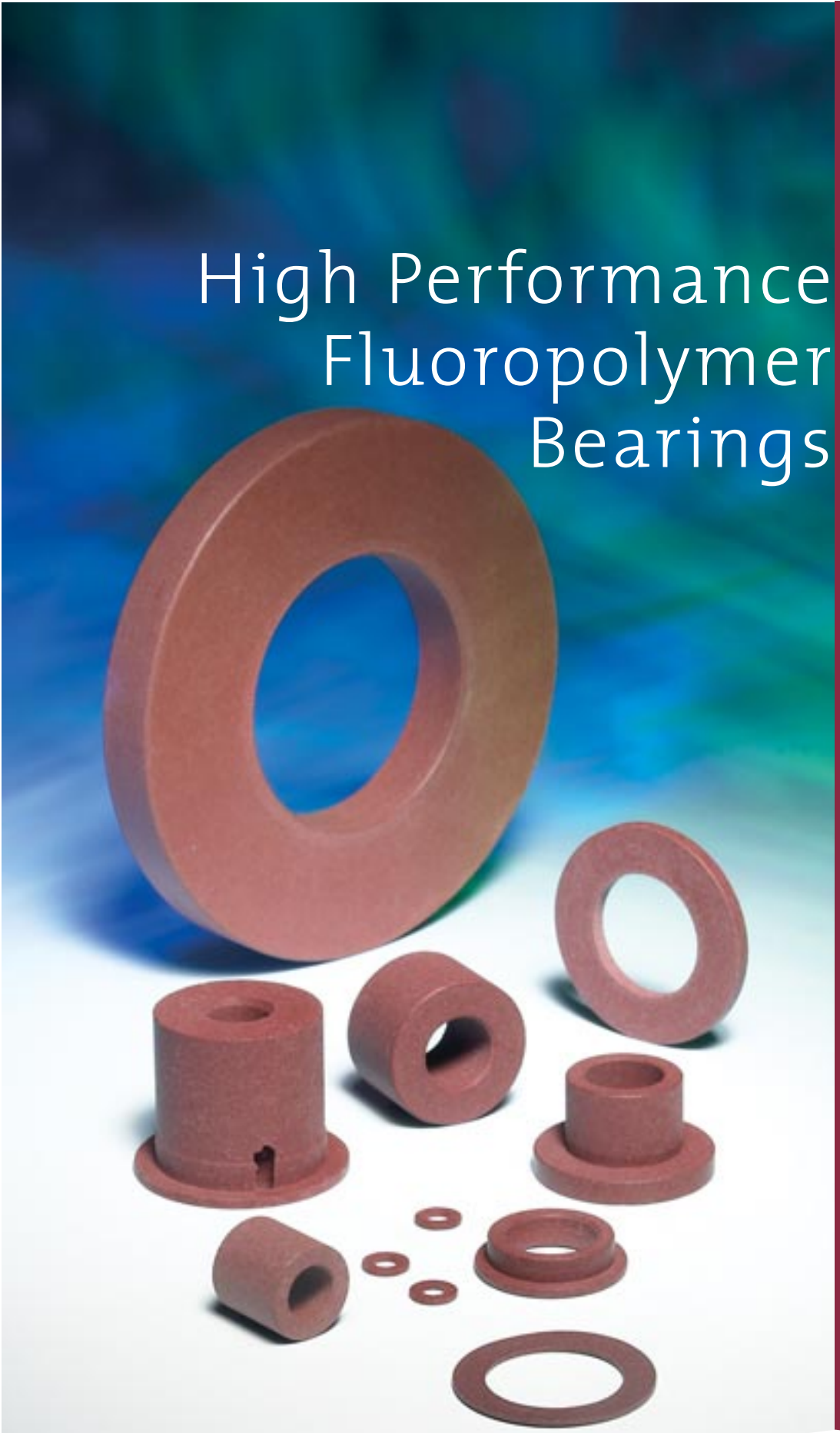
High Performance Fluoropolymer Bearings



RULON®

Long-wearing, maintenance-free bearing materials

- Self-lubricating design
- Low coefficient of friction
- Temperature resistant
- Dimensionally stable in fluids
- Chemically resistant
- Flexible material design
- Low-weight/high-strength ratio

SAINT-GOBAIN
PERFORMANCE PLASTICS

Saint-Gobain

Rulon® Fluoropolymer Bearings

An Overview

Saint-Gobain Performance Plastics manufactures many different grades of composite bearing materials with distinct properties to accommodate a broad range of applications and industries. Our most popular grades are RULON LR, RULON J and RULON 641.

RULON Materials Outperform Metals

RULON composites are ideal for non-lubricated, high-load applications in a variety of climates and operating environments, exhibit a high load capacity similar to bronze, powdered metal and steel, and provide longer wear and extended operating life without the costs associated with lubrication. RULON materials also do not rust like metal components, so you can use them in environments where traditional metals corrode and fail. You will find Saint-Gobain Performance Plastics bearing materials in heavy-duty agricultural, automotive, construction, industrial, marine, railway, and material handling equipment.

RULON components are rigid enough to support heavy loads, yet compliant enough to tolerate moderate amounts of shaft misalignment without highly stressing the ends of the bearings.

RULON Fluoropolymers Outperform Polyamide

As a rule, polyamide is strictly limited to relatively light load applications and cannot compete with RULON or metal materials in high load situations. Polyamide bearings are not as dimensionally stable as RULON materials either, due to as much as 9% absorption. The near zero absorption rate of RULON materials means there is negligible swelling and degradation of properties. It also enables tighter running clearances which increase the available bearing area and reduce the ingress of foreign particles which can become embedded and abrade the shaft over time.

FEATURES	BENEFITS
Self-lubricating design	Provides maintenance-free operation and eliminates the need for costly and messy greasing systems.
Low coefficient of friction	Reduces wear and extends operating life.
Temperature resistant	Operates flawlessly in temperatures ranging from cryogenic levels to a high of 550°F (288°C)
Dimensionally stable in fluids (water, corrosive liquids, and chemical solutions)	Absorption rates are negligible, providing near zero swell
Chemically resistant	Compatible with a wide range of lubricants and media.
Flexible material design	Suitable for press fit, freeze fit, epoxy bonding, as well as conventional mechanical retention.
Low weight	Accommodates light weight construction.

Cover photo: RULON® LR

Saint-Gobain is a worldwide group whose history spans more than three centuries. Created in 1665 in France, Saint-Gobain launched its first industrial Department with the production of mirrors, which adorn the famous Hall of Mirrors at Versailles.

Expansion beyond French borders began in the middle of the 19th century. An international pioneer, Saint-Gobain established a glass factory in Germany in 1857, another in Italy in 1889 and one in Belgium in 1904. The group moved toward the New World in 1937 with the opening of a plant in Brazil.

Early Diversification
Strongly established in flat glass production, Saint-Gobain began looking toward other activities at the beginning of the 20th century. The company entered the papermaking business in 1925, and the insulation business in 1936. The 1970 addition of the company Pont-á-Mousson, the world leader in cast iron pipes, reinforced Saint-Gobain's position in the construction market.

Throughout the 1970's and 80's the Saint-Gobain Group continued to pursue both internal and external growth, which culminated with the 1990 acquisition of Norton Company, one of the world's leading abrasives and ceramics manufacturers.

Norton Performance Plastics in turn acquired Furon Company and created the new Saint-Gobain Performance Plastics, combining decades of experience and leadership in metal-backed and polymer bearings and components.

The Rulon® trademark had been acquired by Furon in the purchase of Dixon Industries Corporation, founded in 1876 by Ezra Dixon, specializing in self-lubricating bearings for the then emerging textile industry in the northeastern United States.

RULON® J

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Materials Selection Guide

RULON® 641

Rulon Grades

Performance*

Mating Surface
Steel & Stainless Steel

Environment

Relative Rating
1=Low, 5=High

Comments

Grade	LR	J	641	W2	123	488	957	XL	F	142	945	1045	1337	1410	1439
Color	Maroon	Gold	White	Black	Black	Turq.	Green	Tan	Green	Turq.	Black	Gold	Tan	Gold	White
Max Load "P" (psi) MPa	1,000 (6.9)	750 (5.2)	1,000 (6.9)	1,000 (6.9)	1,000 (6.9)	1,000 (6.9)	1,000 (6.9)	1,200 (8.3)	1,000 (6.9)	1,000 (6.9)	1,000 (6.9)	1,000 (6.9)	1,000 (6.9)	750 (5.2)	1,000 (6.9)
Max Speed "V" (fpm) m/s	400 (2.0)	400 (2.0)	400 (2.0)	400 (2.0)	400 (2.0)	400 (2.0)	400 (2.0)	400 (2.0)	400 (2.0)	400 (2.0)	400 (2.0)	400 (2.0)	400 (2.0)	400 (2.0)	400 (2.0)
Max "PV" (psi-fpm) (Mpa • m/s)	10,000 0.35	7,500 0.35	10,000 0.35	10,000 0.35	10,000 0.35	10,000 0.35	10,000 0.35	10,000 0.35	10,000 0.35	10,000 0.35	7,500 0.35	10,000 0.35	1,000 0.35	750 0.26	1,000 0.35
Rb 25 & higher	X	X	X	X	X	X	X	X	X			X	X	X	X
Rc 35 & higher	X									X	X				
Painted metal and porcelain						X	X								
Aluminum		X						X							
FDA compliant			X		X								X		X
Steam			X	X	X	X	X		X	X	X		X	X	X
Wet	X		X	X	X	X	X	X	X	X	X	X	X	X	X
Dry	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Vacuum	X	X	X			X	X	X	X	X		X	X	X	X
Coefficient of friction	4	1	1	2	2	3	2	1	2	2	4	1	1	1	3
Creep resistance		4	3	4	4	4	4	4	4	5	5	2	2	2	4
Insulative prop.	YES	NO	NO	YES	YES	YES	YES	YES	YES	NO	NO	YES	YES	YES	YES

Our Standard Rulon bearing grade. High Creep and Abrasion resistance

Lowest Coefficient of Friction of Rulon series. Excellent insulator.

