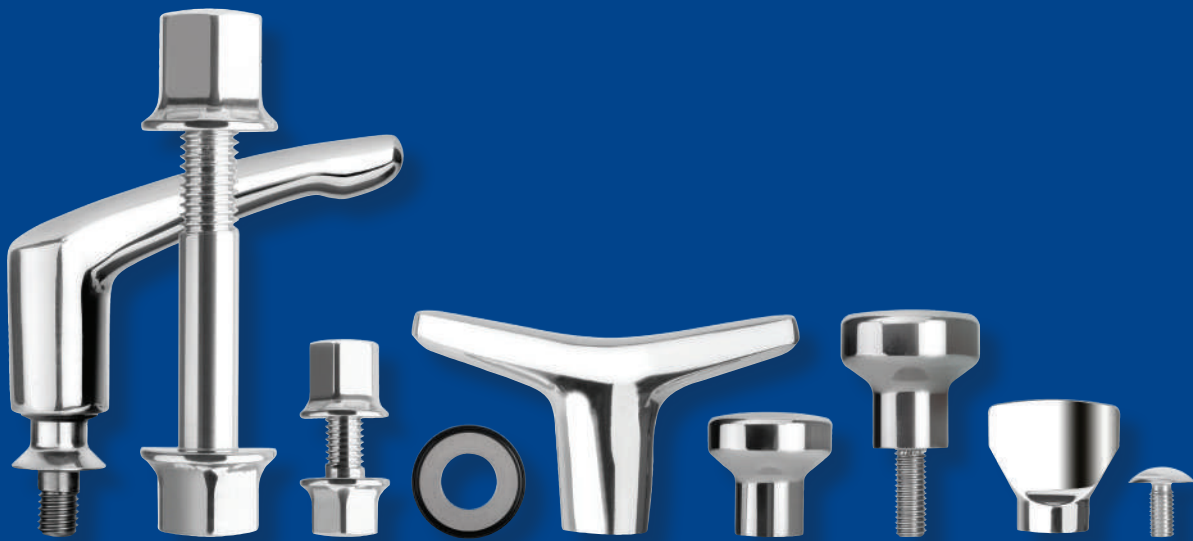




HEINRICH KIPP WERK

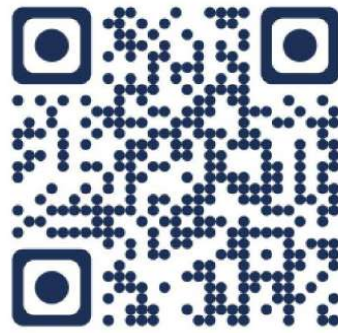


**NOVOnox** hygienic

Clamping Technology

Standard Elements

Operating Parts



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Reg. Nr. 002081 QM



## BUSINESS HOURS

|                 |               |
|-----------------|---------------|
| MONDAY-THURSDAY | 07.00 - 17.30 |
| FRIDAY          | 07.00 - 15.30 |

**HD**



**Hygienic DESIGN - the new standard**

Operating parts and machine elements that fulfil the requirements of Hygienic DESIGN.

Radii, transitions, bevels, and surfaces are designed to impair wetting and can be easily cleaned or remain permanently unsoiled.

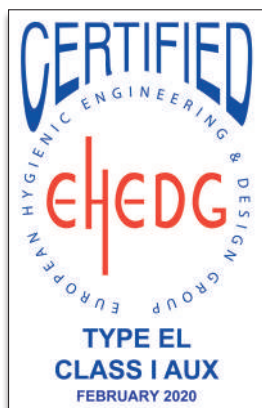
**Nothing adheres!**

Average surface finish  
Ra < 0.8 µm

**HU**

**Hygienic USIT® - the new phenomenon in the process industries**

Hygienic USIT® is the new revolutionary sealing and fastening technology in one package with EHEDG certification. High-gloss polished surfaces, radii, bevels and form transitions are cavity-free.



Hygienic USIT® – a trademark of Freudenberg Sealing Technologies. NOVOnox developed the hygienic screw system for this special washer and matched them perfectly to each other. The cavity-free fastening point is made feasible.



**High-gloss polished!**

Material:  
1.4404 with Ra < 0.8 µm



**100 % seal!**

Hygienic USIT® seal and shim washer from Freudenberg Sealing Technologies.

**System unit!**

Collar for Hygienic USIT® seal and shim washer

Material:  
1.4404 with Ra < 0.8 µm



## Hygienic USIT® - give germs no chance

### The current status. Cavities. Not fully sealed.

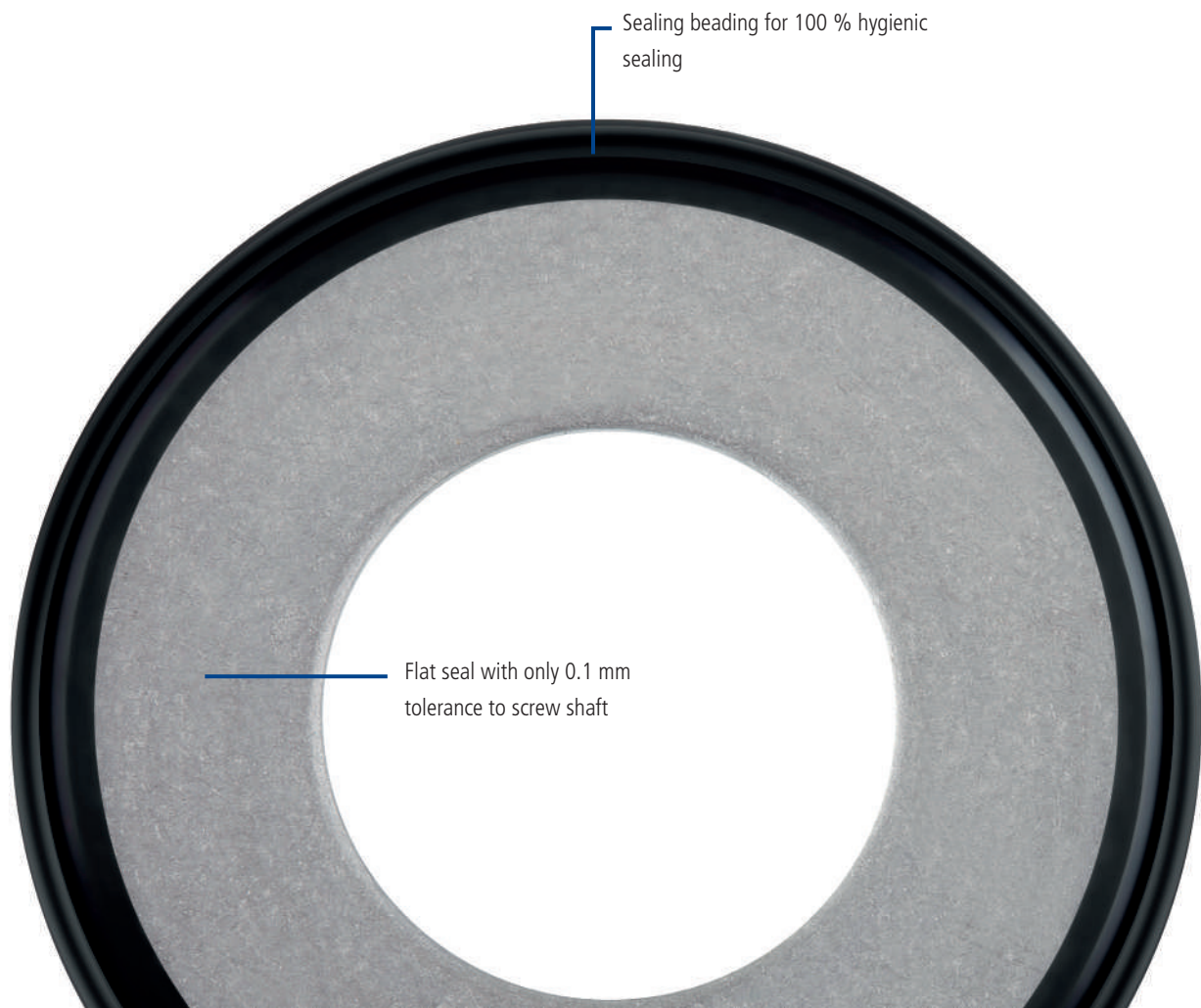
Fastening points in process technology plant construction must be absolutely sealed and easy to clean. Cavities where product remains or cleaning fluids can accumulate unnoticed are to be prevented. These create breeding grounds for germs and bacteria. A contamination is often just a question of time.

### The solution:

Hygienic USIT® from Freudenberg Sealing Technologies solves the problem. The new type of washer with the specially matched screw system from NOVOnox hygienic is best suited for mounting in sterile areas and also complies with the EHEDG guidelines, which is confirmed by the corresponding certificate. Dirty liquids bead off. Nothing can adhere. Nothing can germinate. Hygienic USIT® is the new revolutionary sealing and fastening technology in one package. Screw heads, nuts, washers and screw shafts are perfectly matched to each other and form a system unit. High-gloss polished surfaces, radii, bevels and form transitions are cavity-free and enable easy cleaning.

### Sealed over and over again.

The sealing ring made of a metallic flat seal and a vulcanised sealing bead is the heart of Hygienic USIT®. The trapezoidal contour of the sealing bead and the highly polished face of the screw head positively seal the fastening point. The sealing properties remain constant even by repeated loosening and tightening of the screw. The reason: The metallic washer mechanically limits the screw travel when the screw is turned. Excessive pressure on the seal is prevented. The polished surface and the centring effect of the screw shaft ensure that the position and deformation of the seal is almost 100% reproducible.



Sealing beading for 100 % hygienic sealing

Flat seal with only 0.1 mm tolerance to screw shaft



## Hygienic USIT® – High-gloss polished surface

The Hygienic USIT® fasteners have a completely rounded body form and have been designed for use with the USIT® sealing ring. The runoff of liquids and product residues is guaranteed independent of the installed position. The surfaces are repeatedly finely polished. When USIT® seal rings are used, the fastening point is hermetically sealed without any cavities. The fastening point is hygienically safe.

### Conclusion:

With the washer from Freudenberg Sealing Technologies and the special screw system from NOVONox hygienic, a sealing and fastening component that is 100 % hygienic and cavity-free has been created for the first time.



## Hygienic Tools – smooth stays smooth

### Protective inserts protect sensitive surfaces.

Protective inserts have been developed so that the sensitive surfaces of the screws and nuts of the Hygienic USIT® screw and sealing system remain completely undamaged. These high-strength plastic or aluminium protective inserts prevent scratches on the screws and nuts. Moreover, they also protect from possible contact corrosion between the tool and the

stainless steel fastener. The protective inserts are inserted into tools which have been specially modified to accept them. The inserts clip in place so that they cannot be easily pulled out or lost. The inserts are available for screws sized M4, M5, M6, M8, M10, M12 and M16.



# PRODUCTS



## Seals



## Nuts



## Screws



## Clamping levers



## Grips



## Knobs



## Pull handles



## Quarter-turn locks



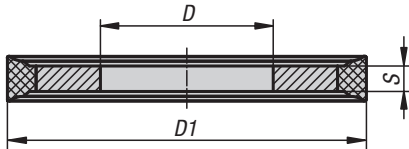
## Tools



## Levelling feet



## Hygienic USIT® seal and shim washers



With its highly reliable sealing and design that is compliant with hygiene requirements, the Hygienic USIT® seal and shim washer is setting new standards for cleanliness in the process industry. Many manufacturers of machinery and systems for the food and pharmaceutical industries often use standard shim washers or O-rings for screw connections in or on the product chamber. These are not EHEDG-compliant, however, as contamination and biofilms in the form of bacteria colonies and corrosion can form under the screw head, preventing the design from achieving maximum hygiene standards.

The metallic shim washer with a fixed sealing ring made from 70 EPDM 291 (black) or 70 EPDM 253815 (white) provides a secure, cavity-free seal. The Hygienic USIT® seal and shim washer, made from the fluorinated premium compound Fluoroprene® XP 45, is suitable for applications involving particularly aggressive CIP/SIP cleaning temperatures, high steam sterilisation temperatures and process media containing grease. This material has an even larger operating temperature range and is resistant to polar and non-polar media as well as flavouring substances.

Approvals such as FDA, EU1935/2004 and USP Class VI (121 °C), plus EHEDG certification, confirm that the Hygienic USIT® washer represents the ideal choice for hygienically demanding applications in the food, beverage and pharmaceutical industries.

**Material:**

Washer:

Stainless steel 1.4404.

Sealing ring:

70 EPDM 291 (black)

70 EPDM 253815 (white)

75 Fluoroprene® XP 45 (blue)

**Sample order:**

K1491.051

**Note:**

The EHEDG certificate is only valid when a specifically matched hexagon head bolt K1492 or cap nut K1493 is used.

