Ganter Norm®

Hygienic Design

Standard Parts Especially for the Use in Hygienically Sensitive Areas

Standard Parts. Ganter.

EHEDG EUROPEAN HYGIENIC ENGINEERING & DESIGN GROUP COMPANY MEMBER

3A

DGUV Test

Knobs

GN 75.6
Waist Shaped
Stainless Steel Knobs
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Waist Shaped
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GN 20
Stainless Steel Leveling Feet
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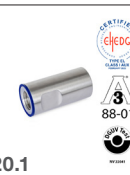

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Stainless Steel Cover Sleeves
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Sealing Rings, Wipers

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Hygienic Design

Maximum hygiene is a fundamental requirement, not only where food is produced. Hygiene also plays an increasing role in other industrial areas, from the pharmaceutical industry to the manufacture of paints and dyes. Nowadays a major issue is the manufacture of products without added preservatives or with as few added preservatives as possible—while still achieving a long shelf life.
However, this can only be achieved in a production environment in which all risks of contamination with microorganisms or dirt are excluded. For plant construction, this means that all components, elements, as well as surfaces, must be designed accordingly. Contaminants must not accumulate and must be easy to remove.

Ganter Has Solutions

Since even the smallest weak spots can contaminate entire production lines, Ganter decided to develop a special series of Standard Parts that meet the high requirements of the EHEDG, DGUV Test and the 3-A Sanitary Standards, Inc.

The Hygienic Design Product Family

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

Why Hygienic Design?

In the food industry, medical technology and the pharmaceutical industry, product safety and consumer protection are becoming increasingly important. Due to their specific properties, standard parts in hygienic design can support the production process in these sensitive areas and facilitate the manufacture of products with a long shelf life, reducing the need for preservative agents.

Advantages of Hygienic Design

Less and shorter cleaning work (this can be up to 25% of the production time), therefore
- more time available for production
- less fresh water consumption
- lower energy consumption
- less cleaning agent required
- less production of waste water
- lower total costs and saving of resources

Legal Basis of Hygienic Design

EN 1672-2:2009 “Food machinery”
Machines must be able to be cleaned, i.e. they must be designed and constructed so that dirt can be removed with the recommended cleaning methods.

Machinery directive 2006/42/EC
Machines must be designed so that
- materials can be easily and fully cleaned before each use and
- no risk of infections or illness is created.

DIN EN ISO 14519:2008-07
Hygiene requirements for the design of machines

DIN EN 1672-2:2021-05
Food machinery – General design principles – Part 2

Design Requirements for Hygienic Design

Material
- Non-rusting stainless steels
- FDA and EU compliant plastics and elastomers

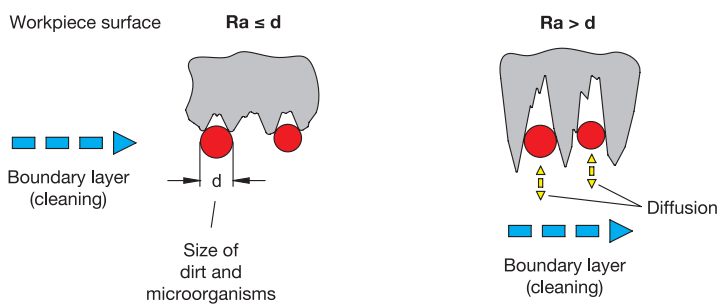
Surfaces
- Surfaces must be able to be cleaned
- Steps due to appliance configurations which are not aligned must be avoided
- Seals must be designed so that no gaps occur
- O-ring grooves must be hygienically designed
- Contact with the product to be manufactured must be ruled out
- Corners should preferably have a radius of 6 mm or more

Design / Geometry

The interior and exterior areas of all appliances, components or piping must be self-draining or be able to be drained and easy to clean.

Surface properties and roughness

Easy to clean with Ra < 0.8 µm



Design Principles for Hygienic Design

EHEDG (European Hygienic Engineering & Design Group)
- Non-profit European consortium of machine and food manufacturers as well their suppliers, research institutes, universities and government health agencies
- Approximately 45 guidelines
- Examination of products and issue of certificates

3-A Sanitary Standards, Inc.
- Non profit and independent association in the USA
- Three interest groups:
  Public and governmental health agencies, machine and food manufacturers
- Over 70 Sanitary Standards
- Examination of designs and processes, issue of certificates

BGN (Berufsgenossenschaft Nahrungsmittel und Gastgewerbe) [Food and Hospitality Trade Association]
- Active participation in national, European and international standardization efforts. Prevention of work accidents, occupational illnesses and work-related health risks
- European Machinery Directive (98/37/EC), plus the German Appliance and Product Safety Act (GPSG)
- Testing of parts and machines, issuing of certificates

Seals

For the standard parts which are listed in Hygienic Design, seals have the central function of protecting dead spaces, gaps and cracks from the penetration of cleaning fluids or product residues.

For this, a defined pre-tension or pressing of the seals and wipers is necessary for a reliable and permanent seal in the installed condition. Within the Hygienic Design product family, seal installation spaces and seal cross sections are calculated and designed with simulation software, so that the necessary surface compression is achieved on installation and the seal material is not subjected to excess pressure.

A fundamental differentiation can be made between static and moving seals:

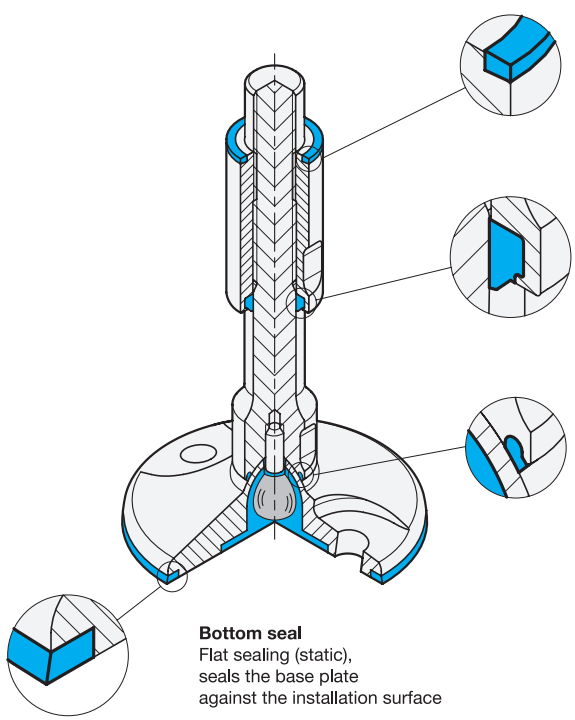
During assembly, the **static seals** in the design example shown below are tightened to the mounting surface at the top (**sealing ring**) and to the contact surface at the bottom (**bottom seal**). It should be ensured that all surfaces which make contact with the seal have a surface finish of at least R_a 0.8 µm.

The **moving seals** on the adjustable sleeve (**wiper**) and the ball joint (**joint sealing ring**) of the foot are designed so that they allow adjustment in both height and angle. With these too, the installation space together with the cross section of the seal ensures a gap-free, pre-tensioned seal.

Depending on the version and the type of use, it may be the case that seals may need to be replaced in case of damage or for preventative maintenance. For this, Ganter supplies the relevant seals as spare parts or offers these under **GN 7600** *(→ Page 30)* and **GN 7607** *(→ Page 31)* as standard parts.

Application Example

The illustrated design of the GN 20 Hygienic Design leveling foot shows how the various seal configurations are arranged.



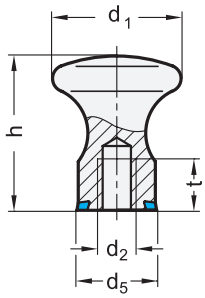
Sealing ring
Flat sealing (static),
seals the adjustable sleeve
against the mounting surface

Wiper
Rotatable and moveable in axial direction,
seals the adjustable sleeve
against the spindle shaft

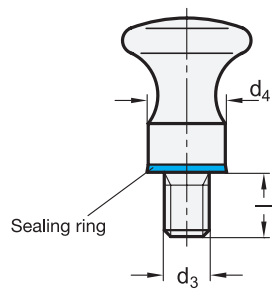
Joint sealing ring
Moveable in two planes,
seals between ball and spindle

Bottom seal
Flat sealing (static),
seals the base plate
against the installation surface

Type **D**



Type **E**



Inox Stainless Steel

3 Type

D With internal thread
E With threaded stud

1 d_1	2 d_2 Type D	2 d_3 Type E	d_4	d_5	h	Length l	t min.
20	M 5	M 5	14	14,8	24	10	7
25	M 6	M 6	16	16,8	29	12	9
32	M 8	M 8	18	18,8	37	14	12

Specification

- Stainless steel AISI 316L
  - Matte finish (Ra < 0,8 µm) **MT**
  - Polished finish (Ra < 0,8 µm) **PL**
- Sealing ring
  - H-NBR **H**
    Temperature resistant -25 °C to +150 °C
  - EPDM **E**
    Temperature resistant -40 °C to +120 °C
  - Blue
  - Hardness 85 ±5 Shore A
  - FDA compliant
- *Elastomer Characteristics* → *Page 2158*
- *Stainless Steel Characteristics* → *Page 2166*
- RoHS

Information

Waist shaped stainless steel knobs GN 75.6 are intended for use in hygienic areas. The sealed mounting surface enables mounting without dead spaces; the impervious geometry in combination with the high quality finish prevents the accumulation of dirt and facilitates cleaning.

