



## ■ Turcite® Slydring® for Rod and Piston

### DESCRIPTION

Turcite® Slydring® is used as piston and rod guides due to the outstanding friction behavior, stick-slip free running and good resistance to high temperatures and chemicals.

Slydring® is available off-the-roll cut to length. Sections cut to size ready for installation are available for rod and piston diameters according to Table 187.

Slydring® has a geometrically rectangular cross-section and is chamfered for easy installation into the grooves.

### TEARDROP STRUCTURE

Slydring® up to and including 4 mm radial thickness in Turcite® materials are as standard supplied with "teardrop" structure on the sliding surfaces. This structure comprises small lubricant pockets on the surface which improve the initial lubrication and promote the formation of a lubricant film. They also help to protect the seal system through their ability to embed any foreign particles. In order to be able to use the strip material for both piston and rod guides, the rings have the same teardrop structure on both sides.

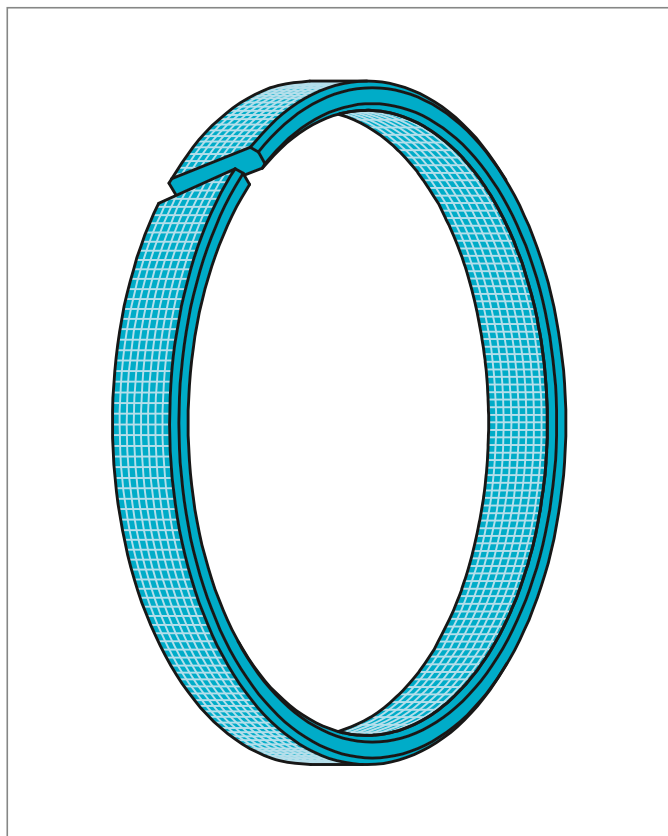


Figure 211: Turcite® Slydring® with teardrop structure structure and chamfered profile

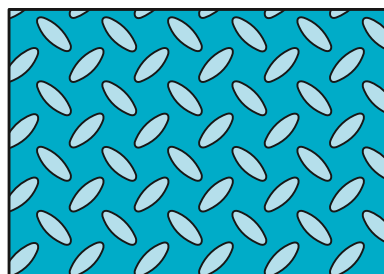


Figure 212: Teardrop structure for Turcite® Slydring®

Slydring® can also be delivered without teardrop structure. In this case, this must be indicated in the TSS Article No. (see Design Code for cut/type in Table 188).

### ADVANTAGES

- No stick-slip effect when starting for smooth operation even at very low speeds
- Minimum static and dynamic friction coefficient for low operating temperature and energy loss
- Outstanding lubrication conditions further improved by the Teardrop structure
- Suitable for non-lubricating fluids depending on Turcite® material for optimum design flexibility
- High wear resistance ensures long service life
- Installation grooves according to ISO 10766
- Suitable for most hydraulic fluids in relation with the majority of modern hardware materials and surface finish depending on material selected.
- Suitable for new environmentally friendly hydraulic fluids
- The embedding of foreign particles is enhanced
- Good damping effect, absorbs vibrations



## APPLICATION EXAMPLES

Turcite® Slydring® can be applied in demanding applications as a standard guiding element for hydraulic operated pistons, plus for piston rods with special requirements, in:

- Machine tools
- Injection molding machines
- Press brakes
- Presses
- Robotics and handling machinery
- Automation
- Positioning cylinders
- Servo hydraulics
- Piston accumulators
- Shock absorbers
- Valves for hydraulic and pneumatic circuits
- Agriculture
- Chemical and process industry

## OPERATING CONDITIONS

Turcite® Slydring® with angle cut is recommended for linear movements:

|                                   |                                                                                                                                                                                                                       |
|-----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Speed:</b>                     | Up to 15 m/s                                                                                                                                                                                                          |
| <b>Temperature:</b>               | -60 °C to +150 °C (+200 °C)                                                                                                                                                                                           |
| <b>Media:</b>                     | Mineral oil-based hydraulic fluids, flame retardant hydraulic fluids, environmentally friendly hydraulic fluids (bio-oils), phosphate ester, water, air and others, depending on the Turcite® material compatibility. |
| <b>Clearance:</b>                 | The maximum permissible radial clearance $S_{max}$ depends on the actual sealing system.                                                                                                                              |
| <b>Tolerance:</b>                 | Depending on the material and dimensions of Slydring®, the thickness tolerance is in the range from +0.00/-0.08 mm except for Turcite® Slydring® Article GP41 + GR41 and GP43 + GR43 where it is +0.02/-0.03 mm.      |
| <b>Radial Slydring® Pressure:</b> | Max. 15 N/mm <sup>2</sup> at +25 °C<br>Max. 12 N/mm <sup>2</sup> at +80 °C<br>Max. 8 N/mm <sup>2</sup> at +120 °C                                                                                                     |

When calculating the width of Turcite® Slydring® it is recommended to use a safety factor  $f = 2$  - see page 569.

With Turcite® materials the allowed surface pressure decreases with increasing temperatures. The load bearing ability for dynamic applications depends primarily on the operating temperature, which should therefore generally not exceed +150 °C.

## IMPORTANT NOTE

The above stated limits for pressure and speed are maximum values individually. Friction heat generated by the combination of pressure and speed may cause local heat build-up. Care should be taken not to apply high values for pressure and speed at the same time.

## RECOMMENDED MATERIALS

The following materials have proven effective for hydraulic applications:

### Turcon® Slydring® in Turcite® M12

All round material for light to medium hydraulic applications with linear, short stroke or helical movements in mineral oils, flame retardant hydraulic fluids, bio-oils, phosphate ester and fluids having low lubricating properties.  
Low friction, high resistance to wear, heat and chemicals.

### Turcon® Slydring® in Turcite® T47

For light to medium hydraulic applications with linear movement in mineral oils or media with good lubricating performance.

### Turcon® Slydring® in Turcite® T51

For lubricated and poorly lubricated linear and slow rotary moving hydraulic and pneumatic components.


