

GUARDIAN MOTOR SEALS

Guardian Advanced Motor Seals for enhanced protection to extend system run life

APPLICATIONS

- Premium motor protection for reliable operation for most demanding applications, including:
 - Vertical, deviated and horizontal profiles
 - Unconventional and conventional wells
 - Gassy wells
 - Abrasive wells
 - Corrosive wells
 - High temperature wells (up to 350 °F (177 °C) bottomhole temperature)

FEATURES & BENEFITS

- Sand handling technology in head:
 - Enables effective operation in abrasive wells
- High load bi-directional thrust bearing:
 - Allows for deep-set application
- Standard & high strength configurations:
 - Fit-for-purpose design solution
- Configurable design (available in 2 or 3 chambers) to best fit well conditions:
 - Allows for greater oil volume & expansion capacity

Borets advanced motor seals are specially designed to withstand harsh downhole conditions and provide an appropriate solution for sandy, abrasive, corrosive, and high-temperature environments and in any well profile.

The Guardian Advanced Motor Seals feature a fully configurable design with either elastomeric bags and/or labyrinth sections that are available in 2 or 3 chamber configurations.

This flexible design allows the operator to select the option to best fit your well conditions.

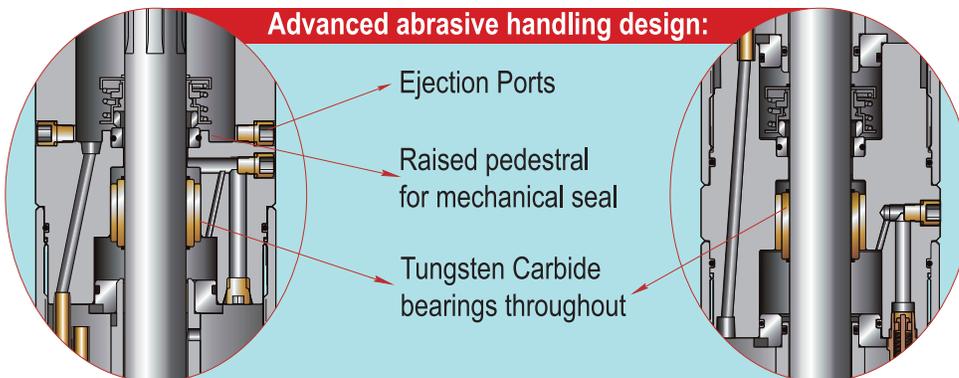
A key feature of the 538 Guardian is that it allows for greater oil volume and expansion capacity than traditional motor seals. This additional area also enables the use of Tungsten Carbide bearing sets along the shaft for added stability and a larger diameter shaft for higher strength.

All Guardian motor seals have a specially-designed, high-load bi-directional thrust bearing that facilitates high horsepower and deep-set applications.

Sand handling technology in head of motor seal that flushes sand and abrasives collected around the mechanical seal. This feature enhances the run life and integrity of the system.



TWO OR THREE CHAMBERS COMBINED WITH PATENTED AXIAL THRUST MODULE CHAMBER



Standard Guardian motor seals have HNBR elastomers and carbon steel housing and fasteners. Aflas or S-M-3 elastomers, Stainless Steel housing and Monel fasteners are an option. Guardian motor seals should be considered where extended run life is required.

GUARDIAN SEAL SPECIFICATIONS

	SERIES	
	400	538
OD, in (mm)	4.0 (102)	5.38 (137)
Max. bottomhole temperature, °F (°C)	HNBR Aflas	250 (122) 350 (177)
Shaft Diameter, in. (mm)	1.000 (25.4)	1.375 (35)
Maximum Shaft Rating, HP (kW)	60 Hz 50 Hz	640 (477) 533 (398)
Maximum thrust load, lbs (Kg)	8,000 (3,628)	14,000 (6,350)

GUARDIAN SEAL CONFIGURATIONS

DESCRIPTION	TYPE	SERIES			
		338	400	538	675
BPB	Bag/Bag	+	+	+	
BSB	Bag/Bag	+	+	+	
LSB	Labyrinth/Bag	+	+	+	
BSL	Bag/Labyrinth	+	+	+	
LSL	Labyrinth/Labyrinth	+	+	+	
LSBPB	Labyrinth/Bag/Bag	+	+	+	+
LSBSB	Labyrinth/Bag/Bag		+	+	+
BPBSL	Bag/Bag/Labyrinth		+	+	+
BSBSL	Bag/Bag/Labyrinth		+	+	+

Motor seal configuration

- L - labyrinth chamber,
- B - bag chamber,

- S - sealed body,
- P - parallel body.

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