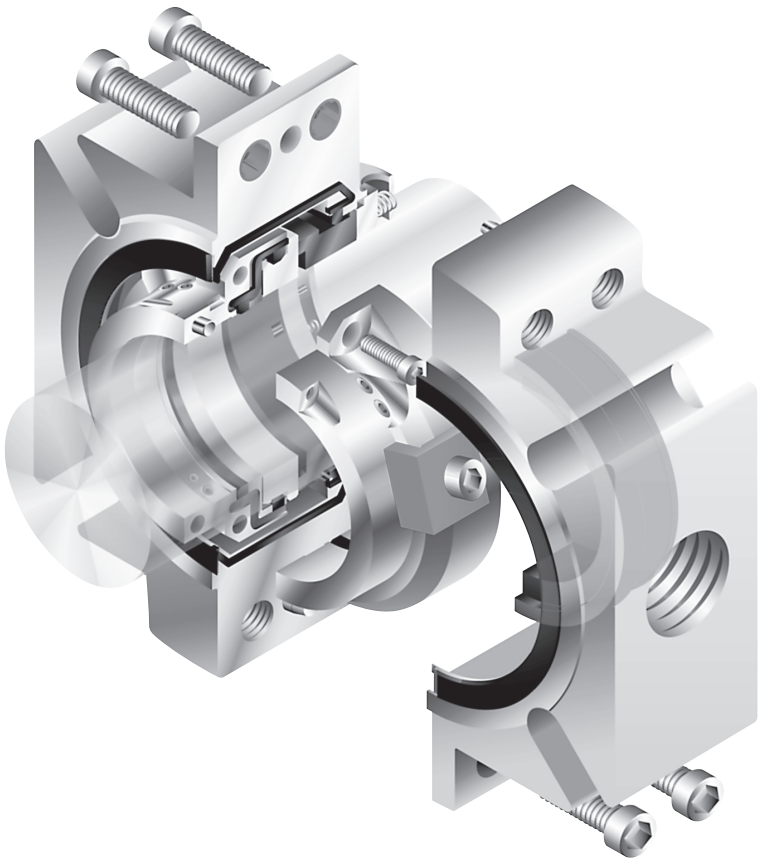




Installation Instructions

Durametallic® PSS III

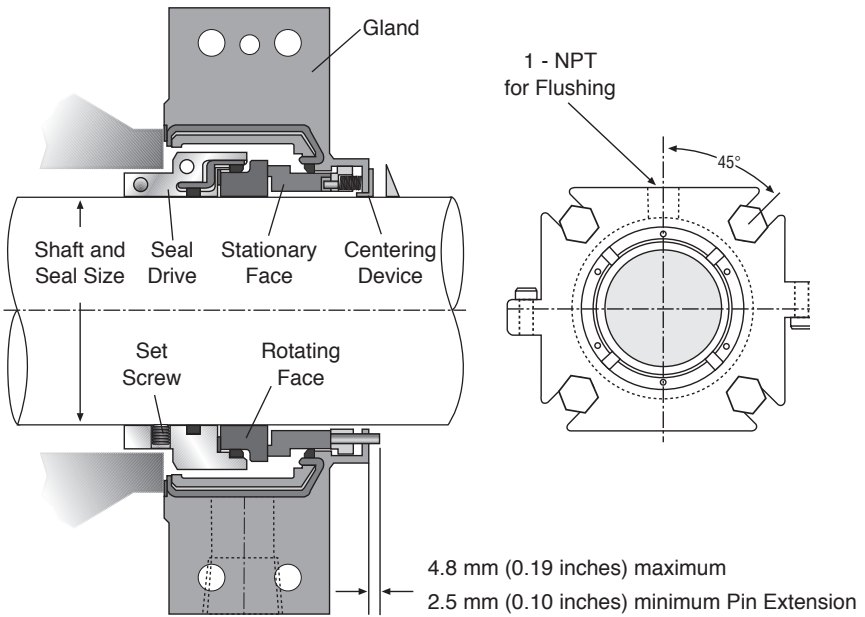
Split Seal



While the **PSS III** has been designed for rugged industrial application and ease of installation, it does require assembly in a clean environment according to the following installation steps. No setting dimensions or measurements are required to install the seal.

