

Cartridge Seal

INSTALLATION INSTRUCTIONS

for PUMPS and MIXERS

(These instructions are not for component type seals or seals that come pre-mounted on the shaft)

SEAL DESIGN The cartridge seal comes pre-assembled and ready to be installed as a unit.

PREPARE EQUIPMENT

1. Follow all O.E.M. instructions for preparing the equipment for seal replacement.
2. Clean and inspect parts.
3. Check shaft or shaft sleeve, repair or replace if necessary.
4. Check for good starting bevel and remove all burrs that would cut secondary seal o-rings or cause misalignment.
5. Determine that all equipment components meet any applicable O.E.M. specifications (i.e. shaft runout, seal housing alignment, stuffing box alignment, condition of bearings, etc.) and that all sealing areas are in good condition. (*PPC recommends a 32 RMS finish.*)

INSTALLING SEAL

1. Review all pertinent documentation prior to installation.
2. Determine proper orientation of seal to equipment.
3. Lubricate shaft or sleeve.
4. **Pumps Only:**
 - a. Insert seal into stuffing box with piping connections facing desired location.
 - b. Loosely thread gland bolts into stuffing box. **IMPORTANT:** Do not tighten gland bolts at this time. Also, do not remove any setting clips at this time. **NOTE:** For larger pumps with heavy stuffing boxes, install the seal on the shaft or sleeve, then slip on the back plate and loosely thread the gland bolts.
 - c. Install and bolt stuffing box to equipment frame.
 - d. Install and tighten impeller.
 - e. Make all necessary impeller adjustments as required. The impeller can be reset at any time, as long as the setting clips are in place and the seal set screws are loosened while the shaft is being moved.
5. **Mixers Only:**
 - a. Slide seal over shaft into position (flange opening, stuffing box, seal housing, etc.) with piping connections facing desired locations. Care should be taken that the sleeve bore o-ring is not cut or damaged.
 - b. Loosely thread gland bolts into back plate. **IMPORTANT:** Do not tighten gland bolts at this time. Also, do not remove any setting clips at this time.
5. Make any final adjustment or alignments to the shaft and bearings for normal operating positions. Also secure any supports into place as needed.

6. Tighten gland bolts evenly in a diagonal sequence to recommended torque values (see inserted chart). Increase torque by no more than 5 ft.-lbs. per bolt at each interval. When mounting a gland that uses a face mounted o-ring the nominal recommended tightening torque for the grade of bolt used is acceptable.

Note: Over tightening gland nuts/bolts can warp seal parts and possibly cause leakage.

GLAND BOLT TORQUE

<u>Seal Size</u>	<u>Torque Value</u>
1 to 1-3/8"	15 – 20 ft.-lbs.
1-1/2 to 2"	25 – 30 ft.-lbs.
2-1/8 to 3-1/4"	30 – 35 ft.-lbs.
3-3/8" to 5"	40 – 45 ft.-lbs.

7. Tighten the seal with shaft locking mechanism (set screws in collar, bolts in clamp type collar, etc.).
8. Remove setting clips and cap screws or any other device for pre-setting the seal.
9. Turn shaft by hand to make sure there is no rubbing between rotating and stationary parts.
10. Clean out all lines to the seal and any auxiliary equipment for the seal, prior to connecting.
11. Make all necessary connections.
12. Vent the seal of any air and purge the piping prior to start-up.
13. Run equipment according to normal start up and operating procedures.