ADVANCED SEALING TECHNOLOGY INSTALLATION INSTRUCTIONS

AST 50 SEAL

The seal must be installed in accordance with these instructions, the equipment manufacturer's instructions, and plant safety requirements. If you are in doubt about any phase of installing this mechanical seal, stop the installation and get assistance. The decision to use any AST mechanical seal in a particular service is the customer's responsibility. If the pumped fluid is hazardous or toxic, appropriate precautions must be taken to contain any seal leakage.

PREPARATION

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 precautions

2. Disassemble the pump in accordance with manufacturer's instructions so the seal can be installed over the end of the shaft.

3. The shaft or sleeve diameter must be within +.000/-.002 inch of nominal size. The shaft must be smooth (32 µ inch R_a) and free from nicks, grooves, and corrosion. Replace the sleeve or shaft if worn. Remove all sharp edges and burrs from shaft keyways, threads, and edges where the O-ring will slide.

4. Maximum shaft runout at seal chamber face is .002 inch FIM. To measure, mount dial indicator on seal chamber and indicate shaft while rotating shaft.

5. Maximum axial movement of shaft (end play) is .005 inch FIM. To measure, mount dial indicator on shaft and indicate seal chamber face while moving shaft axially.

6. The seal chamber face must be smooth (63 µ inch R_a) and free of nicks, burrs, and corrosion.

7. Maximum out-of-squareness of the seal chamber face to the shaft is .002 inch FIM, (.003 inch FIM for shaft size > 3 inch). To measure, mount dial indicator on shaft and indicate seal chamber face while rotating shaft.

8. If the seal gland is piloted to the seal chamber, the register surface must be concentric to the shaft within .005 inch FIM.

9. The O-ring elastomer installed in the seal is identified on the seal drawing. There may also be an alternate set of O-rings packaged with the seal. Determine what O-ring elastomer is suitable for your application by consulting an O-ring compatibility table. Be sure the correct O-rings for your application are installed in the seal.

INSTALLATION

These instructions are for installation in a back pullout end-suction centrifugal pump. If you are installing the seal in a different type of equipment, steps describing pump components and assembly sequence may vary.

1. Lubricate the shaft sparingly with silicone lubricant (supplied with the seal) or with other lubricant compatible with the O-rings and your machinery and product. Do not use petroleum lubricants on EP O-rings. Slide the AST 50 rotary unit over the shaft and towards the bearing housing, with the seal ring facing the impeller.

2. If the fluid sealed is hazardous, a gland shroud should be installed over the seal faces.

3. Position the gland and the stationary seal ring over the shaft. An L-shape stationary may be installed with the raised seal face facing either in or out.

4. Reassemble the pump and reset the impeller clearance.

5. Slide the gland over the gland studs. Make sure the stationary is centered over the shaft and tighten the gland nuts evenly in a diagonal sequence. To prevent stationary face distortion, do not over-tighten.

6. Seal faces should be clean and dry. Clean faces of both seal rings with denatured alcohol and a clean lint-free wiper if necessary. Slide the AST 50 rotary unit towards the stationary until the faces are in contact. Tighten the set screws evenly and securely to lock the rotary unit in position.

7. Remove the retaining clips. The rotary unit is set at the correct operating length with 1/16 inch between the carbon and the drive ring.

8. Rotate the shaft by hand to check for obstructions or contact. Do not start the equipment dry.

PIPING AND OPERATION

1. Install an appropriate seal flush system. A flush from a clean external source (API Plan 32) can always be used, and should be used for abrasive services. For clean cool products, use a discharge bypass (API Plan 11) or a suction bypass (API Plan 13). Vertical pumps should be piped to vent air from the seal.

2. Do not start the pump dry. Open valves to flood the pump. Vent air from the pump casing and seal chamber. Make sure the seal flush lines are clear.

3. Observe the startup from a safe distance. If the seal runs hot or squeals, stop the pump and check the flush system and gland centering.

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