**Table 189: Serial Numbers for Turcite® Slydring® in M12, T47, T51**

| Piston Serial No. | Rod Serial No. | Off-the-roll Serial No.* | Groove Width L <sub>2</sub> | Ring Thickness W |
|-------------------|----------------|--------------------------|-----------------------------|------------------|
| GP06              | GR06           | GM0600000-               | 6.00                        | 1.00             |
| GP22              | GR22           | GM2200000-               | 3.20                        | 1.50             |
| GP31              | GR31           | GM3100000-               | 10.00                       | 1.50             |
| GP41              | GR41           | GM4100000-               | 2.50                        | 1.55             |
| <b>GP43</b>       | <b>GR43</b>    | <b>GM4300000-</b>        | <b>4.00</b>                 | <b>1.55</b>      |
| GP49              | GR49           | GM4900000-               | 9.70                        | 2.00             |
| GP53              | GR53           | GM5300000-               | 15.00                       | 2.00             |
| GP64              | GR64           | GM6400000-               | 4.20                        | 2.50             |
| <b>GP65</b>       | <b>GR65</b>    | <b>GM6500000-</b>        | <b>5.60</b>                 | <b>2.50</b>      |
| GP67              | GR67           | GM6700000-               | 6.30                        | 2.50             |
| GP68              | GR68           | GM6800000-               | 8.10                        | 2.50             |
| <b>GP69</b>       | <b>GR69</b>    | <b>GM6900000-</b>        | <b>9.70</b>                 | <b>2.50</b>      |
| <b>GP73</b>       | <b>GR73</b>    | <b>GM7300000-</b>        | <b>15.00</b>                | <b>2.50</b>      |
| GP74              | GR74           | GM7400000-               | 20.00                       | 2.50             |
| <b>GP75</b>       | <b>GR75</b>    | <b>GM7500000-</b>        | <b>25.00</b>                | <b>2.50</b>      |
| GP76              | GR76           | GM7600000-               | 30.00                       | 2.50             |
| GP94              | GR94           | GM9400000-               | 20.00                       | 3.00             |
| <b>GP98</b>       | <b>GR98</b>    | <b>GM9800000-</b>        | <b>25.00</b>                | <b>4.00</b>      |
| GP99              | GR99           | GM9900000-               | 9.70                        | 4.00             |
| GPN1              | GRN1           | GMN100000-               | 9.70                        | 3.00             |
| GPL2              | GRL2           | GML200000-               | 15.00                       | 4.00             |
| GPL3              | GRL3           | GML300000-               | 20.00                       | 4.00             |
| GPL5              | GRL5           | GML500000-               | 30.00                       | 4.00             |

Further dimensions on request.

Dimensions in **bold** are suitable for installation in grooves to ISO 10766.

\* Off-the-roll material can be supplied as complete rolls. Length of rolls varies depending on thickness and material, please contact your local Customer Solution Center.

## TURCITE® FROM THE ROLL, CALCULATION OF THE LINEAR LENGTH

The linear length of Turcite® and Zurcon® Slydring® is calculated such that a gap "Z" is created at the ends of the strip after installation - Figure 208 and Figure 209, page 570. This is required for the following reasons:

- Compensation of the linear expansion of the strips due to the effects of temperature
- Avoidance of intermediate pressures and entrained pressures

When ordering strips off-the-roll for manufacturing of Turcite® and Zurcon® Slydring® in your own works, the length of the strip can be calculated using the following formulae:

### Piston Slydring® :

$$L = c \times (D_N - W) - k \text{ [mm]}$$

### Rod Slydring® :

$$L = c \times (d_N + W) - k \text{ [mm]}$$

where:

$D_N$  = Bore diameter [mm]

$d_N$  = Rod diameter [mm]

$W$  = Ring thickness [mm]

$c$  = 3.11 material factor, valid for Turcite® and Zurcon® Materials

$k$  = Temperature constant:

0.8 for operating temperatures up to +120 °C

2.0 only for applications > +120 °C

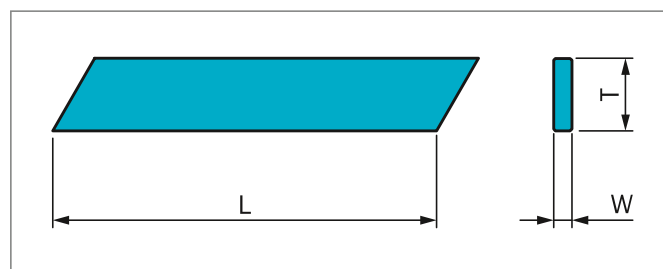


Figure 213: Cut length



## ■ Zurcon® Slydring® for Rod and Piston

### ZURCON® Z80 / Z81

Z80 is a UHMW-PE (ultra-high molecular weight polyethylene) material preferred for use in water hydraulics and pneumatics due to excellent friction and wear properties. For foodstuff and medical applications, use Zurcon® Z81, which meets the requirements in FDA CFR 21, EC, 2002/72/EC and USP 26, 2003, chapter 88 Class. VI – 121 °C-, USP biological reactivity tests, in vivo.

Zurcon® Slydring® is as standard delivered without teardrop structure - see Table 188

### ADVANTAGES

- Good lubrication and wear performance
- Self-lubricating
- Low friction value
- No water absorption
- In compliance with FDA (Z81)
- Excellent resistance to chemicals
- High wear resistance

### APPLICATION EXAMPLES

- Water hydraulics
- Presses
- Dry pneumatics
- Filling machines
- Food processing
- Medical equipment
- Ceramic coated hydraulics

### OPERATING CONDITIONS

|                         |                                                                                                                                                                                                                                 |
|-------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Speed, linear:</b>   | Max. 2.0 m/s                                                                                                                                                                                                                    |
| <b>Temperature:</b>     | -60 °C to +80 °C                                                                                                                                                                                                                |
| <b>Media:</b>           | Mineral oil-based hydraulic fluids, flame retardant hydraulic fluids, environmentally friendly hydraulic fluids (bio-oils), phosphate ester, water, gases, dry air and others. Depending on the Zurcon® material compatibility. |
| <b>Radial Slydring®</b> | Max. 25 N/mm <sup>2</sup> at +25 °C                                                                                                                                                                                             |
| <b>Pressure:</b>        | Max. 8 N/mm <sup>2</sup> from +60 °C to +80 °C                                                                                                                                                                                  |

When calculating the width of Zurcon® Slydring® it is recommended to use a safety factor  $f = 2$  - see page 569.

### IMPORTANT NOTE

The above stated limits for pressure and speed are maximum values individually. Friction heat generated by the combination of pressure and speed may cause local heat build-up. Care should be taken not to apply high values for pressure and speed at the same time.

**Table 190: Serial Numbers for Slydring® in Zurcon® Z80 / Z81**

| Piston Serial No. | Rod Serial No. | Off-the-roll TSS Article No.* | Groove Width L <sub>2</sub> | Ring Thickness W |
|-------------------|----------------|-------------------------------|-----------------------------|------------------|
| GP41              | GR41           | GM4100000-Z80                 | 2.50                        | 1.55             |
| GP43              | GR43           | GM4300000-Z80                 | 4.00                        | 1.55             |
| GP65              | GR65           | GM6500000-Z80                 | 5.60                        | 2.50             |
| GP69              | GR69           | GM6900000-Z80                 | 9.70                        | 2.50             |
| GP73              | GR73           | GM7300000-Z80                 | 15.00                       | 2.50             |
| GP75              | GR75           | GM7500000-Z80                 | 25.00                       | 2.50             |
| GP98              | GR98           | GM9800000-Z80                 | 25.00                       | 4.00             |

Further dimensions on request - see Table 189.

\* Off-the-roll material can be supplied as complete rolls. Length of rolls varies depending on thickness and material, please contact your local Customer Solution Center.