Waist shaped stainless steel knobs GN 75.6 have a compact and timeless design.

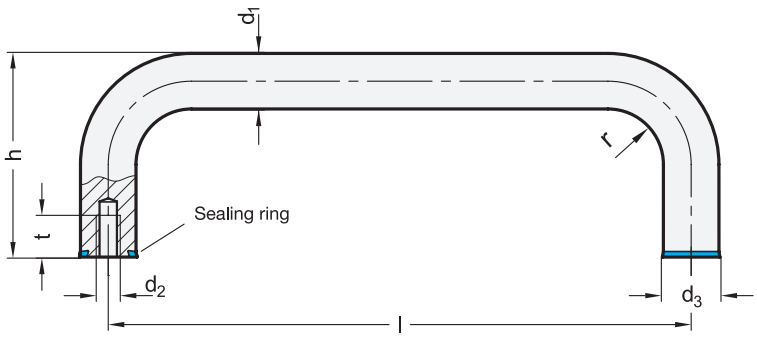
Accessory

- Sealing Rings GN 7600 → *Page 30*

How to order

1 2 3 4 5
GN 75.6-25-M6-E-MT-H

1	d_1
2	d_3 (d_2)
3	Type
4	Finish
5	Material (Sealing ring)



Rostfrei | Inox Stainless Steel | HD | FDA

2 d_1	3 Length **l** ±0,5		d_2	d_3	h	r	t min.
12	125	160	M 5	12,8	51	14	12
16	160	200	M 6	16,8	59	18	12

Specification

1 4 5

- Stainless steel AISI 316L **A4**
  - Matte finish (Ra < 0.8 µm) **MT**
  - Polished finish (Ra < 0.8 µm) **PL**
- Sealing ring
  - H-NBR **H**
    Temperature resistant -25 °C to +150 °C
  - EPDM **E**
    Temperature resistant -40 °C to +120 °C
  - Blue
  - Hardness 85±5 Shore A
  - FDA compliant
- *Load Rating Information* → *Page 2106*
- *Elastomer Characteristics* → *Page 2158*
- *Stainless Steel Characteristics* → *Page 2166*
- RoHS

Accessory

- Sealing Rings GN 7600 → *Page 30*

Information

Stainless steel cabinet U-handles GN 429 are intended for use in hygienic areas. The sealed mounting surfaces enable fastening without dead spaces. The high quality finish prevents adherence of dirt and facilitates cleaning.

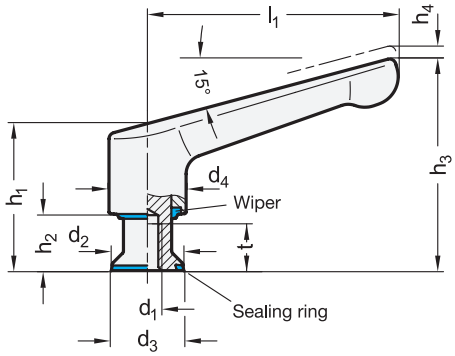
Due to the manufacturing process, **special designs** can be supplied even in relatively small quantities.

In contrast to the MT finish, the PL finish is also certified according to the DGUV Test.

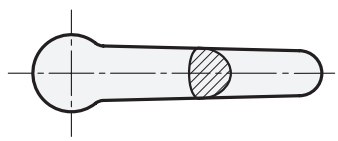
How to order

1 2 3 4 5
GN 429-A4-12-160-MT-H

1	**Material**
2	**d_1**
3	**Length l**
4	**Finish**
5	**Material (Sealing ring)**



Rostfrei Inox Stainless Steel HD FDA



1 l_1	2 d_1	d_2	d_3	d_4	h_1	h_2	h_3	h_4 Stroke	t min.
63	M 6	14	14,8	19	43,8	16,3	60,1	2,5	10
63	M 8	18	18,8	19	45,8	18,3	62,1	2,5	12
78	M 8	18	18,8	24	49,3	16,5	69,3	3	12
78	M 10	22	22,8	24	51,3	18,5	71,3	3	15

Specification

3 4

- Handle
  Stainless steel precision casting
  - AISI CF-8
  - Polished (Ra < 0,8 µm) **PL**
- Threaded bushing
  Stainless steel AISI 304
- Sealing ring / Wiper
  H-NBR **H**
  - Blue
  - Temperature resistant -25 °C to +150 °C
  - Hardness 85±5 Shore A
  - FDA compliant
- *Elastomer Characteristics* → *Page 2158*
- *Stainless Steel Characteristics* → *Page 2166*
- RoHS

Accessory

- Sealing Rings GN 7600 → *Page 30*

Information

Adjustable hand levers GN 305 with solid stainless steel handle are certified according to DGUV Test guidelines and are intended for use in hygienic areas.

The sealed mounting surface enables fastening without dead spaces. The high quality finish as well as the impervious exterior surfaces prevent adherence of dirt and facilitate cleaning.

Adjustable hand levers are ideal whenever parts have to be clamped in a confined space or in a particular lever position.

The threaded insert is moveably attached to the handle with serrations. When pulling the handle, the serration frees itself and can be re-located into any required position. Engagement is achieved by releasing the lever.

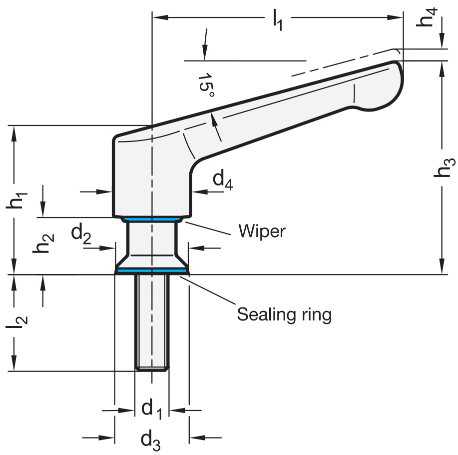
see also...

- *Stainless Steel Star Knobs Hygienic Design GN 5435* → *Page 12*
- *Stainless Steel Three Knob Handles Hygienic Design GN 5445* → *Page 13*

How to order

1 2 3 4
GN 305-63-M8-PL-H

1	l_1
2	d_1
3	Finish
4	Material (Sealing ring)



EDELSTAHL Rost frei · Inox Stainless Steel · HD · FDA

l_1	d_1	l_2					d_2	d_3	d_4	h_1	h_2	h_3	h_4 Stroke
63	M 6	12	16	20	25	32	14	14,8	19	43,8	16,3	60,1	2,5
63	M 8	12	16	20	25	32	18	18,8	19	45,9	18,3	62,1	2,5
78	M 8	12	16	20	25	32	18	18,8	24	49,3	16,5	69,3	3
78	M 10	16	20	25	32	-	22	22,8	24	51,3	18,5	71,3	3

Specification

- Handle
  Stainless steel precision casting
  - AISI CF-8
  - Polished (Ra < 0,8 µm) **PL**
- Threaded stud
  Stainless steel AISI 304
- Sealing ring / Wiper
  H-NBR **H**
  - Blue
  - Temperature resistant -25 °C to +150 °C
  - Hardness 85±5 Shore A
  - FDA compliant
- *Elastomer Characteristics → Page 2158*
- *Stainless Steel Characteristics → Page 2166*
- RoHS

Accessory

- Sealing Rings GN 7600 → *Page 30*

Information

Adjustable hand levers GN 305 with solid stainless steel handle are certified according to DGUV Test guidelines and are intended for use in hygienic areas.

The sealed mounting surface enables fastening without dead spaces. The high quality finish as well as the impervious exterior surfaces prevent adherence of dirt and facilitate cleaning.

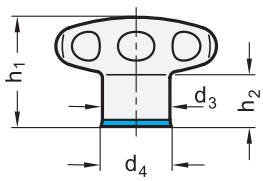
Adjustable hand levers are ideal whenever parts have to be clamped in a confined space or in a particular lever position.

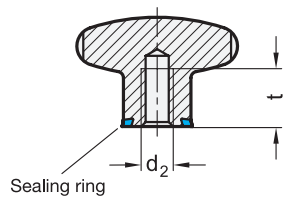
The threaded insert is moveably attached to the handle with serrations. When pulling the handle, the serration frees itself and can be re-located into any required position. Engagement is achieved by releasing the lever.