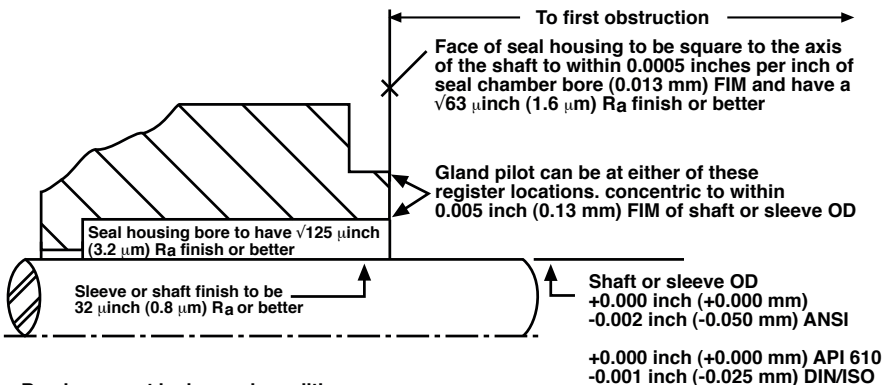
Seal Reference

Figure 1



Seal Chamber Requirements

Figure 2



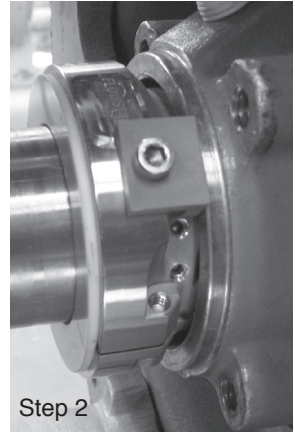
- Bearings must be in good condition
- Maximum lateral or axial movement of shaft (end play) = 0.010 inch (0.25 mm) FIM
- Maximum shaft runout at face of seal housing = 0.002 inch (0.05 mm) FIM

The images of parts shown in these instructions may differ visually from the actual parts due to manufacturing processes that do not affect the part function or quality.

Tools Needed for Installation

- $\frac{5}{32}$ " , $\frac{5}{16}$ " and $\frac{3}{32}$ " or $\frac{1}{8}$ " T-handle hex key wrenches (supplied with seal)
- An open end wrench for the gland bolts.
- A common screw driver to remove the setting devices and centering devices.
- Torque wrench

Seal Drive Installation



Step 1 **Lubricate** the exposed surfaces of the sleeve gasket and sleeve gasket ends, rotating face gasket ends, and seal drive split joint gaskets with the enclosed lube. Confirm that the set screws are backed out of the seal drive bore so the set screws do not interfere with seal drive fit around the shaft.

Step 2 Loosely **assemble the seal drive halves** around the shaft and finger tighten the **seal drive cap screws**. Slide the seal drive toward the box until the setting devices contact the seal chamber.

Step 3a With the seal drive still loose, align the rotating face joints at their OD and at the face so there is no step at the joints.

b Finish **tightening the seal drive cap screws** to 4.5 N-m (40 in-lbs). **Recheck the rotating face joints for flatness**. A small mismatch can be corrected by pushing on the high side of the joint or gently prying on the low side.

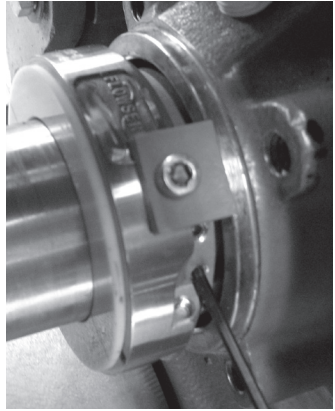
c The rotating face joints must be flat and smooth on both the sealing face and the OD of the ring. Any mismatch will result in leakage. If a mismatch exists, loosen the seal drive cap screws 1-2 turns and repeat steps a and b.

d Clean rotating face with alcohol.



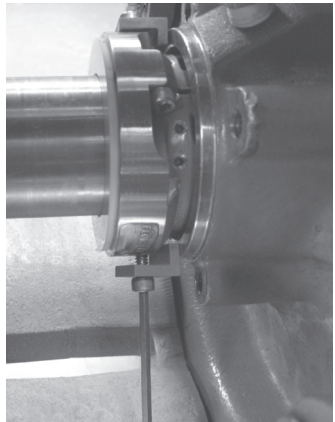
Caution: Consult material safety data sheets for proper handling of alcohol.

