iglide® Plastic Plain Bearings

igus® iglide® plastic bearings are economical, dry-running and maintenance-free. Offered in three of the most popular materials with or without flanges, these plain bearings are an excellent choice for a wide range of motion applications.

Features

- 3 popular materials - J (low friction), G300 (general purpose), T500 (high temp)
- Sleeve and flange bearings
- Fits shafts from 1/4" to 1"
- Good chemical resistance
- Link to selection guide materials

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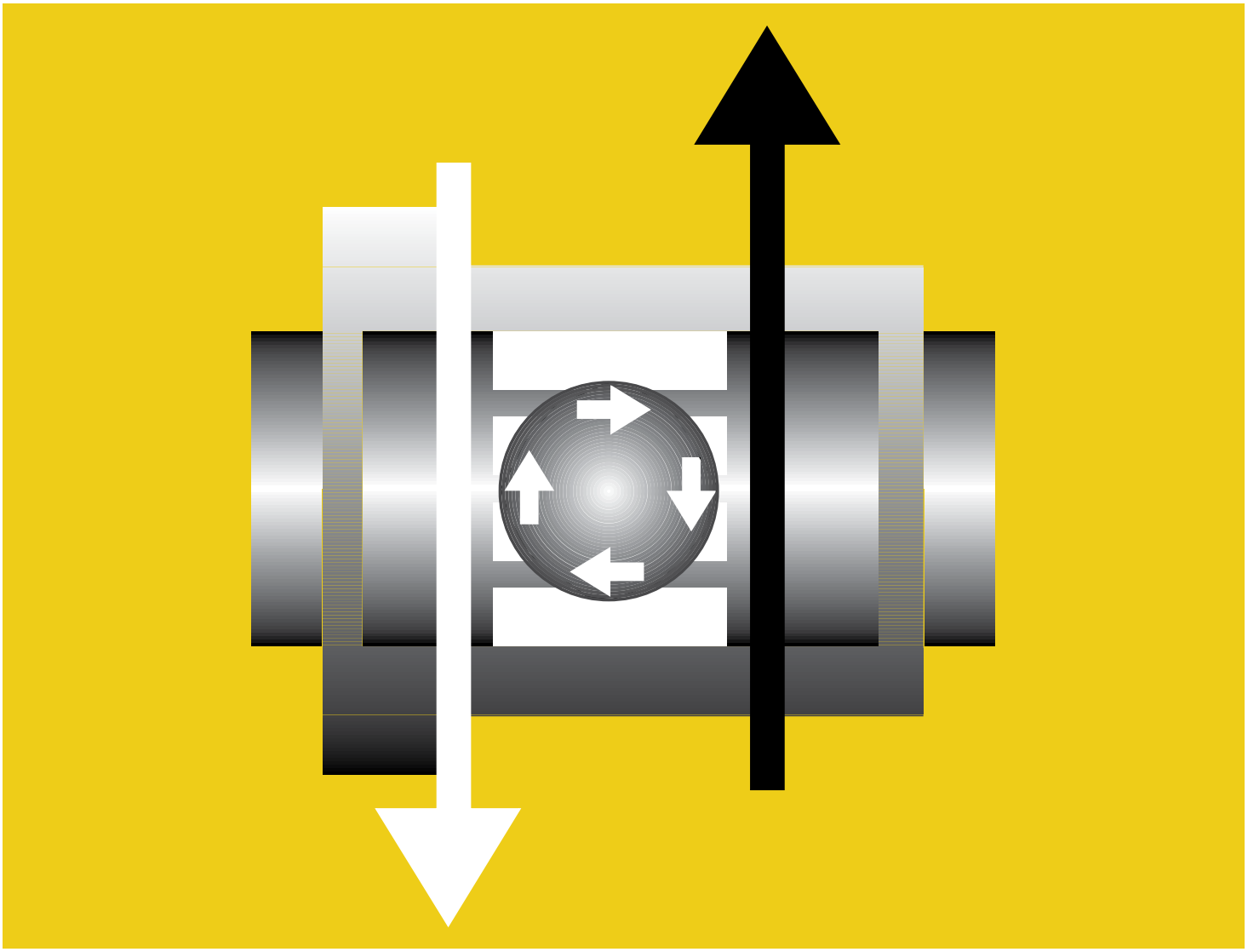
igus® iglide® Plain Bearings									
Item Photo	Part Number	Material	Size I.D. (inch)	Size O.D. (inch)	Flange	Qty. per Package	Weight (lb)	Price	Drawing Link
	A-JSI-0406-04	J	1/4	3/8	No	10	0.19	$8.50	PDF
	A-JSI-0810-08		1/2	5/8		10	0.04	$11.00	PDF
	A-JSI-1214-12		3/4	7/8		5	0.03	$10.00	PDF
	A-JSI-1618-16		1	1-1/8		2	0.44	$6.50	PDF
	A-JFI-0406-04		1/4	3/8	Yes	10	0.02	$8.75	PDF
	A-JFI-0810-08		1/2	5/8		10	0.49	$13.50	PDF
	A-JFI-1214-12		3/4	7/8		5	0.49	$10.50	PDF
	A-JFI-1618-16		1	1-1/8		2	0.04	$6.50	PDF
	A-GSI-0405-04	G300	1/4	5/16	No	10	0.02	$8.00	PDF
	A-GSI-0809-08		1/2	9/16		10	0.03	$8.75	PDF
	A-GSI-1214-12		3/4	7/8		5	0.04	$10.50	PDF
	A-GSI-1618-16		1	1-1/8		2	0.04	$7.25	PDF
	A-GFI-0405-04		1/4	5/16	Yes	10	0.02	$8.00	PDF
	A-GFI-0809-08		1/2	9/16		10	0.04	$9.50	PDF
	A-GFI-1214-12		3/4	7/8		5	0.05	$12.00	PDF
	A-GFI-1618-16		1	1-1/8		2	0.03	$7.25	PDF
	A-TSI-0405-04	T500	1/4	5/16	No	5	0.02	$15.00	PDF
	A-TSI-0809-08		1/2	9/16		5	0.02	$16.50	PDF
	A-TSI-1214-12		3/4	7/8		2	0.03	$19.00	PDF
	A-TSI-1618-16		1	1-1/8		2	0.03	$25.00	PDF
	A-TFI-0405-04		1/4	5/16	Yes	5	0.01	$16.00	PDF
	A-TFI-0809-08		1/2	9/16		5	0.02	$25.50	PDF
	A-TFI-1214-12		3/4	7/8		2	0.02	$21.00	PDF
	A-TFI-1618-16		1	1-1/8		2	0.04	$26.50	PDF