**Attention:**

The function of the Hygienic USIT® screw connection system has been tested in combination with stainless steel materials and standard cleaning materials.

The user must check that it is suitable for the application in question.

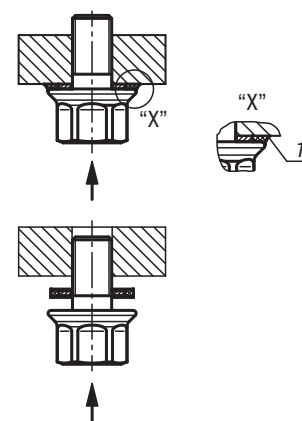
**Accessories:**

The Hygienic USIT® seal and shim washers can be used with all other products of the Hygienic USIT® range.

**Drawing reference:**

1) Cavity free sealing



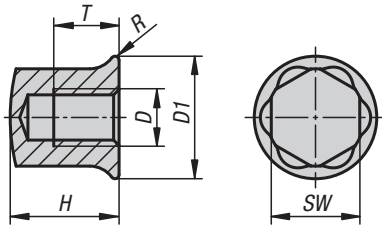


### KIPP Hygienic USIT® seal and shim washers

| Order No.<br>70 EPDM 291<br>black | Order No.<br>70 EPDM 253815<br>white | Order No.<br>fluoroprene XP 45<br>blue | D    | D1   | S   | Suitable for<br>hexagon screws | Suitable<br>cap nuts |
|-----------------------------------|--------------------------------------|--|------|------|-----|--------------------------------|----------------------|
| K1491.041                         | K1491.042                            | K1491.044                              | 4,1  | 9,7  | 1   | M4                             | M4                   |
| K1491.051                         | K1491.052                            | K1491.054                              | 5,1  | 10,7 | 1   | M5                             | M5                   |
| K1491.061                         | K1491.062                            | K1491.064                              | 6,1  | 13,1 | 1   | M6                             | M6                   |
| K1491.081                         | K1491.082                            | K1491.084                              | 8,1  | 16,9 | 1   | M8                             | M8                   |
| K1491.101                         | K1491.102                            | K1491.104                              | 10,1 | 21,2 | 1,5 | M10                            | M10                  |
| K1491.121                         | K1491.122                            | K1491.124                              | 12,1 | 25,5 | 1,5 | M12                            | M12                  |
| K1491.161                         | K1491.162                            | K1491.164                              | 16,1 | 33,9 | 1,5 | M16                            | M16                  |

## Stainless steel cap nuts with collar

for Hygienic USIT® seal and shim washers



**A cavity-free seal can only be assured in combination with the Hygienic USIT® seal and shim washer.**

The polished cap nuts have a surface finish of  $Ra < 0.8 \mu m$ . Internal transition areas with a minimum radius of 3 mm are also provided, preventing dirt particles from adhering to the components and ensuring easy cleaning.

The cap nut with collar for Hygienic USIT® seal and shim washers is ideal for fastening in sterile areas and also conform to EHEDG regulations, something that is confirmed with the relevant certificate.

**Material:**  
Stainless steel 1.4404.

**Version:**  
Polished.

**Sample order:**  
K1493.05

**Note:**  
The EHEDG certificate is only valid when a specifically matched Hygienic USIT® seal and shim washer K1491 is used.

**On request:**  
Special versions.

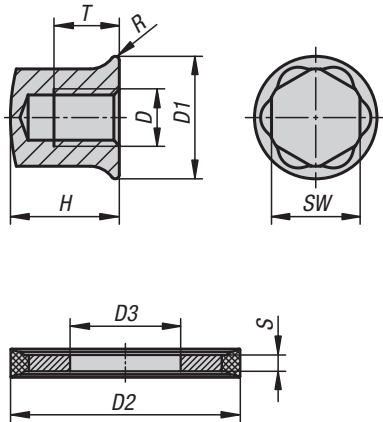
**Accessories:**  
Hygienic USIT® seal and shim washer K1491.  
Hexagon head bolts with collar K1492.  
Sockets with plastic inserts K1361.  
Ring/open-end spanner with protective caps K1362.

### KIPP Stainless steel cap nuts with collar for Hygienic USIT® seal and shim washers

| Order No. | D   | D1   | H  | R    | SW | T    |
|-----------|-----|------|----|------|----|------|
| K1493.04  | M4  | 10,8 | 9  | 0,45 | 7  | 4,8  |
| K1493.05  | M5  | 11,8 | 11 | 0,5  | 8  | 6    |
| K1493.06  | M6  | 14   | 13 | 0,55 | 10 | 7,2  |
| K1493.08  | M8  | 18   | 16 | 0,6  | 13 | 9,6  |
| K1493.10  | M10 | 22   | 20 | 0,75 | 16 | 12   |
| K1493.12  | M12 | 26,6 | 23 | 0,9  | 18 | 14,4 |
| K1493.16  | M16 | 35   | 30 | 1,2  | 24 | 19,2 |

## Stainless steel cap nuts with collar

and seal and shim washer for Hygienic USIT® set



**Set:** cap nut with collar K1493 + Hygienic USIT® seal and shim washer K1491.

**Only the combination of a cap nut with collar and the Hygienic USIT® seal and shim washer assures a cavity-free seal.**

**The cap nut with collar for Hygienic USIT® seal and shim washers is ideal for fastening in sterile areas and also conform to EHEDG regulations, which is confirmed with the relevant certificate.**

**Material:**

- Cap nut: stainless steel 1.4404.
- Washer: stainless steel 1.4404.
- Seal ring:
  - 70 EPDM 291 (black).
  - 70 EPDM 253815 (white).
  - 75 Fluoroprene® XP 45 (blue).

**Version:**

Cap nut: polished.

**Sample order:**

K1594.041

**Note:**

The EHEDG certificate is only valid when a combination of cap nut with collar K1493 and specially matched Hygienic USIT® seal and shim washer K1491 is used.

**Attention:**

The function of the Hygienic USIT® screw connection system has been tested in combination with stainless steel materials and standard cleaning materials.  
The user must check that it is suitable for the application in question.

**Accessories:**

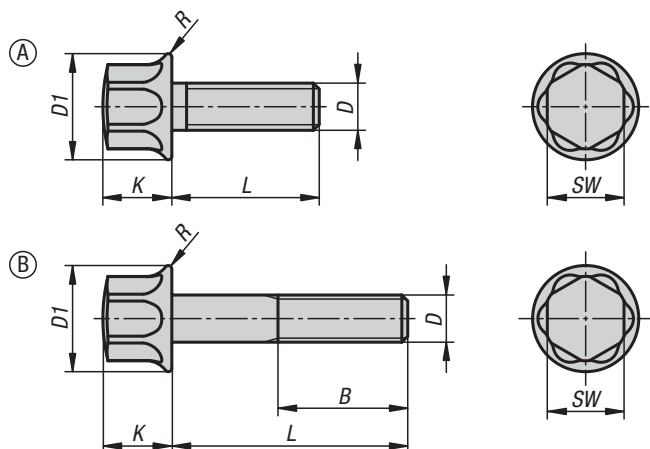
- Hexagon head screw with collar K1492.
- Sockets with plastic inserts K1361.
- Ring/open-end spanner with protective caps K1362.

### KIPP Stainless steel cap nuts with collar and seal and shim washer for Hygienic USIT® set

| Order No.<br>70 EPDM 291<br>black | Order No.<br>70 EPDM 253815<br>white | Order No.<br>fluoroprene XP 45<br>blue | D   | D1   | D2   | D3   | H  | R    | S   | SW | T    | Approval /<br>Certification |
|-----------------------------------|--------------------------------------|--|-----|------|------|------|----|------|-----|----|------|-----------------------------|
| K1594.041                         | K1594.042                            | K1594.044                              | M4  | 10,8 | 9,7  | 4,1  | 9  | 0,45 | 1   | 7  | 4,8  | EHEDG                       |
| K1594.051                         | K1594.052                            | K1594.054                              | M5  | 11,8 | 10,7 | 5,1  | 11 | 0,5  | 1   | 8  | 6    | EHEDG                       |
| K1594.061                         | K1594.062                            | K1594.064                              | M6  | 14   | 13,1 | 6,1  | 13 | 0,55 | 1   | 10 | 7,2  | EHEDG                       |
| K1594.081                         | K1594.082                            | K1594.084                              | M8  | 18   | 16,9 | 8,1  | 16 | 0,6  | 1   | 13 | 9,6  | EHEDG                       |
| K1594.101                         | K1594.102                            | K1594.104                              | M10 | 22   | 21,2 | 10,1 | 20 | 0,75 | 1,5 | 16 | 12   | EHEDG                       |
| K1594.121                         | K1594.122                            | K1594.124                              | M12 | 26,6 | 25,5 | 12,1 | 23 | 0,9  | 1,5 | 18 | 14,4 | EHEDG                       |
| K1594.161                         | K1594.162                            | K1594.164                              | M16 | 35   | 33,9 | 16,1 | 30 | 1,2  | 1,5 | 24 | 19,2 | EHEDG                       |

# Stainless steel hexagon head screws with collar

for Hygienic USIT® seal and shim washers



A cavity-free seal can only be assured in combination with the Hygienic USIT® seal and shim washer.

The polished screws have a surface finish of  $Ra < 0.8 \mu\text{m}$ .

Internal transition areas with a minimum radius of 3 mm are also provided, preventing dirt particles from adhering to the components and ensuring easy cleaning.

Hexagon head bolts with collar for Hygienic USIT® seal and shim washers are ideal for fastening in sterile areas and also conform to EHEDG regulations, something that is confirmed with the relevant certificate.

**Material:**  
Stainless steel 1.4404.

**Version:**  
Polished.

**Sample order:**  
K1492.05X12 (include length L)

**Note:**  
The EHEDG certificate is only valid when a specifically matched Hygienic USIT® seal and shim washer K1491 is used.

**On request:**  
Special versions.

**Accessories:**  
Hygienic USIT® seal and shim washer K1491.  
Hexagon cap nut with collar K1493.  
Sockets with plastic inserts K1361.  
Ring/open-end spanner with protective caps K1362.

# Stainless steel hexagon head screws with collar

for Hygienic USIT® seal and shim washers



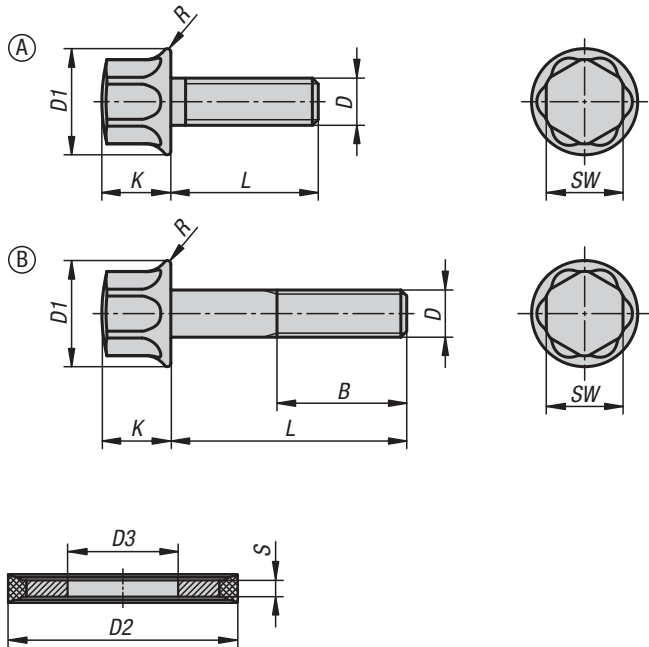
## KIPP Stainless steel hexagon head screws with collar for Hygienic USIT® seal and shim washers

| Order No. | Form | D   | D1   | D2 | K    | L                 | R    | SW |
|-----------|------|-----|------|----|------|-------------------|------|----|
| K1492.04X | A    | M4  | 10,8 | 4  | 6,9  | 8/12/16/20        | 0,45 | 7  |
| K1492.05X | A    | M5  | 11,8 | 5  | 8,5  | 12/16/20          | 0,5  | 8  |
| K1492.06X | A    | M6  | 14   | 6  | 9,2  | 12/16/20/25       | 0,55 | 10 |
| K1492.08X | A    | M8  | 18   | 8  | 11,7 | 16/20/25/30/35    | 0,6  | 13 |
| K1492.10X | A    | M10 | 22   | 10 | 14   | 20/25/30/35/40    | 0,75 | 16 |
| K1492.12X | A    | M12 | 26,6 | 12 | 17   | 25/30/35/40/45    | 0,9  | 18 |
| K1492.16X | A    | M16 | 35   | 16 | 21,8 | 30/35/40/45/50/60 | 1,2  | 24 |

| Order No. | Form | D   | D1   | D2 | B  | K    | L                 | R    | SW |
|-----------|------|-----|------|----|----|------|-------------------|------|----|
| K1492.04X | B    | M4  | 10,8 | 4  | 14 | 6,9  | 25/30/35/40       | 0,45 | 7  |
| K1492.05X | B    | M5  | 11,8 | 5  | 16 | 8,5  | 25/30/35/40/45/50 | 0,5  | 8  |
| K1492.06X | B    | M6  | 14   | 6  | 18 | 9,2  | 30/35/40/45/50/60 | 0,55 | 10 |
| K1492.08X | B    | M8  | 18   | 8  | 22 | 11,7 | 40/45/50/60/70/80 | 0,6  | 13 |
| K1492.10X | B    | M10 | 22   | 10 | 26 | 14   | 45/50/60/70/80    | 0,75 | 16 |
| K1492.12X | B    | M12 | 26,6 | 12 | 30 | 17   | 50/60/70/80       | 0,9  | 18 |
| K1492.16X | B    | M16 | 35   | 16 | 38 | 21,8 | 70/80             | 1,2  | 24 |

## Stainless steel hexagon head screws with collar

and seal and shim washer for Hygienic USIT® set



**Set:** hexagon head screw with collar K1492 + Hygienic USIT® seal and shim washer K1491.

**Only the combination of a hexagon head screw with collar and the Hygienic USIT® seal and shim washer assures a cavity-free seal.**

**The hexagon head screw with collar for Hygienic USIT® seal and shim washers is ideal for fastening in sterile areas and also conforms to EHEDG regulations, which is confirmed with the relevant certificate.**

**Material:**

Hexagon head screw: stainless steel 1.4404.

