FLOWSERVE

Installation Instructions

VRA & VRA-C Series

Outside balanced seals designed to operate
under relatively high pressures and low speeds

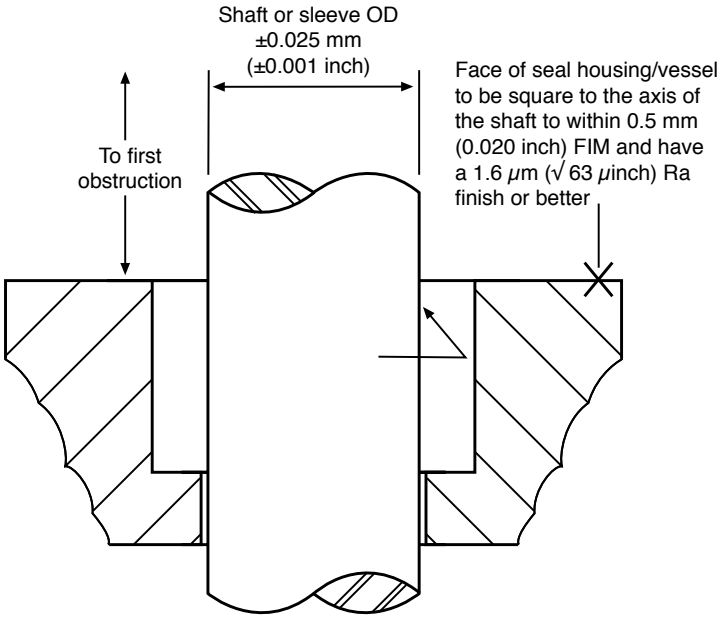


Experience In Motion

1 Equipment Check

1.1 Refer to Figure 1 for shaft, sleeve and seal housing requirements.

Seal Chamber Requirements Figure 1



- Bearings, drive, and coupling must be in good condition
- Maximum axial movement of shaft (end play) = 0.25 mm (0.010 inch) FIM
- Maximum combined shaft concentricity and shaft deflection at face of housing total = 03.8 mm (0.150 inch) FIM

1.2 Refer to assembly drawing included with seal package for specific seal design, materials of construction, dimensions, and piping connections.

1.3 Check shaft or sleeve OD, box bore, and box depth to ensure that they are dimensionally the same as shown on the seal assembly drawing.

1.4 Check gland pilot and bolt holes to ensure they are adaptable to the equipment and are the same as shown on the assembly drawing.

1.5 **Seal Faces:** While all seal parts are manufactured to precise tolerances, the seal faces (stationary and rotating face) are of primary importance. These two sealing faces are lapped flat to three light bands or better (34.8 millionths of an inch) and polished. It is imperative that these two faces be handled with care and kept perfectly clean.

1.6 Do not apply oil or other lubricants to the seal faces or to the secondary seals.

1.7 Lightly lubricate the rotating face gasket and the O-ring on seal drive ID with a lubricant compatible with the application and elastomer materials.

2 Installation

2.1 Install the two seat gasket O-rings furnished for the stationary face, one ring per side.

2.2 Install the stationary face into the gland ring with the sealing face first so it will protrude out the back of the gland ring.

2.3 Install the gland and stationary face over the shaft and ease it into position. Bolt the gland ring to the face of the stuffing box or seal housing by drawing the nuts down evenly. The gland ring gasket is one of the seal gasket O-rings, therefore, there is no concern for additional sealing elements in the area.

2.4 Install the sleeve gasket O-ring, into the O-ring groove of the seal drive assembly.

2.5 Install the rotating face gasket O-ring, on the first step and against the second step wall of the seal drive assembly.

2.6 Line up the slots on the rotating face OD with the drive pins in the seal drive assembly and slide the rotating face into place on the seal drive assembly extension surface.

2.7 Wipe the sealing faces of the rotating and stationary face clean.
Remember: **Do not oil the sealing faces.**

2.8 All outside VRA seal designs require that the rotating portion of the seal, seal drive with seal ring, be slid on the shaft as an entire unit to prevent damage to the rotating face. Slide the entire unit on the shaft until the stationary and rotating faces touch.
Remember: **Do not touch the sealing face of the rotating face.**

2.9 Set the seal to the distance given on the assembly drawing, furnished with the seal. This dimension is shown on the assembly drawing as the distance from the face of the equipment to the back of the seal drive. Make sure the spring gap is evenly spaced around the seal and lock the seal drive to the shaft with the seal drive set screws.

3 Operation Recommendations

3.1 The pressure acting on the seal must not exceed the pressure velocity rating of the seal design and materials of construction.

3.2 If the seal runs hot, check for proper seal setting and seal housing dimensions to insure that the seal is not over-compressed. Shut down the equipment immediately if the seal gets hot.

3.3 When the gas being sealed is other than air, never start up the equipment without properly venting.

3.4 This seal can be used if a full vacuum pressure condition exists.

For special problems encountered during installation, contact your nearest Flowserve Sales and Service Representative or Authorized Distributor.

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 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.

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