

MECHANICAL SEAL INSTALLATION INSTRUCTIONS

INSTALLING A MECHANICAL SEAL IN A CENTRIFUGAL PUMP

CAUTION: *Never put hands on lapped seal faces or put lapped seal parts face down on the workbench. Keep the mechanical seal in its original container until ready for installation.*

PREPARE PUMP

1. Clean and inspect pump parts.
2. Replace shaft or shaft sleeve and gland if worn in secondary sealing areas under o-rings, Teflon wedges or Teflon rings.
3. Check for good starting bevel and remove all burrs that would cut secondary seal o-rings or cause misalignment. Pay close attention to set screw marks.
4. Check shaft run out (to be within .001" TIR per inch of shaft dia.), shaft end play (not to exceed .005"), stuffing box face alignment (must be square to within .003" TIR and have a good sealing surface, 125 RMS min.) and condition of bearings. Replace if necessary.

INSTALLING SEAL

- 1) Bolt stuffing box back plate to the pump frame.
- 2) Install shaft sleeve.
- 3) Screw on impeller to hold shaft sleeve in proper position securely on shaft.
- 4) Scribe a line on the shaft sleeve at the face of the stuffing box.
- 5) Remove stuffing box plate.
- 6) Determine the operating length of a mechanical seal:
 - a) Place gland on clean area of workbench with the stuffing box face up.
 - b) Install stationary seal face with secondary sealing member in the gland (make sure gasket is in place if using a clamp type stationary).
 - c) Place gland gasket in proper position.
 - d) Place rotary unit, lapped face down, against the lapped stationary seal face.
 - e) With rotary unit at free height (not compressed by holding clips), measure the distance from the gland gasket to the top of the seal.
- 7) Determine the amount of compression on the seal:
 - a) Mechanical seals with multiple springs that are less than 2" in diameter require 1/8" compression.
 - b) Mechanical seals with multiple springs that are larger than 2" in diameter require 3/16" compression.
 - c) Mechanical seals with single springs usually have fixed or predetermined compression. Usually 1/2 of the free length of the single spring.

- d) Subtract the proper compression from the length of the seal determined in step 6e. This will be the working height of the seal from the face of the stuffing box.
- 8) On the impeller end of the shaft sleeve, scribe a second line the exact distance from the first line as determined in step 7d.
- 9) Install the mechanical seal in the pump:
 - a) Place gland with stationary seal face and gasket on the pump shaft.
 - b) Slide rotary unit on shaft sleeve and set the back of the rotary unit on the second scribe line as determined in step 8. Set screw the rotary unit to the shaft sleeve (if seal is supplied with holding clips, remove at this time).
 - c) Bolt stuffing box back plate to the pump frame.
 - d) Install impeller using new impeller gasket.
 - e) Compress gland against stuffing box plate. Double check seal compression by the gap between gland gasket and stuffing box plate. (Same as step 7.) Tighten gland studs evenly. Rotate shaft to ensure that the seal is not in a bind.