## ■ Installation Recommendation, Turcite® and Zurcon® Slydring® for Piston According to ISO 10766 Groove Dimensions

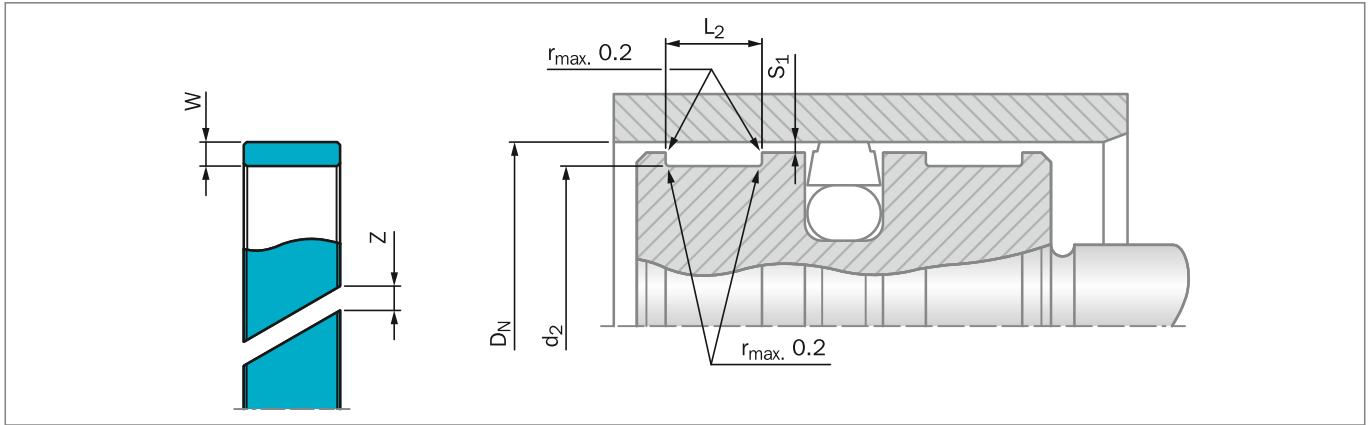


Figure 218: Installation Drawing

**Table 215: Installation Dimensions**

| Series No. | Bore Diameter*  | Groove Diameter | Groove Width  | Ring Thickness | Ring Gap |
|------------|-----------------|-----------------|---------------|----------------|----------|
|            | $D_N$<br>H9     | $d_2$<br>h8     | $L_2$<br>+0.2 | W              | Z        |
| GP41       | 8 - 20.0        | $D_N - 3.10$    | 2.50          | 1.55           | ****     |
| GP43       | 10 - 50.0       | $D_N - 3.10$    | 4.00          | 1.55           | ****     |
| GP65       | 16 - 140.0      | $D_N - 5.00$    | 5.60          | 2.50           | ****     |
| GP69       | 60 - 220.0      | $D_N - 5.00$    | 9.70          | 2.50           | ****     |
| GP73       | 130 - 400.0     | $D_N - 5.00$    | 15.00         | 2.50           | ****     |
| GP75       | 280 - 999.9     | $D_N - 5.00$    | 25.00         | 2.50           | ****     |
| GP75X      | 1,000 - 4,200.0 | $D_N - 5.00$    | 25.00         | 2.50           | ****     |
| GP98       | 280 - 999.9     | $D_N - 8.00$    | 25.00         | 4.00           | ****     |
| GP98X*     | 1,000 - 2,200.0 | $D_N - 8.00$    | 25.00         | 4.00           | ****     |
| GP99***    | 100 - 999.9     | $D_N - 8.00$    | 9.70          | 4.00           | ****     |

\* Recommended diameter ranges \*\* Slydring® in Turcite® T47 up to 3,000 mm \*\*\* Non ISO 10766 standard \*\*\*\* Calculation of the linear length, see page 573 For Slydring® to other standards, for example French standard NF E 48-037, please contact your local Customer Solution Center.

**Table 216: Radial Clearance  $S_1$ \*\*\*\***

| Bore Diameter $D_N$ | $S_1$ min | $S_1$ max |
|---------------------|-----------|-----------|
| 8 - 19              | 0.20      | 0.30      |
| 20 - 99             | 0.25      | 0.40      |
| 100 - 249           | 0.30      | 0.60      |
| 250 - 499           | 0.40      | 0.80      |
| 500 - 999           | 0.50      | 1.10      |
| > 1,000             | 0.60      | 1.20      |

\*\*\*\* Specifications valid only in the area of the Slydring®, but not for the seal area. If the radial clearance S for the chosen seals is smaller than  $S_1$  min, there is risk for metal to metal contact.

**Table 217: Surface Roughness**

| Parameter        | Mating Surface $\mu\text{m}$ |                   | Groove Surface $\mu\text{m}$ |
|------------------|------------------------------|-------------------|------------------------------|
|                  | Turcite® Materials           | Zurcon® Materials |                              |
| $R_{\text{max}}$ | 0.63 - 4.00                  | 1.00 - 4.00       | < 16.0                       |
| $R_z$            | 0.40 - 2.50                  | 0.63 - 2.50       | < 10.0                       |
| $R_a$            | 0.05 - 0.40                  | 0.10 - 0.40       | < 2.5                        |



## ORDERING EXAMPLE

Slydring® for bore diameter  $D_N = 100.0$  mm  
Series GP69 from Table 215

|                         |                                                         |
|-------------------------|---------------------------------------------------------|
| <b>Groove Width:</b>    | 9.70 mm                                                 |
| <b>Ring Thickness:</b>  | 2.50 mm                                                 |
| <b>Material:</b>        | Turcite® M12<br>other materials see Table 186           |
| <b>Standard Design:</b> | With angle cut and teardrop structure<br>Design code: 0 |
| <b>TSS Part No.:</b>    | GP6901000 from Table 218                                |

The TSS Article No. for all intermediate sizes can be determined by following the example:

|                          |             |          |             |          |            |
|--------------------------|-------------|----------|-------------|----------|------------|
| <b>TSS Article No.</b>   | <b>GP69</b> | <b>0</b> | <b>1000</b> | <b>-</b> | <b>M12</b> |
| TSS Series No.           |             |          |             |          |            |
| Design Code (Standard)   |             |          |             |          |            |
| Bore Diameter x 10       |             |          |             |          |            |
| Quality Index (Standard) |             |          |             |          |            |
| Material No.             |             |          |             |          |            |

## ORDERING EXAMPLE FOR $D_N \geq 1000$ MM

Slydring® for bore diameter  $D_N = 2,200.0$  mm  
Series GP98X from Table 215

|                        |                                               |
|------------------------|-----------------------------------------------|
| <b>Groove Width:</b>   | 25.00 mm                                      |
| <b>Ring Thickness:</b> | 2.50 mm                                       |
| <b>Material:</b>       | Turcite® T47<br>other materials see Table 186 |
| <b>TSS Part No.:</b>   | GP98X2200 from Table 218                      |

The TSS Article No. for all intermediate sizes can be determined by following the example:

|                          |             |          |             |          |            |
|--------------------------|-------------|----------|-------------|----------|------------|
| <b>TSS Article No.</b>   | <b>GP98</b> | <b>X</b> | <b>2200</b> | <b>-</b> | <b>T47</b> |
| TSS Series No.           |             |          |             |          |            |
| Design Code              |             |          |             |          |            |
| Bore Diameter x 1*       |             |          |             |          |            |
| Quality Index (Standard) |             |          |             |          |            |
| Material No.             |             |          |             |          |            |

\* For diameters  $D_N \geq 1,000$  mm multiply only by factor 1.



