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WHITE PAPER
e-SVwhite7

Mechanical Seals for e-SV

e-SV Bellows design Std Seal (1-22SV)

e-SV Pusher design Std Seal (33-125SV)

e-SV Bellows design – "Wavy" face High Temp (1-22SV)

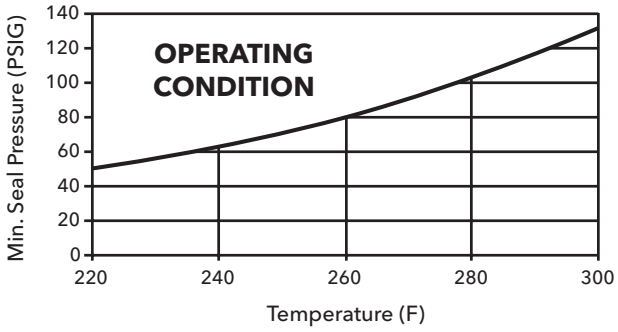
BELLOWS MECHANICAL SEAL FEATURES

- 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

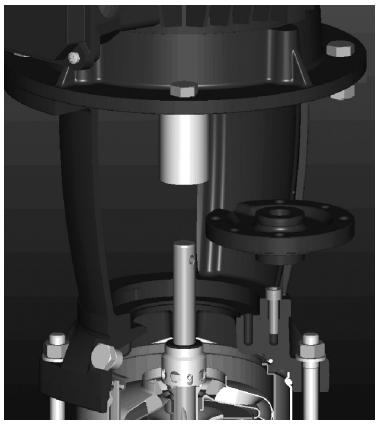


Operating Condition range defines minimum of 30 PSIG pressure above the vapor pressure for the fluid.

e-SV Cartridge Seal (33-125SV)

CARTRIDGE MECHANICAL SEAL – OPTION FOR 33-125SV SIZES

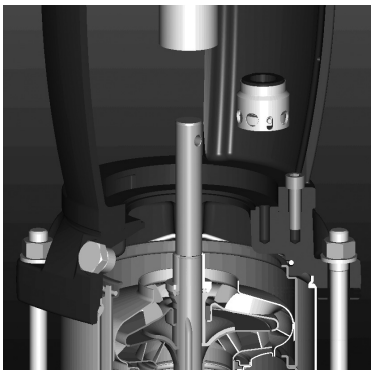
- A cartridge type mechanical seal is a pre-assembled package of seal components making installation much easier with fewer steps for potential installation errors to occur.
- Available for e-SV sizes 33 thru 125SV
  - Retrofitable, Replaces Standard Seal and Seal Gland
  - Balanced Seal Design 40 BAR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



Seal Gland Removal

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 Removal/ Replacement

MECHANICAL SEAL OFFERING SUMMARY

Rotating Face	Stationary Face	Elastomers	Maximum Pressure	Temperature Limits	Seal Design
Carbon	Silicon Carbide / Graphite filled	Viton	40 Bar (580 psi)	250˚F (122˚C)	Rubber Bellows
Silicon Carbide / Graphite filled					
Carbon		EPR			
Carbon		Aflas®	See graph on page 1	300˚F (148˚C)	Hi-Temp Bellows
Silicon Carbide / Graphite filled		EPR	40 Bar (580 psi)	250˚F (122˚C)	Cartridge Seal
	Carbon	Viton			

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