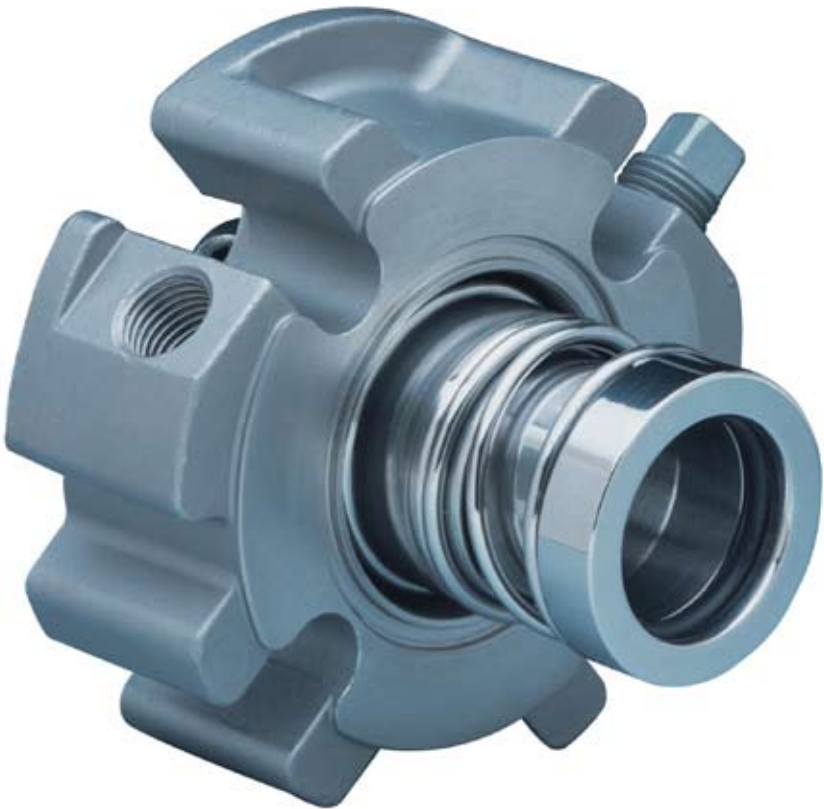




Installation Instructions

Type 55 Pac-Seal

Mechanical Shaft Seal



Description

The Type 55 seal is a cartridge mounted mechanical seal, designed for ease of installation and reliable operation. The flexible stator pusher design compensates for inadvertent misalignment of the seal chamber face. The bellows design is available in both rotating and stationary bellows arrangements. Rotating bellows arrangements are used when the self cleaning feature is required and stationary bellows are used to compensate for inadvertent misalignment of the seal chamber face. Installation according to the following steps will assure long trouble free life of the seal.

1 Equipment Check

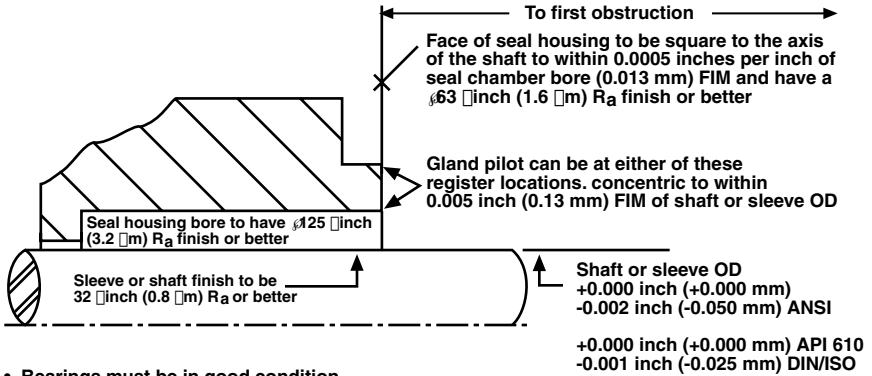
- 1.1 Follow plant safety regulations prior to equipment disassembly:
 - Lock out motor and valves.
 - Wear designated personal safety equipment.
 - Relieve any pressure in the system.
 - Consult plant MSDS files for hazardous material regulations.
- 1.2 Disassemble equipment in accordance with equipment manufacturer's instructions to allow access to seal installation area. This may include removing the suction cover, impeller, pump volute and back-plate of the pump. New gaskets and/or O-rings should be on hand to replace existing ones. Care must be taken to remember the correct manner the pump is constructed for reassembly.