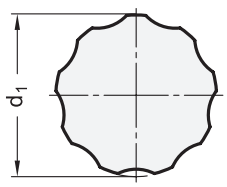
How to order

GN 305-78-M10-20-PL-H

1	l_1
2	d_1
3	l_2
4	Finish
5	Material (Sealing ring)







Inox Stainless Steel

1 d_1	2 d_2	d_3	d_4	h_1	h_2	t min.
40	M 6	18	18,8	30,5	15	12
40	M 8	18	18,8	30,5	15	15
50	M 8	21	21,8	34	17	15
50	M 10	21	21,8	34	17	18

Specification

- Stainless steel AISI 316L
  - Matte finish (Ra < 0,8 µm) **MT**
  - Polished finish (Ra < 0,8 µm) **PL**
- Sealing ring
  - H-NBR **H**
    Temperature resistant -25 °C to +150 °C
  - EPDM **E**
    Temperature resistant -40 °C to +120 °C
  - Blue
  - Hardness 85±5 Shore A
  - FDA compliant
- *Elastomer Characteristics* → *Page 2158*
- *Stainless Steel Characteristics* → *Page 2166*
- RoHS

Information

Stainless steel star knobs GN 5435 are intended for use in hygienic areas. The sealed mounting surface enables fastening without dead spaces. The high quality finish and the large corner radii prevent adherence of dirt and facilitate cleaning.

see also...

- *Adjustable Stainless Steel Hand Levers Hygienic Design GN 305*
  → *Page 10*

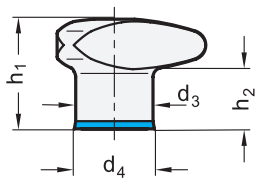
Accessory

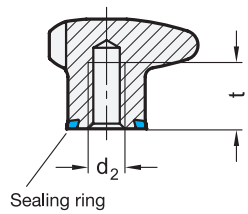
- Sealing Rings GN 7600 → *Page 30*

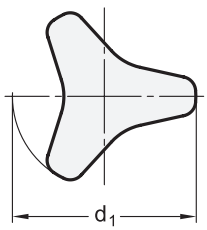
How to order

GN 5435-40-M8-PL-H

1	d_1
2	d_2
3	Finish
4	Material (Sealing ring)







Inox Stainless Steel

[1] d_1	[2] d_2	d_3	d_4	h_1	h_2	t min.
40	M 6	18	18,8	26	15	12
40	M 8	18	18,8	26	15	15
50	M 8	21	21,8	30	17	15
50	M 10	21	21,8	30	17	18

Specification

[3] [4]

- Stainless steel AISI 316L
  - Matte finish (Ra < 0,8 µm) **MT**
  - Polished finish (Ra < 0,8 µm) **PL**
- Sealing ring
  - H-NBR **H**
    Temperature resistant -25 °C to +150 °C
  - EPDM **E**
    Temperature resistant -40 °C to +120 °C
  - Blue
  - Hardness 85±5 Shore A
  - FDA compliant
- *Elastomer Characteristics* → *Page 2158*
- *Stainless Steel Characteristics* → *Page 2166*
- RoHS

Accessory

- Sealing Rings GN 7600 → *Page 30*

Information

Stainless steel three-lobed knobs GN 5445 are intended for use in hygienic areas. The sealed mounting surface enables fastening without dead spaces. The high quality finish as well as the large corner radii and closed surfaces prevent adherence of dirt and facilitate cleaning.

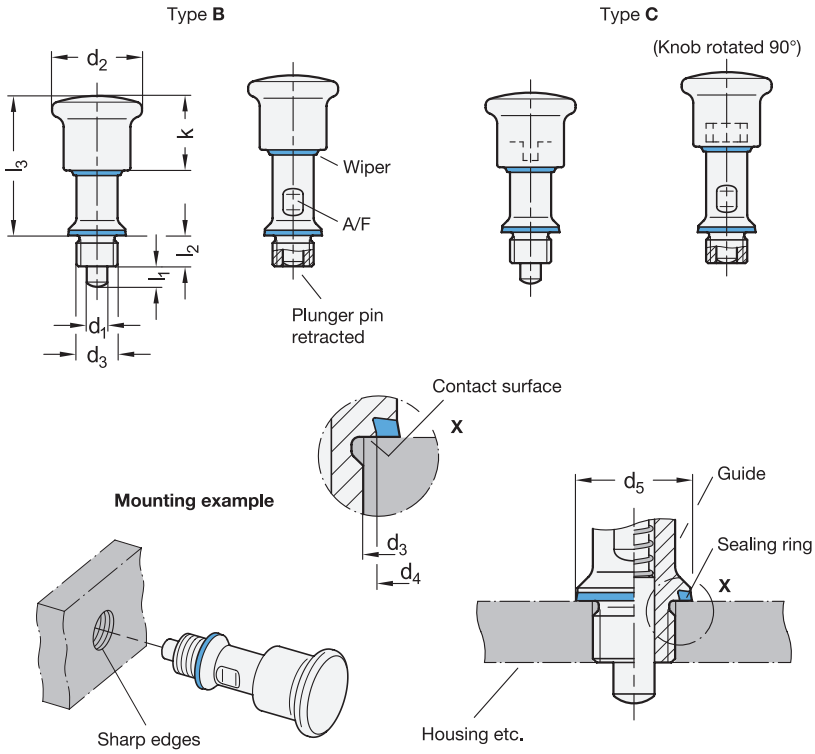
see also...

- *Adjustable Stainless Steel Hand Levers Hygienic Design GN 305*
  → *Page 10*

How to order

[1] [2] [3] [4]
GN 5445-40-M8-PL-H

1	d_1
2	d_2
3	Finish
4	Material (Sealing ring)



Inox Stainless Steel

2 Type

B Without rest position
C With rest position

3 Coding

FH Knob side in Hygienic Design (front hygiene)

1

d_1 Plunger f8 Bore H8	d_2	d_3	d_4	d_5	l_1	l_2	l_3	k	A/F	Spring load in N ≈	
										Initial	End
6	35	M 12 x 1,5	18	22,8	6	12	49,8	29	14	20	36
8	35	M 16 x 1,5	18	22,8	8	12	54,3	29	14	22	32

Specification

4

- Stainless steel AISI 316
  Plunger pin case hardened
- Pressure spring
  Stainless steel AISI 316Ti
- Seals, blue, FDA compliant
  Temperature resistant -25 °C to +110 °C
  - Sealing ring
    H-NBR, hardness 85 ±5 Shore A **H**
  - Wiper
    TPU, hardness 95 ±5 Shore A
- All moving parts lubricated with
  FDA compliant grease
- *Load Rating Information* → *Page 2132*
- *ISO Fundamental Tolerances* → *Page 2151*
- *Elastomer Characteristics* → *Page 2158*
- *Stainless Steel Characteristics* → *Page 2166*
- RoHS

Information

Stainless steel indexing plungers GN 8170 are certified according to DGUV Test guidelines and meet hygiene requirements on the knob side (front hygiene).

Wipers between the knob and the guide as well as the sealing ring between the guide and the housing keep the locking mechanism on the knob side leak-tight. At the same time, the high surface quality (Ra < 0,8 µm) and dead-space-free mounting prevent dirt from adhering and facilitate cleaning.

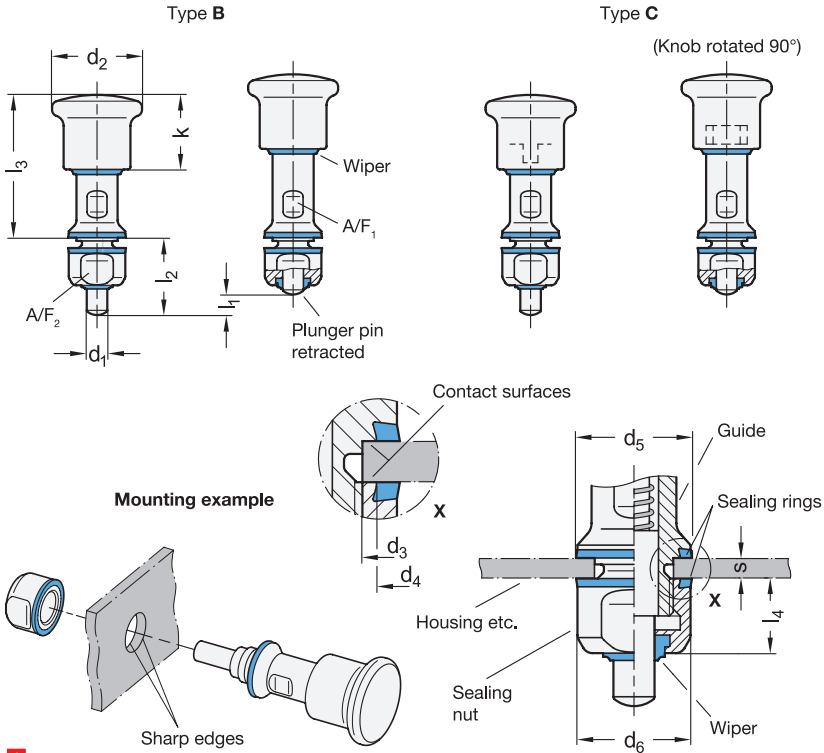
Indexing plungers with a rest position (Type C) are used for such applications where the plunger has to stay in its retracted position. In that case, the knob is retracted and afterwards turned by 90°. A notch keeps the plunger in this position.

Mounting holes and through-holes in the housing must be at a right angle, free of burrs and without a chamfer. This ensures that the sealing rings will function properly.

