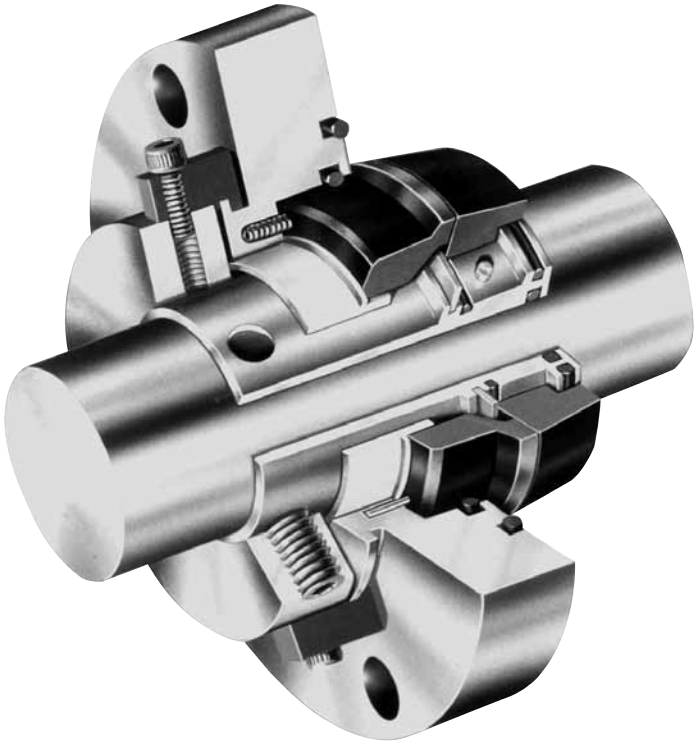
FLOWSERVE

Installation Instructions

Durametallic® SL-5000 and SL-5200 Seals

Cartridge Slurry Seals



Experience In Motion

SL-5000 and SL-5200 Cartridge Seals are complete preset seal assemblies which include the sleeve and gland. No seal settings or measurements are required. They are especially suitable for pumps and rotating equipment handling abrasive slurries. The SL-5000 is a single seal design and the SL-5200 is a dual 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.

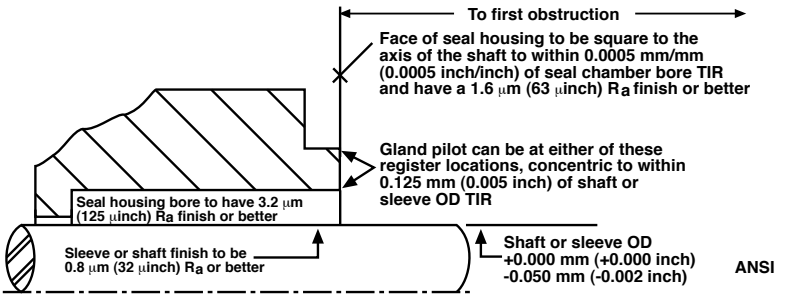
1.2 **Disassemble equipment** to allow access to seal installation area.

1.3 **Remove all burrs, nicks, or scratches, and sharp edges** from the shaft / sleeve including sharp edges of keyways and threads. Replace worn shaft or sleeve. Make sure the seal housing bore, face, and sealing fluid flush taps are clean and free of burrs and sharp edges that might damage gaskets.

1.4 **Check requirements** for shaft, sleeve and seal chamber, 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) TIR**
- **Maximum shaft runout at face of seal housing = 0.05 mm (0.002 inch) TIR**
- **Maximum dynamic shaft deflection at seal housing = 0.05 mm (0.002 inch) TIR**

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.

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

1.6 **Check shaft or sleeve OD seal chamber bore, seal chamber depth, and distance to the first obstruction** to ensure that they are dimensionally the same as shown on the seal assembly drawing.

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

1.8 **Handle all seal parts with care**, they are manufactured to precise tolerances. The seal faces on the rotating and stationary faces are of special importance. These two sealing faces are lapped flat to within three light bands (34.8 millionths of an inch). **Keep the seal faces perfectly clean at all times**.