Widely used in the food process industry.

Very good operation in wet environments.

Good thermal and electrostatic dissipation.

Hot and dry applications. Excellent abrasion resistance.

Low friction/wear against coated metal or porcelain surfaces.

The best Rulon against aluminum surfaces.

Standard tape liner material for Rulon composite bearings.

Extensively used in machine tool guide ways.

Extremely low deformation under load, and high impact resistance.

FDA compliant; Excellent chemical resistance.

A standard material for compressor piston flip seals.

A standard material for compressor piston flip seals.

Ideal for submerged applications.

The list above is only a partial list of available formulations of Rulon. P,V data may be exceeded based on specific application requirements. Ask to speak to a Saint-Gobain Performance Plastics Application Engineer. RATINGS above are relative within Rulon family ONLY. For Rulon materials, coefficient of friction decreases with increasing load, and wear decreases with increasing surface hardness. For PTFE based materials, wear in steam and wet environments is higher than in dry environments. Saint-Gobain Performance Plastics offers enhanced Rulon grades which minimize this effect. Most Rulon products have excellent chemical compatability. Data available upon request.

Rulon® LR, J and 641 Bearings

Design Criteria
In choosing the appropriate RULON bearing, the critical parameters of the application must first be determined. Bearing load, speed, PV, environment, mating surface, duty cycle, etc., all play an integral part in this choice. The more important criteria are described here, and their values are listed in the "Material Selection Guide" .

Bearing Pressure
Bearing pressure is measured in pounds per square inch (psi). It is calculated by distributing the total load in pounds that the bearing is carrying by the projected area (I.D. x length in inches) of the bearing. This gives the average pressure, psi, that the bearing must support. Elevated temperatures reduce load capacity; lower temperatures generally increase static load capacity.

Bearing Speed
Bearing speed is determined by first calculating the circumference of the shaft in feet, then multiplying by the RPM of the shaft. This gives the sliding or surface velocity of the bearing in surface feet per minute (SFM). Lubrication or liquid cooling can extend these limits significantly.

Bearing PV
The third parameter is the product of operating pressure and surface velocity, defined as PV. P x V = PV. It is, in effect, a measure of the work the bearing is doing. While it is not the final answer, PV is an invaluable general guide in matching bearing to application.

Additional Considerations
Shaft hardness and finish: The various RULON bearings are designed to operate against surfaces that have minimum hardness and finish requirements. These minimum values should be followed since each bearing's published dynamic properties and predicted wear rate are based on this system.

Friction and wear: RULON bearings utilize custom compounds of PTFE. Like PTFE, they exhibit very low friction at low speeds, and low friction at high loads. These properties are diametrically opposed to most other materials and give RULON bearings their smooth start/stop characteristics. They eliminate most stick-slip problems.

RULON® LR

RULON® J

An Overview

Wear rate: RULON bearings are self-lubricating because a small quantity of RULON or PTFE material is transferred to the mating surface during startup. After initial break-in, the wear rate levels out. This phenomenon is why bearing finishes in the 63 to 125 RMS can be tolerated. Under recommended conditions, long bearing life is possible. Contamination, insufficient shaft hardness, coarse shaft finish, corrosion, etc., accelerate wear because the shaft/bearing cannot properly break-in under these conditions.

Performance Considerations

RULON materials are capable of operating at PV values up to approximately 10,000. Wear rates as a function of time can be greatly affected by the load and speed combinations. Therefore, higher PV values can be used where necessary for intermittent or short time duty. Lubricants or cooling fluids also permit higher PV values, primarily from speed, while generally decreasing wear.

Load

RULON materials are generally limited to 1,000 psi. However, actual deformation is a function of the wall thickness used, temperature and load. Thinning the material so that cold flow will be minimized can increase the load-bearing capacity of most RULON materials. Bonding the material will also increase its load-carrying ability — in some cases up to 5,000 psi. For higher loads, please contact our district sales manager so that arrangements can be made to discuss with an applications engineer.

Speed

While dry operation of RULON materials is generally limited to 400 surface feet per minute, under low-load conditions, higher speeds are possible with lubricants or liquid coolants. Silicone oils are not recommended as they interfere with the normal operation of RULON bearings.

Friction

A rapid decrease in friction can be observed as load increases for most RULON materials. Since start-up friction is extremely low, stick-slip is virtually eliminated. This makes RULON materials the ideal choice for oscillating or start-stop applications. When fully lubricated with oil, RULON materials exhibit a coefficient of friction in the .05 - . 08 m range typically obtained with lubricated metal bearings. In the event of lubrication failure, RULON materials increase time to catastrophic failure, allowing time to replace bearings or components before significant damage occurs to critical metal components.

RULON® 641

FIGURE H: TYPICAL WEAR BEHAVIOR FOR RULON BEARINGS

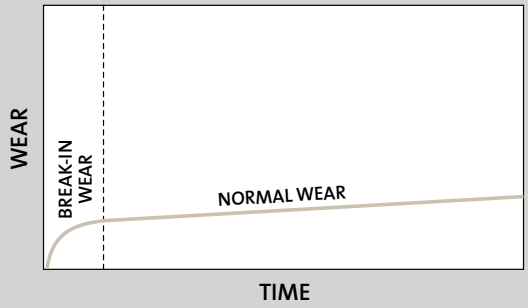
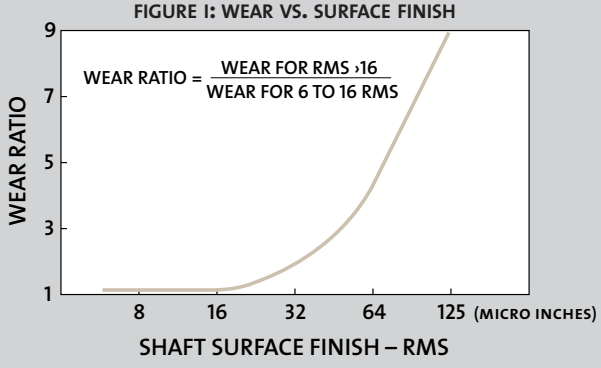


FIGURE I: WEAR VS. SURFACE FINISH



Rulon® LR Bearings

For continuous, non-lubricated service, RULON LR sleeve bearings are capable of operating at PV values up to approximately 10,000. *Figure J* shows wear rates as a function of time at various PV values. For intermittent or short-time duty, higher PV values can be used. Use of lubricants or cooling fluids also permit higher PV values.

Load

RULON bearings are generally limited to 1,000 psi. However, actual deformation is a function of wall thickness, temperature and load (*Figure K*). Because the thickness of the RULON sleeve affects deformation under load, load limits can be increased by using thin wall bearings or bonding in place.

Speed

RULON LR bearings are generally limited to 400 feet per minute under dry, low-load operation. Higher speeds are possible with lubricants or liquid coolants.

Friction

Friction decreases rapidly with increase in load (*Figure L*). *Figure M* shows the effect of surface velocity on friction. Because friction at start-up (static friction) and very slow speeds is extremely low, stick-slip is virtually non-existent in RULON LR bearings. This makes them ideal for oscillating or start/stop applications. When fully lubricated with oil, RULON compounds exhibit a coefficient of friction in the .05—.08 μ range of lubricated metal bearings.

FIGURE J: RADIAL WEAR VS. TIME

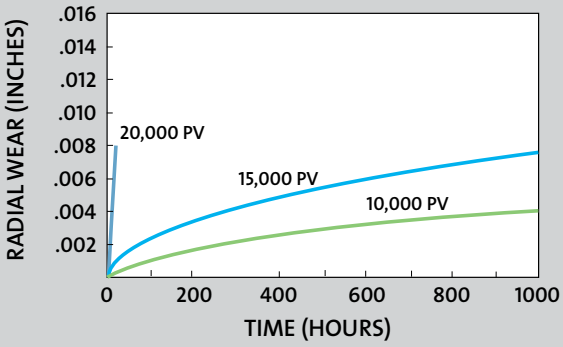
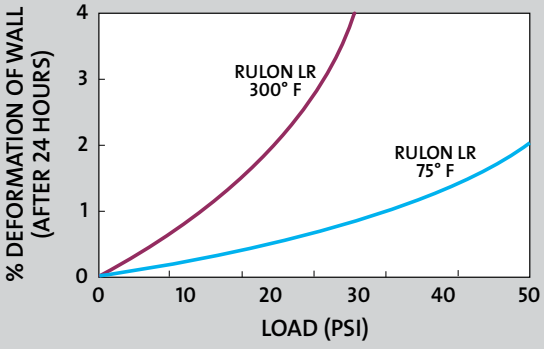


FIGURE K: DEFORMATION VS. LOAD



Mating Surfaces
Performance is optimized when the hardest possible running surface is used. Mild steel is acceptable. Softer shafts such as stainless steel or aluminum are not recommended. Special RULON materials—such as RULON J (see next page)—are available for this type of service.

