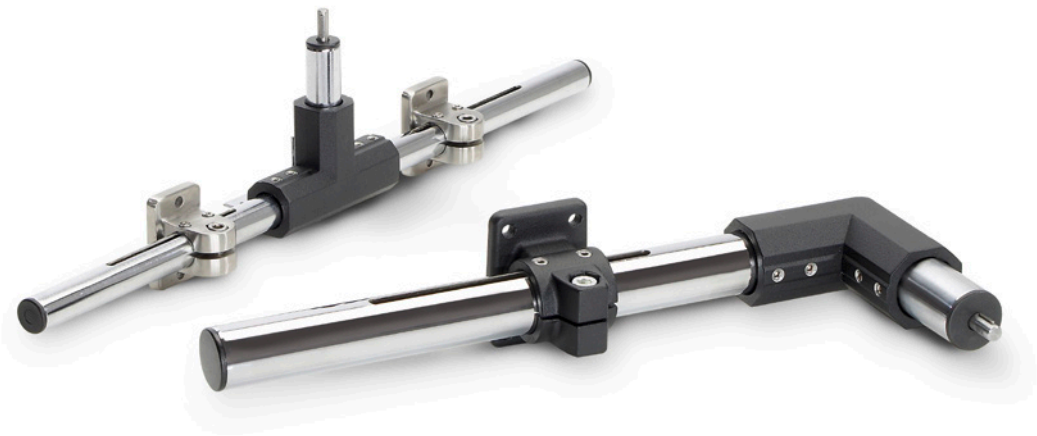
- Assembly and application examples of Transfer units (see page 1944)



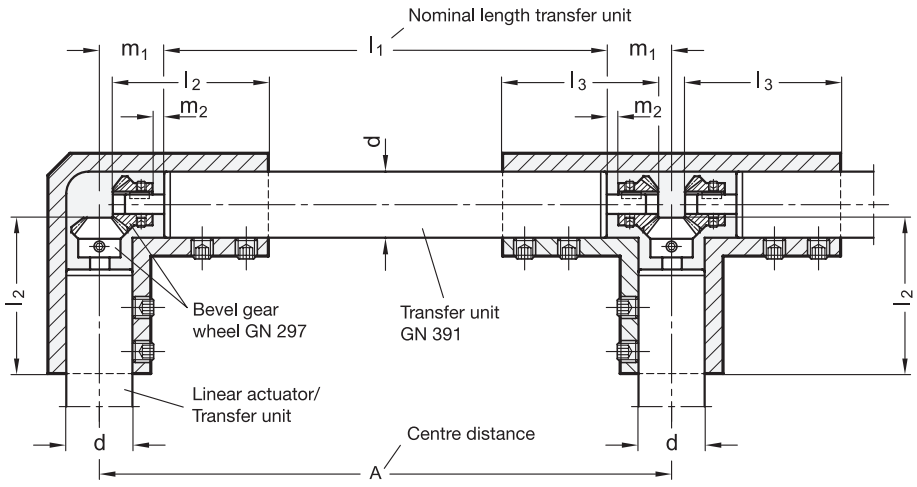
GN 298

Description	s	d	l1	l2	⚖
GN 298-28-B18-W-SW	28	B 18	60	90	107
GN 298-40-B30-W-SW	40	B 30	84	126	240
GN 298-50-B40-W-SW	50	B 40	108	162	434
GN 298-60-B50-W-SW	60	B 50	128	190	700
GN 298-28-B18-T-SW	28	B 18	60	90	139
GN 298-40-B30-T-SW	40	B 30	84	126	280
GN 298-50-B40-T-SW	50	B 40	108	162	542
GN 298-60-B50-T-SW	60	B 50	128	190	851

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ASSEMBLY OF LINEAR ACTUATORS AND TRANSFER UNITS WITH BEVEL GEAR WHEELS IN HOUSINGS GN 298

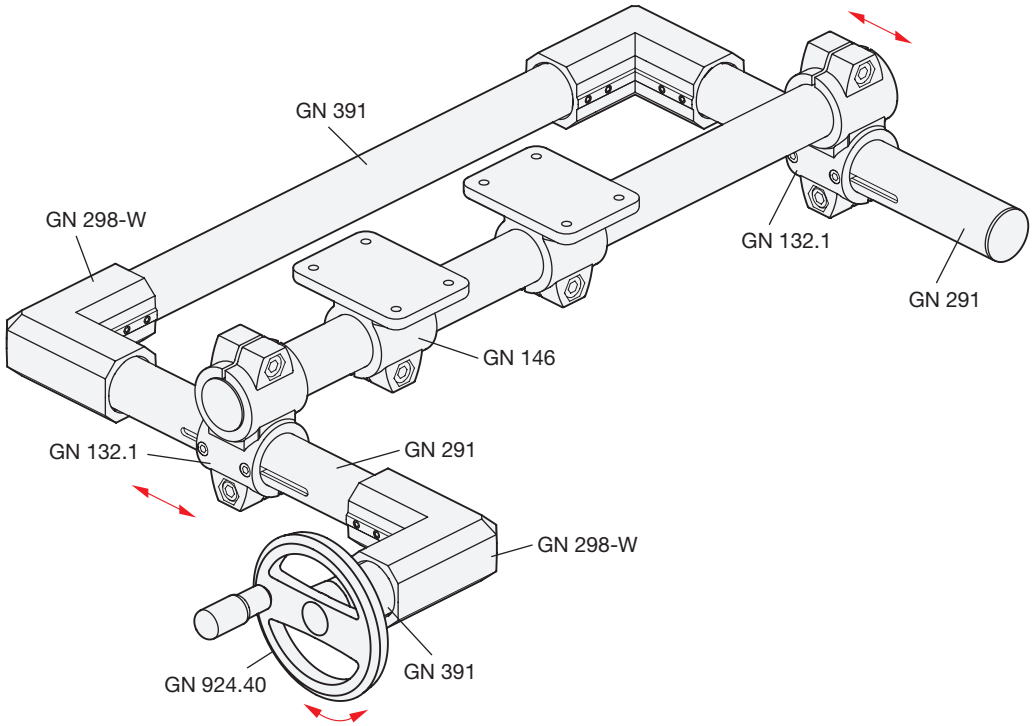


d Ø Linear actuator / transfer unit	l2	l3	m1	m2	Bevel gear wheel	Housing	
18	41	40	20	4	GN 297-17,5-K6	GN 298-28-B18-W/T-SW	Length of the transfer unit GN 391: $l_1 = A - 2 \times m_1$
30	58	57	26	1	GN 297-26-K8	GN 298-40-B30-W/T-SW	
40	75.5	73.5	32	1	GN 297-35-K12	GN 298-50-B40-W/T-SW	
50	90.5	87.5	32	1	GN 297-35-K12	GN 298-60-B50-W/T-SW	

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Transfer unit and angular gears

Application example



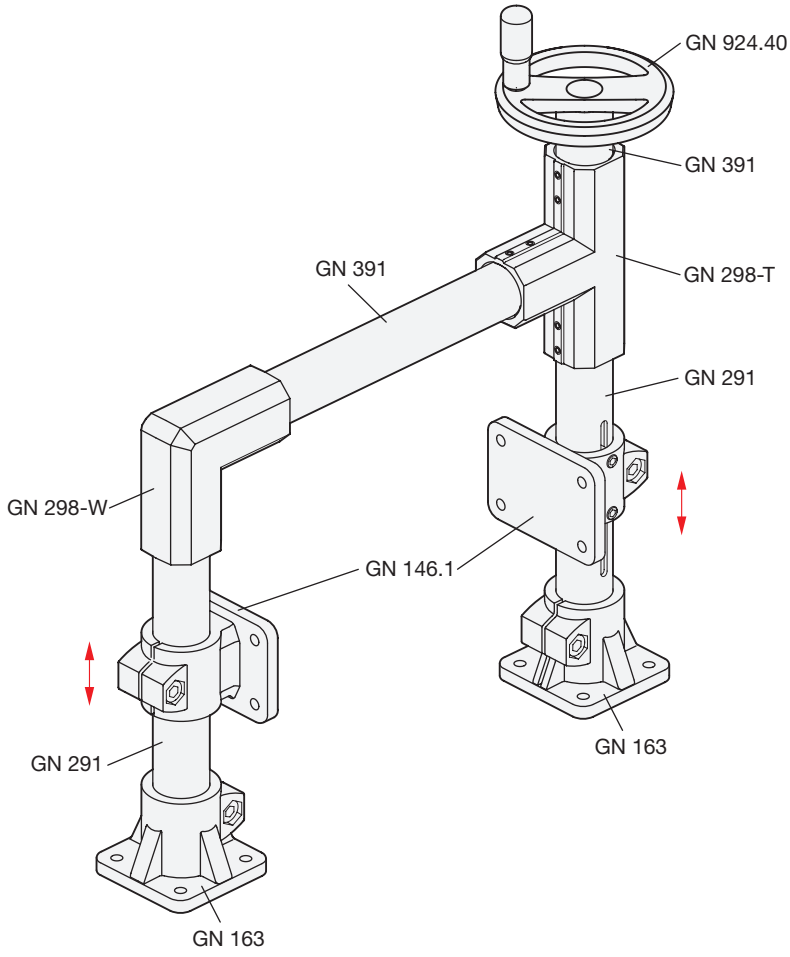
Two parallel sliding linear actuators GN 291 (see page 1912) are connected with a transfer unit GN 391 (see page 1940).

The angular housings GN 298-W (see page 1942) including the bevel gear wheels GN 297 (see page 1941) and another transfer unit GN 391 connect the handwheel with the system. The handwheel is placed in a rectangular position to the moving axes.

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Transfer unit and angular gears

Application example



Two flanged linear actuator connectors GN 146.1 (see page 1923) are moved parallel. For this two linear actuators GN 291 (see page 1912) are connected with a transfer unit GN 391 (see page 1940).

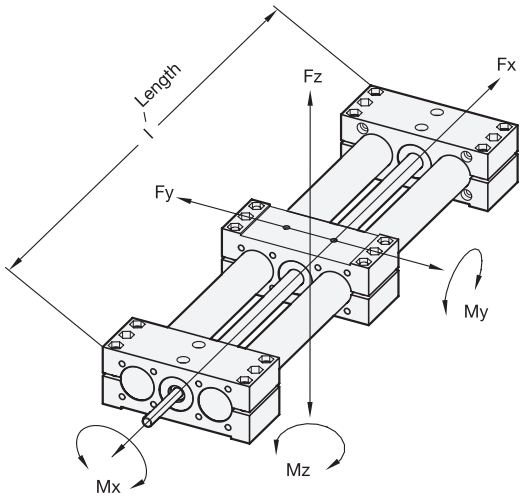
The T- and angular gear GN 298-T/-W (see page 1942) including the bevel gear wheels GN 297 (see page 1941) and another transfer unit GN 391 (see page 1940) connect the handwheel with the system. The handwheel is placed in a parallel position to the moving axes.

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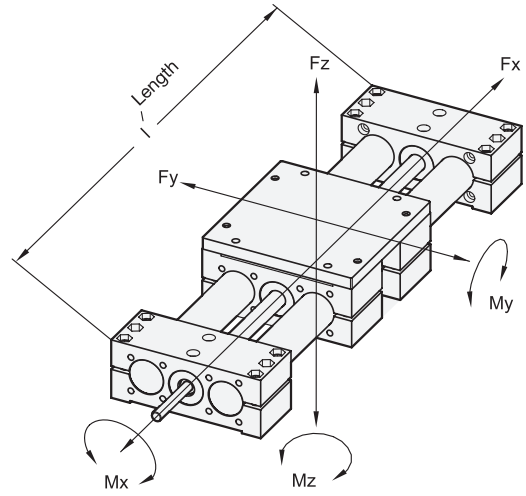
Double tube linear actuators

Technical description

GN 491



GN 492



d	Fx	Fy in N for length l =			Fz in N for length l =			Mx	My	Mz
GN 491	in N	500	1000	1500	500	1000	1500	in Nm	in Nm	in Nm
18	425	215	110	-	105	80	-	22	35	40
30	850	1100	900	550	600	350	150	100	100	100
40	1100	3700	2800	1400	2100	600	130	150	140	170
50	1900	3850	2400	2100	3100	700	200	180	220	290
60	2700	6900	2700	5100	6300	2800	360	320	350	500

d	Fx	Fy in N for length l =			Fz in N for length l =			Mx	My	Mz
GN 492	in N	500	1000	1500	500	1000	1500	in Nm	in Nm	in Nm
18	425	290	180	-	140	105	-	42	50	75
30	850	1550	1300	800	700	550	250	150	150	200
40	1100	6400	3400	1900	2400	750	230	180	210	260
50	1900	7500	5100	2700	3400	850	340	250	350	530
60	2700	11500	9500	8200	7500	3100	610	550	650	980

The specified forces Fy and Fz cause a flexure of the guide tube of approx. 0.5 mm.

DESCRIPTION

The slider is moved via a bearing-type trapezoidal thread spindle and a guide nut. The slider is guided through two parallel chrome-plated tubes, resulting in a high load capacity and allowing high bending moments to be compensated by the linear actuator.

For type GN 492 (see page 1952), a second slider and an adapter plate extend the options for applications.

These double tube linear actuators have been designed for manual operation (handwheel). With the appropriate lubrication, they can also absorb rotary spindle speeds of as much as 250 rpm.

The positioning accuracy is 0.2 mm / 300 mm travel, the maximum reverse play is 0.1 mm.

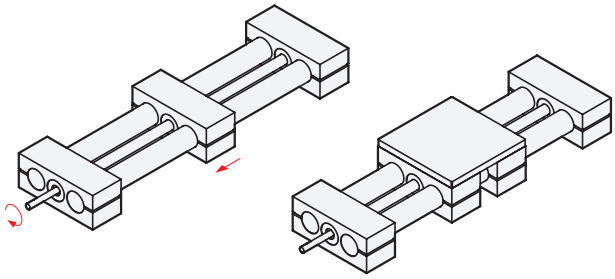
To measure the adjustment or the positioning, digital position indicators DD52R (see page 721) / DD51 (see page 718) / DD52R-E (see page 726) / DD51-E (see page 722) may be attached. The required extension of the shaft journal is enabled by installation kits GN 491.1 (see page 1955).

Further information see on the standard pages of GN 491 (see page 1948) / GN 492 (see page 1952).

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Double tube linear actuators

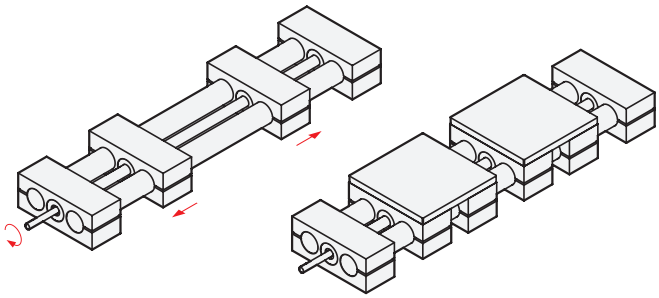
Technical description



GN 491 **GN 492**

DESCRIPTION

Double tube linear actuators
GN 491 / GN 492
(see page 1948 / see page 1952)
with right or left hand thread,
single shaft end or two shaft ends.

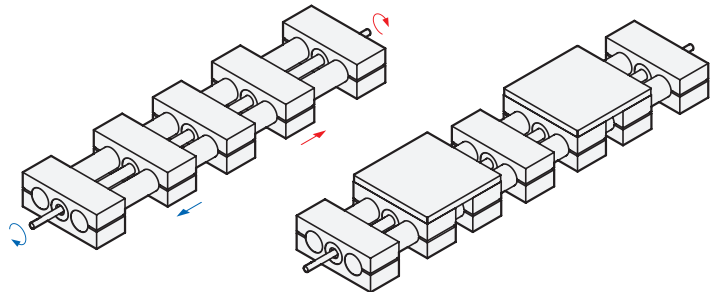


GN 493 **GN 494**

DESCRIPTION

Double tube linear actuators
GN 493 / GN 494
with right and left hand thread,
single shaft end or two shaft ends,
both sliders move symmetrically.

On request:
Double tube linear actuators
GN 493 / GN 494



GN 495 **GN 496**

DESCRIPTION

Double tube linear actuators
GN 495 / GN 496
with two separate spindles,
each with right or left hand thread, both sliders move independently of each other.

On request:
Double tube linear actuators
GN 495 / GN 496.

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Double tube linear actuators

with right or left hand thread, single slider

SPECIFICATION

Types

- Type **R1**: Right hand thread, shaft journal at one end
- Type **R2***: Right hand thread, shaft journal at boths ends
- Type **L1***: Left hand thread, shaft journal at one end
- Type **L2***: Left hand thread, shaft journal at both ends

* normally not available from stock

Guide tube DIN 2391
Steel chrome-plated **SCR**

End pieces / Slider
Aluminium

plastic coated
black, RAL 9005, textured finish

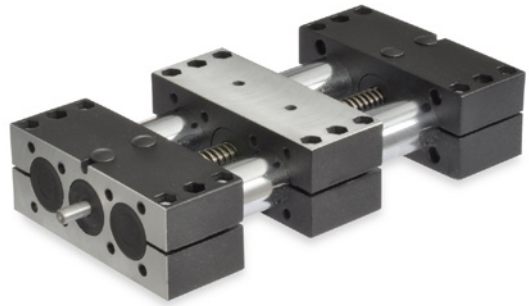
Fixing surface / mounting surface
machined, blank

Spindle with trapezoidal thread

- Steel, blank
- with ball-bearing
- Positioning accuracy ±0.2 mm/300 mm travel

Follower nut, gun metal

Cylinder head screw DIN 912 /
Hexagon nuts DIN 985
Steel, zinc plated



INFORMATION

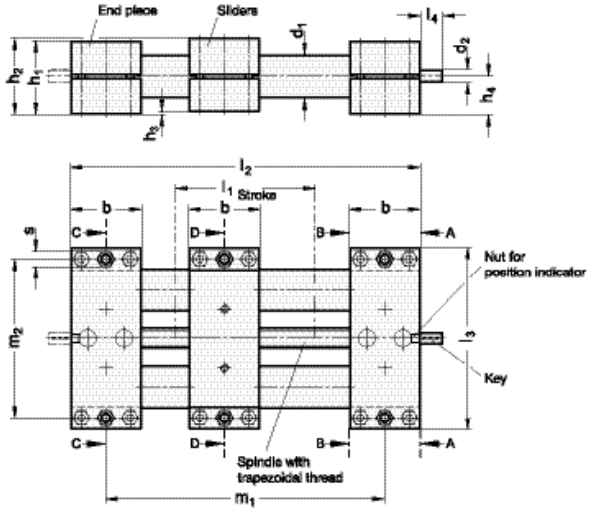
In addition to the standard travel lengths specified in the above table for the double tube linear actuator GN 491 any length inside the maximum length is available.
In order to measure the movement and positioning of the sliders, digital position indicators can be added.

ACCESSORY

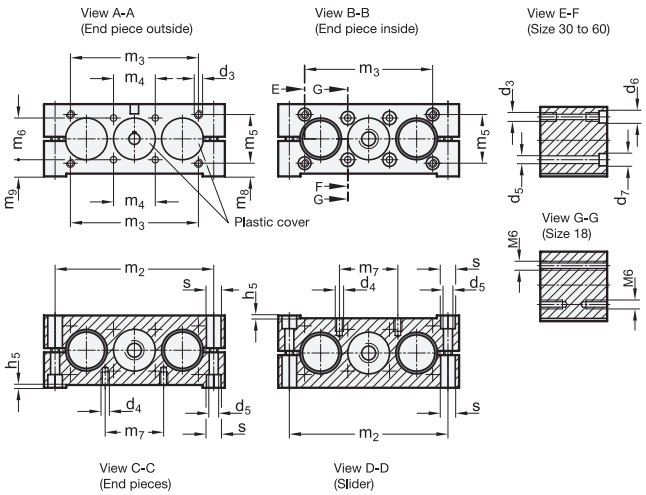
- Installation kits GN 491.1 (see page 1955) for position indicators

TECHNICAL INFORMATION

- Mounting facilities of end pieces (see page 1950)
- Technical information / Load data of Double tube linear actuators (see page 1946)



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GN 491

Description	d1	l1	Max. travel	Shaft thread	b	d2	d3	d4	d5	d6	For screw DIN 912	d7	For screw DIN 912	d8	h1	h2	h3	h4	h5
GN 491-18-100-R1-SCR	18	100	420	TR10x3	28	6	-	M 5***	5.3	-	-	-	-	M 5	28	29	1	14.5	0.75
GN 491-18-150-R1-SCR	18	150	420	TR10x3	28	6	-	M 5***	5.3	-	-	-	-	M 5	28	29	1	14.5	0.75
GN 491-18-200-R1-SCR	18	200	420	TR10x3	28	6	-	M 5***	5.3	-	-	-	-	M 5	28	29	1	14.5	0.75
GN 491-18-250-R1-SCR	18	250	420	TR10x3	28	6	-	M 5***	5.3	-	-	-	-	M 5	28	29	1	14.5	0.75
GN 491-30-100-R1-SCR	30	100	1500	TR14x4	50	8	M 6**	M 6***	6.5	9	M 5	10.5	M 6	M 6	52	54	2	27	0.85
GN 491-30-150-R1-SCR	30	150	1500	TR14x4	50	8	M 6**	M 6***	6.5	9	M 5	10.5	M 6	M 6	52	54	2	27	0.85
GN 491-30-200-R1-SCR	30	200	1500	TR14x4	50	8	M 6**	M 6***	6.5	9	M 5	10.5	M 6	M 6	52	54	2	27	0.85
GN 491-30-300-R1-SCR	30	300	1500	TR14x4	50	8	M 6**	M 6***	6.5	9	M 5	10.5	M 6	M 6	52	54	2	27	0.85
GN 491-40-100-R1-SCR	40	100	2650	TR20x4	60	12	M 8**	M 8***	6.5	13.5	M 6	13.5	M 8	M 8	60	63	3	31.5	1.05
GN 491-40-150-R1-SCR	40	150	2650	TR20x4	60	12	M 8**	M 8***	8.5	13.5	M 6	13.5	M 8	M 8	60	63	3	31.5	1.05
GN 491-40-200-R1-SCR	40	200	2650	TR20x4	60	12	M 8**	M 8***	8.5	13.5	M 6	13.5	M 8	M 8	60	63	3	31.5	1.05
GN 491-40-300-R1-SCR	40	300	2650	TR20x4	60	12	M 8**	M 8***	8.5	13.5	M 6	13.5	M 8	M 8	60	63	3	31.5	1.05
GN 491-50-100-R1-SCR	50	100	2760	TR20x4	72	12	M 10**	M 8***	8.5	13.5	M 8	13.5	M 8	M 8	72	76	4	38	1.2
GN 491-50-150-R1-SCR	50	150	2760	TR20x4	72	12	M 10**	M 8***	8.5	13.5	M 8	13.5	M 8	M 8	72	76	4	38	1.2
GN 491-50-200-R1-SCR	50	200	2760	TR20x4	72	12	M 10**	M 8***	8.5	13.5	M 8	13.5	M 8	M 8	72	76	4	38	1.2
GN 491-50-300-R1-SCR	50	300	2760	TR20x4	72	12	M 10**	M 8***	8.5	13.5	M 8	13.5	M 8	M 8	72	76	4	38	1.2
GN 491-60-300-R1-SCR	60	300	2740	TR25x5	80	14	M 10**	M 10***	10.5	13.5	M 8	16.5	M 10	M 10	86	88	2	44	1.35
GN 491-60-400-R1-SCR	60	400	2740	TR25x5	80	14	M 10**	M 10***	10.5	13.5	M 8	16.5	M 10	M 10	86	88	2	44	1.35
GN 491-60-500-R1-SCR	60	500	2740	TR25x5	80	14	M 10**	M 10***	10.5	13.5	M 8	16.5	M 10	M 10	86	88	2	44	1.35

GN 491

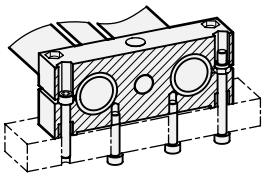
Description	l2	l3	l4	m1	m2	m3	m4	m5	m6	m7	m8	m9	s	Shaft key spring DIN 6885	Position indicator	Hand-wheel	⚖
GN 491-18-100-R1-SCR	3xb+l5+l1	81	16	2xb+l1	68	-	20	-	20	18	-	4.5	8	A2x2x12	DD50	GN 923.18	1020
GN 491-18-150-R1-SCR	3xb+l5+l1	81	16	2xb+l1	68	-	20	-	20	18	-	4.5	8	A2x2x12	DD50	GN 923.18	1120
GN 491-18-200-R1-SCR	3xb+l5+l1	81	16	2xb+l1	68	-	20	-	20	18	-	4.5	8	A2x2x12	DD50	GN 923.18	1200
GN 491-18-250-R1-SCR	3xb+l5+l1	81	16	2xb+l1	68	-	20	-	20	18	-	4.5	8	A2x2x12	DD50	GN 923.18	1360
GN 491-30-100-R1-SCR	3xb+l5+l1	130	16	2xb+l1	114	92	30	35	30	42	9.5	12	10	A2x2x12	DD51|DD51-E	GN 923.30	4000
GN 491-30-150-R1-SCR	3xb+l5+l1	130	16	2xb+l1	114	92	30	35	30	42	9.5	12	10	A2x2x12	DD51|DD51-E	GN 923.30	4340
GN 491-30-200-R1-SCR	3xb+l5+l1	130	16	2xb+l1	114	92	30	35	30	42	9.5	12	10	A2x2x12	DD51|DD51-E	GN 923.30	4500
GN 491-30-300-R1-SCR	3xb+l5+l1	130	16	2xb+l1	114	92	30	35	30	42	9.5	12	10	A2x2x12	DD51|DD51-E	GN 923.30	4900
GN 491-40-100-R1-SCR	3xb+l5+l1	180	17	2xb+l1	160	132	39	38	39	62	12.5	12	13	A4x4x12	DD52R|DD52R-E	GN 924.40	8650
GN 491-40-150-R1-SCR	3xb+l5+l1	180	17	2xb+l1	160	132	39	38	39	62	12.5	12	13	A4x4x12	DD52R|DD52R-E	GN 924.40	9000
GN 491-40-200-R1-SCR	3xb+l5+l1	180	17	2xb+l1	160	132	39	38	39	62	12.5	12	13	A4x4x12	DD52R|DD52R-E	GN 924.40	9650
GN 491-40-300-R1-SCR	3xb+l5+l1	180	17	2xb+l1	160	132	39	38	39	62	12.5	12	13	A4x4x12	DD52R|DD52R-E	GN 924.40	10150
GN 491-50-100-R1-SCR	3xb+l5+l1	206	18	2xb+l1	184	150	46	50	46	62	13	15	13	A4x4x12	DD52R|DD52R-E	GN 924.50	14000
GN 491-50-150-R1-SCR	3xb+l5+l1	206	18	2xb+l1	184	150	46	50	46	62	13	15	13	A4x4x12	DD52R|DD52R-E	GN 924.50	14440
GN 491-50-200-R1-SCR	3xb+l5+l1	206	18	2xb+l1	184	150	46	50	46	62	13	15	13	A4x4x12	DD52R|DD52R-E	GN 924.50	14860
GN 491-50-300-R1-SCR	3xb+l5+l1	206	18	2xb+l1	184	150	46	50	46	62	13	15	13	A4x4x12	DD52R|DD52R-E	GN 924.50	16020
GN 491-60-300-R1-SCR	3xb+l5+l1	240	19	2xb+l1	216	185	55	60	55	74	14	16.5	17	A5x5x16	DD52R|DD52R-E	GN 924.60	26900
GN 491-60-400-R1-SCR	3xb+l5+l1	240	19	2xb+l1	216	185	55	60	55	74	14	16.5	17	A5x5x16	DD52R|DD52R-E	GN 924.60	28550
GN 491-60-500-R1-SCR	3xb+l5+l1	240	19	2xb+l1	216	185	55	60	55	74	14	16.5	17	A5x5x16	DD52R|DD52R-E	GN 924.60	30200

** useable depth of thread from both sides min. 2 x d_3 | *** useable depth of thread min. 1.5 x d_4

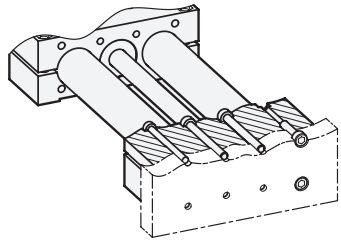
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Mounting facilities of the end pieces

Horizontal
with screws for thread d_4 or bore d_5

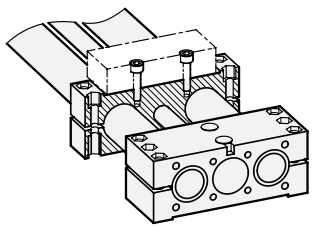


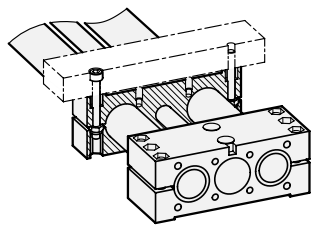
Vertical
From outside, with screws for thread d_3
From inside, with screws for bore d_6
From inside, with screws for bore d_5 / d_7



Mounting facilities at the slider

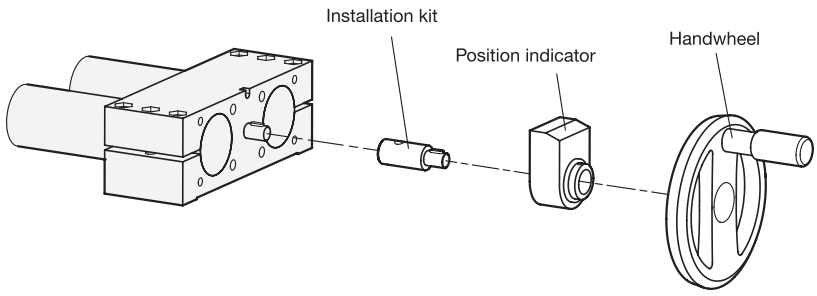
Mounting with screws for thread d_4 or bore d_5



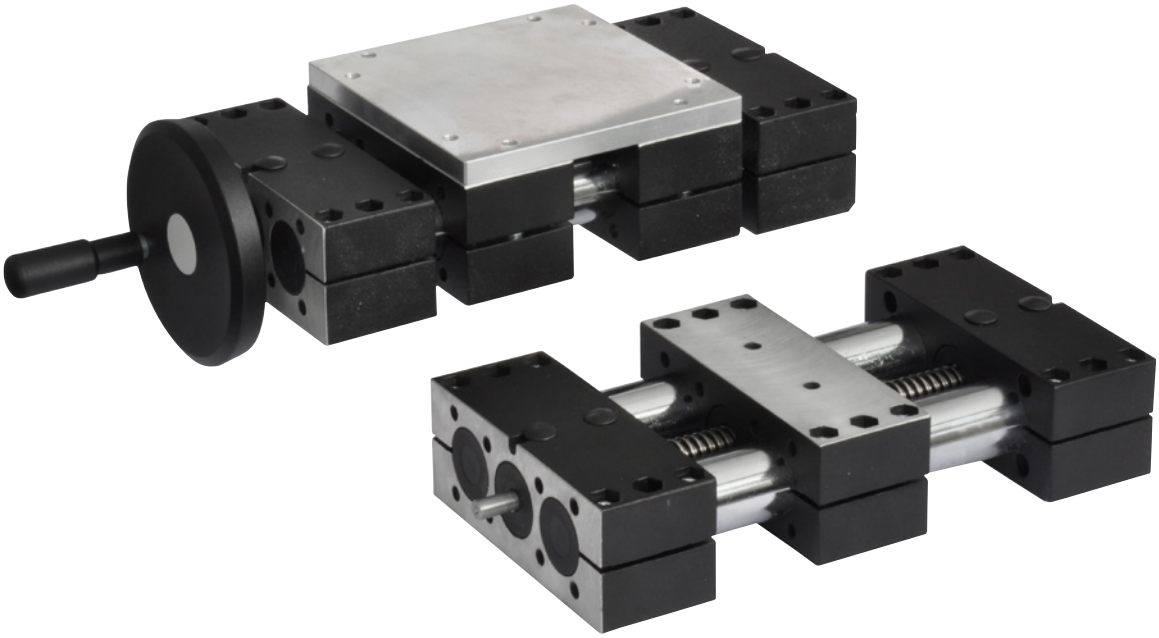


Assembly of position indicator and handwheel

Useage of installation kit, position indicator and handwheel, see table



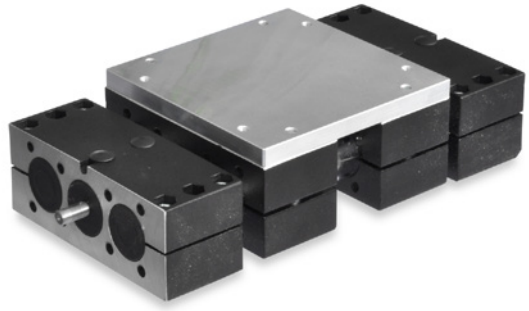
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Double tube linear actuators

with right or left hand thread, double slider



SPECIFICATION

Types

- Type **R1**: Right hand thread, single shaft end
- Type **R2***: Right hand thread, two shaft ends
- Type **L1***: Left hand thread, single shaft end
- Type **L2***: Left hand thread, two shaft ends

* normally not available from stock

Guide tube DIN 2391
Steel chrome-plated **SCR**

End pieces / Slider / Adapter plated
Aluminium

plastic coated
black, RAL 9005, textured finish

Fixing surface / mounting surface
machined, blank

Spindle with trapezoidal thread

- Steel, blank
- with ball-bearing
- Positioning accuracy ±0.2 mm/300 mm travel

Follower nut, gun metal

Cylinder head screws DIN 912 /
Hexagon nuts DIN 985
Steel, zinc plated

INFORMATION

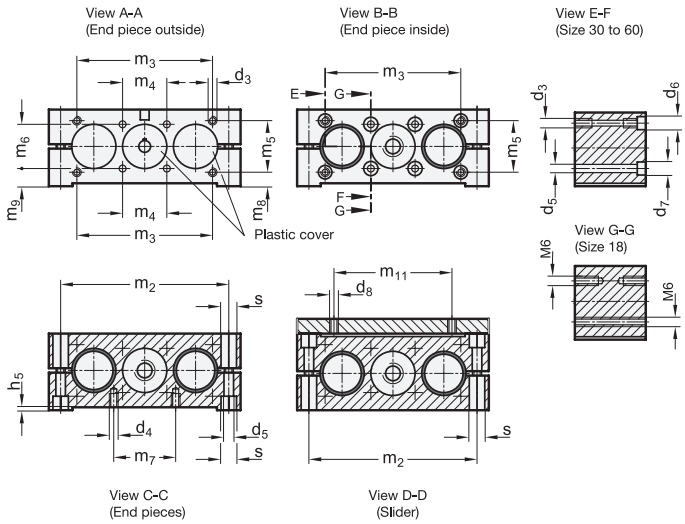
In addition to the standard travel lengths specified in the above table for the double tube linear actuator GN 492 any length inside the maximum length is available.
In order to measure the movement and positioning of the sliders, digital position indicators can be added.

ACCESSORY

- Installation kits GN 491.1 (see page 1955) for position indicators

TECHNICAL INFORMATION

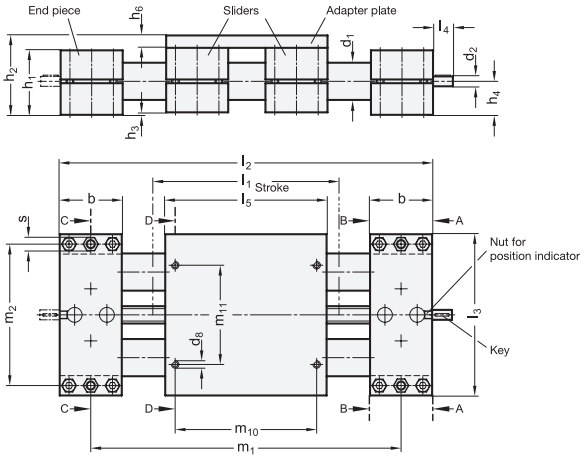
- Mounting facilities of end pieces (see page 1950)
- Technical information / Load data of Double tube linear actuators (see page 1946)



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GN 492

Double tube linear actuators



GN 492

Description	d1	l1	Max. travel	Shaft thread	b	d2	d3	d4	d5	d6	For screw DIN 912	d7	For screw DIN 912	d8	h1	h2	h3	h4	h5	h6
GN 492-18-100-R1-SCR	18	100	400	TR10x3	28	6	-	M 5***	5.3	-	-	-	-	M 5	28	37	1	14.5	0.75	8
GN 492-18-150-R1-SCR	18	150	400	TR10x3	28	6	-	M 5***	5.3	-	-	-	-	M 5	28	37	1	14.5	0.75	8
GN 492-18-200-R1-SCR	18	200	400	TR10x3	28	6	-	M 5***	5.3	-	-	-	-	M 5	28	37	1	14.5	0.75	8
GN 492-18-300-R1-SCR	18	300	400	TR10x3	28	6	-	M 5***	5.3	-	-	-	-	M 5	28	37	1	14.5	0.75	8
GN 492-30-100-R1-SCR	30	100	1500	TR14x4	50	8	M 6**	M 6***	6.5	10	M 5	11	M 6	M 6	52	64	2	27	0.85	10
GN 492-30-150-R1-SCR	30	150	1500	TR14x4	50	8	M 6**	M 6***	6.5	10	M 5	11	M 6	M 6	52	64	2	27	0.85	10
GN 492-30-200-R1-SCR	30	200	1500	TR14x4	50	8	M 6**	M 6***	6.5	10	M 5	11	M 6	M 6	52	64	2	27	0.85	10
GN 492-30-300-R1-SCR	30	300	1500	TR14x4	50	8	M 6**	M 6***	6.5	10	M 5	11	M 6	M 6	52	64	2	27	0.85	10
GN 492-40-100-R1-SCR	40	100	2500	TR20x4	60	12	M 8**	M 8***	6.5	13.5	M 6	13.5	M 8	M 8	60	76	3	31.5	1.05	13
GN 492-40-150-R1-SCR	40	150	2500	TR20x4	60	12	M 8**	M 8***	8.5	13.5	M 6	13.5	M 8	M 8	60	76	3	31.5	1.05	13
GN 492-40-200-R1-SCR	40	200	2500	TR20x4	60	12	M 8**	M 8***	8.5	13.5	M 6	13.5	M 8	M 8	60	76	3	31.5	1.05	13
GN 492-40-300-R1-SCR	40	300	2500	TR20x4	60	12	M 8**	M 8***	8.5	13.5	M 6	13.5	M 8	M 8	60	76	3	31.5	1.05	13
GN 492-50-100-R1-SCR	50	100	2630	TR20x4	72	12	M 10**	M 8***	8.5	15	M 8	15	M 8	M 8	72	92	4	38	1.2	16
GN 492-50-150-R1-SCR	50	150	2630	TR20x4	72	12	M 10**	M 8***	8.5	15	M 8	15	M 8	M 8	72	92	4	38	1.2	16
GN 492-50-200-R1-SCR	50	200	2630	TR20x4	72	12	M 10**	M 8***	8.5	15	M 8	15	M 8	M 8	72	92	4	38	1.2	16
GN 492-50-300-R1-SCR	50	300	2630	TR20x4	72	12	M 10**	M 8***	8.5	15	M 8	15	M 8	M 8	72	92	4	38	1.2	16
GN 492-60-400-R1-SCR	60	400	2580	TR25x5	80	14	M 10**	M 10***	10.5	13.5	M 8	16.5	M 10	M 10	86	103	2	44	1.35	15
GN 492-60-500-R1-SCR	60	500	2580	TR25x5	80	14	M 10**	M 10***	10.5	13.5	M 8	16.5	M 10	M 10	86	103	2	44	1.35	15
GN 492-60-600-R1-SCR	60	600	2580	TR25x5	80	14	M 10**	M 10***	10.5	13.5	M 8	16.5	M 10	M 10	86	103	2	44	1.35	15

GN 492

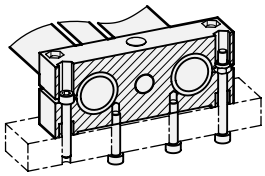
Description	l2	l3	l4	l5	m1	m2	m3	m4	m5	m6	m7	m8	m9	m10	m11	s	Shaft key spring DIN 6885	Position indicator	Handwheel	⚖
GN 492-18-100-R1-SCR	2xb+l5+l1	81	16	80	b+l5+l1	68	-	20	-	20	18	-	4.5	68	52	8	A2x2x12	DD50	GN 923.18	1020
GN 492-18-150-R1-SCR	2xb+l5+l1	81	16	80	b+l5+l1	68	-	20	-	20	18	-	4.5	68	52	8	A2x2x12	DD50	GN 923.18	1120
GN 492-18-200-R1-SCR	2xb+l5+l1	81	16	80	b+l5+l1	68	-	20	-	20	18	-	4.5	68	52	8	A2x2x12	DD50	GN 923.18	1200
GN 492-18-300-R1-SCR	2xb+l5+l1	81	16	80	b+l5+l1	68	-	20	-	20	18	-	4.5	68	52	8	A2x2x12	DD50	GN 923.18	1360
GN 492-30-100-R1-SCR	2xb+l5+l1	130	16	130	b+l5+l1	114	92	30	35	30	42	9.5	12	114	80	10	A2x2x12	DD51|DD51-E	GN 923.30	4000
GN 492-30-150-R1-SCR	2xb+l5+l1	130	16	130	b+l5+l1	114	92	30	35	30	42	9.5	12	114	80	10	A2x2x12	DD51|DD51-E	GN 923.30	4340
GN 492-30-200-R1-SCR	2xb+l5+l1	130	16	130	b+l5+l1	114	92	30	35	30	42	9.5	12	114	80	10	A2x2x12	DD51|DD51-E	GN 923.30	4500
GN 492-30-300-R1-SCR	2xb+l5+l1	130	16	130	b+l5+l1	114	92	30	35	30	42	9.5	12	114	80	10	A2x2x12	DD51|DD51-E	GN 923.30	4900
GN 492-40-100-R1-SCR	2xb+l5+l1	180	17	180	b+l5+l1	160	132	39	38	39	62	12.5	12	160	120	13	A4x4x12	DD52R|DD52R-E	GN 924.40	8650
GN 492-40-150-R1-SCR	2xb+l5+l1	180	17	180	b+l5+l1	160	132	39	38	39	62	12.5	12	160	120	13	A4x4x12	DD52R|DD52R-E	GN 924.40	9000
GN 492-40-200-R1-SCR	2xb+l5+l1	180	17	180	b+l5+l1	160	132	39	38	39	62	12.5	12	160	120	13	A4x4x12	DD52R|DD52R-E	GN 924.40	9665
GN 492-40-300-R1-SCR	2xb+l5+l1	180	17	180	b+l5+l1	160	132	39	38	39	62	12.5	12	160	120	13	A4x4x12	DD52R|DD52R-E	GN 924.40	10150
GN 492-50-100-R1-SCR	2xb+l5+l1	206	18	206	b+l5+l1	184	150	46	50	46	62	13	15	184	134	13	A4x4x12	DD52R|DD52R-E	GN 924.50	14000
GN 492-50-150-R1-SCR	2xb+l5+l1	206	18	206	b+l5+l1	184	150	46	50	46	62	13	15	184	134	13	A4x4x12	DD52R|DD52R-E	GN 924.50	14440
GN 492-50-200-R1-SCR	2xb+l5+l1	206	18	206	b+l5+l1	184	150	46	50	46	62	13	15	184	134	13	A4x4x12	DD52R|DD52R-E	GN 924.50	14860
GN 492-50-300-R1-SCR	2xb+l5+l1	206	18	206	b+l5+l1	184	150	46	50	46	62	13	15	184	134	13	A4x4x12	DD52R|DD52R-E	GN 924.50	16020
GN 492-60-400-R1-SCR	2xb+l5+l1	240	19	240	b+l5+l1	216	185	55	60	55	74	14	16.5	216	160	17	A5x5x16	DD52R|DD52R-E	GN 924.60	26900
GN 492-60-500-R1-SCR	2xb+l5+l1	240	19	240	b+l5+l1	216	185	55	60	55	74	14	16.5	216	160	17	A5x5x16	DD52R|DD52R-E	GN 924.60	28550
GN 492-60-600-R1-SCR	2xb+l5+l1	240	19	240	b+l5+l1	216	185	55	60	55	74	14	16.5	216	160	17	A5x5x16	DD52R|DD52R-E	GN 924.60	30200

** useable depth of thread from both sides min. 2 x d_3 | *** useable depth of thread min. 1.5 x d_4

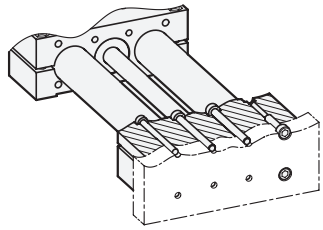
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Mounting facilities of the end pieces

Horizontal
with screws for thread d_4 or bore d_5

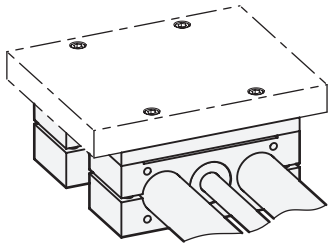


Vertical
From outside, with screws for thread d_3
From inside, with screws for bore d_6
From inside, with screws for bore d_5 / d_7



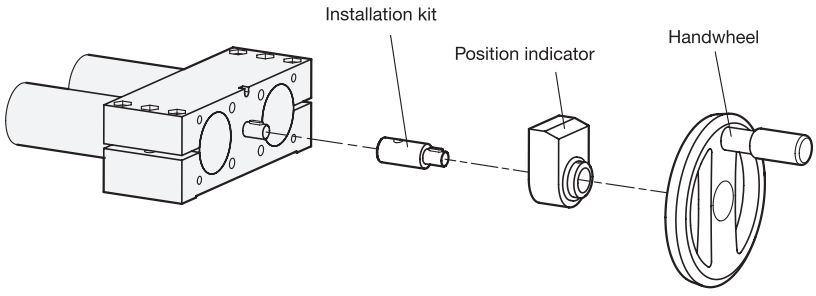
Mounting facilities at the slider

Mounting with screws for thread d_8



Assembly of position indicator and handwheel

Useage of installation kit, position indicator and handwheel, see table.



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GN 491.1

Installation kits

for position indicators used on linear actuators GN 491 / GN 492

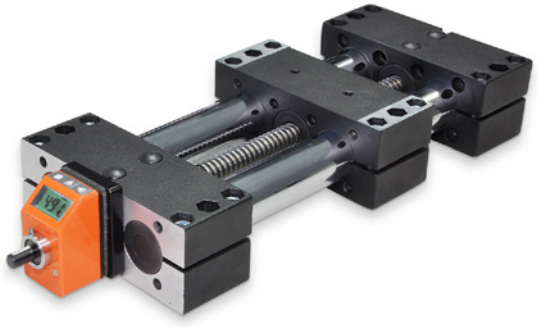
SPECIFICATION

Identification no.

- No. **1**: for mechanical position indicators DD52R / DD51 / DD50
- No. **2**: for electrical position indicators DD52R-E / DD51-E

Adaptor shaft
Steel
blackened

Torque support
Aluminium
black anodized



INFORMATION

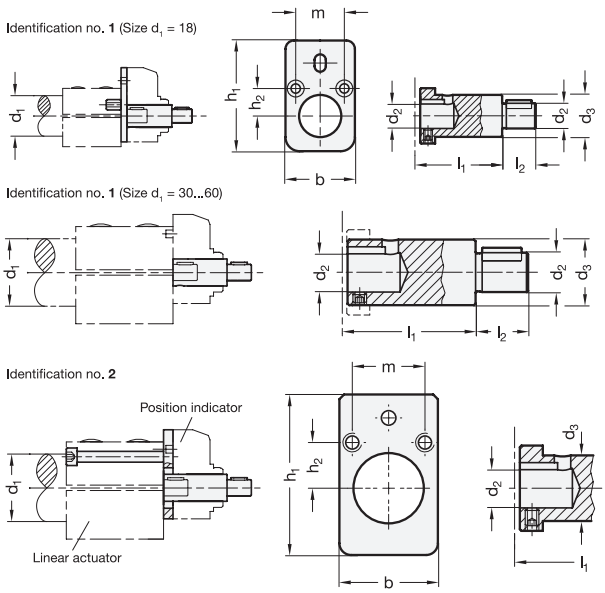
The installation kits GN 491.1 are required for the attachment of a position indicator to double tube linear actuators. They consist of an adapter shaft and, depending on the position indicator, a torque support including fixing screws.
Mechanical position indicators DD52R (see page 726)/ DD51 (see page 718) / DD50 (see page 716) must be ordered so that the counter is aligned with the rising of the trapezoidal thread spindle.
For the position indicators DD52R-E (see page 726) / DD51-E (see page 722) the respective rising is set at the position indicator for every programming.

ACCESSORY

Position indicators and handwheels have to be ordered separately.

TECHNICAL INFORMATION

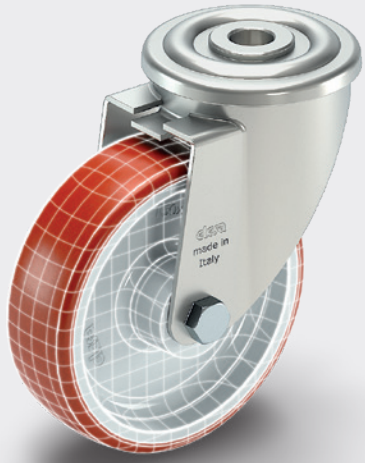
- ISO-Fundamental tolerances (see page A21)



GN 491.1

Description	d1 Ø Linear actuator	d2 f7	b	d3	l1	l2	h1	h2	m	For position indicator	⚖
GN 491.1-18-6-1	18	6	27	10	30	16	38.5	10	20	DD50	90
GN 491.1-30-8-1	30	8	40	14	35	15	54.5	15	30	DD51|DD51-E	100
GN 491.1-40-12-1	40	12	50	20	39	16	72.5	19.5	39	DD52R|DD52R-E	159
GN 491.1-50-12-1	50	12	60	20	39	17	72.5	23	46	DD52R|DD52R-E	159
GN 491.1-60-14-1	60	14	70	20	39	18	72.5	27.5	55	DD52R|DD52R-E	92
GN 491.1-30-8-2	30	8	40	14	44	15	54.5	15	30	DD51|DD51-E	150
GN 491.1-40-12-2	40	12	50	20	51	16	72.5	19.5	39	DD52R|DD52R-E	247
GN 491.1-50-12-2	50	12	60	20	51	17	72.5	23	46	DD52R|DD52R-E	271
GN 491.1-60-14-2	60	14	70	20	51	18	72.5	27.5	55	DD52R|DD52R-E	324

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Italy

DESIGNED
FOR ENGINEERING

17 Castors and wheels



Injected polyurethane wheels

Technopolymer wheels

Rubber wheels

Duroplast wheels

Mould-on polyurethane wheels

Aluminium centre body

COVERING
Mould-on polyurethane, hardness 95 Shore A.

WHEEL CENTRE BODY
Pressure die-cast aluminium.

ROLLING ACTION
Hub with ball bearings. Ideal solution for heavy loads and continuous moving.

APPLICATIONS
Excellent smoothness and elasticity features, high wear and tearing resistance.
For selection parameters see Technical data on page 2013.
RE.F5 wheels are supplied also with bracket:
- RE.F5-N (see page 1959): wheels with steel sheet bracket to be used for light loads.
- RE.F5-H (see page 1961): wheels with steel sheet bracket to be used for medium-heavy loads.

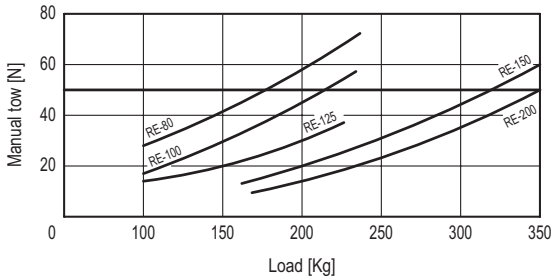
ENVIRONMENTAL CONDITIONS
Suitable for use in environments with the presence of atmospheric agents, alcohols and glycols; use in environments with the presence of organic and mineral acids, basic solutions and saturated vapour is not recommended.

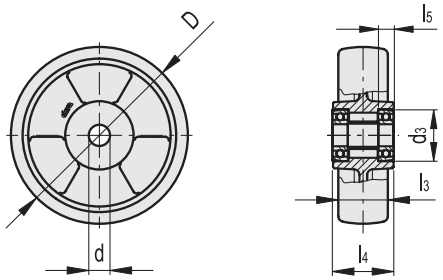
ROLLING RESISTANCE - FORCE / LOAD APPLIED
The diagram shows the force to be applied to a wheel to keep it moving at the constant speed of 4 km/h, according to the applied load.
The intersection point with a 50N value is the maximum transportable load with a manually actuated 4-wheel trolley; in fact, 200N = 50N x 4 wheels is the maximum force that may be supported by the operator according to the regulations in force regarding work safety.

MECHANICAL MOVING WITH TOWING DEVICES
For mechanical towing, please see the technical specifications to determine the capacity variation.

TEMPERATURE
If operating temperatures in an application differ from the standard range of values, please see the technical specifications to determine the capacity variation.







Code	Description	D	d	d3	l3	l4	l5	Static load# [N]	Rolling resistance# [N]	Dynamic carrying capacity# [N]	⚖
451501	RE.F5-080-RSL	80	12	28	25	30	8	2800	1500	2200	200
451506	RE.F5-100-RSL	100	12	32	30	40	10	3500	2250	2500	340
451511	RE.F5-125-RSL	125	12	32	35	40	10	5000	2800	4000	500
451516	RE.F5-150-RSL	150	20	47	40	50	14	8500	3300	6000	910
451521	RE.F5-200-RSL	200	25	52	50	55	15	10000	3600	8500	1450

For static load, rolling resistance and dynamic carrying capacity see Technical Data on page 2014.

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Mould-on polyurethane wheels

Steel sheet bracket

COVERING
Mould-on polyurethane, hardness 95 Shore A.

WHEEL CENTRE BODY
Pressure die-cast aluminium.

ROLLING ACTION
Hub with ball bearings. Ideal solution for heavy loads and continuous moving.

FIXED PLATE BRACKET
Zinc-plated steel sheet, the bracket is designed to withstand loads up to 3000N.

TURNING PLATE BRACKET
Zinc-plated steel sheet, the bracket is designed to withstand loads up to 3000N.
The presence of a double ball race turns and the direct contact between the plate and the ball race ring with built-in pin ensure excellent manoeuvrability.
Does not require maintenance.
It consists of (see Fig.1):
1. fitting plate: electrolytically zinc-plated steel plate;
2. fork: electrolytically zinc-plated steel plate;
3. ball race ring: electrolytically zinc-plated steel plate;
4. central pin: incorporated in the plate, cold reflanged;
5. rotation system: dual grease-lubricated ball race;
6. dust seal: RAL 7015 dark grey technopolymer.

BRAKE
Total brake that locks the wheel and bracket rotation.
The optimised dimensions and the retractable pedal ensure minimal space occupied and maximum actuation ease.
Hardened carbon steel spring.
The trolley must be turned to use the device.
The brake is simple and effective to use: it is actuated and released by a simple action from the top downward at the tip of two separate pedals, thus ensuring the utmost manoeuvring comfort.
The braking efficacy may be adjusted with a socket head screw M8.

STANDARD EXECUTIONS
- **PSL-N**: fixed plate bracket, without brake.
- **SSL-N**: turning plate bracket, without brake.
- **SSF-N**: turning plate bracket, with brake.
- **FSL-N**: turning plate bracket and centre pass-through hole, without brake.
- **FSF-N**: turning plate bracket and centre pass-through hole, with brake.

APPLICATIONS
Excellent smoothness and elasticity features, high wear and tearing resistance.
For further information see RE.F5 (on page 1958).

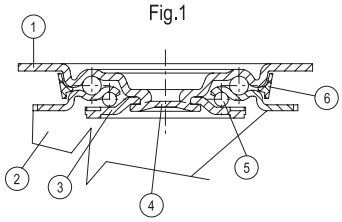








Fig.1

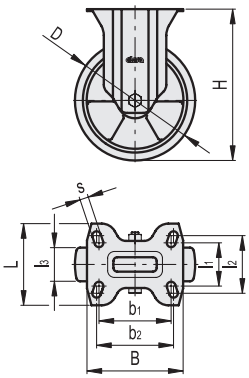


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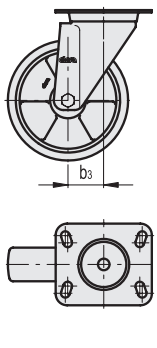
RE.F5-N

Mould-on polyurethane wheels

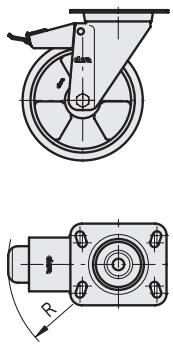
RE.F5-PSL-N



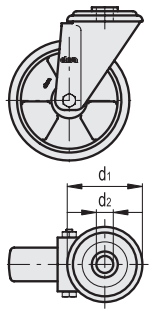
RE.F5-SSL-N



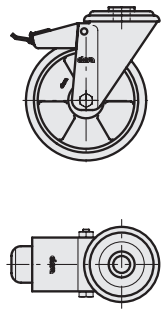
RE.F5-SSF-N



RE.F5-FSL-N



RE.F5-FSF-N



Code	Description	D	d1	d2	l1	l2	l3	H	B	L	s	b1	b2	b3	R	Rolling resistance# [N]	Dynamic carrying capacity# [N]	⚖
451651	RE.F5-080-PSL-N	80	-	-	45	60	25	107	100	85	9	75	80	-	-	1500	2000	520
451656	RE.F5-100-PSL-N	100	-	-	45	60	30	128	100	85	9	75	80	-	-	2250	2000	690
451661	RE.F5-125-PSL-N	125	-	-	45	60	35	156	100	85	9	75	80	-	-	2800	2200	890
451666	RE.F5-150-PSL-N	150	-	-	73	87	40	194	140	110	11	105	105	-	-	3300	3000	2040
451671	RE.F5-200-PSL-N	200	-	-	73	87	50	240	140	110	11	105	105	-	-	3600	3000	2760
451551	RE.F5-080-SSL-N	80	-	-	45	60	25	107	100	85	9	75	80	39	-	1500	2000	720
451556	RE.F5-100-SSL-N	100	-	-	45	60	30	128	100	85	9	75	80	35	-	2250	2000	940
451561	RE.F5-125-SSL-N	125	-	-	45	60	35	156	100	85	9	75	80	37	-	2800	2200	1140
451565	RE.F5-150-SSL-N	150	-	-	73	87	40	194	140	110	11	105	105	56	-	3300	3000	2340
451571	RE.F5-200-SSL-N	200	-	-	73	87	50	240	140	110	11	105	105	56	-	3600	3000	3050
451601	RE.F5-080-SSF-N	80	-	-	45	60	25	107	100	85	9	75	80	39	120	1500	2000	910
451606	RE.F5-100-SSF-N	100	-	-	45	60	30	128	100	85	9	75	80	35	120	2250	2000	1080
451611	RE.F5-125-SSF-N	125	-	-	45	60	35	156	100	85	9	75	80	37	120	2800	2200	1280
451615	RE.F5-150-SSF-N	150	-	-	73	87	40	194	140	110	11	105	105	56	156	3300	3000	2630
451621	RE.F5-200-SSF-N	200	-	-	73	87	50	240	140	110	11	105	105	56	156	3600	3000	3250
451851	RE.F5-080-FSL-N	80	73	12	-	-	25	107	-	-	-	-	-	39	-	1500	2000	650
451856	RE.F5-100-FSL-N	100	73	12	-	-	30	128	-	-	-	-	-	35	-	2250	2000	880
451861	RE.F5-125-FSL-N	125	73	12	-	-	35	156	-	-	-	-	-	37	-	2800	2200	1080
451866	RE.F5-150-FSL-N	150	102	20	-	-	40	194	-	-	-	-	-	56	-	3300	3000	2200
451871	RE.F5-200-FSL-N	200	102	20	-	-	50	240	-	-	-	-	-	56	-	3600	3000	2950
451901	RE.F5-080-FSF-N	80	73	12	-	-	25	107	-	-	-	-	-	39	120	1500	2000	780
451906	RE.F5-100-FSF-N	100	73	12	-	-	30	128	-	-	-	-	-	35	120	2250	2000	1020
451911	RE.F5-125-FSF-N	125	73	12	-	-	35	156	-	-	-	-	-	37	120	2800	2200	1230
451916	RE.F5-150-FSF-N	150	102	20	-	-	40	194	-	-	-	-	-	56	156	3300	3000	2490
451921	RE.F5-200-FSF-N	200	102	20	-	-	50	240	-	-	-	-	-	56	156	3600	3000	3240

For rolling resistance and dynamic carrying capacity see Technical Data on page 2014.

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RoHS 3500 - 7500 N

Mould-on polyurethane wheels

Steel sheet bracket for medium-heavy loads

COVERING
Mould-on polyurethane, hardness 95 Shore A.

WHEEL CENTRE BODY
Pressure die-cast aluminium.

ROLLING ACTION
Hub with ball bearings. Ideal solution for heavy loads and continuous moving.

FIXED PLATE BRACKET
Yellow zinc-plated steel sheet (test in saline fog chamber above 72h). The bracket is designed to withstand loads up to 7500N. It ensures capacities that make it suitable for heavy industrial applications.

TURNING PLATE BRACKET
Yellow zinc-plated steel sheet (test in saline fog chamber above 72h). The bracket is designed to withstand loads up to 7500N. It ensures capacities that make it suitable for heavy industrial applications.
It consists of (see Fig.1):
1. fitting plate: yellow zinc-plated steel sheet;
2. fork: yellow zinc-plated steel sheet;
3. ball race ring: yellow zinc-plated steel sheet;
4. central pin: class 8.8 steel screw and steel nut;
5. rotation system: dual grease-lubricated ball race;
6. dust seal: RAL 7015 dark grey technopolymer.

BRAKE
Front brake (RE.F5-125) or rear brake (RE.F5-150-200) dual-effect with simultaneous locking of wheel and bracket.
The brake is simple and effective to use: it is actuated and released by a simple action from the top downward at the tip of two separate pedals, thus ensuring the utmost manoeuvring comfort.
The braking efficacy may be adjusted with a socket head screw M8.

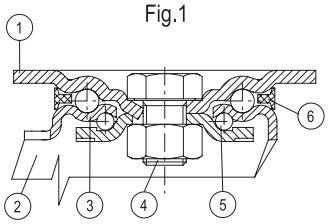
STANDARD EXECUTIONS
- **PSL-H**: fixed bracket, without brake.
- **SSL-H**: turning plate bracket, without brake.
- **SSF-H**: turning plate bracket, with brake.

APPLICATIONS
Excellent smoothness and elasticity features, high wear and tearing resistance.
For further information see RE.F5 on page 1958.