Washer: stainless steel 1.4404.

Seal ring:

70 EPDM 291 (black).

70 EPDM 253815 (white).

75 Fluoroprene® XP 45 (blue).

**Version:**

Hexagon head screw: polished

**Sample order:**

K1595.041X20

**Note:**

The EHEDG certificate is only valid when a combination of hexagon head screw with collar K1492 and specially matched Hygienic USIT® seal and shim washer K1491 is used.

**Attention:**

The function of the Hygienic USIT® screw connection system has been tested in combination with stainless steel materials and standard cleaning materials.

The user must check that it is suitable for the application in question.

**Accessories:**

Cap nut with collar K1493.

Sockets with plastic inserts K1361.

Ring/open-end spanner with protective caps K1362.

# Stainless steel hexagon head screws with collar

and seal and shim washer for Hygienic USIT® set



## KIPP Stainless steel hexagon head screws with collar and seal and shim washer for Hygienic USIT® set

| Order No.<br>70 EPDM 291<br>black | Order No.<br>70 EPDM 253815<br>white | Order No.<br>fluoroprene XP 45<br>blue | Form | D   | L                 | D1   | B  | K    | R    | SW | D2   | D3   | S   | Approval /<br>Certification |
|-----------------------------------|--------------------------------------|--|------|-----|-------------------|------|----|------|------|----|------|------|-----|-----------------------------|
| K1595.041X                        | K1595.042X                           | K1595.044X                             | A    | M4  | 8/10/12/16/20     | 10,8 | -  | 6,9  | 0,45 | 7  | 9,7  | 4,1  | 1   | EHEDG                       |
| K1595.041X                        | K1595.042X                           | K1595.044X                             | B    | M4  | 25/30/35/40       | 10,8 | 14 | 6,9  | 0,45 | 7  | 9,7  | 4,1  | 1   | EHEDG                       |
| K1595.051X                        | K1595.052X                           | K1595.054X                             | A    | M5  | 10/12/16/20       | 11,8 | -  | 8,5  | 0,5  | 8  | 10,7 | 5,1  | 1   | EHEDG                       |
| K1595.051X                        | K1595.052X                           | K1595.054X                             | B    | M5  | 25/30/35/40/45/50 | 11,8 | 16 | 8,5  | 0,5  | 8  | 10,7 | 5,1  | 1   | EHEDG                       |
| K1595.061X                        | K1595.062X                           | K1595.064X                             | A    | M6  | 12/16/20/25       | 14   | -  | 9,2  | 0,55 | 10 | 13,1 | 6,1  | 1   | EHEDG                       |
| K1595.061X                        | K1595.062X                           | K1595.064X                             | B    | M6  | 30/35/40/45/50/60 | 14   | 18 | 9,2  | 0,55 | 10 | 13,1 | 6,1  | 1   | EHEDG                       |
| K1595.081X                        | K1595.082X                           | K1595.084X                             | A    | M8  | 16/20/25/30/35    | 18   | -  | 11,7 | 0,6  | 13 | 16,9 | 8,1  | 1   | EHEDG                       |
| K1595.081X                        | K1595.082X                           | K1595.084X                             | B    | M8  | 40/45/50/60/70/80 | 18   | 22 | 11,7 | 0,6  | 13 | 16,9 | 8,1  | 1   | EHEDG                       |
| K1595.101X                        | K1595.102X                           | K1595.104X                             | A    | M10 | 20/25/30/35/40    | 22   | -  | 14   | 0,75 | 16 | 21,2 | 10,1 | 1,5 | EHEDG                       |
| K1595.101X                        | K1595.102X                           | K1595.104X                             | B    | M10 | 45/50/60/70/80    | 22   | 26 | 14   | 0,75 | 16 | 21,2 | 10,1 | 1,5 | EHEDG                       |
| K1595.121X                        | K1595.122X                           | K1595.124X                             | A    | M12 | 25/30/35/40/45    | 26,6 | -  | 17   | 0,9  | 18 | 25,5 | 12,1 | 1,5 | EHEDG                       |
| K1595.121X                        | K1595.122X                           | K1595.124X                             | B    | M12 | 50/60/70/80       | 26,6 | 30 | 17   | 0,9  | 18 | 25,5 | 12,1 | 1,5 | EHEDG                       |
| K1595.161X                        | K1595.162X                           | K1595.164X                             | A    | M16 | 30/35/40/45/50/60 | 35   | -  | 21,8 | 1,2  | 24 | 33,9 | 16,1 | 1,5 | EHEDG                       |
| K1595.161X                        | K1595.162X                           | K1595.164X                             | B    | M16 | 70/80             | 35   | 38 | 21,8 | 1,2  | 24 | 33,9 | 16,1 | 1,5 | EHEDG                       |

## Clamping levers with internal thread and collar

for Hygienic USIT® Freudenberg Process Seals sealing and shim washer



**Material:**

Metal parts stainless steel 1.4404.  
Shaft seal 70 EPDM 291.

**Version:**

High-gloss polished.

**Sample order:**

K1316.308

**Note:**

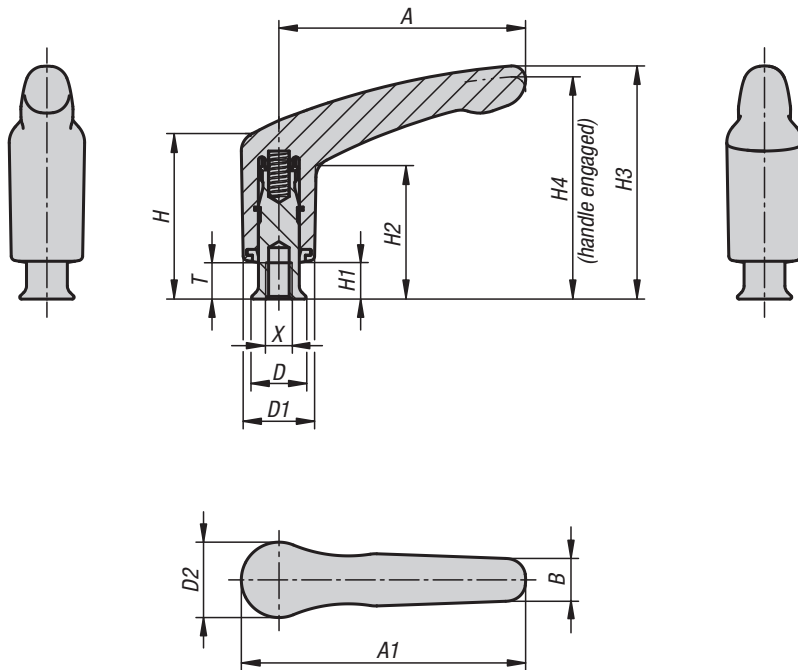
Clamping lever designed for the hygienic sector. The completely closed grip part and the shaft seal prevent contamination of the lever internal workings. Additionally, the screw insert has a conical collar so that the fastening point can be hygienically sealed with the Hygienic USIT® sealing and shim washer. Due to the extremely high surface finish quality of much less than Ra 0.8 µm, hardly any dirt particles adhere to the surface. The highly polished surfaces enable easy cleaning. At rest, the lever is freely rotatable. Unintended opening of the lever is excluded. The toothing is protected against high wear for mounting on vibrating elements.

**On request:**

Other thread depths and inch threads.

**Accessories:**

Hygienic USIT® sealing and shim washer K1491.



### KIPP Clamping levers with internal thread and collar for Hygienic USIT® Freudenberg Process Seals sealing and shim washer

| Order No. | X   | T  | D    | D1   | D2   | H    | H1   | H2   | H3   | H4   | A    | A1   | B    | No. of teeth |
|-----------|-----|----|------|------|------|------|------|------|------|------|------|------|------|--------------|
| K1316.106 | M6  | 10 | 14,2 | 21   | 21,7 | 36,7 | 8,8  | 27   | 50,6 | 47,6 | 47,4 | 58,2 | 11,8 | 16           |
| K1316.206 | M6  | 10 | 14,2 | 21   | 22,1 | 45,7 | 10,7 | 36,8 | 64,1 | 61,1 | 66,5 | 77,5 | 13   | 16           |
| K1316.208 | M8  | 14 | 18   | 21   | 22,1 | 45,7 | 10,7 | 36,8 | 64,1 | 61,1 | 66,5 | 77,5 | 13   | 16           |
| K1316.308 | M8  | 12 | 18   | 23,6 | 24,9 | 54,7 | 12,1 | 44   | 77   | 73,5 | 81,5 | 94   | 14,2 | 20           |
| K1316.310 | M10 | 15 | 22,3 | 23,6 | 24,9 | 54,7 | 12,1 | 44   | 77   | 73,5 | 81,5 | 94   | 14,2 | 20           |
| K1316.312 | M12 | 19 | 26,6 | 23,6 | 24,9 | 54,7 | 12,1 | 44   | 77   | 73,5 | 81,5 | 94   | 14,2 | 20           |



## Clamping levers with external thread and collar

for Hygienic USIT® Freudenberg Process Seals sealing and shim washer



**Material:**

Metal parts stainless steel 1.4404.  
Shaft seal 70 EPDM 291.

**Version:**

High-gloss polished.

**Sample order:**

K1317.308X16

**Note:**

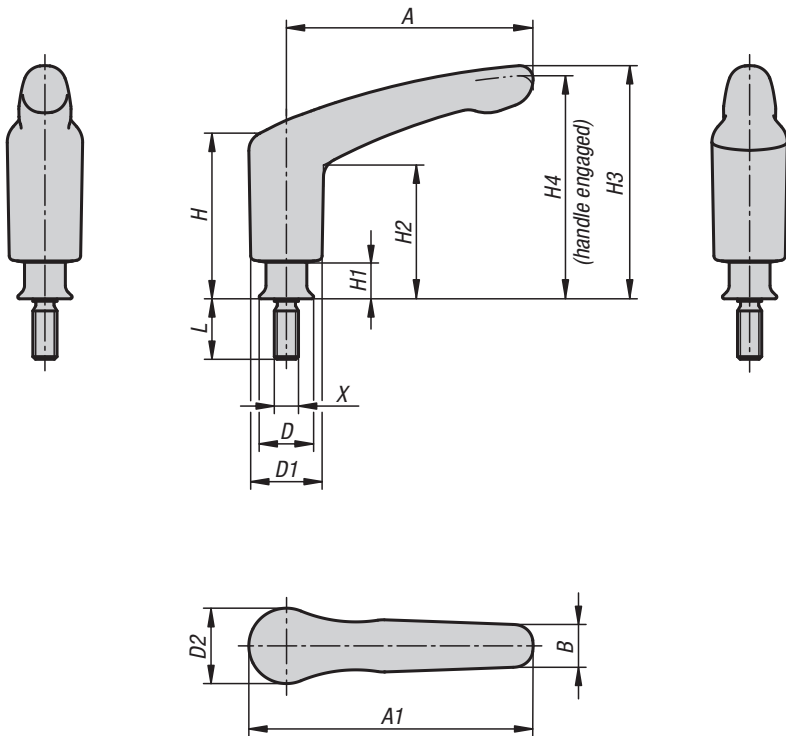
Clamping lever designed for the hygienic sector. The completely closed grip part and the shaft seal prevent contamination of the lever internal workings. Additionally, the screw insert has a conical collar so that the fastening point can be hygienically sealed with the Hygienic USIT® sealing and shim washer. Due to the extremely high surface finish quality of much less than Ra 0.8 µm, hardly any dirt particles adhere to the surface. The highly polished surfaces enable easy cleaning. At rest, the lever is freely rotatable. Unintended opening of the lever is excluded. The toothing is protected against high wear for mounting on vibrating elements.