Table 218: Slydriing® for Piston

| Dimensions           |                      |                        |            | TSS Part No. | Dimensions           |                      |                        |            | TSS Part No. |
|----------------------|----------------------|------------------------|------------|--------------|----------------------|----------------------|------------------------|------------|--------------|
| Bore Diameter        | Groove Diameter      | Groove Width           | Thick-ness |              | Bore Diameter        | Groove Diameter      | Groove Width           | Thick-ness |              |
| D <sub>N</sub><br>H9 | d <sub>2</sub><br>h8 | L <sub>2</sub><br>+0.2 | W          |              | D <sub>N</sub><br>H9 | d <sub>2</sub><br>h8 | L <sub>2</sub><br>+0.2 | W          |              |
| 8.0                  | 4.9                  | 2.5                    | 1.55       | GP4100080    | 50.0                 | 46.9                 | 4.0                    | 1.55       | GP4300500    |
| 10.0                 | 6.9                  | 2.5                    | 1.55       | GP4100100    | 50.0                 | 45.0                 | 5.6                    | 2.50       | GP6500500    |
| 10.0                 | 6.9                  | 4.0                    | 1.55       | GP4300100    | 50.0                 | 45.0                 | 9.7                    | 2.50       | GP6900500    |
| 12.0                 | 8.9                  | 4.0                    | 1.55       | GP4300120    | 52.0                 | 47.0                 | 5.6                    | 2.50       | GP6500520    |
| 14.0                 | 10.9                 | 4.0                    | 1.55       | GP4300140    | 55.0                 | 50.0                 | 5.6                    | 2.50       | GP6500550    |
| 15.0                 | 11.9                 | 4.0                    | 1.55       | GP4300150    | 55.0                 | 50.0                 | 9.7                    | 2.50       | GP6900550    |
| 16.0                 | 12.9                 | 4.0                    | 1.55       | GP4300160    | 60.0                 | 55.0                 | 5.6                    | 2.50       | GP6500600    |
| 16.0                 | 11.0                 | 5.6                    | 2.50       | GP6500160    | 60.0                 | 55.0                 | 9.7                    | 2.50       | GP6900600    |
| 18.0                 | 14.9                 | 4.0                    | 1.55       | GP4300180    | 61.0                 | 56.0                 | 5.6                    | 2.50       | GP6500610    |
| 18.0                 | 13.0                 | 5.6                    | 2.50       | GP6500180    | 62.0                 | 57.0                 | 9.7                    | 2.50       | GP6900620    |
| 20.0                 | 16.9                 | 4.0                    | 1.55       | GP4300200    | 63.0                 | 58.0                 | 5.6                    | 2.50       | GP6500630    |
| 20.0                 | 15.0                 | 5.6                    | 2.50       | GP6500200    | 63.0                 | 58.0                 | 9.7                    | 2.50       | GP6900630    |
| 22.0                 | 17.0                 | 5.6                    | 2.50       | GP6500220    | 65.0                 | 60.0                 | 5.6                    | 2.50       | GP6500650    |
| 25.0                 | 21.9                 | 4.0                    | 1.55       | GP4300250    | 65.0                 | 60.0                 | 9.7                    | 2.50       | GP6900650    |
| 25.0                 | 20.0                 | 5.6                    | 2.50       | GP6500250    | 68.0                 | 63.0                 | 5.6                    | 2.50       | GP6500680    |
| 25.0                 | 20.0                 | 9.7                    | 2.50       | GP6900250    | 68.0                 | 63.0                 | 9.7                    | 2.50       | GP6900680    |
| 27.0                 | 22.0                 | 5.6                    | 2.50       | GP6500270    | 70.0                 | 65.0                 | 5.6                    | 2.50       | GP6500700    |
| 27.0                 | 22.0                 | 9.7                    | 2.50       | GP6900270    | 70.0                 | 65.0                 | 9.7                    | 2.50       | GP6900700    |
| 28.0                 | 23.0                 | 5.6                    | 2.50       | GP6500280    | 72.0                 | 67.0                 | 5.6                    | 2.50       | GP6500720    |
| 30.0                 | 26.9                 | 4.0                    | 1.55       | GP4300300    | 75.0                 | 70.0                 | 5.6                    | 2.50       | GP6500750    |
| 30.0                 | 25.0                 | 5.6                    | 2.50       | GP6500300    | 75.0                 | 70.0                 | 9.7                    | 2.50       | GP6900750    |
| 30.0                 | 25.0                 | 9.7                    | 2.50       | GP6900300    | 80.0                 | 75.0                 | 5.6                    | 2.50       | GP6500800    |
| 32.0                 | 28.9                 | 4.0                    | 1.55       | GP4300320    | 80.0                 | 75.0                 | 9.7                    | 2.50       | GP6900800    |
| 32.0                 | 27.0                 | 5.6                    | 2.50       | GP6500320    | 85.0                 | 80.0                 | 5.6                    | 2.50       | GP6500850    |
| 32.0                 | 27.0                 | 9.7                    | 2.50       | GP6900320    | 85.0                 | 80.0                 | 9.7                    | 2.50       | GP6900850    |
| 33.0                 | 28.0                 | 5.6                    | 2.50       | GP6500330    | 90.0                 | 85.0                 | 5.6                    | 2.50       | GP6500900    |
| 35.0                 | 30.0                 | 5.6                    | 2.50       | GP6500350    | 90.0                 | 85.0                 | 9.7                    | 2.50       | GP6900900    |
| 35.0                 | 30.0                 | 9.7                    | 2.50       | GP6900350    | 95.0                 | 90.0                 | 5.6                    | 2.50       | GP6500950    |
| 36.0                 | 31.9                 | 4.0                    | 1.55       | GP4300360    | 95.0                 | 90.0                 | 9.7                    | 2.50       | GP6900950    |
| 37.0                 | 32.0                 | 5.6                    | 2.50       | GP6500370    | 100.0                | 95.0                 | 5.6                    | 2.50       | GP6501000    |
| 37.0                 | 32.0                 | 9.7                    | 2.50       | GP6900370    | 100.0                | 95.0                 | 9.7                    | 2.50       | GP6901000    |
| 40.0                 | 36.9                 | 4.0                    | 1.55       | GP4300400    | 105.0                | 100.0                | 5.6                    | 2.50       | GP6501050    |
| 40.0                 | 35.0                 | 5.6                    | 2.50       | GP6500400    | 105.0                | 100.0                | 9.7                    | 2.50       | GP6901050    |
| 40.0                 | 35.0                 | 9.7                    | 2.50       | GP6900400    | 110.0                | 105.0                | 9.7                    | 2.50       | GP6901100    |
| 41.0                 | 36.0                 | 5.6                    | 2.50       | GP6500410    | 115.0                | 110.0                | 9.7                    | 2.50       | GP6901150    |
| 41.0                 | 36.0                 | 9.7                    | 2.50       | GP6900410    | 120.0                | 115.0                | 9.7                    | 2.50       | GP6901200    |
| 42.0                 | 37.0                 | 5.6                    | 2.50       | GP6500420    | 125.0                | 120.0                | 5.6                    | 2.50       | GP6501250    |
| 45.0                 | 40.0                 | 5.6                    | 2.50       | GP6500450    | 125.0                | 120.0                | 9.7                    | 2.50       | GP6901250    |
| 45.0                 | 40.0                 | 9.7                    | 2.50       | GP6900450    | 130.0                | 125.0                | 9.7                    | 2.50       | GP6901300    |
| 48.0                 | 43.0                 | 5.6                    | 2.50       | GP6500480    | 130.0                | 125.0                | 15.0                   | 2.50       | GP7301300    |