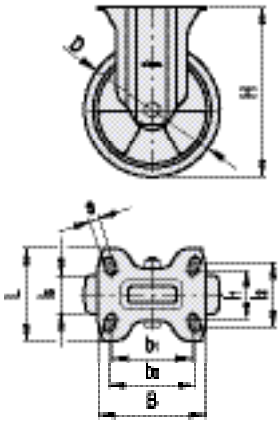


Fig.1

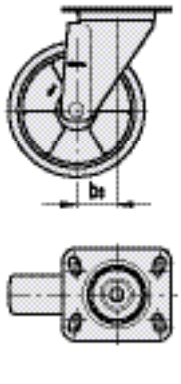


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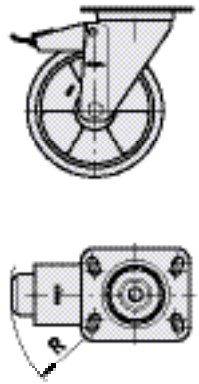
RE.F5-PSL-H



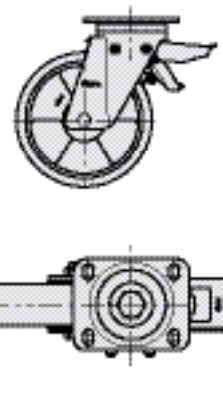
RE.F5-SSL-H



RE.F5-125-SSF-H



RE.F5-150-SSF-H
RE.F5-200-SSF-H



Code	Description	D	l1	l2	l3	H	B	L	s	b1	b2	b3	R	Rolling resistance# [N]	Dynamic carrying capacity# [N]	⚖
451801	RE.F5-125-PSL-H	125	45	60	35	161	100	85	9	75	80	-	-	2800	3500	970
451806	RE.F5-150-PSL-H	150	73	85	40	200	140	114	11	105	105	-	-	3300	6000	2190
451811	RE.F5-200-PSL-H	200	73	85	50	250	140	114	11	105	105	-	-	3600	7500	2480
451701	RE.F5-125-SSL-H	125	45	60	35	161	100	85	9	75	80	48	-	2800	3500	1390
451706	RE.F5-150-SSL-H	150	73	87	40	200	140	110	11	105	105	70	-	3300	6000	3180
451711	RE.F5-200-SSL-H	200	73	87	50	250	140	110	11	105	105	70	-	3600	7500	3940
451751	RE.F5-125-SSF-H	125	45	60	35	161	100	85	9	75	80	48	120	2800	3500	1540
451756	RE.F5-150-SSF-H	150	73	87	40	200	140	110	11	105	105	70	146	3300	6000	3750
451761	RE.F5-200-SSF-H	200	73	87	50	250	140	110	11	105	105	70	146	3600	7500	4510

For rolling resistance and dynamic carrying capacity see Technical Data on page 2014.

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Soft polyurethane wheels

Aluminium centre body

COVERING
Soft mould-on polyurethane, hardness 75 Shore A.

WHEEL CENTRE BODY
Pressure die-cast aluminium.

ROLLING ACTION
Hub with ball bearings. Ideal solution for heavy loads and continuous moving.

APPLICATIONS
Excellent smoothness and elasticity features, high wear and tearing resistance.
For selection parameters see Technical data on page 2013.
RE.F2 wheels are supplied also with bracket:
- RE.F2-N (see page 1964): wheels with steel sheet bracket to be used for light loads.
- RE.F2-H (see page 1966): wheels with steel sheet bracket to be used for medium-heavy loads.
- RE.F2-WH (see page 1968): wheels with electro-welded steel bracket to be used for heavy loads.

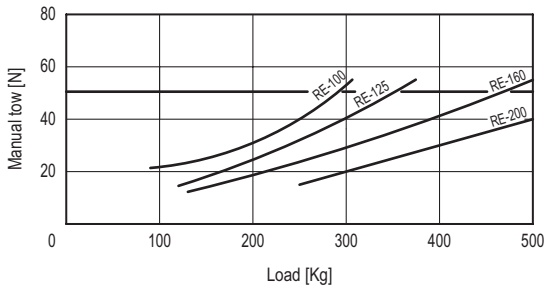
ENVIRONMENTAL CONDITIONS
Suitable for use in environments with the presence of atmospheric agents, alcohols and glycols; use in environments with the presence of organic and mineral acids, basic solutions and saturated vapour is not recommended.

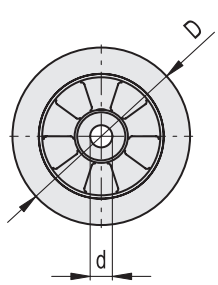
ROLLING RESISTANCE - FORCE / LOAD APPLIED
The diagram shows the force to be applied to a wheel to keep it moving at the constant speed of 4 km/h, according to the applied load.
The intersection point with a 50N value is the maximum transportable load with a manually actuated 4-wheel trolley; in fact, 200N = 50N x 4 wheels is the maximum force that may be supported by the operator according to the regulations in force regarding work safety.

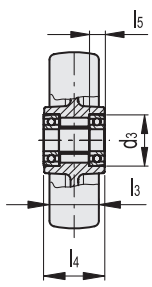
MECHANICAL MOVING WITH TOWING DEVICES
For mechanical towing, please see the technical specifications to determine the capacity variation.

TEMPERATURE
If operating temperatures in an application differ from the standard range of values, please see the technical specifications to determine the capacity variation.









Code	Description	D	d	d3	l3	l4	l5	Static load# [N]	Rolling resistance# [N]	Dynamic carrying capacity# [N]	⚖
452411	RE.F2-100-RSL	100	15	32	40	40	10	4000	3000	3000	480
452412	RE.F2-125-RSL	125	20	47	40	50	14	5000	3500	3500	810
452413	RE.F2-160-RSL	160	20	47	50	58	14.5	8000	5500	5500	1250
452414	RE.F2-200-RSL	200	20	47	50	60	14.5	10000	7000	7000	1850

For static load, rolling resistance and dynamic carrying capacity see Technical Data on page 2014.

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RoHS 2000 N

Soft polyurethane wheels

Steel sheet bracket

COVERING
Soft mould-on polyurethane, hardness 75 Shore A.

WHEEL CENTRE BODY
Pressure die-cast aluminium.

ROLLING ACTION
Hub with ball bearings. Ideal solution for heavy loads and continuous moving.

FIXED PLATE BRACKET
Zinc-plated steel sheet, the bracket is designed to withstand loads up to 2000N.

TURNING PLATE BRACKET
Zinc-plated steel sheet, the bracket is designed to withstand loads up to 2000N.
The presence of a double ball race turns and the direct contact between the plate and the ball race ring with built-in pin ensure excellent manoeuvrability.
Does not require maintenance.
It consists of (see Fig.1):
1. fitting plate: electrolytically zinc-plated steel plate;
2. fork: electrolytically zinc-plated steel plate;
3. ball race ring: electrolytically zinc-plated steel plate;
4. central pin: incorporated in the plate, cold reflanged;
5. rotation system: dual grease-lubricated ball race;
6. dust seal: RAL 7015 dark grey technopolymer.

BRAKE
Total brake that locks the wheel and bracket rotation.
The optimised dimensions and the retractable pedal ensure minimal space occupied and maximum actuation ease.
Hardened carbon steel spring.
The trolley must be turned to use the device.
The brake is simple and effective to use: it is actuated and released by a simple action from the top downward at the tip of two separate pedals, thus ensuring the utmost manoeuvring comfort.
The braking efficacy may be adjusted with a socket head screw M8.

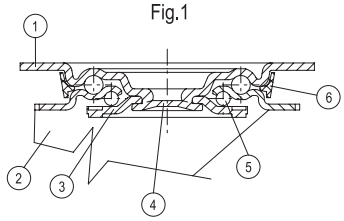
STANDARD EXECUTIONS
- **PSL-N**: fixed plate bracket, without brake.
- **SSL-N**: turning plate bracket, without brake.
- **SSF-N**: turning plate bracket, with brake.

APPLICATIONS
Excellent smoothness and elasticity features, high wear and tearing resistance.
For further information see RE.F2 on page 1963.



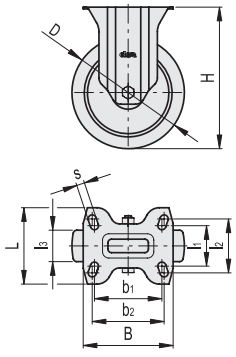


Fig.1

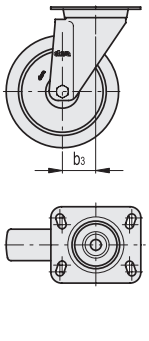


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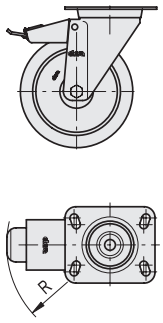
RE.F2-PSL-N



RE.F2-SSL-N



RE.F2-SSF-N



Code	Description	D	l1	l2	l3	H	B	L	s	b1	b2	b3	R	Rolling resistance# [N]	Dynamic carrying capacity# [N]	⚖
452466	RE.F2-100-PSL-N	100	45	60	40	128	100	85	9	75	80	-	-	3000	2000	690
452426	RE.F2-100-SSL-N	100	45	60	40	128	100	85	9	75	80	37	-	3000	2000	940
452446	RE.F2-100-SSF-N	100	45	60	40	128	100	85	9	75	80	37	120	3000	2000	1080

For rolling resistance and dynamic carrying capacity see Technical Data on page 2014.

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RoHS 3000 - 7000 N

Soft polyurethane wheels

Steel sheet bracket for medium-heavy loads



COVERING
Soft mould-on polyurethane, hardness 75 Shore A.

WHEEL CENTRE BODY
Pressure die-cast aluminium.

ROLLING ACTION
Hub with ball bearings. Ideal solution for heavy loads and continuous moving.

FIXED PLATE BRACKET
Yellow zinc-plated steel sheet (test in saline fog chamber above 72h). The bracket is designed to withstand loads up to 7000N. It ensures capacities that make it suitable for heavy industrial applications.

TURNING PLATE BRACKET
Yellow zinc-plated steel sheet (test in saline fog chamber above 72h). The bracket is designed to withstand loads up to 7000N. It ensures capacities that make it suitable for heavy industrial applications.
It consists of (see Fig.1):
1. fitting plate: yellow zinc-plated steel sheet;
2. fork: yellow zinc-plated steel sheet;
3. ball race ring: yellow zinc-plated steel sheet;
4. central pin: class 8.8 steel screw and steel nut;
5. rotation system: dual grease-lubricated ball race;
6. dust seal: RAL 7015 dark grey technopolymer.

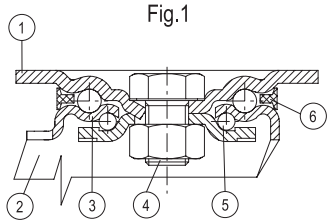


BRAKE
Front brake (RE.F2-100) or rear brake (RE.F2-125-160-200) dual-effect with simultaneous locking of wheel and bracket.
The brake is simple and effective to use: it is actuated and released by a simple action from the top downward at the tip of two separate pedals, thus ensuring the utmost manoeuvring comfort.
The braking efficacy may be adjusted with a socket head screw M8.

STANDARD EXECUTIONS
- **PSL-H**: fixed bracket, without brake.
- **SSL-H**: turning plate bracket, without brake.
- **SSF-H**: turning plate bracket, with brake.

APPLICATIONS
Excellent smoothness and elasticity features, high wear and tearing resistance.
For further information see RE.F2 on page 1963.

Fig.1

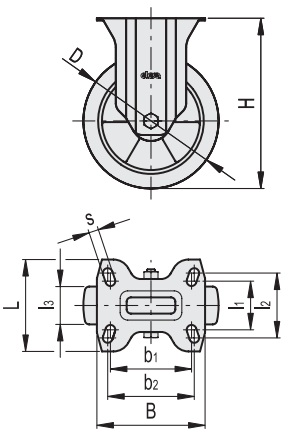


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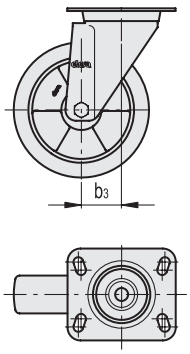
RE.F2-H

Soft polyurethane wheels

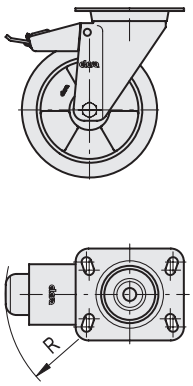
RE.F2-PSL-H



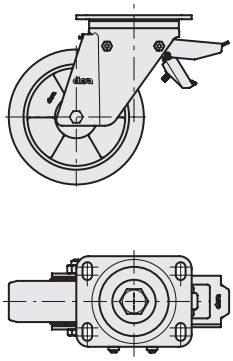
RE.F2-SSL-H



RE.F2-100-SSF-H



RE.F2-125-SSF-H
RE.F2-160-SSF-H
RE.F2-200-SSF-H



RE.F2-PSL-H

Code	Description	D	l1	l2	l3	H	B	L	s	b1	b2	Rolling resistance# [N]	Dynamic carrying capacity# [N]	⚖
452461	RE.F2-100-PSL-H	100	45	60	40	138	100	85	9	75	80	3000	3000	850
452462	RE.F2-125-PSL-H	125	73	87	40	170	140	110	11	105	105	3500	3500	1690
452463	RE.F2-160-PSL-H	160	73	87	50	205	140	110	11	105	105	5500	5500	2110
452464	RE.F2-200-PSL-H	200	73	87	50	250	140	110	11	105	105	7000	7000	2850

RE.F2-SSL-H

Code	Description	D	l1	l2	l3	H	B	L	s	b1	b2	b3	Rolling resistance# [N]	Dynamic carrying capacity# [N]	⚖
452421	RE.F2-100-SSL-H	100	45	60	40	138	100	85	9	75	80	46	3000	3000	1350
452422	RE.F2-125-SSL-H	125	73	87	40	170	140	110	11	105	105	70	3500	3500	2330
452423	RE.F2-160-SSL-H	160	73	87	50	205	140	110	11	105	105	70	5500	5500	2600
452424	RE.F2-200-SSL-H	200	73	87	50	250	140	110	11	105	105	70	7000	7000	4310

RE.F2-SSF-H

Code	Description	D	l1	l2	l3	H	B	L	s	b1	b2	b3	R	Rolling resistance# [N]	Dynamic carrying capacity# [N]	⚖
452441	RE.F2-100-SSF-H	100	45	60	40	138	100	85	9	75	80	46	123	3000	3000	1520
452442	RE.F2-125-SSF-H	125	73	87	40	170	140	110	11	105	105	70	126	3500	3500	2860
452443	RE.F2-160-SSF-H	160	73	87	50	205	140	110	11	105	105	70	126	5500	5500	4170
452444	RE.F2-200-SSF-H	200	73	87	50	250	140	110	11	105	105	70	126	7000	7000	4910

For rolling resistance and dynamic carrying capacity see Technical Data on page 2014.

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RoHS 5500 - 7000 N

Soft polyurethane wheels

Electro-welded steel bracket for heavy loads

COVERING
Soft mould-on polyurethane, hardness 75 Shore A.

WHEEL CENTRE BODY
Pressure die-cast aluminium.

ROLLING ACTION
Hub with ball bearings. Ideal solution for heavy loads and continuous moving.

FIXED PLATE BRACKET
Electrolytically zinc-plated electro-welded steel. The bracket is designed to withstand loads up to 7000N. Suitable for heavy industrial applications and for severe conditions of use, such as impact and high speeds.

TURNING PLATE BRACKET
Electrolytically zinc-plated electro-welded steel. The presence of an axial bearing and a conical bearing ensures excellent manoeuvrability also at full load and increases the resistance of the bracket against side impact. It is equipped with lubricator and anti-loosening system of the locking nut.The bracket is designed to withstand loads up to 7000N. Suitable for heavy industrial applications and for severe conditions of use, such as impact and high speeds.
It consists of (see fig.1):
1. fitting plate: forged steel with built-in pin, electrolytically zinc-plated;
2. fork: drawn sides electro-welded to the flange, electrolytically zinc-plated;
3. rotation system: axial ball bearing and conical roller bearing;
4. lubricator;
5. anti-loosening system of the locking nut.

BRAKE
Dual-effect rear brake with simultaneous locking of wheel and bracket. The brake is simple and effective to use: it is actuated and released by a simple action from the top downward at the tip of two separate pedals, thus ensuring the utmost manoeuvring comfort. The braking efficacy may be adjusted with a socket head screw M8.

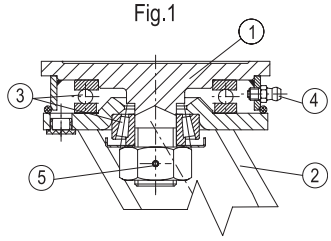
STANDARD EXECUTIONS
- **PSL-WH**: fixed plate bracket, without brake.
- **SSL-WH**: turning plate bracket, without brake.
- **SSF-WH**: turning plate bracket, with brake.

APPLICATIONS
Suitable for heavy industrial applications and severe conditions of use, such as impact and high speeds. The mould-on polyurethane wheel ensures excellent rolling resistance and elasticity, high wear and tearing resistance. For further information see RE.F2 on page 1963.





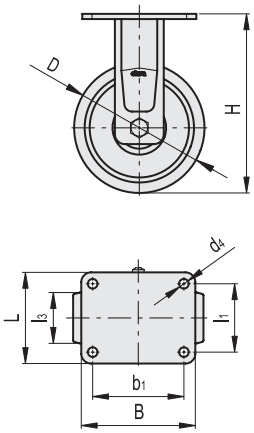
Fig.1



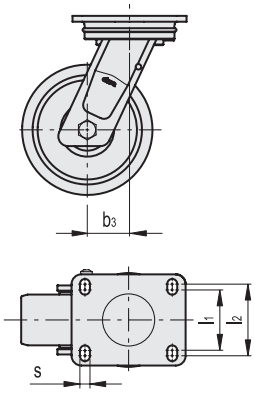
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RE.F2-WH | Soft polyurethane wheels

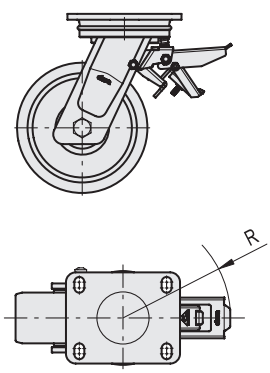
RE.F2-PSL-WH



RE.F2-SSL-WH



RE.F2-SSF-WH



RE.F2-PSL-WH

Code	Description	D	d4	l1	l3	H	B	L	b1	Rolling resistance# [N]	Dynamic carrying capacity# [N]	⚖
452473	RE.F2-160-PSL-WH	160	11	80	50	215	135	110	105	5500	5500	3260
452474	RE.F2-200-PSL-WH	200	11	80	50	252	135	110	105	7000	7000	3990

RE.F2-SSL-WH

Code	Description	D	l1	l2	l3	H	B	L	s	b1	b3	Rolling resistance# [N]	Dynamic carrying capacity# [N]	⚖
452433	RE.F2-160-SSL-WH	160	73	87	50	215	135	110	11	105	60	5500	5500	4250
452434	RE.F2-200-SSL-WH	200	73	87	50	252	135	110	11	105	70	7000	7000	4970

RE.F2-SSF-WH

Code	Description	D	l1	l2	l3	H	B	L	s	b1	b3	R	Rolling resistance# [N]	Dynamic carrying capacity# [N]	⚖
452453	RE.F2-160-SSF-WH	160	73	87	50	215	135	110	11	105	60	157	5500	5500	5130
452454	RE.F2-200-SSF-WH	200	73	87	50	252	135	110	11	105	70	157	7000	7000	6310

For rolling resistance and dynamic carrying capacity see Technical Data on page 2014.

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Mould-on polyurethane wheels

Cast iron centre body

COVERING
Mould-on polyurethane, hardness 95 Shore A.

WHEEL CENTRE BODY
Cast iron.

STANDARD EXECUTIONS
- **RBL**: hub directly made into the centre. The wheel hub is designed to be easily reprocessed to obtain a keyway or housing for clamping. Any further reprocesses on the wheel must be carried out with maximum working temperature up to 80°C, (recommended max limit temperature during normal use of the product) to prevent degradation of the polyurethane coating.Ideal solution for equipment with drive wheels.
- **RSL**: hub with ball bearings. Ideal solution for heavy loads and continuous moving.

APPLICATIONS
Excellent smoothness and elasticity features, high wear and tearing resistance.
For selection parameters see Technical Data on page 2013.
RE.F4 wheels are supplied also with bracket:
- RE.F4-H (see page 1972): wheels with steel sheet bracket to be used for medium-heavy loads.
- RE.F4-WH (see page 1974): wheels with electro-welded steel bracket to be used for heavy loads
- RE.F4-WEH (see page 1976): wheels with electro-welded steel bracket to be used for extra-heavy loads.

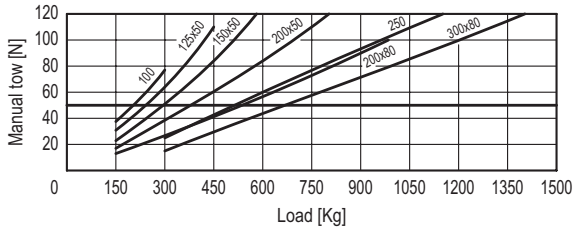
ENVIRONMENTAL CONDITIONS
Suitable for use in environments with the presence of atmospheric agents, alcohols and glycols; use in environments with the presence of organic and mineral acids, basic solutions and saturated vapour is not recommended.

ROLLING RESISTANCE - FORCE / LOAD APPLIED
The diagram shows the force to be applied to a wheel to keep it moving at the constant speed of 4 km/h, according to the applied load.
The intersection point with a 50N value is the maximum transportable load with a manually actuated 4-wheel trolley; in fact, 200N = 50N x 4 wheels is the maximum force that may be supported by the operator according to the regulations in force regarding work safety.

MECHANICAL MOVING WITH TOWING DEVICES
For mechanical towing, please see the technical specifications to determine the capacity variation.

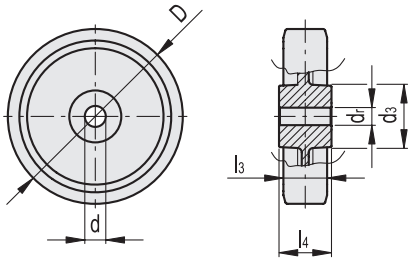
TEMPERATURE
If operating temperatures in an application differ from the standard range of values, please see the technical specifications to determine the capacity variation.
Hole with keyway in compliance with UNI 6604, UNI 6607 e ISO 2941 (RBL version).



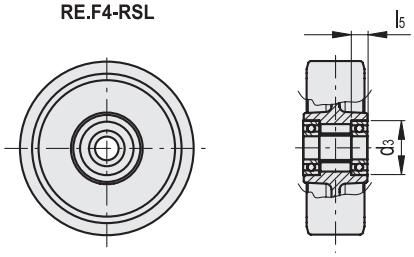


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RE.F4-RBL



RE.F4-RSL



RE.F4-RBL

Code	Description	D	d	d3	dr *	l3	l4	Static load# [N]	Dynamic carrying capacity# [N]	⚖
451401	RE.F4-100-RBL	100	15	55	30	40	45	5000	3000	1500
451402	RE.F4-125-RBL	125	20	60	30	40	60	6000	4000	1300
451403	RE.F4-150-RBL	150	20	70	40	50	60	9100	7000	3700
451404	RE.F4-200-RBL	200	20	70	40	50	60	15000	9500	4600
451405	RE.F4-250-RBL	250	40	95	60	80	80	28000	16000	11000
451406	RE.F4-300-RBL	300	50	120	80	100	100	42000	25000	21200

RE.F4-RSL

Code	Description	D	d	d3	l3	l4	l5	Static load# [N]	Rolling resistance# [N]	Dynamic carrying capacity# [N]	⚖
451411	RE.F4-100-RSL	100	15	35	38	40	11	5000	2200	3800	1020
451412	RE.F4-125-RSL	125	20	47	50	55	14	8000	2700	5500	1980
451413	RE.F4-150x50-RSL	150	20	47	50	55	14	9100	2900	7000	2500
451410	RE.F4-150x80-RSL	150	25	62	80	88	18	17000	4000	10000	5690
451414	RE.F4-200x50-RSL	200	20	47	50	55	14	15000	3800	10000	3650
451415	RE.F4-200x80-RSL	200	25	62	80	86	17	20000	4500	16000	7260
451416	RE.F4-250-RSL	250	25	62	80	86	17	28000	5000	19000	9810
451417	RE.F4-300-RSL	300	30	62	80	86	17	34000	6000	23000	13800

***** Max diameter permissible for hole to ensure the static load values reported.

For static load, rolling resistance and dynamic carrying capacity see Technical Data on page 2014.

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RoHS 3500 - 7500 N

Mould-on polyurethane wheels

Steel sheet bracket for medium-heavy loads



COVERING
Mould-on polyurethane, hardness 95 Shore A.

WHEEL CENTRE BODY
Cast iron.

ROLLING ACTION
Hub with ball bearings. Ideal solution for heavy loads and continuous moving.

FIXED PLATE BRACKET
Yellow zinc-plated steel sheet (test in saline fog chamber above 72h). The bracket is designed to withstand loads up to 7500N. It ensures capacities that make it suitable for heavy industrial applications.

TURNING PLATE BRACKET
Yellow zinc-plated steel sheet (test in saline fog chamber above 72h). The presence of a double ball race turns and the direct contact between the plate and the ball race ring with built-in pin ensure excellent manoeuvrability. Does not require maintenance. The bracket is designed to withstand loads up to 7500N. It ensures capacities that make it suitable for heavy industrial applications.
It consists of (see Fig.1):
1. fitting plate: yellow zinc-plated steel sheet;
2. fork: yellow zinc-plated steel sheet;
3. ball race ring: yellow zinc-plated steel sheet;
4. central pin: class 8.8 steel screw and steel nut;
5. rotation system: dual grease-lubricated ball race;
6. dust seal: RAL 7015 dark grey technopolymer.

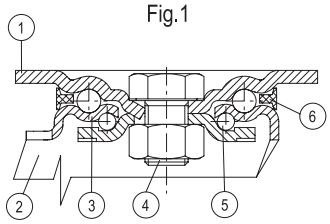


BRAKE
Front brake (RE.F4-100) or rear brake (RE.F4-125-150-200) dual-effect with simultaneous locking of wheel and bracket. The brake is simple and effective to use: it is actuated and released by a simple action from the top downward at the tip of two separate pedals, thus ensuring the utmost manoeuvring comfort.The braking efficacy may be adjusted with a socket head screw M8.

STANDARD EXECUTIONS
- **PSL-H**: fixed bracket, without brake.
- **SSL-H**: turning plate bracket, without brake.
- **SSF-H**: turning plate bracket, with brake.

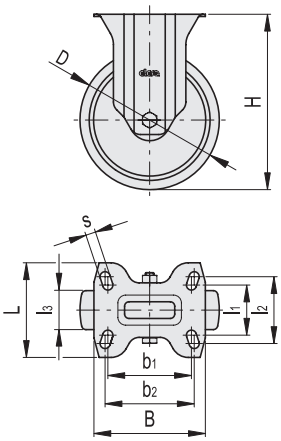
APPLICATIONS
Suitable for heavy industrial applications. The mould-on polyurethane wheel ensures excellent rolling resistance and elasticity, high wear and tearing resistance. For further information see RE.F4 on page 1970.

Fig.1

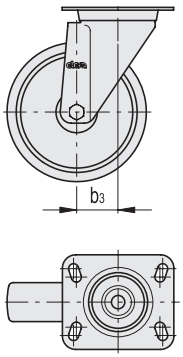


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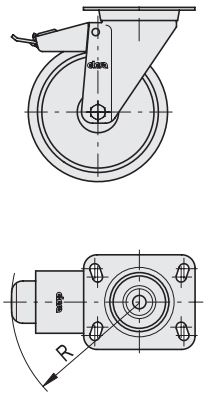
RE.F4-PSL-H



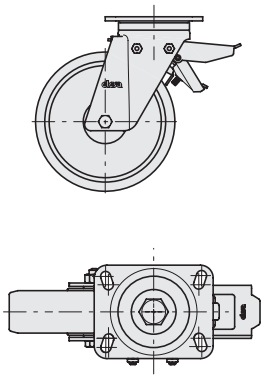
RE.F4-SSL-H



RE.F4-100-SSF-H



RE.F4-125-SSF-H
RE.F4-150-SSF-H
RE.F4-200-SSF-H



Code	Description	D	l1	l2	l3	H	B	L	s	b1	b2	b3	R	Rolling resistance# [N]	Dynamic carrying capacity# [N]	⚖
451461	RE.F4-100-PSL-H	100	45	60	38	138	100	85	9	75	80	-	-	2200	3500	1520
451462	RE.F4-125-PSL-H	125	73	87	50	170	140	110	11	105	-	-	-	2700	5500	2650
451463	RE.F4-150-PSL-H	150	73	87	50	200	140	110	11	105	-	-	-	2900	7000	3550
451464	RE.F4-200-PSL-H	200	73	87	50	250	140	110	11	105	-	-	-	3800	7500	5150
451421	RE.F4-100-SSL-H	100	45	60	38	138	100	85	9	75	80	46	-	2200	3500	1930
451422	RE.F4-125-SSL-H	125	73	87	50	170	140	110	11	105	-	70	-	2700	5500	3660
451423	RE.F4-150-SSL-H	150	73	87	50	200	140	110	11	105	-	70	-	2900	7000	4810
451424	RE.F4-200-SSL-H	200	73	87	50	250	140	110	11	105	-	70	-	3800	7500	6060
451441	RE.F4-100-SSF-H	100	45	60	38	138	100	85	9	75	80	46	123	2200	3500	2060
451442	RE.F4-125-SSF-H	125	73	87	50	170	140	110	11	105	-	70	126	2700	5500	4240
451443	RE.F4-150-SSF-H	150	73	87	50	200	140	110	11	105	-	70	126	2900	7000	5330
451444	RE.F4-200-SSF-H	200	73	87	50	250	140	110	11	105	-	70	126	3800	7500	6660

For rolling resistance and dynamic carrying capacity see Technical Data on page 2014.

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Mould-on polyurethane wheels

Electro-welded steel bracket for heavy loads

COVERING
Mould-on polyurethane, hardness 95 Shore A.

WHEEL CENTRE BODY
Cast iron.

ROLLING ACTION
Hub with ball bearings. Ideal solution for heavy loads and continuous moving.

FIXED PLATE BRACKET
Electrolytically zinc-plated electro-welded steel. The bracket is designed to withstand loads up to 9000N. Suitable for heavy industrial applications and for severe conditions of use, such as impact and high speeds.

TURNING PLATE BRACKET
Electrolytically zinc-plated electro-welded steel. The presence of an axial bearing and a conical bearing ensures excellent manoeuvrability also at full load and increases the resistance of the bracket against side impact. It is equipped with lubricator and anti-loosening system of the locking nut.The bracket is designed to withstand loads up to 9000N. Suitable for heavy industrial applications and for severe conditions of use, such as impact and high speeds.
It consists of (see fig.1):
1. fitting plate: forged steel with built-in pin, electrolytically zinc-plated;
2. fork: drawn sides electro-welded to the flange, electrolytically zinc-plated;
3. rotation system: axial ball bearing and conical roller bearing;
4. lubricator;
5. anti-loosening system of the locking nut.

BRAKE
Dual-effect rear brake with simultaneous locking of wheel and bracket. The brake is simple and effective to use: it is actuated and released by a simple action from the top downward at the tip of two separate pedals, thus ensuring the utmost manoeuvring comfort. The braking efficacy may be adjusted with a socket head screw M8.

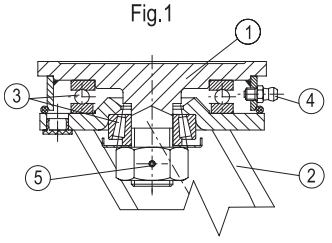
STANDARD EXECUTIONS
- **PSL-WH**: fixed plate bracket, without brake.
- **SSL-WH**: turning plate bracket, without brake.
- **SSF-WH**: turning plate bracket, with brake.

APPLICATIONS
Suitable for heavy industrial applications and severe conditions of use, such as impact and high speeds. The mould-on polyurethane wheel ensures excellent rolling resistance and elasticity, high wear and tearing resistance. For further information see RE.F4 on page 1970.





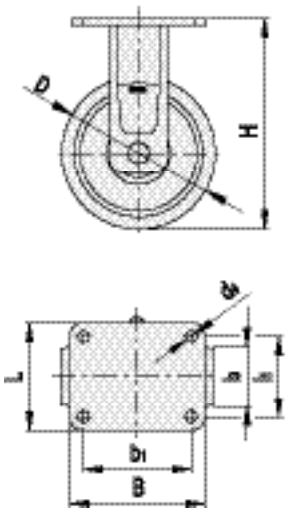
Fig.1



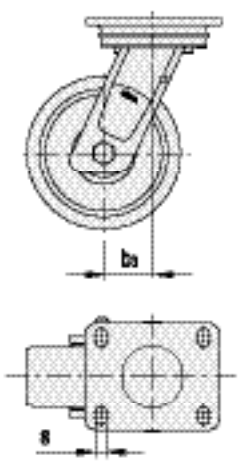
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RE.F4-WH | Mould-on polyurethane wheels

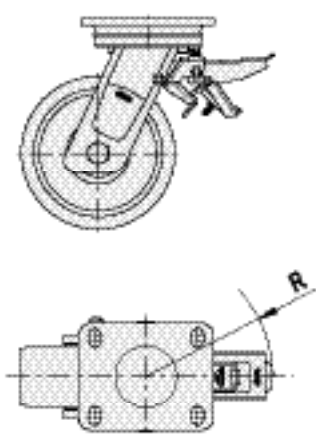
RE.F4-PSL-WH



RE.F4-SSL-WH



RE.F4-SSF-WH



Code	Description	D	d4	l1	l3	H	B	L	s	b1	b3	R	Rolling resistance# [N]	Dynamic carrying capacity# [N]	⚖
451465	RE.F4-125-PSL-WH	125	11	80	50	182	135	110	-	105	-	-	2700	5500	3900
451466	RE.F4-150-PSL-WH	150	11	80	50	210	135	110	-	105	-	-	2900	7000	4510
451467	RE.F4-200-PSL-WH	200	11	80	50	252	135	110	-	105	-	-	3800	9000	5790
451425	RE.F4-125-SSL-WH	125	-	80	50	182	135	110	11	105	51	-	2700	5500	4880
451426	RE.F4-150-SSL-WH	150	-	80	50	210	135	110	11	105	60	-	2900	7000	5500
451427	RE.F4-200-SSL-WH	200	-	80	50	252	135	110	11	105	70	-	3800	9000	6770
451446	RE.F4-125-SSF-WH	125	-	80	50	182	135	110	11	105	51	157	2700	5500	5760
451447	RE.F4-150-SSF-WH	150	-	80	50	210	135	110	11	105	60	157	2900	7000	6380
451448	RE.F4-200-SSF-WH	200	-	80	50	252	135	110	11	105	70	157	3800	9000	7650

For rolling resistance and dynamic carrying capacity see Technical Data on page 2014.

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RoHS 10000 - 23000 N

Mould-on polyurethane wheels

Electro-welded steel bracket for extra-heavy loads

COVERING
Mould-on polyurethane, hardness 95 Shore A.

WHEEL CENTRE BODY
Cast iron.

ROLLING ACTION
Hub with ball bearings. Ideal solution for heavy loads and continuous moving.

FIXED PLATE BRACKET
Electro-welded steel with dark green powder coating. The bracket is designed to withstand loads up to 23000 N. Suitable for heavy industrial applications and for severe conditions of use, such as impact and high speeds.

TURNING PLATE BRACKET
Electro-welded steel with dark green powder coating.
The presence of an axial bearing and a conical bearing ensures excellent manoeuvrability also at full load and increases the resistance of the bracket against side impact. It is equipped with lubricator and anti-loosening system of the locking nut. The bracket is designed to withstand loads up to 23000 N. Suitable for heavy industrial applications and for severe conditions of use, such as impact and high speeds.
It consists of (see Fig.1):
1. fitting plate: forged steel with built-in pin, dark green powder coating;
2. fork: drawn sides electro-welded to the flange, dark green powder coating;
3. rotation system: axial ball bearing and conical roller bearing;
4. lubricator;
5. anti-loosening system of the locking nut.

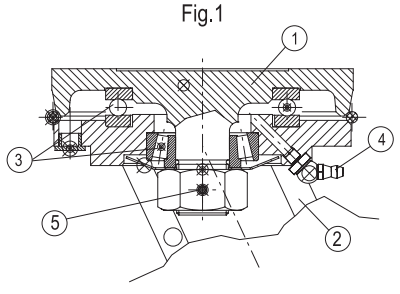
BRAKE
Dual-effect rear brake with simultaneous locking of wheel and bracket. The brake is simple and effective to use: it is actuated and released by a simple action from the top downward at the tip of two separate pedals, thus ensuring the utmost manoeuvring comfort. The braking efficacy may be adjusted with a socket head screw M8.

STANDARD EXECUTIONS
- **PSL-WEH**: fixed plate bracket, without brake.
- **SSL-WEH**: turning plate bracket, without brake.
- **SSF-WEH**: turning plate bracket, with brake.

APPLICATIONS
Suitable for heavy industrial applications and severe conditions of use, such as impact and high speeds. The mould-on polyurethane wheel ensures excellent rolling resistance and elasticity, high wear and tearing resistance.For further information see RE.F4 on page 1970.



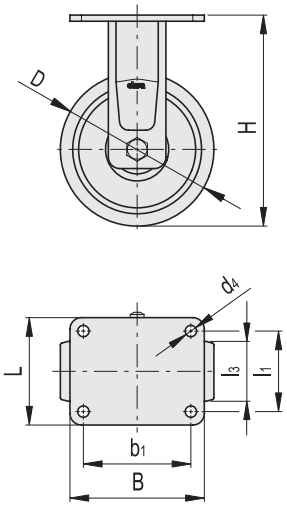
Fig.1



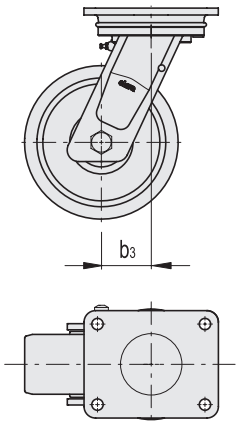
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RE.F4-WEH | Mould-on polyurethane wheels

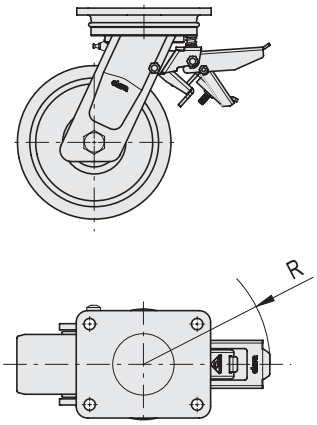
RE.F4-PSL-WEH



RE.F4-SSL-WEH



RE.F4-SSF-WEH



Code	Description	D	d4	l1	l3	H	B	L	b1	b3	R	Rolling resistance# [N]	Dynamic carrying capacity# [N]	⚖
451468	RE.F4-150-PSL-WEH	150	14	105	80	218	175	140	140	-	-	4000	10000	10610
451469	RE.F4-200-PSL-WEH	200	14	105	80	275	175	140	140	-	-	4500	16000	12180
451470	RE.F4-250-PSL-WEH	250	17	120	80	325	200	160	160	-	-	5000	19000	15230
451472	RE.F4-300-PSL-WEH	300	17	120	80	365	200	160	160	-	-	6000	23000	19320
451428	RE.F4-150-SSL-WEH	150	14	105	80	218	175	140	140	50	-	4000	10000	12150
451429	RE.F4-200-SSL-WEH	200	14	105	80	275	175	140	140	65	-	4500	16000	13720
451430	RE.F4-250-SSL-WEH	250	17	120	80	325	200	160	160	74	-	5000	19000	17560
451432	RE.F4-300-SSL-WEH	300	17	120	80	365	200	160	160	81	-	6000	23000	21670
451449	RE.F4-150-SSF-WEH	150	14	105	80	218	175	140	140	50	166	4000	10000	13030
451450	RE.F4-200-SSF-WEH	200	14	105	80	275	175	140	140	65	166	4500	16000	14600
451451	RE.F4-250-SSF-WEH	250	17	120	80	325	200	160	160	74	166	5000	19000	18440
451452	RE.F4-300-SSF-WEH	300	17	120	80	365	200	160	160	81	166	6000	23000	22550

For rolling resistance and dynamic carrying capacity see Technical Data on page 2014.

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Mould-on polyurethane rollers

Steel centre body

COVERING
Mould-on polyurethane, hardness 95 Shore A.

WHEEL CENTRE BODY
Steel.

ROLLING ACTION
Hub with ball bearings. Ideal solution for heavy loads and continuous moving.

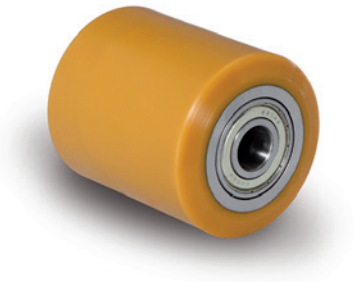
APPLICATIONS
Excellent smoothness and elasticity features, high wear and tearing resistance. For selection parameters see Technical Data on page 2013.

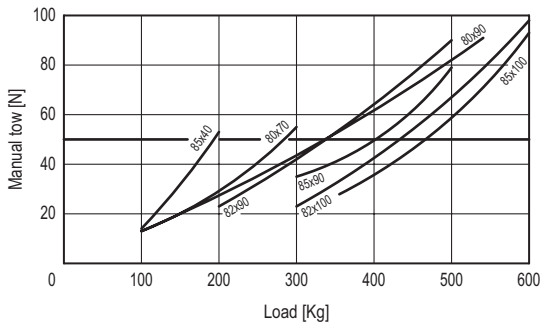
ENVIRONMENTAL CONDITIONS
Suitable for use in environments with the presence of atmospheric agents, alcohols and glycols; use in environments with the presence of organic and mineral acids, basic solutions and saturated vapour is not recommended.

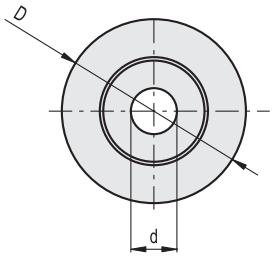
ROLLING RESISTANCE - FORCE / LOAD APPLIED
The diagram shows the force to be applied to a wheel to keep it moving at the constant speed of 4 km/h, according to the applied load. The intersection point with a 50N value is the maximum transportable load with a manually actuated 4-wheel trolley; in fact, 200N = 50N x 4 wheels is the maximum force that may be supported by the operator according to the regulations in force regarding work safety.

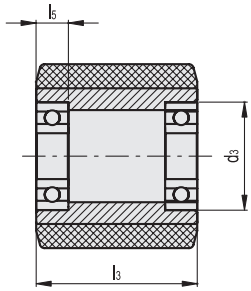
MECHANICAL MOVING WITH TOWING DEVICES
For mechanical towing, please see the technical specifications to determine the capacity variation.

TEMPERATURE
If operating temperatures in an application differ from the standard range of values, please see the technical specifications to determine the capacity variation.









Code	Description	D	d	d3	l3	l5	Static load# [N]	Rolling resistance# [N]	Dynamic carrying capacity# [N]	⚖
452791	RE.G5-80x70-RSL	80	20	47	70	14	8000	2500	7000	1060
452792	RE.G5-80x90-RSL	80	20	47	90	14	10000	3350	9000	1350
452797	RE.G5-82x70-RSL	82	20	47	70	14	8000	2550	7000	1090
452798	RE.G5-82x90-RSL	82	20	47	90	14	10000	3400	9000	1330
452799	RE.G5-82x100-RSL	82	20	47	100	14	11000	3900	10000	1450
452793	RE.G5-85x40-RSL	85	20	47	40	14	4500	1500	4000	720
452794	RE.G5-85x70-RSL	85	20	47	70	14	8000	2650	7000	1120
452795	RE.G5-85x90-RSL	85	20	47	90	14	10000	3500	9000	1390
452796	RE.G5-85x100-RSL	85	20	47	100	14	11000	4000	10000	1520

For static load, rolling resistance and dynamic carrying capacity see Technical Data on page 2014.

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Injected polyurethane wheels

Technopolymer centre body

COVERING
Injected polyurethane, hardness 55 Shore D.

WHEEL CENTRE BODY
Polyamide-based technopolymer (PA).

ROLLING ACTION
Hub with pass-through hole.

APPLICATIONS
Excellent smoothness and elasticity features, good wear and tearing resistance.
For selection parameters see Technical data on page 2013.
RE.FF wheels are also supplied with steel sheet brackets RE.FF-N (see page 1980).

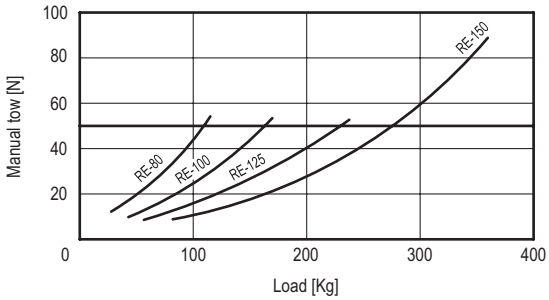
ENVIRONMENTAL CONDITIONS
Suitable for use in environments with the presence of atmospheric agents, alcohols and glycols; weak organic and mineral acids, water and saturated vapour.

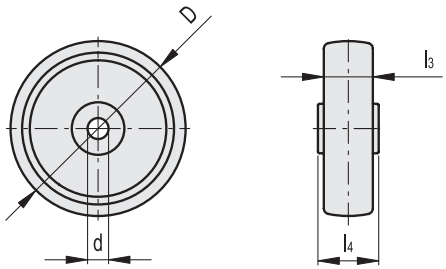
ROLLING RESISTANCE - FORCE / LOAD APPLIED
The diagram shows the force to be applied to a wheel to keep it moving at the constant speed of 4 km/h, according to the applied load.
The intersection point with a 50N value is the maximum transportable load with a manually actuated 4-wheel trolley; in fact, 200N = 50N x 4 wheels is the maximum force that may be supported by the operator according to the regulations in force regarding work safety.

MECHANICAL MOVING WITH TOWING DEVICES
For mechanical towing, please see the technical specifications to determine the capacity variation.

TEMPERATURE
If operating temperatures in an application differ from the standard range of values, please see the technical specifications to determine the capacity variation.







Code	Description	D	d	l3	l4	Static load# [N]	Rolling resistance# [N]	Dynamic carrying capacity# [N]	⚖
451001	RE.FF-080-RBL	80	12	30	39	2200	1200	1200	110
451006	RE.FF-100-RBL	100	12	30	44	3000	1700	1700	150
451011	RE.FF-125-RBL	125	15	35	44	3500	2300	2300	250
451016	RE.FF-150-RBL	150	20	45	59	5000	2800	3500	470

For static load, rolling resistance and dynamic carrying capacity see Technical Data on page 2014.

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INOX STAINLESS STEEL | RoHS | 1200 - 3000 N

Injected polyurethane wheels

Steel or stainless steel sheet bracket

COVERING
Injected polyurethane, hardness 55 Shore D.

WHEEL CENTRE BODY
Polyamide-based technopolymer (PA).

ROLLING ACTION
Hub with pass-through hole.

FIXED PLATE BRACKET
Zinc-plated steel or AISI 304 stainless steel (SST version) sheet, the bracket is designed to withstand loads up to 3000N.

TURNING PLATE BRACKET
Zinc-plated steel or AISI 304 stainless steel (SST version) sheet, the bracket is designed to withstand loads up to 3000N.
The presence of a double ball race and the direct contact between the plate and the ball race ring with built-in pin ensure excellent manoeuvrability.
Does not require maintenance.
It consists of (see Fig.1):

1. fitting plate: electrolytically zinc-plated steel or AISI 304 stainless steel sheet;
2. fork: electrolytically zinc-plated steel or AISI 304 stainless steel sheet;
3. ball race ring: electrolytically zinc-plated steel or AISI 304 stainless steel sheet;
4. central pin: incorporated in the plate, cold reflanged;
5. rotation system: dual grease-lubricated ball race;
6. dust seal: RAL 7015 dark grey technopolymer.

FRONT-ACTUATED BRAKE
Total brake that locks the wheel and bracket rotation.
The optimised dimensions and the retractable pedal ensure minimal space occupied and maximum actuation ease. Hardened carbon steel or stainless steel (SST version) spring.
The trolley must be turned to use the device. The brake is simple and effective to use: it is actuated and released by a simple action from the top downward at the tip of two separate pedals, thus ensuring the utmost manoeuvring comfort.
The braking efficacy may be adjusted with a socket head screw M8.

STANDARD EXECUTIONS

- **PBL**: fixed plate bracket, without brake.
- **SBL**: turning plate bracket, without brake.
- **SBF**: turning plate bracket, with brake.
- **FBL**: turning plate bracket and centre pass-through hole, without brake.
- **FBF**: turning plate bracket and centre pass-through hole, with brake.

Index for bracket material:

- **N**: zinc-plated steel plate bracket.
- **N-SST**: AISI 304 stainless steel bracket.

APPLICATIONS
Excellent smoothness and elasticity features, good wear and tearing resistance. For further information see wheel technical data sheet RE.FF on page 1979.

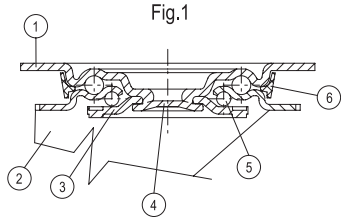








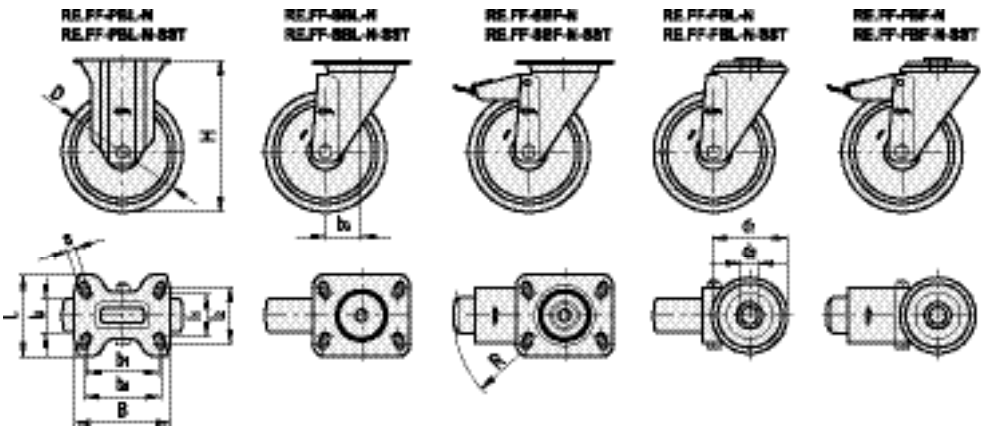
Fig.1



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RE.FF-N

Injected polyurethane wheels



RE.FF-N

Code	Description	D	d1	d2	l1	l2	l3	H	B	L	s	b1	b2	b3	R	Rolling resistance# [N]	Dynamic carrying capacity# [N]	⚖
451151	RE.FF-080-PBL-N	80	-	-	45	60	30	107	100	85	9	75	80	-	-	1200	1200	380
451156	RE.FF-100-PBL-N	100	-	-	45	60	30	128	100	85	9	75	80	-	-	1700	1700	430
451161	RE.FF-125-PBL-N	125	-	-	45	60	35	156	100	85	9	75	80	-	-	2300	2200	660
451166	RE.FF-150-PBL-N	150	-	-	73	85	45	194	140	114	11	105	105	-	-	2800	3000	1460
451051	RE.FF-080-SBL-N	80	-	-	45	60	30	107	100	85	9	75	80	39	-	1200	1200	620
451056	RE.FF-100-SBL-N	100	-	-	45	60	30	128	100	85	9	75	80	35	-	1700	1700	740
451061	RE.FF-125-SBL-N	125	-	-	45	60	35	156	100	85	9	75	80	37	-	2300	2200	910
451066	RE.FF-150-SBL-N	150	-	-	73	87	45	194	140	110	11	105	105	56	-	2800	3000	1830
451101	RE.FF-080-SBF-N	80	-	-	45	60	30	107	100	85	9	75	80	39	120	1200	1200	810
451106	RE.FF-100-SBF-N	100	-	-	45	60	30	128	100	85	9	75	80	35	120	1700	1700	890
451111	RE.FF-125-SBF-N	125	-	-	45	60	35	156	100	85	9	75	80	37	120	2300	2200	1050
451116	RE.FF-150-SBF-N	150	-	-	73	87	45	194	140	110	11	105	105	56	156	2800	3000	2110
451171	RE.FF-80-FBL-N	80	73	12	-	-	30	107	-	-	-	-	-	39	-	1200	1200	550
451173	RE.FF-100-FBL-N	100	73	12	-	-	30	128	-	-	-	-	-	35	-	1700	1700	670
451176	RE.FF-125-FBL-N	125	73	12	-	-	35	156	-	-	-	-	-	37	-	2300	2200	850
451179	RE.FF-150-FBL-N	150	102	20	-	-	45	188	-	-	-	-	-	56	-	2800	3000	1690
451181	RE.FF-80-FBF-N	80	73	12	-	-	30	107	-	-	-	-	-	39	120	1200	1200	730
451183	RE.FF-100-FBF-N	100	73	12	-	-	30	128	-	-	-	-	-	35	120	1700	1700	880
451186	RE.FF-125-FBF-N	125	73	12	-	-	35	156	-	-	-	-	-	37	120	2300	2200	1000
451189	RE.FF-150-FBF-N	150	102	20	-	-	45	188	-	-	-	-	-	56	156	2800	3000	1980

RE.FF-SST-N **STAINLESS STEEL**

Code	Description	D	d1	d2	l1	l2	l3	H	B	L	s	b1	b2	b3	R	Rolling resistance# [N]	Dynamic carrying capacity# [N]	⚖
451301	RE.FF-080-PBL-SST-N	80	-	-	45	60	30	107	100	85	9	75	80	-	-	1200	1200	350
451306	RE.FF-100-PBL-SST-N	100	-	-	45	60	30	128	100	85	9	75	80	-	-	1700	1700	400
451311	RE.FF-125-PBL-SST-N	125	-	-	45	60	35	156	100	85	9	75	80	-	-	2300	2200	640
451201	RE.FF-080-SBL-SST-N	80	-	-	45	60	30	107	100	85	9	75	80	39	-	1200	1200	610
451206	RE.FF-100-SBL-SST-N	100	-	-	45	60	30	128	100	85	9	75	80	35	-	1700	1700	650
451211	RE.FF-125-SBL-SST-N	125	-	-	45	60	35	156	100	85	9	75	80	37	-	2300	2200	810
451251	RE.FF-080-SBF-SST-N	80	-	-	45	60	30	107	100	85	9	75	80	39	120	1200	1200	780
451256	RE.FF-100-SBF-SST-N	100	-	-	45	60	30	128	100	85	9	75	80	35	120	1700	1700	830
451261	RE.FF-125-SBF-SST-N	125	-	-	45	60	35	156	100	85	9	75	80	37	120	2300	2200	950
451351	RE.FF-080-FBL-SST-N	80	73	12	-	-	30	107	-	-	-	-	-	39	-	1200	1200	550
451353	RE.FF-100-FBL-SST-N	100	73	12	-	-	30	128	-	-	-	-	-	35	-	1700	1700	670
451356	RE.FF-125-FBL-SST-N	125	73	12	-	-	35	156	-	-	-	-	-	37	-	2300	2200	850
451361	RE.FF-080-FBF-SST-N	80	73	12	-	-	30	107	-	-	-	-	-	39	120	1200	1200	550
451363	RE.FF-100-FBF-SST-N	100	73	12	-	-	30	128	-	-	-	-	-	35	120	1700	1700	670
451366	RE.FF-125-FBF-SST-N	125	73	12	-	-	35	156	-	-	-	-	-	37	120	2300	2200	860

For rolling resistance and dynamic carrying capacity see Technical Data on page 2014.

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Technopolymer wheels

Monolithic



WHEEL BODY
Polyamide-based technopolymer (PA).

STANDARD EXECUTIONS
- **RBL**: hub with pass-through hole.
- **RSL**: hub with ball bearings. Ideal solution for heavy loads and continuous moving.

APPLICATIONS
Excellent wear and tearing resistance. For selection parameters see Technical data on page 2013.
RE.F8 wheels are supplied also with bracket:
- RE.F8-N (see page 1984): wheels with steel sheet bracket.
- RE.F8-H (see page 1986): wheels with steel sheet bracket to be used for medium-heavy loads.
- RE.F8-WH (see page 1988): wheels with electro-welded steel bracket to be used for heavy loads.

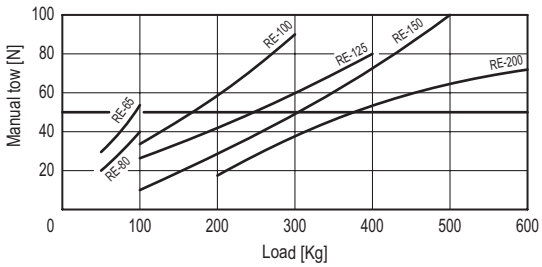
ENVIRONMENTAL CONDITIONS
Suitable for use in humid environments, with the presence of highly aggressive chemicals. Use in environments with the presence of strong organic acids and concentrated minerals is not recommended.

ROLLING RESISTANCE - FORCE / LOAD APPLIED
The diagram shows the force to be applied to a wheel to keep it moving at the constant speed of 4 km/h, according to the applied load. The intersection point with a 50N value is the maximum transportable load with a manually actuated 4-wheel trolley; in fact, 200N = 50N x 4 wheels is the maximum force that may be supported by the operator according to the regulations in force regarding work safety.

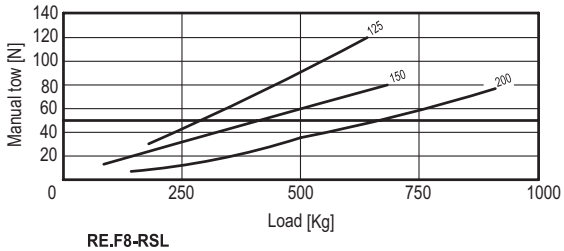
MECHANICAL MOVING WITH TOWING DEVICES
For mechanical towing, please see the technical specifications to determine the capacity variation.

TEMPERATURE
If operating temperatures in an application differ from the standard range of values, please see the technical specifications to determine the capacity variation.

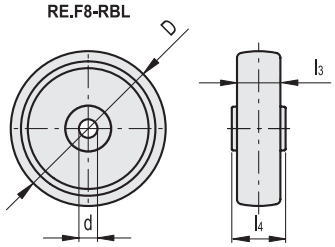
RE.F8-RBL



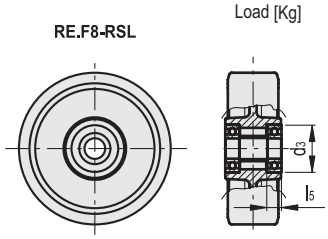
RE.F8-RSL



RE.F8-RBL



RE.F8-RSL



Code	Description	D	d	d3	l3	l4	l5	Static load# [N]	Rolling resistance# [N]	Dynamic carrying capacity# [N]	⚖
450501	RE.F8-065-RBL	65	12	-	30	34	-	1250	900	1200	60
450506	RE.F8-080-RBL	80	12	-	30	39	-	2000	1500	1800	80
450511	RE.F8-100-RBL	100	12	-	30	44	-	3500	1750	3000	130
450516	RE.F8-125-RBL	125	15	-	38	44	-	4500	2000	4000	230
450521	RE.F8-150-RBL	150	20	-	45	58	-	6000	2500	5000	340
450526	RE.F8-200-RBL	200	20	-	50	58	-	8000	3150	7300	640
449451	RE.F8-125-RSL	125	20	47	45	56	13	7000	4000	6500	610
449452	RE.F8-150-RSL	150	20	47	45	56	13	8000	4550	7500	740
449453	RE.F8-200-RSL	200	20	47	50	56	13	10000	6500	9000	1100

For static load, rolling resistance and dynamic carrying capacity see Technical Data on page 2014.

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INOX STAINLESS STEEL | RoHS | 1200 - 3000 N

Technopolymer wheels

Steel or stainless steel sheet bracket

WHEEL CENTRE BODY
Polyamide-based technopolymer (PA).

ROLLING ACTION
Hub with pass-through hole.

FIXED PLATE BRACKET
Zinc-plated steel or AISI 304 stainless steel (SST version) sheet, the bracket is designed to withstand loads up to 3000N.

TURNING PLATE BRACKET
Zinc-plated steel or AISI 304 stainless steel (SST version) sheet, the bracket is designed to withstand loads up to 3000N. The presence of a double ball race turns and the direct contact between the plate and the ball race ring with built-in pin ensure excellent manoeuvrability. Does not require maintenance. It consists of (see Fig.1):

1. fitting plate: electrolytically zinc-plated steel or AISI 304 stainless steel sheet;
2. fork: electrolytically zinc-plated steel or AISI 304 stainless steel sheet;
3. ball race ring: electrolytically zinc-plated steel or AISI 304 stainless steel sheet;
4. central pin: incorporated in the plate, cold reflanged;
5. rotation system: dual grease-lubricated ball race;
6. dust seal: RAL 7015 dark grey technopolymer.

BRAKE
Total brake that locks the wheel and bracket rotation. The optimised dimensions and the retractable pedal ensure minimal space occupied and maximum actuation ease. Hardened carbon steel or stainless steel (SST version) spring.

STANDARD EXECUTIONS
- **PBL**: fixed plate bracket, without brake.
- **SBL**: turning plate bracket, without brake.
- **SBF**: turning plate bracket, with brake.
- **FBL**: turning plate bracket and centre pass-through hole, without brake.
- **FBF**: turning plate bracket and centre pass-through hole, with brake.

Index for bracket material:
- **N**: zinc-plated steel plate bracket.
- **N-SST**: AISI 304 stainless steel bracket.

APPLICATIONS
Excellent wear and tearing resistance. For further information see RE.F8 on page 1983.