**On request:**

Other screw lengths and inch threads.

**Accessories:**

Hygienic USIT® sealing and shim washer K1491.



### KIPP Clamping levers with external thread and collar for Hygienic USIT® Freudenberg Process Seals sealing and shim washer

| Order No.  | X   | D    | D1   | D2   | H    | H1   | H2   | H3   | H4   | A    | A1   | B    | No. of teeth | L                       |
|------------|-----|------|------|------|------|------|------|------|------|------|------|------|--------------|-------------------------|
| K1317.106X | M6  | 14,2 | 21   | 21,7 | 36,7 | 8,8  | 27   | 50,6 | 47,6 | 47,4 | 58,2 | 11,8 | 16           | 20/30/40/50             |
| K1317.206X | M6  | 14,2 | 21   | 22,1 | 45,7 | 10,7 | 36,8 | 64,1 | 61,1 | 66,5 | 77,5 | 13   | 16           | 20/30/40/50             |
| K1317.208X | M8  | 18   | 21   | 22,1 | 45,7 | 10,7 | 36,8 | 64,1 | 61,1 | 66,5 | 77,5 | 13   | 16           | 20/30/40/50/60          |
| K1317.308X | M8  | 18   | 23,6 | 24,9 | 54,7 | 12,1 | 44   | 77   | 73,5 | 81,5 | 94   | 14,2 | 20           | 16/20/25/30/35/40/50/60 |
| K1317.310X | M10 | 22,3 | 23,6 | 24,9 | 54,7 | 12,1 | 44   | 77   | 73,5 | 81,5 | 94   | 14,2 | 20           | 20/25/30/35/40/50/60    |
| K1317.312X | M12 | 26,6 | 23,6 | 24,9 | 54,7 | 12,1 | 44   | 77   | 73,5 | 81,5 | 94   | 14,2 | 20           | 25/30/35/40/50/60       |

## Wing nuts

for Hygienic USIT® sealing and shim washer Freudenberg Process Seals



**Material:**

Steel parts stainless steel 1.4404.

**Version:**

High-gloss polished.

**Sample order:**

K1312.2004

**Note:**

The wing nut makes simple screw connections superbly feasible. They can be easily opened or re-tightened without tools.

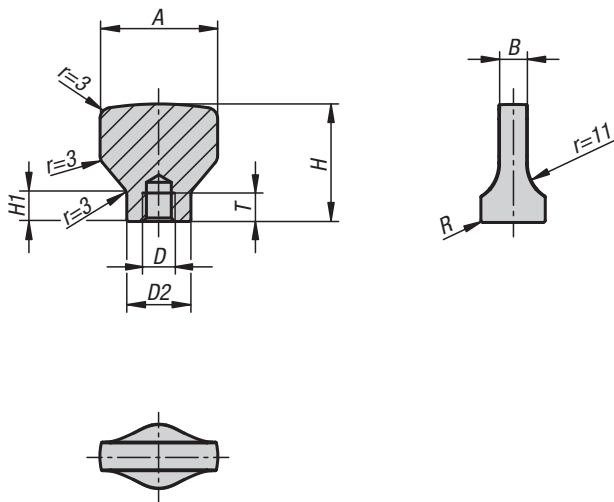
The complete surface is polished to a high gloss with a surface finish of much less than Ra 0.8 µm. The contour is produced with generous radii and transitions. It doesn't matter in which position the wing grip is mounted, dirt and residue from products or cleaners seldom adheres. Easy cleaning is ensured. The Hygienic USIT® sealing and shim washers from Freudenberg Process are used to seal the screw-on point. The shaft of the wing nut is specially designed to suit this seal. An almost cavity-free seal of the screw-on point is created which satisfies hygienic regulations.

**On request:**

Other thread depths and inch threads.

**Accessories:**

Hygienic USIT® sealing and shim washer K1491 for the screw-on surface.



### KIPP Wing nuts for Hygienic USIT® sealing and shim washer Freudenberg Process Seals

| Order No.  | A  | B  | D   | D2   | H  | H1  | R    | T  |
|------------|----|----|-----|------|----|-----|------|----|
| K1312.2004 | 20 | 4  | M4  | 10,8 | 19 | 5,3 | 0,45 | 6  |
| K1312.2105 | 21 | 5  | M5  | 11,8 | 21 | 6   | 0,5  | 6  |
| K1312.2506 | 25 | 6  | M6  | 14,2 | 25 | 7   | 0,55 | 7  |
| K1312.3308 | 33 | 8  | M8  | 18   | 33 | 8,4 | 0,7  | 9  |
| K1312.4010 | 40 | 10 | M10 | 22,3 | 40 | 10  | 0,8  | 11 |

## Wing screws

for Hygienic USIT® sealing and shim washer Freudenberg Process Seals



**Material:**

Steel parts stainless steel 1.4404.

**Version:**

High-gloss polished.

**Sample order:**

K1313.2004X8

**Note:**

The wing screw makes simple screw connections superbly feasible. They can be easily opened or re-tightened without tools.

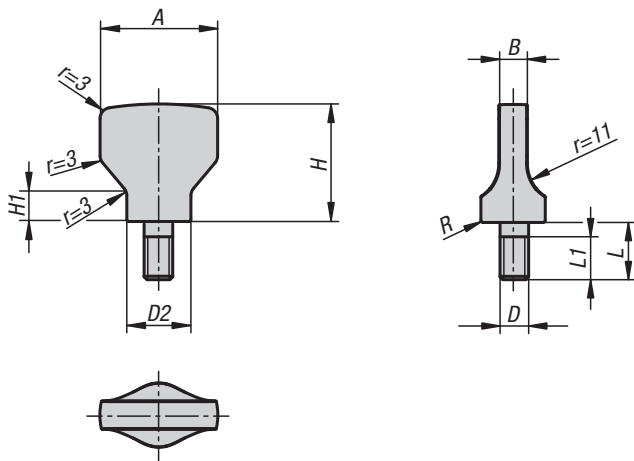
The complete surface is polished to a high gloss with a surface finish of much less than Ra 0.8 µm. The contour is produced with generous radii and transitions. It doesn't matter in which position the wing grip is mounted, dirt and residue from products or cleaners seldom adheres. Easy cleaning is ensured. The Hygienic USIT® sealing and shim washers from Freudenberg Process are used to seal the screw-on point. The shaft of the wing screw is specially designed to suit this seal. An almost cavity-free seal of the screw-on point is created which satisfies hygienic regulations.

**On request:**

Other screw lengths and inch threads.

**Accessories:**

Hygienic USIT® sealing and shim washer K1491 for the screw-on surface.

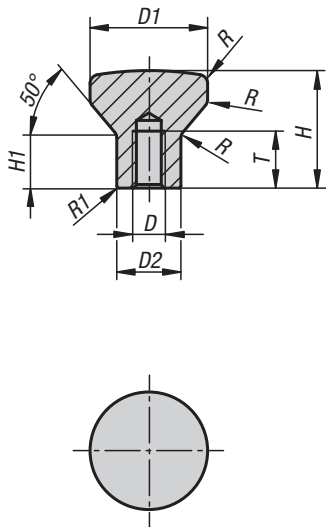


### KIPP Wing screws for Hygienic USIT® sealing and shim washer Freudenberg Process Seals

| Order No.     | A  | B  | D   | D2   | H  | H1  | L  | L1 | R    |
|---------------|----|----|-----|------|----|-----|----|----|------|
| K1313.2004X8  | 20 | 4  | M4  | 10,8 | 19 | 5,3 | 8  | 7  | 0,45 |
| K1313.2105X10 | 21 | 5  | M5  | 11,8 | 21 | 6   | 10 | 9  | 0,5  |
| K1313.2506X12 | 25 | 6  | M6  | 14,2 | 25 | 7   | 12 | 11 | 0,55 |
| K1313.3308X16 | 33 | 8  | M8  | 18   | 33 | 8,4 | 16 | 15 | 0,7  |
| K1313.4010X20 | 40 | 10 | M10 | 22,3 | 40 | 10  | 20 | 19 | 0,8  |

## Mushroom knobs female thread with high head

for Hygienic USIT® Freudenberg Process Seals sealing and shim washer



**Material:**

Steel parts stainless steel 1.4404.

**Version:**

High-gloss polished.

**Sample order:**

K1308.2004

**Note:**

The high head makes the mushroom knob ideal for manual pull and push movements.

The complete surface is polished to a high gloss with a surface finish of much less than Ra 0.8 µm. The contour is produced with generous radii and transitions. It doesn't matter in which position the mushroom knob is mounted, dirt and residue from products or cleaners seldom adheres. Easy cleaning is ensured.

The Hygienic USIT® sealing and shim washers from Freudenberg Process are used to seal the screw-on point. The shaft of the mushroom knob is specially designed to suit this seal. An almost cavity-free seal of the screw-on point is created which satisfies hygienic regulations.

**On request:**

Inch threads, thread depths, form variations.

**Accessories:**

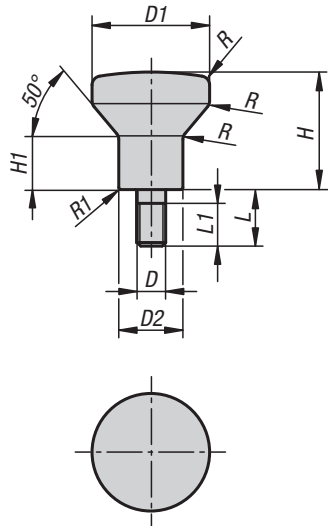
Hygienic USIT® sealing and shim washer K1491 for the screw-on surface.

### KIPP Mushroom knobs, female thread with high head, for Hygienic USIT® sealing and shim washer

| Order No.  | D   | D1 | D2   | H  | H1 | T  | R | R1   |
|------------|-----|----|------|----|----|----|---|------|
| K1308.2004 | M4  | 20 | 10,8 | 19 | 8  | 10 | 3 | 0,45 |
| K1308.2105 | M5  | 21 | 11,8 | 21 | 10 | 12 | 3 | 0,5  |
| K1308.2506 | M6  | 25 | 14,2 | 25 | 12 | 12 | 3 | 0,55 |
| K1308.3308 | M8  | 33 | 18   | 33 | 15 | 16 | 4 | 0,7  |
| K1308.4010 | M10 | 40 | 22,3 | 40 | 19 | 20 | 4 | 0,8  |

## Mushroom knobs male thread with high head

for Hygienic USIT® sealing and shim washer Freudenberg Process Seals



**Material:**

Steel parts stainless steel 1.4404.

**Version:**

High-gloss polished.

**Sample order:**

K1309.2004X8

**Note:**

The high head makes the mushroom knob ideal for manual pull and push movements.

The complete surface is polished to a high gloss with a surface finish of much less than Ra 0.8 µm.

The contour is produced with generous radii and transitions. It doesn't matter in which position the mushroom knob is mounted, dirt and residue from products or cleaners seldom adheres. Easy cleaning is ensured.

The Hygienic USIT® sealing and shim washers from Freudenberg Process are used to seal the screw-on point. The shaft of the mushroom knob is specially designed to suit this seal. An almost cavity-free seal of the screw-on point is created which satisfies hygienic regulations.

**On request:**

Inch threads, thread lengths, form variations.

**Accessories:**

Hygienic USIT® sealing and shim washer K1491 for the screw-on surface.

**KIPP Mushroom knobs male thread, with high head, for Hygienic USIT® sealing and shim washer**

| Order No.     | D   | D1 | D2   | H  | H1 | L  | L1 | R | R1   |
|---------------|-----|----|------|----|----|----|----|---|------|
| K1309.2004X8  | M4  | 20 | 10,8 | 19 | 8  | 8  | 7  | 3 | 0,45 |
| K1309.2105X10 | M5  | 21 | 11,8 | 21 | 10 | 10 | 9  | 3 | 0,5  |
| K1309.2506X12 | M6  | 25 | 14,2 | 25 | 12 | 12 | 11 | 3 | 0,55 |
| K1309.3308X16 | M8  | 33 | 18   | 33 | 15 | 16 | 15 | 4 | 0,7  |
| K1309.4010X20 | M10 | 40 | 22,3 | 40 | 19 | 20 | 19 | 4 | 0,8  |

## T-grips with female thread in stainless steel

for Hygienic USIT® sealing and shim washer Freudenberg Process Seals



**Material:**  
Stainless steel 1.4404.

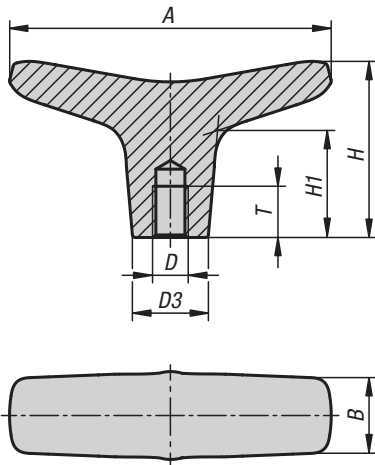
**Version:**  
High-gloss polished.

