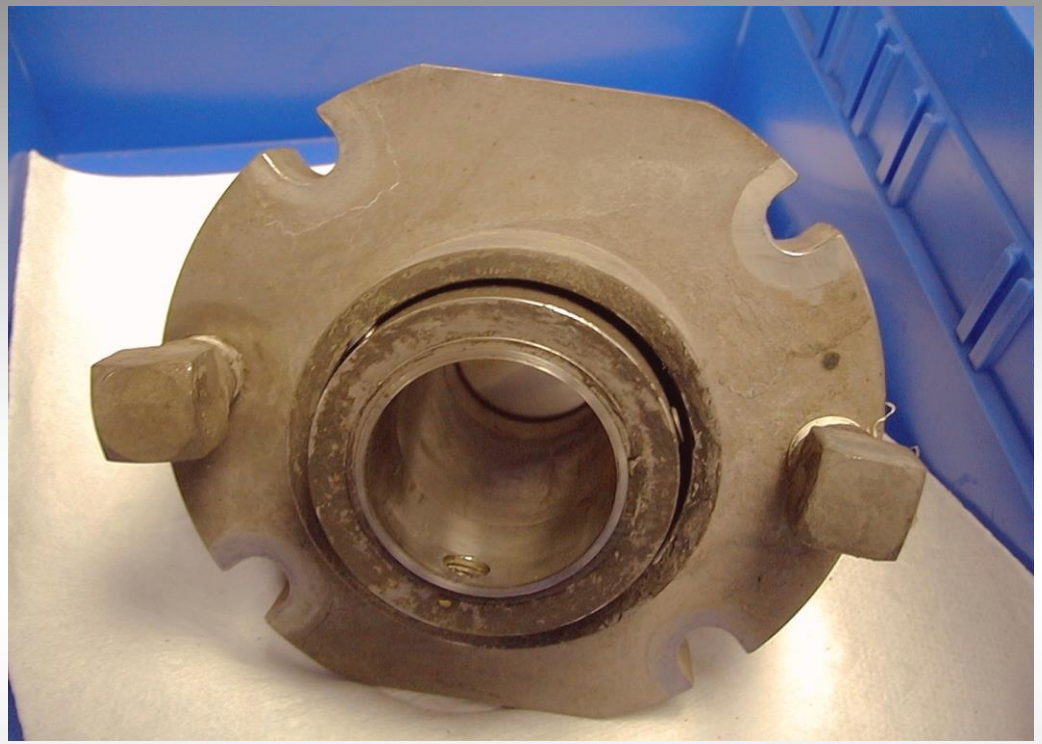
START-UP AND OPERATION OF MECHANICALLY SEALED EQUIPMENT

START UP & OPERATION



SEALS ARE ESPECIALLY VULNERABLE DURING THIS TIME, SO IT IS IMPORTANT TO GIVE ATTENTION TO THE FOLLOWING INFORMATION...

SINGLE INSIDE SEAL

Start-Up Procedures

- Gradually Heat up or Chill Down if Applicable
- Heating / Cooling on
- Steam / Gas Purge on
- Verify that Environmental Control Piping is Properly Connected

SINGLE INSIDE SEAL

Start-Up Procedures

- Suction Valve Open
- Discharge Valve Closed to One-Quarter open
- Start Pump and Gradually Open Discharge Valve to Proper Flow

SINGLE INSIDE SEAL

Operating Procedures

- After Start-Up, Check for: Leakage, Squealing, Vibration or Cavitation
- **Never** Adjust Flow with the Suction Valve. It must **ALWAYS BE WIDE OPEN**
- **If the Pump is Running Dry, the Seal is Not Being Lubricated.** Severe damage to the seal and/or pump may occur. Turn the Pump Off Immediately

DUAL PRESSURIZED SEAL

Start-Up Procedures

- Gradually Heat up or Chill Down if Applicable
- Heating / Cooling on
- Steam / Gas Purge on
- Verify that Environmental Control Piping is Properly Connected

DUAL PRESSURIZED SEAL

Start-Up Procedures

- Ensure Adequate Liquid Level in Buffer Supply Tank *or*
- Ensure that Barrier System is Operational
- Double Check Barrier Piping to the Seal Inlet & Outlet to Ensure that They are Correct for Pump Rotation

DUAL PRESSURIZED SEAL

Start-Up Procedures

- Apply and Check for Adequate Barrier System flow through the Seal
- Ensure that Barrier Pressure is 20 to 25 psi. Greater than Anticipated Stuffing Box Pressure (Suction + %(Differential))

DUAL PRESSURIZED SEAL

Start-Up Procedures

- Suction Valve Open
- Discharge Valve Closed to One-Quarter Open
- Start Pump
- Gradually Open Discharge Valve to Full Open

DUAL PRESSURIZED SEAL

Operating Procedures

- After Start-Up, Check for: Leakage, Squealing, Vibration or Cavitation
- Never Adjust Flow with the Suction Valve. It must ALWAYS BE WIDE OPEN
- If the Pump is Running Dry, damage may occur to the pump. Turn the Pump Off

DUAL PRESSURIZED SEAL

Operating Procedures

- **Never** Remove Barrier Supply from the Seal While the Pump has Process Liquid Applied
- If Seal Begins to Leak Barrier Fluid to Atmosphere, **Plan Maintenance as Soon as Possible.** Delaying Removal may Damage the Seal Beyond Economical Repairability

Reminders

- **The Pumped Liquid Lubricates Single and Non-Pressurized Inner Seals only! Dry running destroys them !**
- **Suction Valve Always Wide Open Before Pump Start-Up**
- **Heat or Cool Gradually**
- **Never Throttle a Pump with the Suction Valve**
- **Start a Centrifugal Pump with the Discharge Valve 25 Percent Open Where Possible**
- **Always Start a Positive Displacement Pump with the Suction and Discharge Valves Wide Open**

Reminders

- Report Cavitation, Vibration, Leakage, Squealing
- Do Not Run a Pump at Shut-Off
- Barrier Liquids for Pressurized Seals Must Be Pressurized Before the Pump Valves are Opened
- Barrier Fluid Circulation Systems Must Be Operational and Applied Before the Pump Valves are Opened
- Inlet & Outlet Must be Piped in Accordance with Specified Rotation of The Pump

Reminders

- **Use Tubing Where Possible**
- **Do Not Tie Inlet & Outlet Lines Together**
- **Do Not Remove Pressure Source to Add Barrier Fluid to a Sealing System that is in Operation**
- **Seal & Piping System Must Not Trap Air Anywhere**
- **All Supply Lines Must Slope up to Reservoir / Tank**
- **Flush Out All System Components after a Seal Failure**

END START-UP AND OPERATION OF MECHANICALLY SEALED EQUIPMENT