How to order

1 2 3 4
GN 8170-8-C-FH-H

1	d_1
2	Type
3	Coding
4	Material (sealing ring)



Inox Stainless Steel

2 Type

B Without rest position
C With rest position

3 Coding

VH Knob and pin side in Hygienic Design (full hygiene)

1

d_1 Plunger f8 Pin H8	d_2	d_3 –0,1	d_4	d_5	d_6	l_1	l_2	l_3	l_4	k	s Clamping length min.	s Clamping length max.	A/F_1	A/F_2	Spring load in N ≈ Initial	Spring load in N ≈ End
6	35	16	18	22,8	22	6	27,5	50,5	14,5	29	1,5	4	14	18	20	36
8	35	16	18	22,8	22	8	29,5	55,5	14,5	29	1,5	4	14	18	22	32

Specification

4

- Stainless steel AISI 316
  Plunger pin case hardened
- Pressure spring
  Stainless steel AISI 316Ti
- Seals, blue, FDA compliant
  Temperature resistant -25 °C to +110 °C
  - Sealing rings
    H-NBR, hardness 85 ±5 Shore A **H**
  - Wiper
    TPU, hardness 95 ±5 Shore A
- All moving parts lubricated with FDA compliant grease
- *Load Rating Information* → *Page 2132*
- *ISO Fundamental Tolerances* → *Page 2151*
- *Elastomer Characteristics* → *Page 2158*
- *Stainless Steel Characteristics* → *Page 2166*
- RoHS

Information

Stainless steel indexing plungers GN 8170 are certified according to DGUV Test guidelines, and with their additional sealing nuts, they meet hygiene requirements on the knob and pin sides (full hygiene).

Wipers between knob and guide and between guide and pin as well as sealing rings on the guide and sealing nut keep the locking mechanism leak-tight. At the same time, the high surface quality (Ra < 0,8 µm) and dead-space-free mounting prevent dirt from adhering and facilitate cleaning.

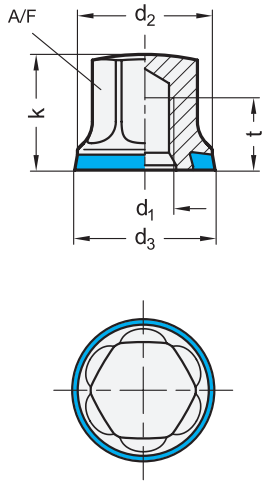
Indexing plungers with a rest position (Type C) are used for such applications where the plunger has to stay in its retracted position. In that case, the knob is retracted and afterwards turned by 90°. A notch keeps the plunger in this position.

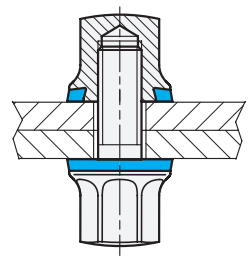
Through-holes in the housing must be at a right angle, free of burrs and without a chamfer. This ensures that the sealing rings will function properly.

How to order

1 2 3 4
GN 8170-6-B-VH-H

1	d_1
2	Type
3	Coding
4	Material (sealing ring)





Rost frei Inox Stainless Steel HD FDA

[1]

d_1	d_2	d_3	k	t min.	A/F
M 4	11	11,8	9,5	6	7
M 5	12	12,8	10	6	8
M 6	14	14,8	12	7,5	10
M 8	18	18,8	14,5	9,5	13
M 10	21	21,8	18	12	16
M 12	25	25,8	21	14,5	18
M 16	32	32,8	26	17	24
M 20	40	40,8	32	46	30

Specification [2] [3]

- Stainless steel
  - AISI 316L
  - Matte finish (Ra < 0,8 µm) **MT**
  - Polished finish (Ra < 0,8 µm) **PL**
- Sealing ring
  - H-NBR **H**
    Temperature resistant -25 °C to +150 °C
  - EPDM **E**
    Temperature resistant -40 °C to +120 °C
  - Blue
  - Hardness 85 ±5 Shore A
  - FDA compliant
- *EHEDG Principles* → *Page 6*
- *Elastomer Characteristics* → *Page 2158*
- *Stainless Steel Characteristics* → *Page 2166*
- RoHS

Information

Stainless steel nuts GN 1580 are certified according to EHEDG guidelines and are therefore ideal for use in hygienic areas. The sealed mounting surface enables components to be mounted without dead spaces. The high quality finish as well as the large corner radii and closed surfaces prevent adherence of dirt and facilitate cleaning.

see also...

- *Stainless Steel Leveling Feet Hygienic Design GN 20 (with Mounting Holes)* → *Page 26*

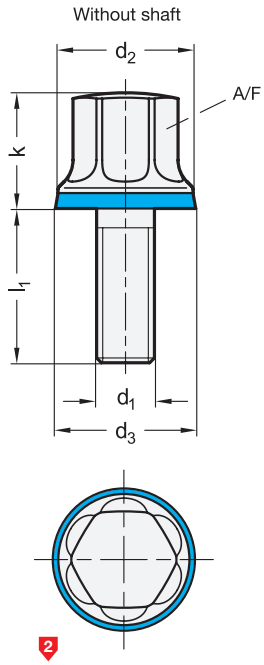
Accessory

- Sealing Rings GN 7600 → *Page 30*

How to order

GN 1580-M10-PL-E [1] [2] [3]

1	d_1
2	Finish
3	Material (Sealing ring)



Inox Stainless Steel

1 d_1	2 l_1 Without shaft				With shaft			d_2	d_3	k	l_2	A/F
M 4	8	10	12	-	16	-	-	11	11,8	9,5	14	7
M 5	10	16	-	-	20	-	-	12	12,8	10	16	8
M 6	12	16	20	25	30	-	-	14	14,8	12	18	10
M 8	16	20	25	30	40	-	-	18	18,8	14,5	22	13
M 10	20	25	30	-	40	50	-	21	21,8	18	26	16
M 12	25	30	-	-	40	50	60	25	25,8	21	30	18
M 16	30	40	-	-	50	60	70	32	32,8	26	38	24
M 20	40	-	-	-	60	-	-	40	40,8	32	46	30

Specification

3 4

- Stainless steel AISI 316L
  - Matte finish (Ra < 0,8 µm) **MT**
  - Polished finish (Ra < 0,8 µm) **PL**
- Sealing ring
  - H-NBR **H**
    Temperature resistant -25 °C to +150 °C
  - EPDM **E**
    Temperature resistant -40 °C to +120 °C
  - Blue
  - Hardness 85 ±5 Shore A
  - FDA compliant
- *EHEDG Principles* → *Page 6*
- *Elastomer Characteristics* → *Page 2158*
- *Stainless Steel Characteristics* → *Page 2166*
- RoHS

Accessory

- Sealing Rings GN 7600 → *Page 30*

Information

Stainless steel screws GN 1580 are certified according to EHEDG guidelines and are therefore ideal for use in hygienic areas. The sealed mounting surface enables components to be mounted without dead spaces. The high quality finish as well as the large corner radii and closed surfaces prevent adherence of dirt and facilitate cleaning.

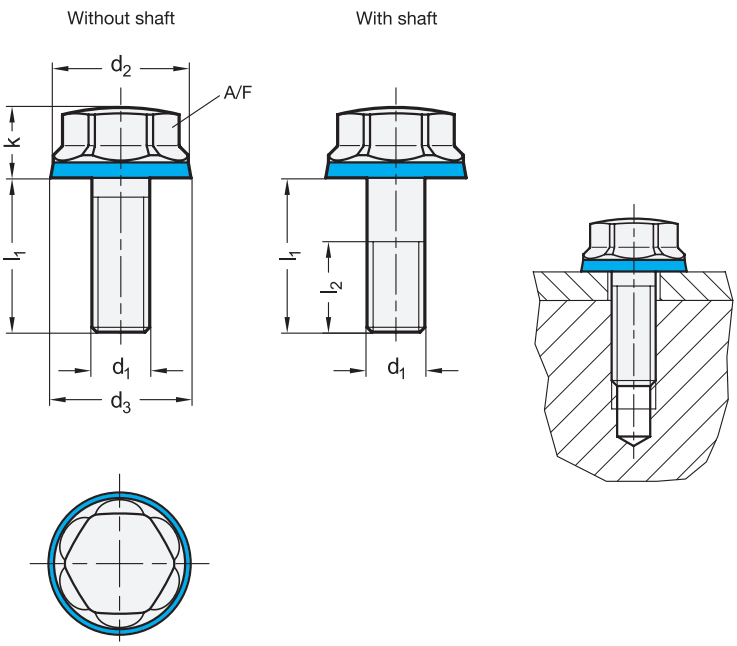
see also...

