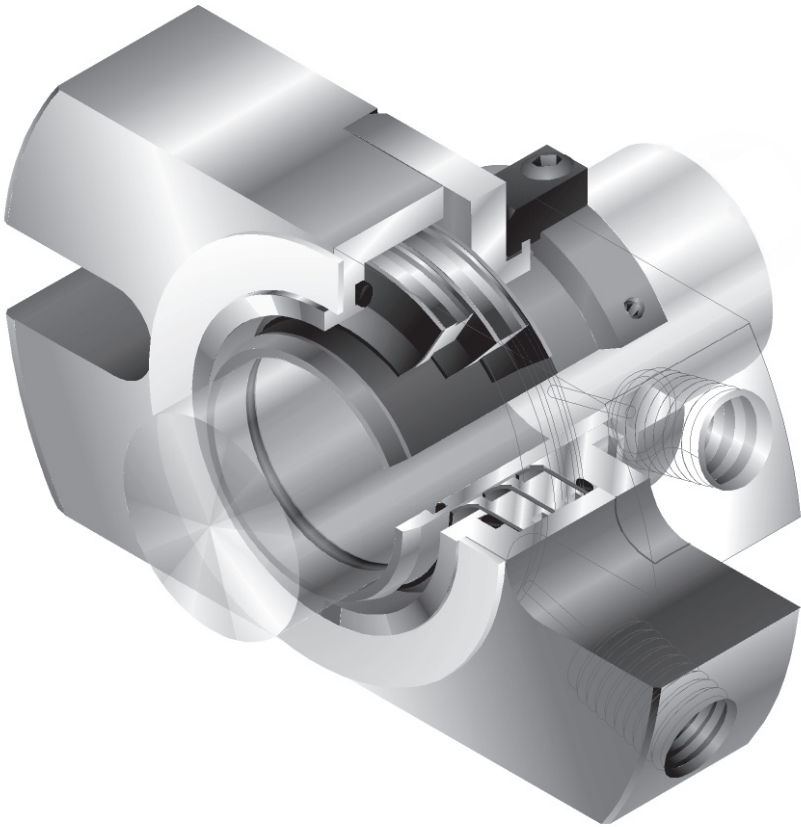




# *Installation Instructions*

## ***Durametallic® LS-300 Series***

Multiple lip seal cartridge for  
high viscosity pumps

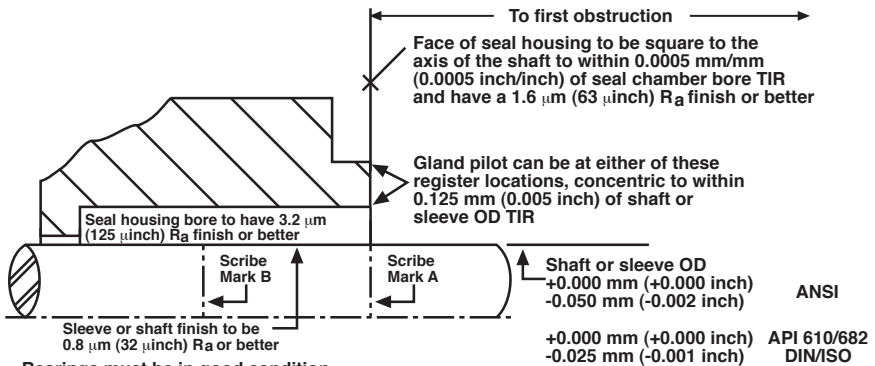


# 1 Equipment Check

- 1.1 **Follow plant safety regulations** prior to equipment disassembly:
  - lock out motor and valves.
  - wear designated personal safety equipment.
  - relieve any pressure in 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** and sharp edges from the shaft or sleeve including sharp edges of keyways and threads. Replace worn shaft or sleeve. Make sure the seal housing bore and face are clean and free of burrs.
- 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) 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
- 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, box bore, box 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. Many cartridge Flowserve seal designs include centering tabs, eccentric washers, or centering plates that do not require a gland pilot.
  - 1.8 **Handle all seal parts with care**, they are manufactured to precise tolerances.

## 2 Cartridge Flowserve Seal Installation

- 2.1 **Lubricate the shaft** or sleeve lightly with silicone lubricant provided with the seal before installing any seal parts.
- 2.2 Install the **complete cartridge Flowserve seal assembly** on the shaft and position it close to the bearing housing with the seal orientated toward the pump.

*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.*

- 2.3 **Position the cartridge gland** against the seal chamber face and tighten the gland stud nuts up evenly, cross staggering the adjustment of the nuts. Do not over tighten the gland nuts.
- 2.4 **Adjust the bearings, coupling, and impeller** so that the shaft is in its operating axial position. Any subsequent axial adjustment of the shaft requires resetting of the seal.
- 2.5 **Tighten the set screws** in the seal cartridge collar to the shaft.

Suggested minimum torque values for the set screws are as follows:

Alloy C-276 or 316 SS	Torque Value
#10 - 24 UNC	2.3 N-m (20 inch-lbs)
1/4" - 20 UNC	5.0 N-m (45 inch-lbs)
5/16" - 18 UNC	9.0 N-m (80 inch-lbs)

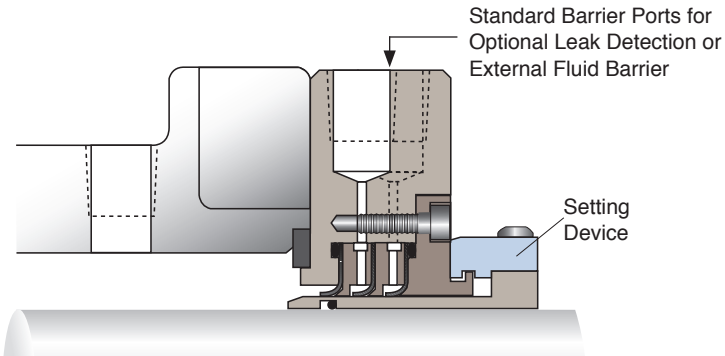
Alloy Steel, Plated	Torque Value
#10 - 24 UNC	3.5 N-m (30 inch-lbs)
1/4" - 20 UNC	9.0 N-m (80 inch-lbs)
5/16" - 18 UNC	118.0 N-m (60 inch-lbs)

- 2.6 **Remove the setting devices** from the cartridge sleeve collar. These setting devices should be saved and reinstalled for seal removal and repair or for repositioning the pumps impeller.

Eccentric washers or rectangular style setting devices can be repositioned clear of moving parts and locked in place on the gland for storage. These should be returned to the setting position for seal removal and repair or for repositioning the pump impeller.

## LS-300

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### 3 Pipe Taps

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- 3.1 The 1/4 inch pipe taps are dead-ended between the lips. One goes between the first and second lips and the other goes between the second and third lips. Most users plug these ports.

These ports should be used if the product pumped polymerizes when sheared or polymerizes when it contacts the air. In those instances a suitable solvent can be put into the ports.

**Caution:** Very light solvents, as thin or thinner than water, may decrease the seal life.

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



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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### 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