Ganter Norm®

Hygienic Design

Standard Parts Especially for the Use in Hygienically Sensitive Areas

Standard Parts. Ganter.

Knobs

GN 75.6
Waist Shaped Stainless Steel Knobs
with Internal Thread
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GN 75.6
Waist Shaped Stainless Steel Knobs
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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 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.

Design Requirements for Hygienic Design

Material

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

Surfaces

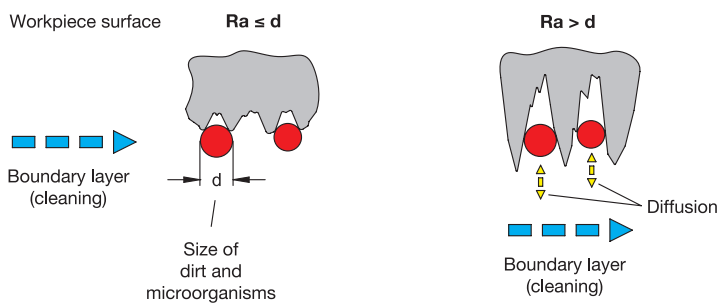
- Surfaces must be able to be cleaned
- Steps due to appliance configurations which are not aligned must be avoided
- Seals must be designed so that no gaps occur
- O-ring grooves must be hygienically designed
- Contact with the product to be manufactured must be ruled out
- Corners should preferably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

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:

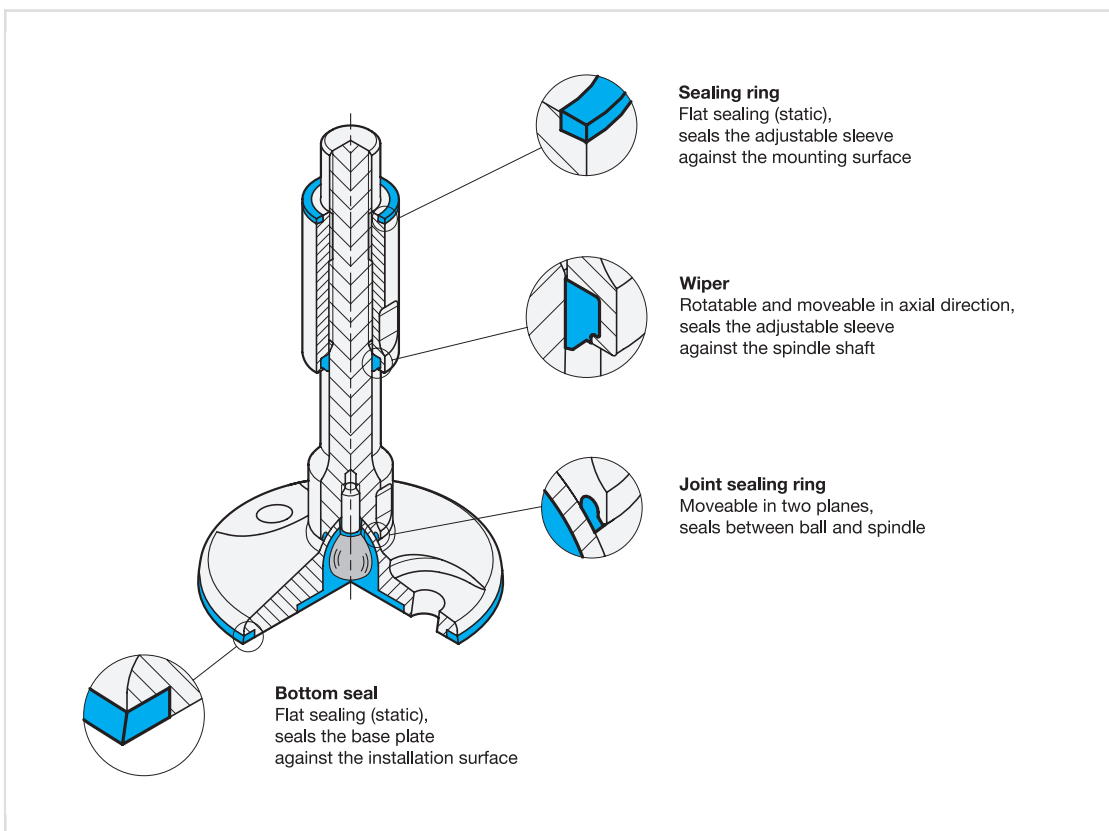
During assembly, the **static seals** in the design example shown below are tightened to the mounting surface at the top (**sealing ring**) and to the contact surface at the bottom (**bottom seal**). It should be ensured that all surfaces which make contact with the seal have a surface finish of at least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

