



JW WINCO
A Ganter Company

Standard Parts.
Winco.

Hygienic Design



Hygienic Design

Hygienic Design includes the design principles for the avoidance of design weaknesses, which could favor hygiene-related hazards. The cleaning capability of materials, surfaces and structural elements are regarded as the central points of Hygienic Design.

No dirt of any kind may accumulate or be permanently deposited, or must be easily removed.



The Hygienic Design Product Family

Standard parts from the JW Winco product range which are suitable for use in hygienic design applications are indicated with the “Hygienic Design” icon on the relevant product pages.

All of these standard parts feature sealed mounting surfaces, mounting without dead spaces and a high quality finish as well as impermeable exterior surfaces. This design prevents adhesion of dirt or generally facilitates cleaning.



Hygienic Design Standard Parts



GN 75.6
Waist Shaped Knobs
Type D, Female Thread
Stainless Steel
[Page 6](#)



GN 75.6
Waist Shaped Knobs
Type E, with Threaded Stud
Stainless Steel
[Page 6](#)



GN 429
Cabinet "U" Handles
Stainless Steel with Tapped Holes
[Page 7](#)



GN 305
Adjustable Hand Levers
with Threaded Insert
Stainless Steel
[Page 8](#)



GN 305
Adjustable Hand Levers
with Threaded Stud
Stainless Steel
[Page 9](#)



GN 5435
Star Knobs
Tapped, Stainless Steel
[Page 10](#)



GN 5445
Three Lobe Knobs
Tapped, Stainless Steel
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GN 1580
Nuts
Stainless Steel
[Page 12](#)



GN 1580
Screws
Stainless Steel
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GN 20
Leveling Feet
without Mounting Holes
Stainless Steel
[Page 14](#)



GN 20
Leveling Feet
with Mounting Holes
Stainless Steel
[Page 15](#)



Accessory



GN 7600
Sealing Rings
[Page 16](#)

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 assist the production process in these sensitive areas and facilitate the manufacturing of products free from preservatives that have long shelf life.

Advantages of Hygienic Design

Minimized and reduced cleaning process (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 infection or illness is created.

DIN EN ISO 14519:2008-07

Hygiene requirements for the design of machines

DIN EN 1672:2009-07

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

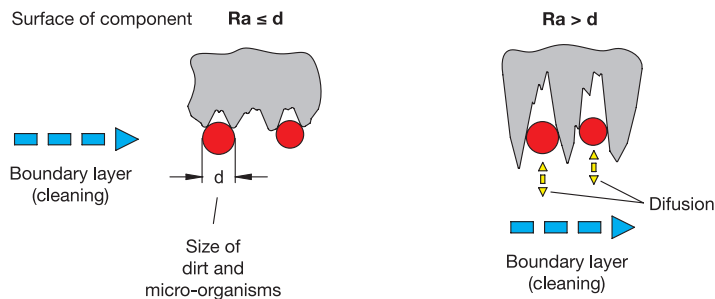
- Surfaces must be able to be cleaned
- Steps due to appliance configurations which are not aligned must be avoided
- Seals must be designed so that no gaps occur
- O-ring grooves must be hygienically designed
- Contact with the product to be manufactured must be ruled out
- Corners should preferably 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 $Ra < 0.8 \mu\text{m}$



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 Standard, 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 compression 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 dynamic seals (moveable): The **static seal**, application examples below, show the top faces the mounting surface (sealing ring) and the bottom faces the contact surface