| Dimensions           |                      |                        |             | TSS Part No.     | Dimensions                                                                                                                                                         |                      |                        |             | TSS Part No.     |
|----------------------|----------------------|------------------------|-------------|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|------------------------|-------------|------------------|
| Bore Diameter        | Groove Diameter      | Groove Width           | Thick-ness  |                  | Bore Diameter                                                                                                                                                      | Groove Diameter      | Groove Width           | Thick-ness  |                  |
| D <sub>N</sub><br>H9 | d <sub>2</sub><br>h8 | L <sub>2</sub><br>+0.2 | W           |                  | D <sub>N</sub><br>H9                                                                                                                                               | d <sub>2</sub><br>h8 | L <sub>2</sub><br>+0.2 | W           |                  |
| 135.0                | 130.0                | 9.7                    | 2.50        | GP6901350        | <b>280.0</b>                                                                                                                                                       | <b>272.0</b>         | <b>25.0</b>            | <b>4.00</b> | <b>GP9802800</b> |
| 135.0                | 130.0                | 15.0                   | 2.50        | GP7301350        | 300.0                                                                                                                                                              | 295.0                | 15.0                   | 2.50        | GP7303000        |
| <b>140.0</b>         | <b>135.0</b>         | <b>9.7</b>             | <b>2.50</b> | <b>GP6901400</b> | <b>320.0</b>                                                                                                                                                       | <b>315.0</b>         | <b>15.0</b>            | <b>2.50</b> | <b>GP7303200</b> |
| <b>140.0</b>         | <b>135.0</b>         | <b>15.0</b>            | <b>2.50</b> | <b>GP7301400</b> | <b>320.0</b>                                                                                                                                                       | <b>315.0</b>         | <b>25.0</b>            | <b>2.50</b> | <b>GP7503200</b> |
| 150.0                | 145.0                | 15.0                   | 2.50        | GP7301500        | <b>320.0</b>                                                                                                                                                       | <b>312.0</b>         | <b>25.0</b>            | <b>4.00</b> | <b>GP9803200</b> |
| <b>160.0</b>         | <b>155.0</b>         | <b>9.7</b>             | <b>2.50</b> | <b>GP6901600</b> | 350.0                                                                                                                                                              | 345.0                | 25.0                   | 2.50        | GP7503500        |
| <b>160.0</b>         | <b>155.0</b>         | <b>15.0</b>            | <b>2.50</b> | <b>GP7301600</b> | <b>360.0</b>                                                                                                                                                       | <b>355.0</b>         | <b>15.0</b>            | <b>2.50</b> | <b>GP7303600</b> |
| 170.0                | 165.0                | 15.0                   | 2.50        | GP7301700        | <b>360.0</b>                                                                                                                                                       | <b>355.0</b>         | <b>25.0</b>            | <b>2.50</b> | <b>GP7503600</b> |
| <b>180.0</b>         | <b>175.0</b>         | <b>9.7</b>             | <b>2.50</b> | <b>GP6901800</b> | <b>360.0</b>                                                                                                                                                       | <b>352.0</b>         | <b>25.0</b>            | <b>4.00</b> | <b>GP9803600</b> |
| <b>180.0</b>         | <b>175.0</b>         | <b>15.0</b>            | <b>2.50</b> | <b>GP7301800</b> | <b>400.0</b>                                                                                                                                                       | <b>395.0</b>         | <b>15.0</b>            | <b>2.50</b> | <b>GP7304000</b> |
| 190.0                | 185.0                | 15.0                   | 2.50        | GP7301900        | <b>400.0</b>                                                                                                                                                       | <b>395.0</b>         | <b>25.0</b>            | <b>2.50</b> | <b>GP7504000</b> |
| <b>200.0</b>         | <b>195.0</b>         | <b>9.7</b>             | <b>2.50</b> | <b>GP6902000</b> | <b>400.0</b>                                                                                                                                                       | <b>392.0</b>         | <b>25.0</b>            | <b>4.00</b> | <b>GP9804000</b> |
| <b>200.0</b>         | <b>195.0</b>         | <b>15.0</b>            | <b>2.50</b> | <b>GP7302000</b> | <b>450.0</b>                                                                                                                                                       | <b>445.0</b>         | <b>15.0</b>            | <b>2.50</b> | <b>GP7304500</b> |
| 210.0                | 205.0                | 15.0                   | 2.50        | GP7302100        | <b>450.0</b>                                                                                                                                                       | <b>445.0</b>         | <b>25.0</b>            | <b>2.50</b> | <b>GP7504500</b> |
| <b>220.0</b>         | <b>215.0</b>         | <b>9.7</b>             | <b>2.50</b> | <b>GP6902200</b> | <b>450.0</b>                                                                                                                                                       | <b>442.0</b>         | <b>25.0</b>            | <b>4.00</b> | <b>GP9804500</b> |
| <b>220.0</b>         | <b>215.0</b>         | <b>15.0</b>            | <b>2.50</b> | <b>GP7302200</b> | <b>500.0</b>                                                                                                                                                       | <b>495.0</b>         | <b>15.0</b>            | <b>2.50</b> | <b>GP7305000</b> |
| 230.0                | 225.0                | 15.0                   | 2.50        | GP7302300        | <b>500.0</b>                                                                                                                                                       | <b>495.0</b>         | <b>25.0</b>            | <b>2.50</b> | <b>GP7505000</b> |
| 240.0                | 235.0                | 15.0                   | 2.50        | GP7302400        | <b>500.0</b>                                                                                                                                                       | <b>492.0</b>         | <b>25.0</b>            | <b>4.00</b> | <b>GP9805000</b> |
| <b>250.0</b>         | <b>245.0</b>         | <b>9.7</b>             | <b>2.50</b> | <b>GP6902500</b> | 1,000.0                                                                                                                                                            | 995.0                | 25.0                   | 2.50        | GP75X1000        |
| <b>250.0</b>         | <b>245.0</b>         | <b>15.0</b>            | <b>2.50</b> | <b>GP7302500</b> | 2,700.0                                                                                                                                                            | 2,695.0              | 25.0                   | 2.50        | GP75X2700        |
| <b>280.0</b>         | <b>275.0</b>         | <b>15.0</b>            | <b>2.50</b> | <b>GP7302800</b> | <p>All sizes printed in <b>bold</b> type conform to ISO 10766 and should be preferred.</p> <p>All intermediate sizes not contained in the table are available.</p> |                      |                        |             |                  |
| <b>280.0</b>         | <b>275.0</b>         | <b>25.0</b>            | <b>2.50</b> | <b>GP7502800</b> |                                                                                                                                                                    |                      |                        |             |                  |