2 Installation

2.1 **Lubricate the shaft** lightly with silicone lubricant before installing the seal assembly on the shaft.

2.2 **Install the complete cartridge seal assembly** over the shaft and ease it into position. Care should be exercised when passing the sleeve incorporating the O-ring over any keyways or threads that may be present. Any steps or shoulders on the shaft should be beveled to prevent damage (pinching and cutting) of the O-ring sleeve gasket during installation. **Attach the gland bolts loosely, hand tight**, to the face of the seal chamber.

2.3 After the pump assembly has been completed with the impeller, shaft, coupling, and bearing in their respective running or operating position, **tighten the gland bolts to the seal chamber,** evenly cross staggering the adjustment of the bolts.

2.4 Be sure the set screw material is harder than the shaft material to bite into the shaft and hold the required load. **Tighten the sleeve collar set screws to the shaft** by cross staggering the adjustment.

2.5 Remove the setting devices from between the sleeve drive collar and gland, and store for future use.

2.6 The seal is set and ready for operation.

Operational Recommendations

3 SL-5000

3.1 **Do not start the equipment dry**. Never start up the equipment without properly venting the pump of air.

3.2 If the seal runs hot, check for proper seal setting, seal housing dimensions, and check the flush lines for obstructions. Do not allow the equipment to run for any extended time if the seal gets hot or squeals.

4 SL-5200

Figure 2 contains guidelines for buffer fluid systems which can be used with the SL-5200 double seal. Figure 3 is a suggested piping arrangement for the SL-5200 with circulating feature and supply tank with cooling coil. For other sealing liquid systems using Dura Circulators, external flushing or thermal convection, refer to the assembly drawing or consult Flowserve, Flow Solutions for instructions.

4.1 **Always start up the sealing liquid supply before starting equipment**. Be sure that the sealing liquid pressure is greater than the maximum pressure of the process fluid acting on the seal chamber.

4.2 Seal liquid pressure must not exceed the pressure velocity rating of the seal design and materials of construction.

4.3 Be sure cooling water to supply tank or circulator is on.

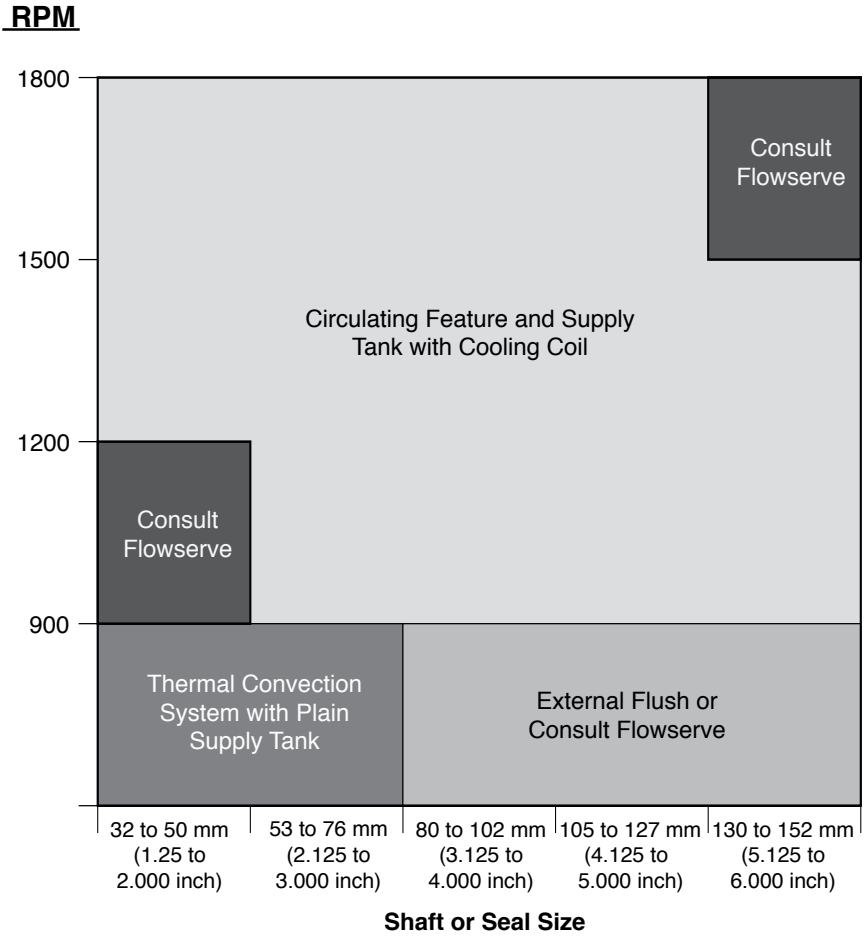
4.4 **Never start up equipment dry**. Properly vent all air.

