Mechanical Seals for e-SV

BELLOWS MECHANICAL SEAL FEATURES

- Common feature of all bellows mechanical seals is an elastomer or metallic bellows as the dynamic sealing element. Mechanical seals of this type are insensitive to contamination and deposits.
- e-SV offers Silicon Carbide (graphite filled) seal face materials to allow intermittent dry-run capability.
- Bellows design, elastomer drive ring grips the shaft to provide positive sealing.
- Long service life – one moving part
- 316SS metal components as standard
- Flexible bellows construction eliminates seal hang-up due to solids or dirt in pump fluid.
- Bellows seal design produces even face loading, superior face tracking and less frictional heat than pusher type seal.
- Wide range of elastomer materials for varying applications:
  - Viton - Chemical and General duty
  - EPR - Hot water; boiler feed
  - Aflas® - Chemical resistance at higher temperatures.
- Wide range of seal face combinations for varying applications:
  - Carbon (Soft face) for General duty
  - Silicon Carbide (hard face) stationary face; use two hard faces for abrasive fluid applications

HIGH TEMPERATURE SEAL - OPTION FOR 1-22SV SIZES

- Specifically designed for boiler feed application.
- Application temperature range to 300˚ F(122˚C)
- Application max. pressure to 250 PSI (17 Bar)
- Bellows seal design...best for demanding water conditions.
- Aflas® bellows for chemical resistance and elevated temp. range.
- "Wavy" face seal is designed specifically for Boiler Feed applications
  - Reduces face to face wear at elevated temp. and pressures.
- High Temp bellows seal can replace standard seal...optimizing inventory.

PERFORMANCE CURVE

Operating Condition range defines minimum of 30 PSIG pressure above the vapor pressure for the fluid.
CARTRIDGE MECHANICAL SEAL - OPTION FOR 33-125SV SIZES

- A cartridge type mechanical seal is a pre-assembled package of seal components making installation much easier with fewer steps for potential installation errors to occur.
- Available for e-SV sizes 33 thru 125SV
  - Retrofitable, Replaces Standard Seal and Seal Gland
  - Balanced Seal Design 40 BAR (580 PSI)
  - 316SS Gland with Vent Connection
  - Easy Installation, No Dynamic O-ring

MECHANICAL SEAL REPLACEMENT - EASE OF MAINTENANCE

- Shaft separation on all e-SV sizes provides access to the mechanical seal without removing the motor.
- Average time for seal replacement - approximately 15 minutes to remove, inspect, and replace a mechanical seal.
- Access to the seal area is very easy and does not require any special tools
- Downtime reduction of over 45 minutes reduces operating cost.
- Limited disturbance of the overall pump assembly - reduces risk of repair or warranty.
- Top fill connection and vent design allows for proper air purging during start-up.

MECHANICAL SEAL OFFERING SUMMARY

<table>
<thead>
<tr>
<th>Rotating Face</th>
<th>Stationary Face</th>
<th>Elastomers</th>
<th>Maximum Pressure</th>
<th>Temperature Limits</th>
<th>Seal Design</th>
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<tbody>
<tr>
<td>Carbon</td>
<td>Silicon Carbide /</td>
<td>Viton</td>
<td>40 Bar (580 psi)</td>
<td>250˚F (122˚C)</td>
<td>Rubber Bellows</td>
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<tr>
<td></td>
<td>Graphite filled</td>
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<tr>
<td>Silicon Carbide /</td>
<td>Carbon</td>
<td>EPR</td>
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<td>300˚F (148˚C)</td>
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