

AGRICULTURE



FREUDENBERG-NOK
SEALING TECHNOLOGIES

FREUDENBERG-NOK
INNOVATING TOGETHER



PLOW INTO THE FUTURE

Farmers face multiple challenges in today's agriculture environment. Feeding an expanding global population, confronting extreme operating conditions, and producing more food on fewer acres while at the same time minimizing environmental impact are just some of them. These forces drive the need for agricultural innovation, such as precision farming, and generate demand for technologically advanced farming equipment. Manufacturers respond in turn with technology, which boosts farm productivity in tandem with a more efficient, cleaner operating machine.

During planting and harvesting seasons, any downtime can be costly. Knowing the capabilities and limitations of a manufacturer's design is key to ensuring dependability during peak seasonal operations. Surviving extended running time and exposure to contaminants is essential to avoiding downtime. Reliable sealing solutions and designs you can trust are imperative.

Whether in China or Brazil, farmers across the globe demand equipment which resists extreme temperature conditions while delivering operator comfort all day, every day. Sealing solutions that provide less equipment vibration promote a smoother, less stressful ride. Innovative sealing components assure robust operation in temperatures from 480°F to -40°F (250°C to -40°C).

There can be no second-guessing the quality and integrity of your equipment's sealing system, with so many critical agriculture applications dependent on the sealing technology. Freudenberg-NOK Sealing Technologies is plowing into the future by supplying manufacturers with sealing components combining innovative materials and advanced designs with the latest technology.

OUTSTANDING IN OUR FIELD

As both a leader and a dynamic innovator in the sealing industry, Freudenberg-NOK Sealing Technologies' global experts offer our customers the world's largest product range from a single source, along with cutting-edge materials and

manufacturing expertise, and revolutionary sealing solutions. We drive innovation with research, development, and production teams integrated across our global operations to meet the demands of worldwide and local markets.

RELIABILITY

When there is work to be done, downtime is not an option. We assist in preventing machinery malfunctions by providing reliable sealing solutions.

GASKETS

Heightened for performance through a balance of material and design, our gaskets supply maximum sealing and durability. Technologies include: homogeneous rubber (press-in-place), carrier-type (plastic/metal), embossed rubber-coated metal, embossed steel, stamped composites, along with high-temp alloy materials and secondary coatings.



O-RINGS

Custom compounds that withstand biodiesel (fuel systems), aggressive oils (power systems), coolants (cylinder liners), along with many other fluids, combined with Six Sigma manufacturing capability transform the average standard O-ring into an integral part of the sealing system.



HDP 330 SEALS

These precision-molded hydraulic cylinder piston seals offer extreme strength against gap extrusion and high abrasion resistance. Unique molding techniques provide dimensional stability, making it the ultimate seal to offer tight sealing and drift resistance for extreme conditions and pressure up to 800 bar.



NEW POLYURETHANE

This superior, cost-effective urethane encompasses many market needs with one material. AU30000 seals handle higher temperatures, higher pressures, and more diverse fluids, and last longer overall. Ratings of 7250 psi and -40°F to 250°F put this urethane in a class all its own.



LOW EMISSIONS

Freudenberg—NOK Sealing Technologies specializes in LESS—Low Emission Sealing Solutions—which reduce friction, improve fuel economy, and enable manufacturer to meet emission standards.

CASCO® SEALS

CASCO generates 70% less friction compared to elastomeric engine seals due to the use of a unique sealing mechanism that utilizes centrifugal force as an advantage. CASCO reduces fuel consumption, contributes to reduced carbon deposits, and is the ultimate long-life seal.



ENCODERS

Precise and consistent measurement for both cam and crankshaft position at all speeds with no loss in signal quality is provided by our magnetic encoders. Extremely reliable, they can be used to improve fuel efficiency and thus reduce emissions.



VALVE STEM SEALS

Increase engine efficiency, reduce oil consumption, and optimize emissions with our high-performance valve stem seals. The special step lip and gas lip are designed to provide extra protection from blow-by gas in diesel applications, and the flanged metal case improves seal retention.



SIMMERRING OIL SEALS

Decades of testing have crafted a design standard that utilizes unique materials to provide consistent performance, low wear, superior fluid resistance, 15 to 20% lower friction, and unique temperature capabilities (–40°F to 345°F) when compared to other conventional competitor seals.