- *Stainless Steel Leveling Feet Hygienic Design GN 20 (with Mounting Holes)* → *Page 26*
- *Stainless Steel Screws Hygienic Design GN 1581 (Low-Profile Head)* → *Page 18*

How to order

1 2 3 4
GN 1580-M8-30-PL-E

1	d_1
2	l_1
3	Finish
4	Material (sealing)



Inox Stainless Steel

[1] [2]

d_1	l_1 Without shaft				With shaft			d_2	d_3	k	l_2	A/F
M 5	10	16	-	-	20	-	-	11	11,8	7	16	8
M 6	12	16	20	25	30	-	-	13	13,8	7,5	18	10
M 8	16	20	25	30	40	-	-	16	16,8	8,5	22	13
M 10	20	25	30	-	40	50	-	19	19,8	9,5	26	16
M 12	25	30	-	-	40	50	60	22	22,8	11	30	18
M 16	30	40	-	-	50	60	70	28	28,8	13	38	22

Specification [3] [4]

- Stainless steel AISI 316L
  - Matte finish (Ra < 0,8 µm) **MT**
  - Polished finish (Ra < 0,8 µm) **PL**
- Sealing ring
  - H-NBR **H**
    Temperature resistant -25 °C to +150 °C
  - EPDM **E**
    Temperature resistant -40 °C to +120 °C
  - Blue
  - Hardness 85 ±5 Shore A
  - FDA compliant
- *EHEDG Principles* → *Page 6*
- *Elastomer Characteristics* → *Page 2158*
- *Stainless Steel Characteristics* → *Page 2166*
- RoHS

Accessory

- Sealing Rings GN 7600 → *Page 30*

Information

Stainless steel screws GN 1581 with low-profile head are certified according to EHEDG guidelines and are therefore ideal for use in hygienic areas. The sealed mounting surface enables components to be mounted without dead spaces. The high quality finish as well as the large corner radii and closed surfaces prevent adherence of dirt and facilitate cleaning.

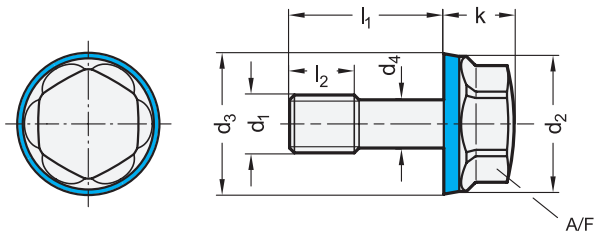
see also...

- *Stainless Steel Leveling Feet Hygienic Design GN 20 (with Mounting Holes)* → *Page 26*
- *Stainless Steel Nuts Hygienic Design GN 1580* → *Page 16*
- *Stainless Steel Screws Hygienic Design GN 1580* → *Page 17*

How to order

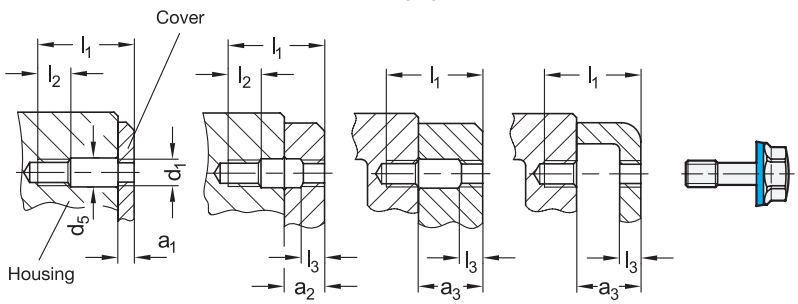
[1] [2] [3] [4]
GN 1581-M10-50-PL-H

1	d_1
2	l_1
3	Finish
4	Material (Sealing ring)



Inox Stainless Steel

Assembly options



5 Identification no.

1 Without additional lock washer

1	2											
d_1	**l_1**	**a_1**	**a_2**	**a_3**	**d_2**	**d_3**	**d_4 –0,2**	**d_5**	**k**	**l_2**	**l_3**	**A/F**
M 5	20	2,5-6	6-10,5	10,5-14	11	11,8	4	5,5	7	6	2,5	8
M 5	25	6-11	11-14	14-19	11	11,8	4	5,5	7	6	2,5	8
M 6	25	3-7	7-13	13-17	13	13,8	4,8	6,5	7,5	8	3	10
M 6	30	7-12	12-17	17-22	13	13,8	4,8	6,5	7,5	8	3	10
M 8	30	4-8	8-16	16-20	16	16,8	6,5	8,5	8,5	10	4	13
M 8	40	8-18	18-25	25-30	16	16,8	6,5	8,5	8,5	10	4	13
M 10	40	5-14	14-19	19-28	19	19,8	8,2	10,5	9,5	12	5	16
M 10	50	14-24	24-28	28-38	19	19,8	8,2	10,5	9,5	12	5	16

Specification

3 4

- Stainless steel AISI 316L
  - Matte (Ra < 0.8 µm) **MT**
  - Polished (Ra < 0.8 µm) **PL**
- Sealing ring
  - H-NBR **H**
    Temperature resistant -25 °C to +150 °C
  - EPDM **E**
    Temperature resistant -40 °C to +120 °C
  - Blue
  - Hardness 85 ±5 Shore A
  - FDA compliant
- *EHEDG Principles* → *Page 6*
- *Elastomer Characteristics* → *Page 2158*
- *Stainless Steel Characteristics* → *Page 2166*
- RoHS

On request

- Screws with additional lock washer (Identification no. 2)

Accessory

- Sealing Rings GN 7600 → *Page 30*

Information

Stainless steel screws GN 1582 with low-profile head are certified according to EHEDG guidelines and therefore ideal for use in hygienic areas. Due to the d_4 recessed stud, they are easily secured against loss, such as in a cover. Thus the „captivity of the mounting element“ according to the Machinery Directive 2006 / 42 / EG is given.

When using, instead of a typical tapped and bore hole, it is necessary to provide tapped bores with a thread d_1 on each of the two elements to be assembled. Additionally, a clearance bore of d_5 on one or both sides must be cut. Depending on the design and required clamping length a_1 ... a_3 of the component being attached, there are a number of assembly options as shown above. Alternatively, securing can also be achieved by an additional lock washer mounted on the thin shank d_4.

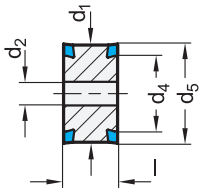
How to order

1 2 3 4 5
GN 1582-M10-50-PL-H-1

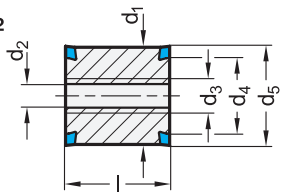
1	d_1
2	l_1
3	Finish
4	Material (sealing ring)
5	Identification no.

Ganter Norm®

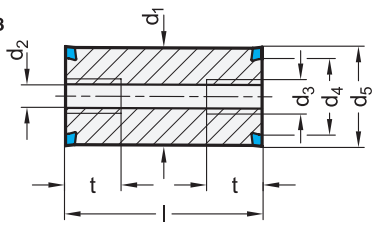
Type **A1**



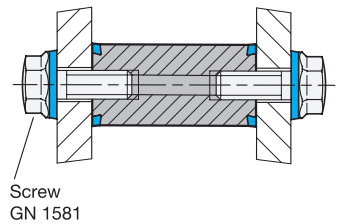
Type **A2**

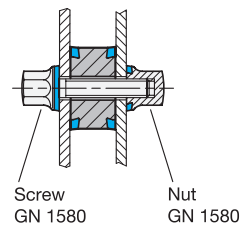


Type **A3**



Application examples





Inox Stainless Steel

3 Type

A1 Through-hole
A2 Through-hole with continuous thread
A3 Through-hole with thread on both sides

1 d_1	2 Length **l** ±0,1 Type A1			Type A2	2 Length **l** ±0,2 Type A3		d_2 Through-hole for screw	d_3 Thread	d_4	d_5	**t** min.
22	10	12	16	20	30	50	M 5	M 6	18	22,8	12
28	12	16	20	30	50	75	M 6	M 8	24	28,8	16
34	12	16	20	30	50	100	M 8	M 10	30	34,8	20

Specification

4 5

- Stainless steel AISI 316L
  Matte finish (Ra < 0.8 µm) **MT**
- Sealing ring
  - H-NBR **H**
    Temperature resistant -25 °C to +150 °C
  - EPDM **E**
    Temperature resistant -40 °C to +120 °C
  - Blue
  - Hardness 85 ±5 Shore A
  - FDA compliant
- *Elastomer Characteristics → Page 2158*
- *Stainless Steel Characteristics → Page 2166*
- RoHS

Accessory

- Sealing Rings GN 7600 → *Page 30*

Information

Stainless steel spacers GN 6226 are certified according to DGUV Test guidelines and are intended for use in hygiene areas. The sealed mounting surfaces enable fastening without dead spaces. The high quality finish prevents adherence of dirt and facilitates cleaning.

Spacers are used to fasten parts at an offset parallel to their plane of installation. This avoids doubling up on surfaces and leaves space for cleaning. The internal thread can alternatively be used as a through hole by a screw with a smaller thread.

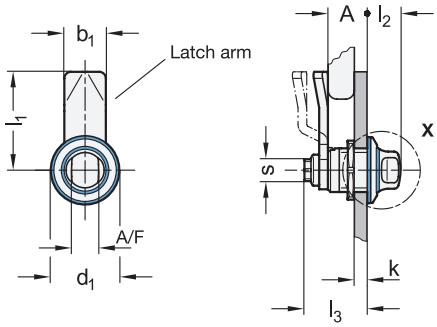
see also...

