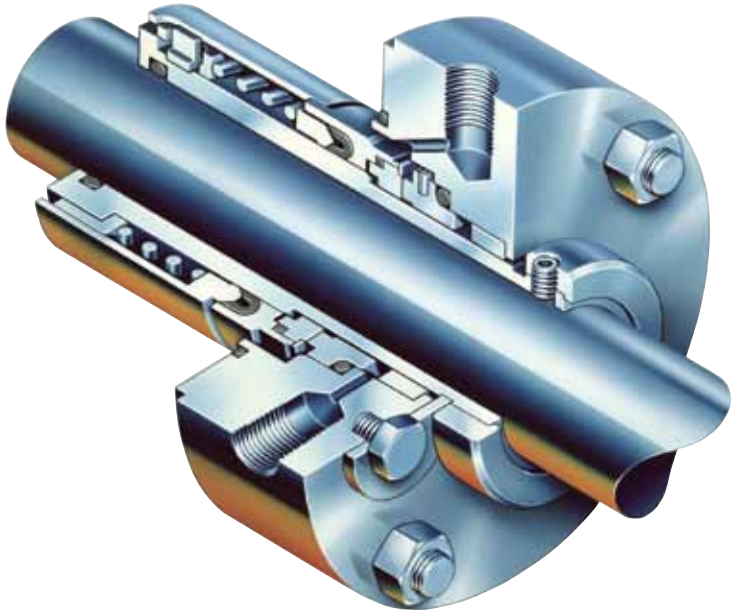
FLOWSERVE®

Installation Instructions

BW Seals® U Series

Balanced Pusher Seal
U, UC, UO, UCQ, UOP, UOPQ, UZ



Experience In Motion

1 Equipment Check

1.1 **Follow plant safety regulations**:

- lock out motor and valves.
- wear designated personal safety equipment.
- relieve any pressure in system.
- consult plant MSDS files for hazardous material regulations.

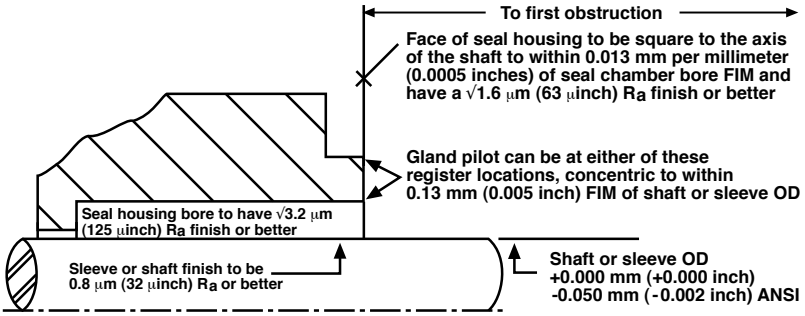
1.2 **Adjust the bearings, coupling, and impeller** so that the shaft is in its operating axial position. **Disassemble equipment to allow access to seal installation area**.

1.3 **Remove all burrs and sharp edges** from the shaft, sleeve, seal housing bore and face, keyways, and any other feature that may contact sealing gaskets. Replace worn components. Clean all piping plans.

1.4 **Check requirements** for shaft, sleeve, and seal housing. See Figure 1.

Seal Chamber Requirements

Figure 1



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

1.5 **Check assembly drawing** included with the seal for equipment dimensions, seal design, materials of construction, and piping connections.

1.6 **Measure all diameters and distances** to ensure they are dimensionally the same as shown on the seal assembly drawing.

1.7 **Handle all seal parts with care**, they are manufactured to precise tolerances. The seal faces are of special importance and should be kept perfectly clean.

2 Mechanical Seal Installation

2.1 **Review seal assembly drawing, seal assembly, and equipment** prior to installation. Read all notes on the seal assembly drawing. For hook sleeve designs, confirm the seal setting length shown on the assembly drawing matches the equipment. See Figure 1.

2.3 **Lightly lubricate external gaskets** with a lubricant compatible with both handled product and gasket material. Generally, silicon grease is suitable.

2.4 Install the seal onto the shaft and **locate it against the face of the seal chamber**. If applicable, ensure the sleeve is aligned with drive features on the shaft.

2.5 **Orient the ports** on the seal gland(s) as indicated by the seal assembly drawing and connected piping.

2.6 **Evenly torque gland bolts/nuts** for uniform gland pressure against the seal chamber. On cartridge seals, do not yet tighten drive collar screws.

2.7 Complete the remaining equipment assembly including bearings, if applicable.

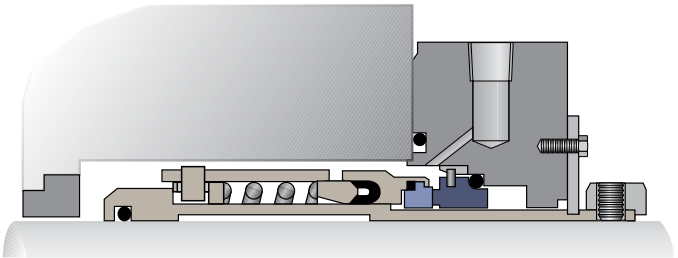
2.8 On cartridge seals, **evenly tighten drive collar screws**.

2.9 **Disengage setting plates** from the sleeve and secure in disengaged position.

2.10 I**nspect equipment and driver alignment** in accordance with coupling and/or equipment manufacturer's instructions.

2.11 After bringing the equipment up to operating conditions, **recheck alignment** and make adjustments as necessary.

Installed Cartridge Seal Assembly Figure 2



3 Piping Instructions

3.1 **Refer to the seal assembly drawing** for recommended seal piping plans. If auxiliary systems are required, follow all installation and operating instructions provided with these systems.

3.2 **Minimize restrictions**, total tubing length and number of bends especially in closed loop systems. Unless otherwise specified, the minimum internal diameter for tubing and connecting hardware should be 19 mm (0.750 inch).

3.3 **Do not start the equipment dry**. **Vent the equipment, seal chamber, and all piping systems** then startup support systems before starting equipment.

FLOWSERVE®

TO REORDER REFER TO
B/M #_____
F.O. _____

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. To order replacement parts, refer to the part code and B/M number. A spare backup seal should be stocked to reduce repair time.

When seals are returned to Flowserve for repair, **decontaminate the seal assembly** and include an order marked **"Repair or Replace." A signed certificate of decontamination** must be attached. **A Material Safety Da ta 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.

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