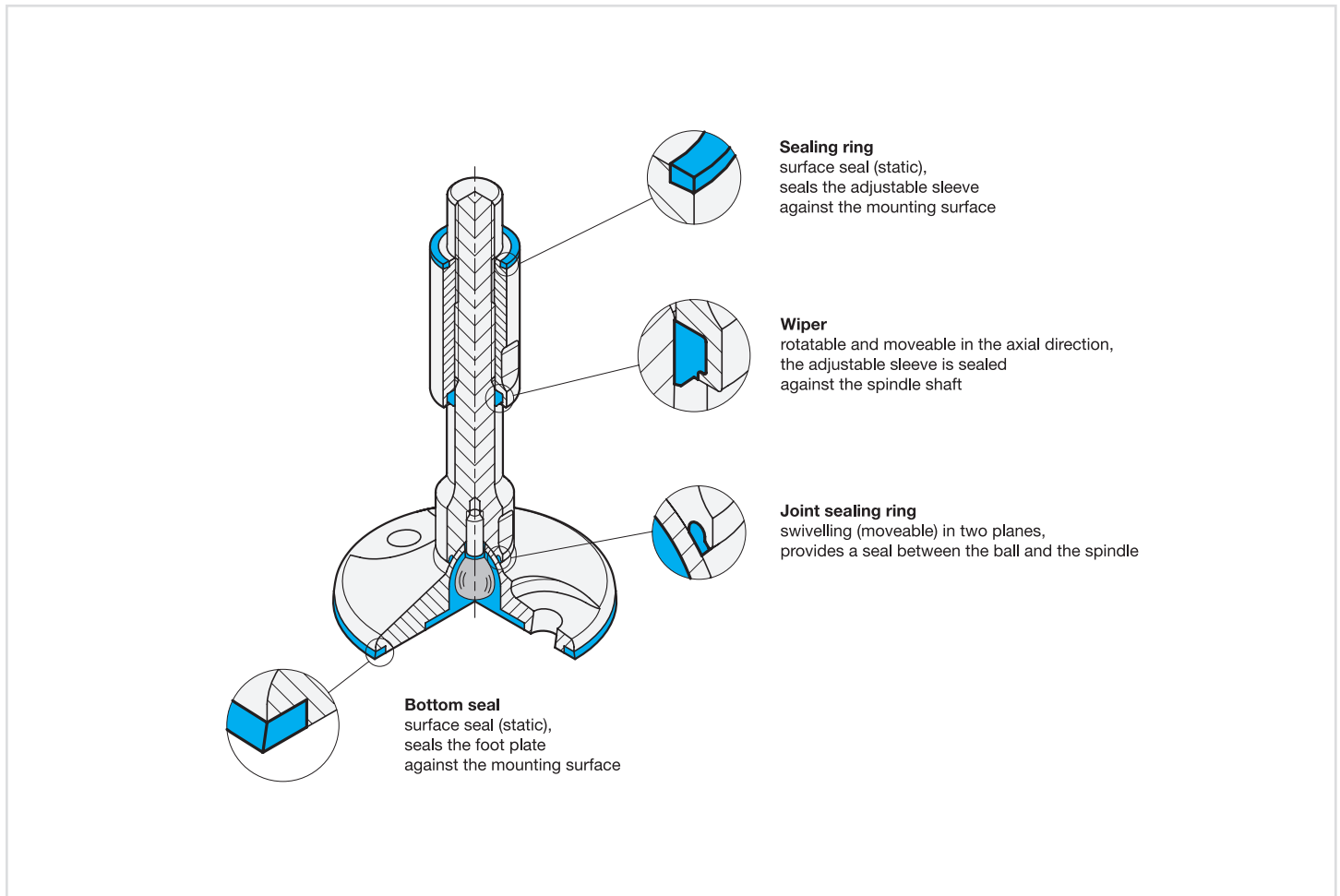
(bottom seal), so that the corresponding pressure is achieved by tightening. It should be ensured that all surfaces which make contact with the seal have a surface finish of at least Ra 0.8 µm.

The **dynamic seals** (moveable) 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. Because of this design, the installation space together with the cross section of the seal ensures a gap-free, pre-tensioned seal.

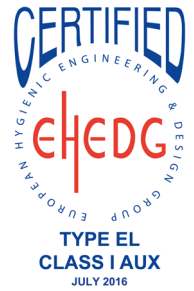
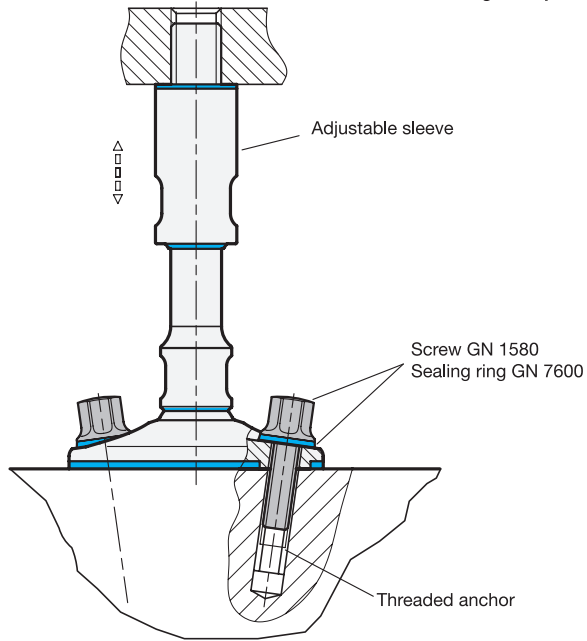
Depending on the version and the type of use, it may be the case that seals may need to be replaced in case of damage or for preventative maintenance. For this, JW Winco supplies the relevant seals as spare parts or offers these under GN 7600 (→ Page 16) as standard parts for spare parts.