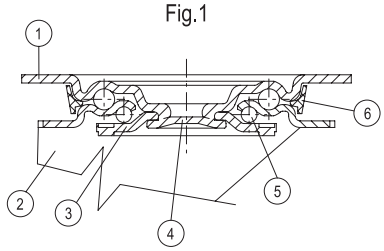








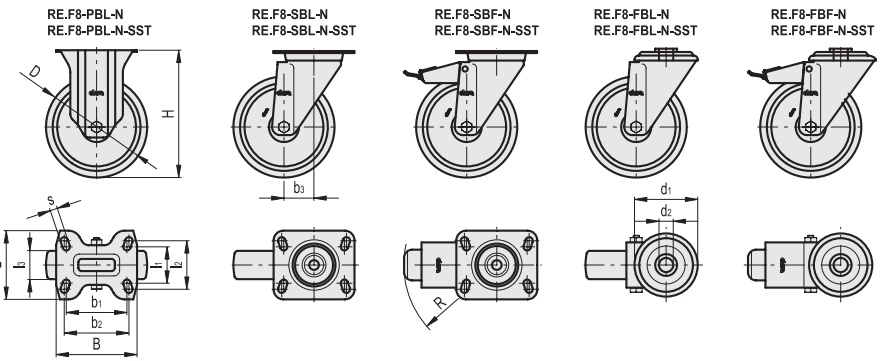
Fig.1



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RE.F8-N

Technopolymer wheels



RE.F8-N

Code	Description	D	d1	d2	l1	l2	l3	H	B	L	s	b1	b2	b3	R	Rolling resistance# [N]	Dynamic carrying capacity# [N]	⚖
450651	RE.F8-065-PBL-N	65	-	-	45	60	30	100	100	85	9	75	80	-	-	900	1200	370
450656	RE.F8-080-PBL-N	80	-	-	45	60	30	107	100	85	9	75	80	-	-	1500	1800	390
450661	RE.F8-100-PBL-N	100	-	-	45	60	30	128	100	85	9	75	80	-	-	1750	2000	460
450666	RE.F8-125-PBL-N	125	-	-	45	60	38	156	100	85	9	75	80	-	-	2000	2200	640
450671	RE.F8-150-PBL-N	150	-	-	73	85	45	194	140	114	11	105	105	-	-	2500	3000	1450
450676	RE.F8-200-PBL-N	200	-	-	73	85	50	240	140	114	11	105	105	-	-	3150	3000	1920
450551	RE.F8-065-SBL-N	65	-	-	45	60	30	100	100	85	9	75	80	39	-	900	1200	570
450556	RE.F8-080-SBL-N	80	-	-	45	60	30	107	100	85	9	75	80	39	-	1500	1800	580
450561	RE.F8-100-SBL-N	100	-	-	45	60	30	128	100	85	9	75	80	35	-	1750	2000	650
450566	RE.F8-125-SBL-N	125	-	-	45	60	38	156	100	85	9	75	80	37	-	2000	2200	890
450571	RE.F8-150-SBL-N	150	-	-	73	87	45	194	140	110	11	105	105	56	-	2500	3000	1770
450576	RE.F8-200-SBL-N	200	-	-	73	87	50	240	140	110	11	105	105	56	-	3150	3000	2140
450601	RE.F8-080-SBF-N	80	-	-	45	60	30	107	100	85	9	75	80	39	120	1500	1800	780
450606	RE.F8-100-SBF-N	100	-	-	45	60	30	128	100	85	9	75	80	35	120	1750	2000	850
450611	RE.F8-125-SBF-N	125	-	-	45	60	40	156	100	85	9	75	80	37	120	2000	2200	1040
450616	RE.F8-150-SBF-N	150	-	-	73	87	45	194	140	110	11	105	105	56	156	2500	3000	1990
450621	RE.F8-200-SBF-N	200	-	-	73	87	50	240	140	110	11	105	105	56	156	3150	3000	2330
450681	RE.F8-065-FBL-N	65	73	12	-	-	30	100	-	-	-	-	-	39	-	900	1200	570
450683	RE.F8-080-FBL-N	80	73	12	-	-	30	107	-	-	-	-	-	39	-	1500	1800	580
450685	RE.F8-100-FBL-N	100	73	12	-	-	30	128	-	-	-	-	-	35	-	1750	2000	650
450687	RE.F8-125-FBL-N	125	73	12	-	-	38	156	-	-	-	-	-	37	-	2000	2200	890
450689	RE.F8-150-FBL-N	150	102	20	-	-	45	188	-	-	-	-	-	56	-	2500	3000	1770
450691	RE.F8-200-FBL-N	200	102	20	-	-	50	236	-	-	-	-	-	56	-	3150	3000	1950
450693	RE.F8-080-FBF-N	80	73	12	-	-	30	107	-	-	-	-	-	39	120	1500	1800	780
450695	RE.F8-100-FBF-N	100	73	12	-	-	30	128	-	-	-	-	-	35	120	1750	2000	850
450697	RE.F8-125-FBF-N	125	73	12	-	-	38	156	-	-	-	-	-	37	120	2000	2200	1040
450699	RE.F8-150-FBF-N	150	102	20	-	-	45	188	-	-	-	-	-	56	156	2500	3000	1990
450700	RE.F8-200-FBF-N	200	102	20	-	-	50	236	-	-	-	-	-	56	156	3150	3000	2240

RE.F8-N-SST

STAINLESS STEEL

Code	Description	D	d1	d2	l1	l2	l3	H	B	L	s	b1	b2	b3	R	Rolling resistance# [N]	Dynamic carrying capacity# [N]	⚖
450801	RE.F8-080-PBL-SST-N	80	-	-	45	60	30	107	100	85	9	75	80	-	-	1500	1800	290
450806	RE.F8-100-PBL-SST-N	100	-	-	45	60	30	128	100	85	9	75	80	-	-	1750	2000	360
450811	RE.F8-125-PBL-SST-N	125	-	-	45	60	40	156	100	85	9	75	80	-	-	2000	2200	630
450701	RE.F8-080-SBL-SST-N	80	-	-	45	60	30	107	100	85	9	75	80	39	-	1500	1800	550
450706	RE.F8-100-SBL-SST-N	100	-	-	45	60	30	128	100	85	9	75	80	35	-	1750	2000	610
450711	RE.F8-125-SBL-SST-N	125	-	-	45	60	40	156	100	85	9	75	80	37	-	2000	2200	780
450751	RE.F8-080-SBF-SST-N	80	-	-	45	60	30	107	100	85	9	75	80	39	120	1500	1800	730
450756	RE.F8-100-SBF-SST-N	100	-	-	45	60	30	128	100	85	9	75	80	35	120	1750	2000	760
450761	RE.F8-125-SBF-SST-N	125	-	-	45	60	40	156	100	85	9	75	80	37	120	2000	2200	950
450851	RE.F8-080-FBL-SST-N	80	73	12	-	-	30	107	-	-	-	-	-	39	-	1500	1800	550
450856	RE.F8-100-FBL-SST-N	100	73	12	-	-	30	128	-	-	-	-	-	35	-	1750	2000	610
450861	RE.F8-125-FBL-SST-N	125	73	12	-	-	38	156	-	-	-	-	-	37	-	2000	2200	780
450901	RE.F8-080-FBF-SST-N	80	73	12	-	-	30	107	-	-	-	-	-	39	120	1500	1800	730
450906	RE.F8-100-FBF-SST-N	100	73	12	-	-	30	128	-	-	-	-	-	35	120	1750	2000	760
450911	RE.F8-125-FBF-SST-N	125	73	12	-	-	38	156	-	-	-	-	-	37	120	2000	2200	950

For rolling resistance and dynamic carrying capacity see Technical Data on page 2014.

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RoHS 3000 - 7300 N

Technopolymer wheels

Steel sheet bracket for medium-heavy loads

WHEEL CENTRE BODY
Polyamide-based (PA) technopolymer.

ROLLING ACTION
Hub with pass-through hole.

FIXED PLATE BRACKET
Yellow zinc-plated steel sheet (test in saline fog chamber above 72h). The bracket is designed to withstand loads up to 7500N. It ensures capacities that make it suitable for heavy industrial applications.

TURNING PLATE BRACKET
Yellow zinc-plated steel sheet (test in saline fog chamber above 72h).The presence of a double ball race turns and the direct contact between the plate and the ball race ring with built-in pin ensure excellent manoeuvrability. Does not require maintenance. The bracket is designed to withstand loads up to 7500N. It ensures capacities that make it suitable for heavy industrial applications.
It consists of (see fig.1):
1. fitting plate: yellow zinc-plated steel sheet;
2. fork: yellow zinc-plated steel sheet;
3. ball race ring: yellow zinc-plated steel sheet;
4. central pin: class 8.8 steel screw and steel nut;
5. rotation system: dual grease-lubricated ball race;
6. dust seal: RAL 7015 dark grey technopolymer.

BRAKE
Front brake (RE.F8-100-125) or rear brake (RE.F8-150-200) dual-effect with simultaneous locking of wheel and bracket. The brake is simple and effective to use: it is actuated and released by a simple action from the top downward at the tip of two separate pedals, thus ensuring the utmost manoeuvring comfort. The braking efficacy may be adjusted with a socket head screw M8.

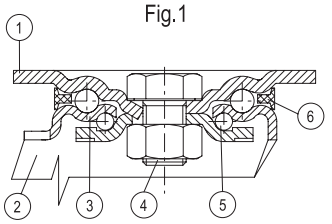
STANDARD EXECUTIONS
- **PBL-H**: fixed bracket, without brake.
- **SBL-H**: turning plate bracket, without brake.
- **SBF-H**: turning plate bracket, with brake.

APPLICATIONS
Suitable for heavy industrial applications. Excellent wear and tearing resistance. For further information see RE.F8 on page 1983.



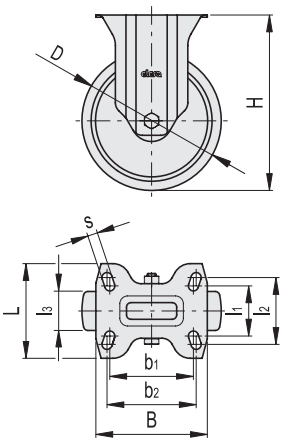


Fig.1

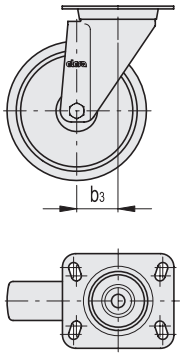


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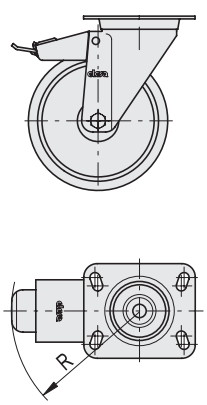
RE.F8-PBL-H



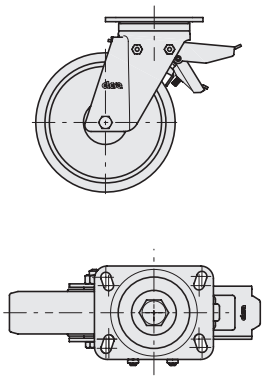
RE.F8-SBL-H



RE.F8-100-SBF-H
RE.F8-125-SBF-H



RE.F8-150-SBF-H
RE.F8-200-SBF-H



Code	Description	D	l1	l2	l3	H	B	L	s	b1	b2	b3	R	Rolling resistance# [N]	Dynamic carrying capacity# [N]	⚖
450951	RE.F8-100-PBL-H	100	45	60	30	138	100	85	9	75	80	-	-	1750	3000	600
450952	RE.F8-125-PBL-H	125	45	60	38	161	100	85	9	75	80	-	-	2000	3500	640
450953	RE.F8-150-PBL-H	150	73	87	45	200	140	110	11	105	-	-	-	2500	5000	1670
450954	RE.F8-200-PBL-H	200	73	87	50	250	140	110	11	105	-	-	-	4550	7300	1650
450931	RE.F8-100-SBL-H	100	45	60	30	138	100	85	9	75	80	46	-	1750	3000	990
450932	RE.F8-125-SBL-H	125	45	60	38	161	100	85	9	75	80	48	-	2000	3500	1160
450933	RE.F8-150-SBL-H	150	73	87	45	200	140	110	11	105	-	70	-	2500	5000	2800
450934	RE.F8-200-SBL-H	200	73	87	50	250	140	110	11	105	-	70	-	4550	7300	3110
450941	RE.F8-100-SBF-H	100	45	60	30	138	100	85	9	75	80	46	123	1750	3000	1140
450942	RE.F8-125-SBF-H	125	45	60	38	161	100	85	9	75	80	48	123	2000	3500	1270
450943	RE.F8-150-SBF-H	150	73	87	45	200	140	110	11	105	-	70	156	2500	5000	2980
450944	RE.F8-200-SBF-H	200	73	87	50	250	140	110	11	105	-	70	156	4550	7300	3390

For rolling resistance and dynamic carrying capacity see Technical Data on page 2014.

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RE.F8-WH

RoHS | 6500 - 9000 N

Technopolymer wheels

Electro-welded steel bracket for heavy loads

WHEEL CENTRE BODY
Polyamide-based (PA) technopolymer.

ROLLING ACTION
Hub with ball bearings. Ideal solution for heavy loads and continuous moving.

FIXED PLATE BRACKET
Electrolytically zinc-plated electro-welded steel. The bracket is designed to withstand loads up to 9000N and ensures capacities that make it suitable for heavy industrial applications and for severe conditions of use, such as impact and high speeds.

TURNING PLATE BRACKET
Electrolytically zinc-plated electro-welded steel. The presence of an axial bearing and a conical bearing ensures excellent manoeuvrability also at full load and increases the resistance of the bracket against side impact. It is equipped with lubricator and anti-loosening system of the locking nut. The bracket is designed to withstand loads up to 9000N. Suitable for heavy industrial applications and for severe conditions of use, such as impact and high speeds.
It consists of (see fig. 1):
1. fitting plate: forged steel with built-in pin, electrolytically zinc-plated;
2. fork: drawn sides electro-welded to the flange, electrolytically zinc-plated;
3. rotation system: axial ball bearing and conical roller bearing;
4. lubricator;
5. anti-loosening system of the locking nut.

BRAKE
Dual-effect rear brake with simultaneous locking of wheel and bracket. The brake is simple and effective to use: it is actuated and released by a simple action from the top downward at the tip of two separate pedals, thus ensuring the utmost manoeuvring comfort. The braking efficacy may be adjusted with a socket head screw M8.

STANDARD EXECUTIONS
- **PSL-WH**: fixed plate bracket, without brake.
- **SSL-WH**: turning plate bracket, without brake.
- **SSF-WH**: turning plate bracket, with brake.

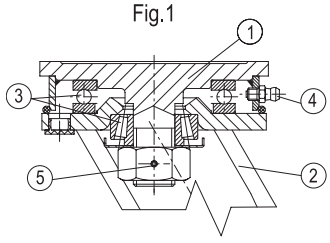
APPLICATIONS
Suitable for heavy industrial applications, due to loads up to 7500N. Excellent wear and tearing resistance. For further information see RE. F8 on page 1983.





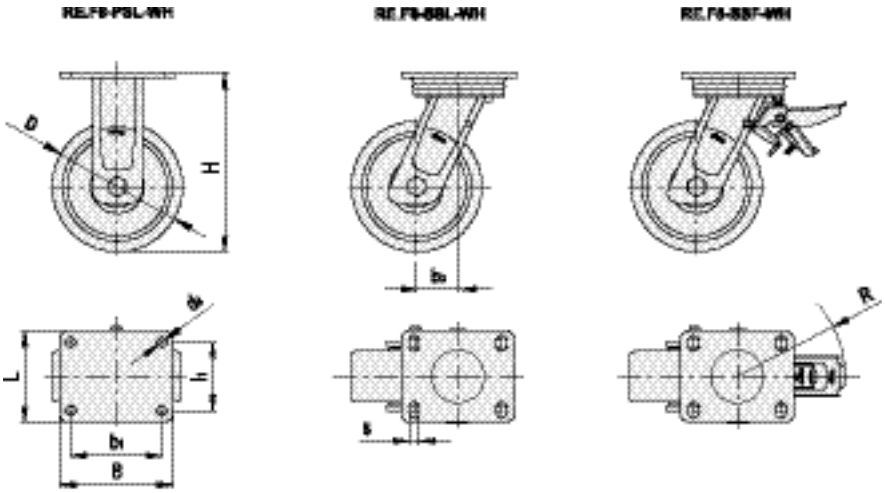


Fig.1



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RE.F8-WH | Technopolymer wheels



Code	Description	D	d4	l1	H	B	L	s	b1	b3	R	Rolling resistance# [N]	Dynamic carrying capacity# [N]	⚖
449481	RE.F8-125-PSL-WH	125	11	80	182	135	110	-	105	-	-	4000	6500	2280
449482	RE.F8-150-PSL-WH	150	11	80	210	135	110	-	105	-	-	4550	7500	2750
449483	RE.F8-200-PSL-WH	200	11	80	252	135	110	-	105	-	-	6500	9000	3240
449461	RE.F8-125-SSL-WH	125	-	80	182	135	110	11	105	51	-	4000	6500	3510
449462	RE.F8-150-SSL-WH	150	-	80	210	135	110	11	105	60	-	4550	7500	3740
449463	RE.F8-200-SSL-WH	200	-	80	252	135	110	11	105	70	-	6500	9000	4220
449471	RE.F8-125-SSF-WH	125	-	80	182	135	110	11	105	51	157	4000	6500	4390
449472	RE.F8-150-SSF-WH	150	-	80	210	135	110	11	105	60	157	4550	7500	4620
449473	RE.F8-200-SSF-WH	200	-	80	252	135	110	11	105	70	157	6500	9000	5100

For rolling resistance and dynamic carrying capacity see Technical Data on page 2014.

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INOX STAINLESS STEEL | RoHS | HT | 1500 - 2000 N

Duroplast wheels

Steel or stainless steel sheet bracket, high temperatures



WHEEL CENTRE BODY

Phenolic based (PF) Duroplast monolithic wheel, resistant to temperatures up to 300°C.

ROLLING ACTION

Hub with steel or stainless steel tube (SST executions) and PTFE bosses.

TURNING PLATE BRACKET

Zinc-plated steel or AISI 304 stainless steel (SST version) sheet, the bracket is designed to withstand loads up to 2000N. The presence of a double ball race turns and the direct contact between the plate and the ball race ring with built-in pin ensure excellent manoeuvrability. Does not require maintenance. It consists of (see Fig.1):

1. fitting plate: electrolytically zinc-plated steel or AISI 304 stainless steel sheet;
2. fork: electrolytically zinc-plated steel or AISI 304 stainless steel sheet;
3. ball race ring: electrolytically zinc-plated steel or AISI 304 stainless steel sheet;
4. central pin: incorporated in the plate, cold reflanged;
5. rotation system: dual ball ring, high temperature grease-lubricated;
6. dust seal: RAL 7015 dark grey technopolymer.

STANDARD EXECUTIONS

- **SBL**: turning plate bracket, without brake.
- **FBL**: turning plate bracket and centre pass-through hole, without brake.

Index for bracket material:

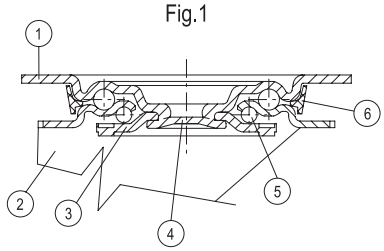
- **N**: zinc-plated steel plate bracket.
- **N-SST**: AISI 304 stainless steel bracket.

APPLICATIONS

Being resistant to high temperatures, RE.F7-N-HT wheel is particularly suitable for use in food industries and cooking ovens, especially in the baking sector.



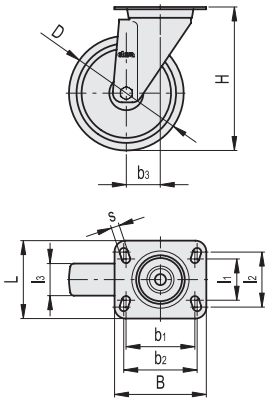
Fig.1



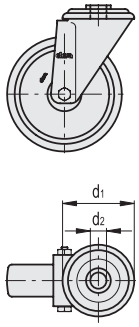
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RE.F7-N-HT | Duroplast wheels

RE.F7-SBL-N
RE.F7-SBL-SST-N



RE.F7-FBL-N
RE.F7-FBL-SST-N



RE.F7-SBL-N-HT

Code	Description	D	l1	l2	l3	H	B	L	s	b1	b2	b3	Rolling resistance# [N]	Dynamic carrying capacity# [N]	⚖
448556	RE.F7-080-SBL-N-HT	80	45	60	35	107	100	85	9	75	80	37	1250	1500	710
448561	RE.F7-100-SBL-N-HT	100	45	60	35	128	100	85	9	75	80	35	1300	2000	850

RE.F7-FBL-N-HT

Code	Description	D	d1	d2	l3	H	b3	Rolling resistance# [N]	Dynamic carrying capacity# [N]	⚖
448683	RE.F7-080-FBL-N-HT	80	73	12	35	107	37	1250	1500	620
448685	RE.F7-100-FBL-N-HT	100	73	12	35	128	35	1300	2000	720

RE.F7-SBL-N-SST-HT **STAINLESS STEEL**

Code	Description	D	l1	l2	l3	H	B	L	s	b1	b2	b3	Rolling resistance# [N]	Dynamic carrying capacity# [N]	⚖
448701	RE.F7-080-SBL-SST-N-HT	80	45	60	35	107	100	85	9	75	80	37	1250	1500	710
448706	RE.F7-100-SBL-SST-N-HT	100	45	60	35	128	100	85	9	75	80	35	1300	2000	790

RE.F7-FBL-N-SST-HT **STAINLESS STEEL**

Code	Description	D	d1	d2	l3	H	b3	Rolling resistance# [N]	Dynamic carrying capacity# [N]	⚖
448851	RE.F7-080-FBL-SST-N-HT	80	73	12	35	107	37	1250	1500	620
448856	RE.F7-100-FBL-SST-N-HT	100	73	12	35	128	35	1300	2000	720

For rolling resistance and dynamic carrying capacity see Technical Data on page 2014.

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RoHS 700 - 1800 N

Thermoplastic rubber wheels

Technopolymer centre body

COVERING
Grey anti-trace thermoplastic wheel, hardness 85 Shore A.

WHEEL CENTRE BODY
Polypropylene-based technopolymer (PP).

ROLLING ACTION
Hub with pass-through hole.

APPLICATIONS
Excellent smoothness and elasticity features. For selection parameters see Technical Data on page 2013.
RE.G1 wheels are also supplied with steel sheet bracket (RE.G1-N on page 1993).

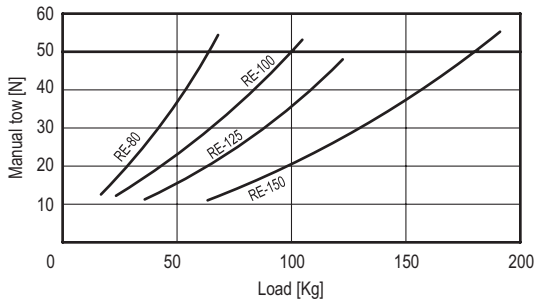
ENVIRONMENTAL CONDITIONS
Suitable for use in humid environments and in the presence of medium-aggressive chemicals; use in environments with the presence of organic, chlorinated solvents, hydrocarbons and mineral oils is not recommended.

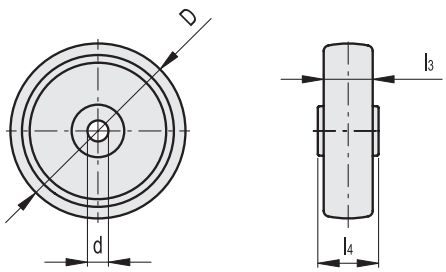
ROLLING RESISTANCE - FORCE / LOAD APPLIED
The diagram shows the force to be applied to a wheel to keep it moving at the constant speed of 4 km/h, according to the applied load.
The intersection point with a 50N value is the maximum transportable load with a manually actuated 4-wheel trolley; in fact, 200N = 50N x 4 wheels is the maximum force that may be supported by the operator according to the regulations in force regarding work safety.

MECHANICAL MOVING WITH TOWING DEVICES
For mechanical towing, please see the technical specifications to determine the capacity variation.

TEMPERATURE
If operating temperatures in an application differ from the standard range of values, please see the technical specifications to determine the capacity variation.







Code	Description	D	d	l3	l4	Static load# [N]	Rolling resistance# [N]	Dynamic carrying capacity# [N]	⚖
452501	RE.G1-080-RBL	80	12	30	39	1000	700	700	90
452506	RE.G1-100-RBL	100	12	30	44	1500	1000	1000	120
452511	RE.G1-125-RBL	125	15	35	44	1800	1200	1200	200
452516	RE.G1-150-RBL	150	20	45	59	2700	1800	1800	360

For static load, rolling resistance and dynamic carrying capacity see Technical Data on page 2014.

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RE.G1-N

INOX STAINLESS STEEL | RoHS | 700 - 1800 N

Thermoplastic rubber wheels

Steel or stainless steel sheet bracket

COVERING
Grey anti-trace thermoplastic rubber, hardness 85 Shore A.

WHEEL CENTRE BODY
Polypropylene-based technopolymer (PP).

ROLLING ACTION
Hub with pass-through hole.

FIXED PLATE BRACKET
Zinc-plated steel or AISI 304 stainless steel (SST version) sheet, the bracket is designed to withstand loads up to 3000N.

TURNING PLATE BRACKET
Zinc-plated steel or AISI 304 stainless steel (SST version) sheet, the bracket is designed to withstand loads up to 3000N. The presence of a double ball race turns and the direct contact between the plate and the ball race ring with built-in pin ensure excellent manoeuvrability. Does not require maintenance.
It consists of (see Fig.1):
1. fitting plate: electrolytically zinc-plated steel or AISI 304 stainless steel sheet;
2. fork: electrolytically zinc-plated steel or AISI 304 stainless steel sheet;
3. ball race ring: electrolytically zinc-plated steel or AISI 304 stainless steel sheet;
4. central pin: incorporated in the plate, cold reflanged;
5. rotation system: dual grease-lubricated ball race;
6. dust seal: RAL 7015 dark grey technopolymer.

BRAKE
Total brake that locks the wheel and bracket rotation. The optimised dimensions and the retractable pedal ensure minimal space occupied and maximum actuation ease. Hardened carbon steel or stainless steel (SST version) spring.

STANDARD EXECUTIONS
- **PBL**: fixed plate bracket, without brake.
- **SBL**: turning plate bracket, without brake.
- **SBF**: turning plate bracket, with brake.
- **FBL**: turning plate bracket and centre pass-through hole, without brake.
- **FBF**: turning plate bracket and centre pass-through hole, with brake.

Index for bracket material:
- **N**: zinc-plated steel plate bracket.
- **N-SST**: AISI 304 stainless steel bracket.

APPLICATIONS
Excellent smoothness and elasticity features. For further information see RE.G1 on page 1992.

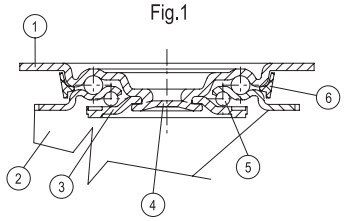








Fig.1

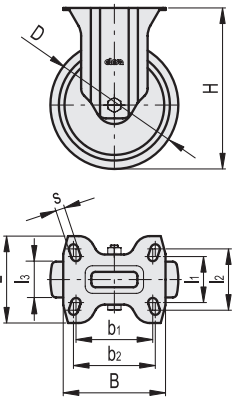


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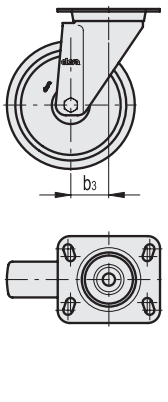
RE.G1-N

Thermoplastic rubber wheels

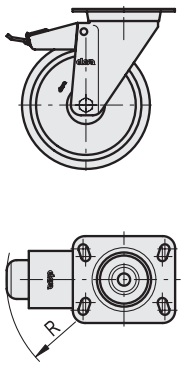
RE.G1-PBL-N
RE.G1-PBL-N-SST



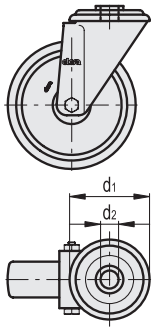
RE.G1-SBL-N
RE.G1-SBL-N-SST



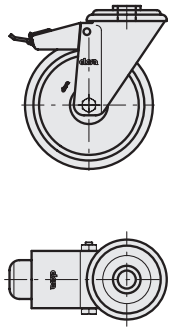
RE.G1-SBF-N
RE.G1-SBF-N-SST



RE.G1-FBL-N
RE.G1-FBL-N-SST



RE.G1-FBF-N
RE.G1-FBF-N-SST



RE.G1-N

Code	Description	D	d1	d2	b1	l1	b2	l2	l3	H	B	L	s	b3	R	Rolling resistance# [N]	Dynamic carrying capacity# [N]	⚖
452651	RE.G1-080-PBL-N	80	-	-	75	45	80	60	30	107	100	85	9	-	-	700	700	360
452656	RE.G1-100-PBL-N	100	-	-	75	45	80	60	30	128	100	85	9	-	-	1000	1000	390
452661	RE.G1-125-PBL-N	125	-	-	75	45	80	60	35	156	100	85	9	-	-	1200	1200	610
452666	RE.G1-150-PBL-N	150	-	-	105	73	105	85	45	194	140	114	11	-	-	1800	1800	1350
452551	RE.G1-080-SBL-N	80	-	-	75	45	80	60	30	107	100	85	9	39	-	700	700	600
452556	RE.G1-100-SBL-N	100	-	-	75	45	80	60	30	128	100	85	9	35	-	1000	1000	700
452561	RE.G1-125-SBL-N	125	-	-	75	45	80	60	35	156	100	85	9	37	-	1200	1200	860
452566	RE.G1-150-SBL-N	150	-	-	105	73	105	87	45	194	140	110	11	56	-	1800	1800	1720
452601	RE.G1-080-SBF-N	80	-	-	75	45	80	60	30	107	100	85	9	39	120	700	700	790
452606	RE.G1-100-SBF-N	100	-	-	75	45	80	60	30	128	100	85	9	35	120	1000	1000	850
452611	RE.G1-125-SBF-N	125	-	-	75	45	80	60	35	156	100	85	9	37	120	1200	1200	1000
452616	RE.G1-150-SBF-N	150	-	-	105	73	105	87	45	194	140	110	11	56	156	1800	1800	2000
452701	RE.G1-080-FBL-N	80	73	12	-	-	-	-	30	107	-	-	-	39	-	700	700	600
452706	RE.G1-100-FBL-N	100	73	12	-	-	-	-	30	128	-	-	-	35	-	1000	1000	700
452711	RE.G1-125-FBL-N	125	73	12	-	-	-	-	35	156	-	-	-	37	-	1200	1200	860
452716	RE.G1-150-FBL-N	150	102	20	-	-	-	-	45	188	-	-	-	56	-	1800	1800	1720
452751	RE.G1-080-FBF-N	80	73	12	-	-	-	-	30	107	-	-	-	39	120	700	700	790
452756	RE.G1-100-FBF-N	100	73	12	-	-	-	-	30	128	-	-	-	35	120	1000	1000	850
452761	RE.G1-125-FBF-N	125	-	-	-	-	-	-	35	156	-	-	-	37	120	1200	1200	1000
452766	RE.G1-150-FBF-N	150	-	-	-	-	-	-	45	188	-	-	-	56	156	1800	1800	2000

RE.G1-N-SST **STAINLESS STEEL**

Code	Description	D	d1	d2	b1	l1	b2	l2	l3	H	B	L	s	b3	R	Rolling resistance# [N]	Dynamic carrying capacity# [N]	⚖
452653	RE.G1-080-PBL-N-SST	80	-	-	75	45	80	60	30	107	100	85	9	-	-	700	700	590
452658	RE.G1-100-PBL-N-SST	100	-	-	75	45	80	60	30	128	100	85	9	-	-	1000	1000	610
452663	RE.G1-125-PBL-N-SST	125	-	-	75	45	80	60	35	156	100	85	9	-	-	1200	1200	760
452553	RE.G1-080-SBL-N-SST	80	-	-	75	45	80	60	30	107	100	85	9	39	-	700	700	330
452558	RE.G1-100-SBL-N-SST	100	-	-	75	45	80	60	30	128	100	85	9	35	-	1000	1000	360
452563	RE.G1-125-SBL-N-SST	125	-	-	75	45	80	60	35	156	100	85	9	37	-	1200	1200	590
452603	RE.G1-080-SBF-N-SST	80	-	-	75	45	80	60	30	107	100	85	9	39	120	700	700	530
452608	RE.G1-100-SBF-N-SST	100	-	-	75	45	80	60	30	128	100	85	9	35	120	1000	1000	570
452613	RE.G1-125-SBF-N-SST	125	-	-	75	45	80	60	35	156	100	85	9	37	120	1200	1200	740
452703	RE.G1-080-FBL-N-SST	80	73	12	-	-	-	-	30	107	-	-	-	39	-	700	700	760
452708	RE.G1-100-FBL-N-SST	100	73	12	-	-	-	-	30	128	-	-	-	35	-	1000	1000	790
452713	RE.G1-125-FBL-N-SST	125	73	12	-	-	-	-	35	156	-	-	-	37	-	1200	1200	900
452753	RE.G1-080-FBF-N-SST	80	73	12	-	-	-	-	30	107	-	-	-	39	120	700	700	700
452758	RE.G1-100-FBF-N-SST	100	73	12	-	-	-	-	30	128	-	-	-	35	120	1000	1000	780
452763	RE.G1-125-FBF-N-SST	125	73	12	-	-	-	-	35	156	-	-	-	37	120	1200	1200	890

For rolling resistance and dynamic carrying capacity see Technical Data on page 2014.

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Vulcanised rubber wheels

Technopolymer centre body

COVERING WITH TREAD
Vulcanised rubber; hardness 83 Shore A.

WHEEL CENTRE BODY
Polypropylene-based technopolymer (PP).

ROLLING ACTION
Hub with pass-through hole.

APPLICATIONS
RE.E2 wheels may be mounted on different kinds of trolleys, with medium-light loads; it is also suitable for outdoor use. Typical applications: trolleys for industrial moving, for outdoor use also, waste dumpsters. For selection parameters see Technical Data on page 2013.
RE.E2 wheels are also supplied with steel sheet bracket (RE.E2-N on page 1996).

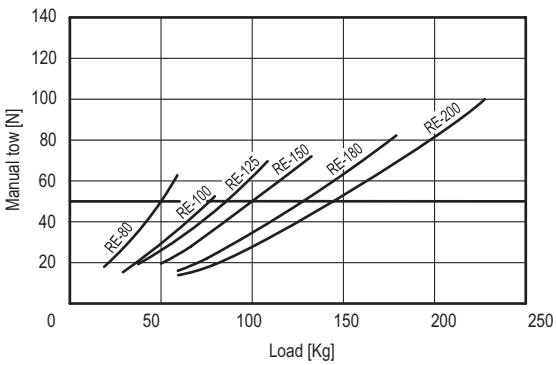
ENVIRONMENTAL CONDITIONS
Suitable for use in humid environments and in the presence of atmospheric agents; use in environments with the presence of organic, chlorinated solvents, hydrocarbons and mineral oils is not recommended.

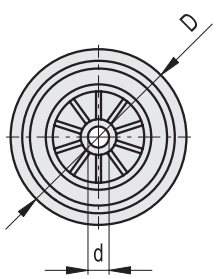
ROLLING RESISTANCE - FORCE / LOAD APPLIED
The diagram shows the force to be applied to a wheel to keep it moving at the constant speed of 4 km/h, according to the applied load.
The intersection point with a 50N value is the maximum transportable load with a manually actuated 4-wheel trolley; in fact, 200N = 50N x 4 wheels is the maximum force that may be supported by the operator according to the regulations in force regarding work safety.

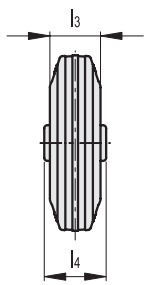
MECHANICAL MOVING WITH TOWING DEVICES
For mechanical towing, please see the technical specifications to determine the capacity variation.

TEMPERATURE
If operating temperatures in an application differ from the standard range of values, please see the technical specifications to determine the capacity variation.









Code	Description	D	d	l3	l4	Static load# [N]	Rolling resistance# [N]	Dynamic carrying capacity# [N]	⚖
449501	RE.E2-080-RBL	80	12	25	39	1500	500	650	110
449506	RE.E2-100-RBL	100	12	30	44	2000	750	800	210
449512	RE.E2-125-RBL	125	15	37.5	44	2250	850	1100	410
449516	RE.E2-150-RBL	150	15	40	44	2750	1000	1300	610
449518	RE.E2-180-RBL	180	20	45	59	3500	1300	1800	1020
449522	RE.E2-200-RBL	200	20	50	59	4000	1400	2250	1310

For static load, rolling resistance and dynamic carrying capacity see Technical Data on page 2014.

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Vulcanised rubber wheels

Steel sheet bracket

COVERING WITH TREAD
Vulcanised rubber; hardness 83 Shore A.

WHEEL CENTRE BODY
Polypropylene-based (PP) technopolymer.

ROLLING ACTION
Hub with pass-through hole.

FIXED PLATE BRACKET
Zinc-plated steel sheet, the bracket is designed to withstand loads up to 3000N.

TURNING PLATE BRACKET
Zinc-plated steel sheet, the bracket is designed to withstand loads up to 3000N. The presence of a double ball race and the direct contact between the plate and the ball race ring with built-in pin ensure excellent manoeuvrability. Does not require maintenance.
It consists of (see Fig.1):
1. fitting plate: electrolytically zinc-plated steel sheet;
2. fork: electrolytically zinc-plated steel sheet;
3. ball race ring: electrolytically zinc-plated steel sheet;
4. central pin: incorporated in the plate, cold reflanged;
5. rotation system: dual grease-lubricated ball race;
6. dust seal: RAL 7015 dark grey technopolymer.

BRAKE
Total brake that locks the wheel and bracket rotation.
The optimised dimensions and the retractable pedal ensure minimal space occupied and maximum actuation ease.
Hardened carbon steel spring.

STANDARD EXECUTIONS
- **PBL-N**: fixed plate bracket, without brake.
- **SBL-N**: turning plate bracket, without brake.
- **SBF-N**: turning plate bracket, with brake.
- **FBL-N**: turning plate bracket and centre pass-through hole, without brake.
- **FBF-N**: turning plate bracket and centre pass-through hole, with brake.

APPLICATIONS
RE.E2 wheels may be mounted on different kinds of trolleys, with medium-light loads; it is also suitable for outdoor use.
Typical applications: trolleys for industrial moving, for outdoor use also, waste dumpsters.
For further information see RE.E2 on page 1995.

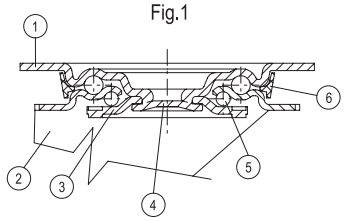








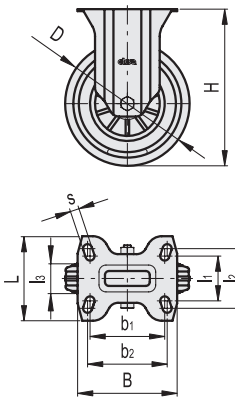
Fig.1



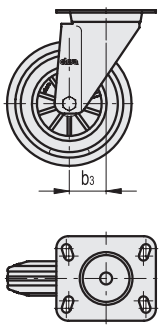
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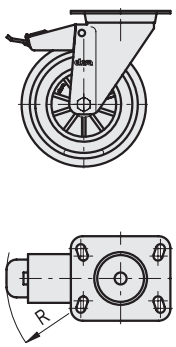
RE.E2-PBL-N



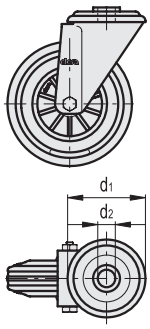
RE.E2-SBL-N



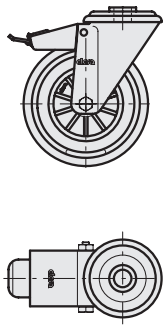
RE.E2-SBF-N



RE.E2-FBL-N



RE.E2-FBF-N



Code	Description	D	d1	d2	b1	l1	b2	l2	l3	H	B	L	s	b3	R	Rolling resistance# [N]	Dynamic carrying capacity# [N]	⚖
449651	RE.E2-080-PBL-N	80	-	-	75	45	80	60	25	107	100	85	9	-	-	500	650	360
449656	RE.E2-100-PBL-N	100	-	-	75	45	80	60	30	128	100	85	9	-	-	750	800	480
449661	RE.E2-125-PBL-N	125	-	-	75	45	80	60	37.5	156	100	85	9	-	-	850	1100	710
449666	RE.E2-150-PBL-N	150	-	-	75	45	80	60	40	182	100	85	9	-	-	1000	1300	930
449668	RE.E2-180-PBL-N	180	-	-	105	73	105	85	45	219	140	114	11	-	-	1300	1800	2110
449671	RE.E2-200-PBL-N	200	-	-	105	73	105	85	50	240	140	114	11	-	-	1400	2250	2500
449551	RE.E2-080-SBL-N	80	-	-	75	45	80	60	25	107	100	85	9	39	-	500	650	640
449556	RE.E2-100-SBL-N	100	-	-	75	45	80	60	30	128	100	85	9	35	-	750	800	730
449561	RE.E2-125-SBL-N	125	-	-	75	45	80	60	37.5	156	100	85	9	37	-	850	1100	1060
449566	RE.E2-150-SBL-N	150	-	-	75	45	80	60	40	182	100	85	9	37	-	1000	1300	1310
449568	RE.E2-180-SBL-N	180	-	-	105	73	105	87	45	219	140	110	11	56	-	1300	1800	2400
449571	RE.E2-200-SBL-N	200	-	-	105	73	105	87	50	240	140	110	11	56	-	1400	2250	2720
449601	RE.E2-080-SBF-N	80	-	-	75	45	80	60	25	107	100	85	9	39	120	500	650	820
449606	RE.E2-100-SBF-N	100	-	-	75	45	80	60	30	128	100	85	9	35	120	750	800	880
449611	RE.E2-125-SBF-N	125	-	-	75	45	80	60	37.5	156	100	85	9	37	120	850	1100	1200
449616	RE.E2-150-SBF-N	150	-	-	75	45	80	60	40	182	100	85	9	37	120	1000	1300	1450
449618	RE.E2-180-SBF-N	180	-	-	105	73	105	87	45	219	140	110	11	56	156	1300	1800	2690
449621	RE.E2-200-SBF-N	200	-	-	105	73	105	87	50	240	140	110	11	56	156	1400	2250	3000
449701	RE.E2-080-FBL-N	80	73	12	-	-	-	-	25	107	-	-	-	39	-	500	650	550
449706	RE.E2-100-FBL-N	100	73	12	-	-	-	-	30	128	-	-	-	35	-	750	800	680
449711	RE.E2-125-FBL-N	125	73	12	-	-	-	-	37.5	156	-	-	-	37	-	850	1100	960
449716	RE.E2-150-FBL-N	150	73	12	-	-	-	-	40	182	-	-	-	37	-	1000	1300	1250
449718	RE.E2-180-FBL-N	180	102	20	-	-	-	-	45	214	-	-	-	56	-	1300	1800	2280
449721	RE.E2-200-FBL-N	200	102	20	-	-	-	-	50	236	-	-	-	56	-	1400	2250	2620
449751	RE.E2-080-FBF-N	80	73	12	-	-	-	-	25	107	-	-	-	39	120	500	650	680
449756	RE.E2-100-FBF-N	100	73	12	-	-	-	-	30	128	-	-	-	35	120	750	800	750
449761	RE.E2-125-FBF-N	125	73	12	-	-	-	-	37.5	156	-	-	-	37	120	850	1100	1100
449766	RE.E2-150-FBF-N	150	73	12	-	-	-	-	40	182	-	-	-	37	120	1000	1300	1390
449768	RE.E2-180-FBF-N	180	102	20	-	-	-	-	45	214	-	-	-	56	156	1300	1800	2570
449771	RE.E2-200-FBF-N	200	102	20	-	-	-	-	50	236	-	-	-	56	156	1400	2250	2910

For rolling resistance and dynamic carrying capacity see Technical Data on page 2014.

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Vulcanised rubber wheels

Steel centre body

COVERING WITH TREAD
Vulcanised rubber; hardness 83 Shore A.

WHEEL CENTRE BODY
Consisting of two zinc-plated and riveted plate disks.

ROLLING ACTION
Polyamide-based technopolymer (PA) hub and boss, integral to the wheel centre body.

APPLICATIONS
RE.E3 wheels may be mounted on different kinds of trolleys, with medium-light loads; it is also suitable for outdoor use. Typical applications: trolleys for industrial moving, for outdoor use also, waste dumpsters. For selection parameters see Technical Data on page 2013. RE.E3 wheels are also supplied with steel sheet bracket for medium-heavy loads (RE.E3-N on page 1999).

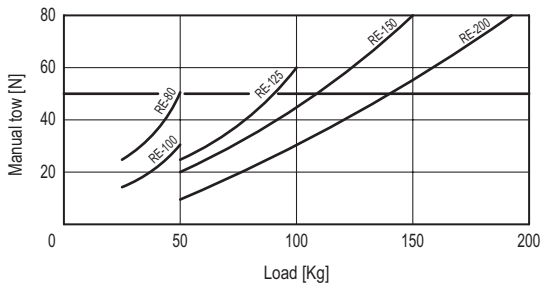
ENVIRONMENTAL CONDITIONS
Suitable for use in humid environments and in the presence of atmospheric agents; use in environments with the presence of organic, chlorinated solvents, hydrocarbons and mineral oils is not recommended.

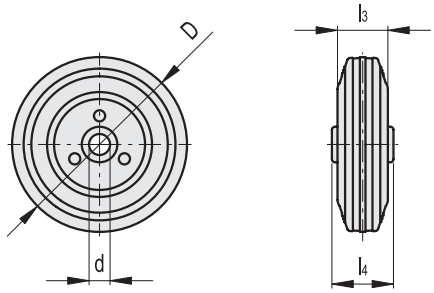
ROLLING RESISTANCE - FORCE / LOAD APPLIED
The diagram shows the force to be applied to a wheel to keep it moving at the constant speed of 4 km/h, according to the applied load.
The intersection point with a 50N value is the maximum transportable load with a manually actuated 4-wheel trolley; in fact, 200N = 50N x 4 wheels is the maximum force that may be supported by the operator according to the regulations in force regarding work safety.

MECHANICAL MOVING WITH TOWING DEVICES
For mechanical towing, please see the technical specifications to determine the capacity variation.

TEMPERATURE
If operating temperatures in an application differ from the standard range of values, please see the technical specifications to determine the capacity variation.







Code	Description	D	d	l3	l4	Static load# [N]	Rolling resistance# [N]	Dynamic carrying capacity# [N]	⚖
450001	RE.E3-080-RBL	80	12	25	39	2600	600	650	170
450006	RE.E3-100-RBL	100	12	30	44	3000	750	800	280
450012	RE.E3-125-RBL	125	15	37.5	44	3300	850	1300	510
450016	RE.E3-150-RBL	150	15	40	44	3500	1000	1700	730
450022	RE.E3-200-RBL	200	20	50	58	4100	1400	2300	1750

For static load, rolling resistance and dynamic carrying capacity see Technical Data on page 2014.

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Vulcanised rubber wheels

Steel sheet bracket

COVERING WITH TREAD
Vulcanised rubber; hardness 83 Shore A.

WHEEL CENTRE BODY
Consisting of two zinc-plated and riveted sheet disks.

ROLLING ACTION
Polyamide-based technopolymer (PA) hub and boss, integral to the wheel centre body.

FIXED PLATE BRACKET
Zinc-plated steel sheet, the bracket is designed to withstand loads up to 3000N.

TURNING PLATE BRACKET
Zinc-plated steel sheet, the bracket is designed to withstand loads up to 3000N. The presence of a double ball race turns and the direct contact between the plate and the ball race ring with built-in pin ensure excellent manoeuvrability. Does not require maintenance.
It consists of (see Fig.1):
1. fitting plate: electrolytically zinc-plated steel sheet;
2. fork: electrolytically zinc-plated steel sheet;
3. ball race ring: electrolytically zinc-plated steel sheet;
4. central pin: incorporated in the plate, cold reflanged;
5. rotation system: dual grease-lubricated ball race;
6. dust seal: RAL 7015 dark grey technopolymer.

BRAKE
Total brake that locks the wheel and bracket rotation.
The optimised dimensions and the retractable pedal ensure minimal space occupied and maximum actuation ease.
Hardened carbon steel spring.

STANDARD EXECUTIONS (BORE WITH PLAIN BEARING)
- **PBL-N**: fixed plate bracket, without brake.
- **SBL-N**: turning plate bracket, without brake.
- **SBF-N**: turning plate bracket, with brake.
- **FBL-N**: turning plate bracket and centre pass-through hole, without brake.
- **FBF-N**: turning plate bracket and centre pass-through hole, with brake.

APPLICATIONS
RE.E3 wheels may be mounted on different kinds of trolleys, with medium-light loads; it is also suitable for outdoor use. Typical applications: trolleys for industrial moving, for outdoor use also, waste dumpsters.
For further information see RE.E3 on page 1998.

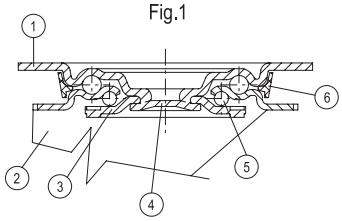








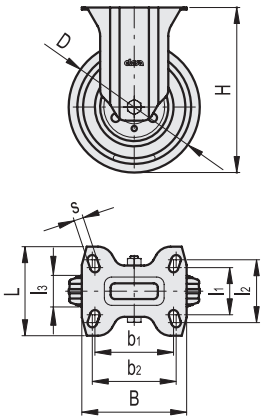
Fig.1



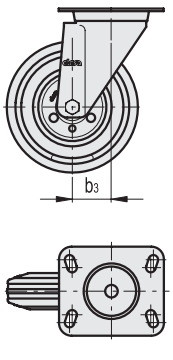
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RE.E3-N | Vulcanised rubber wheels

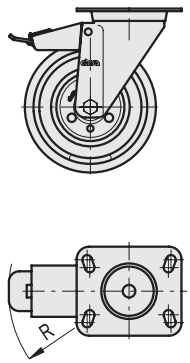
RE.E3-PBL-N



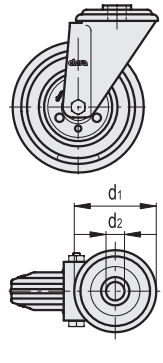
RE.E3-SBL-N



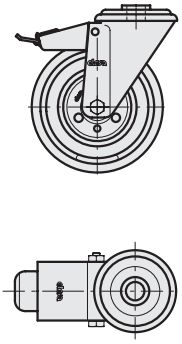
RE.E3-SBF-N



RE.E3-FBL-N



RE.E3-FBF-N



Code	Description	D	d1	d2	b1	l1	b2	l2	l3	H	B	L	s	b3	R	Rolling resistance# [N]	Dynamic carrying capacity# [N]	⚖
450151	RE.E3-080-PBL-N	80	-	-	75	45	80	60	25	107	100	85	9	-	-	600	650	490
450156	RE.E3-100-PBL-N	100	-	-	75	45	80	60	30	128	100	85	9	-	-	750	800	620
450161	RE.E3-125-PBL-N	125	-	-	75	45	80	60	37.5	156	100	85	9	-	-	850	1300	920
450166	RE.E3-150-PBL-N	150	-	-	75	45	80	60	40	182	100	85	9	-	-	1000	1700	1220
450171	RE.E3-200-PBL-N	200	-	-	105	73	105	85	50	240	140	114	11	-	-	1400	2300	2890
450051	RE.E3-080-SBL-N	80	-	-	75	45	80	60	25	107	100	85	9	39	-	600	650	690
450056	RE.E3-100-SBL-N	100	-	-	75	45	80	60	30	128	100	85	9	35	-	750	800	820
450061	RE.E3-125-SBL-N	125	-	-	75	45	80	60	37.5	156	100	85	9	37	-	850	1300	1180
450066	RE.E3-150-SBL-N	150	-	-	75	45	80	60	40	182	100	85	9	37	-	1000	1700	1400
450071	RE.E3-200-SBL-N	200	-	-	105	73	105	87	50	240	140	110	11	56	-	1400	2300	3250
450101	RE.E3-080-SBF-N	80	-	-	75	45	80	60	25	107	100	85	9	39	120	600	650	870
450106	RE.E3-100-SBF-N	100	-	-	75	45	80	60	30	128	100	85	9	35	120	750	800	1000
450111	RE.E3-125-SBF-N	125	-	-	75	45	80	60	37.5	156	100	85	9	37	120	850	1300	1300
450116	RE.E3-150-SBF-N	150	-	-	75	45	80	60	40	182	100	85	9	37	120	1000	1700	1570
450121	RE.E3-200-SBF-N	200	-	-	105	73	105	87	50	240	140	110	11	56	156	1400	2300	3390
450201	RE.E3-080-FBL-N	80	73	12	-	-	-	-	25	107	-	-	-	39	-	600	650	690
450206	RE.E3-100-FBL-N	100	73	12	-	-	-	-	30	128	-	-	-	35	-	750	800	820
450211	RE.E3-125-FBL-N	125	73	12	-	-	-	-	37.5	156	-	-	-	37	-	850	1300	1180
450216	RE.E3-150-FBL-N	150	73	12	-	-	-	-	40	182	-	-	-	37	-	1000	1700	1400
450221	RE.E3-200-FBL-N	200	102	20	-	-	-	-	50	236	-	-	-	56	-	1400	2300	3250
450251	RE.E3-080-FBF-N	80	73	12	-	-	-	-	25	107	-	-	-	39	120	600	650	870
450256	RE.E3-100-FBF-N	100	73	12	-	-	-	-	30	128	-	-	-	35	120	750	800	1000
450261	RE.E3-125-FBF-N	125	73	12	-	-	-	-	37.5	156	-	-	-	37	120	850	1300	1300
450266	RE.E3-150-FBF-N	150	73	12	-	-	-	-	40	182	-	-	-	37	120	1000	1700	1570
450271	RE.E3-200-FBF-N	200	102	20	-	-	-	-	50	236	-	-	-	56	156	1400	2300	3390

For rolling resistance and dynamic carrying capacity see Technical Data on page 2014.

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Elastic rubber wheels

Aluminium centre body

COVERING
Elastic rubber, hardness 70 Shore A.

WHEEL CENTRE BODY
Pressure die-cast aluminium.

ROLLING ACTION
Hub with ball bearings. Ideal solution for heavy loads and continuous moving.

APPLICATIONS
Wear and tearing resistance. For selection parameters see Technical data on page .
RE.G2 wheels are also supplied with steel sheet bracket for medium-heavy loads (RE.G2-H on page 2002).

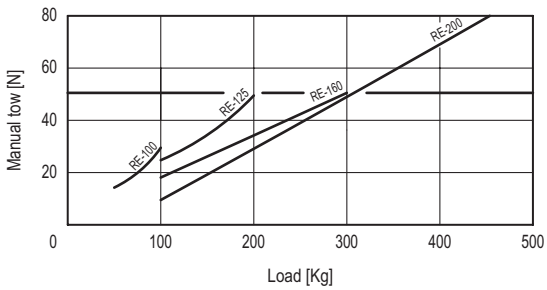
ENVIRONMENTAL CONDITIONS
Suitable for use in humid environments and in the presence of medium-aggressive chemicals; use in environments with the presence of organic, chlorinated solvents, hydrocarbons and mineral oils is not recommended.

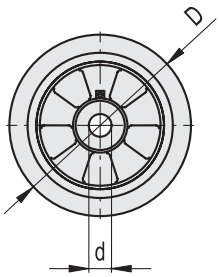
ROLLING RESISTANCE - FORCE / LOAD APPLIED
The diagram shows the force to be applied to a wheel to keep it moving at the constant speed of 4 km/h, according to the applied load.
The intersection point with a 50N value is the maximum transportable load with a manually actuated 4-wheel trolley; in fact, 200N = 50N x 4 wheels is the maximum force that may be supported by the operator according to the regulations in force regarding work safety.

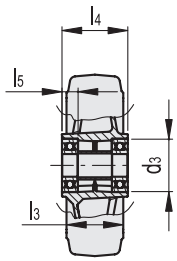
MECHANICAL MOVING WITH TOWING DEVICES
For mechanical towing, please see the technical specifications to determine the capacity variation.

TEMPERATURE
If operating temperatures in an application differ from the standard range of values, please see the technical specifications to determine the capacity variation.









Code	Description	D	d	d3	l3	l4	l5	Static load# [N]	Rolling resistance# [N]	Dynamic carrying capacity# [N]	⚖
452771	RE.G2-100-RSL	100	15	32	40	40	9	2500	1800	1800	440
452772	RE.G2-125-RSL	125	20	47	50	59	14	3200	2300	2300	840
452773	RE.G2-160-RSL	160	20	47	50	59	14	4200	3000	3000	1220
452774	RE.G2-200-RSL	200	20	52	50	60	17.5	10000	3000	5000	2000

For static load, rolling resistance and dynamic carrying capacity see Technical Data on page 2014.

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Elastic rubber wheels

Steel sheet bracket for medium-heavy loads

COVERING
Elastic rubber, hardness 70 Shore A.

WHEEL CENTRE BODY
Pressure die-cast aluminium.

ROLLING ACTION
Hub with ball bearings. Ideal solution for heavy loads and continuous moving.

FIXED PLATE BRACKET
Yellow zinc-plated steel sheet (test in saline fog chamber above 72h). The bracket is designed to withstand loads up to 7500N. It ensures capacities that make it suitable for heavy industrial applications.

TURNING PLATE BRACKET
Yellow zinc-plated steel sheet (test in saline fog chamber above 72h). The presence of a double ball race and the direct contact between the plate and the ball race ring with built-in pin ensure excellent manoeuvrability. Does not require maintenance. The bracket is designed to withstand loads up to 7500N. It ensures capacities that make it suitable for heavy industrial applications.
It consists of (see Fig.1):
1. fitting plate: yellow zinc-plated steel sheet;
2. fork: yellow zinc-plated steel sheet;
3. ball race ring: yellow zinc-plated steel sheet;
4. central pin: class 8.8 steel screw and steel nut;
5. rotation system: dual grease-lubricated ball race;
6. dust seal: RAL 7015 dark grey technopolymer.

BRAKE
Dual-effect rear brake with simultaneous locking of wheel and bracket. The brake is simple and effective to use: it is actuated and released by a simple action from the top downward at the tip of two separate pedals, thus ensuring the utmost manoeuvring comfort. The braking efficacy may be adjusted with a socket head screw M8.

STANDARD EXECUTIONS
- **PSL-H**: fixed bracket, without brake.
- **SSL-H**: turning plate bracket, without brake.
- **SSF-H**: turning plate bracket, with brake.

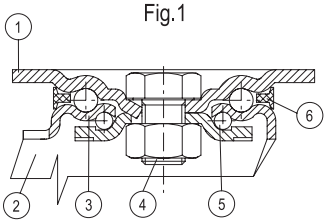
APPLICATIONS
Wear and tearing resistance.
For further information see RE.G2 on page 2001.







Fig.1



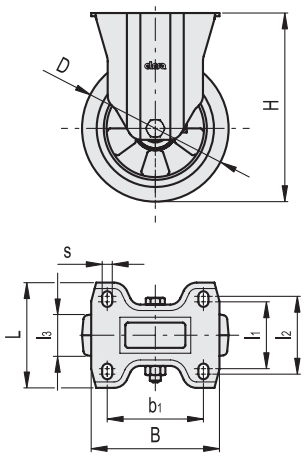
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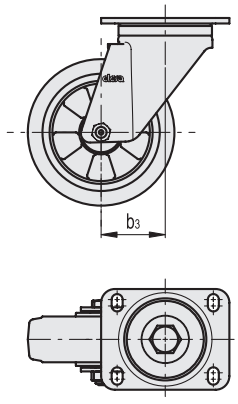
RE.G2-H

Elastic rubber wheels

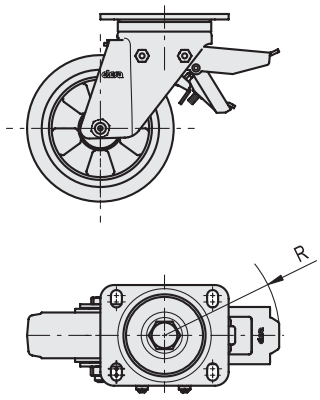
RE.G2-PSL-H



RE.G2-SSL-H



RE.G2-SSF-H



Code	Description	D	b1	l1	l2	l3	H	B	L	s	b3	R	Rolling resistance# [N]	Dynamic carrying capacity# [N]	⚖
452785	RE.G2-100-PSL-H	100	80	60	-	40	138	100	85	9	-	-	1800	1800	810
452786	RE.G2-125-PSL-H	125	105	73	85	50	170	140	110	11	-	-	2300	2300	1660
452787	RE.G2-160-PSL-H	160	105	73	87	50	205	140	110	11	-	-	3000	3000	2080
452788	RE.G2-200-PSL-H	200	105	73	87	50	250	140	110	11	-	-	3000	5000	3000
452775	RE.G2-100-SSL-H	100	80	60	-	40	138	100	85	9	46	-	1800	1800	1310
452776	RE.G2-125-SSL-H	125	105	73	85	50	170	140	110	11	70	-	2300	2300	2300
452777	RE.G2-160-SSL-H	160	105	73	87	50	205	140	110	11	70	-	3000	3000	3570
452778	RE.G2-200-SSL-H	200	105	73	87	50	250	140	110	11	70	-	3000	5000	4460
452781	RE.G2-160-SSF-H	160	105	73	87	50	205	140	110	11	70	126	3000	3000	4140
452782	RE.G2-200-SSF-H	200	105	73	87	50	250	140	110	11	70	126	3000	5000	5060

For rolling resistance and dynamic carrying capacity see Technical Data on page 2014.

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RoHS 400 - 700 N

Wheels for the general public

Injected polyurethane covering

COVERING
Injected polyurethan, hardness 55 Shore D.

WHEEL CENTRE BODY
Polyamide-based technopolymer (PA).

ROLLING ACTION
Hub with pass-through hole.

FIXED PLATE BRACKET
Electrolytically zinc-plated steel sheet bracket.

TURNING PLATE BRACKET
Electrolytically zinc-plated steel sheet bracket.
The presence of a double ball race and the direct contact between the plate and the ball race ring with built-in pin ensure excellent manoeuvrability.

FRONT-ACTUATED BRAKE
Total brake that locks the wheel and bracket rotation. The optimised dimensions and the retractable pedal ensure minimal space occupied and maximum actuation ease.

STANDARD EXECUTIONS
- **PBL**: fixed plate bracket, without brake.
- **SBL**: turning plate bracket, without brake.
- **SBF**: turning plate bracket, with brake.
- **CBL**: turning plate bracket and threaded centre pin, without brake.
- **CBF**: turning plate bracket and threaded centre pin, with brake.
- **FBL**: turning plate bracket and centre pass-through hole, without brake.
- **FBF**: turning plate bracket and centre pass-through hole, with brake.

APPLICATIONS
Wheels for the general public, excellent smoothness and elasticity features, high wear and tearing resistance.

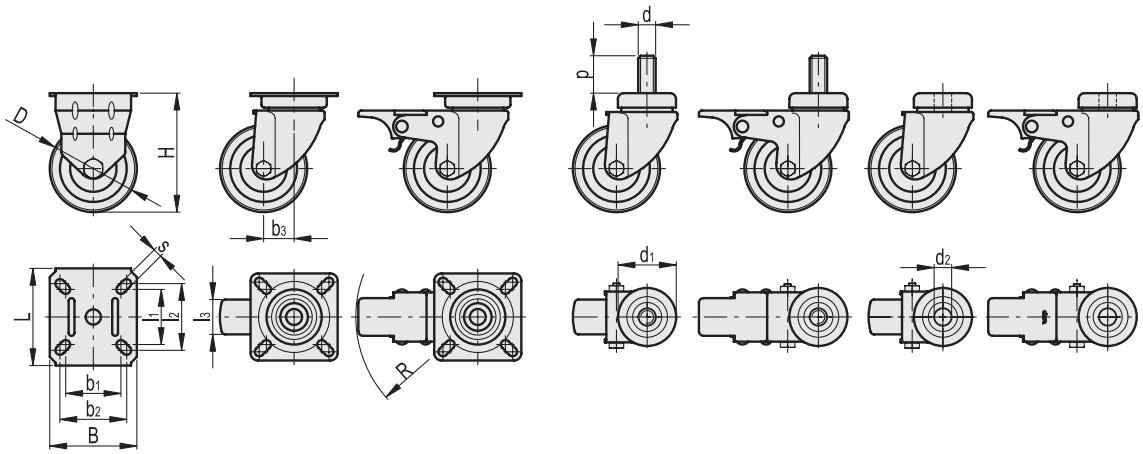
ENVIRONMENTAL CONDITIONS
Suitable for use in industrial and institutional environments, even in the presence of moisture and chemical agents.
The good resistance to frequent cleaning cycles makes it suitable for environments where it is necessary to ensure hygiene.





