

# 1500 E

## SINGLE CARTRIDGE SEAL

(ALSO FOR 1500EV & 1500EVF)

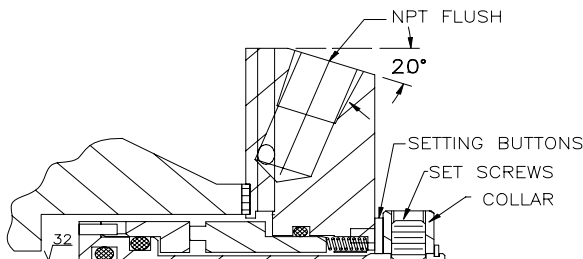
## INSTALLATION INSTRUCTIONS

### PREPARE PUMP

1. Clean and inspect pump parts.
2. Replace shaft or shaft sleeve if worn in secondary sealing areas under o-rings.
3. Check for good starting bevel and remove all burrs that would cut secondary seal o-rings or cause misalignment.
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 shaft within .003" TIR and have good sealing surface, 125 RMS min.), and condition of the pump bearings. Replace if necessary.

### INSTALLING SEAL

1. Lubricate shaft or sleeve.
2. Insert seal into stuffing box with barrier fluid ports facing desired location.
3. Loosely thread gland bolts into back plate. **IMPORTANT:** Do not tighten gland bolts at this time. **NOTE:** For larger pumps with heavy back plates, install the seal on the shaft or sleeve, then slip on the back plate and loosely thread the gland bolts.
4. Install and bolt back plate to pump frame.
5. Install and tighten impeller.
6. Make all necessary impeller adjustments as required. The impeller can be reset at anytime, as long as the setting buttons are in place and the seal set screws are loosened while the shaft is being moved.
7. Tighten the gland bolts evenly.
8. Push on the seal collar, not the gland, so that the setting buttons are bottomed out.
9. Tighten the set screws in the collar.
10. There are no setting clips or spacers to remove. The seal has self-centering, pre-set buttons.
11. Turn shaft by hand to make sure there is no rubbing between rotating and stationary parts.
12. Make all necessary pump connections and alignments.



13. Clean out flush lines and hook up appropriate tangential flush port depending on shaft rotation. Plug other flush port. (Connect flush in the direction of shaft rotation. If the shaft rotation is clockwise, then connect flush line to the port marked with clockwise arrow).

## **GOOD OPERATIONAL PRACTICES**

1. Follow original equipment manufacturers (OEM) procedures and specifications for pump operation.
2. Operating equipment outside of designed specifications could result in premature failures of pump and auxiliary equipment such as the mechanical seal. If cavitations, excessive heat is being generated from pump bowl, bearings, or seal; or high vibrations are present shut equipment down and find root cause.
3. Do not operate equipment dry unless pump and auxiliary equipment, such as a mechanical seal, is designed to meet these conditions.
4. Fully open suction valve and partially open discharge valve (1/2 to 2/3) at start-up is recommended, open recycle valves if pertinent.
5. Vent all air and/or vapor from equipment casing and stuffing box (seal chamber) before pump operation. The stuffing box must be flooded and pressurized before start-up with process fluid to insure reliable seal life.
6. Pressure and temperature in stuffing box (seal chamber) must not exceed the recommended maximum or stated seal limits for application. Shaft speeds must also be within seal specifications.
7. Adequate pressure in the stuffing box (seal chamber) is required to prevent flashing of product across seal faces. Box pressure should be higher than vapor pressure of product at the seal faces to prevent this from occurring.
8. The seal installation drawing contains a list of seal parts and materials. The materials were selected from criteria given by customer. If seal materials are exposed to products other than originally designed the seal representative shall be contacted to insure safe operation. Seal materials can be attacked by products not included in design criteria and cause failure.

## **OPERATING ENVIRONMENT**

1. When operating in environments with combustible vapors or air borne particles verify pump operates within OEM specifications. Heat generation due to excessive vibration, cavitations, and/or dry running can create surface temperatures exceeding safe operating limits; equipment should be shutdown per equipment owner procedures.
2. High air borne particle environments (dust, crystals) require external surface wash down to remove build-up around pump and seal parts. Caution – During wash down do not thermally shock pump and seal with fluids that have a high differential temperature different between pump and wash down fluid. Excessive crystalline build up around seal can be detrimental to seal life.