Note: The new seal must be installed in the same manner as the existing seal. Otherwise, the new seal will not function properly.

- 1.3 Remove existing mechanical seal and gland. Take care to prevent scratching the shaft during removal.
- 1.4 Make sure the shaft and the seal housing face are clean and free of burrs, cuts, dents or corrosion that might cause leakage past the sleeve/gland gasket. If these components are damaged, replacement may be necessary.
- 1.5 Check equipment dimensions to ensure that they are within the specifications shown in Figures 1 and 2.

Seal Chamber Requirements

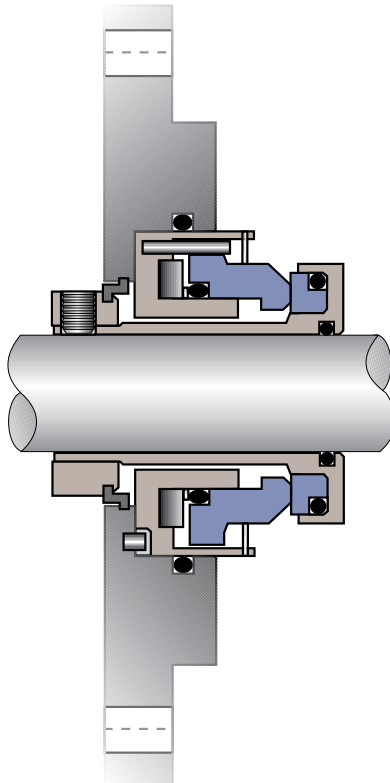
Figure 1



- Bearings must be in good condition
- Maximum lateral or axial movement of shaft (end play) = 0.010 inch (0.25 mm) FIM
- Maximum shaft runout at face of seal housing = 0.002 inch (0.05 mm) FIM
- Maximum dynamic shaft deflection at seal housing = 0.002 inch (0.05 mm) FIM

Type 55 Dimensional Data

Figure 2



- 1.6 Handle the Type 55 seal with care; it is manufactured to precise tolerances. Keep the seal faces perfectly clean at all times.

2 Type 55 Installation

- 2.1 Lubricate the shaft or sleeve lightly. If Pac Ease is not available, use a solution of liquid dish soap in water as lubricant. Never use grease, oil, WD-40, silicone or other lubricant as these will cover the seal faces and/or damage the rubber portions of the seal causing improper function or premature failure.
- 2.2 Tighten the setting device cap screws.
- 2.3 Install the complete Type 55 cartridge assembly onto the shaft or sleeve with the setting devices near the bearing housing. See Figure 3.