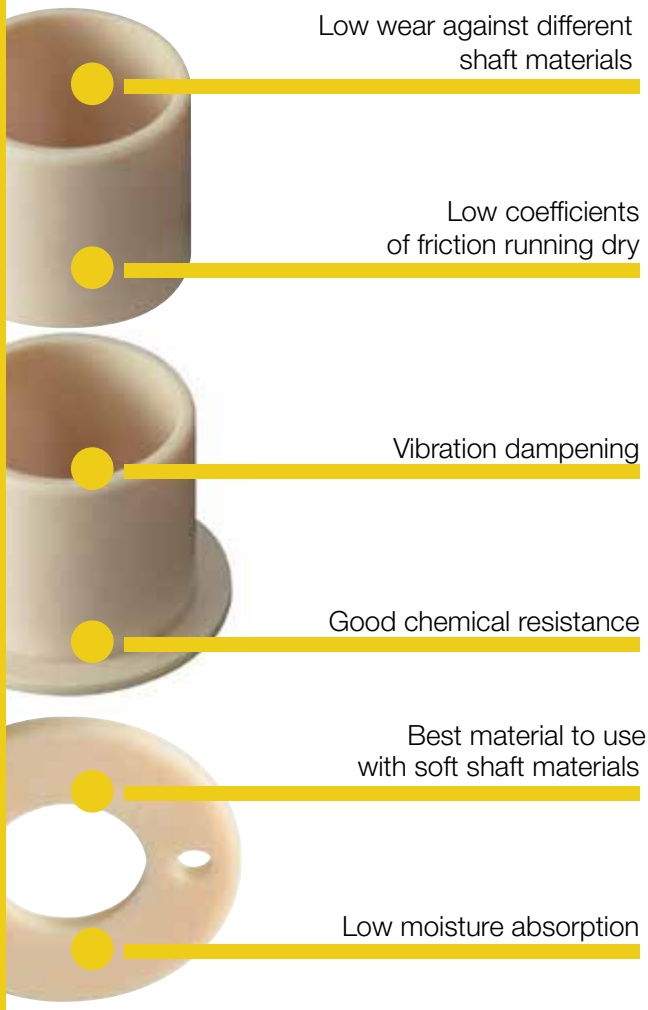


iglide® J

- Low wear against different shaft materials
- Low coefficients of friction running dry
- Vibration dampening
- Good chemical resistance
- Low moisture absorption

iglide® J - The fast and slow motion specialist

Low friction, low wear



The iglide® J plain bearings are designed for the lowest coefficients of friction while running dry and their low stick-slip tendency. With a maximum permissible surface pressure of 5,076 psi iglide® J bearings are not suitable for extreme loads.