4.5 If the seal runs hot or squeals, check the seal liquid flow between the seals and check the seal housing dimensions to insure that the seal is not over-compressed.

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

SL-5200 Buffer Fluid System Recommendations

Figure 2

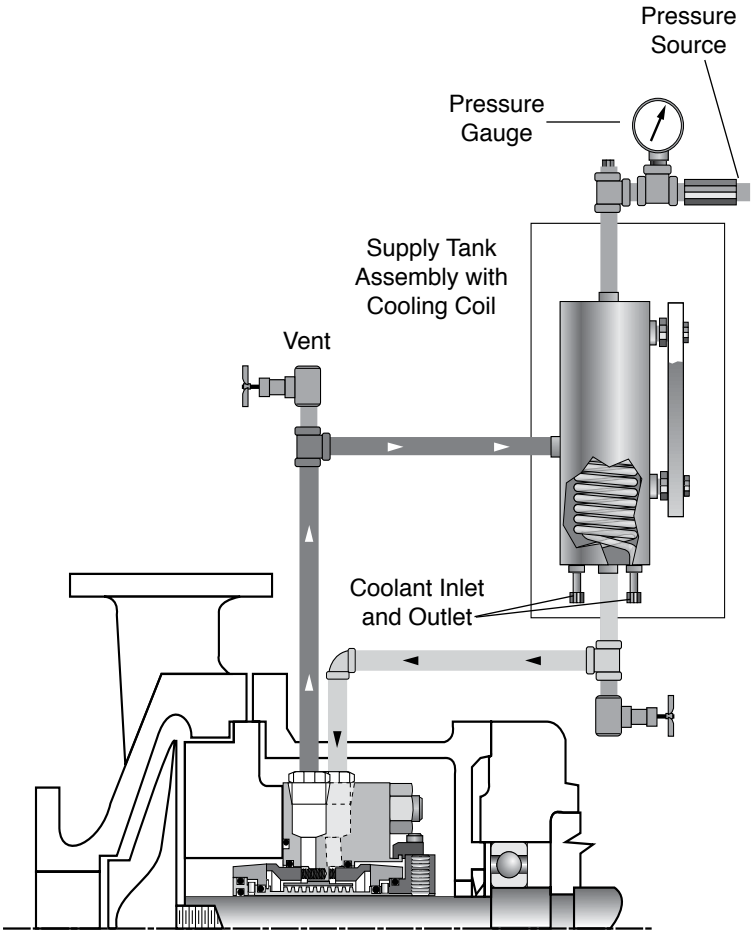


Notes

1. Recommendations are for use with a water buffer fluid only.
2. These recommendations apply to products having a maximum temperature of 71°C (160°F).
3. Systems can be applied at the seals maximum pressure limit according to PV curve 2D-255497.
4. In most cases other systems can be successfully applied. Consult Flowserve for other options.

SL-5200 with Circulation Through a Supply Tank with Cooling Coil

Figure 3



5 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.

FLOWSERVE®

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

FIS104eng REV 03/13 Printed in USA

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