

Saint-Gobain Seals




SAINT-GOBAIN
PERFORMANCE PLASTICS

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Materials

Fluoroloy®	Description	Key features and benefits
	<p>High performance custom formulated compounds and alloys for extreme and specialty sealing applications including PEEK, Fluoropolymers, PTFE/PTFE blends, and UHMWPE</p> <ul style="list-style-type: none"> > Norsok M-710 > NSF > USDA > USP Class VI > FDA compliant grades 	<p>Proprietary and custom formulated compounds developed for:</p> <ul style="list-style-type: none"> > Harsh environments > Cryogenic temperatures > Extreme pressures > Water, steam and hydrocarbon fuel
	<p>High performance/high temperature proprietary fluoropolymer compounds used in bearings, piston rings, tape, cup seals, stock shapes and components</p> <ul style="list-style-type: none"> > NSF > USDA > USP Class VI > FDA compliant grades 	<p>Proprietary and custom fluoropolymer based formulations developed for:</p> <ul style="list-style-type: none"> > Low friction and maintenance > High wear life > Extreme temperature and pressure > Chemical resistance
	<p>High performance/highest temperature materials – including PI, PEEK and PPS – in machined parts, stock shapes or custom molded</p> <ul style="list-style-type: none"> > ASTM D6456-99 > AMS 3644G > MIL-P-46198 	<p>Provides the ultimate in customization and design flexibility:</p> <ul style="list-style-type: none"> > Cryogenic to 600°F (315°C) continuous, intermittently up to 600°F (482°C) > Superior strength and rigidity > Self-lubricating properties

Manufacturing






- > Metal fabrication
- > Multi-axis precision machining
- > Injection and coinjection molding
- > Liquid injection molding (LIM)
- > Micro-injection molding

- > Hot and cold compression molding
- > Direct forming
- > Automatic molding
- > Hot and cold isostatic molding
- > Stamping/drawing and forming

- > Coiling/winding and punching
- > Spring fabrication
- > Blending and compounding
- > Skiving and sintering
- > Casting and coating

- > Tool design and fabrication
- > Class 10K/100 clean rooms
- > Etching and bonding
- > Rapid prototyping
- > Laser marking



Product lines


OmniSeal®



Polymer-based spring energized seals

- > Temperatures: -450 to 600°F (-268 to 316°C)
- > Pressures: vacuum to 50,000 psi (3,448 bar)
- > Broad chemical compatibility
- > Low friction and wear
- > Typically manufactured using Fluoroloy® grades


OmniFlex™



Fluoroelastomer (FKM) seals

- > O-rings and customized parts
- > Temperatures: -70 to 425°F (-57 to 218°C)
- > Soft durometer vs. perfluoroelastomers (FFKM)
- > Low compression set vs. FFKM
- > Superior low temperature performance vs. FFKM and FKM

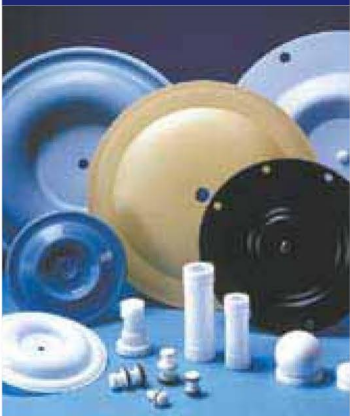
Bearings



Polymer bearings for withstanding non-lubricated environments

- > Self-lubricating design
- > Low coefficient of friction
- > Temperature resistant
- > Dimensionally stable in fluids
- > Chemically resistant
- > Low weight/high strength ratio
- > Typically manufactured using Rulon® or Meldin® grades

Marathon®



Valve and pump diaphragms

- > Temperatures: -400 to 536°F (-240 to 280°C)
- > Abrasion resistance
- > Broad chemical compatibility
- > Low friction and wear
- > Typically manufactured using Rulon® grades

OmniLip™/Dynalip®



Metal cased lip seals

- > Temperatures: -65 to 450°F (-54 to 232°C)
- > Low friction and low wear in dry abrasive media
- > High speed rotary applications
- > Typically manufactured using Fluoroloy® grades


OmniSpring®/OmniShield®



Springs for latching, locking, electrical contact, EMI and RFI attenuation and shielding

- > Broad selection of designs with four unique spring configurations
- > Standard and custom designs
- > Variety of metals and plating options
- > DC resistance, 0.042 to 27.10 mΩ
- > Shielding 107 to 164 dB (200 MHz) and 96 to 159 dB (1,000 MHz)

Cup Seals



Polymer cup seals for withstanding non-lubricated environments

- > Low friction
- > Air pressure energized
- > Low noise level
- > Long life
- > Low maintenance
- > Low stick slip for smooth operation
- > Typically manufactured using Rulon® grades

Transband®



Endless PTFE rings

- > Reduces surface creep
- > Endless ring, no joints
- > Superior to an epoxy surface that could crack
- > Easy to apply
- > Various shapes and sizes available
- > Typically manufactured using Rulon® grades