- *Stainless Steel Nuts Hygienic Design GN 1580 → Page 16*
- *Stainless Steel Screws Hygienic Design GN 1580 → Page 17*
- *Stainless Steel Screws Hygienic Design GN 1581 (Low-Profile Head) → Page 18*
- *Stainless Steel Screws Hygienic Design GN 1582 (with Recessed Stud for Loss Protection) → Page 19*

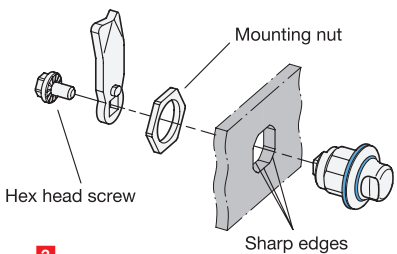
How to order

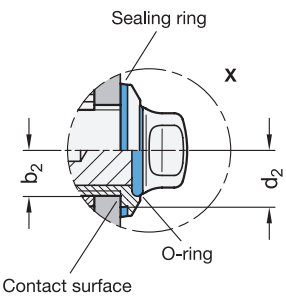
1 2 3 4 5
GN 6226-28-75-A3-MT-H

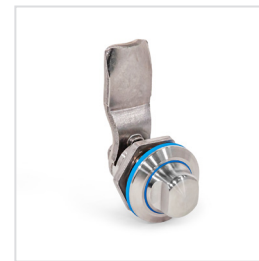
1	d_1
2	Length **l**
3	Type
4	Finish
5	Material (sealing ring)



Mounting example







Inox Stainless Steel

2 Type

SW With two spanner flats

4 Coding

FH Operating side in Hygienic Design (front hygiene)

1 d_1	3 Latch arm distance A										b_1	b_2	d_2	k min.	k max.	l_1 $^{+1}_{-1}$	l_2	l_3 ≈	s	A/F
22	7,5	13,5	19,5	-	-	-	-	-	-		12	7	9	1,5	5	24	12,6	21	8	9
30	6	10	14	18	20	22	24	26	28		19	10	13	1,5	6	45	15,3	29	10	13

Specification

5

- Lock housing
  Stainless steel AISI 316 L
- Latch arm
  Stainless steel
  - AISI 304 for d_1 = 22
  - AISI 316 L for d_1 = 30
- Sealing ring / O-ring
  EPDM **E**
  - Blue, FDA compliant
  - Temperature resistant -40 °C to +120 °C
  - Hardness 85 ±5 Shore A (Sealing ring)
  - Hardness 70 ±5 Shore A (O-ring)
- Other parts
  Stainless steel AISI 316 L
- All moving parts lubricated with
  FDA compliant special grease
- Protection class IP 66
- *IP Protection Classes* → *Page 2153*
- *Elastomer Characteristics* → *Page 2158*
- *Stainless Steel Characteristics* → *Page 2166*
- RoHS

Accessory

- Sealing Rings GN 7600 → *Page 30*

Information

Stainless steel latches GN 1150 are intended for use in hygienic areas and meet hygiene requirements on the operating side (front hygiene). The locking mechanism is protected by two seals. At the same time, the high surface quality (Ra < 0.8 µm) and dead-space-free mounting prevent dirt from adhering and facilitate cleaning.

The latches create a secure closure by rotating a maximum of 90°, which positions the latch arm in the locked position behind the frame. Slanted surfaces on the latch arm ensure smooth positioning. Latch arms are available with different bend angles to cover a latch arm distance A from 6 to 28 mm.

The mounting holes in the housing must be at a right angle, free of burrs and without a chamfer. This ensures that the sealing rings will function properly. Stainless steel latches GN 1150 are supplied with loosely enclosed latch arm.

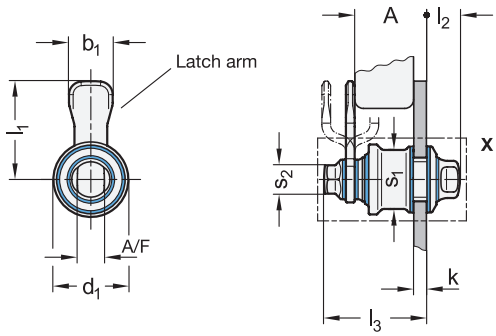
see also...

- *Technical and Assembly Instructions* → *Page 23*
- *Stainless Steel Latches Hygienic Design GN 1150 (Full Hygiene)* → *Page 22*

How to order

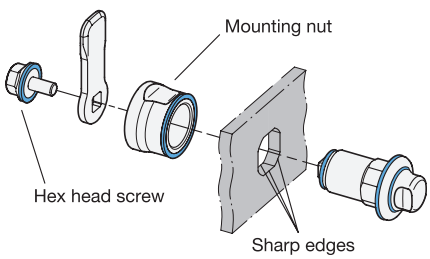
1 2 3 4 5
GN 1150-22-SW-7,5-FH-E

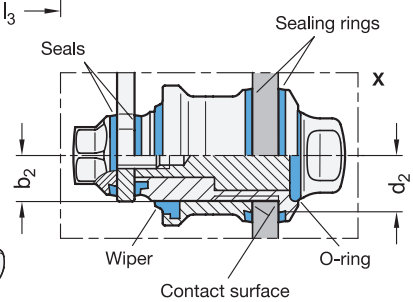
1	d_1
2	Type
3	Latch arm distance A
4	Coding
5	Material (Sealing ring / O-ring)



Inox Stainless Steel

Mounting example





2 Type

SW With two spanner flats

4 Coding

VH Operating and latch arm side in Hygienic Design (full hygiene)

1 d_1	3 Latch arm distance A			b_1	b_2	d_2	k		l_1 +1 -1	l_2	l_3	s_1	s_2	A/F
							min.	max.						
30	22	33	44	20	10	13	1,5	6	45	15,3	47	27	13	13

Specification

5

- Lock housing
  Stainless steel AISI 316 L
- Latch arm
  Stainless steel AISI 316
- Seals
  Blue, FDA compliant
  Temperature resistant -40 °C to +110 °C
  - Sealing rings / O-ring
    EPDM **E**
    Hardness 85 ±5 Shore A (Sealing rings)
    Hardness 70 ±5 Shore A (O-ring)
  - Other seals / Wiper
    TPU, Hardness 95 ±5 Shore A
- Other parts
  Stainless steel AISI 316 L
- All moving parts lubricated with
  FDA compliant special grease
- Protection class IP 66
- *IP Protection Classes* → *Page 2153*
- *Elastomer Characteristics* → *Page 2158*
- *Stainless Steel Characteristics* → *Page 2166*
- RoHS

Accessory

- Sealing Rings GN 7600 → *Page 30*

Information

Stainless steel latches GN 1150 are designed for use in hygienic areas and meet strict hygiene requirements (full hygiene) on the operating and latch arm side due to the special mounting nuts as well as the optimized latch arm and hexagon head screw. The locking mechanism is protected by multiple seals. At the same time, the high surface quality (Ra < 0.8 µm) and dead-space-free mounting prevent dirt from adhering and facilitate cleaning.

The latches create a secure closure by rotating a maximum of 90°, which positions the latch arm in the locked position behind the frame. Slanted surfaces on the latch arm ensure smooth positioning. Latch arms are available with different bend angles to cover a latch arm distance A from 22 to 44 mm.

The mounting holes in the housing must be at a right angle, free of burrs and without a chamfer. This ensures that the sealing rings will function properly.

see also...

- *Stainless Steel Latches Hygienic Design GN 1150 (Front Hygiene)*
  → *Page 20*

How to order

1 2 3 4 5
GN 1150-30-SW-22-VH-E

1	d_1
2	Type
3	Latch arm distance A
4	Coding
5	Material (Sealing ring / O-ring)

Technical and Assembly Instructions

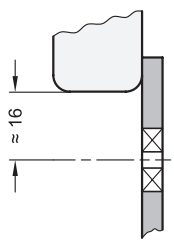
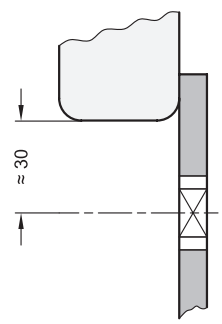
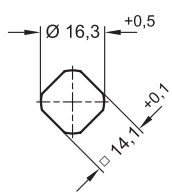
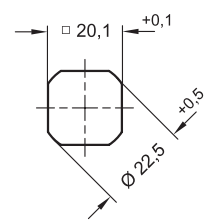
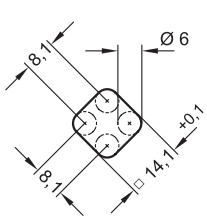
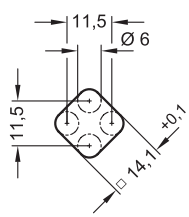
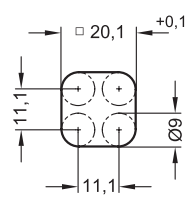
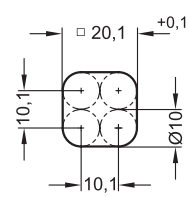
For installation, set a bore diameter in the door, cover or hatch as shown in the outline drawing opposite.