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RE.C6-PBL RE.C6-SBL RE.C6-SBF RE.C6-CBL RE.C6-CBF RE.C6-FBL RE.C6-FBF



Code	Description	D	d	p	d1	d2	l3	H	B	L	s	b1	l1	b2	l2	b3	R	Dynamic carrying capacity# [N]	⚖
451946	RE.C6-040-PBL	40	-	-	-	-	18	59	42	42	5	27	27	33	33	-	-	400	110
451948	RE.C6-050-PBL	50	-	-	-	-	18	66	55	55	6	38.5	38.5	44	44	-	-	550	120
451950	RE.C6-060-PBL	60	-	-	-	-	25	83	60	60	6	38	38	46	46	-	-	700	210
451926	RE.C6-040-SBL	40	-	-	-	-	18	59	42	42	5	30	30	33	33	24	-	400	110
451928	RE.C6-050-SBL	50	-	-	-	-	18	66	55	55	6	38.5	38.5	44	44	24	-	550	130
451930	RE.C6-060-SBL	60	-	-	-	-	25	83	60	60	6	38	38	48	48	21	-	700	240
451936	RE.C6-040-SBF	40	-	-	-	-	18	59	42	42	5	30	30	33	33	24	78	400	130
451938	RE.C6-050-SBF	50	-	-	-	-	18	66	55	55	6	38.5	38.5	44	44	24	76	550	160
451940	RE.C6-060-SBF	60	-	-	-	-	25	83	60	60	6	38	38	48	48	21	84	700	280
451956	RE.C6-040-CBL	40	M10	20	35	-	18	59	-	-	-	-	-	-	-	24	-	400	120
451958	RE.C6-050-CBL	50	M10	20	35	-	18	66	-	-	-	-	-	-	-	24	-	550	130
451960	RE.C6-060-CBL	60	M12	25	42	-	25	83	-	-	-	-	-	-	-	21	-	700	240
451966	RE.C6-040-CBF	40	M10	20	35	-	18	59	-	-	-	-	-	-	-	24	78	400	140
451968	RE.C6-050-CBF	50	M10	20	35	-	18	66	-	-	-	-	-	-	-	24	76	550	160
451970	RE.C6-060-CBF	60	M12	25	42	-	25	83	-	-	-	-	-	-	-	21	84	700	280
451976	RE.C6-040-FBL	40	-	-	35	10	18	59	-	-	-	-	-	-	-	24	-	400	100
451978	RE.C6-050-FBL	50	-	-	35	10	18	66	-	-	-	-	-	-	-	24	-	550	130
451980	RE.C6-060-FBL	60	-	-	42	13	25	83	-	-	-	-	-	-	-	21	-	700	240
451986	RE.C6-040-FBF	40	-	-	35	10	18	59	-	-	-	-	-	-	-	24	78	400	120
451988	RE.C6-050-FBF	50	-	-	35	10	18	66	-	-	-	-	-	-	-	24	76	550	130
451990	RE.C6-060-FBF	60	-	-	42	13	25	83	-	-	-	-	-	-	-	21	84	700	250

For dynamic carrying capacity see Technical Data on page 2014.

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RoHS 1400 N

Twin wheels for the general public

Injected polyurethane covering

COVERING
Injected polyurethan, hardness 55 Shore D.

WHEEL CENTRE BODY
Polyamide-based technopolymer (PA).

ROLLING ACTION
Hub with pass-through hole.

TURNING PLATE BRACKET
Electrolytically zinc-plated steel sheet bracket.
The presence of a double ball race and the direct contact between the plate and the ball race ring with built-in pin ensure excellent manoeuvrability.

FRONT-ACTUATED BRAKE
Total brake that locks the wheel and bracket rotation. The optimised dimensions and the retractable pedal ensure minimal space occupied and maximum actuation ease.

STANDARD EXECUTIONS
- **SBL-G**: turning plate bracket, without brake.
- **SBF-G**: turning plate bracket, with brake.
- **CBL-G**: turning plate bracket and threaded centre pin, without brake.
- **CBF-G**: turning plate bracket and threaded centre pin, with brake.
- **FBL-G**: turning plate bracket and centre pass-through hole, without brake.
- **FBF-G**: turning plate bracket and centre pass-through hole, with brake.

APPLICATIONS
Wheels for the general public with high carrying capacity, excellent smoothness and elasticity features, good wear and tearing resistance.

ENVIRONMENTAL CONDITIONS
RE.C6 twin wheels are suitable for use in industrial and institutional environments, even in the presence of moisture and chemical agents. The good resistance to frequent cleaning cycles makes it suitable for environments where it is necessary to ensure hygiene.













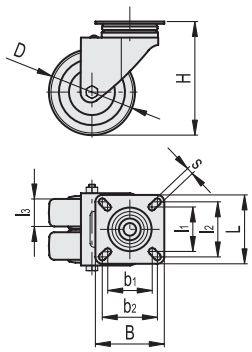


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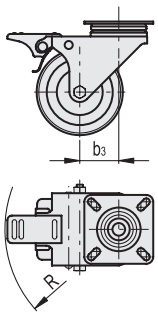
RE.C6-G

Twin wheels for the general public

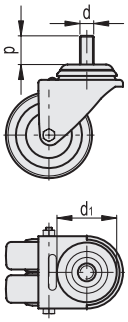
RE.C6-SBL-G



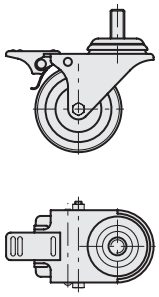
RE.C6-SBF-G



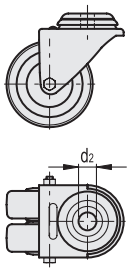
RE.C6-CBL-G



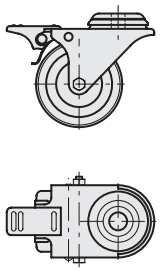
RE.C6-CBF-G



RE.C6-FBL-G



RE.C6-FBF-G



Code	Description	D	d	p	d1	d2	l3	H	B	L	s	b1	l1	b2	l2	b3	R	Dynamic carrying capacity# [N]	⚖
451929	RE.C6-050-SBL-G	50	-	-	-	-	18	71	60	60	6	39	39	49	49	25.5	-	1400	300
451939	RE.C6-050-SBF-G	50	-	-	-	-	18	71	60	60	6	39	39	49	49	25.5	83	1400	350
451959	RE.C6-050-CBL-G	50	M10	25	52	-	18	71	-	-	-	-	-	-	-	25.5	-	1400	310
451969	RE.C6-050-CBF-G	50	M10	25	52	-	18	71	-	-	-	-	-	-	-	25.5	83	1400	360
451979	RE.C6-050-FBL-G	50	-	-	55	10	18	71	-	-	-	-	-	-	-	25.5	-	1400	270
451989	RE.C6-050-FBF-G	50	-	-	55	10	18	71	-	-	-	-	-	-	-	25.5	83	1400	320

For dynamic carrying capacity see Technical Data on page 2014.

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RoHS 350 - 550 N

Wheels for the general public

Vulcanised rubber coating

COVERING
Grey anti-trace vulcanised rubber.

WHEEL CENTRE BODY
Polyamide based (PA) technopolymer.

ROLLING ACTION
Hub with pass-through hole.

FIXED PLATE BRACKET
Electrolytically zinc-plated steel sheet bracket.

TURNING PLATE BRACKET
Electrolytically zinc-plated steel sheet bracket.
The presence of a double ball race and the direct contact between the plate and the ball race ring with built-in pin ensure excellent manoeuvrability.

FRONT-ACTUATED BRAKE
Total brake that locks the wheel and bracket rotation. The optimised dimensions and the retractable pedal ensure minimal space occupied and maximum actuation ease.

STANDARD EXECUTIONS
- **PBL**: fixed plate bracket, without brake.
- **SBL**: turning plate bracket, without brake.
- **SBF**: turning plate bracket, with brake.
- **CBL**: turning plate bracket and threaded centre pin, without brake.
- **CBF**: turning plate bracket and threaded centre pin, with brake.
- **FBL**: turning plate bracket and centre pass-through hole, without brake.
- **FBF**: turning plate bracket and centre pass-through hole, with brake.

APPLICATIONS
Wheels for the general public, excellent rolling resistance and elasticity features.

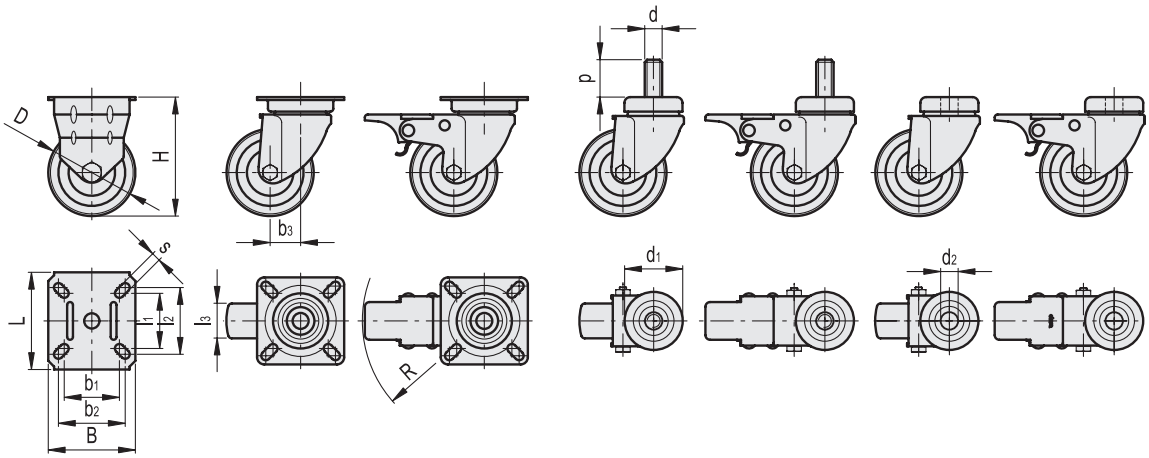
ENVIRONMENTAL CONDITIONS
Suitable for use in humid environments and in the presence of medium-aggressive chemical environments; use in environments with the presence of organic, chlorinated solvents, hydrocarbons and mineral oils is not recommended.





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RE.C7-PBL RE.C7-SBL RE.C7-SBF RE.C7-CBL RE.C7-CBF RE.C7-FBL RE.C7-FBF



Code	Description	D	d	p	d1	d2	b1	l1	b2	l2	l3	H	B	L	s	b3	R	Dynamic carrying capacity# [N]	⚖
452096	RE.C7-040-PBL	40	-	-	-	-	27	27	33	33	18	59	42	42	5	-	-	300	110
452101	RE.C7-050-PBL	50	-	-	-	-	38.5	38.5	44	44	20	67	55	55	6	-	-	350	200
452106	RE.C7-060-PBL	60	-	-	-	-	39.5	39.5	48	48	24	83	60	67	6	-	-	500	260
452111	RE.C7-080-PBL	80	-	-	-	-	39.5	39.5	48	48	24	104	60	67	6	-	-	550	340
451996	RE.C7-040-SBL	40	-	-	-	-	30	30	33	33	18	59	42	42	5	24	-	300	120
452001	RE.C7-050-SBL	50	-	-	-	-	38.5	38.5	44	44	20	67	55	55	6	24	-	350	200
452006	RE.C7-060-SBL	60	-	-	-	-	38.5	38.5	48	48	24	83	60	67	6	21	-	500	280
452011	RE.C7-080-SBL	80	-	-	-	-	38.5	38.5	48	48	24	104	60	67	6	30	-	550	430
452046	RE.C7-040-SBF	40	-	-	-	-	30	30	33	33	18	59	42	42	5	24	78	300	150
452051	RE.C7-050-SBF	50	-	-	-	-	38.5	38.5	44	44	20	67	55	55	6	24	76	350	240
452056	RE.C7-060-SBF	60	-	-	-	-	38.5	38.5	48	48	24	83	60	67	6	21	84	500	400
452061	RE.C7-080-SBF	80	-	-	-	-	38.5	38.5	48	48	24	104	60	67	6	30	91	550	500
452146	RE.C7-040-CBL	40	M8	15	35	-	-	-	-	-	18	59	-	-	-	24	-	300	130
452151	RE.C7-050-CBL	50	M8	15	35	-	-	-	-	-	18	66	-	-	-	24	-	350	180
452156	RE.C7-060-CBL	60	M12	25	41	-	-	-	-	-	24	83	-	-	-	21	-	500	290
452161	RE.C7-080-CBL	80	M12	25	41	-	-	-	-	-	24	104	-	-	-	25	-	550	390
452196	RE.C7-040-CBF	40	M8	15	35	-	-	-	-	-	18	59	-	-	-	24	78	300	180
452201	RE.C7-050-CBF	50	M8	15	35	-	-	-	-	-	18	66	-	-	-	24	76	350	210
452206	RE.C7-060-CBF	60	M12	25	41	-	-	-	-	-	24	83	-	-	-	21	84	500	360
452211	RE.C7-080-CBF	80	M12	25	41	-	-	-	-	-	24	104	-	-	-	25	91	550	460
452246	RE.C7-040-FBL	40	-	-	35	10	-	-	-	-	18	59	-	-	-	24	-	300	110
452251	RE.C7-050-FBL	50	-	-	35	10	-	-	-	-	18	66	-	-	-	24	-	350	200
452256	RE.C7-060-FBL	60	-	-	41	12	-	-	-	-	24	83	-	-	-	21	-	500	280
452261	RE.C7-080-FBL	80	-	-	41	12	-	-	-	-	24	104	-	-	-	25	-	550	430
452296	RE.C7-040-FBF	40	-	-	35	10	-	-	-	-	18	59	-	-	-	24	78	300	140
452301	RE.C7-050-FBF	50	-	-	35	10	-	-	-	-	18	66	-	-	-	24	76	350	240
452306	RE.C7-060-FBF	60	-	-	41	12	-	-	-	-	24	83	-	-	-	21	84	500	400
452311	RE.C7-080-FBF	80	-	-	41	12	-	-	-	-	24	104	-	-	-	25	91	550	500

For dynamic carrying capacity see Technical Data on page 2014.

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RE.C7-G

RoHS | 600 - 800 N

Twin wheels for the general public

Vulcanised rubber coating



COVERING
Grey anti-trace vulcanised rubber.

WHEEL CENTRE BODY
Polyamide-based technopolymer (PA).

ROLLING ACTION
Hub with pass-through hole.

TURNING PLATE BRACKET
Electrolytically zinc-plated steel sheet bracket.
The presence of a double ball race and the direct contact between the plate and the ball race ring with built-in pin ensure excellent manoeuvrability.

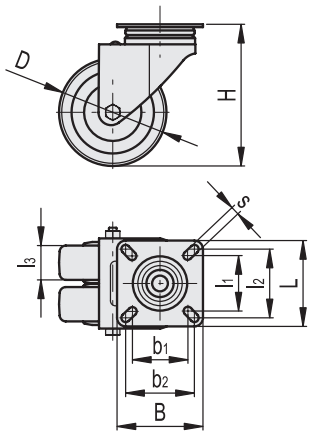
FRONT-ACTUATED BRAKE
Total brake that locks the wheel and bracket rotation. The optimised dimensions and the retractable pedal ensure minimal space occupied and maximum actuation ease.

STANDARD EXECUTIONS
- **SBL-G**: turning plate bracket, without brake.
- **SBF-G**: turning plate bracket, with brake.
- **CBL-G**: turning plate bracket and threaded centre pin, without brake.
- **CBF-G**: turning plate bracket and threaded centre pin, with brake.

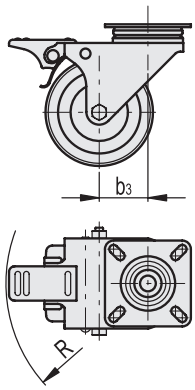
APPLICATIONS
Wheels for the general public with high carrying capacity, excellent smoothness and elasticity features.

ENVIRONMENTAL CONDITIONS
The twin wheels RE.C7-G are suitable for use in humid environments and in the presence of medium-aggressive chemical environments; use in environments with the presence of organic, chlorinated solvents, hydrocarbons and mineral oils is not recommended.

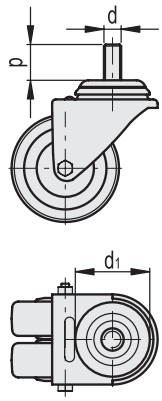
RE.C7-SBL-G



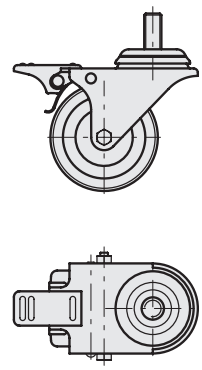
RE.C7-SBF-G



RE.C7-CBL-G



RE.C7-CBF-G

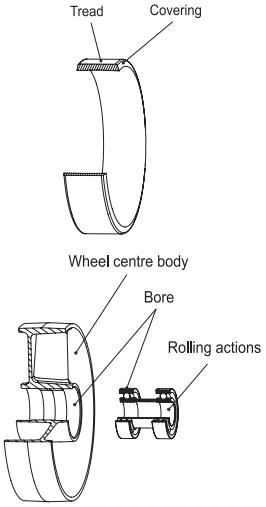


Code	Description	D	d	p	d1	b1	l1	b2	l2	l3	H	B	L	s	b3	R	Dynamic carrying capacity# [N]	⚖
452002	RE.C7-050-SBL-G	50	-	-	-	38.5	38.5	48	48	18	70	60	60	6	30	-	600	350
452010	RE.C7-075-SBL-G	75	-	-	-	38.5	38.5	48	48	24	100	60	60	6	33	-	800	640
452052	RE.C7-050-SBF-G	50	-	-	-	38.5	38.5	48	48	18	70	60	60	6	30	82	600	400
452050	RE.C7-075-SBF-G	75	-	-	-	38.5	38.5	48	48	24	100	60	60	6	33	95	800	720
452152	RE.C7-050-CBL-G	50	M10	15	42	-	-	-	-	18	70	-	-	-	30	-	600	300
452160	RE.C7-075-CBL-G	75	M12	25	52	-	-	-	-	24	100	-	-	-	33	-	800	500
452202	RE.C7-050-CBF-G	50	M10	15	42	-	-	-	-	18	70	-	-	-	30	82	600	370
452210	RE.C7-075-CBF-G	75	M12	25	52	-	-	-	-	24	100	-	-	-	33	95	800	680

For dynamic carrying capacity see Technical Data on page 2014.

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1. GENERAL INFORMATION



The wheel is a mechanical assembly in which sliding motion is replaced by rolling motion through rotation around an axis. The wheel consists of the following components:
the tread, the covering, the wheel centre body, the bore and the rolling action.

• **Tread**

The tread is the wheel's outer surface, i.e. the part that comes in contact with the ground. It can be smooth or engraved with raised patterns to increase its grip on the ground.

• **Covering**

The covering, or rolling strip, is the outer ring. It is made of different materials and characterises the wheel. The covering is fixed when joined with the wheel centre body as a single solid piece (using an adhesive or through a mechanical connection) or fitted when mechanically assembled on the wheel centre body.

• **Wheel centre body**

The wheel centre body is the wheel part that connects the covering to the bore. It comes in various shapes and is made of different materials; it can be a single piece or two or more parts joined together.

• **Bore and rolling actions**

The bore is the middle part of the wheel that houses the axle or the rolling actions that make rotation easier (ball bearings, roller bearings, plain bearings, etc.).
Depending on the construction methods and materials forming the covering, wheels can be divided into three families: rubber wheels, polyurethane wheels and monolithic (or hard tread) wheels.

1.1 Rubber wheels

A rubber wheel covering consists of an elastomer made from natural and/or synthesised rubber. The rubber used to build industrial wheels can be vulcanised or injection moulded.

• **Vulcanised rubber:** special mineral loads and vulcanising agents are added to the rubber that under goes a process called "vulcanising". During this process, the rubber's molecular structure changes significantly: the "pasty" material at the beginning of the process becomes a non-fusible product that acquires and, over time, maintains the form of the mould in which the reaction occurs. The ring obtained is mechanically assembled to the wheel centre body. Vulcanised rubber has enhanced elastic deformability properties within relatively broad ranges of applied traction and compression loads. The physical-mechanical characteristics of vulcanised rubber vary according to the quality of the natural and/or synthesised rubber used, the type and quantity of mineral loads added and the conditions under which the vulcanisation process takes place.

• **Injected rubber:** the rubber goes through a chemical synthesis process. The material obtained is injected into a mould in which the wheel centre body has already been inserted. The injected rubber maintains its fusibility even after moulding. Normally, the elastic properties of injected rubber are worse than those of the best quality vulcanised rubber, even though they are comparable to those of medium and low-quality vulcanised rubber. The following are some of the main physical-mechanical parameters relative to the quality of rubber (for the definition of each parameter see the standards indicated next to that parameter):

- hardness UNI EN ISO 868:1999; ASTM D 2240-2004
- specific density UNI 7092:1972; ISO 2781:1988
- impact strength UNI 7716:2000; ISO 4662:1986
- abrasion loss UNI 9185:1988; DIN 53516:1987
- ultimate tensile strength UNI 6065:2001; ISO 37:1994; ASTM D 412c-1998
- ultimate elongation UNI 6065:2001; ISO 37:1994; ASTM D 412c-1998
- tearing resistance UNI 4914:1987; ASTM D 624b-2000
- compression set UNI ISO 815:2001

These parameters are not independent; in other words, changing one of them usually leads to a change in other parameters (to varying degrees). Hardness is the easiest parameter to determine: in general, increased hardness reduces the elastic properties (impact strength, ultimate elongation, compression set) and lowers overall wheel performances. Instead, parameters such as tearing resistance and abrasion loss depend mainly on the composition of the vulcanised rubber and, to a lesser extent, on hardness.

1.2 Polyurethane wheel

A polyurethane wheel covering consists of an elastomer obtained exclusively from the synthesis of raw materials. Polyurethanes are chemical compounds obtained from a polymerisation reaction triggered by mixing two components, belonging to two different families of compounds (Di-Isocyanates and Polyalcohols), that were previously heated to temperatures that keep them in the liquid state with relatively low viscosity. In general, elastomer polyurethanes do not contain any additional mineral loads. The reactive mix is cast or injected into heated moulds containing the metal or plastic centres. Thanks to the temperature of the mould and of the wheel centre body, the polymerisation reaction can be completed inside the polyurethane, while the polyurethane is chemically linked to any adhesive that may be present on the surface of the wheel centre body.

• **Mould-on polyurethane** is no longer fusible, has good elasticity characteristics in addition to medium-high hardness and compression and traction strength.

• **Injected polyurethane** is fusible even after moulding; in general, it has inferior elasticity characteristics but superior hardness with respect to mould-on polyurethane.

• The following are some of the main physical-mechanical characteristics of polyurethane (for the definition of each characteristic see the standards indicated next to that parameter):

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- durezza UNI EN ISO 868:1999; ASTM D 2240-2004
- densità specifica UNI 7092:1972; ISO 2781:1988
- resilienza UNI 7716:2000; ISO 4662:1986
- perdita per abrasione UNI 9185:1988; DIN 53516:1987
- carico di rottura a trazione UNI 6065:2001; ISO 37:1994; ASTM D 412c-1998
- allungamento a rottura trazione UNI 6065:2001; ISO 37:1994; ASTM D 412c-1998
- resistenza alla lacerazione UNI 4914:1987; ASTM D 624b-2000
- compression set UNI ISO 815:2001.

1.3 Monolithic (hard tread) wheels

In monolithic (hard tread) wheels, the wheel centre body and the covering are made with the same material. The physical-mechanical characteristics of the wheel will change depending on the material used.

2. BRACKETS

The bracket is the part that connects the wheel to the equipment. Normally, all wheels need a bracket to be applied to the equipment; an exception is made for wheels whose axle is built into the equipment. Brackets can be the swivel or the fixed type.
ELESA wheels are coupled to various types of bracket made out of zinc-plated steel sheet, AISI 304 stainless steel or electro-welded steel described in detail in the respective product data sheets.
The description of the brackets made out of steel sheet follows by way of example.

2.1 Swivel bracket

The swivel bracket rotates around its own vertical axis as the running direction changes. The wheel axis is misaligned with respect to the bracket axis so that it is easier to manoeuvre the equipment. "Manoeuvrability" is defined as the ability of the equipment to change direction, while "directionality" refers to the equipment's ability to maintain a trajectory along a specific direction. Excessive offset reduces equipment directionality due to "sliding" of the wheel (the "Swimmy" effect). Swivel brackets can also be equipped with brakes. The swivel bracket consists of a connecting plate, a fork, a ball race ring, swivel actions, a central pin and, if necessary, a dust seal.

- **Fitting plate**

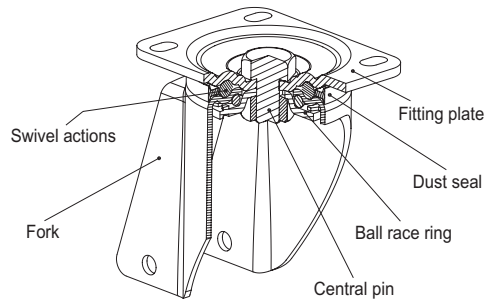
The fitting plate is used to connect the bracket to the equipment (four connection holes).

- **Wheel support fork**

The fork is the piece with the characteristic upside-down "U" shape that supports the wheel. Holes are drilled at the bottom to house the wheel's axle set, while the swivel actions are inserted in the top.

- **Ball race ring**

The ball race ring contains the castor's swivel actions.
In special cases, it can also be used only as a dust seal or a guard.



- **Swivel actions**

Swivel actions allow the plate to rotate on the fork. They consist of a ring of balls in contact between the plate and the fork (called "ball gyro") lubricated with grease to protect against dust, liquids and other aggressive agents. The bracket load capacity varies significantly according to the type of swivel action being used.

- **Central pin**

The central pin is the part that joins the plate and the ball race ring. Thanks to the central pin, the plate and the ball race ring form a single piece, while the fork is free to rotate around its own axis. The pin can:

- be incorporated in the plate, through forming and riveting after assembling the parts;
- be incorporated in the plate, through hot forming on the plate and tightening with a self-locking nut;
- consist of a screw and a nut.

- **Dust seal**

The dust seal protects the swivel actions of the bracket against dust and solid and medium-grain aggressive agents.

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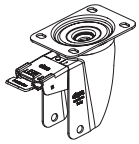
2.2 Fixed bracket

The fixed bracket is designed to keep the wheel moving in a specific direction; therefore, it guarantees equipment directionality. Instead, equipment manoeuvrability depends on the use of swivel brackets. In general, the fixed bracket consists of a single pressed steel plate shaped into an upside-down "U". Holes to house the wheel axle set are drilled at the bottom, while the equipment attachment holes are at the top.



2.3 Swivel bracket with brake

The brake is the device that allows the blocking of the rotation of the bracket around its axis, of the rotation of the wheel and of the rotation of the castor (wheel+bracket assembly).



3. AXLE SET

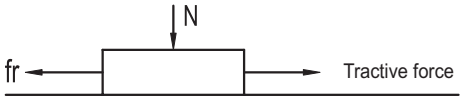
The axle set is the piece used to connect the wheel to the castor. Normally, it consists of a threaded pin with nut, washers, tube and, where necessary, spacers. For standard applications, the axle set can be riveted directly on the castor fork.

4. LOADS, FRICTION AND FORCES

Dissipative forces or friction occur along the contact surfaces between bodies and tend to oppose the movement.

4.1 Sliding friction

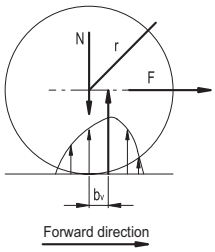
Sliding friction force opposes the movement between two contact surfaces that slide against each other. This force depends on the type of contact surfaces (materials and finishing level) and on the load applied in the direction perpendicular to the motion direction (Normal force).



In mathematical terms, the sliding friction force is defined as follows:
Fr=br x N where: **br** = sliding friction coefficient **N** = normal force (or load)

If two bodies are initially stationary, the resistance force is called the static friction force and represents the minimum force that must be applied to start moving the two bodies. When the two bodies are in relative motion, a force lower than the static friction force is sufficient to keep the speed constant: this is called the dynamic friction force. The friction coefficient is obtained experimentally for both static friction and dynamic friction.

4.2 Rolling friction



Rolling friction force is generated when two bodies roll on each other without sliding. Let's imagine a wheel with **radius r** subjected to a **load N**. As the wheel approaches the contact point, the material is compressed and afterwards, once the contact point has been surpassed, undergoes an elastic release. If the material used to manufacture the wheel is not perfectly elastic, some of the energy required for compression is lost in the subsequent return phase – dissipated in the form of heat to counteract internal frictional resistance of the material. If we think in terms of forces, instead of energies, we could say that the distribution of pressure in the contact is not symmetrical compared to the direction of force N. The diagram of pressure generates, therefore, a resultant equal to N but moved forward with respect to the wheel axis by a distance bv (arm of the rolling friction). The displacement of the resultant generates a moment of resistance. To keep the wheel turning evenly it is necessary to apply a motive moment identical to and opposite **Mr** or a **traction force F** parallel to the forward direction and such that.
From the previous formulas we obtained:

$$F = \frac{M_r}{r} = \frac{b_v \times N}{r} = f_v \times N$$

Where:

$$f_v = \frac{b_v}{r}$$

With **fv** known as the **rolling friction coefficient** which can be found with experimental tests.

4.3 Tractive force

Tractive force is the force needed to overcome the resistance caused by friction when two bodies slide or roll on each other. Compared to the resistance generated by friction, tractive force has the same intensity and the same sense, but the opposite direction. The lower the force needed to keep a equipment moving, the greater the smoothness of the wheel applied to the moving equipment. In the specific case of a wheel rolling on a flat surface, the tractive force must overcome the resistance caused by rolling friction - that arises when the wheel comes in contact with the surface - and by sliding friction - generated by the mechanical bore and axle set coupling.

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5. CHOOSING THE RIGHT WHEEL

Any product that isn't used under the conditions for which it was designed may not satisfy the user's needs. It may also damage materials and cause injuries. Here are some examples in which wheels and castors are used incorrectly:

- using a wheel not suitable for the floor will deteriorate the wheel covering and damage the floor;
- choosing a fixed castor under operating conditions for which a equipment must be vey manoeuvrable will make it extremely difficult to move that equipment;
- applying a load that exceeds the wheel's rated load capacity will lead to wheel malfunctions and premature deterioration.

Therefore, a technical analysis of the operating conditions must be performed. The most economical solution should be chosen only after the product has been technically evaluated. The purpose of performing a technical analysis on a equipment moving solution is to define the operating conditions and any external factors that may affect equipment use. The following factors must be analysed in order to choose the right wheel:

- **nature and condition of the ground (5.1)**
- **environment (5.2)**
- **magnitude and nature of the load (5.3)**
- **speed and means of traction (5.4)**
- **manoeuvrability (5.5)**
- **diagrams (5.6)**

The process of choosing the right wheel to match the operating conditions can be divided into three steps: **step one:** identifying the correct type of wheel based on the floor and the characteristics of the operating environment; **step two:** calculating the dynamic capacity, static load and rolling resistance required by the specific application and, therefore, determining the wheel diameter; **step three:** identifying the correct bracket and checking the dynamic capacity of the castor (wheel+bracket assembly). If the evaluation of these various aspects generates different data with reference to the same wheel and/or castor characteristic, the final choice must be made based on the most conservative condition.

• **Static load[N]**

Static load is the maximum load that a motionless (stationary) wheel can support without generating any permanent deformations that may reduce its operating efficiency. A wheel mounted on a equipment that is seldom moved, and therefore almost always remains in the same position, is defined as being subjected to a static load.

• **Dynamic carrying capacity**

Dynamic carrying capacity of a wheel is defined as the value (expressed in N) of the maximum load that can be supported by that wheel in conformity with ISO 22883:2004 and UNI EN 12532:2001 that, for industrial wheels, require dynamic testing under the following conditions:

- constant speed of 1.1 m/s (4 km/h)
- overcoming 500 obstacles and 15,000 revolutions of the diameter;
- obstacles with width 100 mm and height 5% of the wheel diameter with an elastic rolling strip (hardness up to 90 Shore A) and 2.5% of the diameter for wheels with a rigid rolling strip (hardness greater than 90 Shore A);
- temperature 20 °C (tolerance ± 10 °C);
- non-continuous operation (3 minutes of operation and 1 minute stopped);
- smooth, hard and horizontal floor.

• **Rolling resistance**

Rolling resistance is the value (expressed in N) of the maximum load that can be supported by each single wheel at a constant speed of 4 km/h with application of a tractive force or thrust equal to 50N (excluding the initial pickup). This value is obtained by applying a tractive force of 200N to a 4-wheeled equipment and measuring the magnitude of the maximum transportable load per wheel during normal moving conditions. The applied tractive force of 200N complies with the international workplace standard for indoor moving and is universally recognised as the human fatigue limit that can be supported for extended periods of time.

5.1 Nature and condition of the ground

The nature and condition of the ground and the presence of any obstacles will havean influence on choosing the right wheel. They are also important factors affecting the performance of the moving equipment as well as the efficiency and the duration of the wheels and castors. Special attention is required for cases involving uneven floors or where obstacles are present. In this case, the impact of the wheel against an obstacle generates advancement resistance whose magnitude depends on the elasticity of the rolling strip material. In fact, the energy absorbed during an impact is greater in a wheel with an elastic rolling strip than in a rigid wheel, thus partially cancelling the braking effects caused by the obstacle. For floors that are uneven or on which obstacles are present, with load capacity being equal, a wheel with a greater diameter should be chosen in order to overcome the obstacle. The wheel must be chosen very carefully in all cases in which there are obstacles, chemical and/or organic substances and machining residues. The main types of flooring are: tiles, asphalt, cement-resin, not paved floor, expanded metal floor, floor with chips, obstacles etc.
The main floor-wheel covering combinations are listed in the following table.

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Floor type	Suitable covering
Tiles	Polyurethane or rubber
Asphalt	Rubber
Cement-resin	Polyurethane or rubber
Not paved	Rubber
Expanded metal	Rubber
With chips/obstacles	Rubber

5.2 Environment

To choose the right wheel, it's also important to determine if the wheel materials are compatible with the chemical-environmental conditions, the temperature, the humidity and the inductive electrostatic phenomena that may affect wheel operation. The standard operating conditions are indicated in the manufacturer's catalogue for each type of wheel.

Chemical-environmental conditions

Because there are so many different types of aggressive chemical agents in work environments, it's difficult to provide a complete and exhaustive description.The main chemical substances that a wheel may come in contact with include: weak acids (e.g. boric acid, sulphurous acid), strong acids (e.g. hydrochloric acid, nitric acid), weak bases (e.g. alkaline solutions), strong bases (soda, caustic soda), chlorinated and aromatic solvents (e.g. acetone, turpentine), hydrocarbons (e.g. petrol, oil, diesel oil, mineral oils), alcohol (e.g. ethyl alcohol), fresh water, salt water, saturated steam. Therefore, when choosing a wheel, it's very important to check if the material forming the covering, the wheel centre body, the rolling actions and the bracket is compatible with the specific features of the operating environment. Caution is required in those sectors in which water, acids, bases, steam and other aggressive agents are often present. For example, a polyurethane wheel should be used instead of a tyred wheel in environments with a large quantity of oils, fats and hydrocarbons, while it is recommended to use stainless steel castors in humid environments and in the presence of high saline concentrations.

Temperature

If operating temperatures in an application differ from the standard range of values indicated by the manufacturer, check the resistance of the wheel materials. This not only applies to the rolling strip and the wheel centre body, but also to the type of lubricant used (it may be necessary to contact the manufacturer). The indicative percentages of carrying capacity variation as a function of temperature are shown in the following table.

Temperature range [°C]		**Carrying capacity variation coefficient (1 = 100% of the carrying capacity)**										
from	to	RE.FF	RE.F2	RE.F5	RE.F4	RE.F7	RE.F8	RE.G1	RE.E2	RE.E3	RE.G2	RE.G5
-40	-20	▲	▲	▲	▲	0,50	0,50	▲	▲	0,40	0,40	▲
-20	0	1,00	1,00	1,00	1,00	1,00	1,00	0,80	1,00	1,00	1,00	1,00
0	+20	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00
+20	+40	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00
+40	+60	0,90	0,90	0,90	0,90	1,00	0,90	0,85	0,85	0,85	0,85	0,90
+60	+80	0,70	0,80	0,80	0,80	1,00	0,70	0,50	0,60	0,60	0,60	0,80
+80	+120	0,40	▲	0,40	0,40	1,00	0,60	▲	▲	▲	0,40	0,40
> 120 °C		▲	▲	▲	▲	1,00	▲	▲	▲	▲	▲	▲

▲ not recommended

The above-mentioned variation values refer to the prolonged and continued use (over 30 minutes) of the wheels at the specified ambient temperatures.

5.3 Magnitude and nature of the load

The magnitude of the load is the value [N] obtained by adding the weight to be transported to the equipment weight (tare). The nature of the load, either a liquid or a solid, has a significant effect on the wheel load capacity calculation. The formula to determine the load capacity for each wheel is:

$$Q = \frac{P_U + P_C}{n}$$

where: **Q** = load capacity for each wheel **Pu** = weight to transport **Pc** = equipment tare (equipment weight) n = number of wheels in contact with the ground

SOLID LOAD

For a solid load, n=3 for a four-wheeled equipment (where three out of four wheels are considered to be in contact with the ground at all times).

LIQUID LOAD

For a liquid load n=2 for a four-wheeled equipment (where two out of four wheels are considered to be alternatively in contact with the ground). A thorough analysis is indispensable when the equipment is

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part of an automated or continuous cycle production unit. In this case, all the forces that act on the wheel must be taken into consideration; therefore, it is recommended to include allowances and safety factors.

5.4 Speed and means of traction

Equipment speed is an important factor when choosing a wheel. In fact, if the speed is 0, and thus the use is mainly static, it is enough to compare the load capacity for each wheel with the static load indicated in the manufacturers' catalogues. If the speed is other than 0, then the means of traction must be taken into consideration. The means of traction is the tool used to exert the force that moves the body. In industry, traction devices can be manual or mechanical. Manual moving refers to the situation in which the force is exerted by one or more persons, while mechanical refers to the situation in which such force is exerted by a mechanical device (on-board drives or by using towing devices).

• Manual moving

For manual moving, the speed is generally less than or equal to 4 km/h. Choosing a wheel that allows only one operator to move a load should be based on a wheel rolling resistance value determined by the following formula:

$$S = \frac{P_U + P_C}{n}$$

where: **S** = rolling resistance **Pu** = weight to transport **Pc** = equipment tare (equipment weight) n = number of equipment wheels (maximum 4). The value obtained should be compared to the wheel rolling resistance value indicated in the manufacturer's catalogue.

• Mechanical moving with towing devices

In case of towed mechanical moving, the wheel should be chosen based on the equipment's operating speed. The wheel rated dynamic load capacity normally refers to a speed of no more than 4 km/h (1.1 m/s). If the speed is higher than 4 km/h, a correction factor must be applied to the load capacity value since the materials forming the wheel undergo chemical-physical changes during which their performances decrease with an increase in operating speed. The indicative percentages of load capacity variation with an increase in speed for different types of wheels are shown in the following table.

Speed range [Km/h]		**Carrying capacity variation coefficient (1,00 = 100% of the carrying capacity)**										
min	MAX	RE.FF	RE.F2	RE.F5	RE.F4	RE.F7	FE.F8	RE.G1	RE.E2	RE.E3	RE.G2	RE.G5
0,00	4,00	1,00	1,00	1,00	1,00	1,0	1,00	1,00	1,00	1,00	1,00	1,00
4,00	6,00	▲	1,00	0,80	0,80	▲	▲	▲	▲	▲	0,80	0,80
6,00	10,00	▲	0,80	0,60	0,60	▲	▲	▲	▲	▲	0,60	0,65
10,00	16,00	▲	0,60	0,40	0,40	▲	▲	▲	▲	▲	0,40	0,50
> 16 Km/h		▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲

▲ not recommended

• On-board mechanical movement

For equipments with an on-board drive (equipments with drive wheels – self-propelled equipments), the wheels are subjected to particular stress and strain. Besides supporting the load, the drive wheels must transmit the tangent stress that allows the wheel and therefore the equipment to advance. In addition, the drive wheel covering is subjected to even greater stress. In particular, when choosing wheels and castors for self-propelled equipments, the following factors must also be taken into consideration:

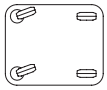
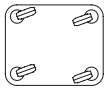
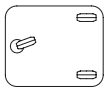
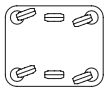
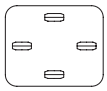
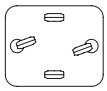
• type of plain or ball bearing applied in the bore;
• shaft/bore coupling tolerances;
• bore material in relation to shaft material;
• start and stopping frequency of the motion transmission part;
• direction reversals;
• presence of even temporary overloads.

Since many factors have to be evaluated, it is recommended to contact ELESA S.p.A. to choose the wheels and castors to apply to self-propelled equipments.

5.5 Manoeuvrability

Equipment manoeuvrability refers to the ability of a equipment to be moved more or less easily during use. The limited space available inside some production departments or particularly winding routes that sometimes connect a work unit to another may require special equipment manoeuvrability characteristics to make operator tasks easier. Swivel castors allow the equipment to rotate and the greater the castor offset (i.e. the distance between the bracket rotation axis and the wheel rotation axis), the easier the rotation. However, though it does guarantee excellent manoeuvrability, excessive offset may cause the castor to oscillate along straight routes (Swimmy effect). Fixed castors do not allow the equipment to change direction but do guarantee directionality. In any case, the fixed castors must be mounted so that they are perfectly parallel to each other. The most common wheel layouts along with the relative castors are shown in the following table.

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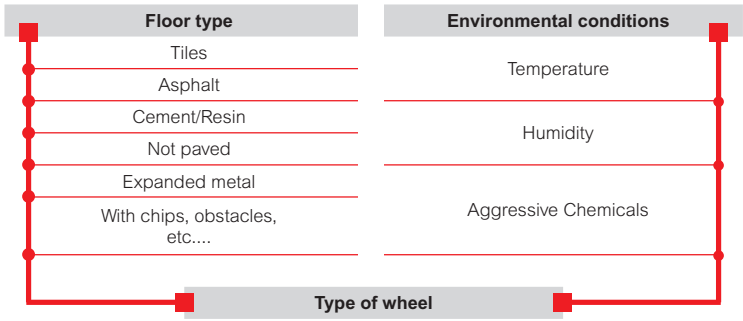
Diagram	Castor layout	Operating conditions	Application examples
	**Stable equipment** two swivel castors and two fixed castors.	Long and straight routes. Few direction changes.	Mechanical workshops, semi-automated warehouses, metallurgical workshops.
	**Stable equipment** four swivel castors.	Short routes. Frequent direction changes. Approach to machines or shelves.	Supermarkets, wood machining companies, small distribution centres.
	**Stable equipment** one swivel castor and two fixed castors	Long and straight routes. Few direction changes.	Small equipments Tool/object carriers Light loads.
	**Tipping equipment** two fixed castors and four swivel castors.	Long routes with mechanical towing. Few direction changes.	Moving in railway, postal, airport areas. Heavy loads.
	**Tipping equipment** four fixed castors.	Long and straight routes without direction changes.	Assembly or machining lines with round trip and head transfer device.
	**Tipping equipment** two fi xed castors and two swivel castors.	Long routes with manual or mechanical towing. Few direction changes.	Mechanical and metallurgical workshops, semi-automated warehouses.

5.6 Choosing the wheel

Each of the parameters and operating characteristics outlined in the previous paragraphs is used in one of the three steps involved in choosing the wheel.

Step 1
The type of wheel suitable for the floor and operating environment is identified in step 1. The following graph summarizes the factors that influence the choosing of the type of wheel; "type of wheel" means:

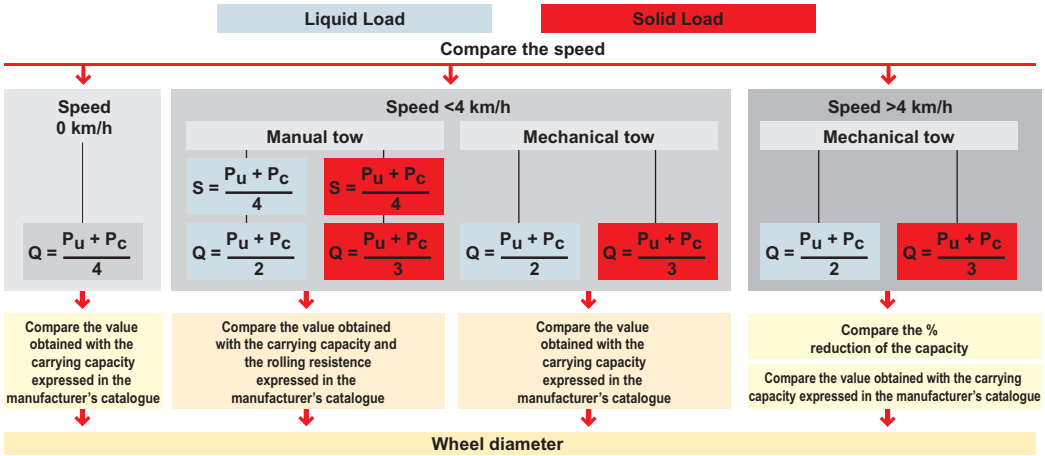
- materials that form the covering and the wheel centre body;
- type of anchorage between covering and wheel centre body;
- rolling actions.



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Step two

The load capacity, static load and smoothness values required by the specific application and needed to determine the wheel diameter are calculated in step two. One of the most important parts of this step is an analysis of the load that the wheel must support. The following diagram indicates what calculations to perform and what values to consider depending on the various operating conditions. These aspects must always be indicated (magnitude and nature of the load and speed), while ensuring that all the values determined are not higher than the rated values indicated in the manufacturer's catalogue. If the evaluation of various aspects generates different data with reference to the same wheel characteristic, the final choice must be made based on the most conservative condition.



S = rolling resistance **Q** = load capacity $\mathbf{P_u}$ = weight to transport $\mathbf{P_c}$ = equipement weight

Step three

The correct castor is chosen in the third step. The step can be divided into two separate parts:
1. Choosing fixed or swivel brackets, depending on manoeuvrability and directionality needs;
2. Checking the compatibility between dynamic load capacity and rated dynamic load capacity of the wheel and bracket.

The following table summarizes some general indications for choosing the right wheels according to the application's features.

● Reccommended ❒ Tolerated ▲ Not recommended

Selection parameters	Value range	RE.FF	RE.F2	RE.F5	RE.F4	RE.F7	RE.F8	RE.G1	RE.E2	RE.E3	RE.G2	RE.G5
Load capacity	Light load, up to 250 kg	●	●	●	●	●	●	●	●	●	●	●
	Medium load, up to 750 kg	●	●	●	●	▲	●	▲	▲	▲	●	●
	Heavy load, more than 750 kg	❒	●	●	●	▲	❒	▲	▲	▲	▲	❒
Rolling resistance	< 125 kg	●	●	●	●	●	●	●	●	●	●	●
	> 125 kg	❒	●	●	●	●	●	▲	▲	▲	●	●
Flooring	Tiles	●	●	●	●	●	●	●	●	●	●	●
	Asphalt	●	●	●	❒	▲	❒	●	●	●	●	❒
	Cement - Resin	●	●	●	●	❒	❒	●	●	●	●	●
	Not paved	▲	●	▲	❒	▲	▲	▲	●	●	●	❒
	Expanded metal	❒	●	❒	❒	▲	▲	●	●	●	●	❒
	With chips, obstacles, etc.	▲	●	❒	❒	▲	▲	▲	▲	▲	●	❒
Environmental chemical conditions	No aggressive chemicals	●	●	●	●	●	●	●	●	●	●	●
	With aggressive chemicals	❒	▲	❒	❒	▲	●	●	▲	▲	❒	❒
Temperature	-40° / -20°	▲	▲	▲	▲	❒	●	▲	▲	❒	❒	▲
	-20° / +80°	●	●	●	●	●	●	●	●	●	●	●
	+80° / +120°	❒	▲	❒	❒	●	❒	▲	▲	▲	❒	❒
	> 120°	▲	▲	▲	▲	●	▲	▲	▲	▲	▲	▲
Means of traction	Manual (speed ≤ 4 Km/h)	●	●	●	●	●	●	●	●	●	●	●
	Mechanical (speed ≤ 16 Km/h)	▲	●	●	●	▲	▲	▲	▲	▲	❒	❒

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Axle set
Connection through which the wheel is assembled to the castor. Normally, it consists of a threaded pin with nut, washers, tube and, where necessary, spacers.
Reference standards: UNI EN 12526:2001 - ISO 22877:2004

Ball race ring
The part that encloses the castor rolling actions.

Bolt hole
Hole made in the top of the bracket and used to attach the castor to the equipment.
Reference standards: UNI EN 12526:2001 - ISO 22877:2004

Bore
Central part of the wheel designed to house the axle set or the rolling actions that facilitate rotation (ball bearings, roller bearings, plain bearings...).
Reference standards: UNI EN 12526:2001 - ISO 22877:2004

Bracket
Connection part between wheel and equipment. Normally, all wheels must use a bracket to be applied to the equipment; an exception is made for wheels whose axle is built into the equipment. Swivel bracket: rotates around its vertical axis as the operating direction changes; it can be a swivel plate bracket, swivel bracket with through hole or swivel bracket with stem. The swivel bracket can be equipped with a brake. Fixed bracket: no rotation; it is designed to keep the wheel moving along a straight line.
Reference standards: UNI EN 12526:2001- ISO 22877:2004

Brake
A device that blocks the rotation of the bracket around its own axis, the wheel rotation or the rotation of the castor (wheel and bracket assembly). Front, rear brakes can be mounted on swivel castors.
Reference standards: UNI EN 12526:2001 - ISO 22877:2004

Central pin
Swivel bracket part that joins the plate, fork and ball race ring; thanks to the central pin, the plate and fork form a single piece, while the ball race ring remains free to rotate around its own axis.

Wheel centre body
The wheel centre body is the wheel part that connects the covering to the bore. It comes in various shapes and is made of different materials; it can be a single piece or two or more parts joined together.
Reference standards: UNI EN 12526:2001 - ISO 22877:2004

Covering
Outer ring of the wheel; it can be made of various materials and characterises the wheel. The covering is fixed when joined with the wheel centre body and is fitted when mechanically assembled on the wheel centre body.

Dynamic carrying capacity
Carrying capacity of a wheel is defined as the value (expressed in N) of the maximum load that can be supported by that wheel in conformity with European UNI EN 12532:2001 and International ISO 22883:2004 standards. Dynamic testing under constant speed (4 km/h, 1.1 m/s) requires overcoming 500 100mm-wide obstacles, with height equal to 5% of diameter for wheels with an elastic rolling strip (hardness up to 90 Shore A) and to 2.5% of the diameter for wheels with a rigid rolling strip (hardness greater than 90 Shore A), without permanent deformation of the wheel affecting its operating efficiency.

Directionality
Possibility of an object to continue moving along a predetermined direction.

Dust seal
The part of the swivel bracket that protects the rolling actions.

Fork
Fixed or swivel bracket part that supports the wheel; normally, it has an upside-down "U" shape. The holes to house the wheel axle set are made at the bottom ends of the fork; the swivel actions are installed in the top.
Reference standards: UNI EN 12526:2001 - ISO 22877:2004

Hardness
Propensity of a material to be penetrated by another material. It is measured with empirical tests that are used to evaluate the magnitude of the penetration of a specific force in the material under specific conditions. The penetration hardness is inversely proportional to the penetration. Different tests can be performed to measure the hardness of a material. Shore A and Shore D durometers are used in some of the most widely used tests: durometer type A is used for the softer materials (elastomers), while type D is used for harder materials (thermoplastic material, polypropylene).
Reference standards: UNI EN ISO 868:1999 - ASTM D 2240-2004

Manoeuvrability
Possibility of an object to easily change its operating direction.

Plate
Top part of the bracket, with holes or slots used for the equipment connection. It can be made in different shapes: rectangular with four fitting holes, square with four fitting holes, triangular with three fitting holes, circular with a bolt hole, circular with a stem.
Reference standard: UNI EN 12526:2001 - ISO 22877:2004

Rolling resistance
Value (expressed in N) of maximum load, applicable for each single wheel that an operator can move, over level paths, even for long periods without fatigue.

Static load
Value (expressed in N) of the maximum load that a stationary wheel can withstand without generating any permanent changes to that wheel.
Reference standards: UNI EN 12527:2001 - ISO 22878:2004

Stem
Vertical end of the castor used to attach the castor into a hole in the equipment.
Reference standards: UNI EN 12526:2001 - ISO 22877:2004

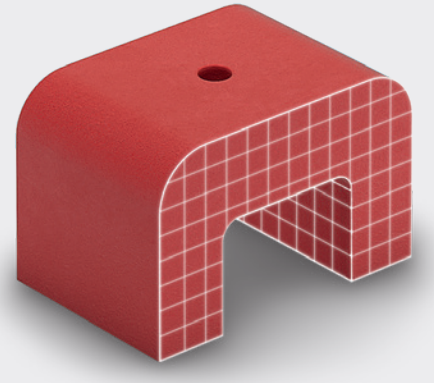
Tearing resistance
Capacity of a material to resist the propagation of a cut. It is measured through a test under the conditions defined in standards ASTM D 624b-2000 - UNI 4914:1987. During that test, a cut perpendicular to the tractive force is made on a test piece placed under traction.

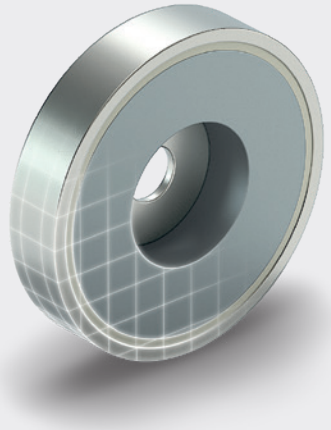
Tread
Wheel external surface; the part of the wheel in contact with the ground. It can be smooth or sculpted with raised patterns to increase its grip on the ground.

Vulcanisation
Treatment with sulphur or sulphurous compounds applied to some substances, including rubber, to eliminate their plastic characteristics and to make them perfectly elastic.

Wheel
A circular mechanical assembly in which sliding motion is replaced by rolling motion through rotation around its own axis. The wheel consists of the following components: the tread, the covering, the wheel centre body, the bore and the rolling action. Depending on the different construction versions and materials used, wheels can be classified into four families: rubber, polyurethane, monolithic (hard tread) and pneumatic.
Reference standards: UNI EN 12526:2001 - ISO 22877:2004

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DESIGNED
FOR ENGINEERING

18 Retaining magnets



Disc-shaped

Rod-shaped

U-Magnets

Raw magnets

Retaining magnets / Raw magnets

Application / Designs / Structure / Materials of the magnets

Application

Magnets are simple elements that help make solving tasks easier, more efficient, and more reliable.

If drilling is not allowed for fastening, for instance, so as not to damage corrosion protection layers, a retrofit/portable installation is desired, or only a temporary fix is required, this product group offers a large selection of suitable magnets.

Designs

There are seven different magnet types based on a conceptual classification with respect to the shape and function:

Button-type magnets and U-magnets as well as retaining magnets that are disc-shaped or rod-shaped form the largest group along with screws with retaining magnet. The name retaining magnet bears such elements that are used for direct fastening. Raw magnets generally help to structure application-specific magnetic systems.

Structure

Apart from button-type magnets / U-magnets and raw magnets, magnetic systems can also be used. Due to their structure, they have only one magnetic contact surface. Through magnetic return plates, the entire magnetic energy is concentrated on the attracting surface and the spatial effect of the magnetic field is restricted in order to prevent any magnetization of the environment.

Materials of the magnet

Within various designs, various materials of the magnet are available to choose from. In order to meet application-specific conditions in as far as possible, the most important characteristics of the respective materials of the magnet are given in the following table.

Materials of the magnet in comparison

Description	Hard ferrite (HF)	AlNiCo (AN)	SmCo (SC)	NdFeB (ND)
Adhesive force	strong	medium	strong	very strong
Max. working temperature *	≈ 200 °C	≈ 450 °C	≈ 200 °C	≈ 80 °C
Adhesive force on heating	lower	constantly good	lower	lower
Corrosion resistance	very good	very good	good	nickel plated - good
Made from	Iron oxide	Aluminum, nickel, cobalt and iron	Samarium and cobalt	Neodymium, iron and boron
Production method	Sintering	Sintering, casting	Sintering	Sintering
Mechanical properties	very hard, brittle	very hard, tough	very hard, brittle	very hard, brittle
Machineability	not possible	diamond grinding possible	not possible	not possible
Demagnetisation capability	moderate, by demagnetising fields	easy, by demagnetising fields	very difficult, only by large demagnetising	difficult, only by large demagnetising
Price	very reasonable	high	very high	reasonable

* The max. temperature used is only a guide value because it also depends on the dimensions of the magnet.

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Retaining magnets / Raw magnets

Adhesive force / Influence factors

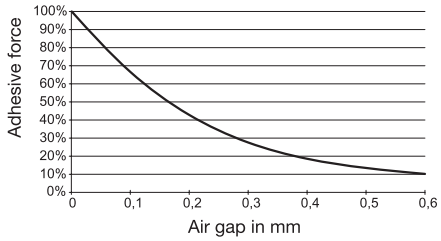
Adhesive force

In addition to their shape and material, the actual achievable adhesive force of the magnets depends on several other factors.

Influence factors

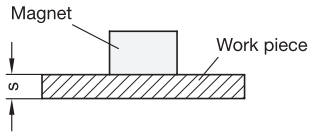
Air gap

An air gap or materials, which are not magnetically permeable between the work piece and the magnet, have an insulating effect on the magnetic flux. The adhesive force is reduced depending on the distance.



Work piece thickness

A minimum thickness of the work piece should be maintained in order to not restrict the magnetic flux and therefore the adhesive force.



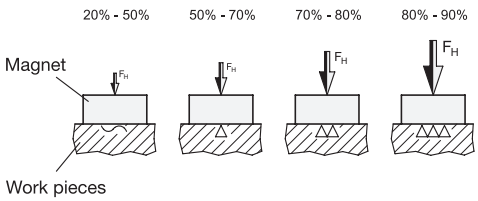
Material

Steel and ferrous materials with a low proportion of carbon and alloyed materials promote the magnetic flux. Similarly, non-hardened work pieces conduct the magnetic flux better, which enables greater adhesive forces.

100%	technical pure iron	86%	C60, X6Cr17
95%	St37, C15	84%	42CrMo4
94%	St44-2, 34CrNiMo6	75%	St50
93%	St52-3	72%	X155CrMo12
92%	90MnV8	65%	X210CrW12
90%	C45	50%	20MnCr5
87%	Ck45	30%	GG

Work piece surface

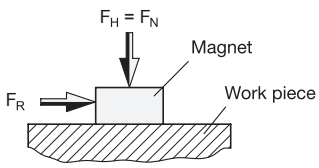
Excessive roughness or unevenness have the same effect as an air gap. They reduce the adhesive force.



Displacement force

The displacement force corresponds to the frictional force and depends on the coefficient of friction between the magnet and the work piece, as well as the adhesive force of the magnet.

Due to their higher coefficient of friction, rubberized magnet systems have greater displacement forces.



The nominal adhesive forces stated in the tables in the standards are minimum values, which are achieved at room temperature, vertical „pull-off“ and full contact of the magnets with low carbon steel work pieces and a minimum thickness of 10 mm.