## ■ Installation Recommendation, Turcite® and Zurcon® Slydring® for Rod According to ISO 10766 Groove Dimension

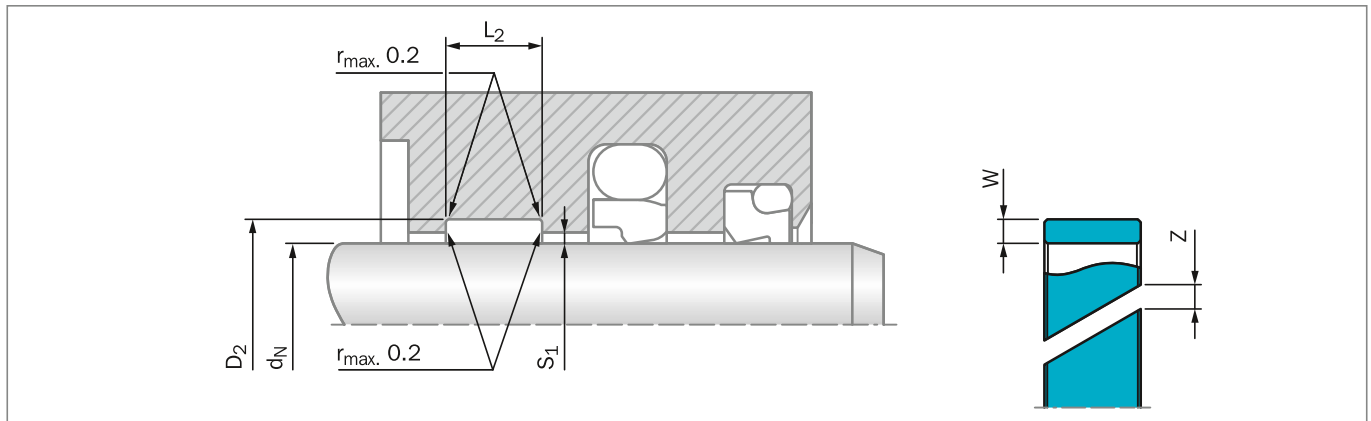


Figure 219: Installation Drawing

**Table 219: Installation Dimensions**

| Serial No. | Rod Diameter*<br>$d_N$<br>f8/h9 | Groove Diameter<br>$D_2$<br>H8 | Groove Width<br>$L_2$<br>+0.2 | Ring Thickness<br>$W$ | Ring Gap<br>$Z$ |
|------------|---------------------------------|--------------------------------|-------------------------------|-----------------------|-----------------|
| GR41       | 8 - 20.0                        | $d_N + 3.10$                   | 2.50                          | 1.55                  | ***             |
| GR43       | 10 - 50.0                       | $d_N + 3.10$                   | 4.00                          | 1.55                  | ***             |
| GR65       | 15 - 140.0                      | $d_N + 5.00$                   | 5.60                          | 2.50                  | ***             |
| GR69       | 20 - 220.0                      | $d_N + 5.00$                   | 9.70                          | 2.50                  | ***             |
| GR73       | 80 - 400.0                      | $d_N + 5.00$                   | 15.00                         | 2.50                  | ***             |
| GR75       | 200 - 999.9                     | $d_N + 5.00$                   | 25.00                         | 2.50                  | ***             |
| GR75X      | 1,000 - 4,200.0                 | $d_N + 5.00$                   | 25.00                         | 2.50                  | ***             |
| GR98       | 280 - 999.9                     | $d_N + 8.00$                   | 25.00                         | 4.00                  | ***             |
| GR98X**    | 1,000 - 2,200.0                 | $d_N + 8.00$                   | 25.00                         | 4.00                  | ***             |

\* Recommended diameter ranges    \*\* Slydring® in Turcite® T47 up to 3,000 mm    \*\*\* Calculation of the linear length, see page 573  
For Slydring® to other standards, for example French standard NF E 48-037, please contact your local Customer Solution Center.

**Table 220: Radial Clearance  $S_1$ \*\*\***

| Rod Diameter $d_N$ | $S_1$ min | $S_1$ max |
|--------------------|-----------|-----------|
| 8 - 19             | 0.20      | 0.30      |
| 20 - 99            | 0.25      | 0.40      |
| 100 - 249          | 0.30      | 0.60      |
| 250 - 499          | 0.40      | 0.80      |
| 500 - 999          | 0.50      | 1.10      |
| > 1,000            | 0.60      | 1.20      |

\*\*\* Specifications valid only in the area of the Slydring®, but not for the seal area. If the radial clearance  $S$  for the chosen seals is smaller than  $S_1$  min. there is risk for metal to metal contact.

**Table 221: Surface Roughness**

| Parameter        | Mating Surface $\mu\text{m}$ |                   | Groove Surface $\mu\text{m}$ |
|------------------|------------------------------|-------------------|------------------------------|
|                  | Turcite® Materials           | Zurcon® Materials |                              |
| $R_{\text{max}}$ | 0.63 - 4.00                  | 1.00 - 4.00       | < 16.0                       |
| $R_z$            | 0.40 - 2.50                  | 0.63 - 2.50       | < 10.0                       |
| $R_a$            | 0.05 - 0.40                  | 0.10 - 0.40       | < 2.5                        |

**ORDERING EXAMPLE**

Slydring® for rod diameter  $d_N = 63.0$  mm  
Series GR65 from Table 219

|                         |                                                         |
|-------------------------|---------------------------------------------------------|
| <b>Groove Width:</b>    | 5.60 mm                                                 |
| <b>Ring Thickness:</b>  | 2.50 mm                                                 |
| <b>Material:</b>        | Turcite® M12<br>other materials see Table 186           |
| <b>Standard Design:</b> | With angle cut and teardrop structure<br>Design code: 0 |
| <b>TSS Part No.:</b>    | GR6500630 from Table 222                                |

The TSS Article No. for all intermediate sizes can be determined by following the example:

|                          |                          |
|--------------------------|--------------------------|
| <b>TSS Article No.</b>   | <b>GR65 0 0630 - M12</b> |
| TSS Series No.           | GR65                     |
| Design Code (Standard)   | 0                        |
| Rod Diameter x 10        | 0630                     |
| Quality Index (Standard) | -                        |
| Material No.             | M12                      |

**ORDERING EXAMPLE FOR  $d_N \geq 1000$  MM**

Slydring® for rod diameter  $d_N = 2,200.0$  mm  
Series GR98X from Table 219

|                        |                                               |
|------------------------|-----------------------------------------------|
| <b>Groove Width:</b>   | 25.00 mm                                      |
| <b>Ring Thickness:</b> | 4.00 mm                                       |
| <b>Material:</b>       | Turcite® T47<br>other materials see Table 186 |
| <b>TSS Part No.:</b>   | GR98X2200 from Table 222                      |

The TSS Article No. for all intermediate sizes can be determined by following the example:

|                          |                          |
|--------------------------|--------------------------|
| <b>TSS Article No.</b>   | <b>GR98 X 2200 - T47</b> |
| TSS Series No.           | GR98                     |
| Design Code              | X                        |
| Rod Diameter x 1*        | 2200                     |
| Quality Index (Standard) | -                        |
| Material No.             | T47                      |

\* For diameters  $d_N \geq 1,000$  mm multiply only by factor 1.

**Table 222: Slydring® for Rods**

| Dimensions     |                 |               |             | TSS Part No.     |
|----------------|-----------------|---------------|-------------|------------------|
| Rod Diameter   | Groove Diameter | Groove Width  | Thick-ness  |                  |
| $d_N$<br>f8/h9 | $D_2$<br>H8     | $L_2$<br>+0.2 | W           |                  |
| 8.0            | 11.1            | 2.5           | 1.55        | GR4100080        |
| 10.0           | 13.1            | 2.5           | 1.55        | GR4100100        |
| 10.0           | 13.1            | 4.0           | 1.55        | GR4300100        |
| <b>12.0</b>    | <b>15.1</b>     | <b>4.0</b>    | <b>1.55</b> | <b>GR4300120</b> |
| <b>14.0</b>    | <b>17.1</b>     | <b>4.0</b>    | <b>1.55</b> | <b>GR4300140</b> |
| 15.0           | 18.1            | 4.0           | 1.55        | GR4300150        |
| <b>16.0</b>    | <b>19.1</b>     | <b>4.0</b>    | <b>1.55</b> | <b>GR4300160</b> |
| 16.0           | 21.0            | 5.6           | 2.50        | GR6500160        |
| <b>18.0</b>    | <b>21.1</b>     | <b>4.0</b>    | <b>1.55</b> | <b>GR4300180</b> |
| 18.0           | 23.0            | 5.6           | 2.50        | GR6500180        |
| <b>20.0</b>    | <b>23.1</b>     | <b>4.0</b>    | <b>1.55</b> | <b>GR4300200</b> |
| 20.0           | 25.0            | 5.6           | 2.50        | GR6500200        |
| 20.0           | 25.0            | 9.7           | 2.50        | GR6900200        |
| <b>22.0</b>    | <b>25.1</b>     | <b>4.0</b>    | <b>1.55</b> | <b>GR4300220</b> |
| 22.0           | 27.0            | 5.6           | 2.50        | GR6500220        |
| 22.0           | 27.0            | 9.7           | 2.50        | GR6900220        |