Surface Finish
Best performance is achieved with a surface finish in the range of 8—16 microinches RMS; however, acceptable performance can be obtained with finishes up to 32 mircroinches.

Bearing Failure
At elevated temperatures and heavy load, RULON LR bearings will not shatter, but will merely deform. This eliminates sudden breakdowns and possible damage to other components.

Corrosion resistance
RULON LR material is practically inert to all acids, bases and solvents.

Typical Applications
For bearings in:
- Dryer oven conveyors
- Vacuum metalizing equipment
- Photographic processing equipment
- Hydraulic actuators
- Machine tool ways and gib slides

FIGURE L: COEFFICIENT FO FRICTION VS. LOAD

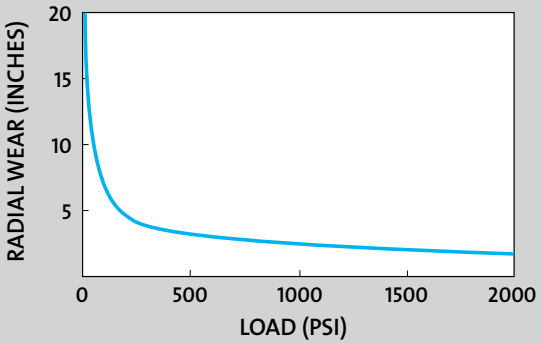
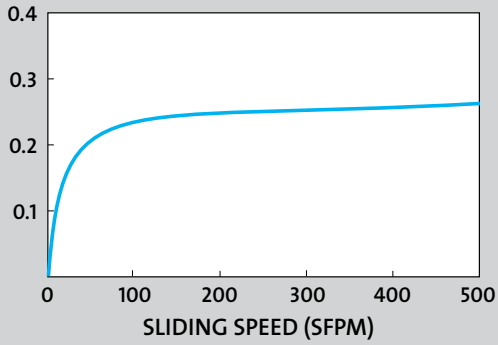


FIGURE M: COEFFICIENT FO FRICTION VS. SPEED



Rulon® J Bearings

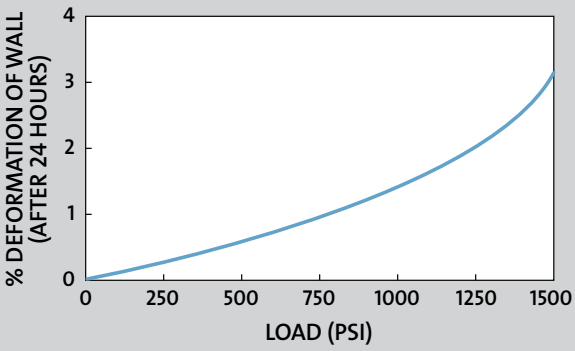
RULON J is an all-polymeric reinforced PTFE compound that operates satisfactorily against soft mating surfaces such as 316 stainless, aluminum, mild steel, and frequently, other plastics. The unique "shaft kindliness" of RULON J is in addition to the expected attributes of low friction and wear, self-lubrication and long life.

In fact, RULON J has the lowest coefficient of friction of any available reinforced PTFE. This makes it ideally suited for start/stop applications where stick-slip must be eliminated.

RULON J bearings are designed to be dimensionally interchangeable with RULON LR bearings and standard porous bronze and cast bronze bearings.

RULON J has slightly less load capacity than RULON LR (see *Figure N)*. Bearing clearances are the same for both RULON LR and RULON J bearings.

FIGURE N: DEFORMATION VS. LOAD



Thermal Expansion for RULON LR and J Bearings

Like most plastic material, RULON compounds have a higher coefficient of expansion than metals. This expansion is shown in *Figures O and P*, which provide data for unconfined bearings. Bearings confined in the proper housing are only able to grow axially. Typically, one-third of the differential growth (between bearing O.D. and housing) results in compression of the RULON material. Two-thirds results in close-in or reduction of the bearing I.D.

Standard RULON LR and RULON J stock bearings are designed with sufficient clearance to operate between –70°F and +200° F without altering the standard bearing sizes. For ambient temperatures above +200° F, additional clearance should be provided. Other design options are available for high temperature service. Contact your local District Sales Manager to seek design assistance.

Typical Applications:

For bearings in:

- Plain paper copiers
- Medical equipment
- Anemometers
- Printer heads

FIGURE O: EXPANSION OF RULON LR VS. TEMP

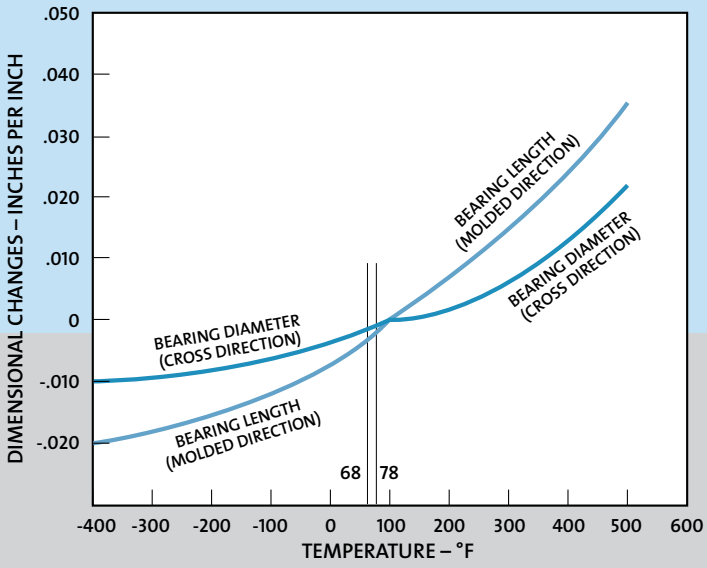
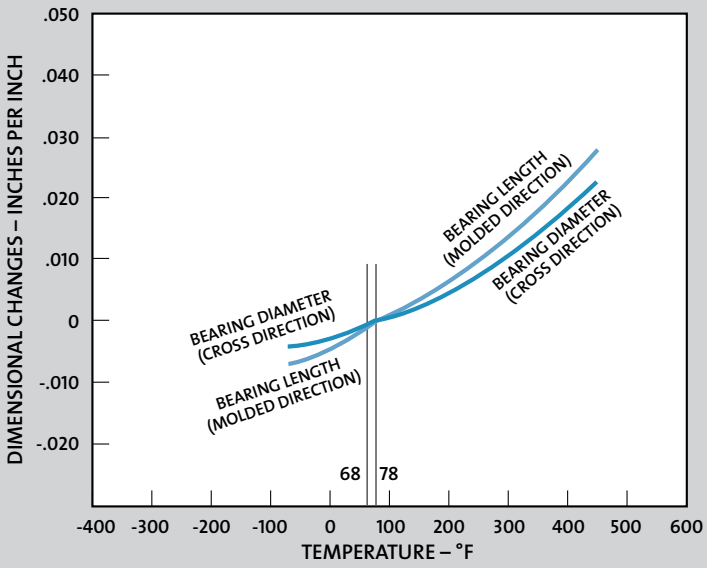


FIGURE P: EXPANSION OF RULON J VS. TEMP



Rulon® 641 Bearings

The RULON 641 bearing overcomes the chronic problems that plague other food and drug contact bearings. For the first time ever, design engineers can have the following features in one non-lubricated bearing: FDA-cleared materials, excellent load and wear characteristics, wide ranging temperature capability and naturally white color.

Wear Characteristics

RULON 641 offers excellent, continuous non-lubricated service at 10,000 PV and higher. Figure Q shows wear rates of RULON 641 as a function of time at various PV values. For comparison, virgin PTFE at 5,000 PV is also shown. The mating surface is 316 stainless steel.

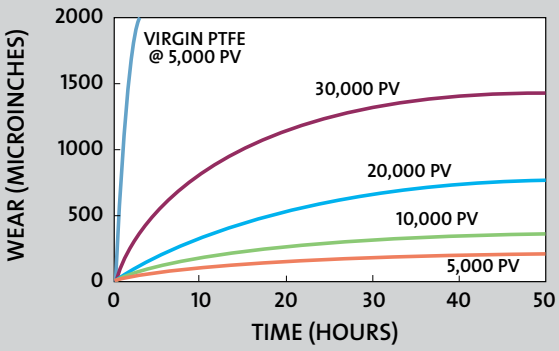
Mating Surfaces

RULON 641 is compatible with mild steel, 303 and 316 stainless steel mating surfaces. Harder materials are also acceptable.

Temperature

RULON 641 bearings can operate at temperatures ranging from –400°F to +550°F. However, the bearings as listed, can operate from -70°F to 200°F. Additional clearance is required for higher temperatures (see Figure P).