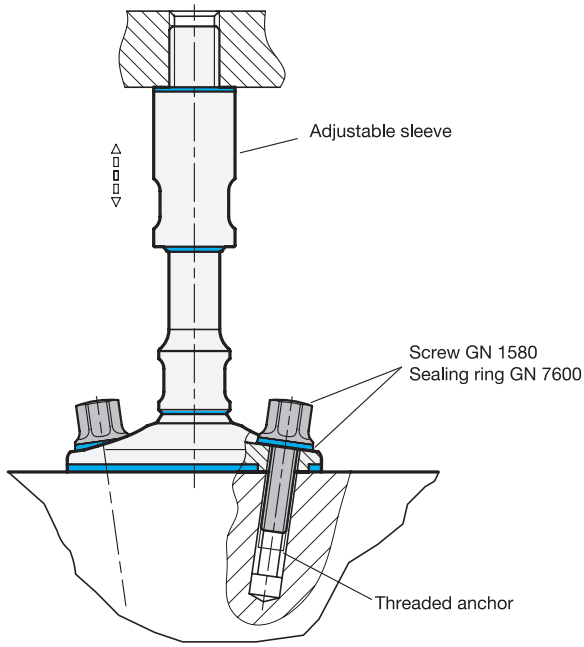
The **moving seals** on the adjustable sleeve (**wiper**) and the ball joint (**joint sealing ring**) of the foot are designed so that they allow adjustment in both height and angle. With these too, the installation space together with the cross section of the seal ensures a gap-free, pre-tensioned seal.

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 29)* as standard parts.

Application Example

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





TYPE EL
CLASS I AUX
JULY 2016

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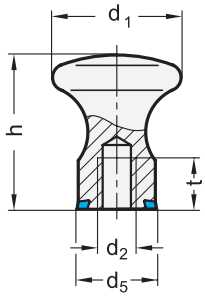
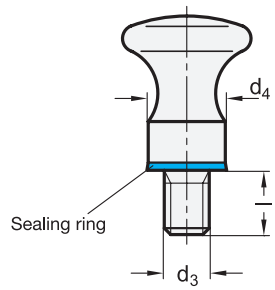
Leveling Foot Hygienic Design GN 20 with Mounting Holes → *Page 26*

Type **D**



Type **E**



Inox Stainless Steel

3 Type

D With internal thread
E With threaded stud

1	2	2					
d_1	**d_2** Type D	**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

4 5

- Stainless steel AISI 316 L
  - 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 hygiene 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.

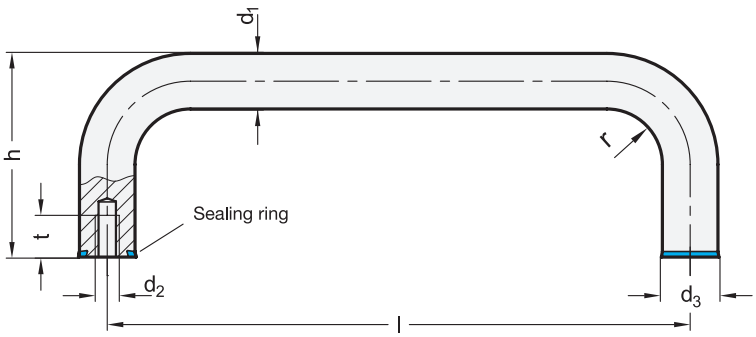
Waist shaped stainless steel knobs GN 75.6 have a compact and timeless design.

see also...
- *Sealing Rings Hygienic Design GN 7600 → Page 29*

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)



Inox Stainless Steel

[2] d_1	Length **l** ±0,5 [3]		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 316 L **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

Information

Stainless steel cabinet U-handles GN 429 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.

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.

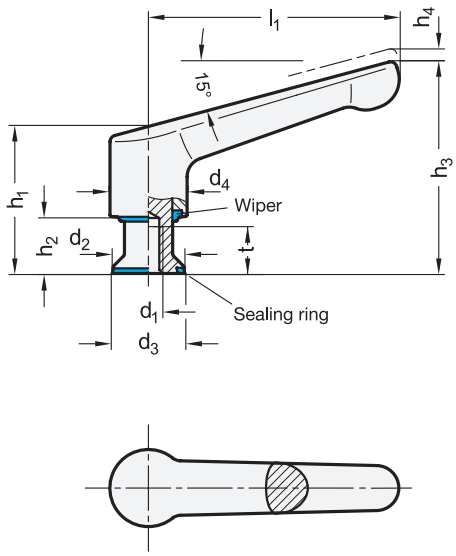
see also...

- *Sealing Rings Hygienic Design GN 7600* → *Page 29*

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

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 finish (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

Information

Adjustable hand levers GN 305 with solid stainless steel handle are intended for use in hygiene 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.

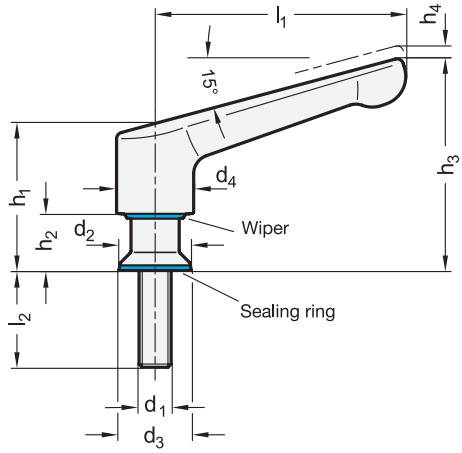
see also...

- *Sealing Rings Hygienic Design GN 7600* → *Page 29*
- *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)



Rostfrei Inox Stainless Steel HD

1 l_1	2 d_1	3 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

4 5

- Handle
  Stainless steel precision casting
  - AISI CF-8
  - Polished finish (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

Information

Adjustable hand levers GN 305 with solid stainless steel handle are intended for use in hygiene 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.