| Dimensions     |                 |               |             | TSS Part No.     |
|----------------|-----------------|---------------|-------------|------------------|
| Rod Diameter   | Groove Diameter | Groove Width  | Thick-ness  |                  |
| $d_N$<br>f8/h9 | $D_2$<br>H8     | $L_2$<br>+0.2 | W           |                  |
| <b>25.0</b>    | <b>28.1</b>     | <b>4.0</b>    | <b>1.55</b> | <b>GR4300250</b> |
| <b>25.0</b>    | <b>30.0</b>     | <b>5.6</b>    | <b>2.50</b> | <b>GR6500250</b> |
| 25.0           | 30.0            | 9.7           | 2.50        | GR6900250        |
| 27.0           | 32.0            | 5.6           | 2.50        | GR6500270        |
| 27.0           | 32.0            | 9.7           | 2.50        | GR6900270        |
| <b>28.0</b>    | <b>31.1</b>     | <b>4.0</b>    | <b>1.55</b> | <b>GR4300280</b> |
| <b>28.0</b>    | <b>33.0</b>     | <b>5.6</b>    | <b>2.50</b> | <b>GR6500280</b> |
| 28.0           | 33.0            | 9.7           | 2.50        | GR6900280        |
| 30.0           | 35.0            | 5.6           | 2.50        | GR6500300        |
| 30.0           | 35.0            | 9.7           | 2.50        | GR6900300        |
| <b>32.0</b>    | <b>37.0</b>     | <b>5.6</b>    | <b>2.50</b> | <b>GR6500320</b> |
| <b>32.0</b>    | <b>37.0</b>     | <b>9.7</b>    | <b>2.50</b> | <b>GR6900320</b> |
| 35.0           | 40.0            | 5.6           | 2.50        | GR6500350        |
| 35.0           | 40.0            | 9.7           | 2.50        | GR6900350        |
| <b>36.0</b>    | <b>41.0</b>     | <b>5.6</b>    | <b>2.50</b> | <b>GR6500360</b> |
| <b>36.0</b>    | <b>41.0</b>     | <b>9.7</b>    | <b>2.50</b> | <b>GR6900360</b> |



| Dimensions              |                      |                        |             | TSS Part No.     |
|-------------------------|----------------------|------------------------|-------------|------------------|
| Rod Diameter            | Groove Diameter      | Groove Width           | Thick-ness  |                  |
| d <sub>N</sub><br>f8/h9 | D <sub>2</sub><br>H8 | L <sub>2</sub><br>+0.2 | W           |                  |
| <b>40.0</b>             | <b>45.0</b>          | <b>5.6</b>             | <b>2.50</b> | <b>GR6500400</b> |
| <b>40.0</b>             | <b>45.0</b>          | <b>9.7</b>             | <b>2.50</b> | <b>GR6900400</b> |
| 40.0                    | 45.0                 | 15.0                   | 2.50        | GR7300400        |
| 42.0                    | 47.0                 | 5.6                    | 2.50        | GR6500420        |
| 43.0                    | 48.0                 | 5.6                    | 2.50        | GR6500430        |
| <b>45.0</b>             | <b>50.0</b>          | <b>5.6</b>             | <b>2.50</b> | <b>GR6500450</b> |
| <b>45.0</b>             | <b>50.0</b>          | <b>9.7</b>             | <b>2.50</b> | <b>GR6900450</b> |
| 48.0                    | 53.0                 | 5.6                    | 2.50        | GR6500480        |
| 48.0                    | 53.0                 | 9.7                    | 2.50        | GR6900480        |
| <b>50.0</b>             | <b>55.0</b>          | <b>5.6</b>             | <b>2.50</b> | <b>GR6500500</b> |
| <b>50.0</b>             | <b>55.0</b>          | <b>9.7</b>             | <b>2.50</b> | <b>GR6900500</b> |
| 52.0                    | 57.0                 | 5.6                    | 2.50        | GR6500520        |
| 52.0                    | 57.0                 | 9.7                    | 2.50        | GR6900520        |
| 55.0                    | 60.0                 | 5.6                    | 2.50        | GR6500550        |
| 55.0                    | 60.0                 | 9.7                    | 2.50        | GR6900550        |
| <b>56.0</b>             | <b>61.0</b>          | <b>5.6</b>             | <b>2.50</b> | <b>GR6500560</b> |
| <b>56.0</b>             | <b>61.0</b>          | <b>9.7</b>             | <b>2.50</b> | <b>GR6900560</b> |
| 58.0                    | 63.0                 | 5.6                    | 2.50        | GR6500580        |
| 58.0                    | 63.0                 | 9.7                    | 2.50        | GR6900580        |
| 60.0                    | 65.0                 | 5.6                    | 2.50        | GR6500600        |
| 60.0                    | 65.0                 | 9.7                    | 2.50        | GR6900600        |
| <b>63.0</b>             | <b>68.0</b>          | <b>5.6</b>             | <b>2.50</b> | <b>GR6500630</b> |
| <b>63.0</b>             | <b>68.0</b>          | <b>9.7</b>             | <b>2.50</b> | <b>GR6900630</b> |
| 63.0                    | 68.0                 | 15.0                   | 2.50        | GR7300630        |
| 65.0                    | 70.0                 | 5.6                    | 2.50        | GR6500650        |
| 65.0                    | 70.0                 | 9.7                    | 2.50        | GR6900650        |
| <b>70.0</b>             | <b>75.0</b>          | <b>5.6</b>             | <b>2.50</b> | <b>GR6500700</b> |
| <b>70.0</b>             | <b>75.0</b>          | <b>9.7</b>             | <b>2.50</b> | <b>GR6900700</b> |
| 70.0                    | 75.0                 | 15.0                   | 2.50        | GR7300700        |
| 75.0                    | 80.0                 | 5.6                    | 2.50        | GR6500750        |
| 75.0                    | 80.0                 | 9.7                    | 2.50        | GR6900750        |
| 75.0                    | 80.0                 | 15.0                   | 2.50        | GR7300750        |
| 80.0                    | 85.0                 | 5.6                    | 2.50        | GR6500800        |
| <b>80.0</b>             | <b>85.0</b>          | <b>9.7</b>             | <b>2.50</b> | <b>GR6900800</b> |
| <b>80.0</b>             | <b>85.0</b>          | <b>15.0</b>            | <b>2.50</b> | <b>GR7300800</b> |
| 85.0                    | 90.0                 | 5.6                    | 2.50        | GR6500850        |
| 85.0                    | 90.0                 | 9.7                    | 2.50        | GR6900850        |
| <b>90.0</b>             | <b>95.0</b>          | <b>5.6</b>             | <b>2.50</b> | <b>GR6500900</b> |
| <b>90.0</b>             | <b>95.0</b>          | <b>9.7</b>             | <b>2.50</b> | <b>GR6900900</b> |
| 90.0                    | 95.0                 | 15.0                   | 2.50        | GR7300900        |
| 95.0                    | 100.0                | 9.7                    | 2.50        | GR6900950        |