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GN 50.1

RoHS

Retaining magnets

disc-shaped, without thread

SPECIFICATION

Housing
Steel, zinc plated

Materials of the magnet:

Hard ferrite **HF**
temperature resistant up to 200 °C

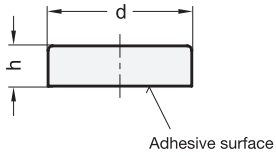
SmCo **SC**
Samarium, cobalt
temperature resistant up to 200 °C

NdFeB **ND**
Neodymium, iron, boron
temperature resistant up to 80 °C

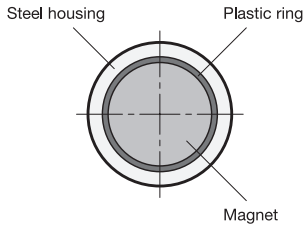
INFORMATION

Retaining magnets GN 50.1 are a shielded magnetic system.
Fixed in place by gluing or side-mounted thrust bolt (e.g. GN 913.2, see page 920) grub screw with pointed nose).
- More information to retaining magnets (see page 2022)





View on adhesive surface



GN 50.1

Description	d	h	Nominal adhesive forces in N	⚖
GN 50.1-HF-10	10 ±0.1	4.5 +0.2/-0.1	4	2
GN 50.1-HF-13	13 ±0.1	4.5 +0.2/-0.1	10	3
GN 50.1-HF-16	16 ±0.1	4.5 +0.2/-0.1	18	5
GN 50.1-HF-20	20 ±0.1	6 +0.2/-0.1	30	9
GN 50.1-HF-25	25 ±0.1	7 +0.3/-0.1	40	17
GN 50.1-HF-32	32 ±0.1	7 +0.3/-0.1	80	29
GN 50.1-HF-40	40 +0.2/-0.1	8 +0.4/-0.1	125	54
GN 50.1-HF-50	50 +0.2/-0.1	10 +0.5/-0.1	220	102
GN 50.1-HF-63	63 +0.3/-0.1	14 +0.5/-0.1	350	226
GN 50.1-HF-80	80 +0.5/-0.1	18 +0.5/-0.1	600	468
GN 50.1-HF-100	100 +0.5/-0.1	22 +0.5/-0.1	900	915
GN 50.1-HF-125	125 +0.5/-0.1	26 +0.5/-0.1	1300	1680
GN 50.1-SC-6	6 ±0.1	4.5 ±0.1	5	1
GN 50.1-SC-8	8 ±0.1	4.5 ±0.1	11	2
GN 50.1-SC-10	10 ±0.1	4.5 ±0.1	20	3
GN 50.1-SC-13	13 ±0.1	4.5 ±0.1	40	4
GN 50.1-SC-16	16 ±0.1	4.5 ±0.1	60	7
GN 50.1-SC-20	20 ±0.1	6 ±0.1	90	14
GN 50.1-SC-25	25 ±0.1	7 ±0.2	150	26
GN 50.1-SC-32	32 ±0.1	7 ±0.2	220	42
GN 50.1-ND-6	6 ±0.1	4.5 ±0.1	5	1
GN 50.1-ND-8	8 ±0.1	4.5 ±0.1	13	2
GN 50.1-ND-10	10 ±0.1	4.5 ±0.1	25	2
GN 50.1-ND-13	13 ±0.1	4.5 ±0.1	60	4
GN 50.1-ND-16	16 ±0.1	4.5 ±0.1	95	6
GN 50.1-ND-20	20 ±0.1	6 ±0.1	140	14
GN 50.1-ND-25	25 ±0.1	7 ±0.2	200	26
GN 50.1-ND-32	32 ±0.1	7 ±0.2	350	41

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GN 50.2

Retaining magnets

disc-shaped, with female thread

SPECIFICATION

Housing / threaded bushing
Steel, zinc plated

Materials of the magnet:

Hard ferrite **HF**
temperature resistant up to 200 °C

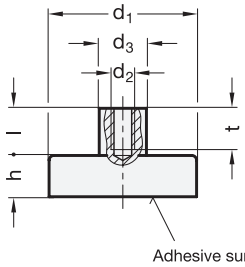
SmCo **SC**
Samarium, cobalt
temperature resistant up to 200 °C

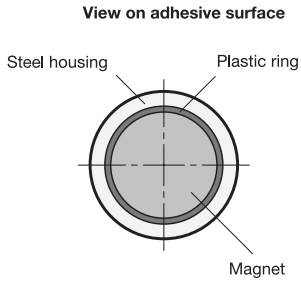
NdFeB **ND**
Neodymium, iron, boron
temperature resistant up to 80 °C



INFORMATION

Retaining magnets GN 50.2 are a shielded magnetic system.
- More information to retaining magnets (see page 2022)





GN 50.2

Description	d1	d2	d3	h	l	t	Nominal adhesive forces in N	⚖
GN 50.2-HF-10-M3	10 ±0.1	M 3	6 ±0.1	4.5 +0.2/-0.1	7	5	4	3
GN 50.2-HF-13-M3	13 ±0.1	M 3	6 ±0.1	4.5 +0.2/-0.1	7	5	10	4
GN 50.2-HF-16-M3	16 ±0.1	M 3	6 ±0.1	4.5 +0.2/-0.1	7	5	18	6
GN 50.2-HF-20-M3	20 ±0.1	M 3	6 ±0.1	6 +0.2/-0.1	7	5	30	11
GN 50.2-HF-25-M4	25 ±0.1	M 4	8 ±0.2	7 +0.3/-0.1	8	7	40	20
GN 50.2-HF-32-M4	32 ±0.1	M 4	8 ±0.2	7 +0.3/-0.1	8	7	80	31
GN 50.2-HF-40-M5	40 +0.2/-0.1	M 5	10 ±0.2	8 +0.4/-0.1	10	9	125	59
GN 50.2-HF-50-M6	50 +0.2/-0.1	M 6	12 ±0.2	10 +0.5/-0.1	12	11	220	111
GN 50.2-HF-63-M8	63 +0.3/-0.1	M 8	15 ±0.2	14 +0.5/-0.1	16	14	350	242
GN 50.2-HF-80-M10	80 +0.5/-0.1	M 10	20 ±0.2	18 +0.5/-0.1	16	15	600	500
GN 50.2-HF-100-M12	100 +0.5/-0.1	M 12	22 ±0.2	22 +0.5/-0.1	21	18	900	948
GN 50.2-HF-125-M14	125 +0.5/-0.1	M 14	25 ±0.2	26 +0.5/-0.1	24	20	1300	1732
GN 50.2-SC-6-M3	6 ±0.1	M 3	6 ±0.1	4.5 ±0.1	7	6	5	2
GN 50.2-SC-8-M3	8 ±0.1	M 3	6 ±0.1	4.5 ±0.1	7	6	11	3
GN 50.2-SC-10-M3	10 ±0.1	M 3	6 ±0.1	4.5 ±0.1	7	6	20	4
GN 50.2-SC-13-M3	13 ±0.1	M 3	6 ±0.1	4.5 ±0.1	7	6	40	6
GN 50.2-SC-16-M4	16 ±0.1	M 4	6 ±0.1	4.5 ±0.1	7	6	60	8
GN 50.2-SC-20-M4	20 ±0.1	M 4	8 ±0.2	6 ±0.1	7	7	90	16
GN 50.2-SC-25-M4	25 ±0.1	M 4	8 ±0.2	7 ±0.2	7	7	150	28
GN 50.2-SC-32-M5	32 ±0.1	M 5	10 ±0.2	7 ±0.2	8.5	8	220	47
GN 50.2-ND-6-M3	6 ±0.1	M 3	6 ±0.1	4.5 ±0.1	7	6	5	2
GN 50.2-ND-8-M3	8 ±0.1	M 3	6 ±0.1	4.5 ±0.1	7	6	13	3
GN 50.2-ND-10-M3	10 ±0.1	M 3	6 ±0.1	4.5 ±0.1	7	6	25	4
GN 50.2-ND-13-M3	13 ±0.1	M 3	6 ±0.1	4.5 ±0.1	7	6	60	5
GN 50.2-ND-16-M4	16 ±0.1	M 4	6 ±0.1	4.5 ±0.1	7	6	95	7
GN 50.2-ND-20-M4	20 ±0.1	M 4	8 ±0.2	6 ±0.1	7	7	140	16
GN 50.2-ND-25-M4	25 ±0.1	M 4	8 ±0.2	7 ±0.2	7	7	200	27
GN 50.2-ND-32-M5	32 ±0.1	M 5	10 ±0.2	7 ±0.2	8.5	8	350	45

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GN 50.3

Retaining magnets

disc-shaped, with threaded stud

SPECIFICATION

Housing / threaded stud
Steel, zinc plated

Materials of the magnet:

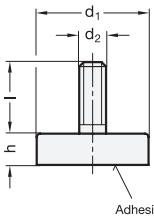
Hard ferrite **HF**
temperature resistant up to 200 °C

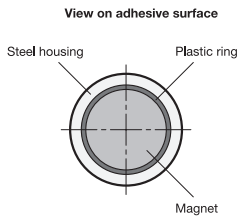
NdFeB **ND**
Neodymium, iron, boron
temperature resistant up to 80 °C

INFORMATION

Retaining magnets GN 50.3 are a shielded magnetic system.
- More information to retaining magnets (see page 2022)







GN 50.3

Description	d1	d2	h	l	Nominal adhesive forces in N	⚖
GN 50.3-HF-10-M3	10 ±0.1	M 3	4.5 +0.2/-0.1	7	4	2
GN 50.3-HF-13-M3	13 ±0.1	M 3	4.5 +0.2/-0.1	7	10	3
GN 50.3-HF-16-M3	16 ±0.1	M 3	4.5 +0.2/-0.1	7	18	5
GN 50.3-HF-20-M3	20 ±0.1	M 3	6 +0.2/-0.1	7	30	10
GN 50.3-HF-25-M4	25 ±0.1	M 4	7 +0.3/-0.1	8	40	19
GN 50.3-HF-32-M4	32 ±0.1	M 4	7 +0.3/-0.1	8	80	30
GN 50.3-HF-47-M6	47 +0.2/-0.1	M 6	9 +0.5/-0.1	8	180	85
GN 50.3-HF-63-M6	63 +0.3/-0.1	M 6	14 +0.5/-0.1	15	350	233
GN 50.3-ND-10-M4	10 ±0.1	M 4	4.5 ±0.1	8	25	3
GN 50.3-ND-13-M5	13 ±0.1	M 5	4.5 ±0.1	8	60	5
GN 50.3-ND-16-M6	16 ±0.1	M 6	4.5 ±0.1	8	95	7
GN 50.3-ND-20-M6	20 ±0.1	M 6	6 ±0.1	10	140	15
GN 50.3-ND-25-M6	25 ±0.1	M 6	7 ±0.1	10	200	27
GN 50.3-ND-32-M6	32 ±0.1	M 6	7 ±0.1	10	350	42

GN 50.25

Stainless Steel-Retaining magnets

disc-shaped, with female thread

SPECIFICATION

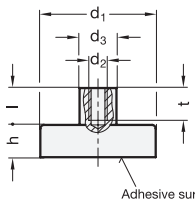
Housing / threaded bushing
Stainless Steel

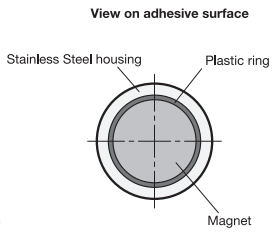
Material of the magnet:
Hard ferrite **HF**
temperature resistant up to 220 °C

INFORMATION

Stainless Steel-Retaining magnets GN 50.25 are a shielded magnetic system.
Owing to the lower magnetic conductivity of the stainless steel housing, the adhesive forces are lower than in steel.
- More information to retaining magnets (see page 2022)







GN 50.25 **STAINLESS STEEL**

Description	d1	d2	d3	h	l	t	Nominal adhesive forces in N	⚖
GN 50.25-HF-25	25 ±0.1	M 5	8	7 +0.3/-0.1	9	8.25	32	20
GN 50.25-HF-32	32 ±0.1	M 5	8	7 +0.3/-0.1	9	9	64	31
GN 50.25-HF-40	40 +0.2/-0.1	M 5	8	8 +0.3/-0.1	8.5	9	100	56
GN 50.25-HF-50	50 +0.2/-0.1	M 5	8	10 +0.4/-0.1	8.5	9	175	105
GN 50.25-HF-63	63 +0.3/-0.1	M 5	8	14 +0.5/-0.1	8	9	280	228

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GN 50.4

Retaining magnets

disc-shaped, with bore or female thread

SPECIFICATION

Housing
Steel, zinc plated

Materials of the magnet:

Hard ferrite **HF**
temperature resistant up to 200 °C

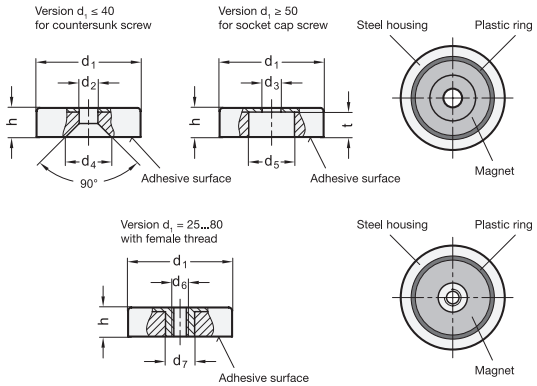
NdFeB **ND**
Neodymium, iron, boron
temperature resistant up to 80 °C

INFORMATION

Retaining magnets GN 50.4 are a shielded magnetic system.
To ensure that the magnetic properties (adhesive forces) are not impaired, the fixing screws must be made of **non-magnetic** material (magnetic not conductive).
- More information to retaining magnets (see page 2022)



View on adhesive surface



GN 50.4

Description	d1	d2	d3	d4	d5	d6	d7	t	h	Nominal adhesive forces in N	⚖
GN 50.4-HF-16	16 ±0.1	3.5	-	7.5	-	-	-	-	4.5 +0.2/-0.1	14	4
GN 50.4-HF-20	20 ±0.1	4.1	-	10.5	-	-	-	-	6 +0.2/-0.1	27	9
GN 50.4-HF-25	25 ±0.1	5.5	-	12	-	-	-	-	7 +0.3/-0.2	36	17
GN 50.4-HF-32	32 ±0.1	5.5	-	12	-	-	-	-	7 +0.3/-0.1	72	27
GN 50.4-HF-40	40 +0.2/-0.1	5.5	-	13.5	-	-	-	-	8 +0.4/-0.1	90	52
GN 50.4-HF-50	50 +0.2/-0.1	-	8.5 ±0.2	-	22	-	-	8.5	10 +0.5/-0.1	180	84
GN 50.4-HF-63	63 +0.3/-0.1	-	6.5 ±0.2	-	24	-	-	12	14 +0.5/-0.1	290	197
GN 50.4-HF-80	80 +0.5/-0.1	-	6.5 ±0.2	-	11.5	-	-	15	18 +0.5/-0.1	540	458
GN 50.4-HF-100	100 +0.5/-0.1	-	10.5 ±0.2	-	34	-	-	18	22 +0.5/-0.1	680	815
GN 50.4-ND-16	16 ±0.1	3.5	-	6.6	-	-	-	-	4.5 +0.2/-0.1	75	6
GN 50.4-ND-20	20 ±0.1	4.5	-	9	-	-	-	-	6 +0.2/-0.1	105	13
GN 50.4-ND-25	25 ±0.1	4.5	-	9	-	-	-	-	7 +0.3/-0.2	160	20
GN 50.4-ND-32	32 ±0.1	5.5	-	11	-	-	-	-	7 +0.3/-0.1	310	39
GN 50.4-ND-40	40 +0.2/-0.1	5.5	-	10.6	-	-	-	-	8 +0.4/-0.1	500	73
GN 50.4-HF-25-M4	25 ±0.1	-	-	-	-	M 4	5.2	-	7 +0.3/-0.2	36	17
GN 50.4-HF-32-M4	32 ±0.1	-	-	-	-	M 4	5.2	-	7 +0.3/-0.1	72	29
GN 50.4-HF-40-M4	40 +0.2/-0.1	-	-	-	-	M 4	5.2	-	8 +0.4/-0.1	90	54
GN 50.4-HF-50-M6	50 +0.2/-0.1	-	-	-	-	M 6	12	-	10 +0.5/-0.1	180	96
GN 50.4-HF-50-M8	50 +0.2/-0.1	-	-	-	-	M 8	12	-	10 +0.5/-0.1	180	92
GN 50.4-HF-63-M8	63 +0.3/-0.1	-	-	-	-	M 8	13	-	14 +0.5/-0.1	290	209
GN 50.4-HF-80-M8	80 +0.5/-0.1	-	-	-	-	M 8	14.5	-	18 +0.5/-0.1	540	479
GN 50.4-HF-80-M10	80 +0.5/-0.1	-	-	-	-	M 10	14.5	-	18 +0.5/-0.1	540	382

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GN 50.45

Stainless Steel-Retaining magnets

disc-shaped, with bore



SPECIFICATION

Housing
Stainless Steel

Materials of the magnet:

Hard ferrite **HF**
temperature resistant up to 220 °C

SmCo **SC**
Samarium, cobalt
temperature resistant up to 350 °C

INFORMATION

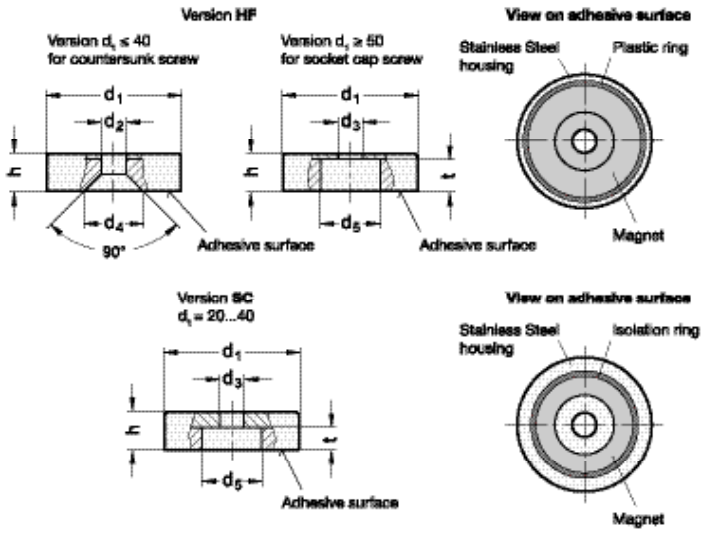
Stainless Steel-Retaining magnets GN 50.45 are a shielded magnetic system.
Owing to the lower magnetic conductivity of the stainless steel housing, the adhesive forces are lower than in steel.
To ensure that the magnetic properties (adhesive forces) are not impaired, the fixing screws must be made of **non-magnetic** material.
- More information to retaining magnets (see page 2022)

TECHNICAL INFORMATION

- Stainless Steel characteristics (see page A26)

ON REQUEST

- Raw magnets in ring shape in hard ferrite (HF)



GN 50.45 **STAINLESS STEEL**

Description	d1	d2	d3	d4	d5	h	t	Nominal adhesive forces in N	⚖
GN 50.45-HF-20	20 ±0.1	4.1	-	10	-	6 +0.2/-0.1	-	22	11
GN 50.45-HF-25	25 ±0.1	5.5	-	11.5	-	7 +0.3/-0.2	-	29	17
GN 50.45-HF-32	32 ±0.1	5.5	-	11.5	-	7 +0.3/-0.2	-	58	27
GN 50.45-HF-40	40 +0.2/-0.1	5.5	-	11.5	-	8 +0.4/-0.2	-	72	52
GN 50.45-HF-50	50 +0.2/-0.1	-	8.5	-	22	10 +0.5/-0.2	8.5	145	70
GN 50.45-HF-63	63 +0.3/-0.1	-	6.5	-	24	14 +0.5/-0.2	12	230	195
GN 50.45-SC-20	20 ±0.1	-	4.5	-	8	6 ±0.1	3.5	60	13
GN 50.45-SC-25	25 ±0.1	-	4.5	-	8	7 ±0.2	4	80	24
GN 50.45-SC-32	32±0.1	-	5.5	-	11	7 ±0.2	4	200	39
GN 50.45-SC-40	40 +0.2/-0.1	-	5.5	-	10.5	8 ±0.2	4	420	75

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GN 50.6

Retaining magnets

disc-shaped, with hook / with eyelet



SPECIFICATION

Types

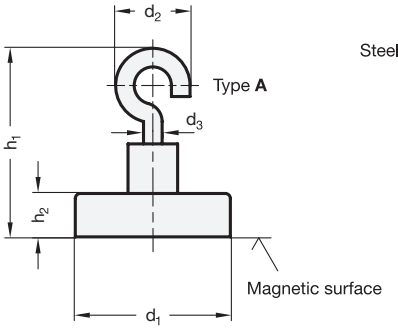
- Type **A**: with hook
- Type **B**: with eyelet

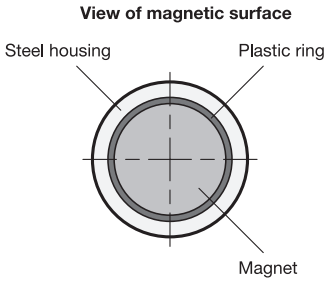
Housing / threaded bushing / hook / eyelet
steel, zinc plated

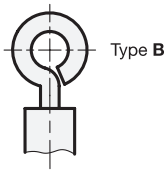
Material of the magnet:
Hard ferrite **HF**

INFORMATION

Retaining magnets GN 50.6 are a shielded magnetic system.
- More information to retaining magnets (see page 2022)







GN 50.6

Description	d1	d2 ±1	d3	h1 ±1	h2	Nominal adhesive forces in N	⚖
GN 50.6-HF-16-A	16	10	3	24.5	4.5	18	6
GN 50.6-HF-25-A	25	13.5	4	30.5	7	40	23
GN 50.6-HF-32-A	32	13.5	4	30.5	7	80	34
GN 50.6-HF-40-A	40	13.5	4	30.5	8	125	59
GN 50.6-HF-50-A	50	13.5	4	32	10	220	108
GN 50.6-HF-63-A	63	13.5	4	36	14	350	232
GN 50.6-HF-80-A	80	23	6	57.5	18	600	490
GN 50.6-HF-16-B	16	10	3	24.5	4.5	18	5
GN 50.6-HF-25-B	25	12.5	4	30.5	7	40	23
GN 50.6-HF-32-B	32	12.5	4	30.5	7	80	34
GN 50.6-HF-40-B	40	12.5	4	30.5	8	125	59
GN 50.6-HF-50-B	50	12.5	4	35	10	220	108
GN 50.6-HF-63-B	63	12.5	4	38	14	350	232
GN 50.6-HF-80-B	80	20	6	51.5	18	600	496

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GN 50.5

Retaining magnets

disc-shaped, with female thread

SPECIFICATION

Housing
Steel, zinc plated

Material of the magnet
NdFeB **ND**
Neodymium, iron, boron
temperature resistant up to 80 °C

Plastic cover
Technopolymer (Polyamide PA)

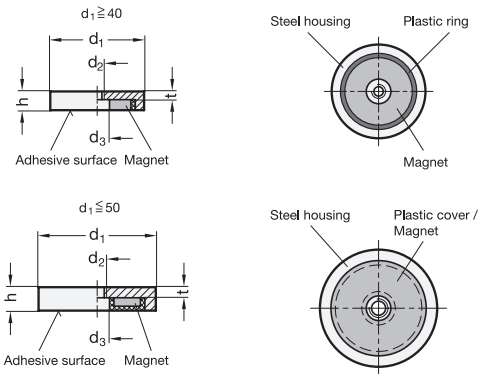
INFORMATION

Retaining magnets GN 50.5 are a shielded magnetic system. For diameter $d_1 \geq 50$ the adhesive surface is lagged with a plastic cover. To ensure that the magnetic properties (adhesive forces) are not impaired, the fixing screws must be made of **non-magnetic** material.
- More information to retaining magnets (see page 2022)

TECHNICAL INFORMATION

- Plastic characteristics (see page A2)





GN 50.5

Description	d_1 ±0.1	d_2	d_3	h ±0.2	t	Nominal adhesive forces in N	⚖
GN 50.5-ND-32	32	M 5	5.5	7	3	330	40
GN 50.5-ND-40	40	M 5	10.5	8	6	500	74
GN 50.5-ND-50	50	M 8	10.5	10	5.5	800	140
GN 50.5-ND-63	63	M 10	11.7	14	8.5	1100	315
GN 50.5-ND-75	75	M 10	13	15	8.5	1750	479

GN 58

Pot magnets

with bore

SPECIFICATION

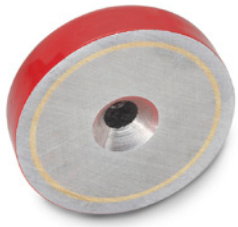
Housing
Steel

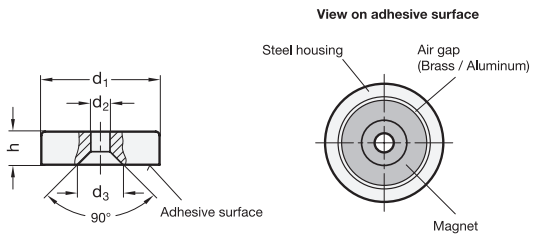
Material of the magnet
AlNiCo **AN**
Aluminium, nickel, cobalt
temperature resistant up to 280 °C

Lacquering red
temperature resistant up to 180 °C

INFORMATION

Pot magnets GN 58 are a shielded magnetic system.
To ensure that the magnetic properties (adhesive forces) are not impaired, the fixing screws must be made of **non-magnetic** material. For easier handling and/or to avoid demagnetisation, these magnets have an iron plate on their adhesive surface.
- More information to retaining magnets (see page 2022)





GN 58

Description	d_1	d_2	d_3	h	Nominal adhesive forces in N	⚖
GN 58-AN-19	19	3.7	8.7 +0.8/-0.2	7.5	30	17
GN 58-AN-29	29	4.8	10.5 +1/0	8.5 ±0.5	50	43
GN 58-AN-38	38	4.8	10 +1/-0.5	10.5	130	83

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GN 51.5

Retaining magnets

disc-shaped, with female thread, with rubber jacket



SPECIFICATION

Steel part
zinc plated

Material of the magnet
NdFeB **ND**
Neodymium, iron, boron
temperature resistant up to 80 °C

Rubber jacket
Elastomer (TPE)
80 shore A ≈
black **SW**
white **WS**

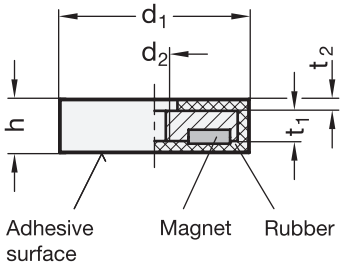
INFORMATION

Retaining magnets GN 51.5 are a shielded magnetic system with rubber jacket.
The rubber jacket protects sensitive surfaces from being damaged by the magnet and also delivers a higher friction coefficient, resulting in high lateral adhesion forces.

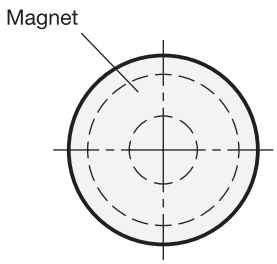
- More information to retaining magnets (see page 2022)

TECHNICAL INFORMATION

- Elastomer characteristics (see page A32)



View on adhesive surface



GN 51.5

Description	d1	d2	h	t1	t2	Nominal adhesive forces in N	⚖
GN 51.5-ND-22-SW	22	M 4	6	4.5	0.8	35	9
GN 51.5-ND-22-WS	22	M 4	6	4.5	0.8	35	9
GN 51.5-ND-31-SW	31	M 5	6	4.5	0.8	75	21
GN 51.5-ND-31-WS	31	M 5	6	4.5	0.8	75	21
GN 51.5-ND-43-SW	43	M 4	5.5	4	0.8	85	29
GN 51.5-ND-43-WS	43	M 4	5.5	4	0.8	85	29
GN 51.5-ND-66-SW	66	M 6	8.5	6	1.8	180	100
GN 51.5-ND-66-WS	66	M 6	8.5	6	1.8	180	100
GN 51.5-ND-88-SW	88	M 6	8.5	6	1.8	420	186
GN 51.5-ND-88-WS	88	M 6	8.5	6	1.8	420	186

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GN 51.4

Retaining magnets

disc-shaped, with bore, with rubber jacket

SPECIFICATION

Steel part
zinc plated

Material of the magnet
NdFeB **ND**
Neodymium, iron, boron
temperature resistant up to 80 °C

Rubber jacket
Elastomer (TPE)
80 shore A ≈
black **SW**
white **WS**

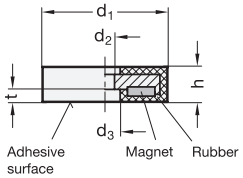
INFORMATION

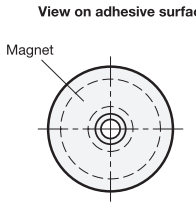
Retaining magnets GN 51.4 are a shielded magnetic system with rubber jacket.
The rubber jacket protects sensitive surfaces from being damaged by the magnet and also delivers a higher friction coefficient, resulting in high lateral adhesion forces.
- More information to retaining magnets (see page 2022)

TECHNICAL INFORMATION

- Elastomer characteristics (see page A32)







GN 51.4

Description	d1	d2	d3	t	h	Nominal adhesive forces in N	⚖
GN 51.4-ND-22-SW	22	4	8	3.5	6	35	8
GN 51.4-ND-22-WS	22	4	8	3.5	6	35	8
GN 51.4-ND-31-SW	31	6	9	3.5	6	75	20
GN 51.4-ND-31-WS	31	6	9	3.5	6	75	20
GN 51.4-ND-57-SW	57	8	25.3	3.5	7.5	175	77
GN 51.4-ND-57-WS	57	8	25.3	3.5	7.5	175	77
GN 51.4-ND-66-SW	66	5.5	25	3.5	8.5	210	100
GN 51.4-ND-66-WS	66	5.5	25	3.5	8.5	210	100

GN 51.6

Retaining magnets

disc-shaped, with 2 female thread, with rubber jacket

SPECIFICATION

Steel part
zinc plated

Material of the magnet
NdFeB **ND**
Neodymium, iron, boron
temperature resistant up to 80 °C

Rubber jacket
Elastomer (TPE)
80 shore A ≈
black

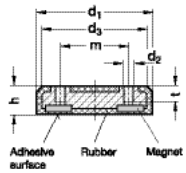
INFORMATION

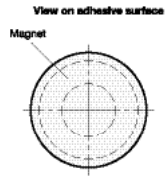
Retaining magnets GN 51.6 are a shielded magnetic system with rubber jacket.
The rubber jacket protects sensitive surfaces from being damaged by the magnet and also delivers a higher friction coefficient, resulting in high lateral adhesion forces.
Its dimensions, especially the drill hole spacing m and the thread d2, match the clamp mountings GN 473 (see page 1878), GN 477 (see page 1879) and GN 480 (see page 1885).
- More information to retaining magnets (see page 2022)

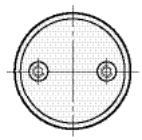
TECHNICAL INFORMATION

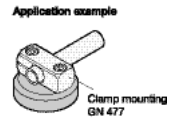
- Elastomer characteristics (see page A32)











GN 51.6

Description	d1	m	d2	d3	h	t min.	Nominal adhesive forces in N	⚖
GN 51.6-ND-43-22-M4	43	22	M 4	39	10.3	6	85	37
GN 51.6-ND-43-27-M5	43	27	M 5	39	10.3	7	85	36
GN 51.6-ND-57-32-M6	57	32	M 6	53	11.3	7	175	87
GN 51.6-ND-57-36-M6	57	36	M 6	53	11.3	7	175	87

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GN 51.2

Retaining magnets

disc-shaped, with female thread, with rubber jacket

SPECIFICATION

Steel part
zinc plated

Material of the magnet
NdFeB **ND**
Neodymium, iron, boron
temperature resistant up to 80 °C

Rubber jacket
Elastomer (TPE)
80 shore A ≈
black **SW**
white **WS**

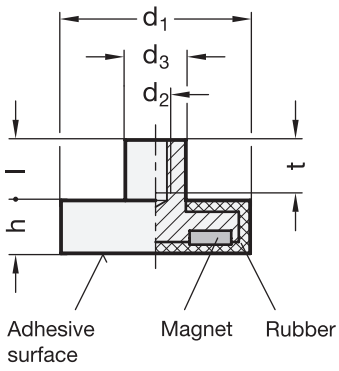


INFORMATION

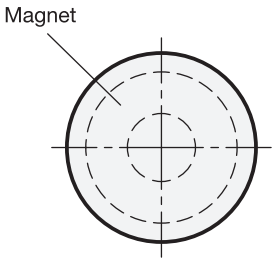
Retaining magnets GN 51.2 are a shielded magnetic system with rubber jacket.
The rubber jacket protects sensitive surfaces from being damaged by the magnet and also delivers a higher friction coefficient, resulting in high lateral adhesion forces.
- More information to retaining magnets (see page 2022)

TECHNICAL INFORMATION

- Elastomer characteristics (see page A32)



View on adhesive surface



GN 51.2

Description	d1	d2	d3	h	l	t min.	Nominal adhesive forces in N	⚖
GN 51.2-ND-12-SW	12	M 4	8	7	8	6	10	6
GN 51.2-ND-12-WS	12	M 4	8	7	8	6	10	6
GN 51.2-ND-22-SW	22	M 4	8	6	5.5	5	50	13
GN 51.2-ND-22-WS	22	M 4	8	6	5.5	5	50	13
GN 51.2-ND-31-SW	31	M 4	8	6	5.5	5	75	22
GN 51.2-ND-31-WS	31	M 4	8	6	5.5	5	75	22
GN 51.2-ND-43-SW	43	M 4	8	6	4.5	5	85	30
GN 51.2-ND-43-WS	43	M 4	8	6	4.5	5	85	30
GN 51.2-ND-66-SW	66	M 5	10	8.5	6.5	8	180	105
GN 51.2-ND-66-WS	66	M 5	10	8.5	6.5	8	180	105
GN 51.2-ND-88-SW	88	M 8	12	8.5	8.5	11	420	192
GN 51.2-ND-88-WS	88	M 8	12	8.5	8.5	11	420	192

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Retaining magnets

disc-shaped, with threaded stud, with rubber jacket



SPECIFICATION

Steel part
zinc plated

Material of the magnet
NdFeB **ND**
Neodymium, iron, boron
temperature resistant up to 60 °C

Rubber jacket
Elastomer (TPE)
80 shore A ≈
black **SW**
white **WS**

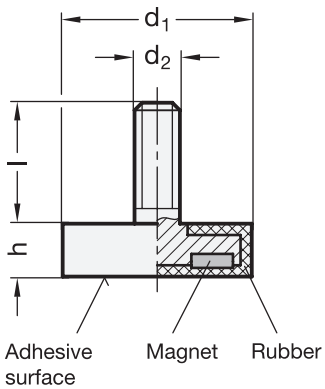
INFORMATION

Retaining magnets GN 51.3 are a shielded magnetic system with rubber jacket.
The rubber jacket protects sensitive surfaces from being damaged by the magnet and also delivers a higher friction coefficient, resulting in high lateral adhesion forces.

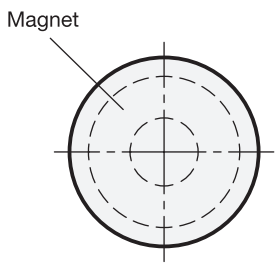
- More information to retaining magnets (see page 2022)

TECHNICAL INFORMATION

- Elastomer characteristics (see page A32)



View on adhesive surface



GN 51.3

Description	d1	d2	h	l	Nominal adhesive forces in N	⚖
GN 51.3-ND-22-SW	22	M 4	6	6.5	50	10
GN 51.3-ND-22-WS	22	M 4	6	6.5	50	10
GN 51.3-ND-43-SW	43	M 6	6	15	85	32
GN 51.3-ND-43-WS	43	M 6	6	15	85	32
GN 51.3-ND-66-SW	66	M 8	8.5	15	180	107
GN 51.3-ND-66-WS	66	M 8	8.5	15	180	107
GN 51.3-ND-88-SW	88	M 8	8.5	15	420	193
GN 51.3-ND-88-WS	88	M 8	8.5	15	420	193

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GN 54.1

Retaining magnets

rod-shaped, without bore

SPECIFICATION

Housing
Brass

Materials of the magnet:

SmCo **SC**
Samarium, cobalt
temperature resistant up to 200 °C

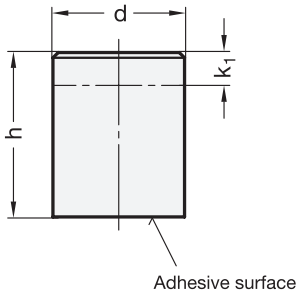
NdFeB **ND**
Neodymium, iron, boron
temperature resistant up to 80 °C

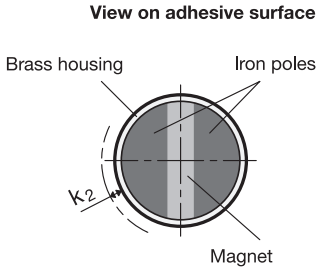
Identification of ND:
blue inked adhesive surface area



INFORMATION

Retaining magnets GN 54.1 are a shielded magnetic system.
The configuration of magnetic and iron poles is known as sandwich magnet system. These retaining magnets deliver ultimate holding power, also with smaller workpieces.
Attachment options include pressing in or gluing in.
* k_1 is the maximum dimension by which the retaining magnet can be shortened without losing its properties.
** Mounting these retaining magnets directly in steel components will create a magnetic shortcircuit which reduces the retaining power by as much as 15%. To avoid this effect, the spacings k_2 between brass jacket and steel component should be observed. These spacings should also be maintained if the retaining magnet is shortened.
- More information to retaining magnets (see page 2022)





GN 54.1

Description	d h6	h	k1*	k2**	Nominal adhesive forces in N	⚖
GN 54.1-SC-6	6	20 ±0.2	10	1.5	8	5
GN 54.1-SC-8	8	20 ±0.2	10	1.5	22	8
GN 54.1-SC-10	10	20 ±0.2	8	2	40	12
GN 54.1-SC-13	13	20 ±0.2	6	2.5	60	20
GN 54.1-SC-16	16	20 ±0.2	2	3	125	30
GN 54.1-SC-20	20	25 ±0.2	5	4	250	60
GN 54.1-SC-25	25	35 ±0.3	7	5	400	134
GN 54.1-SC-32	32	40 ±0.3	4.5	6	600	251
GN 54.1-ND-6	6	20 ±0.2	10	1.5	10	5
GN 54.1-ND-8	8	20 ±0.2	10	1.5	22	8
GN 54.1-ND-10	10	20 ±0.2	8	2	45	12
GN 54.1-ND-13	13	20 ±0.2	6	2.5	70	20
GN 54.1-ND-16	16	20 ±0.2	2	3	150	30
GN 54.1-ND-20	20	25 ±0.2	5	4	280	59
GN 54.1-ND-25	25	35 ±0.3	7	5	450	132
GN 54.1-ND-32	32	40 ±0.3	4.5	6	700	246

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Retaining magnets

rod-shaped, without bore

SPECIFICATION

Identification No.

- No. **1**: Tolerance d = ±0.2
- No. **2**: Tolerance d = h6

Housing
Steel

- Identification No. 1: zinc plated
- Identification No. 2: blank

Materials of the magnet:

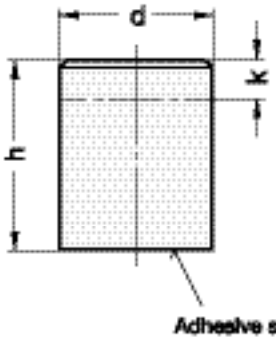
AlNiCo **AN**
Aluminium, nickel, cobalt
temperature resistant up to 450 °C

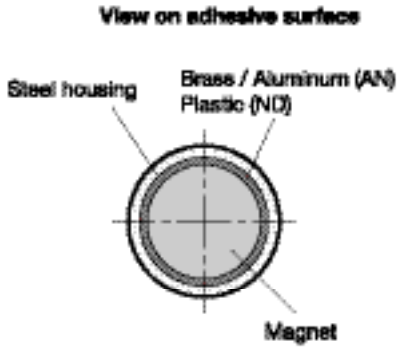
NdFeB **ND**
Neodymium, iron, boron
temperature resistant up to 80 °C



INFORMATION

Retaining magnets GN 52.1 are a shielded magnetic system.
Attachment options include pressing in, shrinking in or gluing in.
- More information to retaining magnets (see page 2022)





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GN 52.1

Description	d	h ±0.2	k*	Nominal adhesive forces in N	⚖
GN 52.1-AN-6-1	6	20	12	2	4
GN 52.1-AN-8-1	8	20	11	4	8
GN 52.1-AN-10-1	10	20	10	8.5	12
GN 52.1-AN-13-1	13	20	8	12	19
GN 52.1-AN-16-1	16	20	6	20	30
GN 52.1-AN-20-1	20	25	5	40	58
GN 52.1-AN-25-1	25	35	13	60	125
GN 52.1-AN-32-1	32	40	9	160	220
GN 52.1-AN-40-1	40	50	10	240	440
GN 52.1-AN-50-1	50	60	10	400	813
GN 52.1-AN-63-1	63	65	10	660	1306
GN 52.1-AN-6-2	6	10	2	2	2
GN 52.1-AN-8-2	8	12	3	4	5
GN 52.1-AN-10-2	10	16	6	8.5	10
GN 52.1-AN-13-2	13	18	6	12	18
GN 52.1-AN-16-2	16	20	6	20	30
GN 52.1-AN-20-2	20	25	5	40	57
GN 52.1-AN-25-2	25	30	7	60	106
GN 52.1-AN-32-2	32	35	4	160	187
GN 52.1-AN-40-2	40	45	5	240	390
GN 52.1-AN-50-2	50	50	-	400	639
GN 52.1-AN-63-2	63	60	5	660	1175
GN 52.1-ND-4-1	4	20	15	2.5	2
GN 52.1-ND-5-1	5	20	15	4.5	3
GN 52.1-ND-6-1	6	20	15	6	5
GN 52.1-ND-8-1	8	20	15	12	8
GN 52.1-ND-10-1	10	20	15	24	12
GN 52.1-ND-13-1	13	20	15	60	21
GN 52.1-ND-16-1	16	20	15	90	31
GN 52.1-ND-20-1	20	25	18	135	61
GN 52.1-ND-25-1	25	35	27	190	133
GN 52.1-ND-32-1	32	40	32	340	249
GN 52.1-ND-6-2	6	10	5	6	2
GN 52.1-ND-8-2	8	12	7	12	5
GN 52.1-ND-10-2	10	16	11	24	9
GN 52.1-ND-13-2	13	18	13	60	18
GN 52.1-ND-16-2	16	20	15	90	31
GN 52.1-ND-20-2	20	25	18	135	60
GN 52.1-ND-25-2	25	30	22	190	115
GN 52.1-ND-32-2	32	35	27	340	218

* k is the maximum dimension by which the retaining magnet can be shorted without losing its properties.

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GN 52.2

Retaining magnets

rod-shaped, with female thread

SPECIFICATION

Housing
Steel, zinc plated

Materials of the magnet:

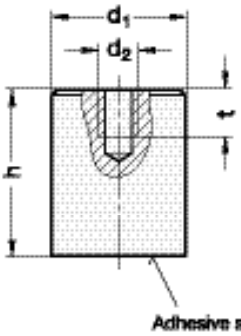
AlNiCo **AN**
Aluminium, nickel, cobalt
temperature resistant up to 450 °C

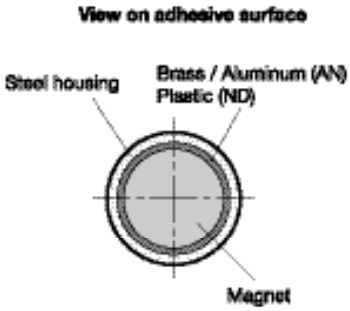
NdFeB **ND**
Neodymium, iron, boron
temperature resistant up to 80 °C

INFORMATION

Retaining magnets GN 52.2 are a shielded magnetic system.
- More information to retaining magnets (see page 2022)







GN 52.2

Description	d1 ±0.2	d2	h ±0.2	t min.	Nominal adhesive forces in N	⚖
GN 52.2-AN-6	6	M 3	20	5	2	4
GN 52.2-AN-8	8	M 3	20	5	4	8
GN 52.2-AN-10	10	M 4	20	7	8.5	11
GN 52.2-AN-13	13	M 4	20	7	12	19
GN 52.2-AN-16	16	M 4	20	7	20	30
GN 52.2-AN-20	20	M 6	25	9	40	53
GN 52.2-AN-25	25	M 6	35	9	60	121
GN 52.2-AN-32	32	M 8	40	12	160	212
GN 52.2-AN-40	40	M 8	50	12	240	437
GN 52.2-AN-50	50	M 10	60	12	400	793
GN 52.2-AN-63	63	M 12	65	14	660	1273
GN 52.2-ND-6	6	M 3	20	5	6	4
GN 52.2-ND-8	8	M 3	20	5	12	8
GN 52.2-ND-10	10	M 4	20	7	24	11
GN 52.2-ND-13	13	M 4	20	7	60	19
GN 52.2-ND-16	16	M 4	20	7	90	30
GN 52.2-ND-20	20	M 6	25	9	135	58
GN 52.2-ND-25	25	M 6	35	9	190	131
GN 52.2-ND-32	32	M 8	40	12	340	243
GN 52.2-ND-40	40	M 8	50	12	600	480
GN 52.2-ND-50	50	M 10	60	12	900	904
GN 52.2-ND-63	63	M 12	65	14	1300	1555

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GN 52.4

Retaining magnets

rod-shaped, with threaded stud

SPECIFICATION

Type

- Type **E**: with threaded stud

Housing
Steel, zinc plated

Materials of the magnet:

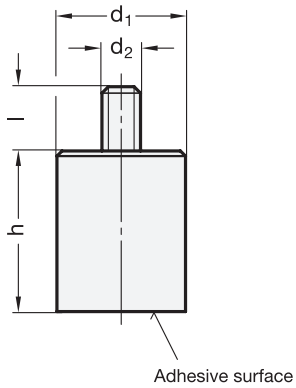
AlNiCo **AN**
Aluminium, nickel, cobalt
temperature resistant up to 450 °C

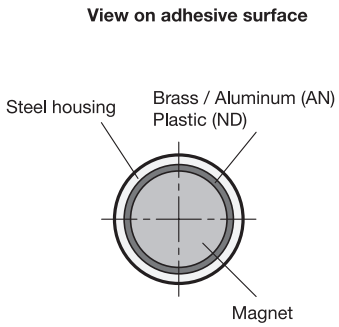
NdFeB **ND**
Neodymium, iron, boron
temperature resistant up to 80 °C



INFORMATION

Retaining magnets GN 52.4 are a shielded magnetic system.
- More information to retaining magnets (see page 2022)





GN 52.4

Description	d1 ±0.2	d2	h ±0.2	l	Nominal adhesive forces in N	⚖
GN 52.4-AN-6-M3-E	6	M 3	20	7	2	5
GN 52.4-AN-8-M3-E	8	M 3	20	7	4	8
GN 52.4-AN-10-M4-E	10	M 4	20	8	8.5	13
GN 52.4-AN-13-M4-E	13	M 4	20	8	12	21
GN 52.4-AN-16-M4-E	16	M 4	20	10	20	31
GN 52.4-AN-20-M6-E	20	M 6	25	10	40	60
GN 52.4-AN-25-M6-E	25	M 6	35	10	60	125
GN 52.4-AN-32-M8-E	32	M 8	40	12	160	217
GN 52.4-AN-40-M8-E	40	M 8	50	15	240	458
GN 52.4-AN-50-M10-E	50	M 10	60	15	400	855
GN 52.4-AN-63-M12-E	63	M 12	65	20	660	1345
GN 52.4-ND-6-M3-E	6	M 3	20	7	6	5
GN 52.4-ND-8-M3-E	8	M 3	20	7	12	9
GN 52.4-ND-10-M4-E	10	M 4	20	8	24	14
GN 52.4-ND-13-M4-E	13	M 4	20	8	60	23
GN 52.4-ND-16-M4-E	16	M 4	20	10	90	33
GN 52.4-ND-20-M6-E	20	M 6	25	10	135	62
GN 52.4-ND-25-M6-E	25	M 6	35	10	190	127
GN 52.4-ND-32-M8-E	32	M 8	40	12	340	220
GN 52.4-ND-40-M8-E	40	M 8	50	15	700	461
GN 52.4-ND-50-M10-E	50	M 10	60	15	1000	860
GN 52.4-ND-63-M12-E	63	M 12	65	20	1700	1350

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GN 52.3

Retaining magnets

rod-shaped, with female thread

SPECIFICATION

Housing
Steel

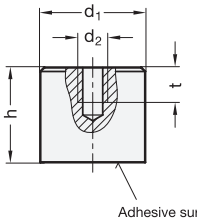
Material of the magnet
AlNiCo **AN**
Aluminium, nickel, cobalt
temperature resistant up to 350 °C

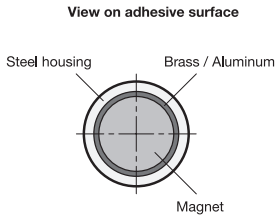
Lacquering red
temperature resistant up to 180 °C

INFORMATION

Retaining magnets GN 52.3 are a shielded magnetic system.
For easier handling and/or to avoid demagnetisation, these magnets have an iron plate on their adhesive surface.
- More information to retaining magnets (see page 2022)







GN 52.3

Description	d1 ±0.2	d2	h ±0.2	t	Nominal adhesive forces in N	⚖
GN 52.3-AN-12,5	12.5	M 4	16	7	20	12
GN 52.3-AN-17	17	M 6	16	5	26	29
GN 52.3-AN-21	21	M 6	19	7	40	42
GN 52.3-AN-27	27	M 6	25	9	65	89
GN 52.3-AN-35	35	M 6	30	9	150	190

GN 52.5

Stainless Steel-Retaining magnets

rod-shaped, with gummed adhesive surface

SPECIFICATION

Housing
Stainless Steel

Material of the magnet
NdFeB **ND**
temperature resistant up to 80 °C

Rubber
Elastomer (TPE)
80 shore A ≈
black

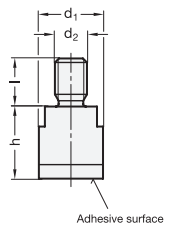
INFORMATION

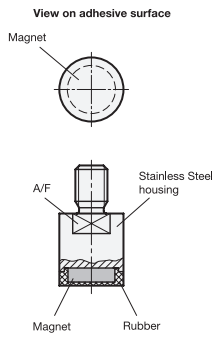
Stainless Steel-Retaining magnets GN 52.5 are a shielded magnetic system with gummed adhesive surface.
They are preferably used for sensitive surfaces. Also, the coefficient of friction is increased, with the effect that high lateral retaining forces are achieved.
- More information to retaining magnets (see page 2022)

TECHNICAL INFORMATION

- Elastomer characteristics (see page A32)







GN 52.5 **STAINLESS STEEL**

Description	d1	d2	h	l	A/F	Nominal adhesive forces in N	⚖
GN 52.5-ND-13-M6	13	M 6	16	10	11	15	16
GN 52.5-ND-16-M8	16	M 8	18	12	13	23	29
GN 52.5-ND-20-M10	20	M 10	20	14	17	46	52

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GN 60

Button-type magnets

with bore

SPECIFICATION

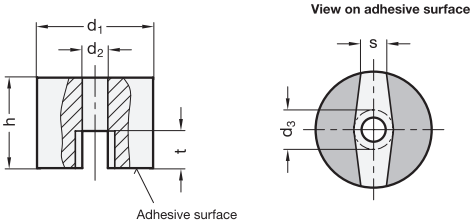
Material of the magnet
AlNiCo **AN**
Aluminium, nickel, cobalt
temperature resistant up to 280 °C

Lacquering red
temperature resistant up to 180 °C

INFORMATION

The button-type magnets GN 60 have a split adhesive surface. These are non-shielded magnetic systems made by casting method.
To ensure that the magnetic properties (adhesive forces) are not impaired, the fixing screws must be made of **non-magnetic** material. For easier handling and/or to avoid demagnetisation, these magnets have an iron plate on their adhesive surface.
- More information to retaining magnets (see page 2022)





GN 60

Description	d1 Nominal dimension	d1 Actual dimension	d2	d3 max.	h	s	t	Nominal adhesive forces in N	⚖
GN 60-AN-13	13	13	4.5	7	10	4.5	5	7	6
GN 60-AN-19	19	19.1	4.8	8.7	12.7	5.7	6.5	19	23
GN 60-AN-25	25	25.4	4.5	8.5	20	5.6	8	29	71
GN 60-AN-32	32	31.8	7.1	10	25.4	7.9	12.7	66	132

GN 62

U-Magnets

with bore

SPECIFICATION

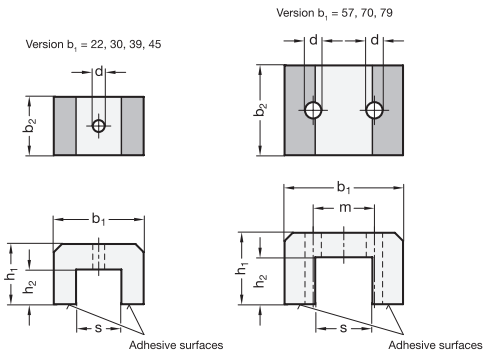
Material of the magnet
AlNiCo **AN**
Aluminium, nickel, cobalt
temperature resistant up to 350 °C

Lacquering red
temperature resistant up to 180 °C

INFORMATION

The U-Magnets GN 62 have a split adhesive surface. These are non-shielded magnetic systems made by casting method.
To ensure that the magnetic properties (adhesive forces) are not impaired, the fixing screws must be made of **non-magnetic** material. For easier handling and/or to avoid demagnetisation, these magnets have an iron plate on their adhesive surface.
- More information to retaining magnets (see page 2022)





GN 62

Description	b1	b2	d	h1	h2	m	s	Nominal adhesive forces in N	⚖
GN 62-AN-22	22	25	7	17	9	-	8	30	67
GN 62-AN-30	30	20	5	20	11	-	15	45	72
GN 62-AN-39	39	25.4	4.7	25	14	-	19	90	154
GN 62-AN-45	45	30	4.7	30	17	-	23	120	212
GN 62-AN-57	57	44.5	8	35	23	31.5	27.8	180	501
GN 62-AN-70	70	57	8	41	25	38	35	320	773
GN 62-AN-79	79	82	9.5	54	36	43	38.5	470	1573

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GN 53.1

RoHS

Magnets

SPECIFICATION

Housing
Plastic

- white, RAL 9003 **WS**
- grey, RAL 7040 **GR**
- red, RAL 3031 **RT**

Material of the magnet
NdFeB **ND**
Neodymium, iron, boron
temperature resistant up to 80 °C

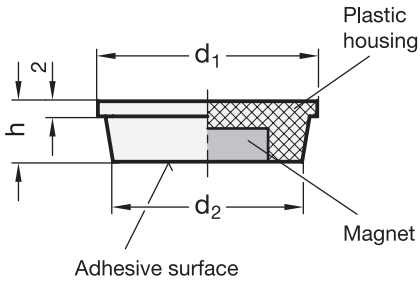
INFORMATION

Magnets GN 53.1 are primarily used for holding drawings and the like. The magnetic material ND is characterized by a high adhesive force.
- More information to magnets (see page 2022)

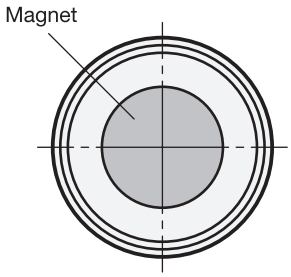
ON REQUEST

- Magnets with custom imprint





View on adhesive surface



GN 53.1

Description	d1	d2	h	Nominal adhesive forces in N	⚖
GN 53.1-ND-18-GR	18	14	8	10	3
GN 53.1-ND-18-RT	18	14	8	10	3
GN 53.1-ND-18-WS	18	14	8	10	3
GN 53.1-ND-25-GR	25	22	8.5	14	8
GN 53.1-ND-25-RT	25	22	8.5	14	8
GN 53.1-ND-25-WS	25	22	8.5	14	8
GN 53.1-ND-30-GR	30	28.5	8.5	27	9
GN 53.1-ND-30-RT	30	28.5	8.5	27	9
GN 53.1-ND-30-WS	30	28.5	8.5	27	9
GN 53.1-ND-36-GR	36	32.5	8.5	35	11
GN 53.1-ND-36-RT	36	32.5	8.5	35	11
GN 53.1-ND-36-WS	36	32.5	8.5	35	11
GN 53.1-ND-40-GR	40	36	8	35	11
GN 53.1-ND-40-RT	40	36	8	35	11
GN 53.1-ND-40-WS	40	36	8	35	11

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GN 51.7

Magnets

with ball knob / with key ring, with rubber jacket



SPECIFICATION

Types

- Type **A**: with knob
- Type **B**: with key ring

Steel part
nickel plated

Material of the magnet
NdFeB **ND**
Neodymium, iron, boron
temperature resistant up to 80 °C

Rubber jacket
Elastomer (TPE)
80 shore A ≈
black

Ball knob
Plastic
Technopolymer (Polyamide PA)
black, matt

Key ring
Steel, nickel plated

INFORMATION

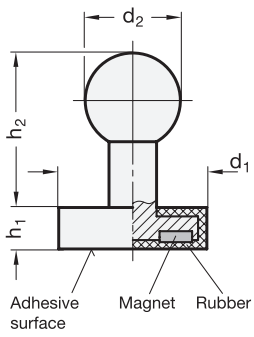
Magnets GN 51.7 are a shielded magnetic system with rubber jacket. The rubber jacket protects sensitive surfaces from being damaged by the magnet and also delivers a higher friction coefficient, resulting in high lateral adhesion forces.