Best Applications

- For high speeds
- For highest wear resistance at low to medium pressures
- When very low coefficients of friction are necessary
- When a cost effective bearing for low pressure loads is needed

Not For Use In Applications

When high pressure loads occur
➤ iglide® G300
When short-term temperatures occur that are greater than 248°F
➤ iglide® G300
When a low-cost bearing for occasional movements is necessary
➤ iglide® G300

Typical application areas

- Automation
- Printing industry
- Cleanroom
- Aerospace engineering
- Beverage technology
- Automation

max. +194°F
min. –58°F

Ø 1/4 to 1 inch
more sizes available from igus

Ø 1.5 to 110 mm
metric sizes available from igus

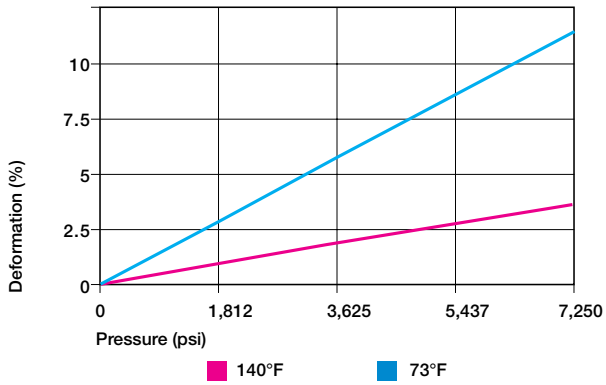
iglide® J - Technical data

Material Properties Table

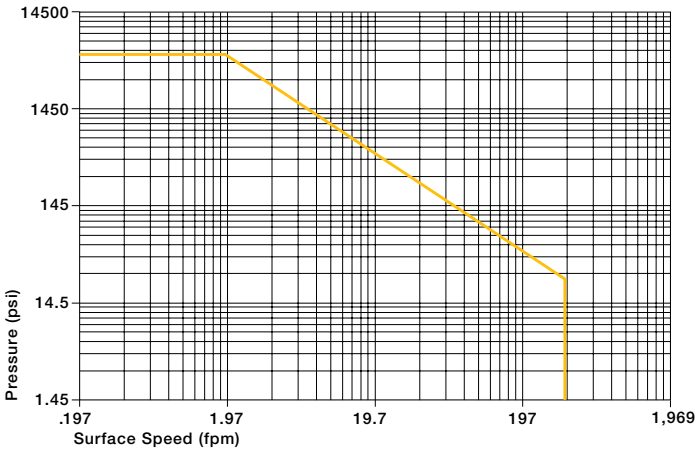
General Properties	Unit	iglide® J	Testing Method
Density	g/cm³	1.49	
Color		yellow	
Max. moisture absorption at 73°F / 50% r.h.	% weight	0.3	DIN 53495
Max. moisture absorption	% weight	1.3	
Coefficient of friction, dynamic against steel	µ	0.06 - 0.18	
pv value, max. (dry)	psi x fpm	9,700	
Mechanical Properties			
Modulus of elasticity	psi	348,100	DIN 53457
Tensile strength at 68°F	psi	10,590	DIN 53452
Compressive strength	psi	8,702	
Permissible static surface pressure (68°F)	psi	5,076	
Shore D-hardness		74	DIN 53505
Physical and Thermal Properties			
Max. long-term application temperature	°F	194	
Max. application temperature, short-term	°F	248	
Min. application temperature	°F	-58	
Thermal conductivity	W/m x K	0.25	ASTM C 177
Coefficient of thermal expansion	$K^{-1} \times 10^{-5}$	10	DIN 53752
Electrical Properties			
Specific volume resistance	Ωcm	$> 10^{13}$	DIN IEC 93
Surface resistance	Ω	$> 10^{12}$	DIN 53482

Compressive Strength

With a maximum permissible surface pressure of 5,075 psi, iglide® J plain bearings are not suited for extreme loads. The graph shows the elastic deformation of iglide® J for radial loads. At the maximum permissible load of 5,075 psi, the deformation is less than 2.5%.