| Dimensions              |                      |                        |             | TSS Part No.     |
|-------------------------|----------------------|------------------------|-------------|------------------|
| Rod Diameter            | Groove Diameter      | Groove Width           | Thick-ness  |                  |
| d <sub>N</sub><br>f8/h9 | D <sub>2</sub><br>H8 | L <sub>2</sub><br>+0.2 | W           |                  |
| 95.0                    | 100.0                | 15.0                   | 2.50        | GR7300950        |
| 100.0                   | 105.0                | 5.6                    | 2.50        | GR6501000        |
| <b>100.0</b>            | <b>105.0</b>         | <b>9.7</b>             | <b>2.50</b> | <b>GR6901000</b> |
| <b>100.0</b>            | <b>105.0</b>         | <b>15.0</b>            | <b>2.50</b> | <b>GR7301000</b> |
| 105.0                   | 110.0                | 9.7                    | 2.50        | GR6901050        |
| 105.0                   | 110.0                | 15.0                   | 2.50        | GR7301050        |
| <b>110.0</b>            | <b>115.0</b>         | <b>9.7</b>             | <b>2.50</b> | <b>GR6901100</b> |
| <b>110.0</b>            | <b>115.0</b>         | <b>15.0</b>            | <b>2.50</b> | <b>GR7301100</b> |
| 115.0                   | 120.0                | 9.7                    | 2.50        | GR6901150        |
| 115.0                   | 120.0                | 15.0                   | 2.50        | GR7301150        |
| 120.0                   | 125.0                | 5.6                    | 2.50        | GR6501200        |
| 120.0                   | 125.0                | 9.7                    | 2.50        | GR6901200        |
| 120.0                   | 125.0                | 15.0                   | 2.50        | GR7301200        |
| <b>125.0</b>            | <b>130.0</b>         | <b>9.7</b>             | <b>2.50</b> | <b>GR6901250</b> |
| <b>125.0</b>            | <b>130.0</b>         | <b>15.0</b>            | <b>2.50</b> | <b>GR7301250</b> |
| 130.0                   | 135.0                | 15.0                   | 2.50        | GR7301300        |
| 135.0                   | 140.0                | 15.0                   | 2.50        | GR7301350        |
| <b>140.0</b>            | <b>145.0</b>         | <b>9.7</b>             | <b>2.50</b> | <b>GR6901400</b> |
| <b>140.0</b>            | <b>145.0</b>         | <b>15.0</b>            | <b>2.50</b> | <b>GR7301400</b> |
| 150.0                   | 155.0                | 15.0                   | 2.50        | GR7301500        |
| 155.0                   | 160.0                | 15.0                   | 2.50        | GR7301550        |
| <b>160.0</b>            | <b>165.0</b>         | <b>9.7</b>             | <b>2.50</b> | <b>GR6901600</b> |
| <b>160.0</b>            | <b>165.0</b>         | <b>15.0</b>            | <b>2.50</b> | <b>GR7301600</b> |
| 170.0                   | 175.0                | 15.0                   | 2.50        | GR7301700        |
| <b>180.0</b>            | <b>185.0</b>         | <b>9.7</b>             | <b>2.50</b> | <b>GR6901800</b> |
| <b>180.0</b>            | <b>185.0</b>         | <b>15.0</b>            | <b>2.50</b> | <b>GR7301800</b> |
| 190.0                   | 195.0                | 15.0                   | 2.50        | GR7301900        |
| 195.0                   | 200.0                | 15.0                   | 2.50        | GR7301950        |
| <b>200.0</b>            | <b>205.0</b>         | <b>15.0</b>            | <b>2.50</b> | <b>GR7302000</b> |
| <b>200.0</b>            | <b>205.0</b>         | <b>25.0</b>            | <b>2.50</b> | <b>GR7502000</b> |
| 210.0                   | 215.0                | 15.0                   | 2.50        | GR7302100        |
| <b>220.0</b>            | <b>225.0</b>         | <b>15.0</b>            | <b>2.50</b> | <b>GR7302200</b> |
| <b>220.0</b>            | <b>225.0</b>         | <b>25.0</b>            | <b>2.50</b> | <b>GR7502200</b> |
| 230.0                   | 235.0                | 25.0                   | 2.50        | GR7502300        |
| 240.0                   | 245.0                | 25.0                   | 2.50        | GR7502400        |
| <b>250.0</b>            | <b>255.0</b>         | <b>15.0</b>            | <b>2.50</b> | <b>GR7302500</b> |
| <b>250.0</b>            | <b>255.0</b>         | <b>25.0</b>            | <b>2.50</b> | <b>GR7502500</b> |
| <b>280.0</b>            | <b>285.0</b>         | <b>15.0</b>            | <b>2.50</b> | <b>GR7302800</b> |
| <b>280.0</b>            | <b>285.0</b>         | <b>25.0</b>            | <b>2.50</b> | <b>GR7502800</b> |
| <b>280.0</b>            | <b>288.0</b>         | <b>25.0</b>            | <b>4.00</b> | <b>GR9802800</b> |
| 300.0                   | 305.0                | 25.0                   | 2.50        | GR7503000        |



| Dimensions     |                 |               |             | TSS Part No.              |
|----------------|-----------------|---------------|-------------|---------------------------|
| Rod Diameter   | Groove Diameter | Groove Width  | Thick-ness  |                           |
| $d_N$<br>f8/h9 | $D_2$<br>H8     | $L_2$<br>+0.2 | W           |                           |
| <b>320.0</b>   | <b>325.0</b>    | <b>15.0</b>   | <b>2.50</b> | <a href="#">GR7303200</a> |
| <b>320.0</b>   | <b>325.0</b>    | <b>25.0</b>   | <b>2.50</b> | <a href="#">GR7503200</a> |
| <b>320.0</b>   | <b>328.0</b>    | <b>25.0</b>   | <b>4.00</b> | <a href="#">GR9803200</a> |
| 350.0          | 355.0           | 25.0          | 2.50        | <a href="#">GR7503500</a> |
| <b>360.0</b>   | <b>365.0</b>    | <b>15.0</b>   | <b>2.50</b> | <a href="#">GR7303600</a> |
| <b>360.0</b>   | <b>365.0</b>    | <b>25.0</b>   | <b>2.50</b> | <a href="#">GR7503600</a> |
| <b>360.0</b>   | <b>368.0</b>    | <b>25.0</b>   | <b>4.00</b> | <a href="#">GR9803600</a> |
| 400.0          | 405.0           | 25.0          | 2.50        | <a href="#">GR7504000</a> |
| 400.0          | 408.0           | 25.0          | 4.00        | <a href="#">GR9804000</a> |
| 800.0          | 805.0           | 25.0          | 2.50        | <a href="#">GR7508000</a> |
| 800.0          | 808.0           | 25.0          | 4.00        | <a href="#">GR9808000</a> |
| 1,000.0        | 1,005.0         | 25.0          | 2.50        | <a href="#">GR75X1000</a> |
| 1,000.0        | 1,008.0         | 25.0          | 4.00        | <a href="#">GR98X1000</a> |
| 2,200.0        | 2,205.0         | 25.0          | 2.50        | <a href="#">GR75X2200</a> |
| 2,600.0        | 2,605.0         | 25.0          | 2.50        | <a href="#">GR75X2600</a> |
| 2,600.0        | 2,608.0         | 25.0          | 4.00        | <a href="#">GR98X2600</a> |

All sizes printed in **bold** type conform to ISO 10766 and should be preferred.

All intermediate sizes not contained in the table are available upon request.