



Pac-Seal® Type 68 Seal Installation Instructions



DESCRIPTION

The Pac-Seal Type 68 seal was designed for the light-duty market. It incorporates a stationary compression unit with elastomer bellows and a spring-and-ferrule configuration to accommodate shaft axial translation and apply appropriate seal load during application conditions. The shell component also features robust drive features for superior torque capability.

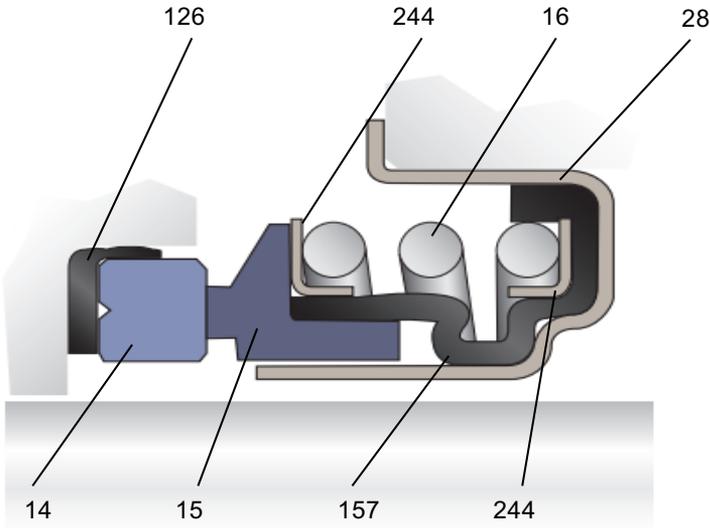


Figure 1: Type 68 seal nomenclature

Part Reference	Description
14	Stationary Face/Mating Ring
15	Rotating Face/Primary Ring
16	Spring
28	Shell
126	Gasket/Elastomer Cup/Cup Gasket
157	Bellows Diaphragm/Elastomer Bellows
244	Ferrule

1 EQUIPMENT CHECK

- 1.1 Follow plant safety regulations prior to equipment disassembly including, but not limited to, the following:
 - Lock out motor and valves.
 - Wear designated personal safety equipment.
 - Relieve any pressure in the system.
 - Consult plant MSDS files for hazardous material regulations.
- 1.2 Disassemble pump in accordance with equipment manufacturer's instructions and remove sealing arrangement.
- 1.3 Check seal documentation for seal design and materials of construction.
- 1.4 Check shaft or pump sleeve outer diameter, seal working height, mating ring width, mating ring bore and stationary assembly bore to ensure they are dimensionally within the tolerances shown on the seal assembly drawing. See Figure 2.

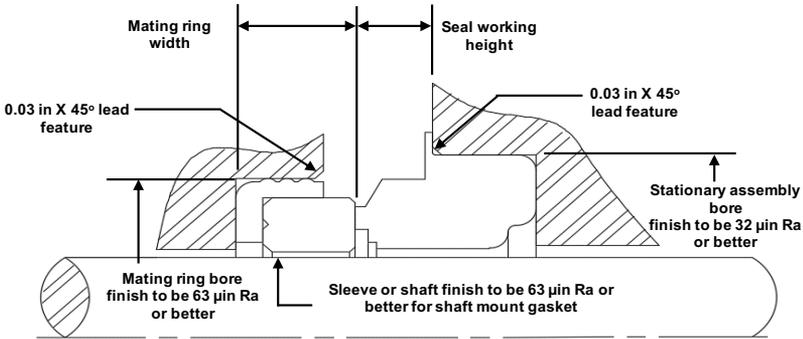


Figure 2: Seal chamber requirements

- Bearings must be in good condition.
- Maximum lateral or axial movement of shaft (end play) = 0.25 mm (0.010 in).
- Maximum shaft runout at face of seal housing = 0.05 mm (0.002 in) FIM.
- Maximum dynamic shaft deflection at seal chamber = 0.05 mm (0.002 in) FIM.
- Verify proper shaft and bore lead-in chamfers are present and within specifications. Difficulty and damage can be observed during seal installation without proper lead-in chamfers.

- 1.5 Thoroughly inspect and clean the seal chamber and shaft or pump sleeve. Inspect for corrosion or any defects. Remove all burrs, cuts, dents or defects that might damage gaskets or allow a leak path. Replace worn shaft or pump sleeve.
- 1.6 Check equipment requirements as described in Figure 2. Any measurement different than what is allowed must be brought within specifications.
- 1.7 Handle the seal with care; it is manufactured to precise tolerances. The seal faces are of special importance and should be kept perfectly clean at all times. Avoid using excessive force or hammering on seal components.

2 TYPE 68 SEAL INSTALLATION

- 2.1 Ensure seal faces are kept clean throughout the installation procedure. Clean both rotating and stationary seal faces with a lint-free wipe and isopropyl alcohol as needed.

Note: Any oil, grease, assembly lubricant, fingerprints or other residue from the installation process can cause the seal to leak.

- 2.2 Press seal stationary compression unit into the pump bore until fully seated, exerting pressure against the shell only. An assembly tool combined with a machine press mechanism is recommended to facilitate installation. Ensure stationary compression unit seal face is cleaned after fully seated.

2.3 If the mating gasket is a cup-mount gasket, then lubricate the outer diameters of the bore and gasket. Press the mating assembly firmly into the bore, ensuring it is bottomed out and square. This can be hand-pressed or machine-pressed into place, taking care to protect the sealing face from direct contact with any metal object. A plastic installation tool is recommended along with a machine press mechanism. Ensure mating assembly seal face is cleaned after fully seated.

Note: Use a water-based lubricant (Pac-Ease is recommended). If Pac-Ease is not available, use a solution of liquid dish soap in water or isopropyl alcohol in water as a lubricant. Never use grease or oil as an installation lubricant. Oil used to lubricate elastomer components will reduce the friction drive or anti-rotation capability of the component significantly.

2.4 If the mating gasket is a shaft-mount gasket, then lubricate the shaft's outer diameter and mating gasket's inner diameter. Slide the mating assembly down the shaft, cleaning any excess lubricant from the mating assembly face if possible, until the mating assembly face mates with the stationary compression unit face. Ensure the mating gasket does not dislodge during installation. An installation tool is recommended to ease the mating assembly installation. Ensure the mating assembly seal face is cleaned after fully seated.

3 TYPE 68 SEAL OPERATIONAL RECOMMENDATIONS

- 3.1** Remove lock outs on equipment and valves.
- 3.2** Do not start up the pump dry for any other reason. Open valves to flood the pump's seal chamber with product fluid. Vent air from the casing of the pump and the seal chamber before start-up.
- 3.3** Observe the start-up. If the seal runs hot or squeals, do not allow the pump to run for any extended time.
- 3.4** The seal is designed to resist corrosion through proper material selection. Do not expose the seal materials of construction to products outside of their corrosion limits. Consult Flowserve for chemical resistance recommendations.
- 3.5** Do not exceed pressure and speed limits established for the seal.
- 3.6** Do not exceed the temperature limits of the seal based on the materials of construction.



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