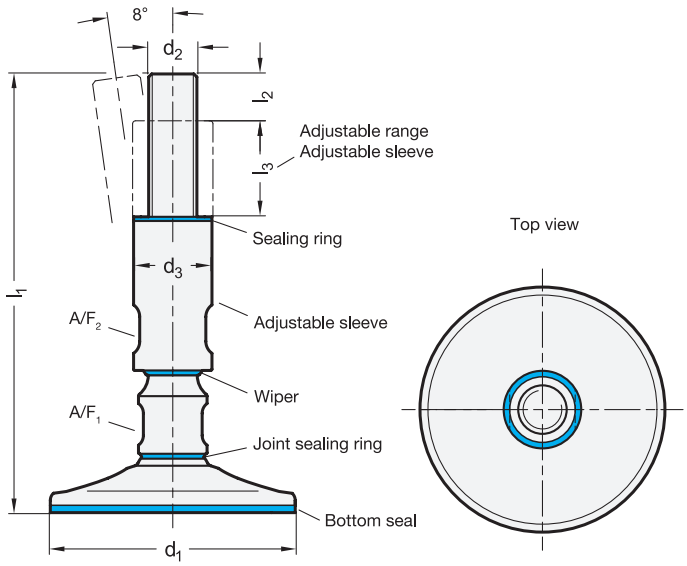
The lock housing is inserted into the installation bore from the front and secured from the back with the mounting nut. Then the latch bar is secured with the hexagon head screw.

In series production, the required installation bore in the door leaf is usually created by punching or laser cutting..

The installation bore diameter can also be created by drilling or milling as shown in the outline drawings.

The sheet metal punch GN 123 → *Page 1267* is also available for small series production and sheet steel with a thickness < 2 mm.

Construction note for d_1 = 22	Construction note for d_1 = 30
Bore distance	
	
Installation bore for punching or lasering	
	
Installation bore for drilling or milling	
 	 



4 Type

A Without mounting holes

1	2	3							
d_1	d_2	l_1		d_3	l_2	l_3	A/F_1	A/F_2	Static load in kN (see information)
60	M 12	175	225	25	14	35	17	19	16
60	M 16	175	225	28	19	35	18	22	30
80	M 12	175	225	25	14	35	17	19	16
80	M 16	175	225	28	19	35	18	22	30
80	M 20	185	235	32	24	35	24	27	47
80	M 24	185	235	36	29	35	24	30	67
100	M 16	175	225	28	19	35	18	22	30
100	M 20	185	235	32	24	35	24	27	47
100	M 24	185	235	36	29	35	24	30	67
120	M 16	175	225	28	19	35	18	22	30
120	M 20	185	235	32	24	35	24	27	47
120	M 24	185	235	36	29	35	24	30	67

88-01

NV 22041

Specification

- Spindle, adjustable sleeve, foot plate
  - Stainless steel AISI 304
  - Turned
- Seals, blue, FDA compliant
  - Sealing ring
    NBR, hardness 70 ±5 Shore A
  - Wiper
    TPU, hardness 95 ±5 Shore A
  - Joint sealing ring
    H-NBR, hardness 85 ±5 Shore A
  - Bottom seal
    Silicone, hardness 85 ±5 Shore A
- *3-A Principles* → *Page 6*
- *Elastomer Characteristics* → *Page 2158*
- *Stainless Steel Characteristics* → *Page 2166*
- RoHS

Accessory

- Stainless Steel Cover Sleeves
  Hygienic Design GN 20.1 → *Page 28*

Information

Stainless steel leveling feet GN 20 without mounting holes are certified according to 3-A Sanitary Standards, Inc. and DGUV Test guidelines and are intended for use in hygienic areas.

The bottom seal protects the area beneath the foot plate from dirt. For this, the foot must be pressed down by the weight of the machine. The sealing ring above the adjustment sleeve enables fastening without dead space. Due to the wiper or the ball seal, the moving components are sealed against the environment.

The high quality finish prevents adherence of dirt and facilitates cleaning.

The values listed in the table for static load capacity refer to a purely vertical load in relation to the leveling foot. Under normal operating conditions bending loads or angular loads are not uncommon and result in a reduction of load capacity, which must be taken into consideration.

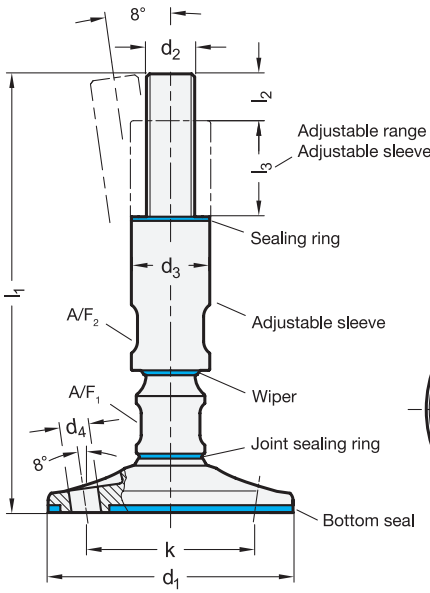
see also...

- *Stainless Steel Leveling Feet Hygienic Design GN 20 (with Mounting Holes)* → *Page 26*

How to order

1	2	3	4
GN 20	-100-	M16	-175-A

1	d_1
2	d_2
3	l_1
4	Type



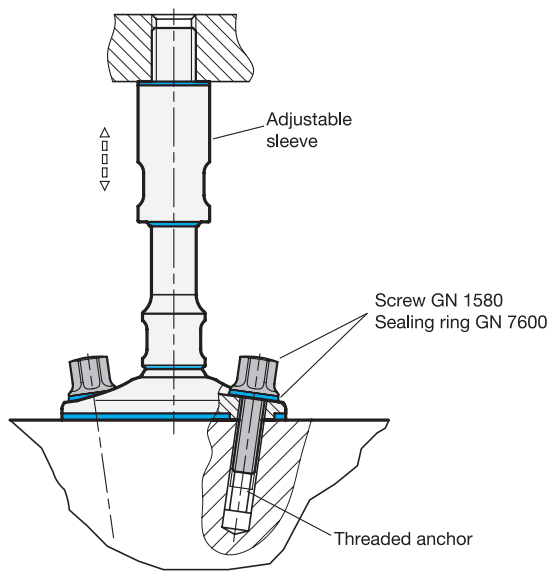
Inox Stainless Steel

4 Type

B With mounting holes

1 d_1	2 d_2	3 l_1		d_3	d_4	l_2	l_3	k	A/F_1	A/F_2	Static load in kN (see information)
80	M 12	175	225	25	9,5	14	35	55,5	17	19	16
80	M 16	175	225	28	9,5	19	35	55,5	18	22	30
80	M 20	185	235	32	9,5	24	35	55,5	24	27	47
80	M 24	185	235	36	9,5	29	35	55,5	24	30	67
100	M 16	175	225	28	12	19	35	69	18	22	30
100	M 20	185	235	32	12	24	35	69	24	27	47
100	M 24	185	235	36	12	29	35	69	24	30	67
120	M 16	175	225	28	12	19	35	89	18	22	30
120	M 20	185	235	32	12	24	35	89	24	27	47
120	M 24	185	235	36	12	29	35	89	24	30	67

Mounting example



Specification

- Spindle, adjustable sleeve, foot plate
  - Stainless steel AISI 304
  - Turned
- Seals, blue, FDA compliant
  - Sealing ring
    NBR, hardness 70 ±5 Shore A
  - Wiper
    TPU, hardness 95 ±5 Shore A
  - Joint sealing ring
    H-NBR, hardness 85 ±5 Shore A
  - Bottom seal
    Silicone, hardness 85 ±5 Shore A
- *EHEDG and 3-A Principles* → *Page 6*
- *Elastomer Characteristics* → *Page 2158*
- *Stainless Steel Characteristics* → *Page 2166*
- RoHS

Accessory

- Stainless Steel Cover Sleeves
  Hygienic Design GN 20.1 → *Page 28*
- Stainless Steel Screws
  Hygienic Design GN 1580 → *Page 17*
- Stainless Steel Screws
  Hygienic Design GN 1581 → *Page 18*

Information

Stainless steel leveling feet GN 20 with mounting holes are certified according to EHEDG, 3-A Sanitary Standards, Inc. and DGUV Test guidelines and are therefore ideal for use in hygienic areas.

The bottom seal protects the area beneath the foot plate from dirt. For this, the foot must be screwed on using the fixing holes and compressed accordingly. Hygienic fastenings, e.g. GN 1580 screws and nuts, and the correct position of the mounting holes are essential. The sealing ring above the adjustment sleeve enables fastening without dead space. Due to the wiper or the ball seal, the moving components are sealed against the environment.

The high quality finish prevents adherence of dirt and facilitates cleaning.