**Sample order:**  
K1515.5505

**Note:**  
The complete surface is polished to a high gloss with a surface finish of Ra 0.8 µm. This means that dirt and impurities can hardly adhere. Easy cleaning is ensured. The Hygienic USIT® sealing and shim washers from Freudenberg Process are used to seal the fastening point. The shaft of the T-grip is specially designed to suit this seal. A cavity-free seal of the fastening point is created, which satisfies hygienic regulations.

**On request:**  
Other thread depths, inch threads, male threads.

**Accessories:**  
Hygienic USIT® sealing and shim washer K1491 for the screw-on surface.



### KIPP T-grips with female thread in stainless steel for Hygienic USIT® sealing and shim washer Freudenberg Process Seals

| Order No.  | A    | B    | D  | D3    | H    | H1   | T   |
|------------|------|------|----|-------|------|------|-----|
| K1515.5505 | 55,2 | 12,3 | M5 | 11,65 | 32,9 | 21   | 7,5 |
| K1515.6506 | 65,3 | 14   | M6 | 14    | 37   | 22,7 | 9   |
| K1515.7508 | 75,3 | 17,7 | M8 | 17,8  | 41,2 | 24,9 | 12  |

## Wing nuts narrow

in Hygienic DESIGN



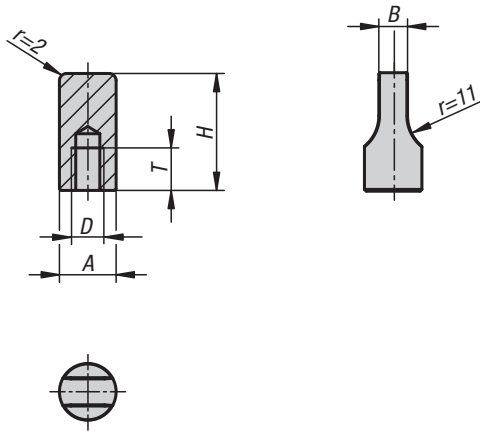
**Material:**  
Stainless steel 1.4404.

**Version:**  
Polished.

**Sample order:**  
K1314.04

**Note:**  
The wing nut makes simple screw connections feasible. They can be easily opened or re-tightened without tools.  
The complete surface is polished with a surface finish of less than Ra 0.8 µm. The contour is rounded with smooth transitions. Due to the polished surface dirt and residue from products or cleaners seldom adheres. Easy cleaning is ensured.

**On request:**  
Inch threads, external threads.



### KIPP Wing nuts narrow in Hygienic DESIGN

| Order No. | A  | B   | D   | H  | T  |
|-----------|----|-----|-----|----|----|
| K1314.04  | 9  | 4,5 | M4  | 20 | 6  |
| K1314.05  | 10 | 4,5 | M5  | 22 | 6  |
| K1314.06  | 12 | 5,5 | M6  | 22 | 7  |
| K1314.08  | 16 | 8   | M8  | 25 | 9  |
| K1314.10  | 20 | 10  | M10 | 30 | 11 |

## Pull handles

for Hygienic USIT® sealing and shim washer Freudenberg Process Seals



**Material:**  
Stainless steel 1.4404.

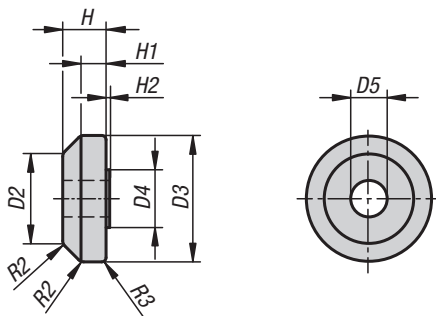
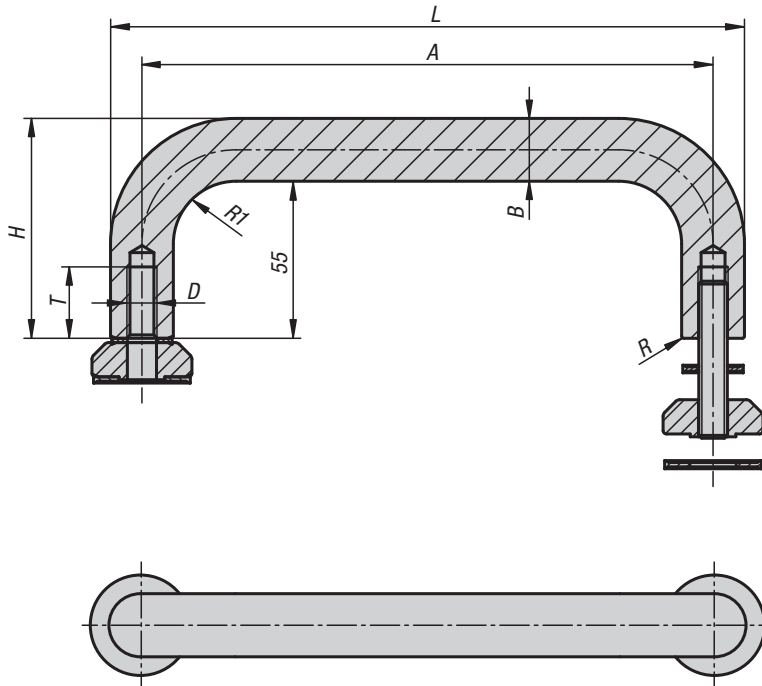
**Version:**  
High-gloss polished.

**Sample order:**  
K1364.30006

**Note:**  
Solid pull handles, polished overall to a high gloss. The resulting surface finish of less than Ra 0.8 µm allows residue from products or cleaners to seldom adhere. This, together with the large radii make the handle extremely easy to clean.  
Through the optionally available support disc, the contact surface i.e. the transferable force is considerably increased.  
Screwing on directly or using the intermediate support disc is carried out using the Hygienic USIT® sealing washer from Freudenberg Process Seals. The as normal time-consuming welding of the handle, grinding and polishing the weld is not required. All fastening points and the screw-on surface are hygienically handled.

**On request:**  
External threads, inch threads, longer and higher versions.

**Accessories:**  
Hygienic USIT® sealing and shim washer K1491 for the screw-on surface and the support disc.





# Pull handles

for Hygienic USIT® sealing and shim washer Freudenberg Process Seals



## KIPP Pull handles

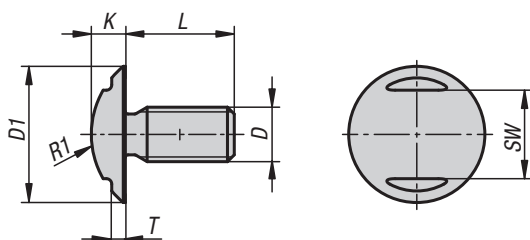
| Order No.   | A   | B    | D   | H    | L     | R    | R1   | T    |
|-------------|-----|------|-----|------|-------|------|------|------|
| K1364.12005 | 120 | 11,8 | M5  | 66,8 | 131,8 | 0,5  | 13   | 12,5 |
| K1364.20005 | 200 | 11,8 | M5  | 66,8 | 211,8 | 0,5  | 13   | 12,5 |
| K1364.30005 | 300 | 11,8 | M5  | 66,8 | 311,8 | 0,5  | 13   | 12,5 |
| K1364.12006 | 120 | 14,2 | M6  | 69,2 | 134,2 | 0,55 | 16   | 15   |
| K1364.20006 | 200 | 14,2 | M6  | 69,2 | 214,2 | 0,55 | 16   | 15   |
| K1364.30006 | 300 | 14,2 | M6  | 69,2 | 314,2 | 0,55 | 16   | 15   |
| K1364.12008 | 120 | 18   | M8  | 73   | 138   | 0,6  | 19   | 20   |
| K1364.20008 | 200 | 18   | M8  | 73   | 218   | 0,6  | 19   | 20   |
| K1364.30008 | 300 | 18   | M8  | 73   | 318   | 0,6  | 19   | 20   |
| K1364.12010 | 120 | 22,3 | M10 | 77,3 | 142,3 | 0,75 | 23,5 | 25   |
| K1364.20010 | 200 | 22,3 | M10 | 77,3 | 222,3 | 0,75 | 23,5 | 25   |
| K1364.30010 | 300 | 22,3 | M10 | 77,3 | 322,3 | 0,75 | 23,5 | 25   |

## KIPP Circular plates

| Order No. | for screws | D2   | D3   | D4 | D5   | H  | H1  | H2  | R2  | R3   |
|-----------|------------|------|------|----|------|----|-----|-----|-----|------|
| K1365.05  | M5         | 13,5 | 18   | 8  | 5,2  | 6  | 3,5 | 0,7 | 1,5 | 0,6  |
| K1365.06  | M6         | 15,7 | 22,3 | 10 | 6,2  | 8  | 4,8 | 0,7 | 1,5 | 0,75 |
| K1365.08  | M8         | 20   | 26,6 | 12 | 8,2  | 10 | 6,7 | 1   | 2   | 0,9  |
| K1365.10  | M10        | 24,3 | 35   | 16 | 10,2 | 12 | 7   | 1   | 2   | 1,2  |

# Ball head screw

in Hygienic DESIGN



**Material:**

Stainless steel 1.4404.

**Version:**

Polished.

**Sample order:**

K1329.06X20 (include length L)

**Note:**

Ideal elements for fastening cladding panels, Plexiglas covers etc. The oversized flange and the thread undercut ensure a stress-free, uniform force distribution on the respective surfaces. Projecting edges are kept to a minimum by the head height being kept as low as possible. An open-end spanner is used to screw the fastener in.

The surface of the ball head screw is polished and, with regard to design optimised for the use in hygienic environments. The surface is polished to a surface finish of less than Ra 0.8 µm. Dirt and residue from products or cleaners seldom adheres and easy cleaning is ensured.

**Accessories:**

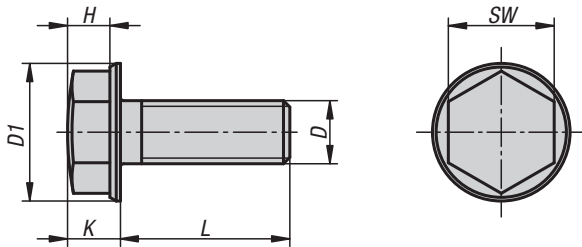
For damage-free tightening and loosening of the screw we recommend the open-end spanners with protective cap, see article No. K1362 ... together with the protective caps K1362 ...

## KIPP Ball head screw in Hygienic DESIGN

| Order No. | D   | D1 | K   | T   | SW | R1   | L                 |
|-----------|-----|----|-----|-----|----|------|-------------------|
| K1329.03X | M3  | 8  | 2   | 0,6 | 5  | 5,2  | 4/5/6/8/10        |
| K1329.04X | M4  | 11 | 3   | 1   | 6  | 6,7  | 5/6/8/10/12       |
| K1329.05X | M5  | 14 | 4   | 1   | 8  | 8,6  | 6/8/10/12/16      |
| K1329.06X | M6  | 17 | 5   | 1,5 | 10 | 10   | 8/10/12/16/20     |
| K1329.08X | M8  | 20 | 5   | 1,5 | 13 | 13   | 10/12/16/20/25    |
| K1329.10X | M10 | 22 | 6   | 1,5 | 15 | 13,5 | 12/16/20/25/30/37 |
| K1329.12X | M12 | 27 | 7,5 | 1,5 | 19 | 16,3 | 16/20/25/30/35    |
| K1329.16X | M16 | 36 | 9   | 1,5 | 24 | 23   | 20/25/30/35/40    |

## Hexagon head screws, stainless steel

in Hygienic DESIGN



**Material:**

Stainless steel 1.4404

**Version:**

Polished.

**Sample order:**

K1411.03X06

(include length L e.g. 06 for L = 6 mm.)

**Note:**

The surface of the hexagon head bolt is polished and, with regard to design optimised for the use in hygienic environments.

The bolt head is convex on the top face and the collar has a conical formed top surface.

Instead of troublesome embossing or indentations, the bolt head is smooth with a surface finish of Ra 0.8 µm.