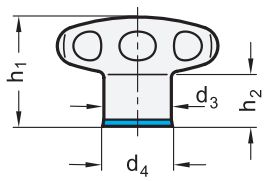
The threaded insert is moveably attached to the handle with serrations. When pulling the handle, the serration frees itself and can be re-located into any required position. Engagement is achieved by releasing the lever.

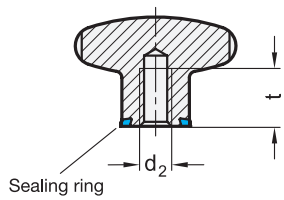
see also...
- *Sealing Rings Hygienic Design GN 7600* → *Page 29*
- *Stainless Steel Star Knobs Hygienic Design GN 5435* → *Page 12*
- *Stainless Steel Three Knob Handles Hygienic Design GN 5445* → *Page 13*

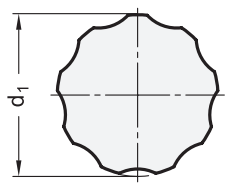
How to order

1 2 3 4 5
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

3 4

- Stainless steel
  - AISI 316 L
  - 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 hygiene 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.

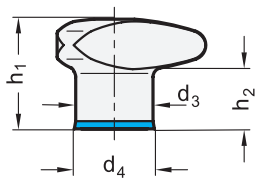
see also...

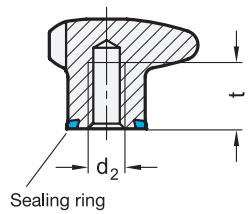
- *Sealing Rings Hygienic Design GN 7600* → *Page 29*
- *Adjustable Stainless Steel Hand Levers Hygienic Design GN 305* → *Page 10 / 11*

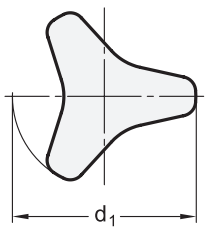
How to order

1 2 3 4
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 316 L
  - 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 three-lobe knobs GN 5445 are intended for use in hygiene 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.

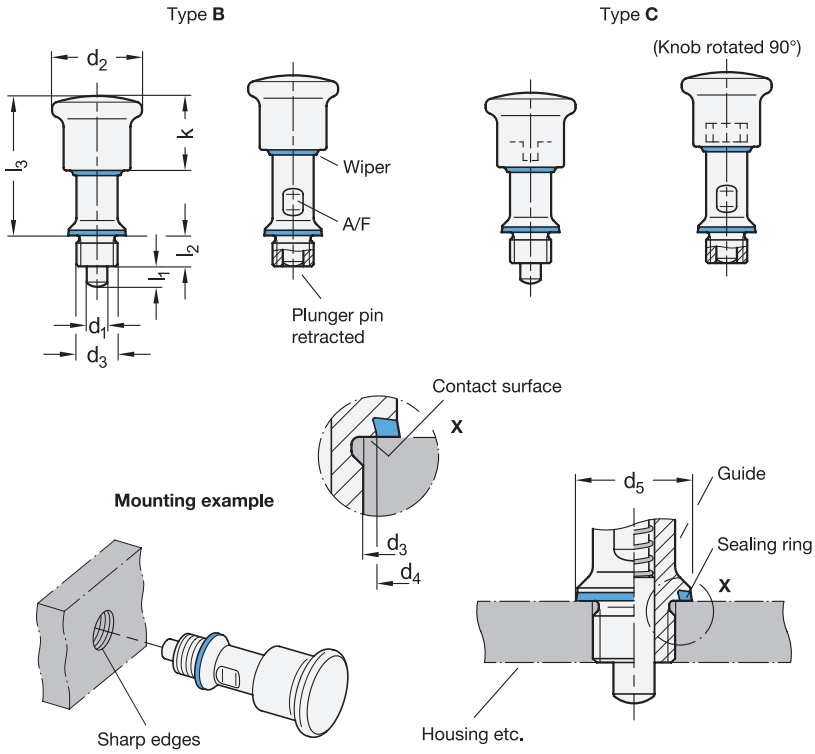
see also...

- *Sealing Rings Hygienic Design GN 7600* → *Page 29*
- *Adjustable Stainless Steel Hand Levers Hygienic Design GN 305* → *Page 10 / 11*

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	Spring load in N ≈ 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
- 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 2152*
- *ISO Fundamental Tolerances* → *Page 2151*
- *Elastomer Characteristics* → *Page 2158*
- *Stainless Steel Characteristics* → *Page 2166*
- RoHS

Information

Stainless steel indexing plungers GN 8170 are intended for use in hygienic areas 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.