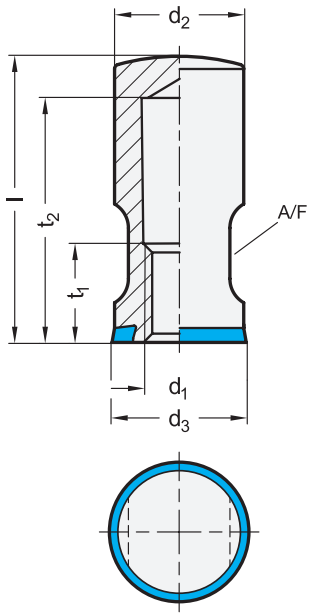
The values listed in the table for static load capacity refer to a purely vertical load in relation to the leveling foot. Under normal operating conditions bending loads or angular loads are not uncommon and result in a reduction of load capacity, which must be taken into consideration.

see also...
- *Stainless Steel Leveling Feet Hygienic Design GN 20 (without Mounting Holes)* → *Page 24*

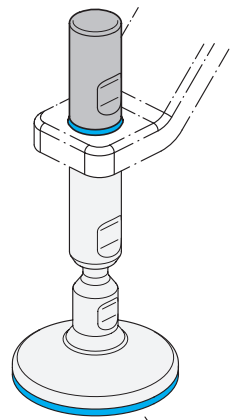
How to order

GN 20 - 120 - M16 - 175 - B

1	d_1
2	d_2
3	l_1
4	Type



Application example



Stainless steel leveling foot GN 20

1 d_1	2 Length l	d_2	d_3	A/F	t_1	t_2
M 12	56	25	25,8	19	15,5	50
M 16	62	28	28,8	22	20,5	55
M 20	68	32	32,8	27	25,5	60
M 24	74	36	36,8	30	30,5	65

Specification

3

- Stainless steel AISI 304
- Sealing ring
  - H-NBR **H**
    Temperature resistant -25 °C to +150 °C
  - EPDM **E**
    Temperature resistant -40 °C to +120 °C
  - Blue
  - Hardness 85 ±5 Shore A
  - FDA compliant
- *EHEDG and 3-A Principles* → *Page 6*
- *Elastomer Characteristics* → *Page 2158*
- *Stainless Steel Characteristics* → *Page 2166*
- RoHS

Accessory

- Sealing Rings GN 7600 → *Page 30*

Information

Stainless steel cover sleeves GN 20.1 are certified according to EHEDG, 3-A Sanitary Standards, Inc. and DGUV Test guidelines and are therefore ideal for use in hygienic areas.

These cover protruding male threads while also substituting for lock nuts. The sealed mounting surfaces enable fastening without dead spaces. The high quality finish prevents adherence of dirt and facilitates cleaning.

see also...

- *Stainless Steel Leveling Feet Hygienic Design GN 20*
  → *Page 1450 / 1452*

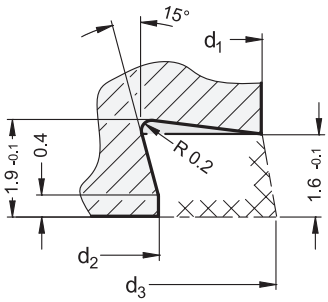
How to order

1 2 3
GN 20.1-M12-56-H

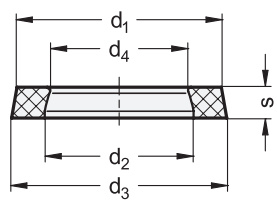
1	d_1
2	Length l
3	Material (Sealing ring)

Standard Parts in Hygienic Design

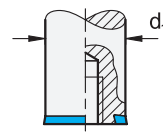
Installation space



Sealing ring



Application example



1 d1	2 d2	d3	d1	d2	d3	d4	3 s	Suitable for
Nominal dimensions - Installation space			Actual dimensions - Sealing rings, unassembled					
11	7	11,8	10,2	6,8	10,9	6,1	2	GN 1580 / GN 1581 / GN 1582
12	8	12,8	11,2	7,8	11,9	7,1	2	GN 429 / GN 1580
13	9	13,8	12,2	8,8	12,9	8,1	2	GN 1581 / GN 1582
14	10	14,8	13,2	9,8	13,9	9,1	2	GN 75.6 / GN 305 / GN 1580
16	12	16,8	15,1	11,7	15,8	11,0	2	GN 75.6 / GN 429 / GN 1581 / GN 1582
18	14	18,8	17,0	13,6	17,7	12,9	2	GN 75.6 / GN 305 / GN 1580 / GN 5435 / GN 5445
19	15	19,8	17,9	14,5	18,6	13,8	2	GN 1581 / GN 1582
21	17	21,8	19,9	16,4	20,5	15,7	2	GN 1580 / GN 5435 / GN 5445
22	18	22,8	20,8	17,4	21,4	16,7	2	GN 305 / GN 1150 / GN 1581 / GN 8170 / GN 6226
25	21	25,8	23,6	20,2	24,3	19,5	2	GN 20 / GN 20.1 / GN 1580
28	24	28,8	26,5	23,1	27,2	22,4	2	GN 20 / GN 20.1 / GN 1581 / GN 6226
30	26	30,8	28,5	25,1	29,2	24,4	2	GN 1150
32	28	32,8	30,4	27,0	31,1	26,3	2	GN 20 / GN 20.1 / GN 1580
34	30	34,8	32,3	28,9	34,0	28,2	2	GN 6226
36	32	36,8	34,2	30,8	34,8	30,1	2	GN 20 / GN 20.1

Specification

4 5

- Hydrogenated acrylonitrile Butadiene rubber **HNBR**
  - Blue
  - Temperature resistant -25 °C to +150 °C
  - FDA compliant
  - Hardness 85 ±5 Shore A **85**
- Ethylene propylene diene rubber **EPDM**
  - Blue
  - Temperature resistant -40 °C to +120 °C
  - FDA compliant
  - Hardness 85 ±5 Shore A **85**
- *Elastomer Characteristics → Page 2158*
- RoHS

Information

Components with cylindrical mounting surfaces which are installed in hygienic areas can be sealed and mounted without dead spaces using GN 7600 sealing rings. All standard parts equipped and delivered with sealing rings GN 7600 are listed in the table. For replacement, the corresponding sealing rings can be ordered individually.

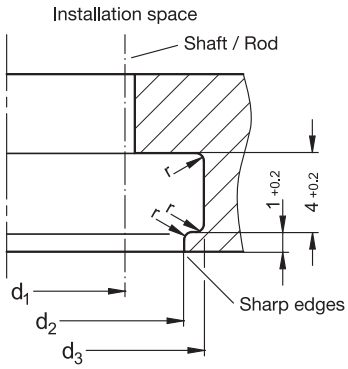
As delivered, or unassembled, the sealing rings have the “actual dimensions” as stated in the table. To ensure a firm seating and reliable sealing, a corresponding installation space must be provided in the component. This ensures that when the sealing ring is installed, it will be subject to the necessary pressure without excess load. All surfaces which are in contact with the sealing ring should have a minimum surface quality of Ra 0.8 µm.

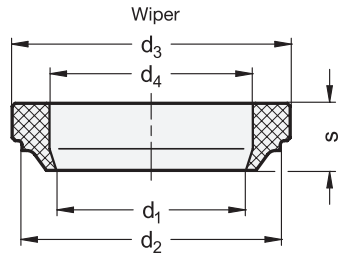
How to order

1 2 3 4 5

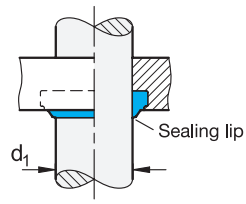
GN 7600-12-8-2-HNBR-85

1	d_1
2	d_2
3	s
4	Material
5	Hardness





Application example



HD FDA

[1]

d_1 h9	d_2 H9	d_3 H9	r max.	d_1	d_2	d_3	d_4	s	Suitable for
Nominal dimensions - Installation space				Actual dimensions - Wipers, unassembled					
12	18	20	0,4	11,2	18,2	20,2	12,6	6,8	GN 20
14	20	22	0,4	13,2	20,2	22,2	14,6	6,8	GN 1150
16	22	24	0,4	15,2	22,2	24,2	16,6	6,8	GN 20 / GN 8170
20	26	28	0,4	19,3	26,3	28,3	20,7	6,8	GN 20 / GN 1150
24	30	32	0,4	23,3	30,3	32,3	24,7	6,8	GN 20

Specification

[2] [3]

- Thermoplastic polyurethane **TPU**
  - Blue
  - Temperature resistant -20 °C to +110 °C
  - FDA compliant
  - Hardness 95 ±5 Shore A **95**
- *ISO Fundamental Tolerances* → *Page 2151*
- *Elastomer Characteristics* → *Page 2158*
- RoHS

Information

When used in hygienic areas, wipers GN 7607 can be used to seal axially or radially moving components with a cylindrical cross-section against their bearing position. With their specially shaped sealing lip, the wipers prevent the formation of dead spaces where dust can accumulate. Commercially available wipers are not suitable for this purpose due to a 45° chamfer on the inner edge of the sealing lip.

All standard parts equipped and delivered with wipers GN 7607 are listed in the table. For replacement, the corresponding wipers can be ordered individually.

As delivered, or unassembled, the wipers have the “actual dimensions” as stated in the table. To guarantee a secure fit and a reliable seal, the specified installation space must be provided at the bearing position. This ensures that the wiper undergoes the necessary deformation during installation. All surfaces in contact with the wiper should have a minimum surface quality of Ra 0.8 µm.

How to order

[1] [2] [3]

GN 7607-16-TPU-95

1	d_1
2	Material
3	Hardness

SP-GA-ENG-05.22-HD Hygienic Design

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