



FS SEALS

FREUDENBERG
OIL & GAS TECHNOLOGIES

 **FREUDENBERG**
INNOVATING TOGETHER

FS SEALS

Ideal for sealing large clearances, particularly those on surface wellhead-to-casing assemblies, the FS Seal design supports reduction in installation time, correct placement in the housing and simple installation.

High-performance FS Seals can retain sealing integrity under severe operating conditions, including:

- Stab-in Operations
- Wide Ranges of Temperature and Pressure
- Chemically Aggressive and Highly Abrasive Media

Freudenberg Oil & Gas Technologies performs in-house product verification testing and analysis for our designed solutions and for proprietary customer projects at our Materials Development & Product Testing Lab. We offer a complete line of FS Seals designed for API standard casing sizes ranging from 2-7/8" to 30" diameter.

Freudenberg Oil & Gas Technologies – The Supplier of Choice in Seals:

We utilize engineered designs, in-house material development, prototyping, product and material testing and advanced manufacturing to provide our customers with robust solutions for their demanding applications.

Freudenberg Oil & Gas Technologies offers an industry-leading portfolio of FS Seals and material capabilities, field-proven and tested to rigorous industry standards.

Proving Performance

Our FS seals have been tested to PR2 industry standards (API 6A and ISO 10423)



Petroleum Elastomers from Freudenberg Oil & Gas Technologies

Our high-performance materials ensure reliable solutions for extreme and abrasive operations covering a wide temperature and pressure range.

Material	Composition	Useful Temperature Range (in air)	Comments
Hydrogenated Nitril peroxide cured (HNBR, HSN)	Hydrogenated acrylonitrile-butadiene polymer	-13° to +320°F (-25° to 160°C)	General service. Improved wear and abrasion resistance. Low acrylonitrile grades available for use at -40°F (-40°C)
GAZGUARD®	Proprietary, high performance RGD-resistant range of compounds using a range of polymer types	-40° to +410°F (-40° to 210°C) depending on grade	Ideal for high pressure gas applications. Tested in gas and sour fluids in accordance with Norsok M-710
Fluorocarbon (FKM, FPM)	Fluoroelastomer polymers	-10° to +430°F (-23° to 220°C)	Suitable for high temperature, aliphatic and aromatic hydrocarbons. Special low temperature grades available for use at -40°F (-40°C)

GAZGUARD® is a registered trademark of Freudenberg Oil & Gas Technologies

Freudenberg Oil & Gas Technologies is a global solutions provider of elastomeric, thermoplastic, metal to metal and other engineered designed solutions. Our continuous dedication to innovation and excellence offers our customers a clear competitive advantage. For global locations and product support, please visit our website.