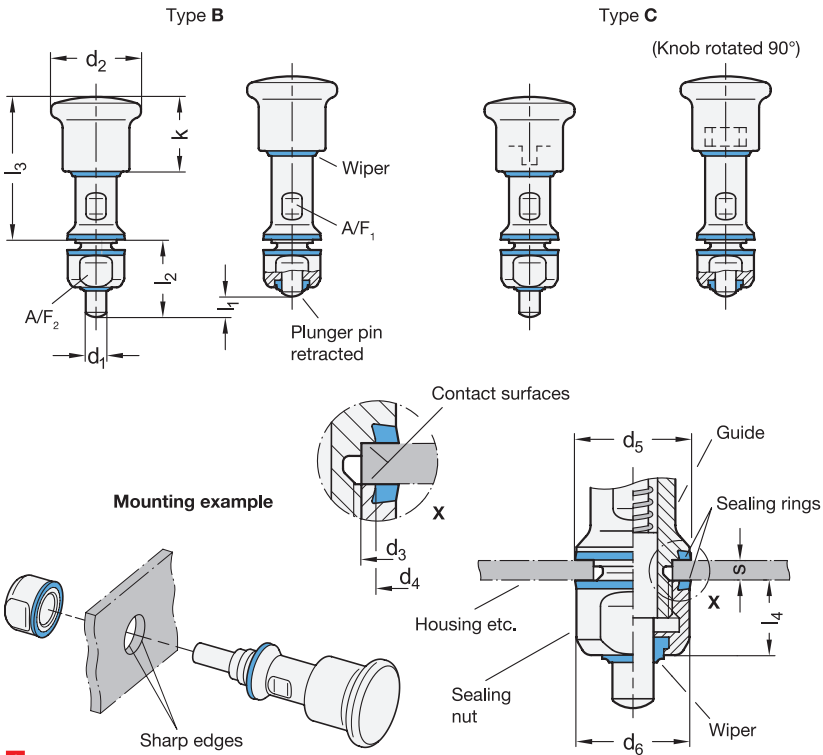
Mounting holes and through-holes in the housing must be at a right angle, free of burrs and without a chamfer. This ensures that the sealing rings will function properly.

The stainless steel indexing plungers GN 8170 are certified according to DGUV Test.

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
- 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 intended for use in hygienic areas, and with their additional sealing nuts, they meet hygiene requirements on the knob and pin sides (complete 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.

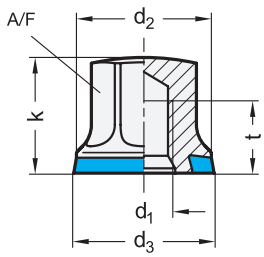
Through-holes in the housing must be at a right angle, free of burrs and without a chamfer. This ensures that the sealing rings will function properly.

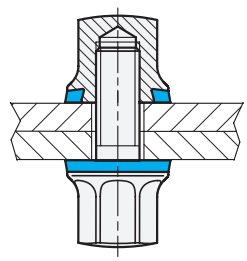
The stainless steel indexing plungers GN 8170 are certified according to DGUV Test.

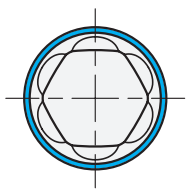
How to order

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

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

Specification

2 3

- Stainless steel
  - AISI 316 L
  - 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

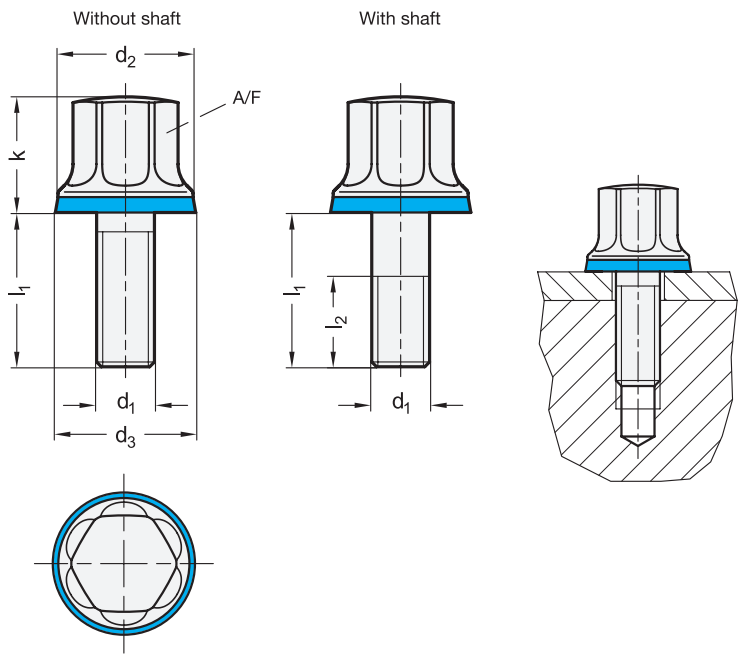
Stainless steel nuts GN 1580 with H-NBR sealing ring are certified according to EHEDG guidelines and are therefore ideal for use in hygienic areas. The sealed mounting surface enables components to be mounted without dead spaces. The high quality finish as well as the large corner radii and closed surfaces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

see also...

- *Stainless Steel Leveling Feet Hygienic Design GN 20 (with Mounting Holes)* → *Page 26*
- *Sealing Rings Hygienic Design GN 7600* → *Page 29*

How to order (H-NBR sealing ring)		
GN 1580-M10-MT-H (1 2 3)	1	d_1
	2	Finish
	3	Material (Sealing ring)

How to order (EPDM sealing ring)		
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				2 with shaft			d_2	d_3	k	l_2	sw
M 4	8	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

Specification

3 4

- Stainless steel
  - AISI 316 L
  - 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 screws GN 1580 with H-NBR sealing ring 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...