- Step 4a **With the setting devices against the box face**, tighten the seal drive set screws. All sizes have eight set screws. Tighten all four located at one split joint. Then tighten the four at the other split joint. Tighten all set screws to 2.8 N-m (25 in-lbs) for seal sizes up through 85.7 mm (3.375 inch) and 5.6 N-m (50 in-lbs) for larger sizes.
- b **Tighten set screws a second time** in the same order.
- c Check the face for joint alignment again.



Step 4

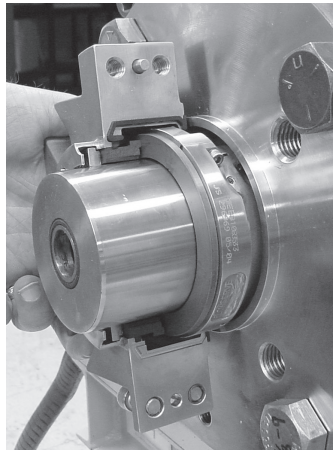
- Step 5 **Remove setting devices** by unscrewing the socket head cap screw from the seal drive and re-clean the seal faces.



Step 5

Gland Installation

- Step 6a To install the seal gland, the gland studs may need to be temporarily removed to allow the gland halves to fit around the shaft.
- b Lubricate the split ends of the stationary face, the seat gasket ends, and the exposed surfaces of the gland split joint gaskets with the enclosed lube.
- c Clean the stationary seal faces with alcohol.
- d **Carefully assemble the gland halves around the rotor** avoiding any contact between the seals face and the shaft.
- e **Finger tighten the gland cap screws** leaving a gap between the halves of about 0.8 mm (0.03 inch).
- f If gland studs were removed in Step 6a, re-install gland studs.
- g **Finger tighten the gland bolts** so the gland is supported at the pump mounting surface while the cap screws are being tightened.
- h Firmly press the gland up against the seal drive and towards the seal chamber while fully tightening the gland cap screws to **144 in-lbs, 16 N-m (12 ft-lbs)**.
- i **Tighten the gland mounting bolts evenly** until the gland gasket is fully compressed and the gland is squarely seated against the pump box face.

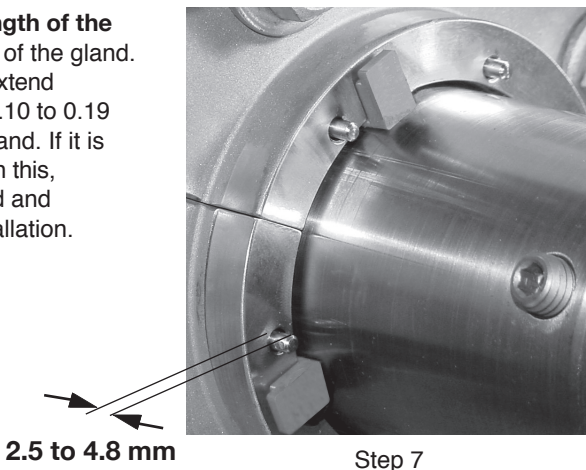


Step 6a

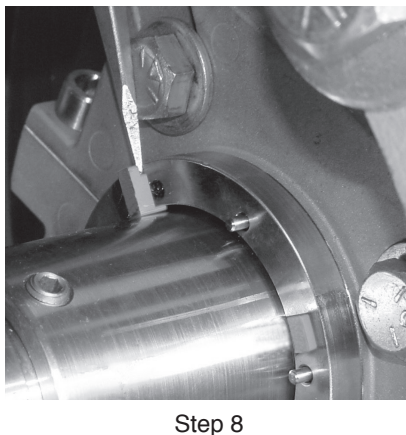
Gland to Pump Mounting Bolt Torques

Size Range	Torque
25.4-95.25 mm (1-3.750")	33 N-m (25 ft-lbs)
Above 95.25 mm (3.750")	67 N-m (50 ft-lbs)

Step 7 **Observe the length of the lock pin** outside of the gland. The pin should extend 2.5 to 4.8 mm (0.10 to 0.19 inch) from the gland. If it is more or less than this, remove the gland and recheck the installation.



Step 8 **Pry off the centering devices** with a screwdriver.



Step 9 **Connect the flush line** to the gland or plug if unused.