FIGURE Q: WEAR VS. TIME (HRS.) AT VARIOUS PVS



Speed
RULON 641 bearings are capable of speeds up to 400 feet per minute under dry, low-load operation.

Friction
Friction decreases rapidly with increasing load. Since friction at start-up and very slow speeds is extremely low, stick-slip is virtually non-existent with RULON 641 bearings. This makes them ideal for oscillating or start/stop applications.

Load Capacity
RULON 641 bearings are generally limited to 1,000 psi at room temperature. However, actual deformation is a function of wall thickness, temperature and load.

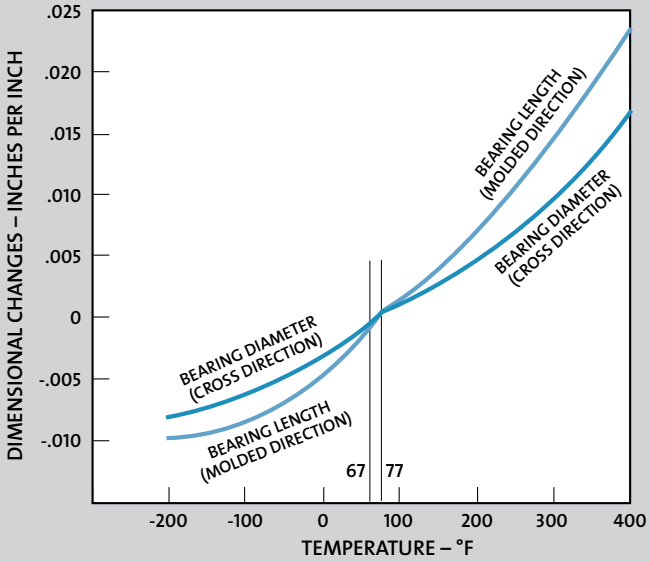
Corrosion Resistance
RULON 641 is unaffected by all common acids, bases and solvents.

Thermal Expansion
Like most plastic materials, RULON 641 has a higher coefficient of thermal expansion than most metals. *Figure R* shows data for unconfined RULON 641 bearings. Generally, I.D. close-in after being press fit into the housing is two-thirds of the total O.D. interference and should be taken into consideration during design.

Typical Applications
Since all the components of RULON 641 are FDA-cleared and non-toxic, RULON 641 bearings are perfect for use in machinery and equipment in the following applications:

- Food process machinery
- Food and drug conveyors
- Prepared meat products
- Frozen foods
- Animal and marine fats and oils
- Medicinal and pharmaceutical preparations

FIGURE P: THERMAL EXPANSION



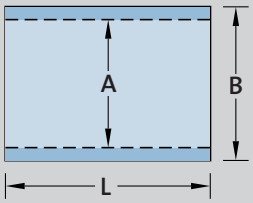
Standard Sizes for Rulon® LR, J & 641 Bearings

Self-Reading Part Numbers:

DRS - 0812 - 4 =

- DRS: BEARING TYPE
- 08: I.D. (IN 1/16" INCREMENTS)
- 12: O.D. INCREMENTS
- 4: BEARING LENGTH (IN 1/8" INCREMENTS)

SLEEVE BEARING
NOMINAL I.D. 1/2"
NOMINAL O.D. 3/4"
LENGTH 1/2"



SLEEVE BEARINGS

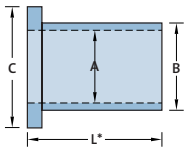
NOMINAL I.D. x O.D.	I.D. -000",+002" (A)	O.D. -000",+002" (B)	RECOMMENDED HOUSING BORE	PRESS FIT	RECOMMENDED SHAFT SIZE	LENGTH ± .005"(L)	RULON LR PART NUMBER	RULON J PART NUMBER	RULON 641 PART NUMBER
1/8 x 1/4	.129	.251	.250/.249	.004/.001	.1250/.1240	1/4	DRS-0204 2	DRJS-0204-2	
						3/8	DRS-0204-3	DRJS-0204-3	
3/16 x 5/16	.191	.313	.312/.311	.004/.001	.1875/.1865	1/4	DRS-0305-2	DRJS-0305-2	
						3/8	DRS-0305-3	DRJS-0305-3	
						1/2	DRS-0305-4	DRJS-0305-4	
1/4 x 3/8	.254	.376	.375/.374	.004/.001	.2500/.2490	1/4	DRS-0406 2	DRJS-0406-2	DR6S-0406-2
						3/8	DRS-0406-3	DRJS-0406-3	DR6S-0406-3
						1/2	DRS-0406-4	DRJS-0406-4	
5/16 x 1/2	.316	.501	.500/.499	.004/.001	.3125/.3115	3/8	DRS-0508-3	DRJS-0508-3	
						1/2	DRS-0508-4	DRJS-0508-4	
3/8 x 9/16	.379	.563	.562/.561	.004/.001	.3750/.3740	3/8	DRS-0609-3	DRJS-0609-3	DR6S-0609-3
						1/2	DRS-0609-4	DRJS-0609-4	
						3/4	DRS-0609-6	DRJS-0609-6	
7/16 x 5/8	.441	.626	.625/.624	.004/.001	.4375/.4365	3/8	DRS-0710-3	DRJS-0710-3	
						1/2	DRS-0710-4	DRJS-0710-4	
						3/4	DRS-0710-6	DRJS-0710-6	
1/2 x 3/4	.504	.751	.750/.749	.004/.001	.5000/.4990	1/2	DRS-0812-4	DRJS-0812-4	DR6S-0812-4
						3/4	DRS-0812-6	DRJS-0812-6	
						1	DRS-0812-8	DRJS-0812-8	
9/16 x 13/16	.567	.813	.812/.811	.004/.001	.5625/.5615	1/2	DRS-0913-4	DRJS-0913-4	
						3/4	DRS-0913-6	DRJS-0913-6	
						1	DRS-0913-8	DRJS-0913-8	
5/8 x 7/8	.630	.876	.875/.974	.004/.001	.6250/.6240	5/8	DRS-1014-5	DRJS-1014-5	DR6S-1014-5
						3/4	DRS-1014-6	DRJS-1014-6	
						1	DRS-1014-8	DRJS-1014-8	DR6S-1014-8
11/16 x 15/16	.693	.938	.937/.936	.004/.001	.6875/.6865	3/4	DRS-1115-6	DRJS-1115-6	
3/4 x 1	.755	1.001	1.000/.999	.004/.001	.7500/.7490	1/2	DRS-1216-4	DRJS-1216-4	
						3/4	DRS-1216-6	DRJS-1216-6	DR6S-1216-6
						1	DRS-1216-8	DRJS-1216-8	
						1-1/2	DRS-1216-12	DRJS-1216-12	DR6S-1216-12
7/8 x 1-1/8	.880	1.126	1.125/1.124	.004/.001	.8750/.8740	3/4	DRS-1418-6	DRJS-1418-6	
						1	DRS-1418-8	DRJS-1418-8	
1 x 1-1/4	1.005	1.251	1.250/1.249	.004/.001	1.000/.9990	3/4	DRS-1620-6	DRJS-1620-6	
						1	DRS-1620-8	DRJS-1620-8	DR6S-1620-8
						1 -1/2	DRS-1620-12	DRJS-1620-12	DR6S-1620-12
1-1/8 x 1- 3/8	1.130	1.376	1.375/1.374	.004/.001	1.125/1.124	3/4	DRS-1822-6	DRJS-1822-6	
						1	DRS-1822-8	DRJS-1822-8	
						1 -1/2	DRS-1822-12	DRJS-1822-12	
1-1/4 x 1 -1/2	1.255	1.501	1.500/1.499	.004/.001	1.250/1.249	3/4	DRS-2024-6	DRJS-2024-6	
						1	DRS-2024-8	DRJS-2024-8	
						1 -1/2	DRS-2024-12	DRJS-2024-12	
						2	DRS-2024-16	DRJS-2024-16	DR6S-2024-16
1-3/8 x 1- 5/8	1.380	1.626	1.625/1.624	.004/.001	1.375/1.374	1	DRS-2226-8	DRJS-2226-8	
						1 -1/2	DRS-2226-12	DRJS-2226-12	
1-1/2 x 1- 3/4	1.506	1.751	1.750/1.749	.004/.001	1.500/1.499	1	DRS-2428-8	DRJS-2428-8	
						1-1/2	DRS-2428-12	DRJS-2428-12	
						2	DRS-2428-16	DRJS-2428-16	DR6S-2428-16
1- 5/8 x 1- 7/8	1.631	1.876	1.875/1.874	.004/.001	1.625/1.6235	1-3/4	DRS-2630-14		
1 -3/4 x 2	1.756	2.001	2.000/1.999	.004/.001	1.750/1.7485	1-3/4	DRS-2832-14		

* I.D. AND O.D. -.000 + .003

SLEEVE BEARINGS (CONTINUED)