Deformation under load and temperature



Permissible pv value for iglide® J running dry against steel shaft, at 68°F

Permissible Surface Speeds

The low coefficient of friction and the extremely low stick-slip tendency of iglide® J plain bearings are especially important at very low speeds. However, iglide® J material can also be used for high speeds of over 197 fpm. In both cases,the static friction is very low and stick-slip does not occur. The maximum values given in the table can only be achieved at the lowest pressure loads. At the given speeds, friction can cause a temperature increase to maximum permissible levels. In practice, though, this temperature level is rarely reached, due to varying application conditions.

	Continuous fpm	Short Term fpm
Rotating	295	590
Oscillating	216	413
Linear	1574	1968

Maximum surface speeds

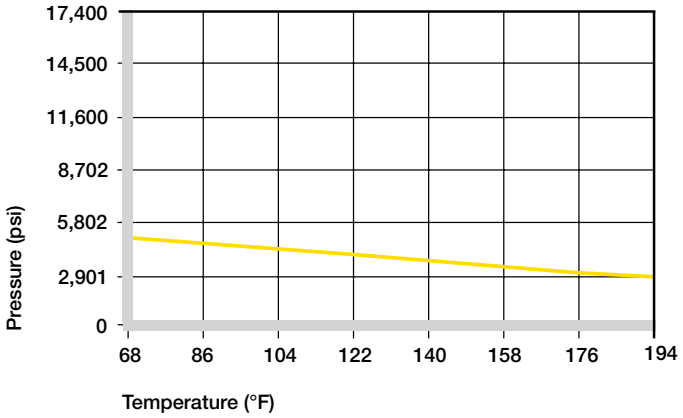
iglide® J - Technical data

Temperatures

iglide® J plain bearings can be used between -58°F and 194°F; the short-term maximum permissible temperature is 248°F. The graph shows that the compressive strength of iglide® J plain bearings decreases with increasing temperatures. Also, the wear increases significantly above 176°F

iglide® J	Application Temperature
Minimum	- 58°F
Max. long-term	+194°F
Max. short-term	+248°F
Additional axial securing	+140°F

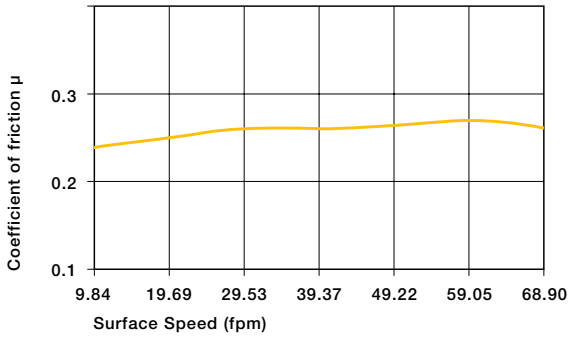
Temperature limits for iglide® J



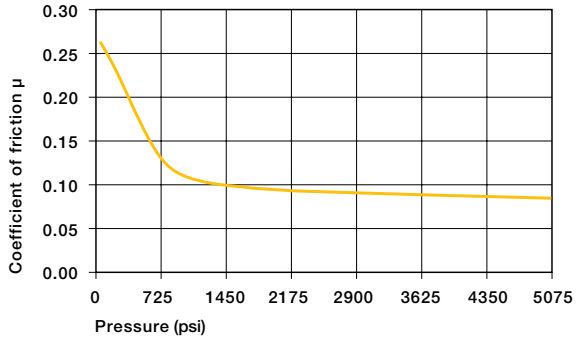
Recommended maximum permissible static surface pressure of iglide® J as a result of the temperature

Friction and Wear

The graph to the right shows the coefficients of friction for different loads. The coefficient of friction level is very good for all loads with iglide® J. Friction and wear are also dependent, to a large extent, on the shafting partner. With increasing shaft roughness, the coefficient of friction also increases. For iglide® J a ground surface with an average roughness range of 4 - 12 rms is recommended for the shaft.



