



Installation of PTFE Teflon® Piston Seals

Installing PTFE piston seals is not always an easy task. The use of installation tools is recommended but often not convenient when working with a wide variety of sizes and applications.

Finger installations are practical with rings of smaller cross-sections. Using fingers or a rounded plastic stick, knead the ring over the piston into the groove. With rings of larger cross-section it may be necessary to heat the ring. Warming the ring in water or oil at 130-140°F for about 5 minutes will soften the material for easier installation. Always avoid inconsistent stretching or overstretching of the Teflon® seal.

To prevent the Teflon® ring from snapping into the wrong groove, cover wear ring grooves with plastic tape.

After seal installation, assembly of the cylinder may be difficult if the piston seal is loose on the piston or the cylinder has an inadequate leading edge chamfered. In such cases, compress the piston seal with belting or a suitable hose clamp. If the piston seal must pass threads or any other sharp edges during cylinder assembly, cover the edges with plastic tape or wrap.

1-877-905-SEAL

Hardware Considerations

General Guidelines for Hardware Design

For easy assembly and to avoid damage to the seal during assembly, Parker recommends that designers adhere to the tolerances, surface finishes, leading edge chamfers and dimensions shown in this catalog.

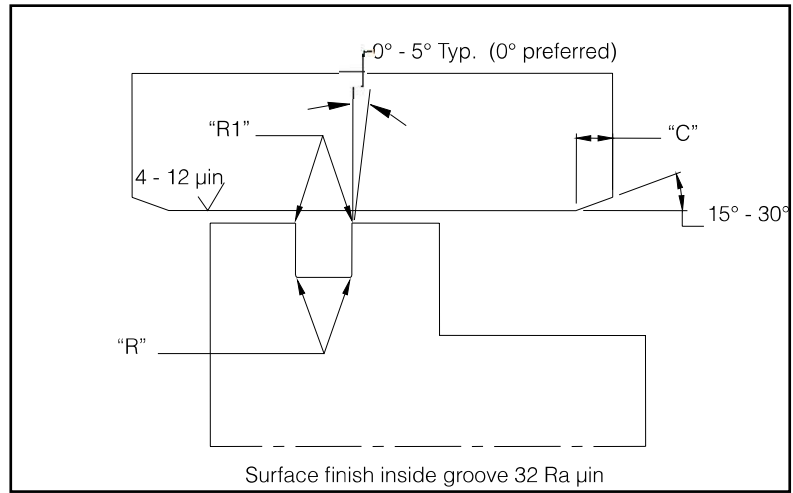


Figure 3.

Hardware Recommendations — Piston.

Table 6.

Inch				Metric			
Piston Size Inch	"R" Max Radius	"R1" Max Radius	"C" Min Chamfer	Piston Size (mm)	"R" Max Radius	"R1" Max Radius	"C" Min Chamfer
0.125 < 1.500	0.020	0.005	0.080	3.0 < 38	0.50	0.20	2.0
1.500 < 6.000	0.025	0.005	0.125	38 < 150	0.60	0.20	3.0
6.000 < 10.000	0.030	0.005	0.250	150 < 250	0.75	0.20	6.0
10.000 and Up	0.035	0.005	0.300	250 and Up	0.90	0.20	8.0

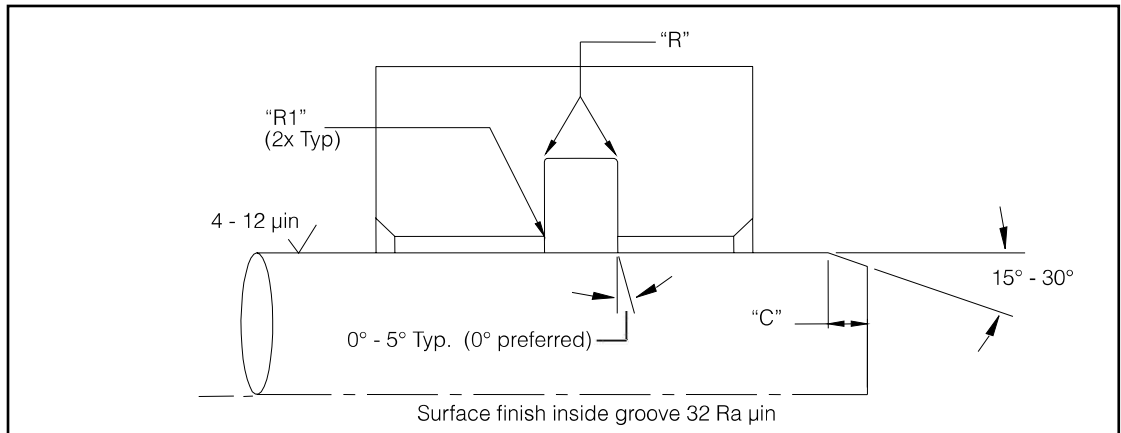


Figure 4.

Hardware Recommendations — Rod.

Table 7.

Inch				Metric			
Rod Size Inch	"R" Max Radius	"R1" Max Radius	"C" Min Chamfer	Rod Size (mm)	"R" Max Radius	"R1" Max Radius	"C" Min Chamfer
0.125 < 1.500	0.020	0.005	0.080	3.0 < 38	0.50	0.20	2.0
1.500 < 6.000	0.025	0.005	0.125	38 < 150	0.60	0.20	3.0
6.000 < 10.000	0.030	0.005	0.250	150 < 250	0.75	0.20	6.0
10.000" and Up	0.035	0.005	0.300	250 and Up	0.90	0.20	8.0

Installation

Fluid Power Seal Installation

Piston Seals

The installation of Piston Seals can be greatly improved with the use of installation tooling. The tooling not only makes the installation easier, but also safer. The seal is less likely to be damaged using the proper tooling. The tooling is highly recommended and cost effective when doing high volume installation.

