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INSTALLATION GUIDE

Rod Seals

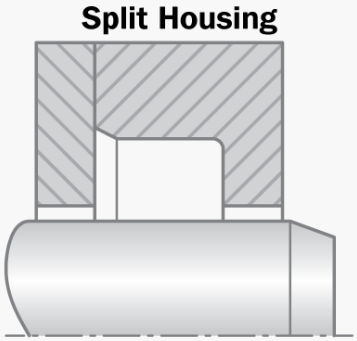
General information on Rod Seal Installation

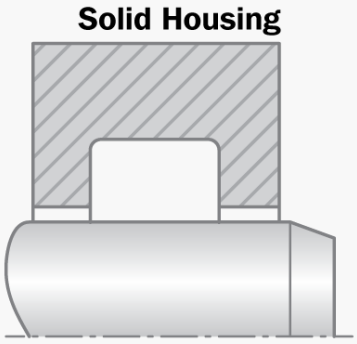
There are a few basic steps to consider when installing rod seals. It is important to ensure the rod has a lead-in chamfer; if not, an installation sleeve must be used. Sharp edges should be deburred and chamfered or rounded and the tips of screw threads should be covered. Remove machining residues such as chips, dirt and other foreign particles and carefully clean all parts. The seals can be installed more easily if the rod is greased or oiled, but attention must be paid to the compatibility of the seal materials with these lubricants. Use only grease without solid additives (e.g. molybdenum disulphide or zinc sulphide). Do not use tools with sharp edges.

Typically, there are two types of grooves encountered when installing O-ring energized rod seals:

- Split grooves
  Split grooves have a two-piece design where an open groove is covered by a separate counterface. This requires a separate method of fastening the counterface, however this makes it very easy to install the seals.

- Solid (closed) grooves
  Solid grooves are closed and do not have a separate face plate/retaining plate. While these grooves are often less complex than spit grooves, special care must be taken when installing seals into these grooves.





Each requires the use of different techniques to install the rod seals. The following information is a guide for how to handle each type of installation.

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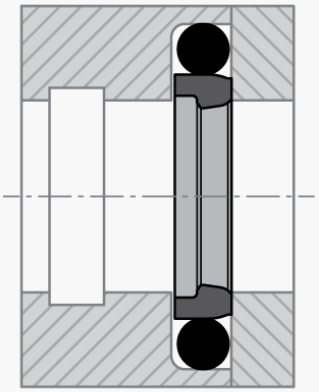
Installation in Split Grooves

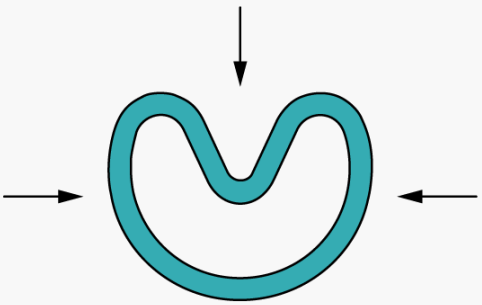
Installation in split grooves is problem free. The sequence of installation corresponds to the configuration of the seal, whereby the individual seal elements must not be allowed to twist. During final installation (insertion of the piston rod into the seal), elastomer or spring-energized seals must be sized. The piston rod itself can be used for this purpose, provided that it has a long lead-in chamfer, or use a sizing sleeve.

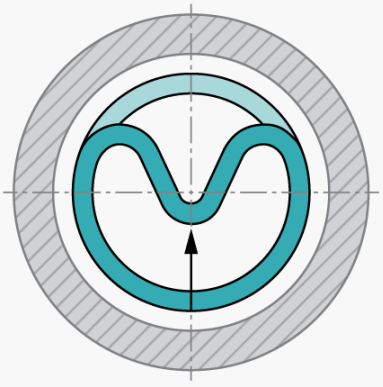


Installation in Closed Grooves

By following the instructions in each seal type description (sizes for closed or split grooves) or using the light series for Turcon® seals, it will result in a problem free installation of our rod seal elements at small diameters. For Zurcon® and polyurethane (not Turcon®) seals, the use of installation tools is to be recommended. If installation has to be performed without installation tools, however, the following points should be observed:

- Place the O-Ring into the groove (not necessary with U-Cups).
- Compress the Turcon® or Zurcon® seals into a kidney shape while avoiding sharp bends, take care to avoid bending the seal at the position of the notches as this may cause overstretch or damage to the seal material.
- Place the seal ring in compressed form into the groove and push against the O-Ring in the direction of the arrow.
- After placing into the groove, form the seal into a ring again in the groove by hand.
- Finally size the seal ring using a mandrel which should have a chamfer of 15° to 20° over a length of approx. 30 mm.





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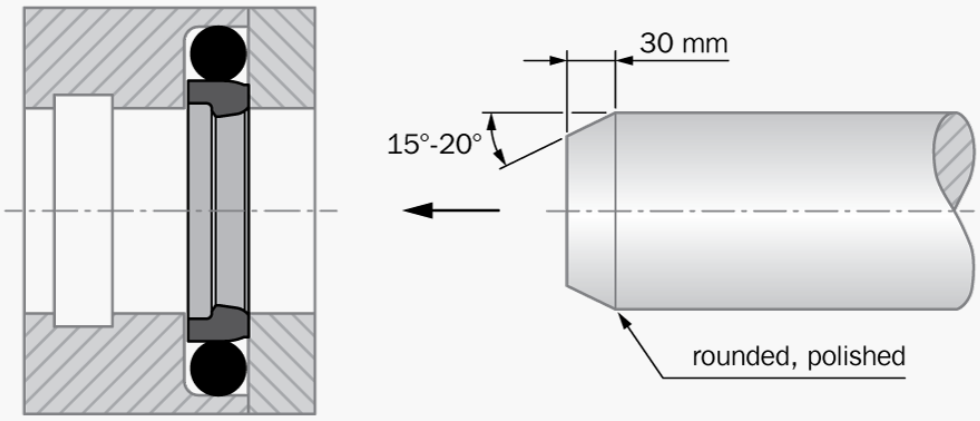
Re-sizing

The sizing mandrel should be made from a polymer material (e.g. polyamide) with good sliding characteristics and high surface quality in order to avoid damage to the seals. The rod itself can also be used for calibration, provided it has a sufficiently long lead-in chamfer.



Important Note

Installation suggestions, material recommendations, parameters and further data provided are always subject to the particular field of use and the application in which the seal is intended to be used, in particular the interaction of the seal with other components of the application. Therefore they neither constitute an agreement on the legal and factual nature nor a guarantee of quality. Technical changes and errors remain reserved.