

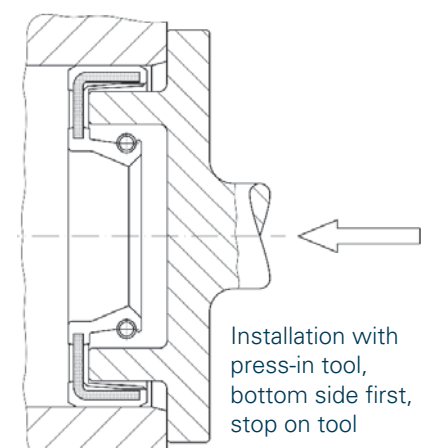
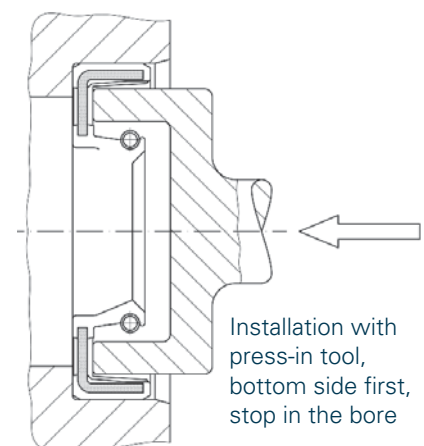
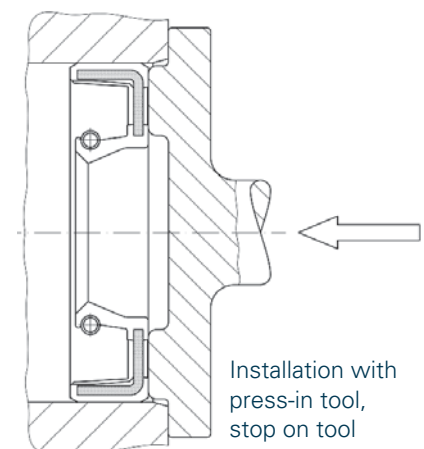
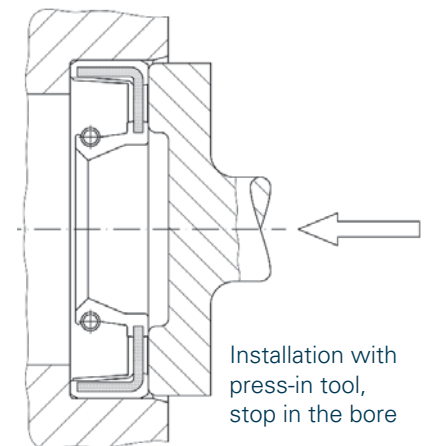
Installation

The reliable functioning of a shaft seal depends on the correct installation. The seal must be installed without damage and correctly positioned. Experience has shown that approx. 1/3 of the reasons for failure of shaft seals is attributable to incorrect installation.

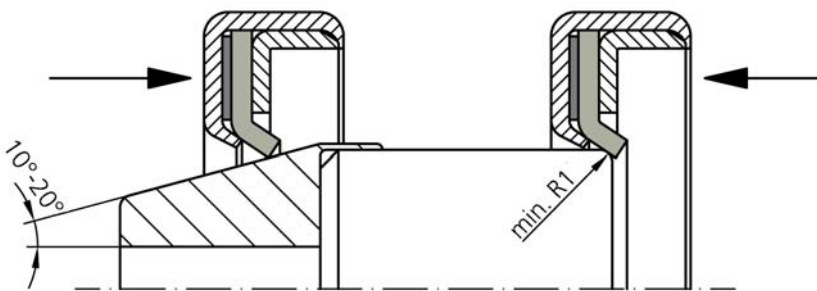
In normal cases, the shaft seal is installed with the top end (the open side facing the spring) facing the medium to be sealed, or the side facing the pressure.

The following instructions are important for the installation of shaft seals:

- Before the seal is installed, all components should be cleaned from machining residue, e.g., chips and dirt.
- The seal, the shaft and the housing must be lubricated prior to installation (oil, or grease tested for compatibility with sealing material). Apart from facilitating installation, lubrication is also ensured from the first shaft rotation and a dry run is prevented.
- With the installation of types with protective lips, the space between the sealing lip and the protective lip can be "filled" with grease. This should not exceed 50% of the available space.
- The shaft and the installation housing must be provided with chamfers. The detailed design of the chamfers can be found in "Installation housings, design".
- Sharp edges should carefully be removed or - better even - avoided by the designer by providing suitable chamfers or radii.
- Seals should in no case be pulled over sharp edges. Thread, key grooves, boreholes, etc. should be covered during installation.
- For faultless installation, we recommend using a mechanical or hydraulic press-fitting device with the appropriate press-in tool.
- The press-in force should be exerted as closely to the outer diameter as possible.
- The seal must not be pressed-in at a skew and must rest at right angles to the shaft.
- Should it be necessary to use a hammer for installation, it is essential to place a full surface safety plate over the seal. The seal should not be directly hit by the hammer. Deformation and skewing of the seal must be prevented.



- Should the design provide for e.g. the bearing and the contact surface of the seal having the same nominal diameter, when the bearing is installed, the contact surface could be damaged by axial scratching. In this case, the shaft diameter in the area of the contact surface should be designed to be approx. 0.2 mm smaller.
- Particular care must be taken with the installation of shaft seals with PTFE sealing lips (e.g. our types OS-PA30 to OS-PA32). If the shaft seal is installed with the front side first, we recommend the use of an installation cone with an angle of 10° - 20°. If the installation is done with the bottom side first, the shaft should be provided with a radius of $R_{min} = 1\text{mm}$.



Replacement of shaft seals

When servicing or repairing a machine, the used shaft seals should always be replaced by new ones. Care must be taken that the new seal does not run in exactly the same track on the shaft as the old one. The new shaft seal can e.g. with the use of a spacer ring, be pressed into the bore at a different depth (see figure on the right). If a shaft sleeve is used, this should also be replaced, if necessary.