NOMINAL I.D. x O.D.	I.D. -000",+002" (A)	O.D. -000",+002" (B)	RECOMMENDED HOUSING BORE	PRESS FIT	RECOMMENDED SHAFT SIZE	LENGTH ± .005"(L)	RULON LR PART NUMBER	RULON J PART NUMBER	RULON 641 PART NUMBER
1- 7/8 x 2 -1/8	1.881	2.126	2.125/2.124	.004/.001	1.875/1.8735	2	DRS-3034-16		
2 x 2- 1/4	2.006	2.251	2.250/2.247	.006/.001	2.000/1.9985	2 2-1/2	DRS-3236-16* DRS-3236-20*		
2 -1/4 x 2- 1/2	2.259	2.502	2.500/2.497	.008/.002	2.250/2.2485	2-1/2	DRS-3640-20*		
2 -1/2 x 2 -3/4	2.510	2.752	2.750/2.747	.008/.002	2.500/2.498	2-1/2	DRS-4044-20*		
2 -3/4 x 3	2.760	3.002	3.000/2.997	.008/.002	2.750/2.748	3	DRS-4448-24*		
3 x 3 -1/4	3.011	3.252	3.250/3.247	.008/.002	3.000/2.998	3	DRS-4852-24*		

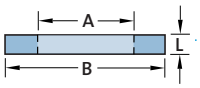
* I.D. AND O.D. -.000 + .003



FLANGE BEARINGS

NOMINAL I.D. x O.D.	I.D. -000",+002" (A)	O.D. -000",+002" (B)	RECOMMENDED HOUSING BORE	PRESS FIT	RECOMMENDED SHAFT SIZE	FLANGE THK. ± .003" (C)	FLANGE THK ± .003" (D)	LENGTH ± .005"(L)	RULON LR PART NUMBER	RULON J PART NUMBER	RULON 641 PART NUMBER
3/16 x 5/16	.191	.313	.312/.311	.004/.001	.1875/.1865	.437	1/16	1/4 1/2	DRF-0305-2 DRF-0305-4	DRJF-0305-2 DRJF-0305-4	
1/4 x 3/8	.254	.376	.375/.374	.004/.001	.2500/.2490	.500	1/16	3/8 1/2	DRF-0406-3 DRF-0406-4	DRJF-0406-3 DRJF-0406-4	DR6F-0406-4
3/8 x 5/8	.379	.626	.625/.624	.004/.001	.3750/.3740	.875	1/8	1/2 3/4	DRF-0610-4 DRF-0610-6	DRJF-0610-4 DRJF-0610-6	DR6F-0610-4
1/2 x 3/4	.504	.751	.750/.749	.004/.001	.5000/.4990	1.000	1/8	1/2 3/4 1	DRF-0812-4 DRF-0812-6 DRF-0812-8	DRJF-0812-4 DRJF-0812-6 DRJF-0812-8	DR6F-0812-8
5/8 x 7/8	.630	.876	.875/.874	.004/.001	.6250/.6240	1.000	1/8	3/4 1	DRF-1014-6 DRF-1014-8	DRJF-1014-6 DRJF-1014-8	DR6F-1014-8
3/4 x 1	.755	1.001	1.000/.999	.004/.001	.7500/.7490	1.250	1/8	1	DRF-1216-8	DRJF-1216-8	DR6F-1216-8
1 x 1-1/4	1.005	1.251	1.250/1.249	.004/.001	1.0000/.9990	1.500	1/8	1-1/2	DRF-1620-12	DRJF-1620-12	DR6F-1620-12
1-1/4 x 1-1/2	1.255	1.501	1.500/1.499	.004/.001	1.2500/1.2490	1.750	1/8	2	DRF-2024-16	DRJF-2024-16	DR6F-2024-16
1-1/2 x 1-3/4	1.506	1.751	1.750/1.749	.004/.001	1.5000/1.4990	2.000	1/8	2	DRF-2428-16	DRJF-2428-16	DR6F-2428-16
1-3/4 x 2	1.756	2.001	2.000/1.999	.005/.001	1.750/1.749	2.250	1/8	3	DRF-2832-24*		
2 x 2-1/4	2.006	2.251	2.250/2.249	.005/.001	2.000/1.999	2.500	1/8	3	DRF-3236-24*		

* I.D. AND O.D. -.000 + .003



THRUST BEARINGS

NOMINAL I.D. x O.D.	I.D. -000", +005" (A)	O.D. +000", -003" (B)	THICKNESS ± .003" (L)	RULON LR PART NUMBER	RULON J PART NUMBER
1/4 x 3/8	.254	.625	.060	DRT-0410-2	DRJT-0410-2
3/8 x 3/4	.379	.750	.060	DRT-0612-2	DRJT-0612-2
1/2 x 1	.504	1.000	.060	DRT-0816-2	DRJT-0816-2
3/4 x 1-3/8	.755	1.375	1/8	DRT-1222-4†	DRJT-1222-4*
1 x 2	1.005	2.000	1/8	DRT-1632-4†	DRJT-1632-4*
1-1/2 x 3	1.506	3.000	1/8	DRT-2448-4†	DRJT-2448-4*

* I.D. AND O.D. -.000 + .003

PART NUMBERING SYSTEM

RULON:	J	641	W2	123	488	957	XL	F	142	945	1045	1337	1410	1439
CODE:	J	6	W	1	4	9	X	F	Z	5	0	7	3	8

The first two characters of the composite part number are constant and stand for Rulon LR. The third character is the material code above corresponding to the desired material. If no code is listed, then the material is always Rulon LR. The type follows next and they are; (S) sleeve, (F) flange, and (T) thrust bearings.

EXAMPLE, 1" ID X 1.25" OD X 1" LG SLEEVE BEARING, RULON 1337

DR7S -1620-8

INSIDE AND OUTSIDE DIAMETERS ARE DEPICTED IN SIXTEENTHS (1/16), WHILE LENGTHS ARE IN EIGHTHS (1/8) OF AN INCH.

Aside from the available listed sizes on the previous tables, all listed standard bearing sizes can be requested in these materials. These are special request items subject to special pricing and delivery.

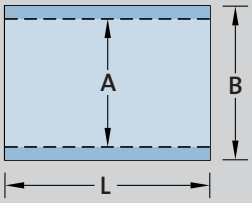
Standard Metric Sizes for Rulon® Bearings

Self-Reading Part Numbers:

MRS - 0812 - 8 =

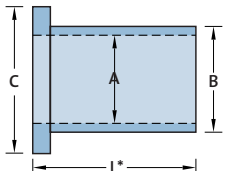
- MRS: RULON METRIC
- 08: I.D. (IN MM INCREMENTS)
- 12: O.D. (IN MM INCREMENTS)
- 8: BEARING LENGTH (IN MM INCREMENTS)

SLEEVE BEARING
NOMINAL I.D. 8MM
NOMINAL O.D. 12MM
LENGTH8MM



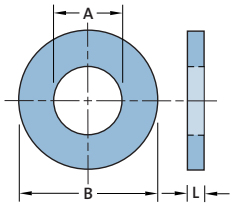
SLEEVE BEARINGS - ALL DIMENSIONS IN MILLIMETERS

NOMINAL I.D. x O.D.	*I.D. (A)*	*O.D. (B)*	*RECOMMENDED HOUSING BORE*	*LENGTH (L)*	*PART NUMBER*
3x6	3.21/3.16	6.09/6.04	6.0/5.98	5.0/4.8	MRS0306-5
4x7	4.21/4.16	7.09/7.04	7.0/6.98	6.0/5.8	MRS0407-6
5x8	5.21/5.16	8.09/8.04	8.0/7.98	6.0/5.8	MRS0508-6
6x9	6.21/6.16	9.09/9.04	9.0/8.98	8.0/7.8	MRS0609-8
7x11	7.23/7.18	11.10/11.05	11.0/10.98	8.0/7.8	MRS0711-8
8x12	8.23/8.18	12.10/12.05	12.0/11.98	8.0/7.8	MRS0812-8
9x13	9.23/9.18	13.10/13.05	13.0/12.98	10.0/9.75	MRS0913-10
10x14	10.24/10.19	14.10/14.05	14.0/13.98	10.0/9.75	MRS1014-10
12x16	12.24/12.19	16.10/16.05	16.0/15.98	10.0/9.75	MRS1216-10
15x21	15.27/15.20	21.10/21.05	21.0/20.98	15.0/14.75	MRS1521-15
17x23	17.27/17.20	23.10/23.05	23.0/22.98	15.0/14.75	MRS1723-15
20x26	20.33/20.21	26.11/26.06	26.0/25.98	20.0/19.75	MRS2026-20
22x28	22.33/22.21	28.11/28.06	28.0/27.98	20.0/19.75	MRS2228-20
25x31	25.33/25.21	31.11/31.06	31.0/30.98	25.0/24.75	MRS2531-25
28x34	28.33/28.21	34.11/34.06	34.0/33.98	30.0/29.75	MRS2834-30
30x36	30.33/30.22	36.11/36.06	36.0/35.98	30.0/29.75	MRS3036-30
32x40	32.38/32.22	40.11/40.06	40.0/39.98	30.0/29.75	MRS3240-30
35x43	35.38/35.22	43.11/43.06	43.0/42.98	35.0/34.75	MRS3543-35
40x48	40.38/40.22	48.11/48.06	48.0/47.98	40.0/39.75	MRS4048-40
45x53	45.39/45.20	53.11/53.06	53.0/52.7	50.0/49.75	MRS4553-50
50x60	50.39/50.24	60.11/60.06	60.0/59.7	50.0/49.75	MRS5060-50



