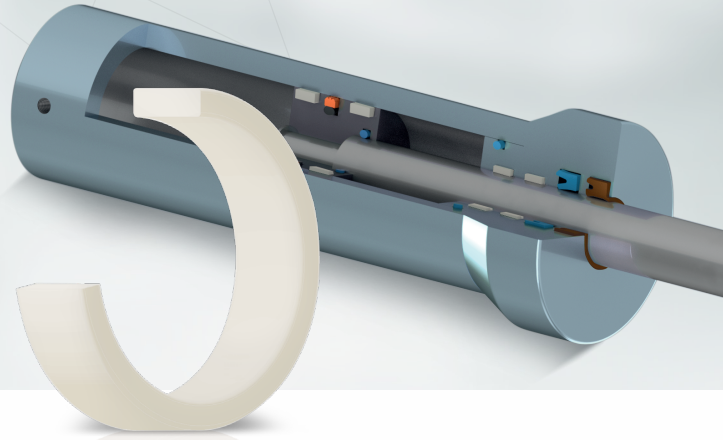
Piston- and Rod-Guiding Elements for ISO Grooves



- Eliminate metal-to-metal contact
- Wide range of fluid compability
- Low friction due to excellent tribological properties of guiding elements
- Ease of installation and assembly
- Withstands lateral forces

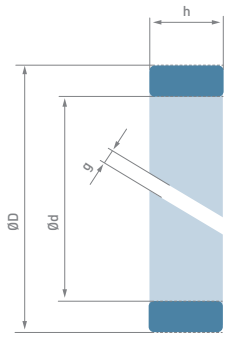


Fig. 1 Cross section of the Piston Guiding Ring

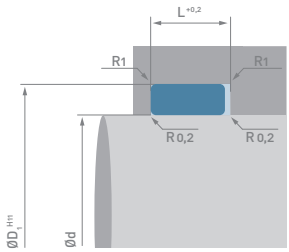


Fig. 2 Cross-section of the installation situation

Installation instructions
The guiding element snaps into the standard grooves according to ISO 10766. After assembly, the scarf-cut (45°) is created compensation gap k (0.0008 x d + 2).
To calculate the permissible radial force, the load-bearing area according to the formula D x H is used.

Sample calculation:
The permissible radial force F_{Rzul} for a piston guide ring with the profile width 5.2 mm, inserted in a cylinder with Ø 32 mm when using the material FiPk (Fi1962) is calculated as follows:

$$F_{Rzul} = \frac{D \times H \times q}{v} = \frac{32 \times 5{,}2 \times 60}{3} = 3328\ N$$

The safety factor (v) should be ⩾ 3.

Product Catalog

The *FiPk preferred dimensions of piston-and rod guide Rings **PR and ***RR fit into standard grooves according to ISO 10766.

The primary task of these guide elements, which are designed for low coefficients of friction and high wear resistance, is to absorb the lateral forces acting on the rod and piston and reliably prevent metal-to-metal contact. As a result, both, the service life of the hydraulic cylinder and the overall efficiency of the system, are substantially improved.

The standard material used in this application, FiPk is a highly wear-resistant aliphatic polyketone (APK), which, has elasticity, can be snapped into closed grooves and has very high compability with hydraulic media and greases. According to ISO 1110, APK takes a maximum of 0.8-0.9% moisture. APK can be used in aqueous pressure media (HFA, HFB, HFC). For advanced requirements piston-and rod guide rings can also be made from fabricreinforced thermosetting plastics, PEEK or PTFE materials.

Application examples
FiPk piston- and rod-guiding rings are protecting the hydraulic cylinder from mechanical damage due to high lateral forces in the following applications:
- Mobile and stationary hydraulics
- Piston pumps
- Industrial gas springs

Technical Data

Operating Temperature	-35°C - +120°C
Sliding Speed	⩽ 2 m/s
Media	Hydraulic oils based on mineral oil Aqueous pressure media (HFA, HFB, HFC)
Compressive strength according to DIN 53495	60 N/mm²
Water absorption	0,8-0,9%

* FiPk = Fietz-Polyketon **PR = Piston Wear Ring ***RR = Rod Wear Ring