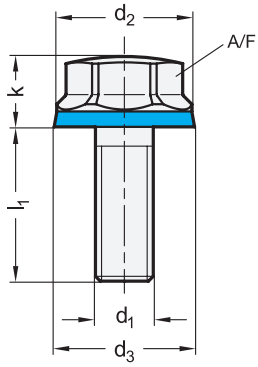
- *Stainless Steel Leveling Feet Hygienic Design GN 20 (with Mounting Holes) → Page 26*
- *Sealing Rings Hygienic Design GN 7600 → Page 29*

How to order

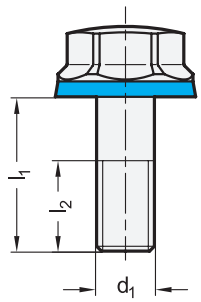
1 2 3 4
GN 1580-M8-30-PL-E

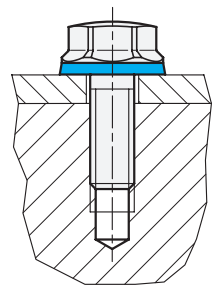
1	d_1
2	l_1
3	Finish
4	Material (Sealing ring)

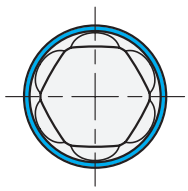
Without shaft



With shaft







Inox Stainless Steel

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

- Stainless steel AISI 316 L
  - 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 screws GN 1581 with low-profile head are 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.

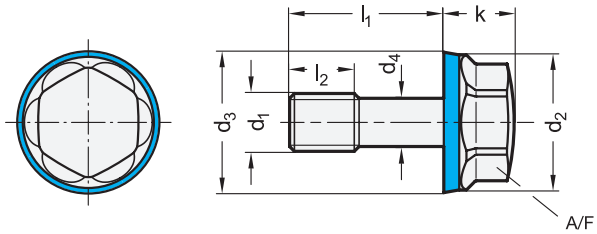
see also...

- *Stainless Steel Leveling Feet Hygienic Design GN 20 (with Mounting Holes) → Page 26*
- *Stainless Steel Nuts Hygienic Design GN 1580 → Page 16*
- *Sealing Rings Hygienic Design GN 7600 → Page 29*

How to order

GN 1581-M10-50-PL-H

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

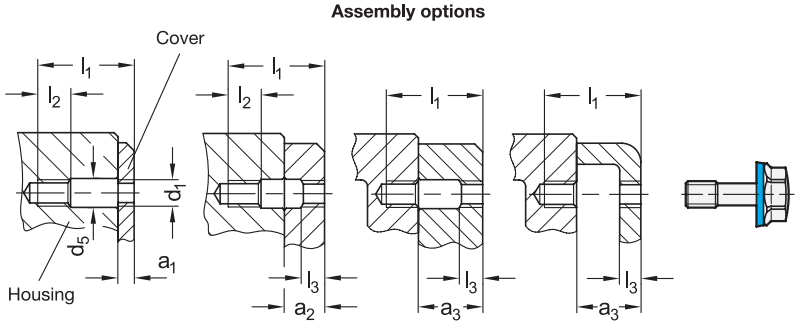


Inox Stainless Steel

5 Identification no.

1 Without additional lock washer

Assembly options



1 d1	2 l1	a1	a2	a3	d2	d3	d4 −0,2	d5	k	l2	l3	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 316 L
  - 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

On request

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

Information

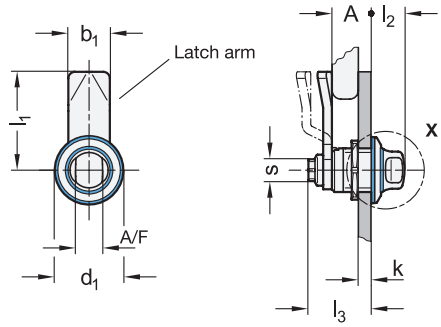
Stainless steel screws GN 1582 with low-profile head are ideal for use in hygienic areas. Due to the d_4 recessed stud, they are easily secured against loss, such as in a cover. Thus the „captivity of the mounting element“ according to the Machinery Directive 2006 / 42 / EG is given.

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.

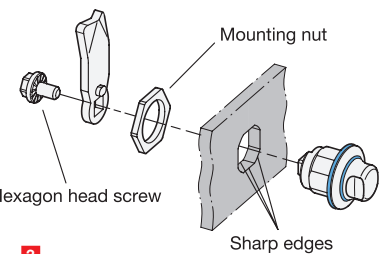
How to order

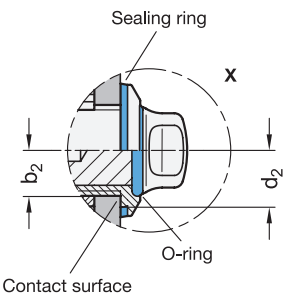
1 2 3 4 5
GN 1582-M10-50-PL-H-1

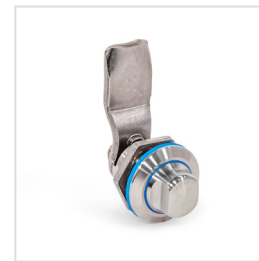
1	d_1
2	l_1
3	Finish
4	Material (Sealing ring)
5	Identification no.