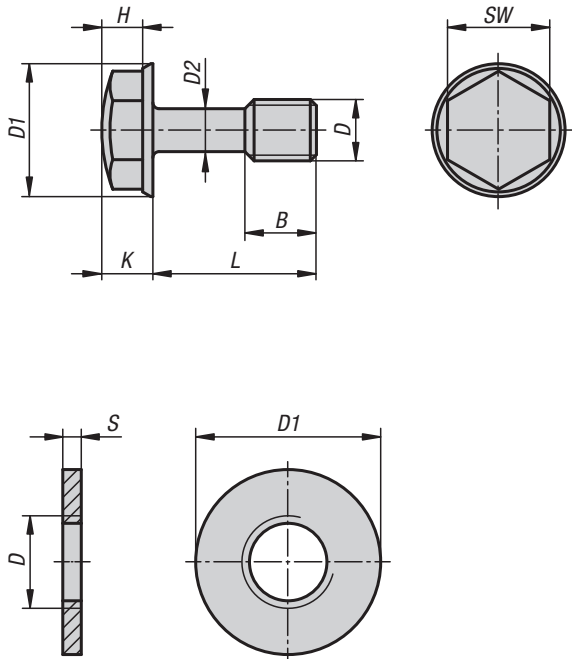
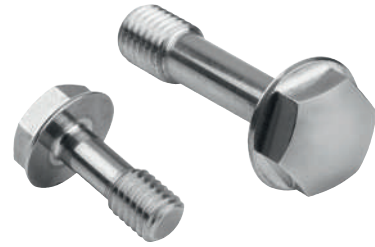
Dirt and residue from products or cleaners seldom adheres and easy cleaning is ensured.

### KIPP Hexagon head screws, stainless steel in Hygienic DESIGN

| Order No. | D   | D1   | H   | K   | L                                | SW  |
|-----------|-----|------|-----|-----|----------------------------------|-----|
| K1411.03X | M3  | 7    | 3   | 3,8 | 6/8/12/16/20/25/30               | 5,5 |
| K1411.04X | M4  | 9,2  | 3   | 4   | 8/12/16/20/25/30/35/40           | 7   |
| K1411.05X | M5  | 10,5 | 3,7 | 4,7 | 12/16/20/25/30/35/40/45/50       | 8   |
| K1411.06X | M6  | 13   | 4   | 5   | 12/16/20/25/30/35/40/45/50/55/60 | 10  |
| K1411.08X | M8  | 16,8 | 5,5 | 6,5 | 16/20/25/30/35/40/45/50/55/60    | 13  |
| K1411.10X | M10 | 20,6 | 7,3 | 8,3 | 20/25/30/35/40/45/50/55/60       | 16  |

## Hexagon bolts with narrow shaft

in Hygienic DESIGN

**Material:**

Stainless steel 1.4404.

**Version:**

Polished.

**Sample order:**

K1330.06X30 (include length L)

**Note:**

Narrow shaft bolts are preferably secured against unintentional loss with a retaining element. This satisfies the EU standard 2006/42/EG. With the optionally available retaining washer the bolt is permanently combined with the component before screwing in. The washer is screwed over the threaded section and can then move freely on the narrow shaft. The shaft is not damaged by e.g. notching caused by a spring effect. By manual operation it is not possible that the washer screws itself out again. However, by careful manipulation the washer can be removed from the bolt without damaging either.

The surface of the hexagon head bolt is polished and, with regard to design optimised for the use in hygienic environments. The bolt head is convex on the top face and the collar has a conical formed top surface. Instead of troublesome embossing or indentations, the bolt head is smooth with a surface finish of less than  $Ra\ 0.8\ \mu\text{m}$ . Dirt and residue from products or cleaners seldom adheres and easy cleaning is ensured.

**On request:**

Inch threads, thread lengths, shaft lengths

**Accessories:**

Locking washer K1331.

## Hexagon bolts with narrow shaft

in Hygienic DESIGN



## KIPP Hexagon bolts with narrow shaft in Hygienic DESIGN

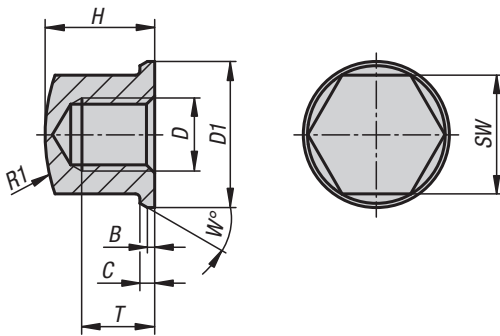
| Order No. | D   | D1   | D2  | B   | H   | K   | L                          | SW  |
|-----------|-----|------|-----|-----|-----|-----|----------------------------|-----|
| K1330.03X | M3  | 7    | 2,1 | 4,5 | 3   | 3,8 | 6/8/10/12                  | 5,5 |
| K1330.04X | M4  | 9,2  | 3,1 | 5   | 3   | 4   | 6/8/10/12/16               | 7   |
| K1330.04X | M4  | 9,2  | 3,1 | 14  | 3   | 4   | 20                         | 7   |
| K1330.05X | M5  | 10,5 | 3,7 | 6   | 3,7 | 4,7 | 8/10/12/16/20              | 8   |
| K1330.05X | M5  | 10,5 | 3,7 | 16  | 3,7 | 4,7 | 25                         | 8   |
| K1330.06X | M6  | 13   | 4,2 | 7   | 4   | 5   | 8/10/12/16/20              | 10  |
| K1330.06X | M6  | 13   | 4,2 | 18  | 4   | 5   | 25/30/35/40/45/50/60       | 10  |
| K1330.08X | M8  | 16,8 | 6   | 9   | 5,5 | 6,5 | 12/14/16/20/25             | 13  |
| K1330.08X | M8  | 16,8 | 6   | 22  | 5,5 | 6,5 | 30/35/40/45/50/55/60/65/70 | 13  |
| K1330.10X | M10 | 20,6 | 7,7 | 12  | 7,3 | 8,3 | 20/25/30/35                | 16  |
| K1330.10X | M10 | 20,6 | 7,7 | 26  | 7,3 | 8,3 | 40/45/50/55/60/65/70/75/80 | 16  |

## KIPP Retaining washers for narrow shank screws

| Order No. | D   | D1 | S   |
|-----------|-----|----|-----|
| K1331.03  | M3  | 6  | 1,5 |
| K1331.04  | M4  | 8  | 1,5 |
| K1331.05  | M5  | 10 | 1,5 |
| K1331.06  | M6  | 12 | 1,5 |
| K1331.08  | M8  | 16 | 2   |
| K1331.10  | M10 | 20 | 2   |

## Cap nut compact

in Hygienic DESIGN



**Material:**  
Stainless steel 1.4404.

**Version:**  
Polished.

**Sample order:**  
K1332.08

**Note:**  
The surface of the cap nut is polished and, with regard to design optimised for the use in hygienic environments. The top of the nut is spherical and the collar has a conical formed top face. The nut has been designed as a low version so as to keep troublesome corners as few as possible. Due to the extremely high quality surface finish of much less than Ra 0.8 µm, hardly any dirt particles adhere to the surface.

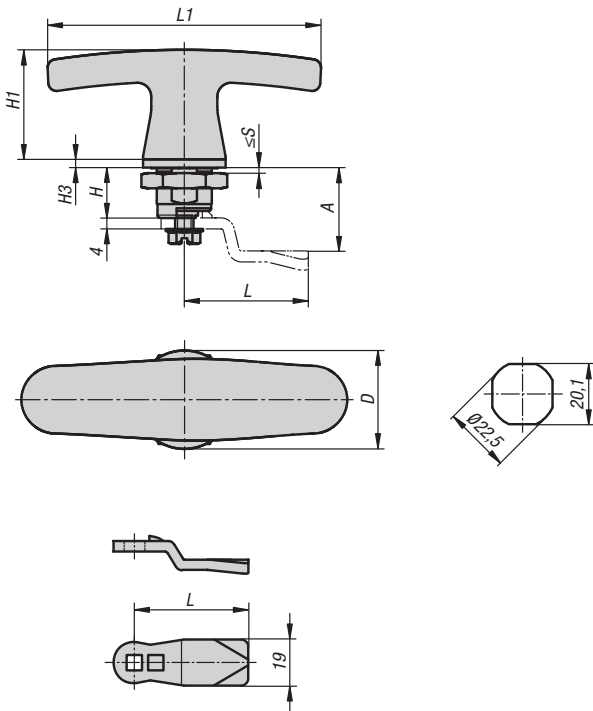
**On request:**  
Inch threads, high versions.

### KIPP Cap nut compact in Hygienic DESIGN

| Order No. | D   | D1  | B    | C   | H    | R1  | SW  | T  | W  |
|-----------|-----|-----|------|-----|------|-----|-----|----|----|
| K1332.03  | M3  | 6,8 | 0,25 | 0,5 | 4,95 | 8,8 | 5,5 | 3  | 20 |
| K1332.04  | M4  | 9   | 0,3  | 0,8 | 6,5  | 10  | 7   | 4  | 30 |
| K1332.05  | M5  | 10  | 0,5  | 1   | 7    | 16  | 8   | 4  | 30 |
| K1332.06  | M6  | 12  | 0,8  | 1   | 9    | 16  | 10  | 6  | 30 |
| K1332.08  | M8  | 16  | 0,8  | 1,6 | 12   | 20  | 13  | 8  | 30 |
| K1332.10  | M10 | 20  | 1    | 2   | 14   | 32  | 16  | 10 | 30 |
| K1332.12  | M12 | 24  | 1    | 2,5 | 16   | 35  | 19  | 11 | 30 |

## Quarter-turn lock in Hygienic DESIGN

with T-grip



**Material:**

Housing and actuation: 1.4404.  
Earthing nut and ratchet screw: 1.4301.  
Seal: blue silicon, FDA conform.

**Version:**

Bright.  
Grip polished.

**Sample order:**

K1452.1188

**Note:**

The hygienic stainless steel quarter turn lock prevents bacterial attack and fulfils the strict regulations of testing principles for foodstuff machinery and hygien. The well conceived geometric form, the mirror polished stainless steel surface and the central circumferential seal reliably prevent dirt accumulation. Water, cleaning agents etc. can drain off fully and so prevent contamination.

Especially in processes where the resistance of the seal to cleaning and disinfection agents is very important, optimised control cabinets, terminal boxes and command panels are a must. Specifically designed after the principles of Hygienic DESIGN, the hygienic quarter turn lock HD fulfils the strict regulations of the foodstuff processing industry and passes therefore optimally in their professional hygienic applications. The special seal is suitable for high pressure washing up to max. 100 bar and fulfils IP65/67. Furthermore, the seal is temperature stable up to 80°C and the blue colour satisfies FDA regulations (reliably prevents a confusion with foodstuffs).

Please order required tongue version separately. Every tongue can be combined with every housing.

### KIPP Quarter-turn lock in Hygienic DESIGN with T-grip

| Order No.  | D  | H  | H1 | H3 | L1  | S max. |
|------------|----|----|----|----|-----|--------|
| K1452.1188 | 30 | 18 | 40 | 3  | 100 | 8      |

### KIPP Tongue for quarter-turn locks

| Order No.   | A  | L  |
|-------------|----|----|
| K1340.45060 | 6  | 45 |
| K1340.45080 | 8  | 45 |
| K1340.45100 | 10 | 45 |
| K1340.45140 | 14 | 45 |
| K1340.45160 | 16 | 45 |
| K1340.45180 | 18 | 45 |
| K1340.45200 | 20 | 45 |
| K1340.45220 | 22 | 45 |
| K1340.45240 | 24 | 45 |
| K1340.45260 | 26 | 45 |
| K1340.45280 | 28 | 45 |
| K1340.45320 | 32 | 45 |
| K1340.45500 | 50 | 45 |

## Quarter-turn lock in Hygienic DESIGN



**Material:**

Housing, actuation and fastening nut 1.4404 stainless steel.

O-rings red silicone, conforming to FDA.

Tongue 1.4301 stainless steel.

**Version:**

Bright.

**Sample order:**

Quarter turn lock K1353.18

Tongue K1340.45060

**Note:**

The quarter turn lock fulfills the hygienic requirements acc. to DIN EN 1672-2 and DIN EN 14159.

Especially suitable for the food and beverage industry.

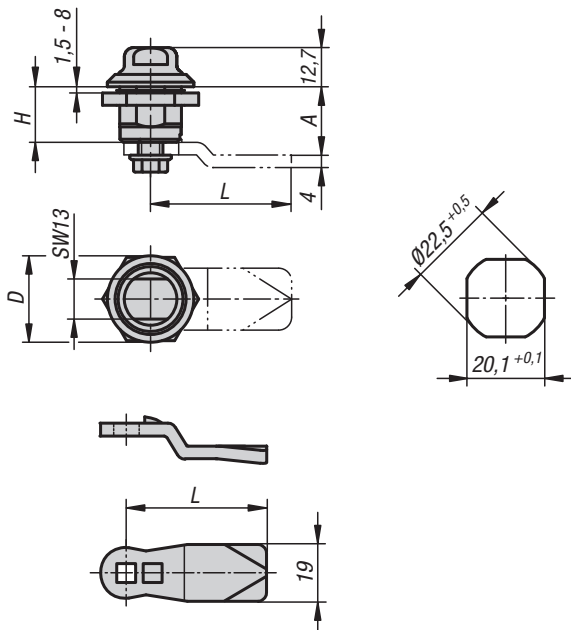
Please order required tongue version separately. Every tongue can be combined with every housing.