FLANGE BEARINGS - ALL DIMENSIONS IN MILLIMETERS

NOMINAL I.D. x O.D.	I.D. (A)	O.D. (B)	FLANGE DIAMETER (C)	FLANGE DIAMETER (D)	RECOMMENDED HOUSING BORE	LENGTH (L)	PART NUMBER
3x6	3.21/3.16	6.09/6.04	9	1.55/1.50	6.0/5.98	5.0/4.8	MRF0306-5
4x7	4.21/4.16	7.09/7.04	9	1.55/1.50	7.0/6.98	6.0/5.8	MRF0407-6
5x8	5.21/5.16	8.09/8.04	11	1.55/1.50	8.0/7.98	8.0/7.8	MRF0508-8
6x9	6.21/6.16	9.09/9.04	12	1.55/1.50	9.0/8.98	8.0/7.8	MRF0609-8
7x11	7.23/7.18	11.10/11.05	15	2.05/2.00	11.0/10.98	10.0/9.8	MRF0711-10
8x12	8.23/8.18	12.10/12.05	16	2.05/2.00	12.0/11.98	10.0/9.8	MRF0812-10
9x13	9.23/9.18	13.10/13.05	17	2.05/2.00	13.0/12.98	10.0/9.75	MRF0913-10
10x14	10.24/10.19	14.10/14.05	18	2.05/2.00	14.0/13.98	15.0/14.75	MRF1014-15
12x16	12.24/12.19	16.10/16.05	20	2.05/2.00	16.0/15.98	15.0/14.75	MRF1216-15
15x21	15.27/15.20	21.10/21.05	27	3.05/3.00	21.0/20.98	20.0/19.75	MRF1521-20
17x23	17.27/17.20	23.10/23.05	29	3.05/3.00	23.0/22.98	20.0/19.75	MRF1723-20
20x26	20.33/20.21	26.11/26.06	32	3.05/3.00	26.0/25.98	25.0/24.75	MRF2026-25
22x28	22.33/22.21	28.11/28.06	34	3.05/3.00	28.0/27.98	25.0/24.75	MRF2228-25
25x31	25.33/25.21	31.11/31.06	37	3.05/3.00	31.0/30.98	30.0/29.75	MRF2531-30
28x34	28.33/28.21	34.11/34.06	40	3.05/3.00	34.0/33.98	30.0/29.75	MRF2834-30
30x36	30.33/30.22	36.11/36.06	42	3.05/3.00	36.0/35.98	35.0/34.75	MRF3036-35
32x40	32.38/32.22	40.11/40.06	48	4.05/4.00	40.0/39.98	35.0/34.75	MRF3240-35
35x43	35.38/35.22	43.11/43.06	51	4.05/4.00	43.0/42.98	40.0/39.75	MRF3543-40
40x48	40.38/40.22	48.11/48.06	56	4.05/4.00	48.0/47.98	45.0/44.75	MRF4048-45
45x53	45.39/45.23	53.11/53.06	61	4.05/4.00	53.0/52.97	50.0/49.75	MRF4553-50
50x60	50.39/50.24	60.11/60.06	70	5.05/5.00	60.0/59.97	60.0/59.75	MRF5060-60



THRUST BEARINGS - ALL DIMENSIONS IN MILLIMETERS

NOMINAL I.D. x O.D.	I.D., +0.00, -0.25 (A)	O.D., +0.00, -0.25 (B)	THICKNESS ±0.06 (L)	PART NUMBER
6x13	6.2	12.8	0.8	MRT0613
7x15	7.2	14.8	0.8	MRT0715
8x15	8.2	14.8	0.8	MRT0815
9x20	9.2	19.8	0.8	MRT0920
10x20	10.2	19.8	0.8	MRT1020
12x25	12.2	24.7	0.8	MRT1225
15x30	15.3	29.7	0.8	MRT1530
17x35	17.3	34.6	0.8	MRT1735
20x40	20.4	39.6	0.8	MRT2040
22x45	22.4	44.5	0.8	MRT2245
25x50	25.4	49.5	0.8	MRT2550
28x55	28.4	54.4	0.8	MRT2855
30x60	30.4	59.4	0.8	MRT3060
32x60	32.4	59.4	0.8	MRT3260
35x65	35.6	64.3	0.8	MRT3565
40x70	40.6	69.3	0.8	MRT4070
45x75	45.6	74.2	0.8	MRT4575
50x80	50.8	79.2	0.8	MRT5080

New Metric Sizes for Rulon® Bearings

All dimensions are based on temperature up to max 120°C and for tolerance H7 and h7 according to DIN1850 BL6.

SLEEVE BEARINGS - ALL DIMENSIONS IN MILLIMETERS

INSIDE DIAMETER ID			*OUTSIDE DIAMETER OD*			*LENGTH (L)*			
NOMINAL	*TOLERANCES*		*NOMINAL*	*TOLERANCES*		*NOMINAL*	*TOLERANCES*		*PART*
SIZE	*MIN*	*MAX*	*SIZE*	*MIN*	*MAX*	*SIZE*	*MIN*	*MAX*	*NUMBER*
3	0.15	0.20	6	0.06	0.11	5	-0.25	0.00	MRS030-060-05
4	0.15	0.20	7	0.06	0.11	6	-0.25	0.00	MRS040-070-06
5	0.15	0.20	8	0.06	0.11	6	-0.25	0.00	MRS050-080-06
6	0.15	0.20	9	0.06	0.11	8	-0.25	0.00	MRS060-090-08
7	0.17	0.22	11	0.07	0.12	8	-0.25	0.00	MRS070-110-08
8	0.17	0.22	12	0.07	0.12	8	-0.25	0.00	MRS080-120-08
9	0.17	0.22	13	0.07	0.12	10	-0.25	0.00	MRS090-130-10
10	0.17	0.22	14	0.07	0.12	10	-0.25	0.00	MRS100-140-10
12	0.18	0.23	16	0.07	0.12	10	-0.25	0.00	MRS120-160-10
15	0.20	0.25	21	0.08	0.13	15	-0.25	0.00	MRS150-210-15
16	0.20	0.25	22	0.08	0.13	15	-0.25	0.00	MRS160-220-15
17	0.20	0.25	23	0.08	0.13	15	-0.25	0.00	MRS170-230-15
18	0.20	0.25	24	0.08	0.13	20	-0.25	0.00	MRS180-240-20
20	0.20	0.25	26	0.08	0.13	20	-0.25	0.00	MRS200-260-20
22	0.20	0.25	28	0.08	0.13	20	-0.25	0.00	MRS220-280-20
25	0.21	0.26	31	0.09	0.14	25	-0.25	0.00	MRS250-310-25
25	0.22	0.27	32	0.09	0.14	30	-0.25	0.00	MRS250-320-30
28	0.21	0.26	34	0.09	0.14	30	-0.25	0.00	MRS280-340-30
28	0.23	0.28	36	0.09	0.14	30	-0.25	0.00	MRS280-360-30
30	0.21	0.28	36	0.09	0.14	30	-0.25	0.00	MRS300-360-30
30	0.23	0.28	38	0.09	0.14	30	-0.25	0.00	MRS300-380-30
32	0.23	0.28	40	0.09	0.14	30	-0.25	0.00	MRS320-400-30
35	0.23	0.28	43	0.09	0.14	35	-0.25	0.00	MRS350-430-35
35	0.25	0.30	45	0.09	0.14	40	-0.25	0.00	MRS350-450-40
40	0.23	0.28	48	0.09	0.14	40	-0.25	0.00	MRS400-480-40
40	0.25	0.30	50	0.09	0.14	40	-0.25	0.00	MRS400-500-40
45	0.24	0.29	53	0.10	0.15	50	-0.25	0.00	MRS450-530-50
45	0.26	0.31	55	0.10	0.15	40	-0.25	0.00	MRS450-550-40
50	0.26	0.31	60	0.10	0.15	50	-0.25	0.00	MRS500-600-50

