Component
Elastomer Bellow
Non-Pusher Design

AMP 810/820 SINGLE BELLOW SEAL

The seal must be installed in accordance with these 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 American-Marsh 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 +0.000/-0.002 inch of nominal size. The shaft must be smooth (32μ 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 0.002 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 0.005 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 (63μ inch R_a) and free of nicks, burrs and corrosion.

7. Maximum out-of-squareness of the seal chamber face to the shaft is 0.002 inch FIM, (0.003 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 0.005 inch FIM.

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

INSTALLATION

1. Remove the protective packaging from the seal. Check for any damage, and wipe clean.
2. Fit the seat/mating ring into the gland plate as described in the appropriate seat instruction manual. Check that the gland plate o-ring or gasket is in position and will not be displaced during fitting, and then position the gland plate on the shaft clear of the seal location.
3. Lubricate the shaft and bellows sparingly with silicone lubricant or with other lubricant compatible with the bellows and your machinery and product. Do not use petroleum lubricants on EPDM bellows. Make sure the gland O-ring or gasket is in place (if required).

4. Slide the AMP 810 or 820 seal onto the shaft. If the seal doesn't slide over the shaft, do not force. Ensure that the end of the shaft or sleeve is chamfered properly and that the parts are free of burrs.

5. Wipe the lapped surface of the seal face/primary ring perfectly clean and dry. Install the seal housing; locate the gland plate squarely on the fixing studs, and pull on the plate to compress the seal spring as necessary to fit the retaining nuts.

6. Reassemble the pump components. Orient the seal gland with the flush port up (if supplied), if access to piping permits. Install and tighten the gland nuts evenly in a diagonal sequence.

7. Connect and align piping and motor coupling.

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. The flush line should be connected to the seal gland. 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). For clean hot products, use a discharge bypass through a cooler (API Plan 21), preferably with a throat bushing. 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.