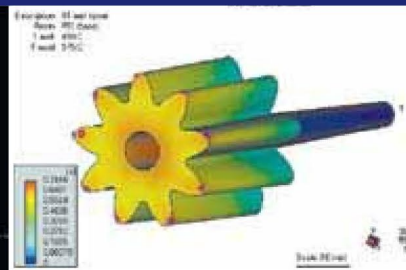
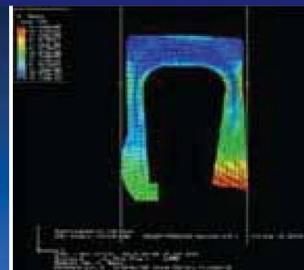
Markets and applications

Aerospace 	<ul style="list-style-type: none"> > Jet turbines > Flight actuators > Avionics > Fasteners 		<ul style="list-style-type: none"> > Landing gear > Rocket engines > APU > Radars 	
Life Science 	<ul style="list-style-type: none"> > Bone drills > Surgical instruments > Sensors > Medical devices 		<ul style="list-style-type: none"> > Filtration > HPLC/UPLC > Pharmaceutical > Biotech 	
Electronics 	<ul style="list-style-type: none"> > Telecommunication > Photovoltaic equipment > Semiconductor production > HDD/data storage 		<ul style="list-style-type: none"> > Solenoids > Power generation > Flat panel display production > EMI/RFI shielding 	
Industrial 	<ul style="list-style-type: none"> > Chemical valves > Hydraulic equipment > Printing equipment > Coating and lamination 		<ul style="list-style-type: none"> > Marine equipment > Electrical motors > Pumps > Pneumatic equipment 	
Energy 	<ul style="list-style-type: none"> > Engineered valves > Pumps and compressors > Transfer systems > Turret swivel stacks 		<ul style="list-style-type: none"> > Subsea equipment > E&P equipment > Solar > Wind energy 	
Automotive 	<ul style="list-style-type: none"> > Emission controls > Motorsport/Formula 1 > Seats > Suspension 		<ul style="list-style-type: none"> > Transmission > Powertrain > Brake systems > Steering 	
Habitat 	<ul style="list-style-type: none"> > Anti-seismic > Roadway expansion joints > Highway bridges > Window components 		<ul style="list-style-type: none"> > HVAC systems > Refrigeration > Power tools > Building materials 	
Consumer 	<ul style="list-style-type: none"> > Bicycles > Fitness equipment > Printers > Entertainment 		<ul style="list-style-type: none"> > Water pumps > Kitchen appliances > Washers and dryers > Dishwashers 	



Design engineering

- > Over 250 years of combined seals design experience
- > 3D modeling
- > Finite Element Analysis (FEA)
- > CAD drawings
- > Spring force calculator



Lab capabilities



R&D

- > Mechanical testing
- > DMA, TMA, TGA, DSC
- > Electrical testing
- > Advanced custom test rigs
- > Tribological testing
- > Optical testing
- > IR and mass spectrometers
- > EMI/RFI testing
- > High pressure hydraulic test chamber
- > Dimensional stability and limiting oxygen index

Quality

- > Coordinate Measuring Machine (CMM)
- > Optical comparator
- > Wide range of manual and digital torque equipment
- > Profilometer
- > HPLC
- > MRB process
- > Spring testing
- > Clean room environment
- > Testing and inspection
- > Hardness testing

Quality standards

Garden Grove, CA, USA	DIN EN ISO-9001, DIN EN ISO-14001, AS9100, Class 10K/100 clean rooms	Rioja, Spain	DIN EN ISO-9001:2008, TS-16949:2010
Kontich, Belgium	DIN EN ISO-9001, DIN EN ISO-14001, EN/AS/JISQ 9100	Vinhedo, Brazil	DIN EN ISO-9001:2009, DIN EN ISO-14001:2004
Bristol, RI, USA	DIN EN ISO-9001, DIN EN ISO-14001, TS-16949	Minhang, China	DIN EN ISO-9001:2000, DIN EN ISO-14001:2004, TS-16949:2002, OHSAS-18001:2007, Class 10K/100 clean rooms
Kolo, Poland	DIN EN ISO-9001:2009, DIN EN ISO-14001:2005, PN-N-18011:2004		
Willich, Germany	DIN EN ISO-9001, DIN EN ISO-14001, TS-16949, OHSAS-18001, Class 10K clean room	Suwa, Japan	DIN EN ISO-9001, DIN EN ISO-14001
Saltillo, Mexico	DIN EN ISO-9001:2008, TS-16949*	Shiwa, South Korea	DIN EN ISO-9001, TS-16949, DIN EN ISO-14001:2010*

*In process

For more information please call us, email us at sgppl.marketing@saint-gobain.com, and visit our websites at www.seals.saint-gobain.com and www.rulon-meldin.com



Manufacturing and sales locations

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R&D centers

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HOISTS


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 Lubrication Systems


BELZONA®
 Repair • Protect • Improve


WILFLEY®
 HEAVY DUTY
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