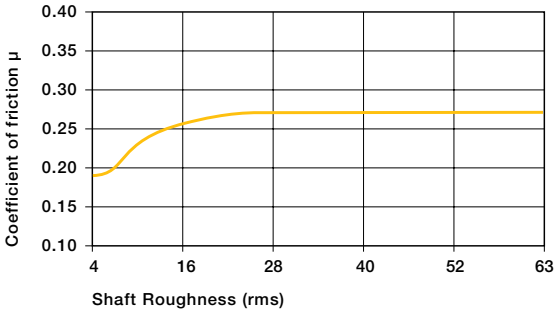
Coefficient of friction of iglide® J as a result of the surface speed; p = 108 psi



Coefficient of friction of iglide® J as a result of the load, v = 1.97 fpm

iglide® J	Coefficient of Friction
Dry	0.06 - 0.18
Grease	0.09
Oil	0.04
Water	0.04

Coefficients of friction for iglide® J against steel (Shaft finish = 40 rms, 50 HRC)

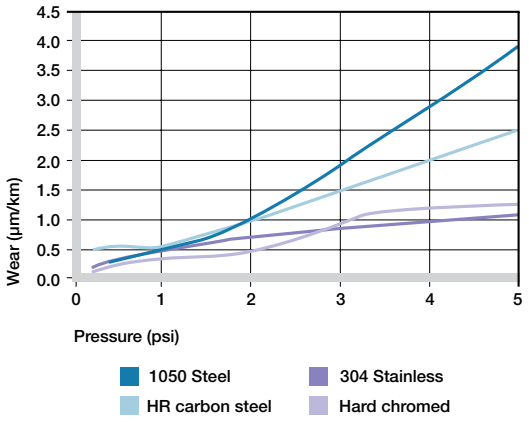


Coefficient of friction of iglide® J as a result of the shaft surface (1050 hard chromed)

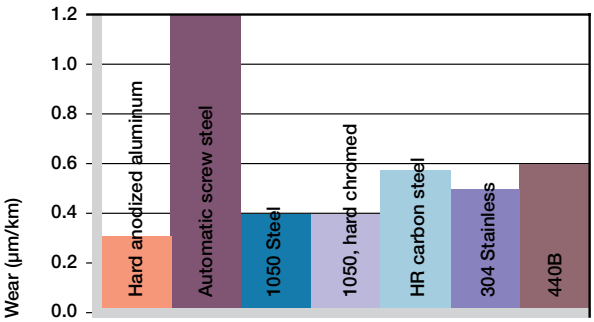
iglide® J - Technical data

Shaft Materials

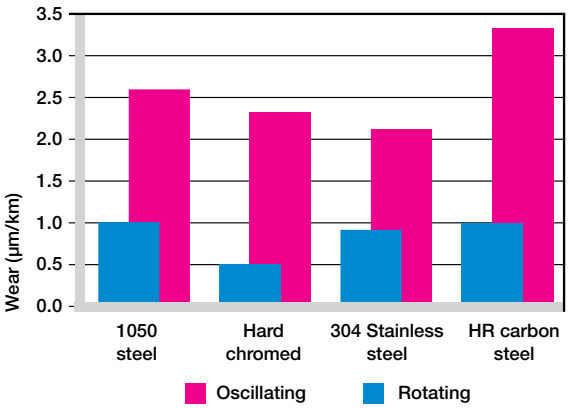
The graphs show results of testing different shaft materials with plain bearings made of iglide® J.
If iglide® J plain bearings are used in rotational applications with loads under 290 psi, several shaft materials are suitable. A Hard Chromed shaft provides the lowest wear in this range. When compared to most iglide® materials, iglide® J has very low wear results at low loads with all shaft materials tested.
Also, for increasing loads up to 725 psi, the wear resistance of iglide® J is excellent. Especially suitable is the combination of 303 stainless steel.
In oscillating operation with Cold Rolled Steel and HR Carbon Steel, the wear of iglide® J is slightly higher than for rotation. For oscillating movements with loads of 290 psi, iglide® J performs best with Cold Rolled Steel shaft.
As shown in the graph, the difference in wear between rotation and oscillating movements is most significant for 303 stainless steel shafts.
If the shaft material you plan to use is not contained in this list, please contact us.