- More information to retaining magnets (see page 2022)

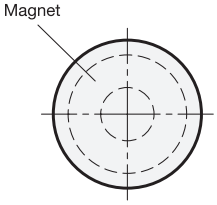
TECHNICAL INFORMATION

- Elastomer characteristics (see page A32)

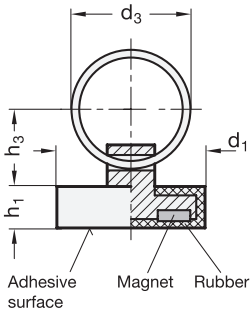
Type **A**



View on adhesive surface



Type **B**



GN 51.7

Description	d1	d2	d3	h1	h2	h3	Nominal adhesive forces in N	⚖
GN 51.7-ND-22-A	22	16	-	6	25	-	35	17
GN 51.7-ND-31-A	31	16	-	6	25	-	75	28
GN 51.7-ND-43-A	43	16	-	5.5	24	-	85	48
GN 51.7-ND-22-B	22	-	20	6	-	13	35	14
GN 51.7-ND-31-B	31	-	25	6	-	14.5	75	25
GN 51.7-ND-43-B	43	-	30	5.5	-	17	85	34

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GN 251.6

Setting bolts

with retaining magnet

SPECIFICATION

Screw Steel

- Tensile strength class 5.8
- zinc plated, blue passivated

Hexagon nut Steel

- Tensile strength class 04
- zinc plated, blue passivated

Material of the magnet
NdFeB **ND**
Neodymium, iron boron
temperature resistant up to 80 °C

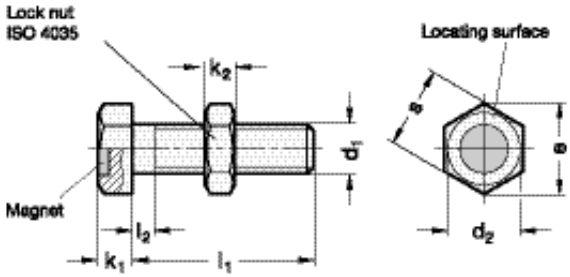


INFORMATION

Setting bolts GN 251.6 with retaining magnet are a shielded magnetic system.
Suitable e.g. as workpiece stop, with the magnet holding the workpiece in place.
The locking nut (included) can be used to secure the stop screw after positioning.
- More information to retaining magnets (see page 2022)

TECHNICAL INFORMATION

- Strength values of screws (see page A20)



GN 251.6

Description	d1*	l1	d2	e ≈	k1 -1	k2	l2 max.	s	Nominal adhesive forces in N	⚖
GN 251.6-M6-12-ND	M 6	12	10	11	4	3.2	3	10	25	5
GN 251.6-M6-16-ND	M 6	16	10	11	4	3.2	3	10	25	6
GN 251.6-M6-20-ND	M 6	20	10	11	4	3.2	3	10	25	7
GN 251.6-M6-25-ND	M 6	25	10	11	4	3.2	3	10	25	8
GN 251.6-M6-30-ND	M 6	30	10	11	4	3.2	3	10	25	9
GN 251.6-M8-16-ND	M 8	16	13	14.4	5.3	4	3.7	13	50	13
GN 251.6-M8-20-ND	M 8	20	13	14.4	5.3	4	3.7	13	50	14
GN 251.6-M8-25-ND	M 8	25	13	14.4	5.3	4	3.7	13	50	16
GN 251.6-M8-30-ND	M 8	30	13	14.4	5.3	4	3.7	13	50	17
GN 251.6-M8-40-ND	M 8	40	13	14.4	5.3	4	3.7	13	50	21
GN 251.6-M10-20-ND	M 10	20	17	17.8	6.4	5	4.5	17	75	26
GN 251.6-M10-25-ND	M 10	25	17	17.8	6.4	5	4.5	17	75	30
GN 251.6-M10-30-ND	M 10	30	17	17.8	6.4	5	4.5	17	75	37
GN 251.6-M10-40-ND	M 10	40	17	17.8	6.4	5	4.5	17	75	37
GN 251.6-M10-50-ND	M 10	50	17	17.8	6.4	5	4.5	17	75	42
GN 251.6-M12-25-ND	M 12	25	19	20	7.5	6	5.2	19	110	44
GN 251.6-M12-30-ND	M 12	30	19	20	7.5	6	5.2	19	110	48
GN 251.6-M12-40-ND	M 12	40	19	20	7.5	6	5.2	19	110	55
GN 251.6-M12-50-ND	M 12	50	19	20	7.5	6	5.2	19	110	62
GN 251.6-M12-60-ND	M 12	60	19	20	8.5	6	5.2	19	110	69
GN 251.6-M16-30-ND	M 16	30	24	26.8	10	8	6	24	145	93
GN 251.6-M16-40-ND	M 16	40	24	26.8	10	8	6	24	145	104
GN 251.6-M16-50-ND	M 16	50	24	26.8	10	8	6	24	145	118
GN 251.6-M16-60-ND	M 16	60	24	26.8	10	8	6	24	145	131
GN 251.6-M16-80-ND	M 16	80	24	26.8	10	8	6	24	145	157

* thread: nut mobility

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GN 913.6

Grub screws

with retaining magnet

SPECIFICATION

Steel

- Tensile strength class 5.8
- zinc plated, blue passivated

Material of the magnet
NdFeB **ND**
Neodymium, iron, boron
temperature resistant up to 80 °C

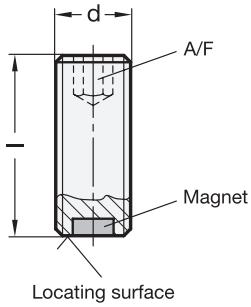


INFORMATION

Grub screws GN 913.6 with retaining magnet are a shielded magnetic system.
Suitable e.g. as workpiece stop, with the magnet holding the workpiece in place.
- More information to retaining magnets (see page 2022)

TECHNICAL INFORMATION

- Strength values of screws (see page A20)



GN 913.6

Description	d *	l -1	A/F	Nominal adhesive forces in N	⚖
GN 913.6-M6-12-ND	M 6	12	3	2.5	2
GN 913.6-M6-16-ND	M 6	16	3	2.5	2
GN 913.6-M6-20-ND	M 6	20	3	2.5	3
GN 913.6-M6-25-ND	M 6	25	3	2.5	4
GN 913.6-M6-30-ND	M 6	30	3	2.5	5
GN 913.6-M8-16-ND	M 8	16	4	7	4
GN 913.6-M8-20-ND	M 8	20	4	7	5
GN 913.6-M8-25-ND	M 8	25	4	7	7
GN 913.6-M8-30-ND	M 8	30	4	7	8
GN 913.6-M8-40-ND	M 8	40	4	7	11
GN 913.6-M10-20-ND	M 10	20	5	11	8
GN 913.6-M10-25-ND	M 10	25	5	11	10
GN 913.6-M10-30-ND	M 10	30	5	11	13
GN 913.6-M10-40-ND	M 10	40	5	11	18
GN 913.6-M10-50-ND	M 10	50	5	11	23
GN 913.6-M12-25-ND	M 12	25	6	17	14
GN 913.6-M12-30-ND	M 12	30	6	17	18
GN 913.6-M12-40-ND	M 12	40	6	17	25
GN 913.6-M12-50-ND	M 12	50	6	17	32
GN 913.6-M12-60-ND	M 12	60	6	17	39
GN 913.6-M16-30-ND	M 16	30	8	35	32
GN 913.6-M16-40-ND	M 16	40	8	35	46
GN 913.6-M16-50-ND	M 16	50	8	35	58
GN 913.6-M16-60-ND	M 16	60	8	35	71
GN 913.6-M16-80-ND	M 16	80	8	35	97

* thread: nut mobility

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Raw magnets

disc-shaped, with bore or countersunk

SPECIFICATION

Materials of the magnet:

SmCo **SC**
Samarium, Cobalt
blank
temperature resistant up to 200 °C

NdFeB **ND**
Neodymium, iron, boron
temperature resistant up to 80 °C

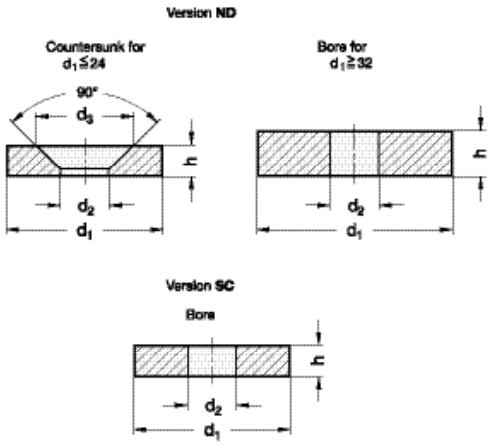


INFORMATION

Raw magnets GN 55.1 are unshielded disc-shaped (annular) magnets.
Owing to their vast range of different magnet materials and sizes, they are suitable for virtually universal use. They are mostly attached by gluing.
When used without air gap, individual raw magnets always have lower adhesive forces than a magnet system in which shielding and magnetic return enormously intensify the force acting at the adhesion surface. Depending on the air gap between magnet and mating component, individual raw magnets - unlike magnet systems - can have substantially higher adhesive forces.
In the event that no suitable retaining magnets / magnet systems are available, raw magnets may be used in combination with appropriate holding constructions to build up highly specific magnet systems.
- More information to retaining magnets (see page 2022)

ON REQUEST

- made of hard ferrite (HF)



GN 55.1

Description	d_1	d_2 ±0.1	h ±0.1	d_3 +0.5	Nominal adhesive forces in N	Packaging units	⚖
GN 55.1-ND-12-3,5-3	12 ±0,1	3.5	3	6.6	18	20	3
GN 55.1-ND-15-4,5-3,5	15 ±0,1	4.5	3.5	9.3	29	20	4
GN 55.1-ND-18-4,5-4	18 ±0,1	4.5	4	9.3	41	10	8
GN 55.1-ND-24-5,5-4	24 ±0,1	5.5	4	11.5	66	10	14
GN 55.1-ND-32-10,5-2	32 ±0,1	10.5	2	-	42	5	16
GN 55.1-ND-38-12-4	38 ±0,1	12	4	-	110	2	45
GN 55.1-ND-48-15-5	48 ±0,2	15	5	-	165	1	83
GN 55.1-ND-56-15-6	56 ±0,2	15	6	-	230	1	137
GN 55.1-SC-15-8-3,5	15 ±0,1	8	3.5	-	23	20	4
GN 55.1-SC-18-8-4	18 ±0,1	8	4	-	31	10	7
GN 55.1-SC-24-11,5-4	24 ±0,1	11.5	4	-	51	10	12
GN 55.1-SC-32-10-4	32 ±0,1	10	4	-	67	5	27

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GN 55.2

Raw magnets

disc-shaped, without bore

SPECIFICATION

Materials of the magnet:

SmCo **SC**
Samarium, cobalt
blank
temperature resistant up to 200 °C

NdFeB **ND**
Neodymium, iron, boron
nickel-plated
temperature resistant up to 80 °C

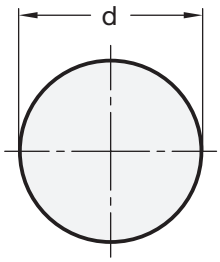
INFORMATION

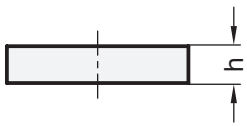
Raw magnets GN 55.2 are unshielded disc-shaped magnets.
Owing to their vast range of different magnet materials and sizes, they are suitable for virtually universal use. They are mostly attached by gluing.
When used without air gap, individual raw magnets always have lower adhesive forces than a magnet system in which shielding and magnetic return enormously intensify the force acting at the adhesion surface. Depending on the air gap between magnet and mating component, individual raw magnets - unlike magnet systems - can have substantially higher adhesive forces.
In the event that no suitable retaining magnets / magnet systems are available, raw magnets may be used in combination with appropriate holding constructions to build up highly specific magnet systems.
- More information to retaining magnets (see page 2022)

ON REQUEST

- made of hard ferrite (HF)







GN 55.2

Description	d ±0.1	h ±0.1	Nominal adhesive forces in N	Packaging units	⚖
GN 55.2-ND-4-3	4	3	4	20	1
GN 55.2-ND-5-3	5	3	5	20	1
GN 55.2-ND-6-3	6	3	7.5	20	1
GN 55.2-ND-8-3	8	3	13	20	1
GN 55.2-ND-10-3	10	3	15	20	2
GN 55.2-ND-12-3	12	3	20	20	3
GN 55.2-ND-15-3	15	3	28	20	4
GN 55.2-ND-18-3	18	3	35	10	7
GN 55.2-ND-20-3	20	3	42	10	9
GN 55.2-ND-24-3	24	3	55	10	12
GN 55.2-SC-4-3	4	3	2.5	20	1
GN 55.2-SC-5-3	5	3	3.5	20	1
GN 55.2-SC-6-3	6	3	4	20	1
GN 55.2-SC-8-3	8	3	8	20	1
GN 55.2-SC-10-3	10	3	10	20	2
GN 55.2-SC-12-3	12	3	11	10	4
GN 55.2-SC-15-3	15	3	16	10	6
GN 55.2-SC-18-3	18	3	25	10	8
GN 55.2-SC-24-3	24	3	36	5	12

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GN 55.3

Raw magnets

rod-shaped

SPECIFICATION

Material of the magnet
AlNiCo **AN**
Aluminium, nickel, cobalt
blank

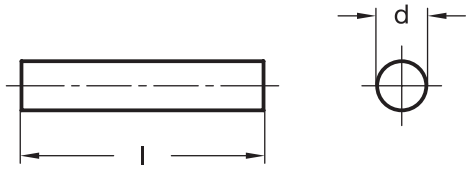
INFORMATION

Raw magnets GN 55.3 are unshielded rod-shaped magnets.
Owing to their vast range of different magnet materials and sizes, they are suitable for virtually universal use. They are mostly attached by gluing.
When used without air gap, individual raw magnets always have lower adhesive forces than a magnet system in which shielding and magnetic return enormously intensify the force acting at the adhesion surface. Depending on the air gap between magnet and mating component, individual raw magnets - unlike magnet systems - can have substantially higher adhesive forces.
In the event that no suitable retaining magnets / magnet systems are available, raw magnets may be used in combination with appropriate holding constructions to build up highly specific magnet systems.
- More information to retaining magnets (see page 2022)

ON REQUEST

- special lengths





GN 55.3

Description	d 0/-0.2	l ±0.1	Nominal adhesive forces in N	Temperature resistance in °C	Packaging units	⚖
GN 55.3-AN-3-10	3	10	1.1	450	10	4
GN 55.3-AN-3-12	3	12	1.3	450	10	4
GN 55.3-AN-4-16	4	16	1.9	450	10	5
GN 55.3-AN-4-20	4	20	2	450	10	6
GN 55.3-AN-5-20	5	20	2.3	450	10	7
GN 55.3-AN-6-15	6	15	2.8	350	5	6
GN 55.3-AN-6-24	6	24	2.8	450	5	8
GN 55.3-AN-6-30	6	30	2.8	450	5	9
GN 55.3-AN-8-25	8	25	3.8	450	5	12
GN 55.3-AN-8-32	8	32	3.8	450	5	14
GN 55.3-AN-10-20	10	20	5	350	5	15
GN 55.3-AN-10-40	10	40	7	450	1	29
GN 55.3-AN-12-40	12	40	8	450	1	40
GN 55.3-AN-12-48	12	48	8	450	1	45
GN 55.3-AN-15-30	15	30	10	350	1	45
GN 55.3-AN-15-60	15	60	11	450	1	90
GN 55.3-AN-20-40	20	40	17	350	1	103
GN 55.3-AN-34-80	34	80	61	350	1	558

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GN 55.4

Raw magnets

block-shaped

SPECIFICATION

Materials of the magnet:

SmCo **SC**
Samarium, cobalt
blank
temperature resistant up to 200 °C

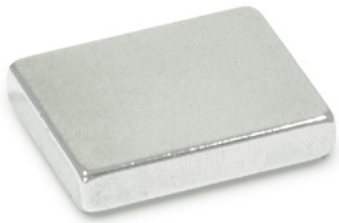
NdFeB **ND**
Neodymium, iron, boron
nickel-plated
temperature resistant up to 80 °C

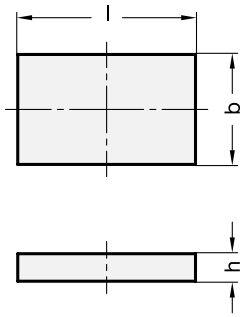
INFORMATION

Raw magnets GN 55.4 are unshielded block-shaped magnets.
Owing to their vast range of different magnet materials and sizes, they are suitable for virtually universal use. They are mostly attached by gluing.
When used without air gap, individual raw magnets always have lower adhesive forces than a magnet system in which shielding and magnetic return enormously intensify the force acting at the adhesion surface. Depending on the air gap between magnet and mating component, individual raw magnets - unlike magnet systems - can have substantially higher adhesive forces.
In the event that no suitable retaining magnets / magnet systems are available, raw magnets may be used in combination with appropriate holding constructions to build up highly specific magnet systems.
- More information to retaining magnets (see page 2022)

ON REQUEST

- in other dimensions
- made of hard ferrite (HF)





GN 55.4

Description	l ±0.1	b ±0.1	h ±0.1	Nominal adhesive forces in N	Packaging units	⚖
GN 55.4-SC-7,5-4-1,5	7.5	4	1.5	3.4	10	1
GN 55.4-SC-7,5-6-2	7.5	6	2	5	10	1
GN 55.4-SC-10-7,5-2	10	7.5	2	7.5	10	2
GN 55.4-SC-12-9,5-2,5	12	9.5	2.5	11	5	4
GN 55.4-SC-16-12,5-2,5	16	12.5	2.5	15	5	4
GN 55.4-SC-18-16,5-4	18	16.5	4	29	5	12
GN 55.4-SC-26-20,3-5	26	20.3	5	51	1	30
GN 55.4-SC-33-26,3-6,5	33	26.3	6.5	85	1	58
GN 55.4-ND-7,5-4-1,5	7.5	4	1.5	5	10	1
GN 55.4-ND-7,5-6-2	7.5	6	2	8	10	1
GN 55.4-ND-10-7,5-2	10	7.5	2	11	10	2
GN 55.4-ND-12-9,5-2,5	12	9.5	2.5	17	5	2
GN 55.4-ND-16-12,5-2,5	16	12.5	2.5	24	5	4
GN 55.4-ND-18-16,5-4	18	16.5	4	50	5	10
GN 55.4-ND-26-20,3-5	26	20.3	5	77	1	26
GN 55.4-ND-33-26,3-6,5	33	26.3	6.5	125	1	56

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Retaining magnets

for profile systems

SPECIFICATION

Plastic
Technopolymer (Polyamide PA)
black, matt **SW**

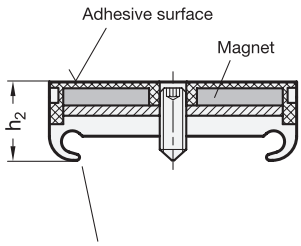
Material of the magnet
NdFeB
Neodymium, iron, boron
temperature resistant up to 80 °C

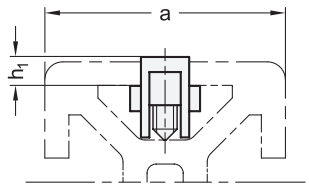
Steel insert, grub screw
zinc plated, blue passivated

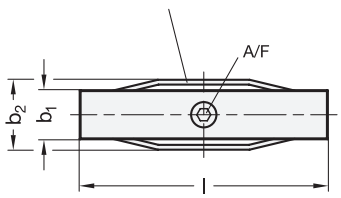


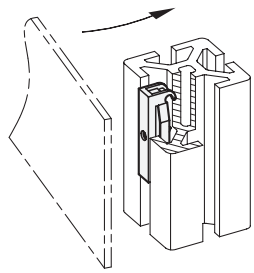
INFORMATION

With GN 56 retaining magnets doors, covers or even tools and accessories can simply be attached to profile systems using magnets.
Thanks to the side-mounted plastic spring elements the retaining magnet can be introduced into a profile nut at any point. When affixed this way, the magnet holds with a multiple of its magnet nominal holding force in the nut. If necessary, the retaining magnet can be taken out of the nut again with a suitable screw driver via the recesses on the front.
Lightly turning the threaded pin against the groove base stops the retaining magnet from moving in the direction of the nut. Additional protection against sideward movement can be achieved with nuts for T-nuts GN 506 (see page 982), for example.









GN 56

Description	b1	a	b2	h1	h2	l	A/F	Nominal adhesive forces in N	⚖
GN 56-6-30-SW	6	30	9.5	3	10.2	41	1.5	10	6
GN 56-8-30-SW	8	30	11.6	2.3	9.3	41	2	18	6
GN 56-8-40-SW	8	40	12.5	4.8	12.9	41	2	18	6
GN 56-10-45-SW	10	45	13.2	6	13.2	41	2	18	10

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GN 70

Holding discs

Steel / Stainless Steel, for retaining magnets

SPECIFICATION

Type
- Type **A**: flat

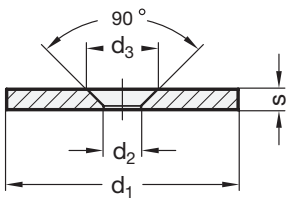
Version in Steel ST
zinc plated

Version in Stainless Steel NI
magnetic

INFORMATION

Holding discs GN 70 are used as companion parts for retaining magnets, e.g. if a magnet is to be used in connection with non-magnetic materials.
They can be fixed with countersunk screws (e.g. DIN 7991), but also with any commercial wood or sheet metal countersunk screws.





GN 70

Description	d1	d2 +0.3	d3	s	⚖
GN 70-12-A-ST	12 ±0.1	4	6.5 -0.2/+0.5	2	4
GN 70-17-A-ST	17 ±0.1	6	8.5 +0.5	2	6
GN 70-27-A-ST	27 ±0.2	6	11+0.5	3	15
GN 70-34-A-ST	34 +0.3/+0.7	6	11 +0.5	3	23
GN 70-45-A-ST	45 +0.1/+0.5	5.5	11 +0.5	3	39
GN 70-64-A-ST	64 ±0.3	6	11 +0.5	3	77

GN 70-NI **STAINLESS STEEL**

Description	d1	d2 ±0.3	d3 +0.5	s	⚖
GN 70-27-A-NI	27 +0.1/+0.5	5.5	11	3	15
GN 70-45-A-NI	45 ±0.2	6	8.5	2	27

GN 70.1

Adhesive discs

self-adhesive, for retaining magnets

SPECIFICATION

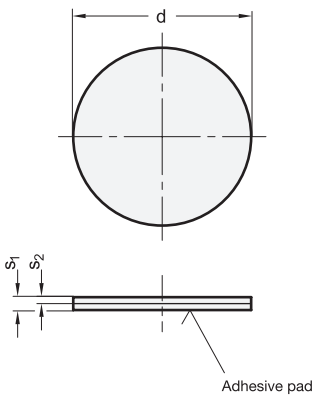
Steel
- zinc plated, blue passivated **ZB**
- zinc plated, blue passivated, white laquered **WS**

Adhesive pad
Scotch-Mount ™ 4032
- doubled-sided
- with polyurethane foam backing

INFORMATION

Adhesive discs GN 70.1 are used as counter piece for retaining magnets if a magnet is to be used on a non-magnetic surface, for instance.
After pulling off the protective film from the adhesive pad at the back, they can be attached to any suitable and clean surfaces.





GN 70.1

Description	d	s1	s2	⚖
GN 70.1-20-ZB	20	2	1	3
GN 70.1-20-WS	20	2	1	3
GN 70.1-30-ZB	30	2	1	6
GN 70.1-30-WS	30	2	1	6
GN 70.1-40-ZB	40	2	1	10
GN 70.1-40-WS	40	2	1	10
GN 70.1-60-ZB	60	2.5	1.5	35
GN 70.1-60-WS	60	2.5	1.5	35

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TECHNICAL DATA

The technical data presented here refer mainly to the ELESA+GANTER Standard elements, made of engineering plastics and metal material.
The main technologies used for the manufacture of plastic products are:
– compression/transfer moulding for Duroplasts;
– injection moulding for Technopolymers.
This primary process may be followed by secondary operations such as machining, finishing, assembly, decoration to customize the product (tampoprinting), packaging to guardantee adequate protection during transportation and identification of the product.

1. Plastic materials

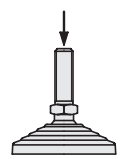
DUROPLASTS: phenolic based (PF) thermosetting plastics that harden during moulding due to irreversible polymerization.
TECHNOPOLYMERS: thermoplastic polymer materials for technical use in which the chemical composition of the molecular chain provides a wide range of mechanical, thermal, and technological properties. The transformation process is based on the melting and subsequent hardening by solidification of the material in the mould. The material itself has a low environmental impact because it can be recycled (reversible solidification).

The main technopolymers used by ELESA+GANTER						
PA Glass-fibre reinforced polyamide, with glass filler or glass micro-spheres or polyamidebased SUPER technopolymers	**PA-T** Special transparent polyamide	**PP** Glass-fibre reinforced polypropylene or with mineral fillers	**POM** Acetal resin	**PC** Special polycarbonate	**PBT** Special polyester	**TPE** Thermo-plastic elastomer

1.1 Mechanical strength

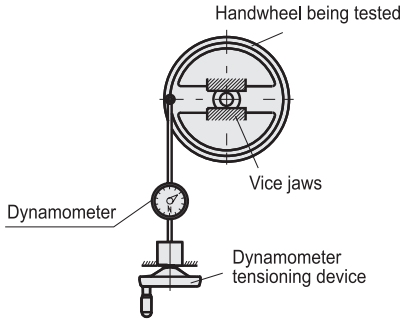
DUROPLASTS: the addition of mineral fillers, natural textile fibres and the optimum selection of the basic resin give this material an excellent mechanical strength, a high superficial hardness and a good impact strength.
TECHNOPOLYMERS: the rich selection of basic polymers available and the possibility of combining these with reinforcing fillers or additives of various kinds make a wide range of performance levels possible in terms of mechanical strength, impact strength, creep and fatigue.
The mechanical properties of a moulded plastic component may vary significantly according to its shape and the technological level of the manufacturing process. For this reason, instead of providing tables containing specific data on the mechanical strength of test pieces of various types of material, ELESA+GANTER has decided to inform designers of the forces which, in the most significant cases, may cause the component breakage. For most products, the mechanical strength values indicated in the catalogue are therefore loads at breakage.
The deformation under a load is not negligible for some products and may therefore jeopardise their performance, even before their breakage. Thus for these products, two load values are provided:
– **maximum working load** below which deformation DOES NOT jeopardise the component performance;
– **load at breakage** in accordance with the concepts outlined above.
In these cases, the "maximum working load" will be used as maximum design data to guarantee the correct performance, while the "load at breakage" will be used for safety tests.
Obviously, in both cases suitable safety coefficients must be applied.
Working stress has been taken into account (e.g. the transmission of torque in the case of a handwheel, the tensile strength in the case of a handle) as well as accidental stress (e.g. an impact with the component), in order to provide designers with a reference for determining suitable safety coefficients, according to the type and importance of the application.
All the strength values supplied were obtained from tests carried out in ELESA+GANTER Laboratories, under controlled temperature and humidity (23 °C – Relative Humidity of 50 %), under specific working conditions, and by applying a static load for a necessarily limited period of time.
The designer must therefore take into account adequate safety coefficients according to the application and specific operating conditions (vibrations, dynamic loads, working temperatures at the limits of the allowed temperature range). In the end, however, the designer is responsible for checking that the product is suitable for its intended purpose.
For some thermoplastics, for which the mechanical properties vary significantly in relation to the percentage of moisture absorbed (see chapter 1.5), the resistance tests on the component are carried out in compliance with ASTM D570, so that the moisture absorbed is in equilibrium with respect to ambient conditions of 23 °C and a RH of 50 %.

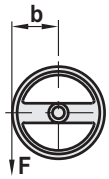
• **Compressive strength for levelling elements** (working stress)
The levelling element is assembled on its threaded metal stud and placed on special testing equipment. The element is then subjected to compressive stress with repeated and incremental loads until it breaks or undergoes a permanent plastic deformation of the plastic element.



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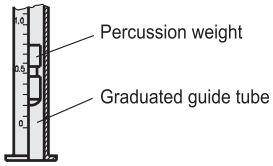
• **Resistance to transmission of torque** (working stress)
Use is made of an electronic dynamometer that applies increasing torque values as shown in the chart hereunder. The dynamometric system in the torque is shown in a traditional way to make the comprehension easier. The mean values of the torque C, obtained in the breaking tests, are shown in the tables for the various components and expressed in [Nm].

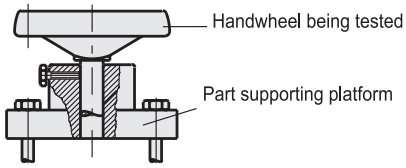




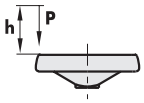
C [Nm] = F [N] • b [m]

• **Impact strength** (accidental stress)
The special equipment is used as shown in the chart.

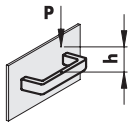




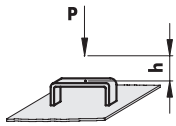
The mean values obtained in the breaking test, shown in the tables for the various models and expressed in [J], correspond to the breaking work L of the element subjected to repeated impacts, with the falling height (h) of the percussion weight (P) being increased by 0.1 m each time. Percussion weight (P): metal cylinder with a rounded ogival shaped end and weighing 0.680 kg (6.7N).



L [J] = P [N] • h [m]

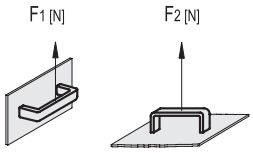


L_1 [J] = P [N] • h [m]



L_2 [J] = P [N] • h [m]

• **Tensile strength of U-shaped handles** (working stress)
This test entails fitting the handle to be tested on an electronic dynamometer, with two types of stress:
– perpendicular to the mounting screws (F1): here the stress on the handle is a mixed combination;
– parallel to the mounting screws (F2).
The load applied by the electronic dynamometer increases gradually in order to obtain a deformation of the tested element within a limit of 20 mm/min.



1.2 Thermal resistance



The use of thermosetting materials and reinforced thermoplastic polymers with a high Thermal resistance enables ELESA+GANTER to obtain products with great thermal stability and a limited variation in their mechanical properties at both high and low temperatures. The recommended operating temperature range for each plastic product in this catalogue is indicated by the symbol, which is shown here on the left. Within this temperature range:
– the material is stable and no significant degradation takes place:
– the user does not normally encounter any problem with the basic performance of the product.

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The mechanical strength, impact strength, maximum torque and maximum working pressure values indicated in the catalogue were obtained from tests carried out under laboratory conditions (23 °C – Relative Humidity of 50 %). These values may vary over the working temperature range indicated. Customers are therefore responsible for checking the product's actual performance in their specific thermal working conditions. A very general indication, as to the working temperature range for the various types of plastics, is given in the table below.

Material	Working temperature range
Duroplasts (PF)	from -20 °C to 100°/ 110 °C
Special, high-resistence polypropylene based (PP) technopolymers	from 0 °C to 80°/ 90 °C
Glass-fibre reinforced polypropylene based (PP) technopolymers	from 0 °C to 100 °C
Polyamide based (PA) technopolymers	from -20 °C to 90 °C
Glass-fibre reinforced polyamide based (PA) technopolymers	from -30 °C to 130°/ 150 °C
Glass-fibre reinforced polyamide based (PA) technopolymers for high temperatures	from -30 °C to 200 °C

1.3 Strength and surface hardness

DUROPLASTS: the high surface hardness of the material and its glossy finish, obtained by the mould, enable the surfaces to be kept in perfect condition, even after prolonged use in the presence of metal machining residues or in abrasive environments, as for example, in metal machining applications with machine tools.
TECHNOPOLYMERS: the surface hardness values are lower than those of Duroplast, but are still within the 60 – 98 Rockwell range, M scale. Technopolymers are however tougher and have a greater impact strength than Duroplasts.

1.4 Resistance to chemical agents

The tables in Chapter 10 (see page A15) describe the resistance of the plastic materials used for ELESA+GANTER products, at an ambient temperature of 23 °C, in the presence of the various chemical agents they may come into contact with, in an industrial environment (acids, bases, solvents, lubricants, fuels, and aqueous solutions) and indicate 3 classes of resistance:
– good resistance = the product functional and aesthetic properties remain unchanged;
– fair resistance = effects on the functional and/or aesthetic properties, depending on the type of product and the working conditions with some limitations of use according to the specific application;
– poor resistance = product susceptible to chemical aggression. Not recommended for use.
As a general rule, chemical resistance decreases as the working temperature and mechanical stresses, to which the product is subjected, increase. The presence of high temperatures and high levels of mechanical stress together require to the product resistance to chemical agents be tested.

1.5 Resistance to atmospheric agents and UV rays

In most cases, ELESA+GANTER plastic Standards are used for "indoor" applications. In any case, due to the properties of the materials and the measures taken during the design stage, these products may also be used for "outdoor applications", where they are exposed to particular atmospheric conditions:
• **rapid changes in temperature:** within the working temperature range recommended for each product, rapid changes in temperature do not create problems due to the impact strength of the materials used;
• **the presence of water or moisture:** may result in processes of hydrolysis and the absorption of a certain percentage of the water/moisture until a state of equilibrium is reached. This may alter some of the material's mechanical properties.
Examples of materials that absorb water include polyamides (PA), transparent polyamides (PA-T, and PA-T AR) and duroplasts (PF).
Products made of these materials may undergo slight changes in size due to the absorption of water, which may affect dimensional tolerances. During the design stage, ELESA+GANTER normally takes these possible variations into account in order to minimise their effects and to guarantee compliance with the technical specifications.
The absorption of water results in a significant increase in impact strength. The following polymers do not absorb water: polypropylene (PP), thermoplastic elastomers (TPE), and acetal resin (POM). Occasional contact with rainwater followed by "drying" does not generally pose any problems in terms of the strength of the product. When used in "outdoor" applications, it is advisable to prevent water accumulating on the product by adopting suitable assembly conditions.
• **Exposure to the sunlight and UV rays** in particular.
Specific resistance tests have been carried out using specific equipment for accelerated ageing testing, in accordance with the ISO 4892-2 standard, and setting the following parameters:
– radiation power: 550 [W]/[m]2;
– internal temperature (Black Standard Temperature, BST): 65°C;
– OUTDOOR filter that simulates exposure to the open air, with low shielding against UV rays;
– relative humidity: 50 % U.R.

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The relation between the hours of testing and the hours of actual exposure to an outdoor environment ("Equivalent Hours") obviously depends on the weather conditions of each geographic area. Taking the Average Radiant Exposure per Day (ARED) as a basis for comparison, the reference values adopted on an international scale include:
– Miami Equivalent Hours = high intensity exposure, typical of countries with a tropical or equatorial climate (ARED = 9.2 MJ/m^2);
– Central Europe Equivalent Hours = mean intensity of exposure, typical of continental climates (ERMG = 2 MJ/m^2).
At the end of prolonged tests carried out at the ELESA+GANTER laboratories, the variation in mechanical strength was measured (tensile/compression breaking, and impact breaking) was measured. In general, the results show that the mechanical strength of polyamide (PA), polypropylene (PP) and Duroplast (PF) products is not significantly reduced by exposure to UV rays.
As to the aesthetic appearance of samples exposed to the action of the UV rays, in some cases a slight variation in the surface appearance of the product was found, on completion of the tests.
For further details on UV ageing tests on specific products, contact the ELESA+GANTER Technical Department.

1.6 Flame resistance



The universally recognised classification used to describe the reaction of plastics to flames is obtained from two tests defined by UL (Underwriters Laboratories, USA). These tests are called: UL-94 HB and UL-94 V.
They define four main types of reaction to flames: HB, V2, V1 and V0 with progressively increasing levels of flame resistance.
• UL-94 HB (Horizontal Burning)
The test consists of putting a set of three standardized samples of the plastic (in a horizontal position set at an angle of 45° with respect to their own axis) each one in contact for 30 seconds with a flame applied at their bottom free edge.
Two marks are present on the samples at standardized distances from the free end.
A material may be classified HB if, for each of the three samples, the following conditions are applicable:
– the speed of burning between the two marks does not exceed a given standardized value that depends on the thickness of the samples being tested;
– the flame is extinguished before the fire reaches the furthest mark from the free edge (that is, from the point of application of the flame).
• UL-94 VB (Vertical Burning)
The test entails putting a set of five standardised samples of the plastic (in a vertical position) into contact each one twice for 10 seconds with a flame applied at their bottom free edge. A sheet of cotton wool is placed underneath the samples.
The following parameters are measured:
– the time required to extinguish each individual sample each time the flame is applied;
– the sum of times required to extinguish the five samples (considering both flame applications specified);
– the post-incandescence time of each individual sample after the second flame application;
– whether any material drips from the sample onto the cotton wool set underneath it with a risk of igniting it.

UL Classification of plastic materials				
UL-94 HB	For each of the three samples, the speed of combustion between the two marks does not exceed the standardized speed that depends on the thickness of the samples. For each of the three samples, the flame is extinguished before it reached the further mark from the point of application of the flame.			
UL-94 V		V2	V1	V0
	Time required to extinghuish each individual sample after each flame application.	≤ 30 s	≤ 30 s	≤ 10 s
	Sum of times required to extinghuish the five samples (considering both flame applications specified).	≤ 250 s	≤ 250 s	≤ 50 s
	Post-incandescence time of each individual sample after the second flame application.	≤ 60 s	≤ 60 s	≤ 30 s
	Presence of any material dripping from the sample onto the cotton wool beneath it with the risk of igniting it.	YES	NO	NO

The variables that determine the reaction to the flame include the thickness of the samples and the colouring of the material, in fact, there may be differences between materials with their natural colour and those with an artificial colour and differences depending on the variation in thickness of the sample with the same colour.

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Yellow Card: this is a document issued by the Underwriters Laboratories that certifies the reaction of a plastic to flames, following laboratory testing. This constitutes an official recognition of the product's flame resistance.
The "Yellow Card" indicates the trade name of the product, the manufacturer and related ID number, known as a UL File Number. The flame resistance is certified for specific material thickness and colour.
Some material manufacturers carry out flame resistance tests in independent laboratories, using the same test methods as the Underwriters Laboratories.
In such cases, a declaration of conformity but no "Yellow Card" is issued by the manufacturer.
Most of the other ELESA+GANTER products for which no specific indication is given in this regard belong to the UL94-HB category.
There are groups of ELESA+GANTER Standards with UL-94 V0 classification, identified as AE-V0 by the symbol shown in the title.
ELESA+GANTER products identified as AE-V0 are made of environment-friendly plastics and are free of PBB (Polybromine Biphenyl), PBDE (Polybrominediphenyl Ether) and in particular of Penta-BDE (Pentabromodiphenyl Ether) and of Octa-BDE (Octabromodiphenyl Ether).

1.7 Electrical properties

Plastics are generally good electrical insulators. This is particularly useful in certain applications in the electromechanical field, making plastic products preferable to similar metal products.
The extent of a material insulating properties is determined by:
- **its surface resistivity**
- **its volume resistivity.**

The table below classifies the materials on the basis of their surface resistivity [Ω]:

Conductive material	Semi-conductive material	Dissipative material	Anti-static material	Insulating material
10^{-1} Ω	10^{5} Ω	10^{9} Ω	10^{12} Ω	> 10^{12} Ω

Due to an increase in the performance of the electronic products and the diffusion of their use in different applications, there has been a rise in the market demand for thermoplastic products which may satisfy the requirements of standard conductivity for the ESD (Electro Static Discharge) applications.
The ESD product line developed by ELESA+GANTER uses materials with a reduced surface resistivity (conductive), marked with the symbol of ESD-C protection indicated in the title.
Typical values, for a few of the plastics used by ELESA+GANTER, are:

Material	Property	Measuring Method	State of material	Value
PA 30 % glassfibre	Surface Resistivity	IEC93, 23 °C	Dry	10^{13} Ω
			Conditioned (50 % RH equil.)	10^{11} Ω
	Volume Resistivity		Dry	10^{15} Ω •cm
			Conditioned (50 % RH equil.)	10^{11} Ω •cm
PP 20 % mineral filler	Surface Resistivity	ASTM D257	Conditioned (50 % RH equil.)	10^{13} Ω
PA ESD	Surface Resistivity		Dry	10^{3} Ω
			Conditioned (50 % RH equil.)	10^{3} Ω
	Volume Resistivity		Dry	10^{3} Ω •cm
			Conditioned (50 % RH equil.)	10^{3} Ω •cm

1.8 Surface finish and cleanability

In moulding technopolymers, it is technically easier to make products with a rough matte surface finish, which hides any aesthetic defect such as shrinkage cavities, flow marks, or joining marks caused by non-optimum moulding processes.
However, a rough matte finish makes it more difficult to clean the component, especially if made out in light colours, and its handling for a long use.
ELESA+GANTER technopolymer Standards have a very fine matte finish so that the product remains easy to clean in time, and it is easier for the user to handle it.
Some groups of technopolymer products have recently been developed with a completely glossy finish, so that they remain clean for a long time.

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1.9 Compliance with international standards

Over the past few years, the national and international regulatory authorities have laid down a series of regulations for the control of substances that are harmful to man or the environment and for the environment safety management in the industrial field.

- **European Directive 2002/95/CE RoHS (Restriction of Hazardous Substances)** applicable to the field of electrical and electronic equipment. This provides for a gradual reduction in the heavy metals (Pb, Cd, Hg, and Cr6) and halogens (PBB and PBDE) present in the components used in the electrical and electronic industries.
  In the data sheet of each product the "RoHS compliance" is indicated by the green symbol. The presence of this symbol means that all the technical problems related to the materials used for the chosen product have been solved out in compliance with the European irective 2002/95/CE. In practice, it could happen that the stock rotation process has not been completed yet: anyway, on ELESA+GANTER website www.elesa-ganter.com it is possible to make a check.
  ELESA+GANTER Technical Department is always at the customer's disposal for any kind of assistance.
- **European Regulation n.1907/2006 - REACH (Registration, Evaluation, Authorisation and restriction of Chemicals)**, applicable to all the chemical substances circulating in the European Community, aiming at improving the knowledge of the dangers and risks arising from the existing chemical substances and from the new ones.
- **European Directive 2000/53/CE - ELV (End Life of Vehicles)**, applicable to the automotive field. This provides for a gradual reduction in the heavy metals Pb, Cd, Hg, and Cr6, resent in vehicles.
- **RAEE (WEEE) Directive**, Waste of Electrical and Electronic Equipment.
- **ATEX Directive 94/9/CE - ATEX**, effective since the 1st of July 2003, refers to work environments with explosion risks and classifies the zones where a potentially explosive atmosphere may occur. ATEX marking (together with the declaration of conformity) certifies that the item, on which it is applied, was manufactured in compliance with all the requirements and provisions of the European Union Directive 94/9/EC (mandatory since 1st of July 2003) and that it was submitted to the procedures for conformity assessment. In accordance with this directive, certification is compulsory for all the equipment and protection systems, for the components (which are necessary for operating in safe conditions) that will be used in potentially explosive atmospheres (either pneumatic, hydraulic, electrical, mechanical) and for all safety, control and adjustment devices needed for the safe operation of the equipment and the protection systems, installed out of the potentially explosive atmosphere, but having the function of protection against explosion risks.

Hazardous zones (are classified according to the frequency and duration of the occurrence of a potentially explosive atmosphere):
- **zone 0** area in which a potentially explosive atmosphere, consisting of a mixture of air and flammable substances in the form of gas, vapour or mist, is present always, for long periods or often (at least 1000 hours/year);
- **zone 1** area in which, during normal operations*, a potentially explosive atmosphere, consisting of a mixture of air and flammable substances in the form of gas, vapour or mist, is occasionally present or with a small frequency (more than 10 hours and less than 1000 hours/year);
- **zone 2** area in which, during normal operations*, a potentially explosive atmosphere, consisting of a mixture of air and flammable substances in the form of gas, vapour or mist, is present only for a short time or seldom (less than 10 hours/year);
- **zone 20** area in which a potentially explosive atmosphere in the form of a cloud of combustible dust in air is present always, often or for long periods (at least 1000 hours per year);
- **zone 21** area in which, during normal operations*, a potentially explosive atmosphere, in the form of a cloud of combustible dust in air is occasionally present or with a small frequency (more than 10 hours and less than 1000 hours/year);
- **zone 22** area in which, during normal operations*, a potentially explosive atmosphere, in the form of a cloud of combustible dust in air is present only for a short time or seldom (less than 10 hours/year).

* normal operations means the situation in which installations are used within their design parameters.

The directive identifies two groups of equipment (I and II), in accordance with the environment in which it is used:
- **group I** comprises equipment intended for use in the underground parts of mines, and/or in the surface parts of such mines;
- **group II** comprises equipment intended for use in environments other than those specified for group I.

Within group II, the devices subject to the provisions of ATEX directive are subdivided into categories according to the combination of explosion hazard zones and equipment groups:
- **category 1** comprises equipment and protection systems in this category are intended for use in areas in which explosive atmospheres are present for long periods or often (1000 hours or more/year), ensuring a very high level of protection;
- **category 2** comprises equipment and protection systems in this category are intended for use in areas in which, during normal operations, explosive atmospheres are present, with a small frequency or occasionally (10 – 1000 hours/year), ensuring a high level of protection;

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- **category 3** comprises equipment and protection systems in this category are intended for use in areas in which, during normal operations, explosive atmospheres are present only for a short period or seldom (less than 10 hours/year), ensuring a normal level of protection.

ZONE	0 G (gas)	20 D (dust)	1 G (gas)	21 D (dust)	2 G (gas)	22 D (dust)
Explosive atmosphere	High probability, continuously or frequently		Average probability, sometimes, occasionally		Low probability, seldom, almost never	
CATEGORY in accordance to ATEX 94/9/EC Directive	**1**		**2**		**3**	

The directive also specifies the Groups of substances, classifying the substances that create potentially explosive atmospheres with air based on their hazardousness.
The hazardousness depends on the gas ignition temperature.
The table below shows some examples of gases with their related classification.

Gas	Group
Propane	IIA
Ethylene	IIB
Acetylene	IIC

Equipment with IIB marking are suitable also for applications that require equipment of explosion group IIA, those marked with IIC are suitable also for applications that require equipment of explosion groups IIA and IIB.
The table below shows the temperature classes, that indicate the max surface temperature (detected on the surface of the piece into contact with air), that must not be exceeded, to prevent ignition.

Max surface temperature	Temperature class
450 °C	T1
300 °C	T2
200 °C	T3
135 °C	T4
100 °C	T5
85 °C	T6

ELESA+GANTER products are components necessary for the safe operating of equipment and protection systems included in Group II (environments other than mines).
The following table shows the related categories:

Zone	2 (20)	1 (21)	2 (22)
Group II environments other than mines	**Category 1** presence of explosive atmosphere > 1000 h/year	**Category 2** presence of explosive atmosphere > 10 and < 1000 h/year	**Category 3** presence of explosive atmosphere > 10 and < 10 h/year

The following example shows the ATEX classification of an ELESA+GANTER product, (a breather cap of the SFP series): CE II 2GD IIB T6 where:
CE – marking CE
Ex – protection against explosion symbol
II – indicates the equipment group
2 – indicates the category it belongs to (and therefore the protection level ensured)
G e D – indicate the type of potentially explosive atmosphere where the component can operate (G = gas, D = dust). They can be present alternatively or simultaneously (like in this case)
IIB – indicates the substance group type (gas, vapours or mists)
T6 – indicates the temperature class

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'k' protection factor: most of ELESA+GANTER products included in the line of accessories for hydraulic systems are also certified according to EN 13463-8 standard (Protection by liquid immersion 'k'): the equipment protection is based on the presence of a liquid that prevents the formation of sparks and other causes of ignition.
The following example shows the ATEX classification of a certified ELESA+GANTER product, e.g. a plug of the TN series, according to EN 13463-8 standard, in which "k" is evidently present: CE Ex II 2GD k T5.

Code	Description	Classification ATEX	See page
58296-EX	TN-3/8-EX	CE ex II 2GD kT5 1146	1665
58297-EX	TN-1/2-EX	CE ex II 2GD kT5 1146	1665
58298-EX	TN-3/4-EX	CE ex II 2GD kT5X 1146	1665
54001-EX	SFP.30-3/8-EX	CE ex II 2GD IIB T6 1170	1706
54011-EX	SFP.30-3/8+a-EX	CE ex II 2GD IIB T6 1171	1706
54022-EX	SFP.30-3/8+F FOAM-EX	CE ex II 2GD IIB T6 1170	1706
54101-EX	SFP.30-1/2-EX	CE ex II 2GD IIB T6 1170	1706
54111-EX	SFP.30-1/2+a-EX	CE ex II 2GD IIB T6 1171	1706
54122-EX	SFP.30-1/2+F FOAM-EX	CE ex II 2GD IIB T6 1170	1706
54201-EX	SFP.40-3/4-EX	CE ex II 2GD IIB T6 1170	1706
54211-EX	SFP.40-3/4+a-EX	CE ex II 2GD IIB T6 1171	1706
54222-EX	SFP.40-3/4+F FOAM-EX	CE ex II 2GD IIB T6 1170	1706
14441-EX	HGFT.10-3/8-EX	CE ex II 2GD kT6X 1188	1725
14461-EX	HGFT.13-1/2-EX	CE ex II 2GD kT6X 1188	1725
14481-EX	HGFT.16-3/4-EX	CE ex II 2GD k IIBT6X 1188	1725
10851-EX	HCFE.12-3/8-EX	CE ex II 2GD kT6 1204	1746
10901-EX	HCFE.15-1/2-EX	CE ex II 2GD kT6 1204	1746
11001-EX	HCFE.20-3/4-EX	CE ex II 2GD k IIBT6 1204	1746
–	GN 743.6-11-M16x1.5	CE ex II 2GD TX 1194	1732
–	GN 743.6-14-M20x1.5	CE ex II 2GD TX 1194	1732
–	GN 743.6-18-M26x1.5	CE ex II 2GD TX 1194	1732
–	GN 743.6-18-M27x1.5	CE ex II 2GD TX 1194	1732
–	GN 743.6-18-M27x2	CE ex II 2GD TX 1194	1732
–	GN 743.6-11-G3/8	CE ex II 2GD TX 1194	1732
–	GN 743.6-14-G1/2	CE ex II 2GD TX 1194	1732
–	GN 743.6-18-G3/4	CE ex II 2GD TX 1194	1732

In an industrial environment, i.e. where ATEX Group II products are used, it is the user's responsibility to classify the zones in relation to the "potential" presence of gases, vapours and explosive dusts, identifying the relevant work places and working activities where explosion risks are present or could trigger, according to his/her risks assessment.
The manufacturer provides all the necessary information related to the Groups and Categories of the product, in order to allow the user to decide in which zone the ATEX product can safely operate, even if he/she is not able to foresee where and how it will actually operate.

1.10 Competence of ELESA+GANTER Technical Department

Ongoing research and experimentation with new materials that offer increasingly high levels of performance are parts of the principles of continuous improvement on which ELESA+GANTER Quality System is based. Our partnership with the leading plastics manufacturers in the world and the use of mechanical and process simulation programs allow us to offer the material that best suits the Client's specific application.

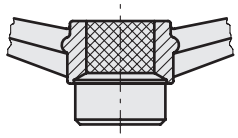
2. Metal materials

Most of ELESA+GANTER plastic elements contain inserts or functional components made of metal. The tables (Stainless steel – Carbon steels, Zinc alloys, Aluminium and Brass – Duroplasts) describe the chemical composition and mechanical strength values as per the reference standards for the metals used.
Surface treatments for metal inserts and parts: the surface of metal inserts or functional parts is generally treated to ensure the maximum protection against environmental agents, in order to maintain the product's aesthetic and functional qualities.
The protective treatments normally used include:
– burnishing of steel bosses and hubs;
– zinc-plating of threaded studs (Fe/Zn 8 in compliance with the UNI ISO 2081 standard);
– matte chromium plating of lever arms and revolving handles shanks.
Metal parts made of brass or stainless steel do not normally require surface treatment.
On request and for sufficient quantities, inserts subjected to other types of protective surface treatment may be supplied: black zinc-plating, nickel-plating, Niploy-Kanigen process, chromium plating, anodising and other, heat treatments like nitriding, hardening and case-hardening.

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2.1 Properties of metal inserts

The diamond knurling, of a shape, pitch and depth suited to the stress to be applied, is normally adopted, aiming at ensuring the most effective anchoring of the metal inserts to the plastic material and the best mechanical operation of the element. This type of knurling ensures both axial anchoring (that contrasts axial tensile stress) and radial anchoring (to avoid rotation during the transmission of torque).



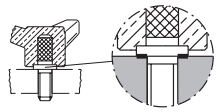
For threaded studs, instead of using a common screw available on the market, they use specially shaped threaded insert which protrudes a few tenths of mm from the plastic body so as to form a metal face on the screwing plane, thus freeing the plastic material of all stresses.

2.2 Clamping knobs with threaded inserts (Types of assembly)

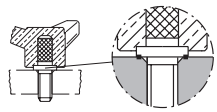
Types of assembly that create optimum clamping conditions

The plastic base on the clamping knob should never rest on the clamping surface. In this way the metal inserts (threaded stud or tapped boss) are never subjected to abnormal twisting ("corkscrew" effect) when axial tensile stress is applied. Thus, the anchoring of the metal insert to the plastic material is stressed in the correct way, that's to say it is only subject to the torque applied to the knob for tightening it.

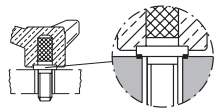
1. Threaded hole, without any chamfer or countersinking.



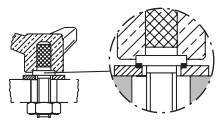
2. Threaded hole with chamfered edge or countersinking of a smaller diameter than that of the face on the stud, in order to ensure an adequate overlap between the metal insert and the clamping surface.



3. Plain cylindrical hole of a smaller diameter than that of the face on the stud, in order to ensure an adequate overlap between the metal insert and the clamping surface.



4. Plain cylindrical hole of a larger diameter than that of the face on the stud, setting in between a steel washer whose hole has a smaller diameter than that of the face of the stud. This guarantees an adequate overlap between the metal insert and the clamping surface, thanks to the washer.

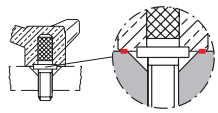


Incorrect types of assembly

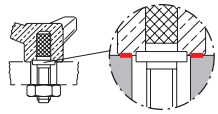
When the plastic base of the clamping knob rests directly on the clamping surface, the threaded stud or tapped boss are also subject to an axial load ("corkscrew" effect), which could jeopardize its anchoring to the plastic material.

The values of this force are always higher, with a broad safety margin, than those that may be applied by normal operations performed by hand, but designers who wish to take into account cases of improper use should avoid the situations illustrated in cases 5-6-7.

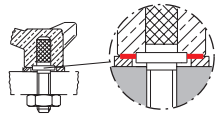
5. Threaded hole and champfer or countersinking with a larger diameter than that of the face on the stud.



6. Cylindrical through hole with a larger diameter than that of the face on the stud.



7. Threaded hole without any chamfer or countersinking, setting in between a steel washer whose hole has a diameter larger than that of the face on the stud.



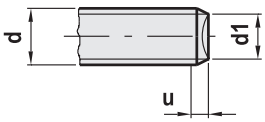
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2.3 Pass-through holes

For knobs in which pass-through holes (FP type) have to be made, the insert is set in such a way that the machining of the hole or the broaching of a keyway only affects the metal part, without the plastic material having to be machined in any way.

2.4 End of threaded studs

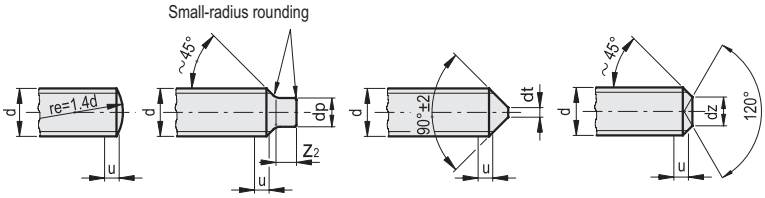
All threaded studs of the ELESA+GANTER elements have a chamfered flat end in compliance with ISO 4753.



Chamfered (rolled) end

d1 = Ø thread minor diam.
P = pitch
u = 2P incomplete threads

On request and for sufficient quantity, studs with different kinds of ends may be provided. These ends may be of the types shown hereunder, as indicated in the ISO 4753 table for "Fixing elements: ends of elements with ISO metric outside threading".



Convex end — Long cylindrical end — Truncated conic end — Cup end

P = pitch
u = 2P incompleted threads

d	dp h14	dt h16	dz h14	Z2 +IT 14* 0
4	2.5	0.4	2	2
5	3.5	0.5	2.5	2.5
6	4	1.5	3	3
8	5.5	2	5	4
10	7	2.5	6	5
12	8.5	3	7	6
14	10	4	8.5	7
16	12	4	10	8

* IT = International Tolerance

2.5 Seizure risk with stainless steel threaded couplings

The stainless steels generally used for fasteners are:
– A2 (similar to AISI.304 steel)
– A4 (similar to AISI.316 steel)
An indelible marking always identifies the steel type and the mechanical strength class.
The tightening torque is dependent upon:
– The nominal diameter of the threading
– The mechanical strength class of stainless steel (50-70-90)
– The friction coefficient.
A high friction leads to the dissipation of a large amount of energy. The stainless steel thermal conductivity is about half that of carbon steels, therefore the tightening of the screw and nut, both made out of stainless steel, increases the heat generated towards the plastic deformation of the material thus creating a potential locking condition (seizure) of the coupling. In the case of disassembly and reassembly of the coupling, the seizure risk increases considerably. In practice, to avoid this risk, it is recommended to lightly lubricate both the threading and the nut under head with MoS2 paste or simply use some anti-corrosive grease.

3. Other materials

GASKETS
ELESA+GANTER normally uses gaskets made of synthetic nitrile butadiene rubber (NBR) or acrylonitrile butadiene rubber (BUNA N) for its products, with hardness values ranging from 70 to 90 SHORE A depending on the type of product considered.
The working temperature range for continuous use is -30 °C to +120 °C. Where a higher chemical and thermal resistance is required, that is, for products in the HCX-SST, HCX-SST-BW and HGFT-HT-PR series, gaskets made of FKM fluorinated rubber are used.
For chemical resistance values, see the table in chapter 10 (on pages A30, A31 and A32).
The working temperature range is from -25 °C to +210 °C.
On request and for sufficient quantity, flat washers and O-rings made of special materials such as EPDM, silicone rubber, or others may be supplied.

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AIR FILTERS for filler breather caps (SFC., SFN., SFP., SFV., SFW., SMN. and SMW. series):
– TECH-FOAM type filters polyester-based polyurethane foam mesh, degree of filtration 40 microns, recommended for temperatures of between -40 °C and +100 °C for continuous use, and brief peak temperatures of +130 °C. This material does not swell in contact with water, petrol, soap, detergents, mineral oils or grease. Some solvents may cause slight swelling of the foam (benzene, ethanol, and chloroform);
– TECH-FIL type filters made of zinc-plated iron wire (quality as per DIN 17140-D9-W.N.R 10312, zinc-plated as per DIN 1548), degree of filtration 50 – 60 microns.

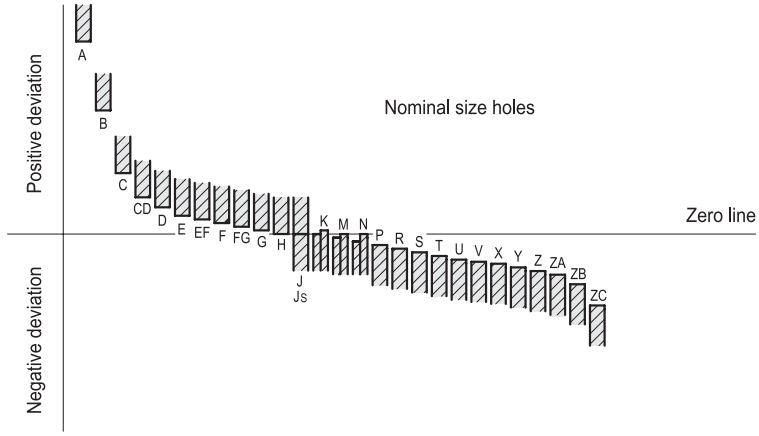
4. Machine tolerance

The reference tolerance system is the: ISO System - Basic hole

TOLERANCES OF THE METAL INSERTS

Plain holes in the bosses and hubs of knobs and handwheels

For the most widely used models, there are various kinds of standardized holes available so the user has a wide selection and is saved the costly task of remachining the hole on assembly. The tolerance of these holes is normally grade H7, but in a few cases it is grade H9. The degree of tolerance is always indicated in the tables of each article, in the hole size column. For cases in which it is more difficult to propose a standardization of the holes that satisfies the broadest range of assembly needs, either a pre-drilled hole with a simple roughing tolerance (hole with a smaller diameter than that of the shaft on which it is expected to be assembled), or a hub with no hole (not drilled) is used.



Holes diameter mm	H7	H9
over 3 to 6	+0.012 0	+0.030 0
over 6 to 10	+0.015 0	+0.036 0
over 10 to 18	+0.018 0	+0.043 0
over 18 to 30	+0.021 0	+0.052 0

• Threaded holes in the bosses and threads of the studs

Machining in accordance with the ISO metric threads for a normal screwing length (see table in chapter 10, page A24).
– Tapped holes of built-in metal bosses = tolerance 6H.
– Metal studs or ends of shanks for revolving handles = tolerance 6g.

TOLERANCES OF HOLES AND THREADS IN THE PLASTIC MATERIAL

• Plain holes (for handles with a through hole for assembly in an idle condition on pins). Despite the considerable difficulties encountered in maintaining the tolerances in a machining process in which numerous factors influence the end result, the size of the diameter of the axial hole is normally respected with a tolerance of C11. The handles may therefore also be assembled on pins made from normal drawn parts. If the pin is obtained by turning from a bar with a greater diameter, a machining process with a tolerance of h11 is recommended, as this gives a suitable free coupling, with the advantage of a quick, simple and inexpensive machining process.
• Inside threads (for handles with no metal bushing to be screwed in and fixed to threaded pins). They are normally kept undersized so that assembly is slightly forced at ambient temperature.
• Outside threads (for filler breather caps or level indicators with a threaded connector). In this case, for reasons related to the process technology and the type of plastic, which may absorb small amounts of moisture from the outside environment, the tolerances must be interpreted taking this into account though the tightening of the component assembled is never actually jeopardized in practice.

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5. Fixed handles
(Types of assembly)

Various kinds of couplings are used for securing fixed handles to the shaft:
- handles with brass boss or nutscrew moulded into the plastic material for screwed assembly on a threaded shaft;
- handles with built-in self-locking boss made of special technopolymer (ELESA Original design) for push-fit assembly on a plain shaft (unthreaded) made from a normal drawn rod (ISO tolerance h9). This solution prevents spontaneous unscrewing in time due to the vibrations to which the lever is subjected or the rotary forces exerted inadvertently by the operator's hand while handling the lever itself;
- handles with threaded hole obtained from moulded plastic material.

For executions with threaded holes obtained from moulded plastic material, the measure of keeping the thread undersized with respect to the specifications laid down in the standards has been taken. This enables the threads of the nut screw to adapt slightly to the screw, when tightening at ambient temperature, thus creating a coupling with an elastic reaction that gives an effective locking effect. Even better results may be obtained by hot assembly: the handle is heated to 80÷90 °C before being screwed onto the threaded pin. This method of assembly initially facilitates the screwing operation in that the thread of the nut screw is expanded when screwed in and subsequently enables an extremely efficient locking effect to be obtained from shrinkage on cooling, due to the slight roughness of the surface of the thread on the shaft.
The solution with a self-locking bushing made of special technopolymer (Fig.1) is, in any case the most effective against spontaneous unscrewing in that the elastic coupling is not susceptible to any vibrations or rotary forces exerted by the operator's hand.

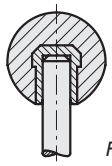


Fig.1

The lock is also such as to ensure that the handle does not come out even when subjected to a normal pulling action along its axis. In relation to this, the results of the research work and tests carried out at the ELESA+GANTER laboratories are provided and they confirm the technical validity of the coupling with self-locking bushings made of special technopolymer (Fig. 2 and 3).
The graph in Fig. 2 shows the variations in axial translation effort expressed in [N] as a function of the variations in diameter of the shaft (mm), dry and degreased with trichloroethylene. The two curves represent the minimum and maximum values in hundreds of tests conducted on a type of self-locking handle with a hole having a O 12 mm. The area A contains the values that refer to shaft with a commercial diameter of 12 mm (tol. h9).
The graph in Fig. 3 shows the variations in axial translation effort (mean values) as a function of the surface area of the shaft. As may well be imagined, the presence of lubricating or emulsifying oil on the surface of the shaft lowers the handle removal effort. It may however be readily noted that, even in this unfavourable condition, the axial effort required to slide the handle out is always such as to ensure that this cannot actually happen in practice.
The use of this kind of handle ensures a considerable saving in that it does not entail machining thread on the end of the shaft. The self-locking bushing made of special technopolymer enables an elastic coupling to be obtained and the handle itself maintains all its surface hardness and wear resistance typical of thermosetting materials.
Assembly instructions: fit the handle onto slight chamfered shaft end and push as far as possible by hand or by means of a small press. Alternatively it is possible to tap the handle with a plastic or wooden mallet until firmly in place. In this case we strongly recommend to use a cloth or other suitable soft material over the product to avoid any surface damage.

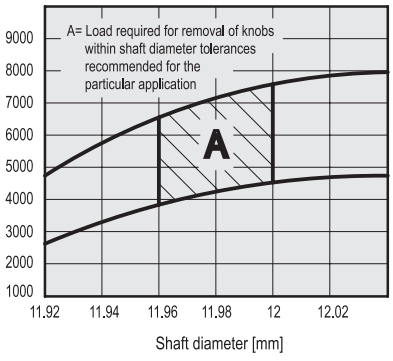


Fig.2

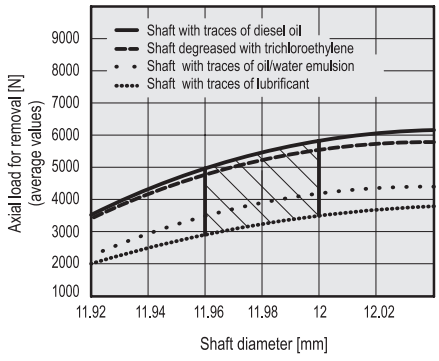


Fig.3

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6. Assembly measures

Plastic is a poor conductor of heat and has a different thermal expansion coefficient from that of the metal inserts so measures must be taken, while remachining the hole, to stop the hubs and bosses from overheating: in fact, the heat produced is not dissipated and the metal parts expand and create stress inside the body of the plastic which has a damaging effect on the strength of the assembly (Duroplasts).
In addition, for thermoplastics (Technopolymers), temperatures close to their softening point could be reached with the risk of the metal insert coming loose.
It is therefore always necessary to adopt cutting and feed rates that do not produce marked localized heating and to cool intensively when the holes have a large diameter and depth with respect to the size of the bushing.
To conserve maximum gloss of the surfaces, we recommend, once machining has been completed, to avoid leaving the plastic wet for a long time, by removing all residual emulsified water from the surfaces; use oil only, if possible.
The machining processes commonly required for the assembly of handwheels or knobs are:

– **remachining of axial hole in the bosses (blind hole)**
When remachining the hole of a built-in metal boss, always avoid operating as shown in Fig.4, because both during the drilling operation and during the insertion of the small shaft, an area of the plastic covering may be subjected to stress, with the risk of cracking or detaching the part indicated with cross shading. The operation shown in Fig. 5 is the most rational.

Note that in the ELESA+GANTER parts, remachining of the axial hole may be performed under the correct conditions indicated above in that the length of the built-in bosses is always indicated in the table of each article so, for the depth of the hole, reference should simply be made to the basic plan.

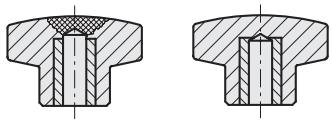


Fig.4 *Fig.5*

– **remachining of the axial hole in the bosses (case of a pass-through hole)** If the drilling operation affects not only the metal boss but also a layer of the covering material, the handwheel must be centred carefully and drilling should be started from the plastic side otherwise, chipping may occur when the tool is removed.
– **transversal threading in the boss for grub-screw** To be performed in accordance with the instructions given above. Avoid threading both the metal and the plastic: it is better to drill the hole in the plastic part and thread the metal part only.

Drilling or threading operations to be performed entirely in the plastic are exceptional. Bear in mind that the difficulty with which the heat produced locally is dissipated, also through the abrasive action of the plastic on the tool, worsens considerably the latter's working conditions, resulting in a rapid wear of the cutting edges (use hard metal tools).

7. Special executions

The range of ELESA+GANTER elements is extremely broad and offers designers valid alternatives as regards designs, properties and performance of materials, sizes..., to satisfy the most different applicational needs. The customer may however need to ask for changes to the standard part or have it made in different colours to adapt it to particular applications. In these cases, ELESA+GANTER engineers are at the customer's full disposal to satisfy these requests for special executions which must be required in sufficient quantities for the modifications they may entail to the moulds.

8. Colours

In addition to black, which represents the most commonly used colour for plastic components, a large number of standard elements are available in the following colours:

Colours in RAL					
	7021		3000		7030
	2004		6001		7040
	7035		9006		7042
	1021		9005		3002
	5024		7031		9002

As the RAL tables refer to the colour of paints and are therefore colours with a glossy surface, the RAL code is indicated indicatively because the tone of the colour of the moulded part may differ slightly, depending on various factors such as the colouring of the polymer pigments (polyamide or polypropylene), the glossy or matte finish, the thickness and the shape of the product.

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9. Test values

All the information about the test values are based on our experience and on laboratory tests conducted under specific standard conditions and in a necessarily limited time.
Any indicated value must therefore be taken only as a reference for the designer who will apply adequate safety coefficients to them according to the product application. The designer and the purchaser are responsible for checking the suitability of our products for their final use under the actual operating conditions.

10. Technical tables

The units contained in the present catalogue, are those of the International System (S). Conveniently, here under there is a list of the parameters converted into the units currently used or into the British ones.