Installation Example

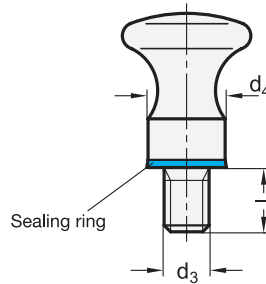
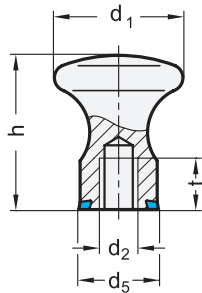
With the example of a GN 20 Hygienic Design leveling foot, the illustrated design shows how the various seal configurations can be designed.



Mounting example



Leveling foot GN 20 [Hygienic Design](#) with mounting holes → *Page 15*



Stainless Steel



3 Type

- D** with female 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 316 L (A4)
 - Matte shot blasted
 - Polished ($Ra < 0.8 \mu m$)
- **Sealing Ring**
 - Hydrogenated acrylonitrile butadiene rubber (H-NBR)
 - Blue
 - Temperature resistant $-25 \text{ }^\circ\text{C}$ to $+150 \text{ }^\circ\text{C}$
 - Hardness 85 ± 5 Shore A
 - FDA compliant



MT
PL

• **RoHS compliant**

Information

GN 75.6 waist shaped knobs are intended for use in hygienic design applications. 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.

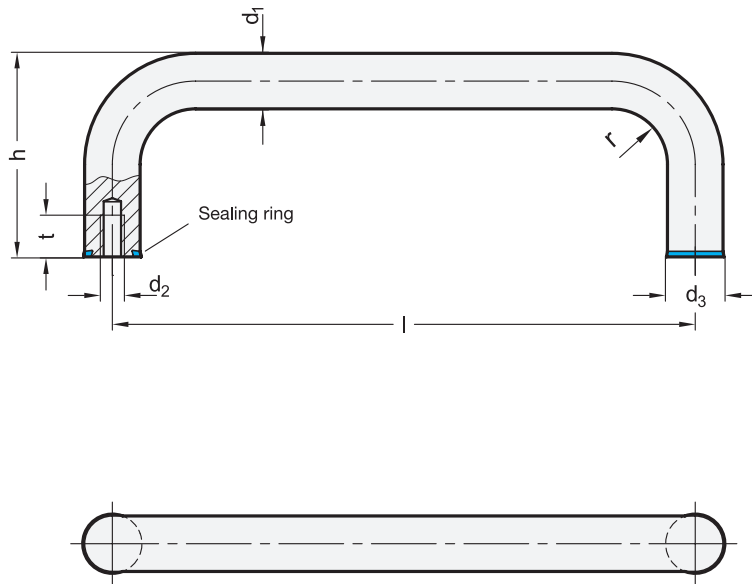
GN 75.6 waist shaped knobs have a compact and timeless design.

see also...

- *Sealing rings GN 7600* → Page 16

How to order	
1 d_1	
2 d_3 (d_2)	
3 Type	
4 Finish	

GN 75.6-25-M8-E-MT



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

- **Stainless Steel**
 - AISI 316 L (A4) **A4**
 - Matte shot blast finish **MT**
 - Polished (Ra < 0.8 µm) **PL**
- **Sealing Rings**
 - Hydrogenated acrylonitrile butadiene rubber (H-NBR)
 - Blue
 - Temperature resistant -25 °C to +150 °C
 - Hardness 85±5 Shore A
 - FDA compliant
- **RoHS compliant**

Information

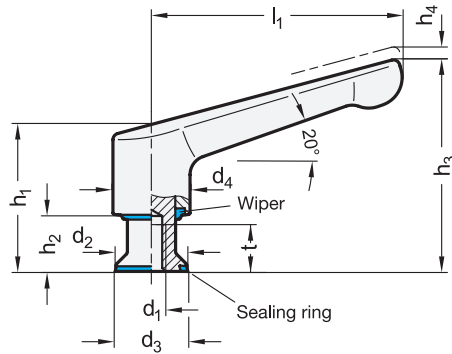
GN 429 cabinet "U" handles are intended for use in hygienic design applications. The sealed mounting surfaces enable fastening without dead spaces. The high quality finish prevents adherence of dirt and facilitates cleaning.