**Accessories:**

Lock key K1335.113

Ring spanner K1362.13

Protective insert K1362.1310



### KIPP Quarter-turn lock in Hygienic DESIGN

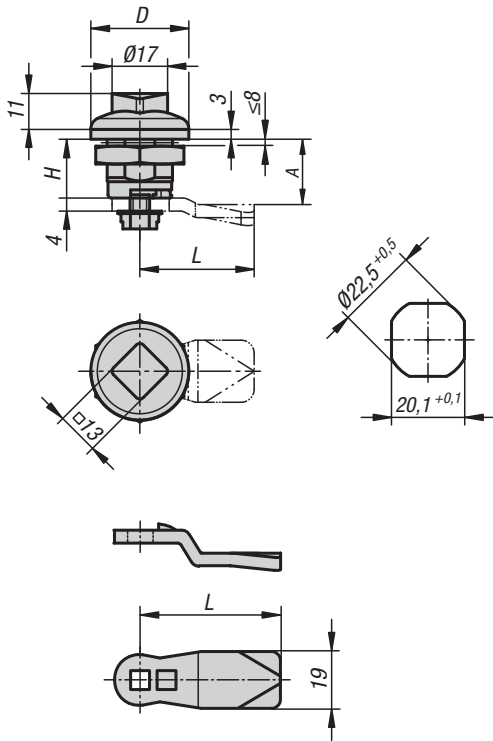
| Order No. | Actuation   | D  | H  |
|-----------|-------------|----|----|
| K1353.18  | double flat | 28 | 18 |

### KIPP Tongue for quarter-turn lock

| Order No.   | A  | L  |
|-------------|----|----|
| K1340.45060 | 6  | 45 |
| K1340.45080 | 8  | 45 |
| K1340.45100 | 10 | 45 |
| K1340.45140 | 14 | 45 |
| K1340.45160 | 16 | 45 |
| K1340.45180 | 18 | 45 |
| K1340.45200 | 20 | 45 |
| K1340.45220 | 22 | 45 |
| K1340.45240 | 24 | 45 |
| K1340.45260 | 26 | 45 |
| K1340.45280 | 28 | 45 |
| K1340.45320 | 32 | 45 |
| K1340.45500 | 50 | 45 |



## Quarter-turn lock in Hygienic DESIGN



**Material:**

Housing and actuation: 1.4404.  
Earthing nut and ratchet screw: 1.4301.  
Seal: blue silicon, FDA conform.  
Tongue 1.4301.

**Version:**

Bright.

**Sample order:**

Quarter turn lock K1354.18  
Tongue K1340.45060

**Note:**

The hygienic stainless steel quarter turn lock prevents bacterial attack and fulfils the strict regulations of testing principles for foodstuff machinery and hygien. The well conceived geometric form, the mirror polished stainless steel surface and the central circumferential seal reliably prevent dirt accumulation. Water, cleaning agents etc. can drain off fully and so prevent contamination.

Especially in processes where the resistance of the seal to cleaning and disinfection agents is very important, optimised control cabinets, terminal boxes and command panels are a must. Specifically designed after the principles of Hygienic DESIGN, the hygienic quarter turn lock HD fulfils the strict regulations of the foodstuff processing industry and passes therefore optimally in their professional hygienic applications. The special seal is suitable for high pressure washing up to max. 100 bar and fulfils IP65/67. Furthermore, the seal is temperature stable up to 80°C and the blue colour satisfies FDA regulations (reliably prevents a confusion with foodstuffs).

Please order required tongue version separately. Every tongue can be combined with every housing.

**Accessories:**

Lock key K1335.113  
Ring spanner K1362.16  
Protective insert K1362.1613

**KIPP Quarter-turn lock in Hygienic DESIGN**

| Order No. | Actuation | D  | H  |
|-----------|-----------|----|----|
| K1354.18  | square    | 30 | 18 |

**KIPP Tongue for quarter-turn lock**

| Order No.   | A  | L  |
|-------------|----|----|
| K1340.45060 | 6  | 45 |
| K1340.45080 | 8  | 45 |
| K1340.45100 | 10 | 45 |
| K1340.45140 | 14 | 45 |
| K1340.45160 | 16 | 45 |
| K1340.45180 | 18 | 45 |
| K1340.45200 | 20 | 45 |
| K1340.45220 | 22 | 45 |
| K1340.45240 | 24 | 45 |
| K1340.45260 | 26 | 45 |
| K1340.45280 | 28 | 45 |
| K1340.45320 | 32 | 45 |
| K1340.45500 | 50 | 45 |

## Cable fasteners, stainless steel or plastic

in Hygienic DESIGN



**Material:**

Cable fasteners: Stainless steel 1.4404 or PVDF.  
Hose: Plastic.

**Version:**

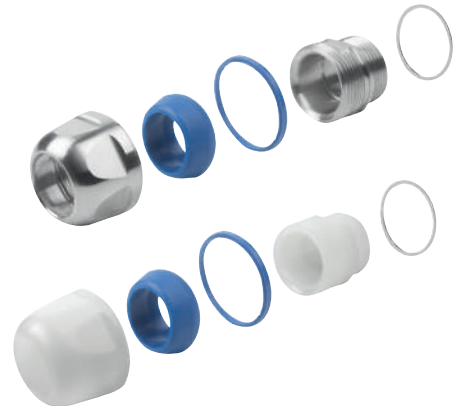
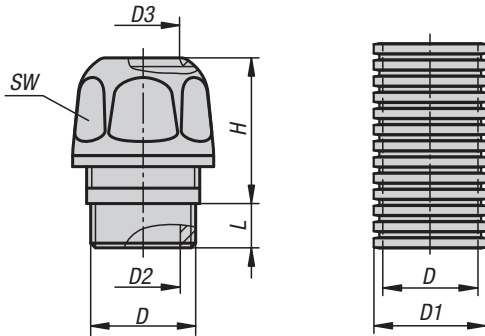
Cable fasteners: Stainless steel bright.  
Plastic transparent.  
Hose: Plastic blue.

**Sample order:**

K1453.12150

**Note:**

Washers supplied.  
EN 60423 metric thread.  
IP rating 66, 68 up to 15 bar, 69K.  
EHEDG certified



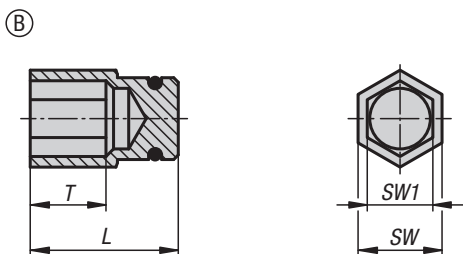
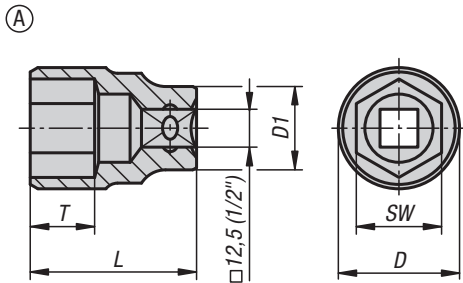
### KIPP Cable fasteners, stainless steel or plastic, Hygienic DESIGN

| Order No.<br>stainless steel | Order No.<br>plastic | D       | D2   | D3    | H     | SW    | L  |
|------------------------------|----------------------|---------|------|-------|-------|-------|----|
| K1453.12150                  | -                    | M12x1,5 | 8    | 7-5   | 19    | 17    | 7  |
| K1453.16150                  | K1453.16151          | M16x1,5 | 10   | 9-7   | 21/25 | 20/22 | 9  |
| K1453.20150                  | K1453.20151          | M20x1,5 | 12,5 | 12-9  | 27/29 | 24/26 | 9  |
| K1453.25150                  | K1453.25151          | M25x1,5 | 18,5 | 18-15 | 27/31 | 30/32 | 10 |
| K1453.32150                  | K1453.32151          | M32x1,5 | 25,3 | 23-20 | 27/32 | 36/38 | 11 |

### KIPP Corrugated tube hose

| Order No.  | D    | D1   | L    | Nominal size |
|------------|------|------|------|--------------|
| K1461.1250 | 11,8 | 16   | 50 m | 12           |
| K1461.1750 | 15,6 | 21,6 | 50 m | 17           |

## Sockets and plastic inserts



**Material:**

Socket tool steel.  
Insert special PETP.

**Version:**

Socket chromium-plated.

**Sample order:**

K1361.1112 (Socket SW11)  
K1361.0805 (Plastic insert SW8 for M5 hex head screw)

**Note:**

Socket:

Socket with 1/2" drive, made by Hazet. Specially modified, for holding the plastic inserts. The plastic inserts are securely held by the inner form and length of the socket. Optimal drive torque is transmitted to the screw head. By careful use, metallic contact between the socket and the hex head is prevented. Contact corrosion is eliminated.

Plastic insert:

Plastic inserts for tightening and loosening the screws and nuts of the KIPP product range NOVOnox hygienic. Polished and sensitive surfaces are protected and a later contact corrosion is avoided.

The plastic inserts are made from a specially manufactured PETP and have FDA approval. The inserts are pressed into the special socket manually. The form fit and locking device ensures an optimal hold in the socket. No special tools are required to exchange the worn out inserts.

By a tightening torque of  $\mu$  0.12 coefficient of friction (DIN for A4-70 for screws and nuts), the plastic inserts have a life expectancy of up to 1000 alternating cycles.

**Drawing reference:**

- A) Socket
- B) Plastic insert

### KIPP Sockets

| Order No.  | D    | D1   | L    | T    | SW |
|------------|------|------|------|------|----|
| K1361.1012 | 15,3 | 22   | 36,6 | 10,6 | 10 |
| K1361.1112 | 16,6 | 22   | 37,3 | 10,1 | 11 |
| K1361.1312 | 19,1 | 22   | 37,3 | 10,6 | 13 |
| K1361.1612 | 22,9 | 23,6 | 37,1 | 11,3 | 16 |
| K1361.1912 | 26,6 | 23   | 37   | 13,2 | 19 |
| K1361.2112 | 29   | 25   | 36,8 | 12,9 | 21 |
| K1361.2712 | 35,2 | 25   | 44,4 | 18,1 | 27 |

### KIPP Plastic inserts

| Order No.  | L    | T    | SW | SW1 | Suitable for hexagon screws |
|------------|------|------|----|-----|-----------------------------|
| K1361.0805 | 18   | 6    | 11 | 8   | M5                          |
| K1361.1006 | 19,5 | 10   | 13 | 10  | M6                          |
| K1361.1308 | 21,5 | 11   | 16 | 13  | M8                          |
| K1361.1610 | 22   | 13,5 | 19 | 16  | M10                         |
| K1361.1812 | 21,5 | 12   | 21 | 18  | M12                         |
| K1361.2416 | 26,5 | 18   | 27 | 24  | M16                         |

# Combination spanner with protective caps



**Material:**

Combination spanner tool steel.  
Protective cap AISi1MgMn.

**Sample order:**

K1362.10 combination spanner  
K1362.1007 caps for open-end spanner  
K1362.11007 caps for ring spanner

**Note:**

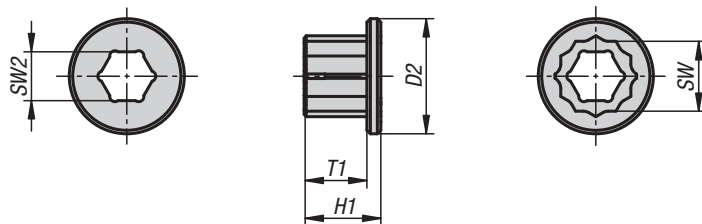
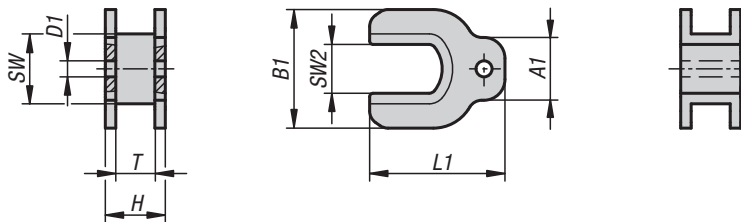
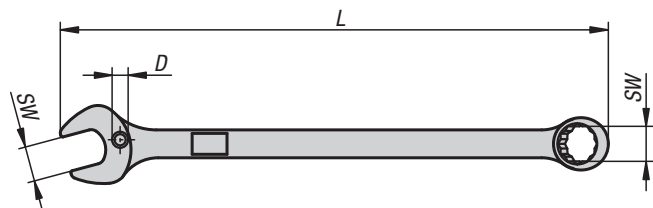
The protective cap was specially developed for tightening and loosening screw connections with sensitive surfaces. With normal tools, the surface of polished screws are so damaged even by the first tightening, that cavities are created making easy and effective cleaning no longer possible.