10.1 Conversion tables

Conversion table of the major parameters

Parameter	To convert	in to	multiply by
Force	N	kg	0.1
Couple	Nm	kg-m	0.1
Work	J	kg-m	0.1
Parameter	**To convert**	**in to**	**multiply by**
Length	mm	inches	0.039
Force	N	lbf	0.224
Couple	Nm	lb ft	0.737
Work	J	ft lb	0.737
Weight	g	lb	0.002
Temperature	°C	°F	(°C 9/5) + 32

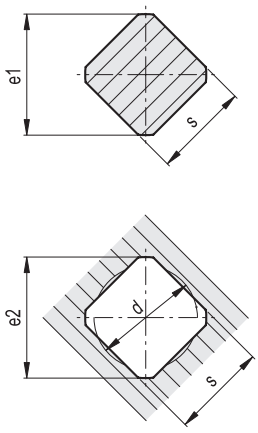
Conversion table of some temperature values from °C to °F
°C = (°F -32) 5/9 °F = (°C 9/5) +32

°C	°F	°C	°F	°C	°F
-50	-58	+50	+122	+150	+302
-45	-49	+55	+131	+155	+311
-40	-40	+60	+140	+160	+320
-35	-31	+65	+149	+165	+329
-30	-22	+70	+158	+170	+338
-25	-13	+75	+167	+175	+347
-20	-4	+80	+176	+180	+356
-15	+5	+85	+185	+185	+365
-10	+14	+90	+194	+190	+374
-5	+23	+95	+203	+195	+383
0	+32	+100	+212	+200	+392
+5	+41	+105	+221	+205	+401
+10	+50	+110	+230	+210	+410
+15	+59	+115	+239	+215	+419
+20	+68	+120	+248	+220	+428
+25	+77	+125	+257	+225	+437
+30	+86	+130	+266	+230	+446
+35	+95	+135	+275	+235	+455
+40	+104	+140	+284	+240	+464
+45	+113	+145	+293	+245	+473
+50	+122	+150	+302	+250	+482

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TECHNICAL DATA

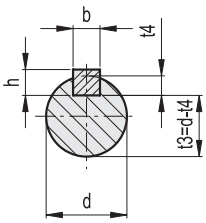
10.2 DIN 79 Square holes and shafts



DIN 79 Square holes and shafts

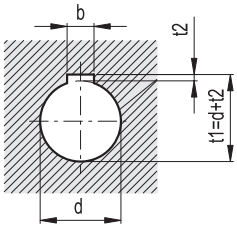
s H11/h11	d max.	e1 max.	e1 min.	e2 min.
4	4.2	5	4.8	5.3
5	5.3	6.5	6	6.6
5.5	5.8	7	6.6	7.2
6	6.3	8	7.2	8.1
7	7.3	9	8.4	9.1
8	8.4	10	9.6	10.1
9	9.5	12	10.8	12.1
10	10.5	13	12	13.1
11	11.6	14	13.2	14.1
12	12.6	16	14.4	16.1
13	13.7	17	15.6	17.1
14	14.7	18	16.8	18.1
16	16.8	21	19.2	21.2
17	17.9	22	20.4	22.2
19	20	25	22.8	25.2
22	23.1	28	26.4	28.2
24	25.3	32	28.8	32.2
27	28.4	36	32.4	36.2
30	31.7	40	36	40.2
32	33.7	42	38.4	42.2
36	38	48	43.3	48.2
41	43.2	54	49.3	54.2
46	48.5	60	55.2	60.2
50	52.7	65	60	65.2
55	57.9	72	66	72.2

10.3 DIN 6885 Keyways



DIN 6885/1 Keyways

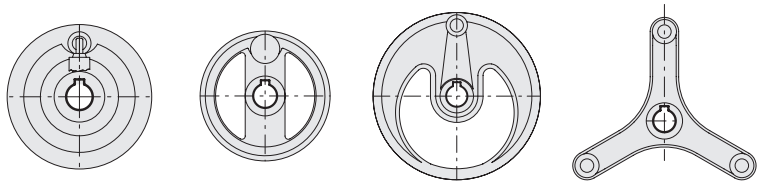
d	b P9/JS9 hole	b P9/N9 shafts	h	t2	t4
from 6 to 8	2	2	2	1 +0.1	1.2 +0.1
over 8 to 10	3	3	3	1.4 +0.1	1.8 +0.1
over 10 to 12	4	4	4	1.8 +0.1	2.5 +0.1
over 12 to 17	5	5	5	2.3 +0.1	3 +0.1
over 17 to 22	6	6	6	2.8 +0.1	3.5 +0.1
over 22 to 30	8	8	7	3.3 +0.2	4 +0.2
over 30 to 38	10	10	8	3.3 +0.2	5 +0.2
over 38 to 44	12	12	8	3.3 +0.2	5 +0.2
over 44 to 50	14	14	9	3.8 +0.2	5.5 +0.2



DIN 6885/2 Keyways

d	b P9/JS9 hole	b P9/N9 shafts	h	t2	t4
from 10 to 12	4	4	4	1.1 +0.1	3 +0.1
over 12 to 17	5	5	5	1.3 +0.1	3.8 +0.1
over 17 to 22	6	6	6	1.7 +0.1	4.4 +0.1
over 22 to 30	8	8	7	1.7 +0.2	5.4 +0.2
over 30 to 38	10	10	8	2.1 +0.2	6 +0.2
over 38 to 44	12	12	8	2.1 +0.2	6 +0.2
over 44 to 50	14	14	9	2.6 +0.2	6.5 +0.2

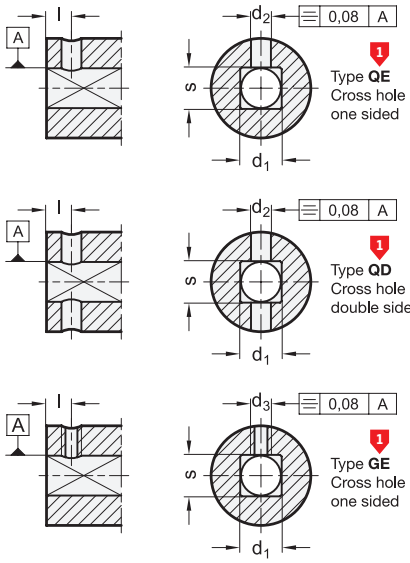
Standard positioning of the keyways

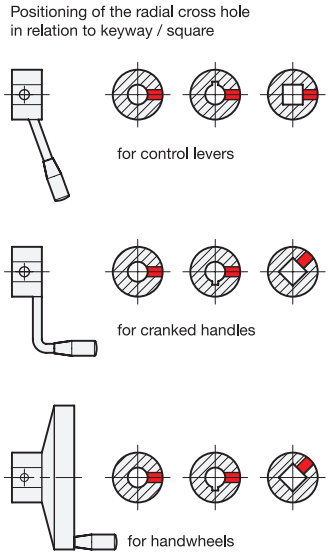


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10.4 GN 110 and GN 110.1
Transversal holes

GN 110 – Cross holes for mounting of operating elements on shafts





d1 H7 / **s** H11		**d2** H11	**d3**	Length **l** –0.1 Standard version	Length **l** –0.1 Handwheels DIN 950 / GN 949 to Ø 250
6	7	2.5	M 3	4.5	–
8	9	3	M 5	5.5	4.5
10	11	3	M 5	5.5	4.5
12	13	4	M 6	6.5	5.5
14	15	4	M 6	6.5	5.5
16	17	5	M 6	8	7
18	19	5	M 6	8	7
20	21	5	M 6	8	7
22	23	6	M 6	10	9
24	25	6	M 6	10	9
26	27	6	M 6	10	9

Information

The connection between the operating element and the shaft consists very often of a cross pin or a grub screw.

As a result the user is faced with relatively high costs since cross holes on operating elements are in general not readily available.

Components with cross holes to GN 110 are not only offered at very competitive prices but they also save the manufacturer unnecessary drawing work. The geometrical form of some of the operating elements, however, does not lend itself to modification to this particular GN standard.

The pin hole d2 H11 is drilled to suit drive spring pins.

How to order

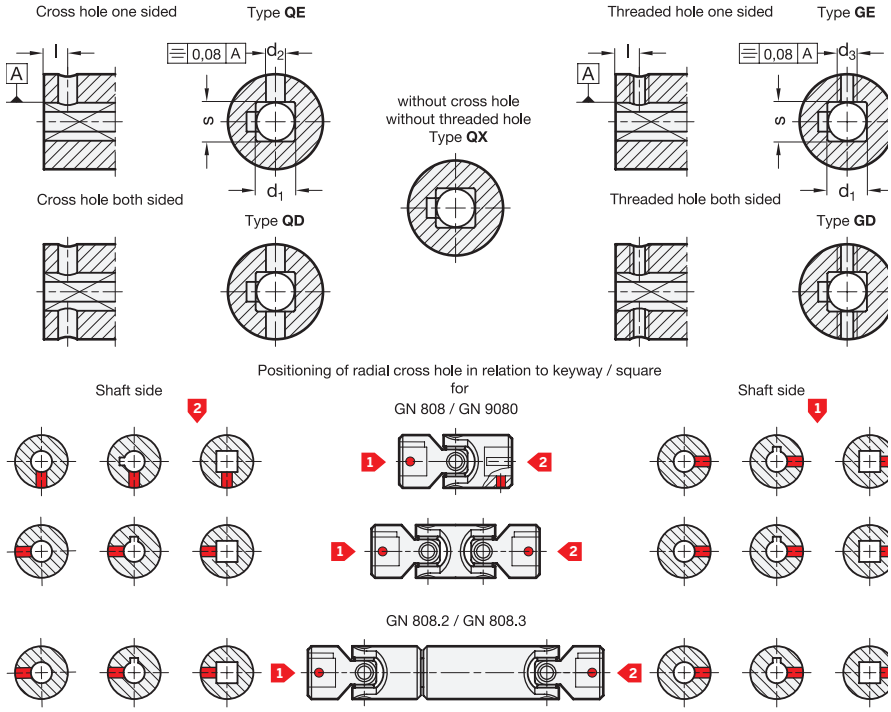
Handwheel DIN 950-GG-160-B14-A with cross drilled hole

GN 110-QE

Code No. | 1 Type

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GN 110.1 – Cross holes for mounting of universal joint shafts and universal joints on shafts



d1 H7 / **s** H11		**d2** H11 for bore code		**d3**	Length **l** for bore code	
		K / V	B		K / V	B
6	–	2	2	M 3	4	4
8	–	3	3	M 5	5.5	5.5
10	–	3	4	M 5	5.5	6
12	14	4	5	M 6	6.5	7
16	18	5	6	M 6	8	9
20	–	5	8	M 6	8	10
22	–	6	8	M 6	10	10
25	–	6	10	M 8	10	14
30	32	6	12	M 8	14	16
35	–	6	12	M 8	16	16

Information

Cross holes in universal joint shafts and in universal shafts are ideal for the production of shaft-hub links using a pin or a thrust screw. For bore holes with a feather key groove or square, they serve to secure the axial position of universal joint and shaft.

The d2 pin bore with H11 tolerance is intended for use with coiled spring pins.

The position of the cross holes / the threaded hole with reference to the hub key slot / the square or of the universal joints is shown in the overview.

Should one of the joint sides be delivered without **transversal holes** / **threaded holes**, this is indicated with **QX** on the desired location of the article number.

How to order

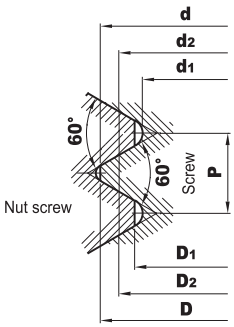
Handwheel DIN 950-GG-160-B14-A with cross drilled hole

GN 110.1-QX-GE

Code No.	Shaft side 1	Shaft side 2

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10.5 DIN 13 ISO Metric threads



ISO Metric fine threads – DIN 13 (Thread limits)

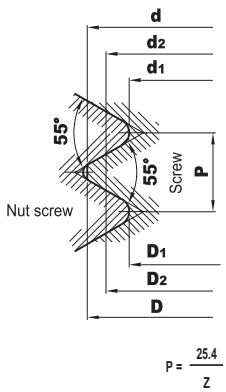
Nominal thread-Ø	Gradient P	Screw with tolerance of 6g						Nut screw with tolerance of 6H					
		Ø major d		Ø pitch d2		Ø minor d1		Ø major D		Ø pitch D2		Ø minor D1	
		max.	min.	max.	min.	max.	min.	min.	max.	min.	max.	min.	max.
M5	0.5	4.980	4.874	4.655	4.580	4.367	4.273	5.000	Not specified	4.675	4.775	4.459	4.599
M6	0.5	5.980	5.874	5.655	5.570	5.367	5.263	6.000		5.675	5.787	5.459	5.599
M8	0.5	7.980	7.874	7.655	7.570	7.367	7.263	8.000		7.675	7.787	7.459	7.599
M10	0.5	9.980	9.874	9.655	9.570	11.367	9.263	10.000		9.675	9.787	9.459	9.599
M12	0.5	11.980	11.874	11.655	11.565		11.258	12.000		11.675	11.793	11.459	11.599
M6	0.75	5.978	5.838	5.491	5.391	5.058	4.929	6.000		5.513	5.645	5.188	5.378
M8	0.75	7.978	7.838	7.491	7.391	7.058	6.929	8.000		7.513	7.645	7.188	7.378
M10	0.75	9.798	9.838	9.491	9.391	9.057	8.929	10.000		9.513	8.645	9.188	9.378
M16	0.75	11.978	11.838	11.491	11.385	11.058	10.923	12.000		11.513	15.653	11.188	11.378
M20	0.75	15.978	15.838	15.491	15.385	15.508	14.923	16.000		15.513	11.653	15.188	15.378
M8	1	7.974	7.974	7.324	7.212	6.747	6.596	8.000		7.350	7.500	6.917	7.153
M10	1	9.974	9.974	9.324	9.212	8.747	8.596	10.000		9.350	9.500	8.917	9.153
M12	1	11.974	11.974	11.324	11.206	10.747	10.590	12.000		11.350	11.510	10.917	11.153
M16	1	15.974	15.974	15.324	15.206	14.747	14.590	16.000		15.350	15.510	14.917	15.153
M20	1	19.974	19.974	19.324	19.206	18.747	18.590	20.000		19.350	19.510	18.917	19.153
M12	1.5	11.698	11.732	10.994	10.854	10.128	9.930	12.000		11.026	11.216	10.376	10.676
M14	1.5	13.968	13.732	12.994	12.854	12.128	11.930	14.000		13.026	13.216	12.376	12.676
M16	1.5	15.968	15.732	14.994	14.854	14.128	13.930	16.000		15.026	15.216	14.376	14.676
M18	1.5	17.968	17.732	16.994	16.854	16.128	15.930	18.000		17.026	17.216	16.376	16.676
M20	1.5	19.968	19.732	18.994	18.854	18.128	17.930	20.000		19.026	19.216	18.376	18.676
M22	1.5	21.968	21.732	20.994	20.854	20.128	19.930	22.000		21.026	21.216	20.376	20.676
M26	1.5	25.968	25.732	24.994	24.844	24.128	23.920	26.000		25.026	25.226	24.376	24.676
M27	1.5	26.968	26.732	25.994	25.844	25.128	24.920	27.000		25.026	26.226	25.376	25.676
M30	1.5	26.968	39.732	28.994	28.844	28.128	27.920	30.000		29.026	29.226	28.376	28.676
M35	1.5	34.968	34.732	33.994	33.844	33.128	32.920	35.000		34.026	34.226	33.376	33.676
M40	1.5	34.968	39.732	38.994	38.844	38.128	37.920	40.000		39.026	39.226	38.376	38.676
M20	2	19.962	16.682	18.663	18.503	17.508	17.271	20.000		18.701	18.913	17.835	18.210
M24	2	23.962	23.682	22.663	22.493	24.508	21261	24.000		22.701	22.925	21.835	22.210
M30	2	29.962	29.682	28.663	28.493	27.508	27.261	30.000		28.701	28.925	27.835	28.210
M36	2	35.965	35.682	34.663	34.493	33.508	33.261	36.000		34.701	34.925	33.835	34.210
M42	2	41.962	41.682	40.663	40.493	39.508	39.261	42.000		40.701	40.925	39.835	40.210

ISO Metric threads – DIN 13 (Thread limits for standard engagement lengths to UNI 5545-65)

Nominal thread-Ø	Gradient P	Screw with tolerance of 6g						Nut screw with tolerance of 6H					
		Ø major d		Ø pitch d2		Ø minor d1		Ø major D		Ø pitch D2		Ø minor D1	
		max.	min.	max.	min.	max.	min.	min.	max.	min.	max.	min.	max.
M4	0.7	3.978	3.838	3.523	3.433	3.220	2.979	4.000	Not specified	3.545	3.663	3.242	3.422
M5	0.8	4.976	4.826	4.456	4.361	4.110	3.842	5.000		4.480	4.605	4.134	4.334
M6	1	5.974	5.794	5.324	5.212	4.891	4.563	6.000		5.350	5.500	4.917	5.153
M8	1.25	7.972	7.760	7.160	7.042	6.619	6.230	8.000		7.188	7.348	6.647	6.912
M10	1.5	9.968	9.732	8.994	8.862	8.344	7.888	10.000		9.026	9.206	8.376	8.676
M12	1.75	11.966	11.701	10.829	10.679	10.072	9.543	12.000		10.863	11.063	10.106	10.441
M14	2	13.962	13.682	12.663	12.503	11.797	11.204	14.000		12.701	12.913	11.835	12.210
M16	2	15.962	15.682	14.663	14.503	13.797	13.204	16.000		14.701	14.913	13.835	14.210
M18	2.5	17.958	17.623	16.334	16.164	15.252	14.541	18.000		16.376	16.600	15.294	15.744
M20	2.5	19.958	19.623	18.344	18.164	17.252	16.541	20.000		18.376	18.600	17.294	17.744
M24	3	23.952	23.577	22.003	21.803	20.704	19.855	24.000		22.051	22.316	20.752	21.252
M30	3.5	29.947	29.522	27.674	27.462	26.158	25.189	30.000		27.727	28.007	26.211	26.771

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10.6 DIN 228 Cylindrical GAS-BSP threads



Cylindrical GAS-BSP threads DIN 228 (Thread limits)

*	Z threads x1"	Screw with tolerance Classe B						Nut screw					
		Ø major d		Ø pitch d2		Ø minor d1		Ø major D		Ø pitch D2		Ø minor D1	
		max.	min.	max.	min.	max.	min.	min.	max.	min.	max.	min.	max.
G1/8"	28	9.728	9.514	9.147	8.933	8.566	8.298	9.728	Not specified	9.147	9.254	8.566	8.848
G 1/4"	19	13.157	12.907	12.301	12.051	11.445	11.133	13.157		12.301	12.426	11.445	11.890
G 3/8"	19	16.662	16.408	15.806	15.552	14.950	14.632	16.662		15.806	15.933	14.950	15.395
G 1/2"	14	20.955	20.671	19.793	19.509	18.631	18.276	20.955		19.793	19.935	18.631	19.172
G 5/8"	14	22.911	22.627	21.749	21.465	20.587	20.232	22.911		21.749	21.891	20.587	21.128
G 3/4"	14	26.441	26.157	25.279	24.995	24.117	23.762	26.441		25.279	25.421	24.117	24.658
G 7/8"	14	30.201	29.917	29.039	28.755	27.877	27.522	30.201		29.039	29.181	27.877	28.418
G 1"	11	33.249	32.889	31.770	31.410	30.291	29.841	33.249		31.770	31.950	30.291	30.931
G 11/8"	11	37.897	37.537	36.418	36.058	34.939	34.489	37.897		36.418	36.598	34.939	35.579
G 11/4"	11	41.910	41.550	40.431	40.071	38.952	38.502	41.910		40.431	40.611	38.952	39.592
G 3/8"	11	44.323	43.963	42.844	42.484	41.365	40.915	44.323		42.844	43.024	41.365	42.005
G 11/2"	11	47.803	47.443	46.324	45.964	44.845	44.395	47.803		46.324	46.504	44.845	45.485
G 13/4"	11	53.746	53.386	52.267	51.907	50.788	50.338	53.746		52.267	52.447	50.788	51.428
G 2"	11	59.614	59.254	58.135	57.775	56.656	56.206	59.614		58.135	58.315	56.656	57.296

* G in accordance with UNI-ISO 228/1

10.7 DIN EN ISO 898-1 | DIN EN 20898-2 Strength values

Strength values of bolts/nuts EN ISO 898-1 EN 20 898-2

	Strength classes of bolts						
Nominal tensile strength Rm, Nenn N/mm²	4.6	5.6	5.8	6.8	8.8	10.9	12.9
Lower yield point ReL N/mm²	400	500	500	600	800	1000	1200
0.2 % yield limit Rp 0.2 N/mm²	240	300	400	480	–	–	–
Tension under test force Sp N/mm²	225	280	380	440	580	830	970
Elongation A %	22	20	–	–	12	9	8

The strength class identification consists of two numerals:
– the first number corresponds to 1/100 of the nominal tensile strength in N/mm² (see table)
– the second number shows ten times the ratio of lower yield point ReL (or 0.2 % yield limit Rp 0.2) and nominal tensile strength Rm, nom (yield point radio).
Example; Strength class 5.8 means
Minimum tensile strength Rm = 500 N/mm²
Minimum yield point ReL = 400 N/mm²

Strength classes of nuts

Nominal tension Sp N/mm² for thread	5	6	8	10	12
Below M 4	250	600	800	1040	1150
Above M 4 below M 7	580	670	855	1040	1150
Above M 7 below M 10	590	680	870	1040	1160
Above M 10 below M 16	610	700	880	1050	1190
Above M 16 below M 39	630	720	920	1060	1200

The designation of a strength class consists of a distinctive number which provides information of the test tension of the material used:
– distinctive number x 100 = test tension Sp
– the test tension is equal to the minimum tensile strength in N/mm² of a bolt which, if paired with the appropriate nut, can be loaded up to the minimum yield of the bolt.
Example: Bolt 8.8 – nut 8, connection can be loaded up to the minimum yield point of the bolt.

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10.8 DIN ISO 286 ISO-Fundamental tolerances

This ISO Standard represents the basic for a system of nominal dimensions and sizes whereby the table mirrors the calculated values of basic tolerances relating to basic dimensions.
The use of this table is limited to smooth circular cylindrical workpieces or such with two parallel fitting planes or contact areas.
The values attributed to an ISO tolerance grade (IT) specify the tolerance value and hence the tolerance area. With ascending numbers, the size of the tolerance increases.
For identification purpose of the position of the tolerance area in relation to the nominal dimension (zero), the number chosen as tolerance grade IT is preceeded by a letter.
Tolerance area H is the most common value for bores. It specifies that the minimum dimension of the bore corresponds to the nominal dimension.
The permissible maximum dimension corresponds to the nominal dimension plus the IT tolerance.

Examples:
bore 20 H7 = 20 + 0.021/0 **bore 8 H11 = 8 + 0.090/0**
min. dimension: 20.000 **min. dimension: 8.000**
max. dimension: 20.021 **max. dimension: 8.090**

ISO-Fundamental tolerance series DIN ISO 286

Tol. (µm)	Nominal sizes												
Grades IT	**– ... 3**	**> 3 ... 6**	**> 6 ... 10**	**> 10 ... 18**	**> 18 ... 30**	**> 30 ... 50**	**> 50 ... 80**	**> 80 ... 120**	**> 120 ... 180**	**> 180 ... 250**	**> 250 ... 315**	**> 315 ... 400**	**> 400 ... 500**
01	0.3	0.4	0.4	0.5	0.6	0.6	0.8	1	1.2	2	2.5	3	4
0	0.5	0.6	0.6	0.8	1	1	1.2	1.5	2	3	4	5	6
1	0.8	1	1	1.2	1.5	1.5	2	2.5	3.5	4.5	6	7	8
2	1.2	1.5	1.5	2	2.5	2.5	3	4	5	7	8	9	10
3	2	2.5	2.5	3	4	4	5	6	8	10	12	13	15
4	3	4	4	5	6	7	8	10	12	14	16	18	20
5	4	5	6	8	9	11	13	15	18	20	23	25	27
6	6	8	9	11	13	16	19	22	25	29	32	36	40
7	10	12	15	18	21	25	30	35	40	46	52	57	63
8	14	18	22	27	33	39	46	54	63	72	81	89	97
9	25	30	36	43	52	62	74	87	100	115	130	140	155
10	40	48	58	70	84	100	120	140	160	185	210	230	250
11	60	75	90	110	130	160	190	220	250	290	320	360	400
12	100	120	150	180	210	250	300	350	400	460	520	570	630
13	140	180	220	270	330	390	460	540	630	720	810	890	970
14	250	300	360	430	520	620	740	870	1000	1150	1300	1400	1550
15	400	480	580	700	840	900	1200	1400	1600	1850	2100	2300	2500
16	600	750	900	1100	1300	1600	1900	2200	2500	2900	3200	3600	4000
17	1000	1200	1500	1800	2100	2500	3000	3500	4000	4600	5200	5700	6300
18	1400	1800	2200	2700	3300	3900	4600	5400	6300	7200	8100	8900	9700

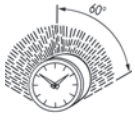
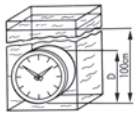
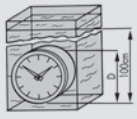
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TECHNICAL DATA

Tol. (µm)	Nominal sizes									
Classes for bore	**... ... 3**	**> 3 ... 6**	**> 6 ... 10**	**> 10 ... 18**	**> 18 ... 30**	**> 30 ... 50**	**> 50 ... 80**	**> 80 ... 120**	**> 120 ... 180**	**> 180 ... 250**
D9	+45	+60	+76	+93	+117	+142	+174	+207	+245	+285
	+20	+30	+40	+50	+65	+80	+100	+120	+145	+170
D12	+120	+150	+190	+230	+275	+330	+400	+470	+545	+630
	+20	+30	+40	+50	+65	+80	+100	+120	+145	+170
E8	+28	+38	+47	+59	+73	+89	+106	+126	+148	+172
	+14	+20	+25	+32	+40	+50	+60	+72	+85	+100
G6	+8	+12	+14	+17	+20	+25	+29	+34	+39	+44
	+2	+4	+5	+6	+7	+9	+10	+12	+14	+15
G7	+12	+16	+20	+24	+28	+34	+40	+47	+54	+61
	+2	+4	+5	+6	+7	+9	+10	+12	+14	+15
H7	+10	+12	+15	+18	+21	+25	+30	+35	+40	+46
	0	0	0	0	0	0	0	0	0	0
H8	+14	+18	+22	+27	+33	+39	+46	+54	+63	+72
	0	0	0	0	0	0	0	0	0	0
H9	+25	+30	+36	+43	+52	+62	+74	+87	+100	+115
	0	0	0	0	0	0	0	0	0	0
H11	+60	+75	+90	+110	+130	+160	+190	+220	+250	+290
	0	0	0	0	0	0	0	0	0	0
H12	+100	+120	+150	+180	+210	+250	+300	+350	+400	+460
	0	0	0	0	0	0	0	0	0	0
H13	+140	+180	+220	+270	+330	+390	+460	+540	+630	+720
	0	0	0	0	0	0	0	0	0	0
H14	+250	+300	+360	+430	+520	+620	+740	+870	+1000	+1150
	0	0	0	0	0	0	0	0	0	0
JS9	±12.5	±15	±18	±21.5	±26	±31	±37	±43.5	±50	±57.5
N9	-4	0	0	0	0	0	0	0	0	0
	-29	-30	-36	-43	-52	-62	-74	87	-100	-115
P9	-6	-12	-15	-18	-22	--26	-32	-37	-43	-50
	-31	-42	-51	-61	-74	-88	-106	-124	-143	-165
for shaft f7	-6	-10	-13	-16	-20	-25	-30	-36	-43	-50
	-16	-22	-28	-34	-41	-50	-60	-71	-83	-96
h6	0	0	0	0	0	0	0	0	0	0
	-6	-8	-9	-11	-13	-16	-19	-22	-25	-29
h7	0	0	0	0	0	0	0	0	0	0
	-10	-12	-15	-18	-21	-25	-30	-35	-40	-46
h8	0	0	0	0	0	0	0	0	0	0
	-14	-18	-22	-27	-33	-39	-46	-54	-63	-72
h9	0	0	0	0	0	0	0	0	0	0
	-25	-30	-36	-43	-52	-62	-74	-87	-100	-115
h11	0	0	0	0	0	0	0	0	0	0
	-60	-75	-90	-110	-130	-160	-190	-220	-250	-290
h13	0	0	0	0	0	0	0	0	0	0
	-140	-180	-220	-270	-330	-390	-460	-540	-630	-720
h14	0	0	0	0	0	0	0	0	0	0
	-250	-300	-360	-430	-520	-620	-740	-870	-1000	-1150
js14	±125	±150	±180	±215	±260	±310	±370	±435	±500	±575
n6	+10	+16	+19	+23	+28	+33	+39	+45	+52	+60
	+4	+8	+10	+12	+15	+17	+20	+23	+27	+31
p6	+12	+20	+24	+29	+35	+42	+51	+59	+68	+79
	+6	+12	+15	+18	+22	+26	+32	+37	+43	+50

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10.9 IP Protection Classification

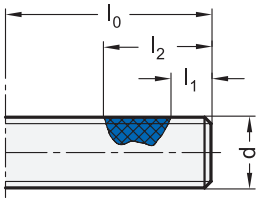
IP Protection Classification for Cases according to international Standard EN 60529			
1st digit Protection against intrusion of solid foreign bodies.		2nd digit Protection against pentration of liquids.	
0	No protection.	0	No protection.
1 	Protection against intrusion of solid foreign bodies, Ø larger than 50 mm (hands).	1 	Protectionagainst drops of condensed water falling vertically.
2 	Protection against intrusion of solid foreign bodies, Ø larger than 12 mm (fingers).	2 	Protection against drops of liquid falling at an angle equal to or smaller than 15° with respect to the vertical.
3 	Protection against intrusion of solid foreign bodies, Ø larger than 2.5 mm (tools, wires).	3 	Protection against drops of liquid falling at an angle euqal to or smaller than 60° with respect to the vertical.
4 	Protection against intrusion of solid foreign bodies, Ø larger than 1 mm (wires).	4 	Protection against liquid splashed from any direction.
5 	Protection against harmful deposits of dust, which damage the correct operation.	5 	Protection against water jets projected by a nozzle from any direction.
6 	Complete protection against instrusion of durst.	6 	Protection against water from heavy sea on ship's decks.
As a specification for cases of rotary controls does not exist, we refer to International Standard EN 60529 for protection classification of cases for electrical machines, devices of materials.		7 	Protection against immersion in water under stated conditions of pressure and time.
		8 	Protection against indefinite immersion in water under stated conditions of pressure.

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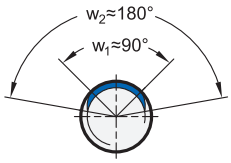
10.10 Thread Lockings (PFB, PRB, MVK, GPC)

PFB | PRB Thread locking with jamming action Polyamide patch coating / Polyamide complete coating

PFB

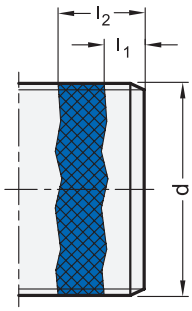


l_0 ≈ Threaded length
l_1 ≈ 2 to 3 x Thread pitch
l_2 ≈ 1.5 x d



w_1: Coating core zone
w_2: Coating including edge zone

PRB



Polyamide patch coating PFB

d	l_1 ≈	l_2 ≈	Values acc. to DIN 267 Part 28		Values for spring plungers GN 611 / GN 615.3
			$M_{max.}$ in Nm 1st Screw in	**$M_{min.}$** in Nm 1st Screw out	**M ≈** in Nm 1st Screw in / Screw out
M 3	1 ... 1.5	4.5	0.43	0.1	0.3
M 4	1.5 ... 2	6	0.9	0.12	0.5
M 5	1.5 ... 2.5	7.5	1.6	0.18	0.6
M 6	2 ... 3	9	3	0.35	1.2
M 8	2.5 ... 4	12	6	0.85	2
M 10	3 ... 4.5	15	10.5	1.5	3.5
M 12	3.5 ... 5	18	15.5	2.3	5
M 16	4 ... 6	24	32	4	7
M 20	5 ... 7.5	30	60	5.4	10
M 24	9 ... 9	36	85	6.9	12

Polyamide complete coating PRB

d	l_1 ≈	l_2 ≈	**$M_{max.}$** in Nm 1st Screw in	**$M_{min.}$** in Nm 1st Screw out
M 12 x 1.5	2.5	5.5	15.5	2.3
M 16 x 1.5	2.5	5.5	32	4
M 20 x 1.5	2.5	7.5	54	7.5
M 24 x 1.5	2.5	7.5	80	11.5
M 27 x 1.5	2.5	7.5	94	13.5
M 30 x 1.5	2.5	7.5	108	16
M 33 x 1.5	2.5	7.5	122	18

The torque values are based on a test of a thread without preload with a nut thread 6H at room temperature. For PFB and thread lenghts $l_0 < l_2$, l_2 is reduced in such a way that one to two thread turns are not coated at the end of the thread.

Description

The polyamide patch coating PFB is a process whereby an elastic plastic material (Polyamide) is applied to a part of thread which creates a jamming action during the tightening of a nut. The coating can be produced either as a patch or complete coating. The axial play between the bolts and nut thread is taken up by the polyamide thus ensuring maximum surface pressure between the opposite uncoated thread flanks. This process counteracts the loosening and unscrewing on their own. There is no cure time required, the thread contact is instantaneous resilient. The typical spray edge zone of the polyamide deposit prevents shear blasting.

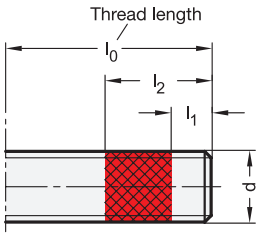
Features

– High thread locking action, shakeproof. Excellent convenient for adjusting bolts.
– The locking system is a captive component of the standard part, which eliminates the fitting of additional belay.
– Temperature resistant from – 60 °C up to 120 °C
– Approval for food areas
– High chemical stability
– Use is also possible, for instance, in oil-contaminated threaded holes
– Multi use is possible whereby the jamming effect after the 5th removal is around 50 % of its original strength.

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Information
Polyamide patch coating is offered for GN 615.3 (see page 840) spring plungers. A blue coating indicates type K or KN, green indicates type KS or KSN (high spring load). Polyamide complete coating is available for GN 252 and GN 252.5 blanking plugs (see page 1685) as a type.

MVK Thread locking gluing Micro encapsulation precote 80 (red)



$l_1 \approx$ 2 to 3 x Thread pitch
$l_2 \approx$ 1.5 x d

d	l_1	$l_2 \approx$	**Min** in Nm max. insertion torque	**Mlb** in Nm min. breakaway torque	**Mout** in Nm max. loosening torque
M 5	1.5 ... 2.5	7.5	0.5	1	6.5
M 6	2 ... 3	9	0.8	1.8	10
M 8	2.5 ... 4	12	1.5	4	26
M 10	3 ... 4.5	15	3	10	55
M 12	3.5 ... 5	18	5	16	95
M 16	4 ... 6	24	11	35	250
M 20	5 ... 7.5	30	14	45	500

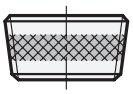
The torque value comply with DIN 267 Part 27. They are based on a test of a thread without preload with a nut thread of 6H at room temperature. For thread lengths $l_0 < l_2$, l_2 is reduced in such a way that one to two thread turns are not coated at the end of the thread.

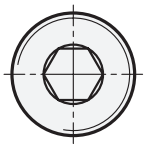
Description
The principle of micro encapsulation MVK (gluing) consists of a liquid plastic material and hardener encapsulated in a thin polymer film which is embedded in a lacquer like carrier deposited in patch form an a thread. This patch dries and the component can be stored and handled in a normal manner.
When fitting a bolt with this patch the two capsules will burst under the pressure and friction between the two threads. The liquid plastic material and hardener will mix leading to a chemical reaction which will harden the glue, thus giving the required thread locking.
The setting of the mixture will start after 10 – 15 minutes. Sufficient hardness is achieved after about 30 minutes but complete setting is reached after 24 hours.
Adjustment and setting process must be completed within about 5 minutes.
The thread locking can be cracked by applying the Mout torque on the thread or alternatively by heating the component over +170 °C. It is not recommended to re-use the thread.
Threads, free from oil and grease give increased strength of locking action.
Components treated with this process can be stored for up to 4 years.

Features
– Thread locking to the highest order to prevent the self loosening and component loss even under vibration. Not suitable for adjustable bolts or screws.
– This security aspect may be essential for certain applications of standard parts. Stockholding of liquid glue is eliminated.
– Low insertion torque
– Temperature resistant from – 40 °C up to 170 °C
– Excellent chemical stability

GPC Tightening with thread coating Precote 5 (white)

Threaded plugs DIN 906





Description
Precote 5 is a non-reactive, film-forming emulsion with mineral solids for coating threaded parts.
The coating generates a seal against gases and liquids in threaded parts, both in cylindrical / cylindrical and in cylindrical / conical pairs. Corrosion in the threaded connection is prevented.
The coating is solvent-free, dry and non-sticky. It is non-hazardous for health.
The minimum storage stability in unmounted state is 4 years.

Features
– The sealing coat is a captive element of the locking screw. It saves storing and mounting locking materials.
– The sealing effect sets in after mounting, no curing time is required.
– The friction rating of the thread remains virtually constant, the working-loose torque is low, max. reusable once.
– Sealing effect of thread: cylindrical / cylindrical < 15 bar cylindrical / conical > 50 bar
– Temperature resistance: from – 50 °C to 180 °C
– Good chemical resistance, e.g. against oils, water, petrol and solvents

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10.11 Stainless Steel characteristics

AISI Standard	431 (A4)	304	303	CF-8 Precison casting
German Material No.	1.4057 (A4)	1.4301	1.4305	1.4308
DIN / EN-Number	EN 10088-3	EN 10088-3	EN 10088-3	EN 10213-4
Symbol	X 17 CrNi 16-2	X 5 CrNi 18-10	X 8 CrNiS 18-9	GX 5CrNi 19-10
Alloying components %	C ≤ 0.12 ... 0.22 Cr 15.0 ... 17.0 Ni 1.5 ... 2.5	C ≤ 0.07 Cr 17.5 ... 19.5 Ni 8.0 ... 10.5	C ≤ 0.10 S ≤ 0.15 ... 0.35 Cr 17.0 ... 19.0 Ni 8.0 ... 10.0	C ≤ 0.07 Cr 18.0 ... 20.0 Ni 8.0 ... 11.0
Minimum tensile strength Rm in N/mm^2	800 ... 950	500 ... 700	500 ... 700	440 ... 640
Yield strength Rp0.2 in N/mm^2	≥ 600	≥ 190	≥ 190	≥ 175
Machinability	poor	medium	very good	medium
Forgeability	medium	good	poor	–
Weldability	good	excellent	poor	good
Special characteristics	magnetic, martensitic structure for elements with high stability, can be used up to 400 °C	antimagnetic, austenitic structure suitable for low temperatures, can be used up to 700 °C	antimagnetic, austenitic structure	antimagnetic, austenitic structure
Corrosion resistance	good however, sensitive to intercrystalline corrosion	good resistant to corrosion, in the natural environment: water, rural and urban atmospheres without significant chloride or acid concentrations, in food areas and in agricultural food areas	medium due to the sulphur content reservations in environments which contain acids and chlorides	good resistant to corrosion, Material is largely comparable with AISI 304
Main areas of application	– Vehicle construction – Chemical industry – Aviation – Machine construction – Food industry	– Food industry – Agriculture – Chemical industry – Vehicle construction – Construction industry – Machine construction – Decorative purposes (Kitchen equipment)	– Vehicle construction – Electronics – Decorative purposes (Kitchen equipment) – Machine construction	– Food industry – Beverage industry – Packaging industry – Fittings – Pumps – Agitators

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Material characteristics of Stainless Steel continued

AISI Standard	**301**	**302**	**316**	**316 LHC Sintered Material**	**316 L (A4, bar steel)**
German Material No.	1.4310	1.4325	1.4401 (A4)	1.4404	1.4404 (A4)
DIN / EN-Number	EN 10088-3	EN 10088-1	EN 10088-3	Sint C40	EN 10088-3
Symbol	X 10 CrNi 18-8	X9CrNi 18-9	X 5 CrNiMo 17-12-2	X 2 CrNiMo 17-13-2	X 2 CrNiMo 17-12-2
Alloying components %	C ≤ 0.05 ... 0.15 Mo ≤ 0.8 Cr 16.0 ... 19.0 Ni 6.0 ... 9.5	C ≤ 0.08 Si ≤ 0.6 Mn ≤ 1.2 Cr 18.0 Ni9.0	C ≤ 0.07 Cr 16.5 ... 18.5 Ni 10.0 ... 13.0 Mo 2.0 ... 2.5	C ≤ 0.08 Mo 2.0 ... 4.0 Cr 16.0 ... 19.0 Ni 10.0 ... 14.0	C ≤ 0.03 Cr 16.5 ... 18.5 Ni 10.5 ... 13.0 Mo 2.0 ... 2.5
Minimum tensile strength Rm in N/mm^2	500 ... 750	600 ... 800	500 ... 700	330	500 ... 700
Yield strength Rp0.2 in N/mm^2	≥ 195	≥ 210	≥ 200	≥ 250	≥ 200
Machinability	poor	good	medium	–	medium
Forgeability	good	poor	good	–	good
Weldability	excellent	poor	good	–	excellent
Special characteristics	antimagnetic, austenitic structure usable as spring steel up to 300 °C	Non-magnetic structure. Suitable for low temperatures	antimagnetic, austenitic structure suitable forlow temperatures, can be used up to 600 °C	antimagnetic structure	antimagnetic, austenitic structure suitable for low temperatures, can be used up to 700 °C
Corrosion resistance	good however, sensitive to intercrystalline corrosion	fair	very good significantly higher than AISI 304 in natural environmental mediums and moderate chlorine and salt concentrations, however not resistant to ocean water	medium by virtue of its coarser porosity the corrosion resistance is in general reduced as compared with Stainless Steel, reservations especially in acid and salty environment	very good significantly higher than AISI 304 in natural environmental mediums and moderate chlorine and salt concentrations, however not resistant to ocean water
Main areas of application	– Springs for temperatures up to 300 °C – Tools (knives) – Plates for vehicle construction – Chemical and food industry	Used for the manufacture of springs in various fields of application	– Chemical industry – Food industry – Machine construction – Building industry	– Paint, oil, soap and textile industry – Electronics – Decorative purposes (Kitchen equipment)	– Vehicle construction – Chemical industry – Food industry – Medical / Pharmaceutical industry – Building industry

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TECHNICAL DATA

Material characteristics of Stainless Steel continued

AISI Standard	316	630	304 Cu	316 Ti (A4)
German Material No.	1.4408	1.4542	1.4567	1.4571 (A4)
DIN / EN-Number	EN 10213-4	EN 10088-3	EN 10088-3	EN 10088-3
Symbol	GX 5 CrNiMo 19-11-2	X 5 CrNiCuNb 16-4	X 3 CrNiCu 18-9-4	X 6 CrNiMoTi 17-12-2
Alloying components %	C ≤ 0.07 Cr 18.0 ... 20.0 Ni 9.0 ... 12.0 Mo 2.0 ... 2.5	C ≤ 0.07 Cr 15.0 ... 17.0 Ni 3.0 ... 5.0 Cu 3.0 ... 5.0 Nb min. 5xC ... 0.45	C ≤ 0.04 Cr 17.0 ... 19.0 Ni 8.5 ... 10.5 Cu 3.0 ... 4.0	C ≤ 0.08 Mn ≤ 2.0 Cr 16.5 ... 18.5 Ni 10.5 ... 13.5 Mo 2.0 ... 2.5 Ti ≤ 5xC max. 0.7
Minimum tensile strength Rm in N/mm²	440 ... 650	800 ... 1200	450 ... 650	500 ... 700
Yield strength Rp0.2 in N/mm²	≥ 185	500 ... 1000	≥ 175	≥ 175
Machinability	medium	poor ... medium	medium ... good	medium ... poor
Forgeability	–	good	good	medium
Weldability	good	good	good	good
Special characteristics	antimagnetic, austenitic structure	antimagnetic, austenitic structure hardenable (precipitation hardening) suitable for low temperatures, can be used up to 450 °C	antimagnetic, austenitic structure suitable for cold forming	antimagnetic, austenitic structure suitable for low temperatures can be used up to 700 °C, high stability even at high temperatures
Corrosion resistance	very good acid-resistant	good Corrosion resistance comparable with AISI 304. insensitive to intergranular corrosion	good resistant to corrosion in the natural environment: water, rural and urban atmospheres without significant acid concentrations, in food areas and in agricultural food areas	very good comparable with 316 L
Main areas of application	– Food industry – Chemical industry – Fittings – Pumps – Machine construction	– Shipbuilding – Food industry – Construction engineering – Automotive industry – Chemical industry – Plant construction	– Food industry – Agriculture – Chemical industry – Machine construction – Shipbuilding – Electronics – Screw industry	– Equipment and pipeline construction – Chemical industry – Food industry – Medical / Pharmaceutical industry – Shipbuilding

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10.12 Surface treatments
in alphabetical order

Anodizing
Anodizing is one of the most widely used methods for treating the surface of aluminum workpieces. In this surface treatment, an anodizing process is used in which the surface of the component is specifically oxidized electrolytically – the top layer converts into a stable oxide compound Al_2O_3. Changing the process parameters allows the layer thickness to be varied between 5 and 25 µm and allows organic, inorganic, or electrolytic coloration.
The surface treatment takes place in an electrolytic tank, whereby the workpiece acts as the anode and the sulfur or oxalic acid filing is the cathode. Usually direct current is used, which creates a weak flow of current between the two electrodes. The hydrogen ions created in this process stimulate electrochemical corrosion on the aluminum surface, during which released atomic oxygen reacts with the metallic aluminum to form a hard oxide layer.
Anodizing is mainly used to give aluminum workpieces better corrosion resistance. Introduction of dyes in the Al_2O_3 layer also allows anodizing to permanently color code components or visually enhance them – for example, by means of a red color.

Black oxide coating
Black-bronzed parts are only minimally protected against corrosion. The process is therefore, usually used to improve storage stability or for decorative reasons.
When the workpieces are placed in the hot black oxide solution, a chemical reaction creates a mixed oxide layer consisting of FeO and Fe_2O_3 with a maximum thickness of 1.5 µm. The dimensional accuracy is preserved. The conversion layer is heat resistant up to about 300 °C and is resistant to abrasion and bending, although it is too porous to provide adequate protection against corrosion. This protection can be achieved through additional coatings for which the black-oxide layeracts as a primer. The process is standardized according to DIN 50938.

Chrome-plating
Chromium layers with thicknesses between 8 and 10 µm are used for decorative purposes and are available as glossy or matte chrome-plating from ELESA+GANTER. The process is a galvanic process. Chromium ions are supplied from an aqueous solution with a chromic acid base.
Usually a combination of layers are necessary, whereby which the chromium always forms the top layer. For example, ELESA+GANTER uses two-layer chrome-plating with nickel as the first layer and chromium as the top layer. The three-layer process is also used. Here the first layer is copper, the second nickel, and the final layer is chromium.
Chrome-plating is a comparably cost-intensive process that places high demands on occupational safety and environ-mental protection due to the use of chromium(VI)-based electrolytes. Alternative electrolytes based on non-toxic chromium(III) are still in the testing phase.

Electropolishing
This electrochemical process reduces surface roughness and removes impurities, microfissures, and microstructural defects in stainless steel parts. The workpiece is placed into an immersion bath containing material-specific electrolytes and forms the anode from which a thin metallic layer is removed after direct current is applied.
Electropolishing operates on the micro-scale and removes rough peaks, while generating increased abrasion at the edges, which also makes electropolishing ideal for fine deburring. The process is gentle on the structure since there is neither thermal nor mechanical stress.In addition to decorative applications, electropolished elements are used, for example, in the chemistry and food industry, in container construction, or in medical technology.

Galvanizing
This general term stands for various processes for the application of pure zinc layers to steel. In all cases, the objective is to protect the substrate against corrosion for as long as possible. The galvanic zinc-coating most commonly used by ELESA+GANTER uses a bath in which an electrolyte connects the workpiece which acts as the cathode to an anode made of pure zinc.
Depending on process parameters, the layer thicknesses which are deposited in this way range from 2.5 to a maximumof 25 µm. The process, which is standardized according to DIN 50979, is mainly suitable for corrosion protection of small parts.
The zinc which is present on the surface may also be exposed to corrosion depending on ambient conditions and is therefore subsequently protected by additional passivation to prevent zinc corrosion (white rust). In addition, treatment with suitable chromium(VI)-free solutions creates a chromate layer, which considerably improves the corrosion resistance of the zinc coating. Dyes can also be introduced in this process step.

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Surface treatments continued

Nano-passivation

This process provides exceptionally good corrosion protection with minimal layer thicknesses for die-cast zinc parts. The passivation layer is only 0.3 to 0.5 µm thick and does not affect dimensional accuracy. ELESA+GANTER, usually uses an anthracite-colored layer.

The passivation consists of a chromium(III) layer and an overlying layer consisting of nanoscale SiO_2 particles which have self-healing properties. If the surface becomes damaged down to the metallic substrate, the SiO_2 particles migrate through the potential differences in a mobilized way to the unprotected area to reclose the layer.

Nano-passivation can be performed quickly and economi-cally as a spray or immersion process – and is also a good primer for subsequent, further coatings, such as powder coating.

Nickel-plating

This term is a collective term for different processes that are used to apply nickel to metallic substrates. Nickel-plating is divided mainly into galvanic and chemical nickel-plating.

With galvanic nickel-plating according to DIN EN ISO 1456, nickel ions are deposited from an electrolyte by the application of an electrical voltage. The layer created in this way appears silvery with a light yellow shade and is resistant to water and diluted acids and bases, but does not protect against tarnishing. Corrosion protection is also only provided to a limited extent, as the layers, which are less than 25 µm thick, are usually porous and are therefore susceptible to pitting. Multi-layer systems with chromium as the top layer are more resistant in this respect.

Chemical nickel-plating, on the other hand, is not an electrochemical process. It is a reduction reaction of the surface of the part in the electrolyte bath, in which a uniform, non-porous nickel layer is formed. The end result provides very good protection against corrosive media, good abrasion resistance, and high hardness – including for parts with complex geometries with interior surfaces. The nickel layer created in this way can be soldered and is non-ferromagnetic.

Powder coating

Powder coating, also known as plastic coating, usually refers to the electrostatic process variant. The powder, consisting of pigmented thermoplastic polymer or reactive binding agents made of epoxy resin, polyester resin, or acrylic resin, is applied to the workpiece.

Inside the spray nozzle, the powder accumulates a negative electrostatic charge, flows along the field lines to the grounded workpiece, and also reaches the rear of the workpiece. The electrostatic charge reduces overspray and ensures adhesion of the powder up to its thermal fusion.

The actual closed and homogeneous layer, with a thickness in the range from 100 to 200 µm, is not created until this step in the process. Depending on powder type, the layers are highly resilient, weatherproof, and corrosion-resistant. They also can be produced in a wide variety of colors. Powder coating is very popular due to the ease of automation of the process and its economic feasibility.

Steam oxide coating

This process is used for the post-treatment of hardened sintered parts for which black oxide coating using a saline solution cannot be used.

With steam oxidation, the sintered part is treated with water vapor at temperatures in excess of 350 °C. The result is a thin, almost black homogeneous oxide layer of about 1 µm. Steam oxide coating only increases corrosion resistance to a small extent.

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10.13 Carbon steel, zinc alloys, aluminium, brass characteristics

Carbon steel, zinc alloys, aluminium and brass							
Description		**Steel for threaded studs**	**Steel for threaded studs**	**Zinc alloy for pressure diecasting**	**Aluminium for handles tubes**	**Brass for bosses with threaded or plain hole**	**Brass for reinforcing square holes**
Material description	Symbol	11SMnPb37	C10C	ZnA14Cu1	AlMgSi	CuZn39Pb3	CuZn37
	Number	1.0737	1.0214	ZL0410 (ZL5)	EN AW-6060	CW614N	CW508L
UNI standard		UNI EN 10277-4	UNI EN 10263-2	UNI EN 1774	UNI EN 573-3	UNI EN 12164	UNI EN 12449
% components of alloy		C < = 0.14 Pb ≤ 0.20-0.35 Si ≤ 0.05 Mn 1.00 ÷ 1.50 P ≤ 0.11 S 0.340.40 Fe rest	C 0.08-0.12 Si ≤ 0.10 Mn 0.30-0.50 P ≤ 0.025 S ≤ 0.025 Al 0.02-0.06 Fe rest	Cu 0.7-1.1 Pb ≤ 0.003 Fe ≤ 0.020 Al 3.8-4.2 Sn ≤ 0.001 Si ≤ 0.02 Ni ≤ 0.001 Mg 0.035-0.06 Cd ≤ 0.003 Zn rest	Si 0.03-0.6 Fe 0.1-0.3 Cu ≤ 0.10 Mn ≤ 0.10 Mg 0.035-0.06 Cr ≤ 0.05 Zn ≤ 0.15 Ti ≤ 0.10 Total impurities ≤ 0.15	Cu 57-59 Pb 2.5-3.5 Fe ≤ 0.30 Al ≤ 0.05 Sn ≤ 0.30 Si ≤ 0.90 Ni ≤ 0.30 Total impurities ≤ 0.20 Zn rest	Cu 62-64 Pb ≤ 0.10 Fe ≤ 0.10 Al ≤ 0.05 Sn ≤ 0.10 Ni ≤ 0.30 Total impurities ≤ 0.10 Zn rest
Tensile breaking load Rm [MPa]		400 – 650	510 – 520	280 – 350	120 – 190	490 – 530	340 – 360
Yield point Rp 0.2 [MPa]		≤ 305	–	220 – 250	60 – 150	–	–
Modulus of elasticity E [MPa]		–	–	100000	67000	100000	103400
Ultimate elongation %		9	58	2 – 5	16	12 – 16	45
Special features		Steel for high-speed machining. Used for parts obtained by turning.	Steel for moulding.	–	–	Brass for high-speed machining. Used for parts obtained by turning.	Brass for machining with good plastic deformability.

Duroplasts – Resistance to chemical agents at 23 °C temperature		
Chemical agent resistance	**Duroplast (PF)**	**Painted Duroplast**
Alcohol (methanol, ethanol, isopropanol...)	●	●
Boiling water	❒	❒
Edible oils	●	●
Esters (methyl acetate, ethyl acetate, ...)	●	
Ether (ethyl eter, oil ether, ...)	●	
Fat	●	
Ketons (acetone)	●	●
Mineral oils	●	●
Petrol, gas oil, benzene	●	●
Strong acids (hydrocloric, nitric, sulphuric, ...)	▲	▲
Strong alkali	▲	▲
Toluene	●	❒ (milk effect)
Water	●	●
Weak acids (butyric, oleic, lactic, ...)	❒	
Weak alkali	❒	
Xylene	●	❒ (milk effect)

● = good resistance ❒ = fair resistance (limited use according to working conditions) ▲ = poor resistance (should not be used) Blank stand for data not available

The characteristics described should be treated as guidelines only. No guarantee is made.
The user is responsible for checking the exact operating conditions.

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10.14 Duroplast, elastomer, technopolymer and rubber characteristics

Elastomer (Rubber)						
International symbol	**NR**	**NBR**	**CR**	**FKM - FPM**	**TPE**	**PUR**
Brand name (es.)		Perbunan®	Neoprene®	Viton®	SANTOPRENE®	Bayflex®
Chemical name	Polisoprene	Acrylonitrile-butadiene Rubber	Chloroprene Rubber	Fluorine Rubber	Thermoplastic Rubber	Polyurethane
Hardness (shore A)	from 30 to 95	from 25 to 95	from 30 to 90	from 65 to 90	from 55 to 87	from 65 to 90
Temperature resistance						
Short-term	from -55° to +100 °C	from -40° to +150 °C	from -30° to +150 °C	from -30° to +280 °C	from -40° to +150 °C	from -40° to +130 °C
Long-term	from -50° to +80 °C	from -30° to +120 °C	from -20° to +120 °C	from -20° to +230 °C	from -30° to +125 °C	from -25° to +100 °C
Tensile strength [N/mm^2]	27	25	25	20	8.5	20
Wear / Abrasion resistance	excellent	good	good	good	good	excellent
Resistance to						
Oil, grease	not suitable	outstanding	good	good	good	very good
Solvents	low	good in part	good in part	very good	outstanding	satisfactory
Acids	low	restricted	good	very good	outstanding	not suitable
Caustic solutions	low	good	very good	very good	outstanding	not suitable
Fuels	not suitable	good	slight	outstanding	good	good
General		NBR Synthetic rubber resistance to swelling when in contact with oils and fuels. Standard material for O-rings.	CR Synthetic rubber excellent resistance to ageing, atmospheric and environmental influences.	FPM Resistance to contact with fuels, oils, solvents, acids, caustic solutions and to atmospheric and environmental influences. High price, to be used for applications under severe conditions.	SANTOPRENE® Thermoplastic rubber, its performances are comparable to those of many customary vulcanised special rubbers. Outstanding dynamic fatigue life, excellent resistance to ozone and to atmospheric and environmental influences.	PUR Excellent mechanical characteristics, resistance to atmospheric and environmental influences. Extreme resistance to wear and tear.

Perbunan® and Bayflex® are registered trade-marks by Bayer.
Viton® is registered trade-mark by DuPont Dow Elastomer.
Neoprene® is registered trade-mark by DuPont SBR.
SANTOPRENE® is registered trade-mark by Advanced Elastomer Systems.

The characteristics described should be treated as guidelines only. No guarantee is made.
The exact conditions of use have to be taken into account individually.

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Technopolymer and Rubber
Resistance to chemical agents at 23 °C temperature

Chemical agents and solvents	Polyamide (PA)		Trans-parent polyamide (PA-T)		Alcohol-Resistant transparent polyamide (PA-T AR)		Poly-propylene (PP)		Acetal resin (POM)		Poly-carbonate (PC)		Soft-Touch thermoplastic elastomer (TPE)	Rubber NBR		Flourated Rubber FKM		Natural rubber NR
	Notes	%	Notes	%	Notes	%	Notes	%	Notes	%	Notes	%	Notes	Notes	%	Notes	%	Notes %
Acetic acid	Sol.	10 ▲	Sol.	10 ▲	Sol.	10 ❒		40 ●	Sol.	20 ▲	Sol.	10 ●	●		▲		▲	❒
Acetone		100 ●		❒		●		●		●		▲	●		▲		▲	▲
Acrylonitrile		100 ●		▲		▲							❒		▲		▲	▲
Aluminium chloride	Sol.	10 ●		●		●		●				●	●	Sol.	●	Sol.	●	●
Aluminium sulphate	Sol.	10 ●	Sol.	10 ▲	Sol.	10 ●	Sol.	50 ●				●	●	Sol.	●	Sol.	●	●
Ammonia gas		❒		●		●		●					❒		●		▲	▲
Ammonia	Sol.	10 ●	Sol.	10 ●		10 ●	Conc.	●				▲	❒	Sol.	❒	Sol.	▲	▲
Ammonium chloride	Sol.	10 ●	Sol.	10 ●	Sol.	10 ●		●	Sol.	10 ▲		●	●	Sol.	●	Sol.	●	●
Amyl alcohol		100 ●		▲		●		●		●		❒	●		●		●	●
Aniline		100 ❒		▲		▲		●		●			▲	Swell.	▲		●	●
Beer		●		●		●		●		●		●	●		●		●	▲
Benzoic acid	Sol.	Sat. ❒	Sol.	10 ▲	Sol.	10 ❒		Sat. ●					up to 60°C ●	Sol.	❒	Sol.	●	●
Benzol/benzene		100 ●		●		●		▲		●		▲	▲		▲		●	▲
Boiling water	Swell.	❒	Swell.	❒	Swell.	❒		●				●	❒		❒		❒	▲
Boric acid	Sol.	10 ●		❒		❒		Sat. ●					●	Sol.	●	Sol.	●	▲
Butter		●		●		●		●		●		●	●		●		●	▲
Butyl acetate		100 ●		100 ●		100 ●		●					❒					▲
Butyl alcohol		100 ●		▲		●		●		●		●	●		●		●	●
Butylene glycol		100 ●		▲		❒							❒		●		●	
Calcium chloride	Sol.	10 ●		●		●	Sol.	50 ●		●		●	●	Sol.	●	Sol.	●	●
Carbon disulphide		100 ●		❒		●		▲					▲		▲		●	▲
Carbon tetrachloride		●		❒		●		▲		●		▲	▲		▲		●	▲
Caustic potash	Sol.	5 - 10 ●	Sol.	5 - 10 ●	Sol.	5 - 10 ●	Sol.	5 - 10 ●	Sol.	10 ❒			●	Sol.	5 - 10 ❒	Sol.	5 -10 ▲	▲
Caustic potash	Sol.	50 ❒	Sol.	50 ●	Sol.	50 ●	Sol.	50 ●					●	Sol.	50 ▲	Sol.	50 ▲	●
Chloroform		100 ▲		▲		▲		▲				▲	▲		▲		●	●
Citric acid	Sol.	10 ❒	Sol.	10 ❒	Sol.	10 ❒		10 ●		●	Sol.	10 ●	up to 60°C ●	Sol.	●	Sol.	●	●
Copper sulphate	Sol.	10 ●						●		●			●	Sol.		Sol.	●	●
Dichloropropane								❒					▲					●
Distilled water		●		●		●		●		●		●	●		●		●	▲
Edible fats		●		●		●				●			●		●			
Edible oils		●		●		●		●		●		●	up to 60°C ●		●		●	❒
Ethyl acetate		100 ●		100 ●		100 ●		●		●		▲	❒		▲			▲
Ethyl alcohol (ethanol)		96 ●		▲		●		96 ●		●		●	●		❒		❒	▲
Ethyl chloride		100 ●		▲		▲		▲							●		●	
Ethylene glycol		●		▲		❒		●				●	❒		●		●	▲
Ethyl ether		●		●		●		●				▲	▲		❒		▲	●
Ferric chloride	Sol.	10 ●		●		●		●		●		●	●	Sol.	●	Sol.	●	▲
Formaldehyde (formalin)	Sol.	●	Sol.	40 ❒	Sol.	40 ●	Sol.	40 ●			Sol.	10 ●	▲	Sol.	40 ❒	Sol.	40 ●	
Formic acid	Sol.	10 ▲	Sol.	▲	Sol.	▲	Sol.	10 ●		100 ▲	Sol.	30 ❒	up to 60°C ●	Sat.	▲	Sat.	▲	
Freon 11								❒		●					●		❒	▲
Freon 12	Liq.	●		●		●		❒		●					●		❒	▲
Freon 13								❒		●					●		●	●
Gas oil		●		●		●		●		●		●	▲		●		●	●
Gasoline vapor		●		●		●	Swell.	❒		●			▲		❒		●	●
Glycerin		●		●		●		●				❒	▲		●		●	❒
Green gasoline		●		●		●	Swell.	❒		●		▲	▲		❒		●	●
Hydrochloric acid	Sol.	10 ▲	Sol.	10 ❒	Sol.	10 ❒	Sol.	30 ●	Sol.	10 ▲	Sol.	10 ●	up to 60°C ●	Sol.	10 ❒	Sol.	10 ●	●
Hydrofluoric acid	Sol.	40 ▲	Sol.	10 ▲	Sol.	10 ▲	Sol.	40 ●		▲	Sol.	20 ●	❒		50 ▲		50 ●	▲
Hydrogen peroxide	Sol.	3 ▲	Sol.	3 ▲	Sol.	3 ▲		30 ●	Sol.	90 ▲	Sol.	30 ●	❒	Sol.	80 ▲	Sol.	80 ❒	▲
Iodine		▲		▲		▲		●				❒	●					●

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TECHNICAL DATA

Technopolymer and Rubber
Resistance to chemical agents at 23 °C temperature

Chemical agents and solvents	Polyamide (PA)	Transparent polyamide (PA-T)	Alcohol-Resistant transparent polyamide (PA-T AR)	Poly-propylene (PP)	Acetal resin (POM)	Poly-carbonate (PC)	Soft-Touch thermoplastic elastomer (TPE)	Rubber NBR	Flourated Rubber FKM	Natural rubber NR
	Notes %	Notes %	Notes %	Notes %	Notes %	Notes %	Notes	Notes %	Notes %	Notes %
Isopropyl alcohol (isopropanol)	●	▲	●	●	●	❐	●	❐	●	●
Kerosene	●	●	●	❐	●	▲	▲	●	●	▲
Lactic acid	Sol. 10 ●	Sol. 10 ❐	Sol. 10 ❐	Sol. 20 ●	●	Sol. 10 ●	up to 60°C ●	Sol. ●	Sol. ●	▲
Light petroleum	●	▲		●	●	❐	▲			▲
Linseed oil	●	●	●	●	●		up to 60°C ●	●	●	▲
Magnesium chloride	Sol. 10 ●	●	●	Sol. Sat ●	●	●	●	Sol. ●	Sol. ●	●
Mercuric chloride	Sol. 6 ▲			●			●			●
Mercury	●	●	●	●		●	●	●	●	●
Methyl acetate	100 ●	100 ●	100 ●				❐			❐
Methyl alcohol	100 ●	▲	●	100 ●	●	▲	●	❐	▲	❐
Methylene chloride	100 ●	▲	●	❐		▲	▲	▲	●	●
Methyl ethyl ketone	●	▲	▲	❐	▲	▲	▲	▲	▲	●
Milk	●	●	●	●	●	●	●	●	●	▲
Mineral oil	●	●	●	●	●	●	up to 60°C ●	●		●
Nitric acid	10 ▲	Sol. 2 ❐	Sol. 2 ❐	Sol. 10 ●	Sol. 10 ▲	Sol. 20 ❐	❐	Sol. 10 ❐	Sol. ❐	●
Oleic acid	100 ●	●	●	Sol. ●	●	●	up to 60°C ●	❐		●
Paraffin oil	●	●	●	●		●	up to 60°C ●	●	●	❐
Phenol	Sol. ▲	▲	▲	●	▲	▲	▲	▲	●	●
Phosphoric acid	Sol. 10 ▲	▲	▲	Sol. 85 ●	Sol. 10 ▲	Sol. 10 ●	up to 60°C ●	Sol. 20 ❐	Sol. ●	▲
Potassium nitrate	Sol. 10 ●	Sol. 10 ●	Sol. 10 ●	Sat. ●		●	●	●	●	▲
Sea water, river, drinking	●	●	●	●	●	●	●	●	●	
Silicone oil	●	●	●	●		●		●	●	●
Silver nitrate	●	Sol. 10 ●	Sol. 10 ●	Sol. 20 ●			●	Sol. ❐		
Soap solution	Sol. ●	Sol. ●	Sol. ●	Sol. ●	●		●	Sol. ●	Sol. ●	▲
Sodium carbonate	Sol. 10 ●	●	●	Sol. Sat. ●	●		●	Sol. ●	Sol.	▲
Sodium chloride	Sol. ●	Sol. 25 ●	Sol. 25 ●	Sol. Sat. ●	●	●	●	Sol. ●	Sol. ●	●
Sodium hydroxide	Sol. 5 - 10 ●	Sol. 5 - 10 ●	Sol. 5 - 10 ●	Sol. 5 - 10 ●	Sol. 10 ●		●	Sol. 5 - 10 ❐	Sol. 5 - 10 ▲	
Sodium hydroxide	Sol. 50 ❐	Sol. 50 ●	Sol. 50 ●	Sol. 50 ●			●	Sol. 50 ▲	Sol. 50 ▲	●
Sodium hypochlorite	Sol. ●	▲	▲	Sol. 20 ●	Sol. 5 ▲	Sol. 5 ●	●	Sol. 10 ▲	Sol. 10 ▲	●
Sodium nitrate	Sol. 10 ●	Sol. 10 ●	Sol. 10 ●	●		▲	●	●	●	
Sodium silicate	●			●			●			●
Sodium sulphate	Sol. 10 ●	Sol. 10 ●	Sol. 10 ●	●	●	●	●	Sol. ●	Sol. ●	❐
Sulfuric acid	Sol. 10 ▲	Sol. 2 ●	Sol. 2 ●	98 ●	Sol. 10 ▲	Sol. 50 ●	up to 60°C ●	Sol. 20 ❐	Sol. 20 ●	●
Tartaric acid	●	Sol. ❐	Sol. ❐	Sol. 10 ●	●		up to 60°C ●	Sol. ●	Sol. ●	▲
Tetralin	●	●	●	▲		▲	▲	▲	●	❐
Toluol/toluene	●	●	●	❐	●	▲	▲	▲	❐	▲
Transformer oil	●	●	●	❐	●		up to 60°C ❐	●	●	▲
Trichlorethylene (Trichloroethylene)	❐	●	●	▲		▲	▲	▲	❐	▲
Vaseline	●	●	●	●		●	❐	●	●	▲
Vinegar				●		●	●	❐	❐	▲
Water vapor	●	●	●	●			●	❐	●	❐
Whisky	●	❐	●	●	●	●	●	●	●	❐
Wine	●	●	●	●	●	●	●	●	●	❐
Xylene	●	●	●	▲	●	▲	▲	▲	●	❐
Zinc chloride	❐	Sol. 50 ●	Sol. 50 ●	Sol. 20 ●	●	●	●	Sol. ●	Sol. ●	▲

● = good resistance
❐ = fair resistance (limited use according to working conditions)
▲ = poor resistance (should not be used)
Blanks stand for data not available

Conc. = concentration
Sol. = solution
Liq. = liquid
Sat. = saturated
Rigonf. = swelling

The characteristics described should be treated as guidelines only. No guarantee is made.
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10.15 Load ratings U-Handles



Load capacity F_1 in N



Load capacity F_2 in N

Load rating of cabinet U-Handles / Tubular handles in metal in ascending order of the standard numbers

An extensive series of tests were carried out with the cabinet "U" handles / Tubular handles listed below.