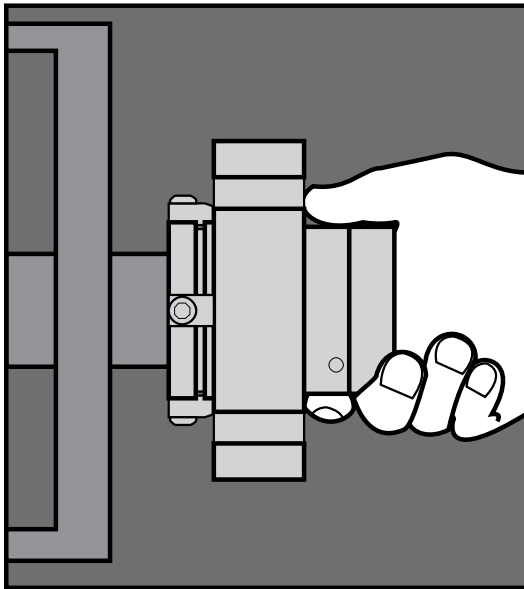


Figure 3

2.4 Install the pump back plate (seal chamber) and bolt it in place on the bearing frame. See figure 4.

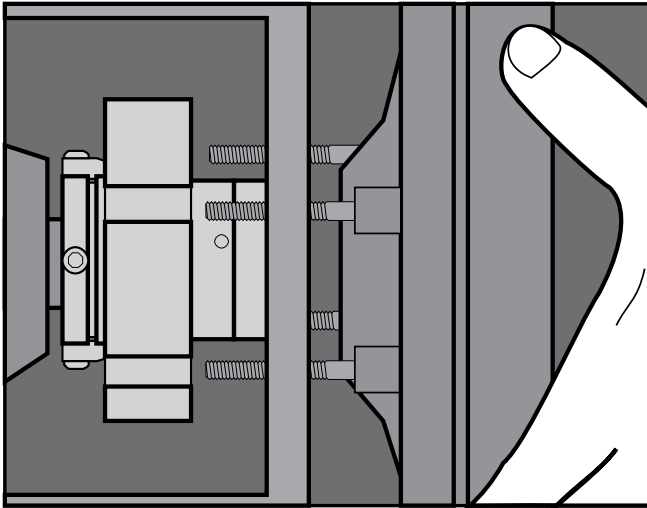


Figure 4

2.5 Position the seal with the gland tight against the seal chamber face. Turn the gland so that the vent tap is as close to the 12:00 o'clock position as possible and so that the flush piping will clear the bearing frame.

Caution: Setting devices should not be removed or loosened before tightening the gland bolts and tightening the set screws to the shaft. Tighten the gland nuts evenly in a diagonal sequence. Do not over tighten the gland nuts, as this can warp seal parts and cause leakage.

2.6 Assemble the pump. Avoid pipe strain. Align coupling properly.

2.7 With the impeller, shaft, coupling, and bearings in their final operating positions, tighten the drive collar set screws. See Figure 5.

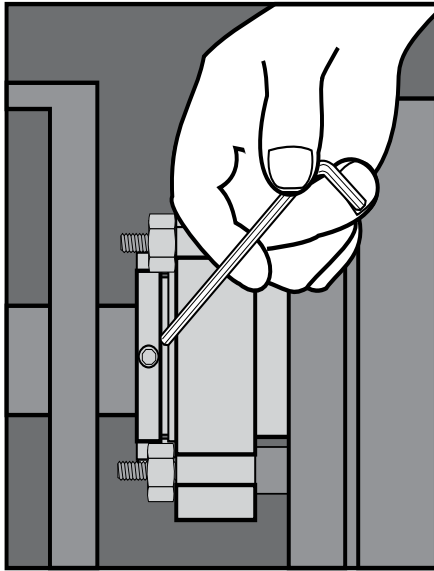


Figure 5

2.8 Remove the setting clips from the drive collar. See Figure 6. Although it's recommended, it is optional to save the clips/fasteners for future use when the pump impeller is reset or when the seal is removed for repairs.

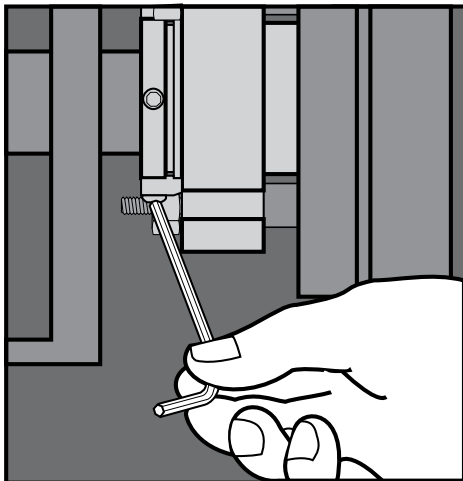


Figure 6

- 2.9 Turn the shaft by hand to ensure unobstructed operation.
- 2.10 See Operational Recommendations before start-up.

3 Operational Recommendations

- 3.1 Do not exceed corrosion limits. Do not expose the materials of construction to products outside of their corrosion limits. The Type 55 assembly drawing lists the materials of construction. Consult Flowserve for chemical resistance recommendations.
- 3.2 Do not exceed the recommended maximum pressure and speed limits.
- 3.3 Do not exceed the temperature limits of the Type 55. The materials of construction are listed on the assembly drawing.
- 3.4 Do not run the Type 55 dry, as this will damage the seal. Always prime the pump prior to starting and ensure that a process fluid is in the pump volute at all times during operation.

4 Repair

This product is a precision sealing device. The design and dimension tolerances are critical to seal performance. Only parts supplied by Flowserve should be used to repair a seal. These are available from numerous Flowserve stocking locations. To order replacement parts, refer to the part code number and B/M number. A spare backup seal should be stocked to reduce repair time.

When repairs are not conducted at the customer's location, **decontaminate the seal assembly** and return it to Flowserve, with an order marked "**Repair or Replace**". **A signed certificate of decontamination** must be attached. **A Material Safety Data Sheet (MSDS) must be enclosed** for any product that came in contact with the seal. The seal assembly will be inspected and, if repairable, it will be rebuilt, tested, and returned in its original condition.



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