Wear of iglide® J, rotating application with different shaft materials, depending on load



Wear of iglide® J, rotating application with different shaft materials, p = 108 psi, v = 98 fpm



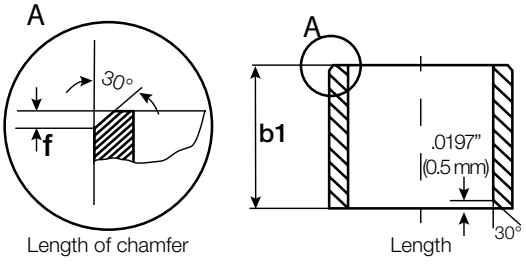
Wear for oscillating and rotating applications with different shaft materials under constant load p = 290 psi

Installation Tolerances

iglide® J plain bearings are oversized before being pressfit. After proper installation into a recommended housing bore, the inner diameter adjusts to meet our specified tolerances. Please adhere to the catalog specifications for housing bore and recommended shaft sizes. This will help to ensure optimal performance of iglide® plain bearings.

For Inch Size Bearings		
Length Tolerance (b1)		
Length (inches)	Tolerance (h13) (inches)	Length of Chamfer (f) Based on d1
0.1181 to 0.2362	-0.0000 /-0.0071	f = .012 → d_1 .040" - .236"
0.2362 to 0.3937	-0.0000 /-0.0087	f = .019 → d_1 > .236" - .472"
0.3937 to 0.7086	-0.0000 /-0.0106	f = .031 → d_1 > .472" - 1.18"
0.7086 to 1.1811	-0.0000 /-0.0130	f = .047 → d_1 > 1.18"
1.1811 to 1.9685	-0.0000 /-0.0154	
1.9685 to 3.1496	-0.0000 /-0.0181	

For Metric Size Bearings		
Length Tolerance (b1)		
Length (mm)	Tolerance (h13) (mm)	Length of Chamfer (f) Based on d1
1 to 3	-0 /-140	f = 0.3 → d_1 1 - 6 mm
> 3 to 6	-0 /-180	f = 0.5 → d_1 > 6 - 12 mm
> 6 to 10	-0 /-220	f = 0.8 → d_1 > 12 - 30 mm
>10 to 18	-0 /-270	f = 1.2 → d_1 > 30 mm
>18 to 30	-0 /-330	
>30 to 50	-0 /-390	
>50 to 80	-0 /-460	



iglide® J - Technical data

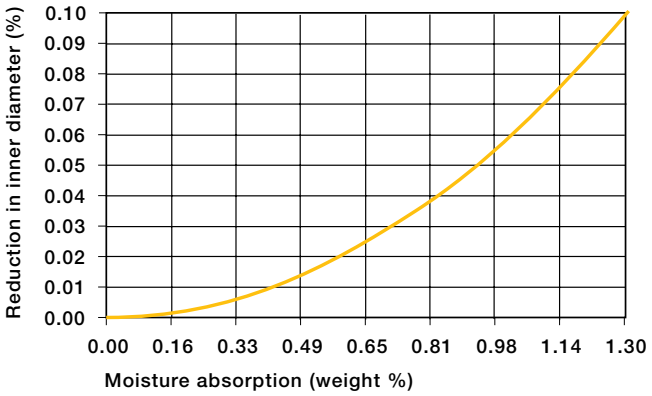
Chemical Resistance

iglide® J plain bearings are resistant to diluted lyes and very weak acids, as well as fuels and all types of lubricants. The low moisture absorption also permits use in wet or damp environments. Plain bearings made of iglide® J are resistant to common cleaning agents used in the food industry. The moisture absorption of iglide® J plain bearings is 0.3% in standard atmosphere. The saturation limit in water is 1.3%. These values are so low that possible design changes due to absorption are only necessary in extreme cases.

Medium	Resistance
Alcohol	+
Hydrocarbon	+
Greases, oils without additives	+
Fuels	+
Weak acids	0 to –
Strong acids	–
Weak alkaline	+
Strong alkaline	+ to 0

+ resistant, 0 conditionally resistant, – not resistant

Chemical resistance of iglide® J
All data given concerns the chemical resistance at room temperature (68°F).



Effect of moisture absorption on iglide® J plain bearings

Radiation Resistance

Plain bearings made from iglide® J are resistant to radiation up to an intensity of 3 x 10^2 Gy.

UV-Resistance

iglide® J plain bearings become discolored under UV radiation. However, hardness, compressive strength and the wear resistance of the material do not change.

Vacuum

When used in a vacuum environment, the iglide® J plain bearings release moisture as a vapor. Therefore, only dehumidified bearings made of iglide® J are suitable for the vacuum environment.

Electrical Properties

iglide® J plain bearings are electrically insulating.

iglide® J	
Specific volume resistance	> 10^{13} Ωcm
Surface resistance	> 10^{12} Ω

Electrical properties of iglide® G300