The handles were slowly loaded and relieved at room temperature with incrementally increasing force. After load relieve, a deTypeation irrelevant in terms of function and appearance remained at the listed values for F_1 and F_2 respectively. The breaking loads were in most cases multiples above the specified value.

Note:
The details given on load rating are non-binding guide values without any liability. In general, they do not constitute a warranty of quality.

The user must determine from case to case if a product is suitable for the envisaged use. Ambient factors and ageing may influence the specified values.

Cabinet U-Handles GN 225 (see page 427)

Size	18	20	22	25
F1	2250	2250	3000	3500
F2	5500	7500	9750	9750

Tubular handles GN 331 (see page 496)

Size	30–200	30–300
F1	3000	2400
F2	4000	3700

Tubular handles GN 332 (see page 492)

Size	30–200	30–300
F1	2500	2250
F2	3500	3400

Tubular handles GN 333 (see page 498)

Size	20–200	20–250	20–300	20–350	20–400		
F1	1700	1500	1200	800	500		
F2	2800	2500	2000	1500	500		
Size	**28–200**	**28–250**	**28–300**	**28–350**	**28–400**	**28–500**	**28–600**
F1	2500	2250	2000	1750	1650	1575	1500
F2	4750	4250	3750	3250	2750	2250	1500
Size	**30–200**	**30–300**	**30–350**	**30–400**	**30–500**	**30–600**	**30–1000**
F1	2500	2250	2200	2200	2000	1800	750
F2	3500	3400	3200	2850	2250	1900	800

Tubular handles GN 333.1 (see page 496)

Size	20–180	20–200	20–250	20–300	20–350	20–400	
F1	1600	1500	1400	1250	750	700	
F2	2500	2000	1900	1600	1550	1250	
Size	**28–200**	**28–250**	**28–300**	**28–350**	**28–400**	**28–500**	**28–600**
F1	1700	1500	1500	1350	1000	1000	1000
F2	4800	3500	2800	2400	1800	1700	1500
Size	**30–200**	**30–300**	**30–350**	**30–400**	**30–500**	**30–600**	**30–1000**
F1	3000	2400	2400	2350	2350	1750	1250
F2	4000	3700	3000	2700	2300	2000	1000

Tubular handles GN 333.2 (see page 500)

Size	242	292	392	492	592
F1	2400	2200	2000	1900	1600
F2	3700	3200	2400	2200	1650

Tubular handles GN 333.3 (see page 489)

Size	242	292	392	492	592
F1	1800	1700	1650	1600	1500
F2	3500	3000	2500	2000	1500

Stainless Steel-Tubular handles GN 333.5 (see page 506)

Size	200	250	300	400	500	600
F1	3000	2500	2000	1750	1500	1450
F2	7500	6000	5000	4250	3500	2500

Oval tubular handles GN 334 (see page 532)

Size	200	250	300	350	400	500	600	800
F1	1750	1650	1500	1500	1250	1200	1100	700
F2	3000	2400	1750	1750	1500	1350	1000	700

Oval tubular handles GN 334.1 (see page 523)

Size	200	250	300	350	400	500	600	800
F1	1700	1650	1500	1450	1400	1200	1000	750
F2	3000	2700	2500	2000	1500	1250	1000	750

Oval tubular handles GN 366 (see page 524)

Size	200	250	300	400	500	600
F1	2000	2000	2000	1500	1300	900
F2	3500	2800	2250	1600	1450	1150

Cabinet "U" handles GN 423 – Type A (see page 444)

Size	55	88	100	120	180	235
F1	270	250	220	200	180	150
F2	1700	1500	1000	600	500	250

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TECHNICAL DATA

Load rating of cabinet U-Handles / tubular handles in metal continued – F_1 / F_2

Cabinet "U" handles GN 423 – Type B (see page 444)

Size	55	88	100	120	180	235
F1	270	250	220	200	180	150
F2	1600	1250	800	400	300	200

Arch handles GN 424.1 (see page 449)

Size	64	96	128	160	192
F1	1300	800	800	700	525
F2	6500	5250	2700	2000	1550

Stainless Steel-Arch handles GN 424.5 (see page 449)

Size	64	96	128	160	192
F1	1500	900	900	800	600
F2	7500	5750	3000	2250	1750

Cabinet U-Handles, Steel GN 425 (see page 454)

Size	8–55	8–64	8–88	8–96	8–100	8–120	8–128
F1	475	550	500	500	500	450	500
F2	5000	4300	3300	3000	2800	1750	1250
Size	**10–88**	**10–100**	**10–120**	**10–180**	**10–200**	**10–235**	
F1	1300	900	900	700	500	400	
F2	4000	3750	3000	2000	1200	1150	
Size	**12–125**	**12–160**	**12–200**	**12–250**			
F1	1200	1000	400	200			
F2	6000	4000	3000	3400			
Size	**16–160**	**16–200**	**16–250**	**16–300**			
F1	1900	1300	1100	800			
F2	5000	4000	3500	5750			

Cabinet U-Handles, Aluminum GN 425 (see page 454)

Size	8–55	8–64	8–88	8–96	8–100	8–120	8–128
F1	300	300	300	200	200	200	200
F2	1400	1200	825	750	700	575	450
Size	**10–88**	**10–100**	**10–120**	**10–180**	**10–200**	**10–235**	
F1	500	450	400	350	250	250	
F2	2000	1500	1000	700	600	500	
Size	**12–125**	**12–160**	**12–200**	**12–250**			
F1	400	300	250	200			
F2	2000	1000	800	800			
Size	**16–160**	**16–200**	**16–250**	**16–300**			
F1	800	750	500	250			
F2	2300	2000	1500	1000			

Stainless Steel-Cabinet U-Handles GN 425 (see page 454)

Size	8–55	8–64	8–88	8–96	8–100	8–120	8–128
F1	–	600	850	700	700	700	700
F2	–	4000	3000	2500	2000	1500	1300

Stainless Steel-Cabinet U-Handles GN 425 *continued*

Size	10–88	10–100	10–120	10–180	10–200	10–235
F1	1400	1000	1000	700	600	500
F2	4000	3800	3000	2250	1500	1400
Size	**12–125**	**12–160**	**12–200**	**12–250**		
F1	1200	1000	700	500		
F2	7000	4500	3000	2500		
Size	**16–160**	**16–200**	**16–250**	**16–300**		
F1	1900	1300	1100	800		
F2	8500	7000	5000	4000		

Cabinet U-Handles, Steel GN 425.1 (see page 458)

Size	8–55	8–64	8–88	8–96	8–100
F1	500	425	450	375	325
F2	700	600	500	600	400
Size	**10–88**	**10–100**	**10–120**	**10–180**	**10–200**
F1	1000	900	900	500	500
F2	2000	1500	1500	750	700

Cabinet U-Handles, Steel GN 425.1 (see page 458)

Size	12–125	12–160	12–200	12–250
F1	1150	1250	1425	875
F2	1925	1500	1425	1250

Cabinet U-Handles, Aluminum GN 425.1 (see page 458)

Size	8–55	8–64	8–88	8–96	8–100
F1	400	350	300	250	250
F2	400	400	350	350	350
Size	**10–88**	**10–100**	**10–120**	**10–180**	**10–200**
F1	400	450	400	350	250
F2	500	500	500	450	400
Size	**12–125**	**12–160**	**12–200**	**12–250**	
F1	600	600	500	650	
F2	725	1050	1000	900	

Stainless Steel-Cabinet U-Handles, GN 425.1 (see page 458)

Size	8–55	8–64	8–88	8–96	8–100
F1	450	500	500	500	500
F2	500	1000	1000	1000	1000
Size	**10–88**	**10–100**	**10–120**	**10–180**	**10–200**
F1	1500	1450	1450	500	500
F2	2150	2000	2000	1000	1000
Size	**12–125**	**12–160**	**12–200**	**12–250**	
F1	700	1250	1350	1350	
F2	1650	1700	2250	1750	

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Folding handles, Steel GN 425.2 (see page 466)

Size	100	120	180
F1	1750	1600	1250
F2	2600	2600	2500

Stainless Steel-Folding handles GN 425.2 (see page 466)

Size	100	120	180
F1	2000	2000	1750
F2	5000	3500	2250

Folding handles, Steel GN 425.5 (see page 467)

Size	100	120	180
F1	500	500	500
F2	–	–	–

Stainless Steel-Folding handles GN 425.5 (see page 467)

Size	100	120	180
F1	500	500	500
F2	–	–	–

Folding handles with recessed tray GN 425.8 (see page 468)

Size	100	120
F1	1000	1000
F2	5000	5000

Cabinet U-Handles GN 426 (see page 462)

Size	20–200	20–250	20–300	20–350	28–250	28–300	28–350	28–400
F1	1400	1100	1100	1000	2000	1900	1800	1500
F2	3300	3000	2300	2200	4500	3500	3500	3500

Cabinet U-Handles GN 426.1 (see page 464)

Size	20–200	20–300	28–250	28–350	28–500
F1	1500	1450	3000	2500	2300
F2	1600	1400	2000	2000	2000

Stainless Steel-Cabinet U-Handles GN 426.5 – Type A (see page 463)

Size	20–200	20–250	20–300	20–350	28–250	28–300	28–350	28–400
F1	4000	6000	5500	3500	4000	3500	2800	2750
F2	9000	10000	8000	6500	8000	7250	6750	6500

Stainless Steel-Cabinet U-Handles GN 426.5 – Type B (see page 463)

Size	20–200	20–250	20–300	20–350	28–250	28–300	28–350	28–400
F1	1000	1600	1400	1400	2700	2700	2700	2700
F2	4000	9000	6500	7500	10000	7000	6000	5000

Stainless Steel-Cabinet U-Handles GN 426.6 – Type A (see page 465)

Size	20–200	20–300	28–250	28–350	28–500
F1	4200	4000	2000	1500	2700
F2	7500	7000	5000	3500	2250

Stainless Steel-Cabinet U-Handles GN 426.6 – Type B (see page 465)

Size	20–250	20–300	28–250	28–350	28–500
F1	1000	500	1000	1250	1750
F2	1200	1200	1250	1750	1750

Cabinet U-Handles GN 427 (see page 461)

Size	55	88	100	120	180	200	235
F1	650	600	500	450	300	250	200
F2	1600	1150	1100	1000	550	500	400

Stainless Steel-Cabinet U-Handles GN 427.5 (see page 461)

Size	55	88	100	120	180	200	235
F1	2400	2100	2000	1800	1250	850	800
F2	6000	5000	3750	3000	1700	1500	1200

Cabinet U-Handles GN 428 – Type A (see page 445)

Size	28–250	28–300	28–400
F1	1250	2250	1500
F2	4250	2750	2200

Size	36–300	36–400	36–500	36–600	36–800
F1	5750	6250	3750	2500	1750
F2	7500	6750	5750	4000	1000

Cabinet U-Handles GN 428 – Type B (see page 445)

Size	28–250	28–300	28–400
F1	1500	1250	1250
F2	3500	2750	1750

Size	36–300	36–400	36–500	36–600	36–800
F1	4500	7000	3750	2250	1750
F2	7500	6500	4500	3500	1000

Cabinet U-Handles GN 559 – Type A (see page 448)

Size	162
F1	5000
F2	8000

Cabinet U-Handles GN 559 – Type B / Type C (see page 448)

Size	162
F1	1000
F2	2500

Cabinet U-Handles GN 564 (see page 419)

Size	112	128	160	192
F1	900	900	900	–
F2	1200	1200	1200	–

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TECHNICAL DATA

Load rating of cabinet U-Handles / tubular handles in metal continued – F_1 / F_2

Cabinet U-Handles GN 565 (see page 414)

Size	20–100	20–112	20–117	20–120	20–128	20–160	20–180	20–200
F1	1250	1250	1250	1250	1250	1200	1250	1250
F2	2100	2200	2200	2200	2200	2000	1750	2000

Size	20–235
F1	1000
F2	1250

Size	26–112	26–117	26–120	26–125	26–128	26–160	26–179	26–192
F1	3000	2900	2900	2800	2800	2800	2400	2300
F2	7000	6000	5500	5000	4500	3500	3250	3000

Size	26–300	26–400	26–500
F1	1700	1600	1200
F2	2250	1750	1500

Cabinet U-Handles GN 565.1 (see page 416)

Size	20–100	20–112	20–120	20–128	20–160
F1	1000	1200	1500	1000	1100
F2	2500	2400	3250	2300	2000

Cabinet U-Handles GN 565.1 (see page 416)

Size	26–116	26–120	26–132	26–164	26–179	26–196
F1	2000	3000	2000	2000	1800	1750
F2	5000	6250	4000	3600	3400	3000

Inclined cabinet U-Handles GN 565.2 – Type A (see page 417)

Size	20–112	20–128	26–128	26–160
F1	1900	1900	2400	2000
F2	2400	2000	5200	4800

Inclined cabinet U-Handles GN 565.2 – Type B (see page 417)

Size	26–128	26–160
F1	1750	1500
F2	1850	2500

Cabinet U-Handles GN 565.3 (see page 443)

Size	20–120	20–160
F1	1400	1500
F2	1900	2750

Arch handles GN 565.4 (see page 450)

Size	20–160	20–192	26–160	26–192
F1	1300	1000	2000	2000
F2	3500	2500	5000	5000

Stainless Steel-Cabinet U-Handles GN 565.5 – Type A (see page 415)

Size	20–112	20–128	20–160	20–200	20–250	20–300	20–350	20–400
F1	4000	3200	3100	3000	2800	2500	2000	1500
F2	7000	6000	4000	3800	3000	3000	2300	1500

Stainless Steel-Cabinet U-Handles GN 565.5 – Type B (see page 415)

Size	20–112	20–128	20–160
F1	3000	2000	2500
F2	6850	5800	4250

Stainless Steel-Cabinet U-Handles GN 565.7 (see page 418)

Size	20–112	20–128
F1	5250	5000
F2	7250	3500

Stainless Steel-Arch handles GN 565.9 (see page 451)

Size	20–160	20–192
F1	4500	2500
F2	4500	2500

Arch handles GN 665 (see page 451)

Size	26–350	26–450
F1	1200	1100
F2	2700	1550

Tubular handles GN 666 (Tube, Aluminum) (see page 512)

Size	200	250	300	350	400	500	600
F1	900	850	950	1000	1000	1100	1000
F2	2500	2450	2400	2300	1750	1700	1350

Tubular handles GN 666 (Tube, Stainless Steel) (see page 512)

Size	200	250	300	350	400	500	600
F1	900	850	950	1000	1000	1100	1000
F2	2500	2450	2400	2300	1750	1700	1350

Tubular handles GN 666.1 (Tube, Aluminum) (see page 513)

Size	200	250	300	350	400	500	600
F1	1000	1350	1500	1500	1750	1750	1500
F2	5500	5500	5250	4500	4500	3500	2500

Tubular handles GN 666.1 (Tube, Stainless Steel) (see page 513)

Size	200	250	300	350	400	500	600
F1	1150	1150	1200	1200	1150	1100	1000
F2	3000	3000	2750	2500	2000	1850	1350

Tubular arch handles GN 666.4 (Tube, Aluminum) (see page 525)

Size	400	500	600
F1	750	750	750
F2	1800	1700	1500

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Tubular arch handles GN 666.4 (Tube, Stainless Steel) (see page 525)			
Size	**400**	**500**	**600**
F1	1350	1700	1750
F2	5000	4500	3750

Cabinet U-Handles GN 728 (see page 441)		
Size	**120**	**180**
F1	2000	2500
F2	2500	2750

Stainless Steel-Tubular handles GN 666.5 (see page 508)						
Size	**200**	**250**	**300**	**400**	**500**	**600**
F1	2300	2200	2100	2000	1800	1700
F2	4500	4300	4000	3700	3500	2000

Cabinet U-Handles GN 728.5 (see page 441)	
Size	**120**
F1	2500
F2	5000

Stainless Steel-Tubular handles GN 666.7 (see page 510)						
Size	200	250	300	400	500	600
F1	2300	2200	2100	2000	1800	1700
F2	4500	4400	4000	3600	3500	2000

Cabinet U-Handles M.1043 (see page 514)							
Size	**20–180**	**20–200**	**20–250**	**20–300**	**20–350**	**20–400**	
F1	750	750	600	600	550	500	
F2	2000	2000	2000	1500	1250	1000	
Size	**30–300**	**30–350**	**30–400**	**30–500**	**30–600**	**30–700**	**30–1000**
F1	1100	1100	750	750	750	625	550
F2	3000	2250	2250	1750	1500	1250	1000

Cabinet U-Handles M.1043 (see page 514)							
Size	**20–180**	**20–200**	**20–250**	**20–300**	**20–350**	**20–400**	
F1	1200	1100	1000	1000	750	700	
F2	4000	3500	3500	2500	2000	1000	
Size	**30–300**	**30–350**	**30–400**	**30–500**	**30–600**	**30–700**	**30–1000**
F1	1250	1250	1200	1200	1200	900	800
F2	5000	5000	4250	4000	2250	2000	1000

Flat cabinet U-Handles GN 668 – Type A (see page 440)				
Size	**20–130**	**20–170**	**20–190**	**20–210**
F1	1600	1600	1500	1350
F2	2100	1900	1800	1650

Flat cabinet U-Handles GN 668 – Type B (see page 440)				
Size	**20–130**	**20–170**	**20–190**	**20–210**
F1	700	650	600	550
F2	2400	2000	1600	1200

System handles GN 669 (see page 507)						
Size	**200**	**250**	**300**	**400**	**500**	**600**
F1	1750	1500	1250	1200	1000	900
F2	3000	2250	2100	2000	1500	1000

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10.16 Load ratings metal hinges

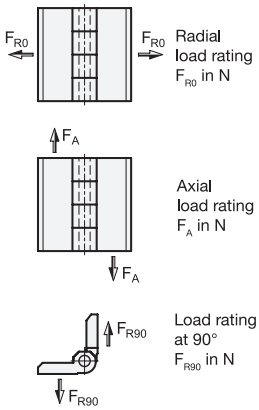
Load rating of metal hinges in ascending order of the standard numbers

An extensive series of tests were carried out with the hinges listed below.

The hinges were slowly loaded and relieved at room temperature with incrementally increasing force. After load relieve, a deformation irrelevant in terms of function and appearance remained at the listed values for L_A, L_{R0} and L_{R90}. The breaking loads were in most cases multiples above the specified value.

The details given on load rating are non-binding guide values without any liability. In general, they do not constitute a warranty of quality.

The user must determine from case to case if a product is suitable for the envisaged use. Ambient factors and ageing may influence the specified values.



Article No.		Radial load rating L_{R0} in N	Radial load rating L_{R90} in N	Axial load rating L_A in N
GN 127	-76-60	2000	2000	1150
GN 136	-30-30-ST	–	–	–
	-30-45-ST	–	–	–
	-40-40-ST	1000	700	2000
	-40-60-ST	–	–	–
	-50-50-ST	2000	1000	2500
	-50-75-ST	–	–	–
	-60-60-ST	2500	1200	2800
	-60-90-ST	–	–	–
	-30-30-NI	–	–	–
	-30-45-NI	–	–	–
	-40-40-NI	1000	700	2000
	-40-60-NI	–	–	–
	-50-50-NI	2000	1000	2500
	-50-75-NI	–	–	–
	-60-60-NI	2500	1100	2800
	-60-90-NI	–	–	–
GN 138	-ZD-40-42-A	1500	4000	1000
	-ZD-50-52-A	3500	6000	1750
	-ZD-60-62-A	4000	6500	2000
GN 139.1	-49-101	1000	1000	1500
	-79-101	500	500	750
GN 139.2	-49-101	1000	1000	1500
	-79-101	500	500	750
GN 139.5	-76-126	2000	2000	2000
GN 139.6	-76-126	2000	2000	2000
GN 161	-57	1150	1500	600
	-68	1500	1200	750
	-80	2500	2500	1000
GN 237	-AL-30-30-A-EL	1200	750	550
	-AL-40-40-A-EL	2000	2800	1060

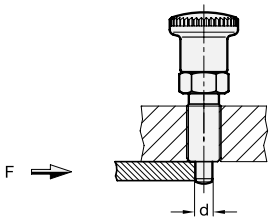
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Load rating of metal hinges
continued

Article No.		Radial load rating L_{R0} in N	Radial load rating L_{R90} in N	Axial load rating L_A in N
GN 237	-AL-50-50-A-EL	3000	4250	2250
	-AL-60-60-A-EL	5000	5150	4050
	-NI-30-30-A-GS	1700	750	750
	-NI-40-40-A-GS	4000	1650	2100
	-NI-50-50-A-GS	6500	2250	2550
	-NI-60-60-A-GS	10000	5000	5000
	-A4-30-30-A-GS	1700	750	750
	-A4-40-40-A-GS	4000	1650	2100
	-A4-50-50-A-GS	6500	2250	2550
	-A4-60-60-A-GS	10000	5000	5000
	-ZD-30-30-A	1200	750	500
	-ZD-40-40-A	2100	2000	1150
	-ZD-50-50-A	3500	2450	2100
	-ZD-60-60-A	6000	4400	3200
	-ZD- 40-40-C	1700	1850	900
	-ZD- 50-50-C	3550	2000	2050
	-ZD- 60-60-C	4050	2550	3050
GN 237	-NI- 63-50-A-GS	4000	2000	1500
	-NI- 76-50-A-GS	4000	2000	1200
	-NI- 90-60-A-GS	4500	2000	1500
	-NI-120-60-A-GS	4500	2000	1200
	-ZD- 63-50-A	3000	1250	1500
	-ZD- 76-50-A	3000	1250	1300
	-ZD- 90-60-A	4500	1500	1500
	-ZD-120-60-A	4500	1500	1300
	-ZD- 63-50-C	3000	2000	1500
	-ZD- 76-50-C	3000	2000	1200
	-ZD- 90-60-C	4500	1500	2000
	-ZD-120-60-C	4500	1500	1500
GN 238	-42-42-BJ	1500	2100	1050
	-42-42-EJ	1000	1500	1200
	-42-42-NJ	1250	1350	1500
	-50-50-BJ	1500	2200	1500
	-50-50-EJ	1500	1700	1500
	-50-50-NJ	1800	1900	2000
	-60-60-BJ	2500	3200	1500
	-60-60-EJ	2000	2000	1500
	-60-60-NJ	3700	2600	2550
GN 337	-NI-40-40-A-GS	3000	3500	2000
	-NI-50-50-A-GS	5000	3500	2500
	-NI-60-60-A-GS	6000	6000	5000
	-ZD-40-40-A	2200	1600	1500
	-ZD-50-50-A	3000	2500	2500
	-ZD-60-60-A	4300	3500	3100
GN 437	-ZD-40-40-A	2400	1600	1200
	-ZD-50-50-A	3200	2000	1600
	-ZD-60-60-A	4500	2500	2000

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10.17 Strength of indexing plungers



Computing the strenght of indexing plungers for shear loads / flexure loads of the plunger pin

Shear loads

Provided that a miniscule gap remains between the guide of the indexing plunger and the indexing bore hole opposite, the load can be reduced to a clean shear action. As this is normally not the case, the "flexure" load case should preferably be considered on the following page. Approximately 80 % of the bolt's tensile strength is assumed for the shear strength. This approach calculates against the tensile strength R_m, i.e. against the indexing pin shearing off. Any pre-existing and remaining deformation may, however, mean that the indexing plunger can be used no longer.
To ensure the permanent and proper function of the indexing plunger, the yield limit R_e must be considered in place of the tensile strength R_m.

Formulas for computation

Bolt cross-section	Limit tension	Shear force
$S = \frac{d^2 \times \pi}{4}$	$\tau_a = 0.8 \times R_m$	$F = S \times \tau_a = \frac{d^2 \times \pi}{4} \times 0.8 \times R_m$

Material characteristics

The tensile strength shown in the table below (R_m) and the yield or substitute yield limit (R_e / $R_{p\ 0.2}$) have been determine in tension tests involving tension specimen in accordance with DIN 50125-B6-30. These tests constitute the basis for the load bearing details given herein.

Material Description	Material no.	**R_e** in N/mm²	**R_m** in N/mm²
C45Pb	1.0504	560	640
X 10 CrNiS 18 9	AISI 303	580	740

Computing examples, load values

Example:
Indexing plungers with a bolt diameter of 6 mm made of Stainless Steel with a yield limit of R_e = 580 N/mm², computation against permanent deformation, the maximum permissible shear stress is wanted.

$$F_{per} = \frac{(6\ mm)^2 \times \pi}{4} \times 0.8 \times 580\ N/mm^2 = 13120\ N$$

d Bolt diameter	max. force **F** in N, acc. to material and strength value differs			
	C45Pb / 1.0504		X 10 CrNiS 18 9 / 1.4305	
	at R_e	at R_m	at R_e	at R_m
3	3160	3610	3270	4180
4	5620	6430	5830	7430
5	8790	10050	9110	11620
6	12660	14470	13120	16730
8	22510	25730	23320	29750
10	35180	40210	36440	46490
12	50660	57900	52470	66950

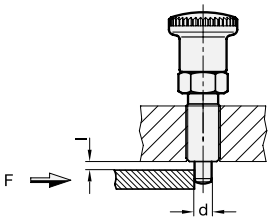
Safety informaion

On principle, the design also needs an adequate safety coefficient to be taken into account. The usual safety coefficients under static load 1.2 to 1.5; pulsating 1.8 to 2.4 and alternating 3 to 4.

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Flexure loads

As soon as a gap l remains between the guide and the indexing bore hole opposite, the load can be reduced to a flexure rod clamped in at one side.
With this approach, the computation is made against the bending of the indexing plunger as a case of failure.

Formulas for computation

Resistance torque	Flexural stress	Flexural strength
$W = \frac{\pi \times d^3}{32}$	$M_b = \sigma_b \times W$	$F = \frac{M_b}{l} = \frac{\sigma_b \times \pi \times d^3}{l \times 32}$

Material characteristics

The yield or substitute yield limit (R_e / $R_{p\,0.2}$) shown in the table below has been determine in tension tests involving tension specimen in accordance with DIN 50125-B6-30. These tests constitute the basis for the load bearing details given herein.

Material Description	Material no.	**R_e** in N/mm² (≈ per. flexural tension σ_b)
C45Pb	1.0504	560
X 10 CrNiS 18 9	AISI 303	580

Computing examples, load values

Example:

Indexing plungers with a bolt diameter of 5 mm made of steel with a yield limit of R_e = 560 N/mm², computation against permanent deformation, the maximum permissible flexural strength is wanted:

$$F_{per} = \frac{560\ N/mm^2 \times \pi \times (5\ mm)^3}{2\ mm \times 32} = 3430\ N$$

d Bolt diameter	max. flexural strength **F** in N, acc. to material and gap **l** differentiated			
	C45Pb / 1.0504		X 10 CrNiS 18 9 / 1.4305	
	l = 2 mm	**l** = 3 mm	**l** = 2 mm	**l** = 3 mm
3	740	490	760	510
4	1750	1170	1820	1210
5	3430	2290	3550	2370
6	5930	3950	6140	4100
8	14070	9380	14570	9710
10	27480	18320	28470	18980
12	47490	31660	49190	32790

Safety information

On principle, the design also needs an adequate safety coefficient to be taken into account. The usual safety coefficients under static load 1.2 to 1.5; pulsating 1.8 to 2.4 and alternating 3 to 4.

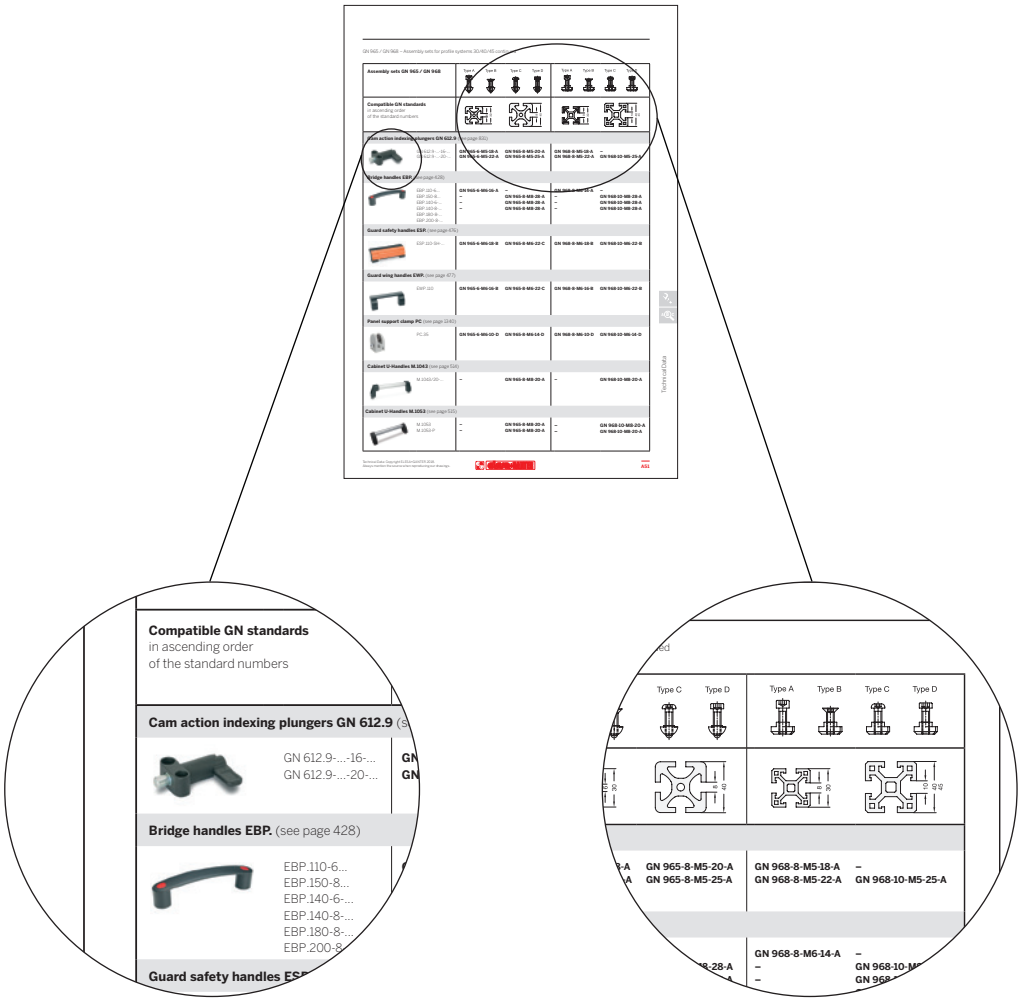
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10.18 Assembly sets GN 965 and GN 968

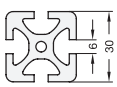
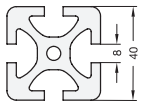
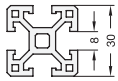
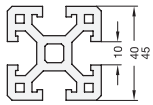
Selection of the appropriate assembly sets
ELESA+GANTER offers many products which are compatible with the most common T-Slot Profile Systems.
Show the tables to select the assembly set you need.



1. Your ELESA+GANTER product
The left hand column of the table shows the compatible ELESA+GANTER products, sorted in ascending standard number. At this point, first select the standard part to be mounted.

2. Your assembly set
The columns on the right hand side show assembly sets matching the selected products.
Depending on the profile shape, select the standard GN 965 or GN 968. The list underneath the profile cross-sections show the order numbers for the matching sets.

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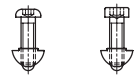
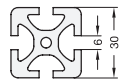
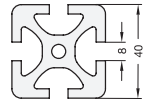
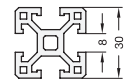
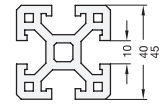
Assembly sets GN 965 / GN 968	Type A	Type B	Type C	Type D	Type A	Type B	Type C	Type D
Compatible GN standards in ascending order of the standard numbers								
Hinges GN 127 (see page 1397)								
 GN 127-...-B	**–**		**GN 965-8-M6-20-B**		**–**		**GN 968-10-M6-20-B[1)]**	
Mounting plate GN 139.3 (for hinges with / without safety switch GN 139.1 / GN 139.2) (see page 1444)								
 GN 139.3-170	**GN 965-6-M6-12-A**		**GN 965-8-M6-14-A**		**GN 968-8-M6-10-A**		**GN 968-10-M6-14-A**	
Mounting plate GN 139.4 (for hinges with / without safety switch GN 139.1 / GN 139.2) (see page 1444)								
 GN 139.4-101	**GN 965-6-M6-12-A**		**GN 965-8-M6-14-A**		**GN 968-8-M6-10-A**		**GN 968-10-M6-14-A**	
Flanged connector clamps GN 145 (see page 1821)								
 GN 145-...	**–**		**GN 965-8-M5-16-A**		**–**		**GN 968-10-M5-18-A**	
Hinges CFA-SL (see page 1373)								
 CFA.65-SL-...	**–**		**GN 965-8-M6-18-A**		**–**		**GN 968-10-M6-18-A[1)]**	
Hinges CFG. (see page 1406)								
 CFG.30/30 SH-6 CFG.40/40 SH-6 CFG.45/45 SH-6	**GN 965-6-M6-16-B** **–** **–**		**–** **GN 965-8-M6-18-B** **–**		**GN 968-8-M6-16-B** **–** **–**		**–** **GN 968-10-M6-18-B[1)]** **GN 968-10-M6-18-B[2)]**	

[1)] only for profile 40 x 40 [2)] only for profile 45 x 45

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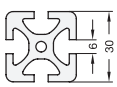
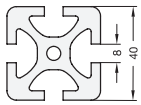
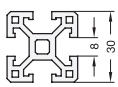
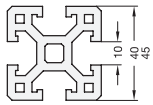
TECHNICAL DATA

GN 965 / GN 968 – Assembly sets for profile systems 30/40/45 continued

Assembly sets GN 965 / GN 968	Type A	Type B	Type C	Type D	Type A	Type B	Type C	Type D
								
Compatible GN standards in ascending order of the standard numbers								
Double hinges CFI. (see page 1408)								
 CFI.30-30/30 SH-6 CFI.40-40/40 SH-6 CFI.45-45/45 SH-6	**GN 965-6-M6-16-B** **–** **–**		**–** **GN 965-8-M6-18-B** **–**		**GN 968-8-M6-16-B** **–** **–**		**–** **GN 968-10-M6-18-B**[1] **GN 968-10-M6-18-B**[2]	
Hinges GN 161 (see page 1410)								
 GN 161-57 / 68 / 80	**–**		**GN 965-8-M6-16-B**		**GN 968-8-M6-14-B**		**GN 968-10-M6-18-B**	
Base plate connector clamps GN 162.3 (see page 1828)								
 GN 162.3-...	**GN 965-6-M5-16-A**		**GN 965-8-M5-18-A**		**GN 968-8-M5-14-A**		**GN 968-10-M5-18-A**	
Connecting clamps MSX. (see page 1906)								
 MSX.56-B-8-10 MSX.56-B-10-12 MSX.56-B-12-14	**GN 965-6-M6-12-A** **GN 965-6-M6-12-A** **GN 965-6-M6-12-A**		**GN 965-8-M6-14-A** **GN 965-8-M6-14-A** **GN 965-8-M6-14-A**		**GN 968-8-M6-10-A** **GN 968-8-M6-10-A** **GN 968-8-M6-10-A**		**GN 968-10-M6-14-A** **GN 968-10-M6-14-A** **GN 968-10-M6-14-A**	
Fastening sets GN 181 for cabinet U-Handles (see page 488)								
 GN 181-ZD-8-M4-... GN 181-ZD-10-M5-... GN 181-ZD-...-M6-... GN 181-ZD-...-M8-...	**GN 965-6-M4-10-B** **GN 965-6-M5-12-B** **GN 965-6-M6-12-B** **–**		**–** **GN 965-8-M5-14-B** **GN 965-8-M6-14-B** **GN 965-8-M8-16-B**		**–** **GN 968-8-M5-12-B** **GN 968-8-M6-12-B** **–**		**–** **–** **GN 968-10-M6-16-B** **GN 968-10-M8-16-B**	
Tube supports GN 231 (see page 1844)								
 GN 231-B20 / B25 / B30 GN 231-V20 / V25 / V30	**–** **–**		**GN 965-8-M8-14-A** **GN 965-8-M8-14-A**		**–** **–**		**GN 968-10-M8-14-A** **GN 968-10-M8-14-A**	

[1] only for profile 40 x 40 [2] only for profile 45 x 45

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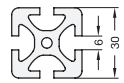
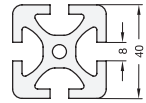
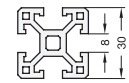
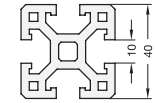
Assembly sets GN 965 / GN 968	Type A	Type B	Type C	Type D	Type A	Type B	Type C	Type D
Compatible GN standards in ascending order of the standard numbers								
Hinge CFR. (see page 1396)								
 CFR.60 SH-6	–		**GN 965-8-M6-20-B**		–		**GN 968-10-M6-20-B**[1)]	
Hinge CFM. (see page 1382)								
 CFM.60-45-SH-6	–		**GN 965-8-M6-18-B**		–		**GN 968-10-M6-18-B**[1)]	
Hinges with built-in safety switch CFSQ. (see page 1436)								
 CFSQ.60-SH-6-...	–		**GN 965-8-M6-18-B**		–		**GN 968-10-M6-18-B**[1)]	
Hinges with built-in safety multiple switch CFSW. (see page 1428)								
 CFSW.110-6-...	–		**GN 965-8-M6-18-B**		–		**GN 968-10-M6-18-B**[1)]	
Hinges CFMW. (see page 1434)								
 CFMW.70-SH-6 CFMW.110-SH-6	– –		**GN 965-8-M6-18-B** –		– –		**GN 968-10-M6-18-B**[1)] **GN 968-10-M6-18-B**[1)]	
Mounting plates PMW for hinges CFSW. / CFMW. (see page 1433)								
 PMW.110-30 PMW.110-40 PMW.110-45	**GN 965-6-M6-16-B** – –		– **GN 965-8-M6-18-B** –		**GN 968-8-M6-14-B** – –		– **GN 968-10-M6-18-B** **GN 968-10-M6-18-B**	
Swivel clamp connector bases GN 271 (see page 1847)								
 GN 271-25-...	–		**GN 965-8-M5-18-A**		–		**GN 968-10-M5-18-A**	

[1)] only for profile 40 x 40

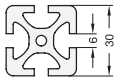
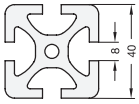
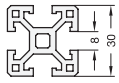
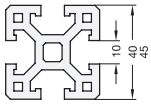
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TECHNICAL DATA

GN 965 / GN 968 – Assembly sets for profile systems 30/40/45 continued

Assembly sets GN 965 / GN 968	Type A	Type B	Type C	Type D	Type A	Type B	Type C	Type D
Compatible GN standards in ascending order of the standard numbers								
Sensor holders GN 271.4 (see page 1872)								
 GN 271.4-B12-... GN 271.4-B18-...	–		**GN 965-8-M5-18-A** **GN 965-8-M8-18-A**		–		**GN 968-10-M5-18-A** **GN 968-10-M8-18-A**	
Swivel clamp connector joints GN 281 (see page 1859)								
 GN 281-...	–		**GN 965-8-M5-18-A**		–		**GN 968-10-M5-18-A**	
Tubular handles GN 333 (see page 498)								
 GN 333-28-...-B-...	–		**GN 965-8-M6-28-A**		**GN 968-8-M6-25-A**		**GN 968-10-M6-28-A**	
Tubular handles GN 333.1 (see page 496)								
 GN 333.1-28-...-B-...	**GN 965-6-M6-14-C**		**GN 965-8-M6-16-C**		**GN 968-8-M6-14-C**		**GN 968-10-M6-18-C**	
Oval tubular handles GN 334.1 (see page 523)								
 GN 334.1-36-...	–		**GN 965-8-M8-16-C**		–		**GN 968-10-M8-16-C**	
Indexing plungers GN 412 (see page 789)								
 GN 412-5-35-...-1 GN 412-6-35-...-1 GN 412-8-47-...-1 GN 412-10-47-...-1	**GN 965-6-M4-16-A** **GN 965-6-M4-16-A** **GN 965-6-M5-18-A** **GN 965-6-M5-18-A**		– – **GN 965-8-M5-20-A** **GN 965-8-M5-20-A**		– – **GN 968-6-M5-18-A** **GN 968-6-M5-18-A**		– – **GN 968-8-M5-20-A** **GN 968-8-M5-20-A**	
Mounting blocks GN 412.1 (see page 814)								
 GN 412.1-35-...-1 GN 412.1-47-...-1	**GN 965-6-M4-16-A** **GN 965-6-M5-18-A**		– **GN 965-8-M5-20-A**		– **GN 968-8-M5-18-A**		– –	

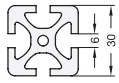
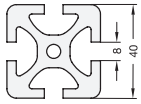
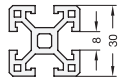
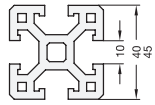
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Assembly sets GN 965 / GN 968	Type A	Type B	Type C	Type D	Type A	Type B	Type C	Type D
								
Compatible GN standards in ascending order of the standard numbers								
Spring latches GN 416 (see page 790)								
	GN 416-6-38-... GN 416-8-38-... GN 416-8-46-... GN 416-10-38-... GN 416-10-46-... GN 416-12-46-...	**GN 965-6-M5-14-A** **GN 965-6-M5-14-A** **–** **GN 965-6-M5-14-A** **–** **–**	**GN 965-8-M5-16-A** **GN 965-8-M5-16-A** **GN 965-8-M6-16-A** **GN 965-8-M5-16-A** **GN 965-8-M6-16-A** **GN 965-8-M6-16-A**	**GN 968-8-M5-14-A** **GN 968-8-M5-14-A** **–** **GN 968-8-M5-14-A** **–** **–**	**GN 968-10-M5-18-A** **GN 968-10-M5-18-A** **GN 968-10-M6-18-A** **GN 968-10-M5-18-A** **GN 968-10-M6-18-A** **GN 968-10-M6-18-A**
Locators GN 416.1 (see page 791)								
	GN 416.1-6-38 GN 416.1-8-38 GN 416.1-8-46 GN 416.1-10-38 GN 416.1-10-46 GN 416.1-12-46	**GN 965-6-M5-14-A** **GN 965-6-M5-14-A** **–** **GN 965-6-M5-14-A** **–** **–**	**GN 965-8-M5-16-A** **GN 965-8-M5-16-A** **GN 965-8-M6-16-A** **GN 965-8-M5-16-A** **GN 965-8-M6-16-A** **GN 965-8-M6-16-A**	**GN 968-8-M5-14-A** **GN 968-8-M5-14-A** **–** **GN 968-8-M5-14-A** **–** **–**	**GN 968-10-M5-18-A** **GN 968-10-M5-18-A** **GN 968-10-M6-18-A** **GN 968-10-M5-18-A** **GN 968-10-M6-18-A** **GN 968-10-M6-18-A**
Indexing plungers GN 417 (see page 792)								
	GN 417-5-A / -B / -C GN 417-6-A / -B / -C GN 417-8-A / -B GN 417-8-C GN 417-10-A / -B / -C	**GN 965-6-M4-12-A** **GN 965-6-M5-14-A** **GN 965-6-M5-14-A** **–** **–**	**–** **GN 965-8-M5-16-A** **GN 965-8-M5-16-A** **GN 965-8-M5-16-A** **GN 965-8-M6-16-A**	**GN 968-8-M4-12-A** **GN 968-8-M5-14-A** **GN 968-8-M5-14-A** **–** **–**	**–** **GN 968-10-M5-18-A** **GN 968-10-M6-18-A** **GN 968-10-M5-18-A** **GN 968-10-M6-18-A**
Locators GN 417.1 (see page 794)								
	GN 417.1-5 GN 417.1-6 GN 417.1-8 GN 417.1-10	**GN 965-6-M4-12-A** **GN 965-6-M5-14-A** **GN 965-6-M5-14-A** **–**	**–** **GN 965-8-M5-16-A** **GN 965-8-M5-16-A** **GN 965-8-M6-16-A**	**GN 968-8-M4-12-A** **GN 968-8-M5-14-A** **GN 968-8-M5-14-A** **–**	**–** **GN 968-10-M5-18-A** **GN 968-10-M5-18-A** **GN 968-10-M6-18-A**
Base clamp mountings GN 473 (see page 1878)								
	GN 473-B8-... GN 473-B10 / B12-... GN 473-B15 / B16-... GN 473-B20-...	**GN 965-6-M4-10-A** **–** **–** **–**	**GN 965-8-M4-14-A** **GN 965-8-M5-12-A** **GN 965-8-M6-14-A** **GN 965-8-M6-18-A**	**GN 968-8-M4-10-A** **–** **–** **–**	**GN 968-10-M4-14-A** **GN 968-10-M5-14-A** **GN 968-10-M6-14-A** **GN 968-10-M6-18-A**
Clamp mountings GN 477 (see page 1879)								
	GN 477-B8-... GN 477-B10 / B12-... GN 477-B15 / B16 / B20-...	**GN 965-6-M4-16-A** **GN 965-6-M5-18-A** **GN 965-6-M6-20-A**	**GN 965-8-M4-20-A** **GN 965-8-M5-20-A** **GN 965-8-M6-22-A**	**GN 968-8-M4-16-A** **GN 968-8-M5-18-A** **GN 968-8-M6-20-A**	**–** **GN 968-10-M5-20-A** **GN 968-10-M6-22-A**

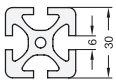
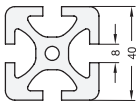
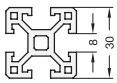
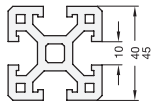
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GN 965 / GN 968 – Assembly sets for profile systems 30/40/45 continued

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Compatible GN standards in ascending order of the standard numbers								
Flanged bolts GN 480 (see page 1885)								
	GN 480-8-... GN 480-10 / 12-... GN 480-15 / 16 / 20-...	**GN 965-6-M4-10-A** **GN 965-6-M5-10-A** **GN 965-6-M6-12-A**	**GN 965-8-M4-12-A** **GN 965-8-M5-12-A** **GN 965-8-M6-14-A**		**GN 968-8-M4-10-A** **GN 968-8-M5-10-A** **GN 968-8-M6-12-A**	**–** **GN 968-10-M5-12-A** **GN 968-10-M6-14-A**		
Bridge handles M.443 CH / M.443 N-CH / M.443 AE-V0 / M.443-ESD (see page 435)								
	M.443/110-... M.443/140-6-... M.443/140-8-... M.443/145-... M.443/150-... M.443/170-... M.443/180-... M.443/190-... M.443/200-... M.443/260-...	**GN 965-6-M6-14-A** **GN 965-6-M6-16-A** **–** **–** **–** **–** **–** **–** **–** **–**	**GN 965-8-M6-16-A** **GN 965-8-M6-16-A** **GN 965-8-M8-18-A** **–** **GN 965-8-M8-18-A** **GN 965-8-M8-18-A** **GN 965-8-M8-20-A** **GN 965-8-M8-20-A** **–** **–**	**GN 968-8-M6-14-A** **GN 968-8-M6-16-A** **–** **–** **–** **–** **–** **–** **–** **–**	**GN 968-10-M6-16-A** **GN 968-10-M6-20-A** **GN 968-10-M8-16-A** **GN 968-10-M8-16-A** **GN 968-10-M8-18-A** **GN 968-10-M8-18-A** **GN 968-10-M8-20-A** **GN 968-10-M8-20-A** **GN 968-10-M8-20-A** **GN 968-10-M8-20-A**
Angles SQT. (see page 1899)								
	SQT.40-18-...-8 SQT.40-25-...-8 SQT.43-43-A-8	**–** **–** **–**	**GN 965-8-M8-18-C** **GN 965-8-M8-18-C** **–**		**GN 968-8-M6-14-C** **GN 968-8-M6-14-C** **–**	**–** **–** **GN 968-10-M8-18-C**		
Cabinet U-Handles GN 565.1 (see page 416)								
	GN 565.1-20-... GN 565.1-26-...	**GN 965-6-M5-22-A** **–**	**–** **GN 965-8-M6-22-A**		**GN 968-8-M5-20-A** **–**	**–** **GN 968-10-M6-22-A**		
Inclined cabinet U-Handles GN 565.2 (see page 417)								
	GN 565.2-26-128-B-... GN 565.2-26-160-B-...	**–** **–**	**GN 965-8-M6-22-C** **GN 965-8-M6-22-C**		**–** **–**	**GN 968-10-M6-22-C** **GN 968-10-M6-22-C**		
Cam action indexing plungers GN 612.2 (see page 830)								
	GN 612.2-...-16-... GN 612.2-...-20-...	**GN 965-6-M5-18-A** **GN 965-6-M5-22-A**	**GN 965-8-M5-22-A** **GN 965-8-M5-25-A**		**GN 968-8-M5-18-A** **GN 968-8-M5-22-A**	**–** **GN 968-10-M5-25-A**		

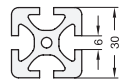
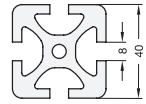
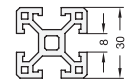
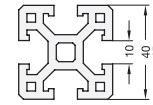
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Assembly sets GN 965 / GN 968	Type A	Type B	Type C	Type D	Type A	Type B	Type C	Type D
Compatible GN standards in ascending order of the standard numbers								
Cam action indexing plungers GN 612.9 (see page 831)								
 GN 612.9-...-16-... GN 612.9-...-20-...	**GN 965-6-M5-18-A** **GN 965-6-M5-22-A**		**GN 965-8-M5-20-A** **GN 965-8-M5-25-A**		**GN 968-8-M5-18-A** **GN 968-8-M5-22-A**		**–** **GN 968-10-M5-25-A**	
Bridge handles EBP. (see page 428)								
 EBP.110-6... EBP.140-6-... EBP.140-8-... EBP.150-8... EBP.180-8-... EBP.200-8-...	**GN 965-6-M6-16-A** **–** **–** **–**		**–** **GN 965-8-M8-28-A** **GN 965-8-M8-28-A** **GN 965-8-M8-28-A**		**GN 968-8-M6-14-A** **–** **–** **–**		**–** **GN 968-10-M8-28-A** **GN 968-10-M8-28-A** **GN 968-10-M8-28-A**	
Guard safety handles ESP. (see page 476)								
 ESP.110-EH-... ESP.110-SH-...	**GN 965-6-M6-16-A** **GN 965-6-M6-18-B**		**GN 965-8-M6-18-A** **GN 965-8-M6-22-B**		**GN 968-8-M6-16-A** **GN 968-8-M6-18-B**		**GN 968-10-M6-20-A** **GN 968-10-M6-22-B**	
Guard wing handles EWP. (see page 477)								
 EWP.110-EH EWP.110-SH	**GN 965-6-M6-16-A** **GN 965-6-M6-18-B**		**GN 965-8-M6-18-A** **GN 965-8-M6-22-B**		**GN 968-8-M6-16-A** **GN 968-8-M6-18-B**		**GN 968-10-M6-20-A** **GN 968-10-M6-22-B**	
Panel support clamp PC (see page 1340)								
 PC.35	**GN 965-6-M6-10-D**		**GN 965-8-M6-14-D**		**GN 968-8-M6-10-D**		**GN 968-10-M6-14-D**	
Cabinet U-Handles M.1043 (see page 514)								
 M.1043/20-...	**–**		**GN 965-8-M8-20-A**		**–**		**GN 968-10-M8-20-A**	
Cabinet U-Handles M.1053 (see page 515)								
 M.1053 M.1053-P	**–** **–**		**GN 965-8-M8-20-A** **GN 965-8-M8-20-A**		**–** **–**		**GN 968-10-M8-20-A** **GN 968-10-M8-20-A**	

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TECHNICAL DATA

GN 965 / GN 968 – Assembly sets for profile systems 30/40/45 continued

Assembly sets GN 965 / GN 968	Type A	Type B	Type C	Type D	Type A	Type B	Type C	Type D
Compatible GN standards in ascending order of the standard numbers								
Spring latches GN 722.3 (see page 832)								
 GN 722.3-8-... GN 722.3-10-... GN 722.3-12-... GN 722.3-14-...	**–** **–** **–** **–**		**GN 965-8-M6-18-A** **GN 965-8-M6-18-A** **GN 965-8-M6-18-A** **GN 965-8-M6-18-A**		**–** **–** **–** **–**		**GN 968-10-M6-18-A** **GN 968-10-M6-18-A** **GN 968-10-M6-18-A** **GN 968-10-M6-18-A**	
Cabinet U-Handles GN 728 (see page 441)								
 GN 728-120-B-... GN 728-180-B-...	**GN 965-6-M6-14-A** **–**		**–** **GN 965-8-M8-18-A**		**GN 968-8-M6-14-A** **–**		**–** **GN 968-10-M8-18-A**	
Stainless Steel – Cabinet U-Handles GN 728.5 (see page 441)								
 GN 728.5-120-B-...	**GN 965-6-M6-14-A**		**–**		**GN 968-8-M6-14-A**		**–**	
Angle pieces / Shackles GN 967 (see page 1000)								
 GN 967-...-20-...-1-... GN 967-...-20-...-2-... GN 967-...-30-...-1-... GN 967-...-30-...-2-... GN 967-...-40-...-1-... GN 967-...-40-...-2-... GN 967-...-45-...-1-... GN 967-...-45-...-2-...	**GN 965-6-M5-12-A** **GN 965-6-M5-12-B** **GN 965-6-M6-12-A** **GN 965-6-M6-12-B** **–** **–** **–** **–**		**GN 965-8-M5-14-A** **GN 965-8-M5-14-B** **GN 965-8-M6-14-A** **GN 965-8-M6-14-B** **GN 965-8-M8-16-A** **GN 965-8-M8-16-B** **GN 965-8-M8-16-A** **GN 965-8-M8-16-B**		**GN 968-8-M5-12-A** **GN 968-8-M5-12-B** **GN 968-8-M6-12-A** **GN 968-8-M6-12-B** **–** **–** **–** **–**		**GN 968-10-M5-14-A** **GN 968-10-M5-14-B** **GN 968-10-M6-14-A** **GN 968-10-M6-14-B** **GN 968-10-M8-16-A** **GN 968-10-M8-16-B** **GN 968-10-M8-16-A** **GN 968-10-M8-16-B**	
Threaded flanges GN 3490 (see page 1012)								
 GN 3490-45-... GN 3490-60-...	**GN 965-6-M6-14-B** **–**		**–** **GN 965-8-M8-16-B**		**GN 968-6-M6-14-B** **–**		**GN 968-8-M8-16-B** **GN 968-8-M8-16-B**	

Technical Data

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11 Vibration-damping elements - Guidelines for the choosing

Basic data required

- Disturbing frequency: the frequency of the disturbing vibration produced by an on-duty machine. In general, it is obtained by the number of rotations of the engine [Hz=r.p.m./60];
- The load applied to every single vibration-damping element [N];
- The isolation degree required [%];
- The deflection value of the vibration-damping element under a given load [mm];
- The stiffness [N/mm], that is to say the load that applied to the vibration-damping element produces a deflection of 1.0 mm.

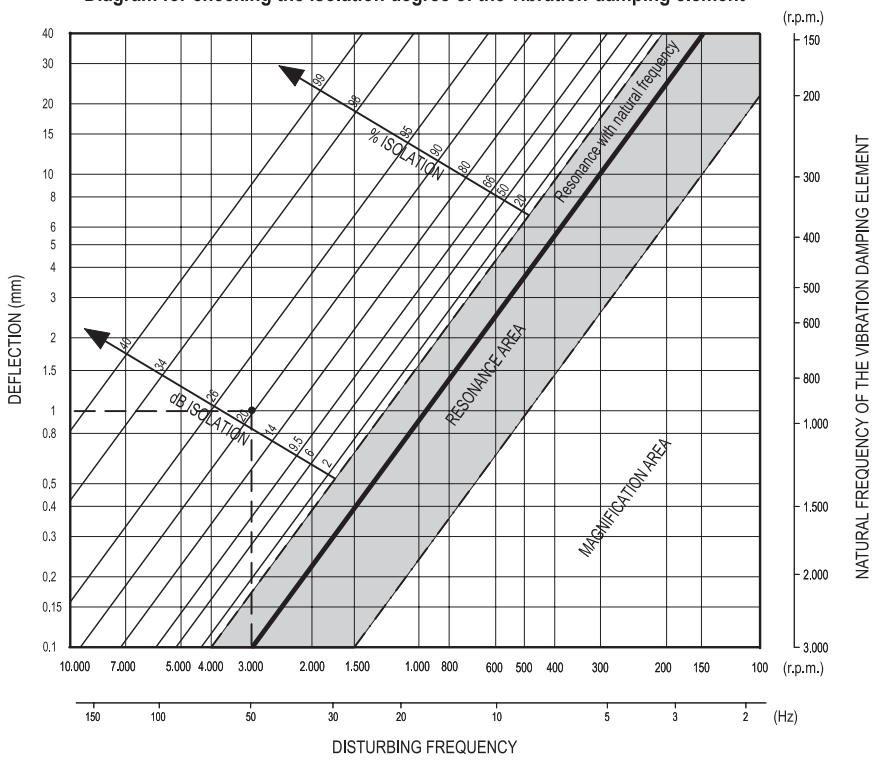
How to choose the vibration-damping element

- With reference to the diagram for checking the isolation degree, intersect the disturbing frequency value with the isolation degree required (each isolation degree corresponds to a line in the diagram) and define the deflection [in mm];
- Divide the load applied onto the vibration-damping element by the deflection value to obtain the required stiffness of the vibration-damping element;
- Compare the stiffness obtained with the stiffness shown in the table and choose the vibration-damping element which presents the nearest value (lower) to the calculated one (the stiffness values reported in the table refer to the maximum load values);
- The designer must verify that the article chosen through this selection criterion is suitable for the application required, in any case. For this purpose on request for each article, non-linear graphs of the spread (according to the applied load) are available.

Example

Conditions of use:
- Disturbing frequency= 50 Hz (3,000 r.p.m.);
- Load applied on each vibration-damping element 120 N;
- 90% isolation required;
- Diagram shows that with a 50 Hz disturbing frequency and an isolation degree of 90%, the deflection obtained is 1.0 mm;
- Divide the load applied by the deflection obtained to define the rigidity required, which is 120/1.0 = 120 N/mm;
- Compare the rigidity value obtained (120 N/mm) with the values reported in the table;
- The values reported in table, for type DVA.1, show that the vibration-damping element which should be used is DVA.1-25-20-M6-18-55.

Diagram for checking the isolation degree of the vibration-damping element



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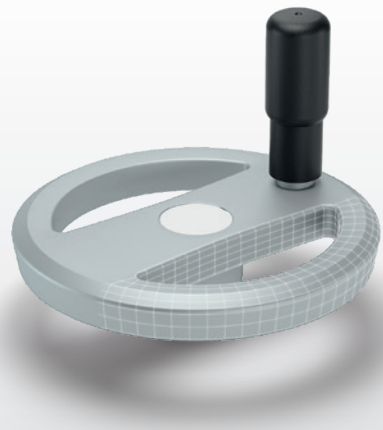
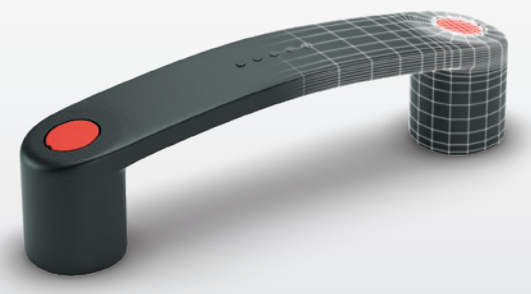
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