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		l_1 $^{+1}_{-1}$	l_2	l_3 ≈	s	A/F
														Min.	Max.					
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 65
- *IP Protection Classes* → *Page 2153*
- *Elastomer Characteristics* → *Page 2158*
- *Stainless Steel Characteristics* → *Page 2166*
- RoHS

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...
- *Stainless Steel Latches Hygienic Design (Full Hygiene)* → *Page 22*
- *Sealing Rings Hygienic Design GN 7600* → *Page 29*

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)

Technical and Assembly Instructions

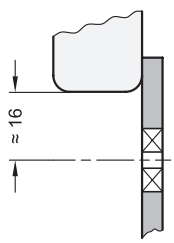
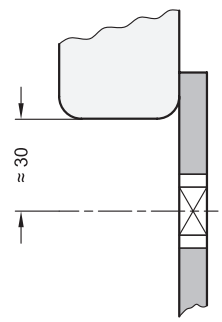
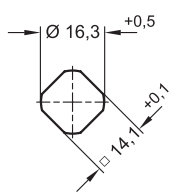
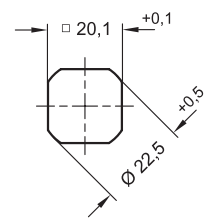
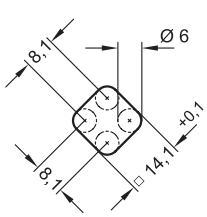
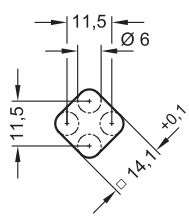
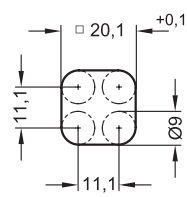
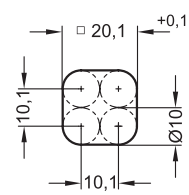
For installation, set a bore diameter in the door, cover or hatch as shown in the outline drawing opposite.

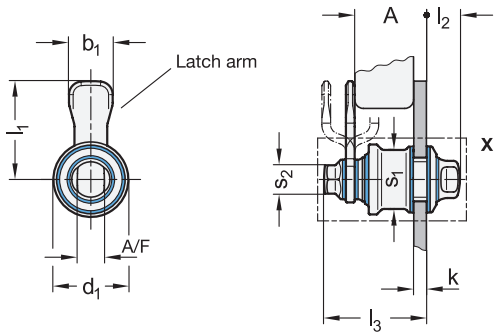
The latch housing is inserted into the installation bore from the front and secured from the back with the mounting nut. Then the latch arm is secured with the hexagon head screw.

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	
 	 



Inox Stainless Steel

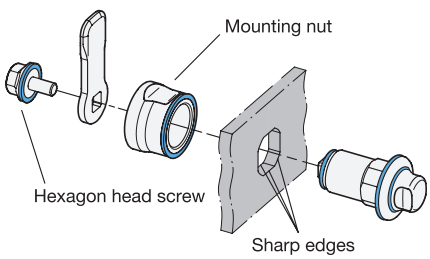
2 Type

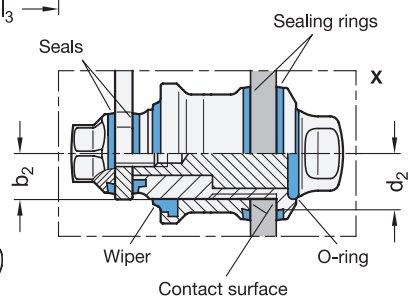
SW With two spanner flats

4 Coding

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

Mounting example





1 d1	3 Latch arm distance A			b1	b2	d2	k		l1 +1 -1	l2	l3	s1	s2	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 65
- *IP Protection Classes* → *Page 2153*
- *Elastomer Characteristics* → *Page 2158*
- *Stainless Steel Characteristics* → *Page 2166*
- RoHS

Information

Stainless steel latches GN 1150 are designed for use in hygiene 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...

- *Technical and Assembly Instructions* → *Page 21*
- *Stainless Steel Latches Hygienic Design (Front Hygiene)* → *Page 20*
- *Sealing Rings Hygienic Design GN 7600* → *Page 29*

How to order

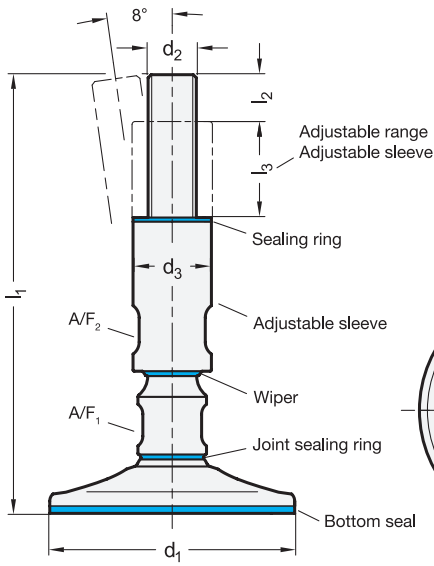
1 2 3 4 5

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)

HD
HYGIENIC DESIGN

Standard Parts in Hygienic Design



Rostfrei® Inox Stainless Steel HD

4 Type

A Without mounting holes

1 d_1	2 d_2	3 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	21	16
60	M 16	175	225	28	19	35	18	22	30
80	M 12	175	225	25	14	35	17	21	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

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
- *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. 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.

