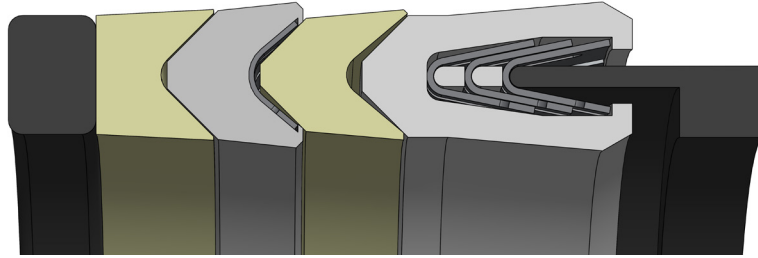




MDS Spring Energized Seals

Engineered for superior sealing in **extreme environments**.



Custom Seal Systems

MDS designs and manufactures Spring Energized Seals engineered for extreme conditions, offering superior chemical compatibility, a wide temperature range (-253°C to 315.56°C / -423°F to 600°F), and unmatched durability to ensure reliable performance in critical applications.

Features & Benefits

MDS offers over 100 jacket materials, two standard spring materials, and three standard spring designs to meet your needs. This variety of options allow design engineers latitude in developing the absolute best seal for the job.

Chemically Inert

- Virtually unlimited chemical compatibility (except molten alkali metals, fluorine gas at high temperatures, and Chlorine Trifluoride ClF₃)
- Low-cost alternative to expensive perfluoroelastomers

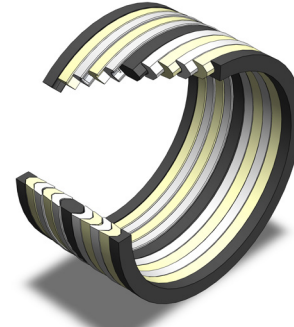
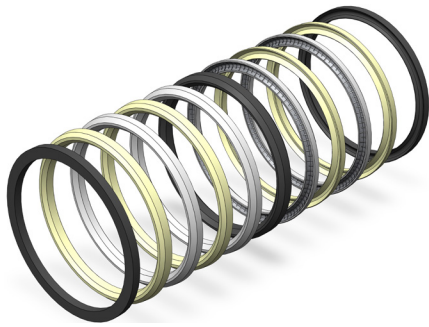
Wide Temperature & Pressure Range

- -253°C to 315.56°C / -423°F to 600°F, from cryogenic service to hot air or super-heated steam
- Vacuum to 60,000 psi, vacuum chambers to high pressure water jet cutters

Low Friction

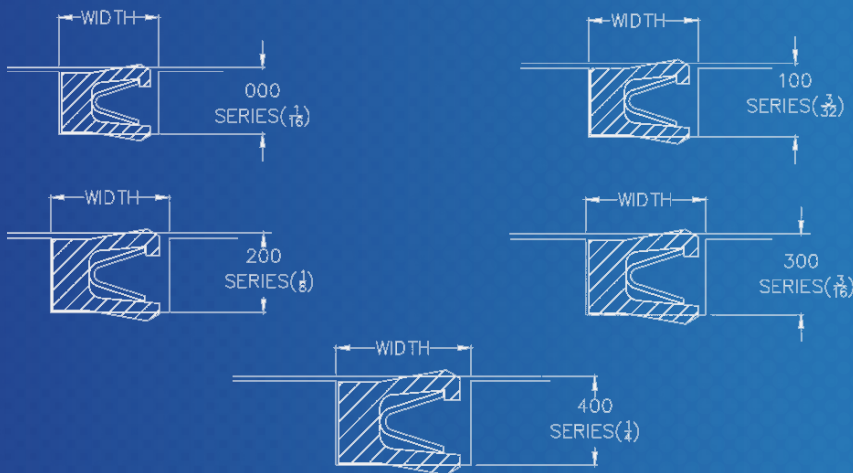
- Smooth and consistent breakout and running friction
- Low power absorption and torque requirements
- Friction can be adjusted and controlled during design
- Can run dry or lubricated

How Spring Energized Seals Work



The spring energized seal is a high-performance sealing device engineered with advanced polymers and powered by a corrosion-resistant metal spring. Once seated in the gland, the compressed spring applies consistent force to the sealing surfaces, creating a reliable barrier that prevents the escape of gases or liquids. This resilient design compensates for seal wear, gland misalignment, or eccentricity, ensuring durability.

At low pressure, the spring force maintains an effective seal, while at high pressure, the system pressure works in tandem with the spring to deliver an even tighter, more secure seal. SES are expertly machined from PTFE, filled PTFE, and other top-tier polymers, delivering precision and reliability for demanding applications.



Advantages

- ✓ Non-elastomeric chemical compatibility
- ✓ Wider temperature range
- ✓ No compression set

Design Considerations

- ✗ Open or 2-piece gland only
- ✗ Surface finishes need to be smoother than using an elastomeric seal

Applications

Actuators
Aircraft Engines
Brake Systems
Chemical Pumps
Compressors
Cryo Coolers
Cryogenic Systems

Drones
Etching Chambers
Fire Suppression Systems
Food Processing Equipment
Fuel Controls
Gearboxes
Hot Air Couplings

Hydraulic Systems
Joints and Swivels
Liquid Chromatography Pumps
Liquid Filling Machines
Mechanical Seals
Oil Field Equipment
Oxygen Systems

Petrochemical Equipment
Plastic Extruders
Pumps
OD Couplings
Radars
Robot Joints
Torpedoes

Turbo Expanders
Underground Safety Valves
Vacuum Chambers
Valves



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