FLANGE BEARINGS - ALL DIMENSIONS IN MILLIMETERS

INSIDE DIAMETER ID			OUTSIDE DIAMETER OD			FLANGE DIAMETER FD			LENGTH (L)			FLANGE THICKNESS FT			
NOMINAL SIZE	TOLERANCES MIN	MAX	NOMINAL SIZE	TOLERANCES MIN	MAX	NOMINAL SIZE	TOLERANCES MIN	MAX	NOMINAL SIZE	TOLERANCES MIN	MAX	NOMINAL SIZE	TOLERANCES MIN	MAX	PART NUMBER
3	0.15	0.20	6	0.06	0.11	9	-0.10	0.10	5	-0.25	0.00	1.5	0.00	0.50	MRF030-060-05
4	0.15	0.20	7	0.06	0.11	9	-0.10	0.10	6	-0.25	0.00	1.5	0.00	0.50	MRF040-070-06
5	0.15	0.20	8	0.06	0.11	11	-0.10	0.10	8	-0.25	0.00	1.5	0.00	0.50	MRF050-080-08
6	0.15	0.20	9	0.06	0.11	12	-0.10	0.10	8	-0.25	0.00	2	0.00	0.50	MRF060-090-08
7	0.17	0.22	11	0.07	0.12	16	-0.10	0.10	10	-0.25	0.00	2	0.00	0.50	MRF070-110-10
8	0.17	0.22	12	0.07	0.12	16	-0.10	0.10	10	-0.25	0.00	2	0.00	0.50	MRF080-120-10
9	0.17	0.22	13	0.07	0.12	17	-0.10	0.10	10	-0.25	0.00	2	0.00	0.50	MRF090-130-10
10	0.17	0.22	14	0.07	0.12	18	-0.10	0.10	15	-0.25	0.00	2	0.00	0.50	MRF100-140-15
12	0.18	0.22	16	0.07	0.12	20	-0.10	0.10	15	-0.25	0.00	2	0.00	0.50	MRF120-160-15
15	0.20	0.25	21	0.08	0.13	27	-0.10	0.10	20	-0.25	0.00	3	0.00	0.50	MRF150-210-20
16	0.20	0.25	22	0.08	0.13	28	-0.10	0.10	20	-0.25	0.00	3	0.00	0.50	MRF160-220-20
17	0.20	0.25	23	0.08	0.13	29	-0.10	0.10	20	-0.25	0.00	3	0.00	0.50	MRF170-230-20
18	0.20	0.25	24	0.08	0.13	30	-0.10	0.10	20	-0.25	0.00	3	0.00	0.50	MRF180-240-20
20	0.20	0.25	26	0.08	0.13	32	-0.10	0.10	25	-0.25	0.00	3	0.00	0.50	MRF200-260-25
22	0.20	0.25	28	0.08	0.13	34	-0.10	0.10	25	-0.25	0.00	3	0.00	0.50	MRF200-280-25
25	0.21	0.26	31	0.09	0.14	37	-0.10	0.10	30	-0.25	0.00	3	0.00	0.50	MRF250-310-30
25	0.22	0.27	32	0.09	0.14	38	-0.10	0.10	30	-0.25	0.00	4	0.00	0.50	MRF250-320-30
28	0.21	0.26	34	0.09	0.14	40	-0.10	0.10	30	-0.25	0.00	3	0.00	0.50	MRF280-340-30
28	0.23	0.28	36	0.09	0.14	42	-0.10	0.10	30	-0.25	0.00	4	0.00	0.50	MRF280-360-30
30	0.21	0.26	36	0.09	0.14	42	-0.10	0.10	35	-0.25	0.00	3	0.00	0.50	MRF300-360-35
30	0.23	0.28	38	0.09	0.14	44	-0.10	0.10	30	-0.25	0.00	4	0.00	0.50	MRF300-360-30
32	0.23	0.28	40	0.09	0.14	48	-0.10	0.10	35	-0.25	0.00	4	0.00	0.50	MRF320-400-35
35	0.23	0.28	43	0.09	0.14	51	-0.10	0.10	40	-0.25	0.00	4	0.00	0.50	MRF350-430-40
35	0.25	0.30	45	0.09	0.14	50	-0.10	0.10	40	-0.25	0.00	5	0.00	0.50	MRF350-450-40
40	0.23	0.28	48	0.09	0.14	56	-0.10	0.10	45	-0.25	0.00	4	0.00	0.50	MRF400-460-45
40	0.25	0.30	50	0.09	0.14	56	-0.10	0.10	40	-0.25	0.00	5	0.00	0.50	MRF400-500-40
45	0.24	0.29	53	0.10	0.15	61	-0.10	0.10	50	-0.25	0.00	4	0.00	0.50	MRF450-530-50
45	0.26	0.31	55	0.10	0.15	63	-0.10	0.10	40	-0.25	0.00	5	0.00	0.50	MRF450-550-40
50	0.26	0.31	60	0.10	0.15	70	-0.10	0.10	50	-0.25	0.00	5	0.00	0.50	MRF500-600-60

THRUST BEARINGS - ALL DIMENSIONS IN MILLIMETERS

INSIDE DIAMETER ID			OUTSIDE DIAMETER OD			RECOMMENDED HOUSING BORE		
NOMINAL SIZE	TOLERANCES MIN	MAX	NOMINAL SIZE	TOLERANCES MIN	MAX	LENGTH	TOLERANCE	PART NUMBER
6x13	6.2	0.25	12.8	-0.25	12.8	0.8	±0.06	MRT060-130-08
7x15	7.2	0.25	14.8	-0.25	14.8	0.8	±0.06	MRT070-150-08
8x15	8.2	0.25	14.8	-0.25	14.8	0.8	±0.06	MRT080-150-08
9x20	9.2	0.25	19.8	-0.25	19.8	0.8	±0.06	MRT090-200-08
10x20	10.2	0.25	19.8	-0.25	19.8	0.8	±0.06	MRT010-200-08
12x25	12.2	0.25	24.7	-0.25	24.7	0.8	±0.06	MRT120-250-08
15x30	15.3	0.25	29.7	-0.25	29.7	0.8	±0.06	MRT015-300-08
17x35	17.3	0.25	34.6	-0.25	34.6	0.8	±0.06	MRT017-350-08
20x40	20.4	0.25	39.6	-0.25	39.6	0.8	±0.06	MRT020-400-08
22x45	22.4	0.25	44.5	-0.25	44.5	0.8	±0.06	MRT022-450-08
25x50	25.4	0.25	49.5	-0.25	49.5	0.8	±0.06	MRT025-500-08
28x55	28.4	0.25	54.4	-0.25	54.4	0.8	±0.06	MRT028-550-08
30x60	30.4	0.25	59.4	-0.25	59.4	0.8	±0.06	MRT030-600-08
32x60	32.4	0.25	59.4	-0.25	59.4	0.8	±0.06	MRT032-600-08
35x65	35.6	0.25	64.3	-0.25	64.3	0.8	±0.06	MRT035-650-08
40x70	40.6	0.25	69.3	-0.25	69.3	0.8	±0.06	MRT040-700-08
45x75	45.6	0.25	74.2	-0.25	74.2	0.8	±0.06	MRT045-750-08
50x80	50.8	0.25	79.2	-0.25	79.2	0.8	±0.06	MRT050-800-08

THRUST BEARINGS - ALL DIMENSIONS IN MILLIMETERS

INSIDE DIAMETER ID			OUTSIDE DIAMETER OD			RECOMMENDED HOUSING BORE		
NOMINAL SIZE	TOLERANCES MIN	MAX	NOMINAL SIZE	TOLERANCES MIN	MAX	LENGTH	TOLERANCE	PART NUMBER
6x13	6.2	0.25	12.8	-0.25	12.8	0.8	±0.06	MRT060-130-08
7x15	7.2	0.25	14.8	-0.25	14.8	0.8	±0.06	MRT070-150-08
8x15	8.2	0.25	14.8	-0.25	14.8	0.8	±0.06	MRT080-150-08
9x20	9.2	0.25	19.8	-0.25	19.8	0.8	±0.06	MRT090-200-08
10x20	10.2	0.25	19.8	-0.25	19.8	0.8	±0.06	MRT010-200-08
12x25	12.2	0.25	24.7	-0.25	24.7	0.8	±0.06	MRT120-250-08
15x30	15.3	0.25	29.7	-0.25	29.7	0.8	±0.06	MRT015-300-08
17x35	17.3	0.25	34.6	-0.25	34.6	0.8	±0.06	MRT017-350-08
20x40	20.4	0.25	39.6	-0.25	39.6	0.8	±0.06	MRT020-400-08
22x45	22.4	0.25	44.5	-0.25	44.5	0.8	±0.06	MRT022-450-08
25x50	25.4	0.25	49.5	-0.25	49.5	0.8	±0.06	MRT025-500-08
28x55	28.4	0.25	54.4	-0.25	54.4	0.8	±0.06	MRT028-550-08
30x60	30.4	0.25	59.4	-0.25	59.4	0.8	±0.06	MRT030-600-08
32x60	32.4	0.25	59.4	-0.25	59.4	0.8	±0.06	MRT032-600-08
35x65	35.6	0.25	64.3	-0.25	64.3	0.8	±0.06	MRT035-650-08
40x70	40.6	0.25	69.3	-0.25	69.3	0.8	±0.06	MRT040-700-08
45x75	45.6	0.25	74.2	-0.25	74.2	0.8	±0.06	MRT045-750-08
50x80	50.8	0.25	79.2	-0.25	79.2	0.8	±0.06	MRT050-800-08

SAINT-GOBAIN
PERFORMANCE PLASTICS

Saint-Gobain Performance Plastics
386 Metacom Avenue
Bristol, RI 02809
Tel: 401-253-2000
Toll Free: 800-223-4966
Fax: 401-253-8211
www.Rulon-Meldin.com

RULON APPLICATION INQUIRY FORM

NOTE: Please attach any helpful comments/sketches

CUSTOMER INFORMATION

COMPANY:

STREET:

CITY, ST. ZIP:

ENGINEERING CONTACT

TELEPHONE No. FAX No.

PURCHASING CONTACT:

TELEPHONE No. FAX No.