EXTREME OPERATING CONDITIONS

Maximum performance under extreme operating conditions is a must. Whether it is aggressive materials such as coolant, or harsh terrain, or extreme sub-zero climate conditions, we provide state-of-the-art solutions.

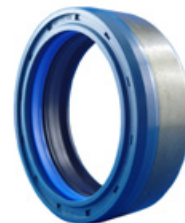
CASSETTE SEALS SERIES

A **robust axle hub seal** with multiple-point exclusionary labyrinth built into a single housing, this seal is the ultimate at keeping the elements out and oil in while minimizing friction. The unique design provides outstanding contaminant exclusion at optimized surface speeds.



SF-STYLE COMBI SEALS

This is the **ultimate seal** for enhanced dirt protection where shaft rotation and endplay must be accommodated. Using a unique design that balances scraping elements with sealing technology, this seal is proven to increase seal life and reduce warranty claims from the field.



PLUG & SEAL

Plug & Seal is a **one-piece, reliable, tight connector** to align components, compensate for misalignment, accommodate thermal movement, and offer acoustic decoupling. Our high-temp PTFE Plug & Seal version offers durability up to 480°F, along with media resistance to almost any fluid.



TRACK ROLLER SEALS

Durable seals made from high-strength/ high-alloy metals, track roller seals provide excellent wear and corrosion resistance. The precision lapped and polished metals use elastomeric energizers which come in standard materials or can be customized for special needs.





COMFORT

When eight hours isn't enough, operator comfort is essential. By providing innovative sealing components, we can assist with reducing equipment vibration, ensuring a smoother, less fatiguing ride.

ACCUMULATORS

Our diaphragm and piston accumulators provide excellent energy storage with unique materials to prevent permeation, cover wide temperature ranges, and provide outstanding life. The next generation of lightweight accumulators combines the effectiveness of aluminum with the functional ability of an accumulator to maximize the function/cost ratio.



HYDRO MOUNTS

Hydro mounts/hydro bushings are a creative solution for driving comfort. A combination of elastomeric materials and hydraulic dampening provides optimum acoustic isolation and maximum damping of natural vibrations via internal fluid viscosity and a damping disc. Optimized for comfort, the robust design delivers long service life.



LINEAR COMPENSATORS

A linear compensator is basically a Freudenberg-designed hydraulic cylinder with integrated piston accumulator that moves suspension designs away from spring systems to smooth-riding suspended systems, allowing machines to go faster with greater comfort. Systems are custom-designed with the customer's needs in mind.



CENTRAL TIRE INFLATION (CTI)

CTI requires optimized seals that separate gear oil from the air passage used to inflate or deflate tires. Adjustment of the pressure provides better tractive performance, lessens soil compaction, reduces tire wear, and improves overall operating cost. This system reduces downtime associated with tire malfunctions (punctures, leaks, etc.).



PORTFOLIO

Seal Type	Engine		Axle	Under-carriage	Trans-mission	Hydraulic System		Brakes
	Timing & Fuel Systems	Mechanical Systems				Cylinders	Pumps & Motors	
SIMMERRING OIL SEALS								
Standard		+	+					
Encoder	+		+		+		+	
Cassette		+	+	+	+			
ESS		+	+					
VSS	+							
Special	+			+	+		+	+
O-RINGS								
Standard		+			+	+	+	
Six Sigma	+			+				+
FLUID POWER SEALS								
Polyurethane				+		+		
PTFE					+	+		
Nylon						+		
Special					+			+
GASKETS								
Flat gaskets		+	+	+	+		+	
Homogeneous	+	+	+		+			
Carriers	+	+	+		+			
SPECIAL SEALING DIVISION								
Plug & Seals	+	+			+		+	
Diaphragms	+		+					
STRATEGIC SOURCING TRADING DIVISION								
Track roller seals				+				
POWER AND VIBRATION CONTROL								
Accumulators			+	+	+			
Vibration control			+	+	+			
Linear Compensators				+				

CERTIFICATIONS

- EN ISO 9001: 2008
- EN ISO 14001 : 2004
- AS9100
- AS9120
- A2LA Laboratory
- EN9100

Freudenberg–NOK Sealing Technologies

Marketing Communications
47690 East Anchor Court
Plymouth, MI 48170
USA

Service Contact:

Phone: +1 734 451 0020

email: agriculture@fnst.com.

www.fnst.com