

# MATERIAL HANDLING





## TOMORROW'S SOLUTIONS HANDLED TODAY

Delivering dependable and efficient material handling products will become more important than ever as companies seek to gain a competitive edge in the global economy. Innovations in the material handling industry will also place a heavy emphasis on workplace safety and productivity as technology continues to make material handling safer and more reliable.

Material handling equipment that fails at a critical phase of a project, or at any point, is not an option. This can seriously affect your company's reputation and profit line. Therefore, manufacturers are seeking out companies that provide components that deliver longer operating times, higher power density, and the ability to handle extreme operating conditions—companies like Freudenberg that provide state-of-the-art products and demonstrate reliable performance due to their innovative design and materials.

Our company is committed to meeting its customers' quality and warranty expectations through world-class products and processes. We live by the Zero Error Philosophy at all stages of the value-added process. Environmental protection regulations and safety are a concern, especially when you consider the risks of leaking components. Freudenberg provides quality through design, technology, and by addressing our customers' application needs.

Not only do you need the ultimate in latest innovations, you also need solutions that withstand excessive heat, cold, dirt, and other elements that can cause your equipment to fail, crack, or leak. During extreme operating conditions you want to have confidence that your sealing components allow your equipment to operate at peak efficiency. In today's global market Freudenberg assists you with your sealing challenges because we are handling tomorrow's solutions, today.

## WHATEVER YOU NEED, WHEREVER YOU ARE LOCATED, IT'S HANDLED

Freudenberg covers the full spectrum of sealing solutions at all price ranges. With a global network of manufacturing and local representation, we produce and supply components where you need them, when you need them. Always delivering superior results, our network offers one of the

largest product ranges from a single source and a dedicated service team to assist with your applications. As a leader and dynamic innovator in the sealing industry, Freudenberg can handle your challenges, wherever you are located.

# RELIABILITY

If you want your equipment to operate dependably with longer operating times between scheduled maintenance, then you need reliable sealing solutions to handle the hours of continuous operation.

## 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.



## 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 500 bar and  $-40^{\circ}\text{C}$  to  $120^{\circ}\text{C}$  put this urethane in a class all its own.



## 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  $250^{\circ}\text{C}$ , along with media resistance to almost any fluid.



## 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.



# COMFORT

When overtime is mandatory, you need ultimate comfort to decrease operator fatigue and to extend the life of your equipment by reducing vibration.

## 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.).



## 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.



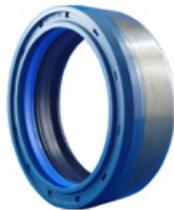


# OPERATING CONDITIONS

Without a perfect fit of your sealing components, the operation and efficiency of your equipment is affected during extreme operating conditions.

## 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.



## 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.



## HDR-2C SEALS

The application of two materials in the seal combines the outstanding low-temperature flexibility of 92 AU 21100 with the extrusion resistance of 98 AU928. The HDR-2C provides supreme sealing under extremely low temperatures and high pressures.



## THRUST WASHERS

Freudenberg Sealing Technologies has used its materials and design knowledge to allow engineers to replace heavy, torque-robbing, metal thrust washers with thermoplastic or thermoset alternatives. These innovative products help reduce weight, improve friction and thickness/flatness, and often provide a cost benefit to the customer.





# LOW FRICTION/ENERGY SAVING

As a manufacturer, you need to get optimized friction balance in your sealing applications to avoid excessive seal friction which wastes energy, accelerates wear, and can lead to premature failure.

## 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°C to 175°C) when compared to other conventional competitor seals.



## LF 300 ROD SEALS

The unique grooved-lip design on this rod seal provides an approximate 30% reduction in seal friction between the pressures of 35 to 175 bar. Our unique TODI-based urethane prevents extrusion and provides excellent sealing even at low speeds.



## 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.



## POP SEALS

The POP seal (Power Optimized PTFE) reduces friction, resulting in emissions reduction, less shaft wear, and lower fuel consumption. The surface structure of the PTFE sealing lip has an optimized helix to provide a micro pump effect, ensuring perfect sealing behavior and minimized power loss.



# PORTFOLIO

Seal Type	Engine		Axle	Under-carriage	Transmission	Hydraulic System		Brakes
	Timing & Fuel Systems	Mechanical Systems				Cylinders	Pumps & Motors	
<b>SIMMERRING® OIL SEALS</b>								
Standard		+	+					
Encoder	+		+		+		+	
Cassette		+	+	+	+			
ESS		+	+					
VSS	+							
Special	+			+	+		+	+
<b>O-RINGS</b>								
Standard		+			+	+	+	
Six Sigma	+			+				+
<b>FLUID POWER SEALS</b>								
Polyurethane				+		+		
PTFE					+	+		
Nylon						+		
Special					+			+
<b>GASKETS</b>								
Flat gaskets		+	+	+	+		+	
Homogeneous	+	+	+		+			
Carriers	+	+	+		+			
<b>SPECIAL SEALING DIVISION</b>								
Plug & Seals	+	+			+		+	
Diaphragms	+		+					
<b>POWER AND VIBRATION CONTROL</b>								
Accumulators			+	+	+			

## CERTIFICATIONS

- EN ISO 9001: 2008
- EN ISO 14001 : 2004
- AS9100
- AS9120
- A2LA Laboratory
- EN9100
- TS16949

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