The manufacturing process (bending) allows the production of **special lengths** in relatively small quantities.

see also...

- *Sealing rings GN 7600 → Page 16*

How to order	1 Material
¹ ² ³ ⁴	2 d₁
GN 429-A4-12-160-MT	3 Length l
	4 Finish



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

- **Handle**
Stainless Steel precision casting
- AISI CF-8
- Polished (Ra < 0.8 µm)
- **Threaded insert**
Stainless Steel AISI 304
- **Sealing Ring / Wiper**
Hydrogenated acrylonitrile butadiene rubber (H-NBR)
- Blue
- Temperature resistant -25 °C to +150 °C
- Hardness 85±5 Shore A
- FDA compliant
- **RoHS compliant**

³

Information

GN 305 adjustable hand levers with solid Stainless Steel handles are intended for use in hygienic design applications. 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 facilitates cleaning.

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

The insert is connected to the lever via serrations which can easily be disengaged. When pulling up on the handle, the serration frees itself and can be re-located into any required position. Engagement is achieved by releasing the lever.

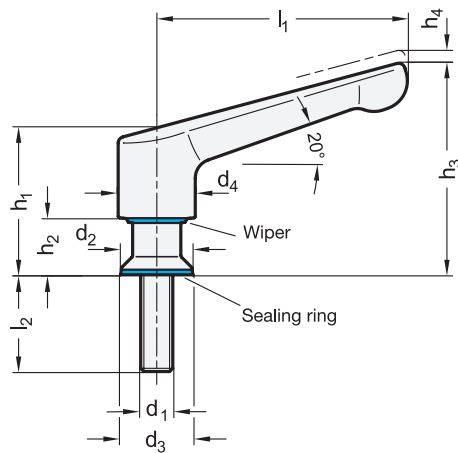
see also...

- **Sealing rings GN 7600** → Page 16
- **Star knobs Hygienic Design GN 5435** → Page 10
- **Three knob handles Hygienic Design GN 5445** → Page 11

How to order

¹ ² ³
GN 305-63-M8-PL

1	l ₁
2	d ₁
3	Finish



1	2	3					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	45.8	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 type insert
Stainless Steel AISI 304
- Sealing Ring / Wiper
Hydrogenated acrylonitrile butadiene rubber (H-NBR)
- Blue
- Temperature resistant -25 °C to +150 °C
- Hardness 85±5 Shore A
- FDA compliant
- RoHS compliant

Information

GN 305 adjustable hand levers with solid Stainless Steel handles are intended for use in hygienic design applications. 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 facilitates cleaning.

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

The insert is connected to the lever via serrations which can easily be disengaged. When pulling up on the handle, the serration frees itself and can be re-located into any required position. Engagement is achieved by releasing the lever.

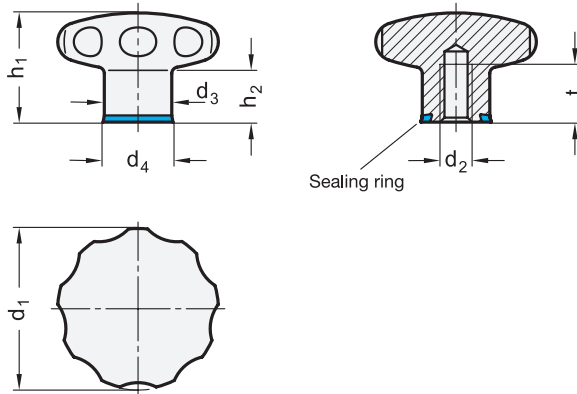
see also...

- Sealing rings GN 7600 → Page 16
- Star knobs Hygienic Design GN 5435 → Page 10
- Three lobe knobs Hygienic Design GN 5445 → Page 11

How to order

GN 305-78-M10-20-PL

1	l ₁
2	d ₁
3	l ₂
4	Finish



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 316 L (A4)
 - Matte shot blast finish
 - Polished (Ra < 0.8 µm)
- Sealing Ring
 - Hydrogenated acrylonitrile butadiene rubber (H-NBR)
 - Blue
 - Temperature resistant -25 °C to +150 °C
 - Hardness 85±5 Shore A
 - FDA compliant

³

Information

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

GN 5435 Star Knobs with inch size threads are available upon request.

see also...