ACTION REQUIRED	DATE NEEDED	QUOTATION GENERALITIES
MATERIAL RECOMMENDATION ❑		QUOTE PRODUCTION QUANTITIES OF:
PROVIDE TECH DATA ON MATERIAL ❑		
PART DESIGN RECOMMENDATION ❑		SEND QUOTE TO:
PRODUCE PROTOTYPES ❑		QUOTE DUE DATE:

PRODUCT INFORMATION (ATTACH DRAWING OR SKETCH IF AVAILABLE)

DESIGN: NEW ❑ EXISTING ❑ **BEARING* SIZE:** UNITS: IN ❑ MM ❑
*For non-bearing application, attach drawing

IF EXISTING:

TYPE/BRAND: ID: OD:

MATERIAL: LENGTH: FLANGE OD:

PART/DRAWING No: FLANGE THICKNESS:

DESCRIBE END USES: OTHER DIMENSIONS:

DESIRED CHARACTERISTICS:

OTHER COMMENTS:

RULON APPLICATION INQUIRY FORM

APPLICATION PARAMETERS

PART INSTALLATION

PRESS FIT ON OD: ❑

SHRINK FIT ON ID: ❑

MECHANICAL MEANS: ❑

SLIP FIT: ❑

BONDING: ❑

OTHER: (LIST) ❑

SHAFT SPECIFICATIONS

DIAMETER (& TOLERANCE)

MATERIAL TYPE:

SURFACE FINISH:

HARDNESS:

HOUSING SPECIFICATIONS

DIAMETER (& TOLERANCE):

MATERIAL TYPE:

LENGTH (& TOLERANCE):

TEMPERATURE

TYPICAL: °F ❑ °C ❑

MAXIMUM: °F ❑ °C ❑

DURATION: Min. ❑ Hrs. ❑

MINIMUM: °F ❑ °C ❑

DURATION: Min. ❑ Hrs. ❑

LOAD

RADIAL ❑ THRUST ❑

UNITS: LB ❑ PSI ❑ N/MM² ❑ OTHER:

CANTILEVERED ❑ IMPACT ❑

CONSTANT ❑ MISALIGNMENT ❑

TYPICAL:

MAXIMUM:

Duration:

MINIMUM:

Duration:

VELOCITY

UNITS: RPM ❑ FT/MIN ❑ M/SEC ❑

LINEAR/STROKE LENGTH:

NUMBER OF STROKES/MIN:

ROTARY:

DEGREE OF OSCILLATION:

NUMBER OF CYCLES/MIN:

OTHER:

RUNNING SURFACE: ID ❑ OD ❑ FACE ❑

ENVIRONMENT

DRY ❑ WATER ❑ LUBRICATED ❑

CLEAN ❑ DIRT ❑ VACUUM ❑

CHEMICALS: SPECIFY

GASES: SPECIFY

OIL: (TYPE)

SERVICE LIFE

CURRENT:

DESIRED:

PRODUCT VALIDATION

BENCH: ❑

FIELD: ❑

BOTH: ❑

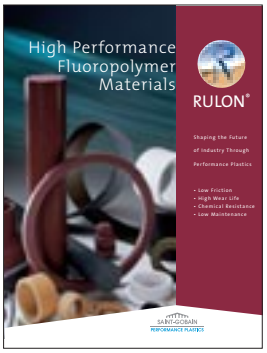
PRODUCT TESTING

TEST START DATE:

TEST DURATION:

Other Saint-Gobain Performance Plastics Catalogs

RULON®



A guide to available products and 15 of the most popular grades of Rulon. This brochure describes the materials, their properties, features and benefits. Information is provided on performance characteristics and guidelines for applying each material.

Various forms of materials that are available are described and products and applications where they have been used are listed.

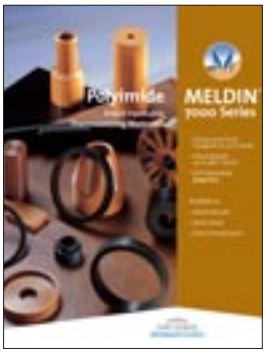
Meldin®

Meldin 2000 – Thermosetting polyimide product for use in continuous temperatures of up to 600˚F in structural and bearing applications. Available in rod and sheet or machined parts.

Meldin 3000 – Injection moldable polyimide material used in temperatures of 550˚F or lower, requiring no additional annealing.

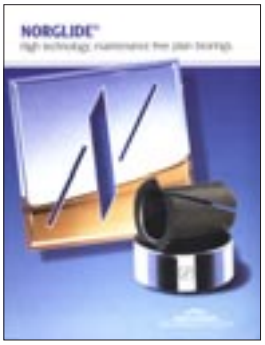
Meldin 5000 – Injection moldable thermoplastic material used in temperatures of 550˚F or lower, where more demanding chemical resistance is needed.

Meldin® 7000



Premium polyimide direct formable materials suitable for high volume production, for use in 600˚F or lower applications. Available in custom finished parts only, except as noted.

Norglide®



Norglide MP – The flexible bearing tape, which can be bonded or formed into custom bearings for practical solutions to common bearing problems.

Norglide M – MP bearing tape laminated to steel, giving it greater rigidity and strength for more demanding loads. Norglide T – Tape laminated to steel for moderate to heavy loads and economy.

Norglide Pro – Precision engineered metal backed bearing surface for demanding applications. Capable of highest loads and longer life.

		INJECTION MOLDING	AGRICULTURAL PLASTICS	NORGLIDE® BEARINGS	NORSLIDE®	OMNILIP™	OMNISEAL®	MELDIN®	RULON®	RAM EXTRUSION	MACHINED & MOLDED COMPONENTS
NORTH AMERICA											
* Saint-Gobain Performance Plastics Corporation Wayne, New Jersey • USA	Phone: (1) 973-696-4700 Fax: (1) 973-696-4056			•	•					•	
* Saint-Gobain Performance Plastics Corporation Bristol, Rhode Island • USA	Phone: (1) 401-253-2000 Fax: (1) 401-253-1755	•						•	•	•	•
* Saint-Gobain Performance Plastics Corporation Mundelein, Illinois • USA	Phone: (1) 847-949-0850 Fax: (1) 847-949-0198								•		•
* Saint-Gobain Performance Plastics Corporation Garden Grove, California • USA	Phone: (1) 714-995-1818 Fax: (1) 714-688-2701					•	•				•
Saint-Gobain Performance Plastics Corporation Iztapalapa • Mexico	Phone: (5) 256-132-814	•		•	•			•	•		
EUROPE											
* Saint-Gobain Performance Plastics Pampus Gmbh Willich • Germany	Phone: (49) 2154 600 Fax: (49) 2154 60310			•	•				•	•	
* Saint-Gobain Performance Plastics N.V. Kontich • Belgium	Phone: (32) 34 58 28 28 Fax: (32) 34 58 26 69	•				•	•	•	•	•	•
Saint-Gobain Performance Plastics Asti Nanterre • France	Phone: (33) 1490 70205 Fax: (33) 1490 69762			•	•						
Saint-Gobain Performance Plastics Agrate Brianza (Mi) • Italy	Phone: (39) 03 96 50 070 Fax: (39) 03 96 52 736	•		•	•	•	•	•	•		
Saint-Gobain Performance Plastics Espana, S.A. Barcelona • Spain	Phone: (34) 93 682 8138 Fax: (34) 93 682 8143			•	•						
* Saint-Gobain Performance Plastics Espana, S.A. Logrono • Spain	Phone: (34) 94 14 86 035 Fax: (34) 94 14 37 095	•				•	•	•	•		•
Saint-Gobain Performance Plastics Corporation Stafford • UK	Phone: (44) 0 1785 213 416 Fax: (44) 0 1785 213 538	•		•	•	•	•	•	•		
SOUTH AMERICA											
* Saint-Gobain (Bearing & Wear Technology) Ceramicas Industrias Ltda. (Agricultural Plastics) Vinhedo-SP • Brazil	Phone: (55) 19 3876 8153 Phone: (55) 19 3876 8070 Fax: (55) 19 3876 8077	•	•	•	•	•	•	•	•		
ASIA											
* Saint-Gobain KK-Performance Plastics Tokyo • Japan	Phone: (81) 33 26 30 285 Fax: (81) 33 26 30 286	•	•	•	•	•	•	•	•		
* Saint-Gobain Performance Plastics Korea Co., Ltd. Seoul • South Korea	Phone: (82) 25 08 82 00 Fax: (82) 25 54 15 50	•	•	•	•	•	•	•	•		
* Saint-Gobain Performance Plastics Shanghai Co., Ltd. Shanghai • China	Phone: (86) 21 64 62 2800 Fax: (86) 21 64 62 27 81	•	•	•	•	•	•	•	•		
* Saint-Gobain Advanced Materials (Taiwan) Co., Ltd. Taipei • Taiwan	Phone: (886) 22 50 34 201 Fax: (886) 22 50 34 202	•	•	•	•	•	•	•	•		
* Grindwell Norton Ltd. Bangalore • India	Phone: (91) 80 847 2900 Fax: (91) 80 847 2905	•	•	•	•	•	•	•	•		
Saint-Gobain Advanced Materials (M) Sdn.Bhd Selangor Darul Ehsan • Malaysia	Phone: (60) 37 36 40 82/81 Fax: (60) 37 36 40 99	•	•	•	•	•	•	•	•		

** Manufacturing Facilities*

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