1. Inspect all hardware and tooling for any contamination, burrs or sharp edges. Clean, debur, chamfer, or radius where necessary. Make sure the piston and groove are undamaged.
2. Carefully install the O-ring or rubber energizer into the groove to ensure proper seating.
3. Install the expanding mandrel on to the piston.
4. Place the seal onto the expanding mandrel and gently push the seal up the ramp using the pusher.
5. Slide the resizing tool over the seal to compress the seal to its original diameter.

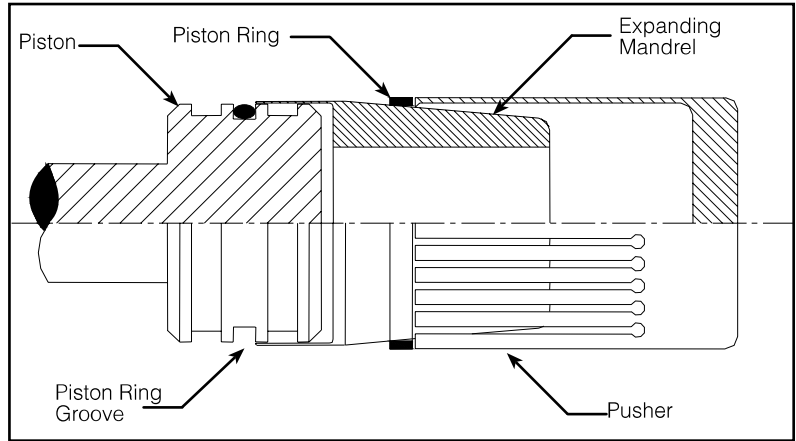


Figure 5. Installation of Piston Seal With Tooling

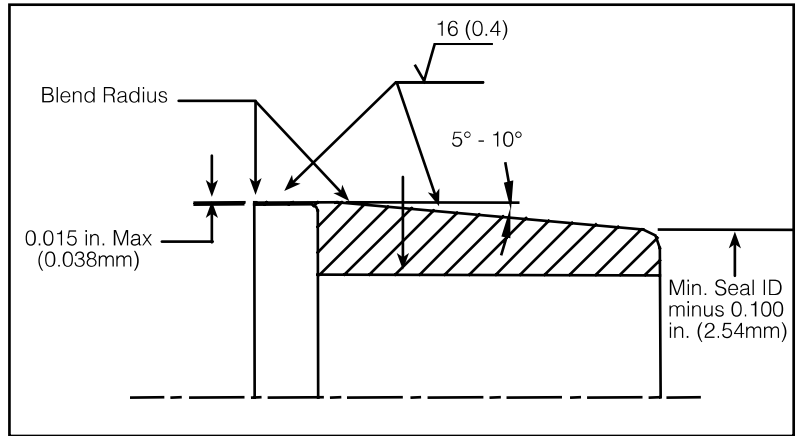


Figure 6. Expanding Mandrel

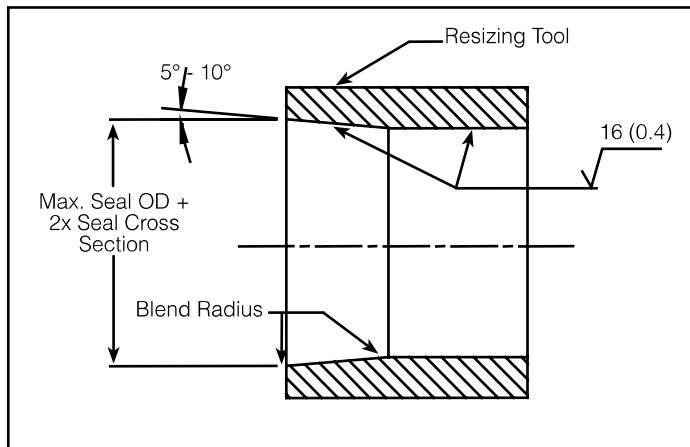


Figure 7. Resizing Tool

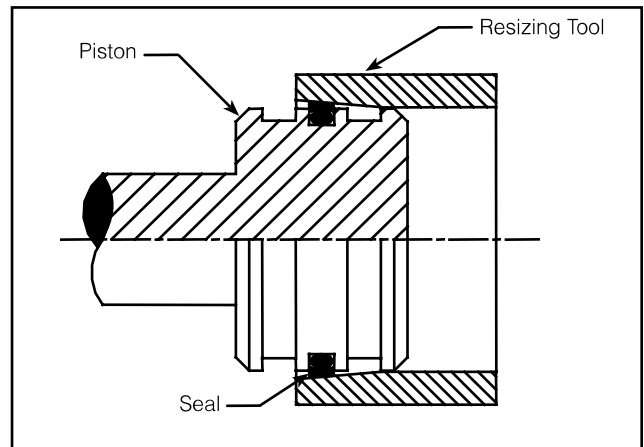


Figure 8. Resizing

Note: To aid in the installation, the seal can be lubricated with the fluid it will be sealing. Preheating the seal to as high as 300 °F (150 °C) in either oil or air will soften the seal and aid in the stretching and installation.

Care must be taken to prevent burns when using the heating option.