- Sealing rings GN 7600 → Page 16

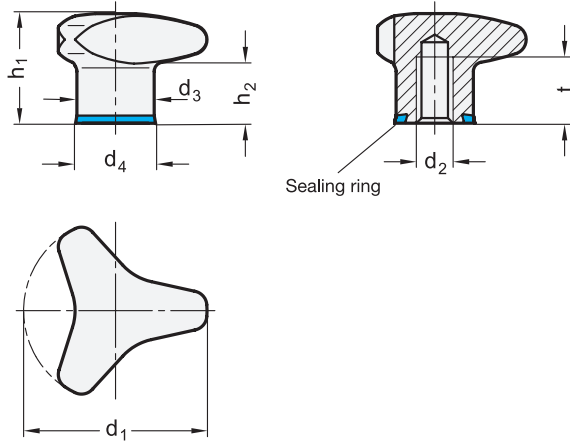
MT
PL

- RoHS compliant

How to order

¹ ² ³
GN 5435-40-M8-PL

1	d ₁
2	d ₂
3	Finish



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 316 L (A4)
 - Matte shot blast finish
 - Polished (Ra < 0.8 µm)
- **Sealing Ring**
 - Hydrogenated acrylonitrile butadiene rubber (H-NBR)
 - Blue
 - Temperature resistant -25 °C to +150 °C
 - Hardness 85±5 Shore A
 - FDA compliant
- **RoHS compliant**



Information

GN 5445 three lobe knobs are intended for use in hygienic design applications. 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 facilitates cleaning.

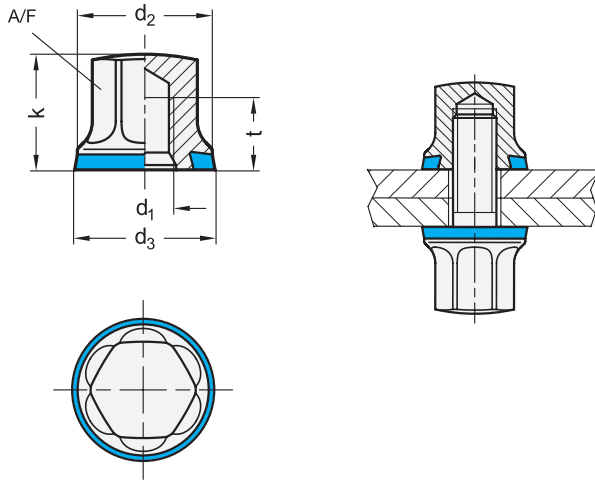
GN 5445 Three Lobe Knobs with inch size threads are available upon request.

- see also...**
- *Sealing rings GN 7600* → Page 16

How to order

GN 5435-40-M8-PL

1	d ₁
2	d ₂
3	Finish



1

d ₁	d ₂	d ₃	k	t	A/F
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

- Stainless Steel
 - AISI 316 L (A4)
 - Matte ground
 - Polished Finish (Ra < 0.8 µm)
- Sealing Ring
 - Hydrogenated acrylonitrile butadiene rubber (H-NBR)
 - Blue
 - Temperature resistant -25 °C to +150 °C
 - Hardness 85±5 Shore A
 - FDA compliant
- RoHS compliant

3

Information

GN 1580 nuts are intended for use in hygienic design applications. The sealed flange 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 facilitates cleaning.

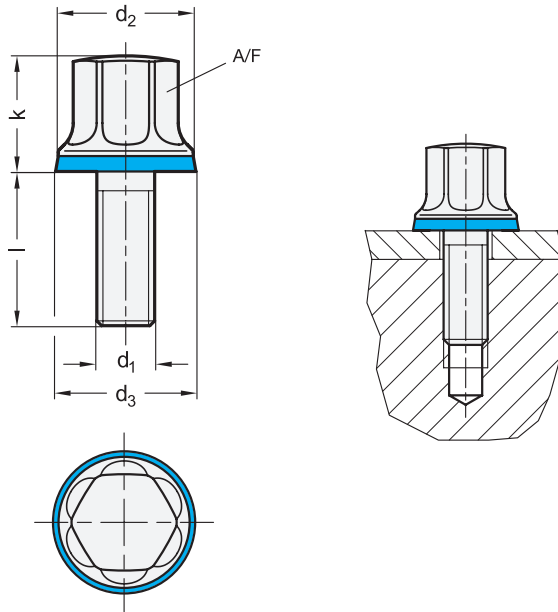
see also...