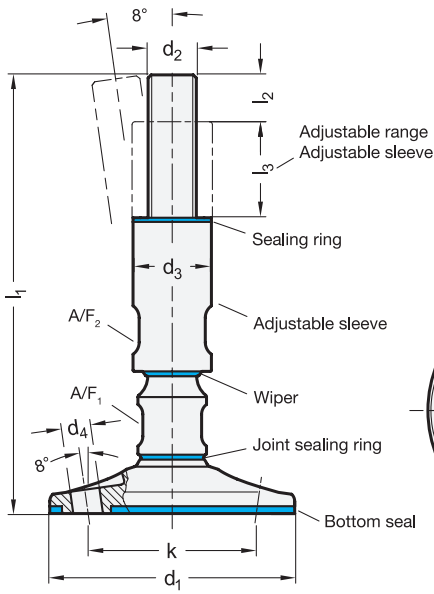
The values listed in the table for static load capacity refer to a purely vertical load in relation to the leveling foot. Under normal operating conditions bending loads or angular loads are not uncommon and result in a reduction of load capacity, which must be taken into consideration.

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

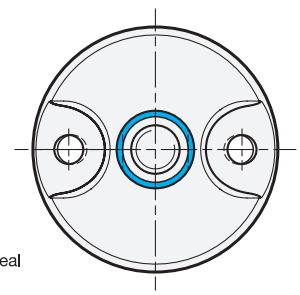
How to order

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

1	d_1
2	d_2
3	l_1
4	Type



Top view



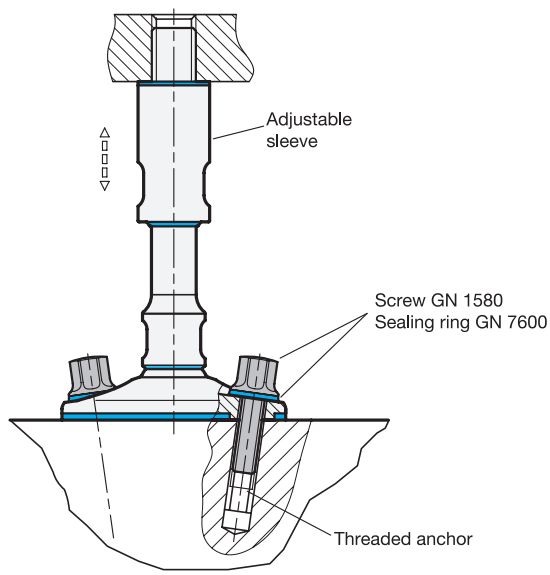
Rostfrei Inox Stainless Steel HD

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	21	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
- *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*

Information

Stainless steel leveling feet GN 20 with mounting holes are certified according to EHEDG and 3-A Sanitary Standards, Inc. 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.

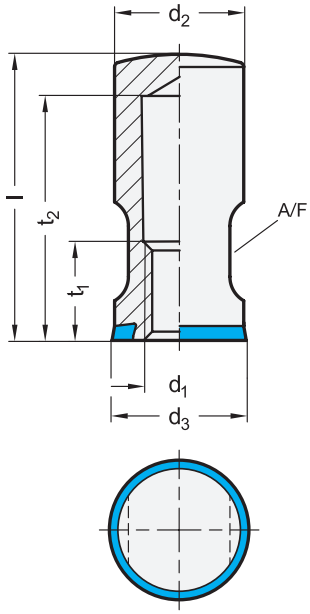
see also...

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

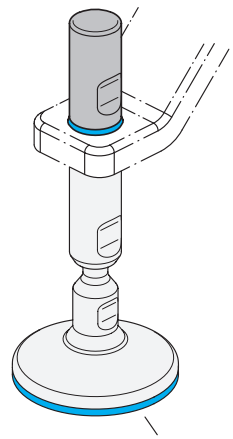
How to order

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

Inox Stainless Steel

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
- *Elastomer Characteristics* → *Page 2158*
- *Stainless Steel Characteristics* → *Page 2166*
- RoHS

Information

Stainless steel cover sleeves GN 20.1 are intended 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...