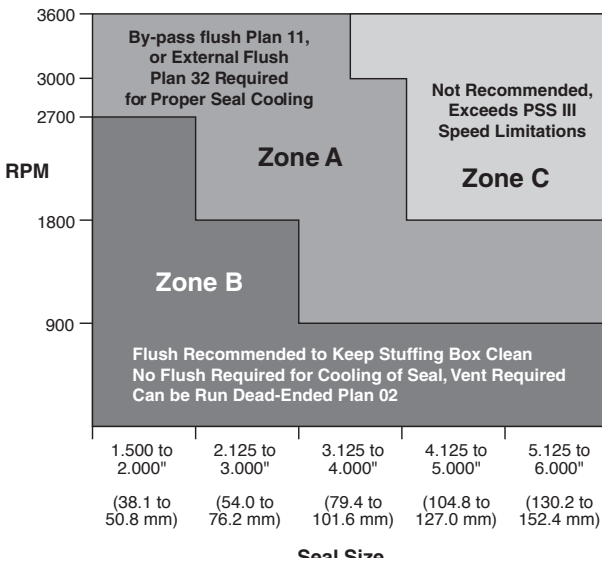
Step 10 **Turn the shaft by hand** as a final check to be sure nothing is binding.

Operational Recommendations

Do not start up the equipment dry. Vent air from the stuffing box before startup. Circulate clean product, Plan 11, or a clean fluid from an external source, Plan 32, through the seal chamber whenever the equipment is in operation unless operating in Zone B of Figure 3 where no flush is required.

Cooling Recommendations for PSS III

Figure 3



Notes for Figure 3:

- Recommendations are for use in water or other similar viscosity liquids.
- These recommendations apply to products having a maximum temperature of 71°C (160°F).
- Use Plan 13 on vertical equipment to vent the seal area even when operating in Zone B

If the seal runs hot, check for proper seal setting, see Step 7, and check the flush line for obstructions.

If you encounter special problems during installation contact your nearest Flowserve Sales and Service Representative.

Repairs

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 the seal. These parts are available from numerous Flowserve stocking locations. To order replacement parts, refer to the part code number and B/M number. A spare back-up seal should be stocked to reduce repair time. The following parts can also be stocked for emergency needs.

Rotating Face	Split Joint Gaskets
Sleeve Gasket	Gland Gasket
Rotating Face Gasket	Centering Devices
Stationary Face	Setting Devices
Seat Gasket	Cap Screws
Coil Springs	Set Screws

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 Safety Data Sheet (SDS) 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.



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

FIS175eng REV 09/2018 Printed in USA

***To find your local Flowserve representative
and find out more about Flowserve Corporation,
visit www.flowserve.com***

Flowserve Corporation has established industry leadership in the design and manufacture of its products. When properly selected, this Flowserve product is designed to perform its intended function safely during its useful life. However, the purchaser or user of Flowserve products should be aware that Flowserve products might be used in numerous applications under a wide variety of industrial service conditions. Although Flowserve can provide general guidelines, it cannot provide specific data and warnings for all possible applications. The purchaser/user must therefore assume the ultimate responsibility for the proper sizing and selection, installation, operation, and maintenance of Flowserve products. The purchaser/user should read and understand the Installation Instructions included with the product, and train its employees and contractors in the safe use of Flowserve products in connection with the specific application.

While the information and specifications contained in this literature are believed to be accurate, they are supplied for informative purposes only and should not be considered certified or as a guarantee of satisfactory results by reliance thereon. Nothing contained herein is to be construed as a warranty or guarantee, express or implied, regarding any matter with respect to this product. Because Flowserve is continually improving and upgrading its product design, the specifications, dimensions and information contained herein are subject to change without notice. Should any question arise concerning these provisions, the purchaser/user should contact Flowserve Corporation at any one of its worldwide operations or offices.

© 2015 Flowserve Corporation

USA and Canada

Kalamazoo, Michigan USA
Telephone: 1 269 381 2650
Telefax: 1 269 382 8726

Europe, Middle East, Africa

Etten-Leur, the Netherlands
Telephone: 31 765 028 200
Telefax: 31 765 028 487

Asia Pacific

Singapore
Telephone: 65 6544 6800
Telefax: 65 6214 0541

Latin America

Mexico City
Telephone: 52 55 5567 7170
Telefax: 52 55 5567 4224