- Sealing rings GN 7600 → Page 16

MT
PL

How to order	1	d ₁
	2	Finish

GN 1580-M10-MT



1		2									
d ₁	Length l						d ₂	d ₃	k	A/F	
M 5	10	16	20	-	-		12	12.8	10	8	
M 6	12	16	20	25	30		14	14.8	12	10	
M 8	16	20	25	30	40		18	18.8	14.5	13	
M 10	20	25	30	40	50		21	21.8	18	16	

Specification

- Stainless Steel
 - AISI 316 L (A4)
 - Matte ground
 - Polished Finish (Ra < 0.8 µm)
- Sealing Ring
 - Hydrogenated acrylonitrile butadiene rubber (H-NBR)
 - Blue
 - Temperature resistant -25 °C to +150 °C
 - Hardness 85±5 Shore A
 - FDA compliant
- RoHS compliant

3

MT
PL

Information

GN 1580 screws are intended for use in hygienic design applications. The sealed flange 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 facilitates cleaning.

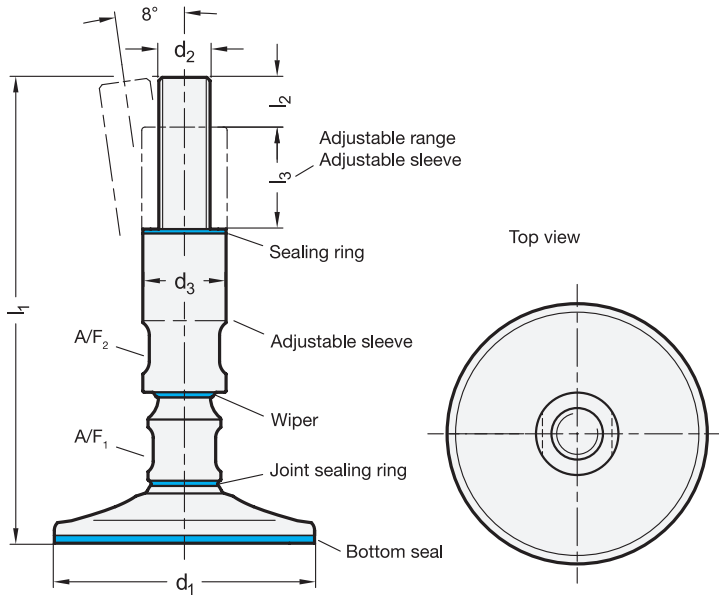
see also...

- Sealing rings GN 7600 → Page 16

How to order

GN1580-M10-50-PL

1	d ₁
2	l ₁
3	Finish



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
80	M 16	175	225	28	19	35	18	22
80	M 20	185	235	32	24	35	24	27
80	M 24	185	235	36	29	35	24	30
100	M 16	175	225	28	19	35	18	22
100	M 20	185	235	32	24	35	24	27
100	M 24	185	235	36	29	35	24	30
120	M 16	175	225	28	19	35	18	22
120	M 20	185	235	32	24	35	24	27
120	M 24	185	235	36	29	35	24	30

Specification

- Spindle, adjustable sleeve, base 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
Silicon, hardness 85 ±5 Shore A