The protective caps ensure damage free tightening and loosening of fasteners with outer contours. The soft aluminium leaves no scratches or other damage on sensitive surfaces. As the aluminium cap is placed over the hard tool steel, the actual tightening load / tightening torque is taken up by the combination spanner. By proper and professional use the protective caps have a service life of ca. 1000 operating cycles.

Additionally, with the protective caps the risk of contact corrosion is reliably prevented on stainless steel fasteners. The projecting contour largely prevents unintentional contact points between spanner and stainless steel screw. The protective caps are made of the aluminium alloy EN AW 6082 and so comply with EN 602 - aluminium in contact with food. The protective cap is safely held in the spanner by a special moulding or sprung clip element. The cap cannot fall out on its own. Damaged protective caps can be exchanged manually.

**On request:**

Other sizes.



## KIPP Combination spanner

| Order No. | SW | A    | B    | L     | D |
|-----------|----|------|------|-------|---|
| K1362.10  | 10 | 5    | 8    | 154,5 | 5 |
| K1362.11  | 11 | 5,5  | 8,4  | 168,5 | 5 |
| K1362.13  | 13 | 6,3  | 10   | 193   | 6 |
| K1362.16  | 16 | 7    | 11,4 | 230,5 | 6 |
| K1362.19  | 19 | 8    | 13,5 | 268,5 | 7 |
| K1362.21  | 21 | 8,5  | 13,7 | 292   | 7 |
| K1362.27  | 27 | 10,5 | 16   | 380   | 9 |

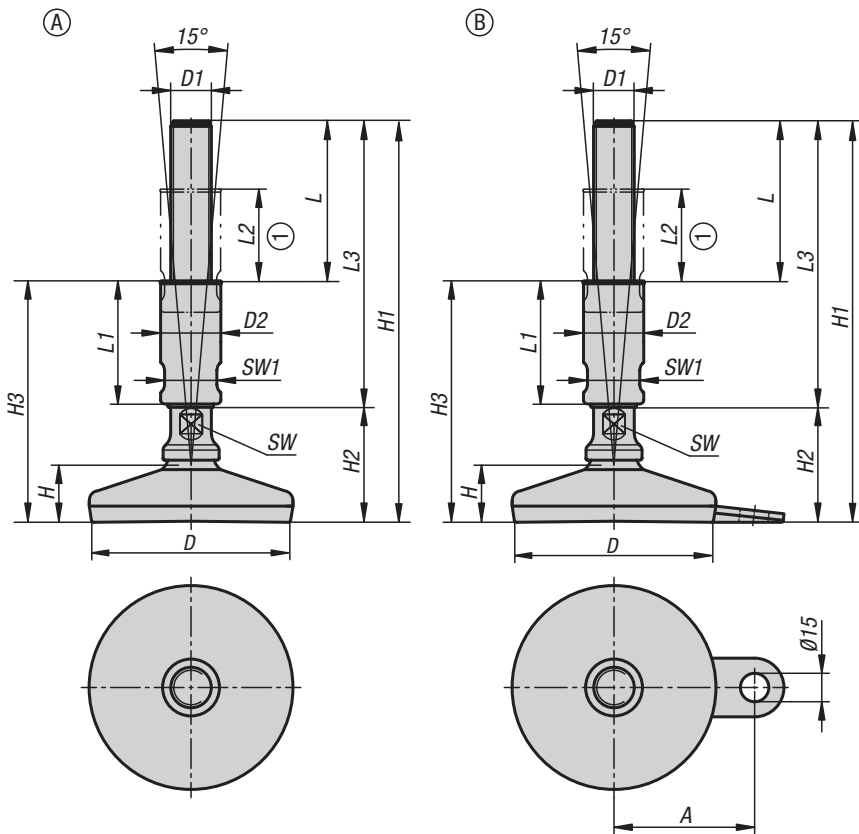
## KIPP Cap for open-end spanner

| Order No.  | SW | SW2 | A1 | B1 | L1   | D1  | T    | H    |
|------------|----|-----|----|----|------|-----|------|------|
| K1362.1007 | 10 | 7   | 9  | 17 | 19,4 | 2,3 | 5,6  | 8,6  |
| K1362.1108 | 11 | 8   | 9  | 18 | 20,7 | 2,3 | 5,7  | 8,7  |
| K1362.1310 | 13 | 10  | 10 | 22 | 23,2 | 3   | 6,7  | 10,7 |
| K1362.1613 | 16 | 13  | 13 | 27 | 28,6 | 3   | 7,7  | 11,7 |
| K1362.1916 | 19 | 16  | 13 | 30 | 32,5 | 4   | 8,6  | 12,6 |
| K1362.2118 | 21 | 18  | 13 | 32 | 35   | 4   | 9    | 13   |
| K1362.2724 | 27 | 24  | 14 | 40 | 43,8 | 4   | 10,8 | 15   |

## KIPP Cap for ring spanner

| Order No.   | SW | SW2 | D2   | T1   | H1   |
|-------------|----|-----|------|------|------|
| K1362.11007 | 10 | 7   | 16,5 | 8    | 11   |
| K1362.11108 | 11 | 8   | 18   | 9,4  | 11,4 |
| K1362.11310 | 13 | 10  | 21   | 11   | 13   |
| K1362.11613 | 16 | 13  | 25   | 12,4 | 14,4 |
| K1362.11916 | 19 | 16  | 30   | 14,5 | 16,5 |
| K1362.12118 | 21 | 18  | 32   | 14,7 | 16,7 |
| K1362.12724 | 27 | 24  | 41   | 17   | 19   |

## Levelling feet in Hygienic DESIGN



**Material:**

Foot plate and threaded spindle stainless steel 1.4301.  
 Rubber base (NBR) Shore 85 +/-5, FDA tested.  
 Rubber seal, silicone, FDA tested.

**Version:**

Foot plate, high-gloss polished.  
 Threaded spindle, bright.  
 Rubber base, black.  
 Rubber seal, blue.

**Sample order:**

K1303.108016X140  
 (include length L3)

**Note:**

Certified according to 3-A Sanitary Standard 88-00.

The high surface quality, the double sealing of the thread and the special seal on the machine foot's spindle joint prevent dirt from sticking and reduce cleaning times to a minimum.

The machine foot is supplied with the 3-A logo.

**Application:**

The machine foot is particularly suitable for machines, plants and appliances in the foodstuff industry, breweries, dairies, beverage and pharmaceutical industries.

**Accessories:**

Hygienic USIT® sealing and shim washer K1491.  
 Hexagon cap nut with collar K1493.

**Drawing reference:**

1) Adjustment range

### KIPP Form A

| Order No.     | Form | D   | D1  | D2 | H  | H1      | H2 | H3      | L      | L1    | L2    | L3      | SW | SW1 | Load rating<br>max. kN<br>(static load only) |
|---------------|------|-----|-----|----|----|---------|----|---------|--------|-------|-------|---------|----|-----|--|
| K1303.108016X | A    | 80  | M16 | 24 | 25 | 193/243 | 53 | 114/139 | 79/104 | 60/85 | 45/70 | 140/190 | 13 | 20  | 20   |
| K1303.108020X | A    | 80  | M20 | 30 | 25 | 193/243 | 53 | 114/139 | 79/104 | 60/85 | 45/70 | 140/190 | 17 | 26  | 20   |
| K1303.108024X | A    | 80  | M24 | 35 | 25 | 193/243 | 53 | 114/139 | 79/104 | 60/85 | 45/70 | 140/190 | 20 | 30  | 20   |
| K1303.110016X | A    | 100 | M16 | 24 | 28 | 196/246 | 56 | 117/142 | 79/104 | 60/85 | 45/70 | 140/190 | 13 | 20  | 25   |
| K1303.110020X | A    | 100 | M20 | 30 | 28 | 196/246 | 56 | 117/142 | 79/104 | 60/85 | 45/70 | 140/190 | 17 | 26  | 25   |
| K1303.110024X | A    | 100 | M24 | 35 | 28 | 196/246 | 56 | 117/142 | 79/104 | 60/85 | 45/70 | 140/190 | 20 | 30  | 25   |
| K1303.112016X | A    | 120 | M16 | 24 | 32 | 200/250 | 60 | 121/146 | 79/104 | 60/85 | 45/70 | 140/190 | 13 | 20  | 30   |
| K1303.112020X | A    | 120 | M20 | 30 | 32 | 200/250 | 60 | 121/146 | 79/104 | 60/85 | 45/70 | 140/190 | 17 | 26  | 30   |
| K1303.112024X | A    | 120 | M24 | 35 | 32 | 200/250 | 60 | 121/146 | 79/104 | 60/85 | 45/70 | 140/190 | 20 | 30  | 30   |

### KIPP Form B with fastening tab

| Order No.        | Form | A  | D   | D1  | D2 | H  | H1  | H2 | H3  | L   | L1 | L2 | L3  | SW | SW1 | Load rating<br>max. kN<br>(static load only) |
|------------------|------|----|-----|-----|----|----|-----|----|-----|-----|----|----|-----|----|-----|--|
| K1303.208016X140 | B    | 54 | 80  | M16 | 24 | 25 | 193 | 53 | 114 | 79  | 60 | 45 | 140 | 13 | 20  | 20   |
| K1303.208016X190 | B    | 54 | 80  | M16 | 24 | 25 | 243 | 53 | 139 | 104 | 85 | 70 | 190 | 13 | 20  | 20   |
| K1303.208020X140 | B    | 54 | 80  | M20 | 30 | 25 | 193 | 53 | 114 | 79  | 60 | 45 | 140 | 17 | 26  | 20   |
| K1303.208020X190 | B    | 54 | 80  | M20 | 30 | 25 | 243 | 53 | 139 | 104 | 85 | 70 | 190 | 17 | 26  | 20   |
| K1303.208024X140 | B    | 54 | 80  | M24 | 35 | 25 | 193 | 53 | 114 | 79  | 60 | 45 | 140 | 20 | 30  | 20   |
| K1303.208024X190 | B    | 54 | 80  | M24 | 35 | 25 | 243 | 53 | 139 | 104 | 85 | 70 | 190 | 20 | 30  | 20   |
| K1303.210016X140 | B    | 69 | 100 | M16 | 24 | 28 | 196 | 56 | 117 | 79  | 60 | 45 | 140 | 13 | 20  | 25   |
| K1303.210016X190 | B    | 69 | 100 | M16 | 24 | 28 | 246 | 56 | 142 | 104 | 85 | 70 | 190 | 13 | 20  | 25   |
| K1303.210020X140 | B    | 69 | 100 | M20 | 30 | 28 | 196 | 56 | 117 | 79  | 60 | 45 | 140 | 17 | 26  | 25   |
| K1303.210020X190 | B    | 69 | 100 | M20 | 30 | 28 | 246 | 56 | 142 | 104 | 85 | 70 | 190 | 17 | 26  | 25   |
| K1303.210024X140 | B    | 69 | 100 | M24 | 35 | 28 | 196 | 56 | 117 | 79  | 60 | 45 | 140 | 20 | 30  | 25   |
| K1303.210024X190 | B    | 69 | 100 | M24 | 35 | 28 | 246 | 56 | 142 | 104 | 85 | 70 | 190 | 20 | 30  | 25   |

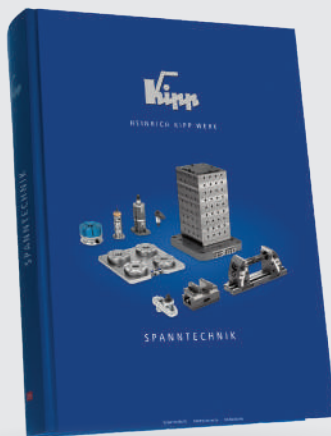




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Telephone

Fax

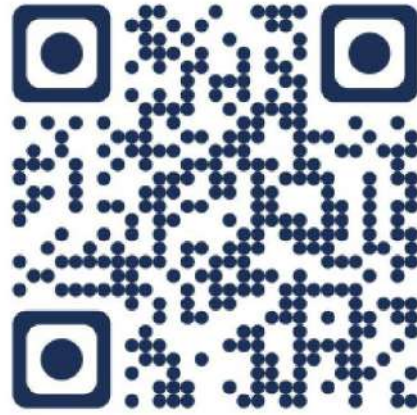
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