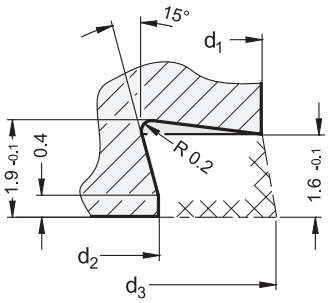
- *Stainless Steel Leveling Feet Hygienic Design GN 20* → *Page 24 / 26*
- *Sealing Rings Hygienic Design GN 7600* → *Page 29*

How to order

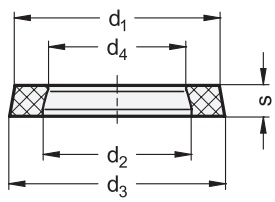
1 2 3
GN 20.1-M12-56-H

1	d_1
2	Length l
3	Material (Sealing ring)

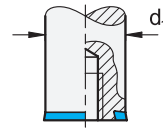
Installation space

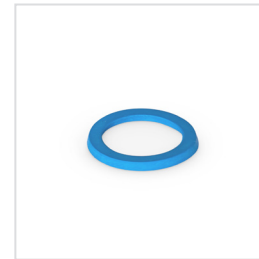


Sealing ring



Application example





HD

1 d1	2 d2	d3	d1	d2	d3	d4	3 s	suitable for
Nominal dimensions - Installation space			Actual dimensions - Sealing rings, not mounted					
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
25	21	25,8	23,6	20,2	24,3	19,5	2	GN 20.1 / GN 1580
28	24	28,8	26,5	23,1	27,2	22,4	2	GN 20.1 / GN 1581
30	26	30,8	28,5	25,1	29,2	24,4	2	GN 20 / 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	-
36	32	36,8	34,2	30,8	34,8	30,1	2	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 hygiene 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

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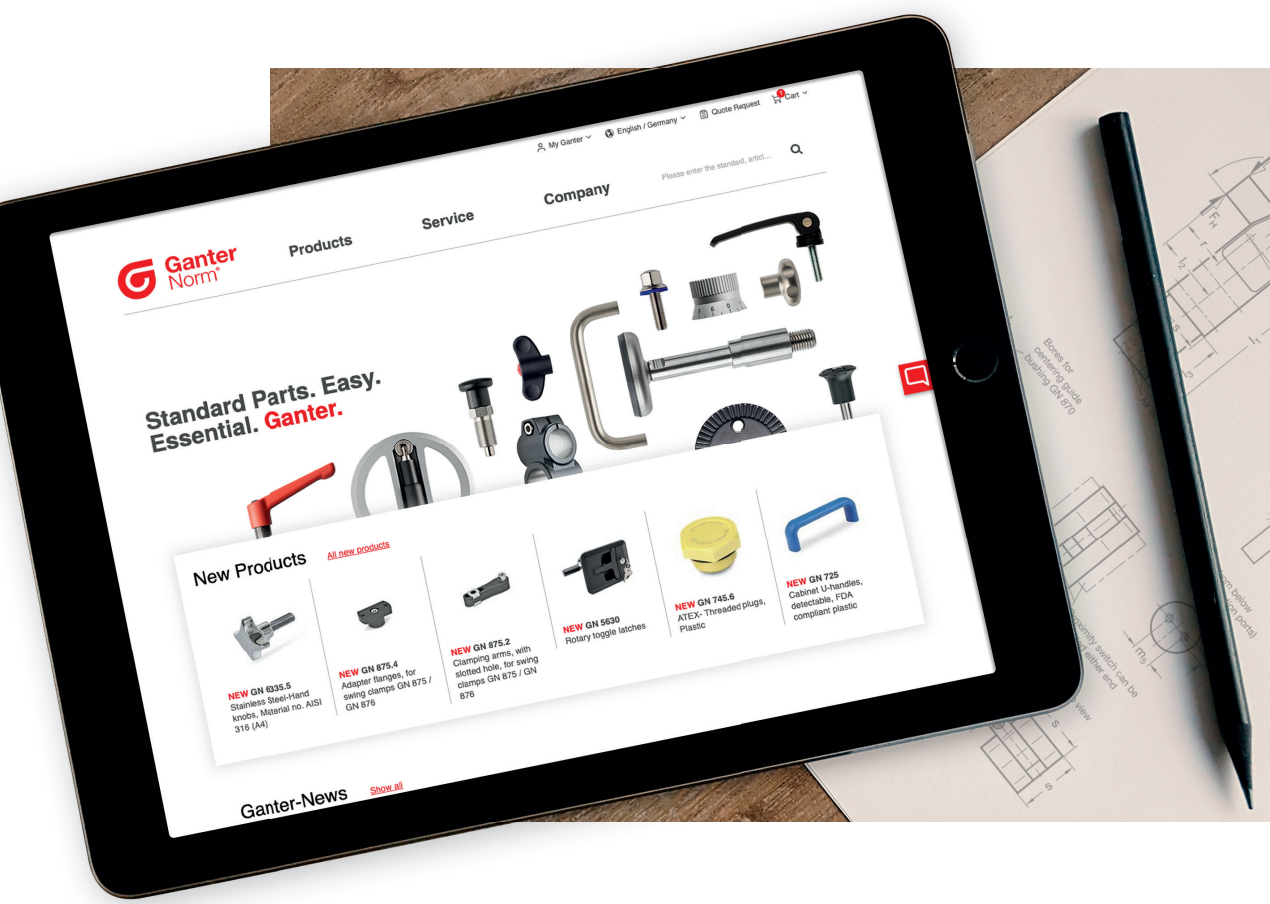


HD
HYGIENIC
DESIGN

SP-GA-ENG-09.21-HD Hygienic Design

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