• RoHS compliant

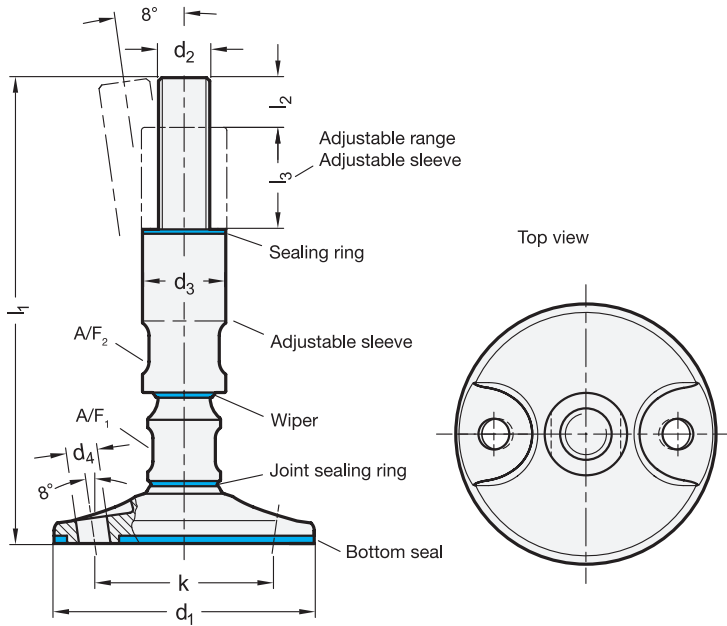
Information

GN 20 leveling feet without mounting holes are intended for use in hygienic design applications. The bottom seal protects the area beneath the base plate from dirt. For this, the base 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.

How to order	
1 d ₁	
2 d ₂	
3 l ₁	
4 Type	

GN 20-100-M16-175-A



4 Type
B without 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
100	M 16	175	225	28	12	19	35	69	18	22
100	M 20	185	235	32	12	24	35	69	24	27
100	M 24	185	235	36	12	29	35	69	24	30
120	M 16	175	225	28	12	19	35	89	18	22
120	M 20	185	235	32	12	24	35	89	24	27
120	M 24	185	235	36	12	29	35	89	24	30

Specification

- Spindle, adjustable sleeve, base 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
Silicon, hardness 85 ±5 Shore A

• RoHS compliant

Information

GN 20 leveling feet with mounting holes are intended for use in hygienic design applications. The bottom seal protects the area beneath the base plate from dirt. For this, the base must be screwed on using the mounting holes and compressed accordingly. Proper Hygienic fasteners 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.

How to order	
¹ d_1	
² d_2	
³ l_1	
⁴ Type	

GN 20-120-M16-175-B

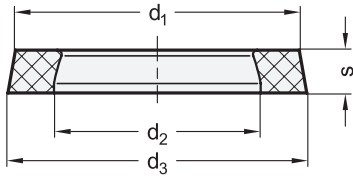
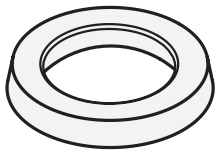
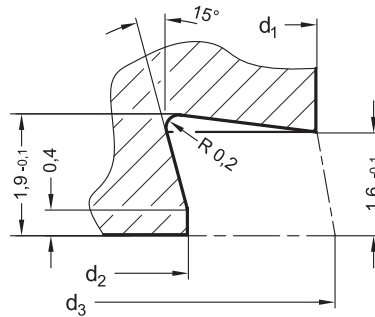


Diagram
Installation space



¹ d_1	² d_2	d_3	s	d_1	d_2	d_3	s	³
Nominal dimensions - Installation space				Actual dimensions - Sealing rings				suitable for
12	8	12.8	1.6	11.25	7	12.35	2	GN 429 / GN 1580
14	10	14.8	1.6	13.25	9	14.35	2	GN 75.6 / GN 305 / GN 1580
16	12	16.8	1.6	15.25	11	16.35	2	GN 75.6 / GN 429
18	14	18.8	1.6	17.25	13	18.35	2	GN 75.6 / GN 305 / GN 1580 / GN 5435 / GN 5445
21	17	21.8	1.6	20.25	16	21.35	2	GN 1580 / GN 5435 / GN 5445
22	18	22.8	1.6	21.25	17	22.35	2	GN 305
25	21	25.8	1.6	24.25	20	25.35	2	-

Specification

- H-NBR **HNBR**
Hydrogenated acrylonitrile butadiene rubber
- Blue
- Temperature resistant -25°C to $+150^\circ\text{C}$
- FDA compliant
- Hardness 85 ± 5 Shore A **85**
- RoHS compliant

Information

Components with cylindrical mounting surfaces which are installed in hygienic applications can be sealed and mounted without dead spaces using GN 7600 sealing rings.

As delivered, or unassembled, the sealing rings have the "actual dimensions" as stated in the table. To ensure a firm seating and reliable sealing, an installation space must be provided in the component as shown in the diagram. 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 $Ra 0.8 \mu\text{m}$.

JW Winco standard parts which are supplied with GN 7600 sealing rings are listed in the table and can be supplied individually in case maintenance repair is required.

How to order	
¹ d_1	
² d_2	
³ s	
⁴ Material	
⁵ Hardness	

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



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Let us tell you the great ways JW Winco can help you reduce your overall costs!

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That's why we say ... We're more than just quality parts!**

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