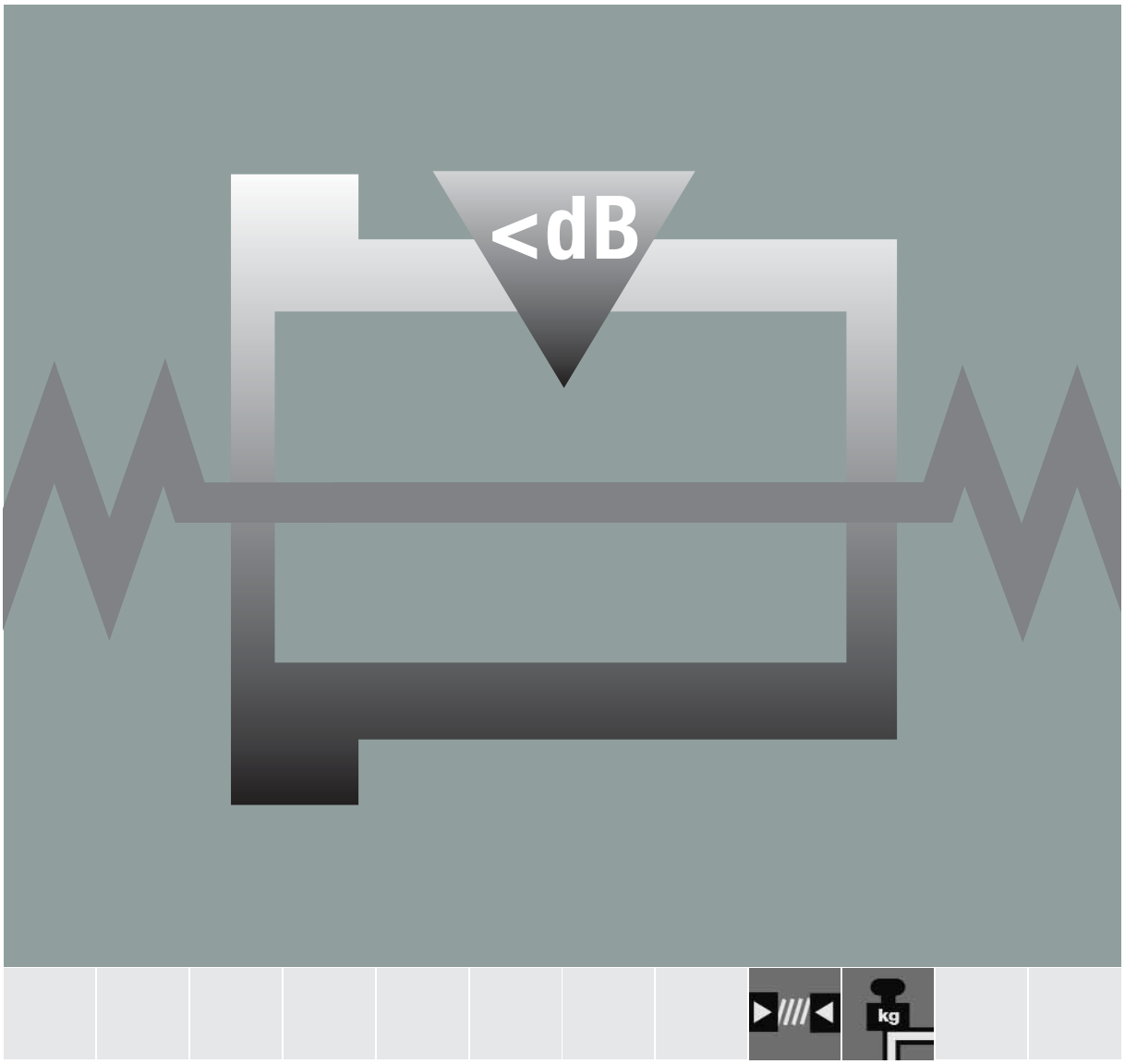


iglidur® B – Maximum Vibration Dampening

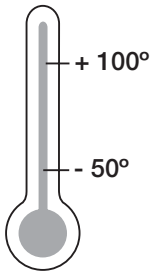
- Elimination of noise
- Very high elasticity
- Sealing function possible

Phone +49 - 22 03 - 96 49-145
Fax +49 - 22 03 - 96 49-334

iglidur® B | **Maximum Vibration Dampening**

The main aim when developing iglidur B was to have a material which eliminates noise and dampens vibrations. Both aims have been achieved with the elastic yet wear resistant iglidur® B.

Product range on request



Price index

Maximum Vibration Dampening

When to use iglidur® B plain bearings:

- When maximum vibration dampening is required
- Elimination of noise
- Very high elasticity
- Sealing function possible

When not to use iglidur® B plain bearings:

- In applications with high atmospheric humidity
  ▶ iglidur® J (chapter 3)
- When a cost-effective universal bearing is required
  ▶ iglidur® D (chapter 25)
- When the highest wear resistance is required
  ▶ iglidur® J (chapter 3)

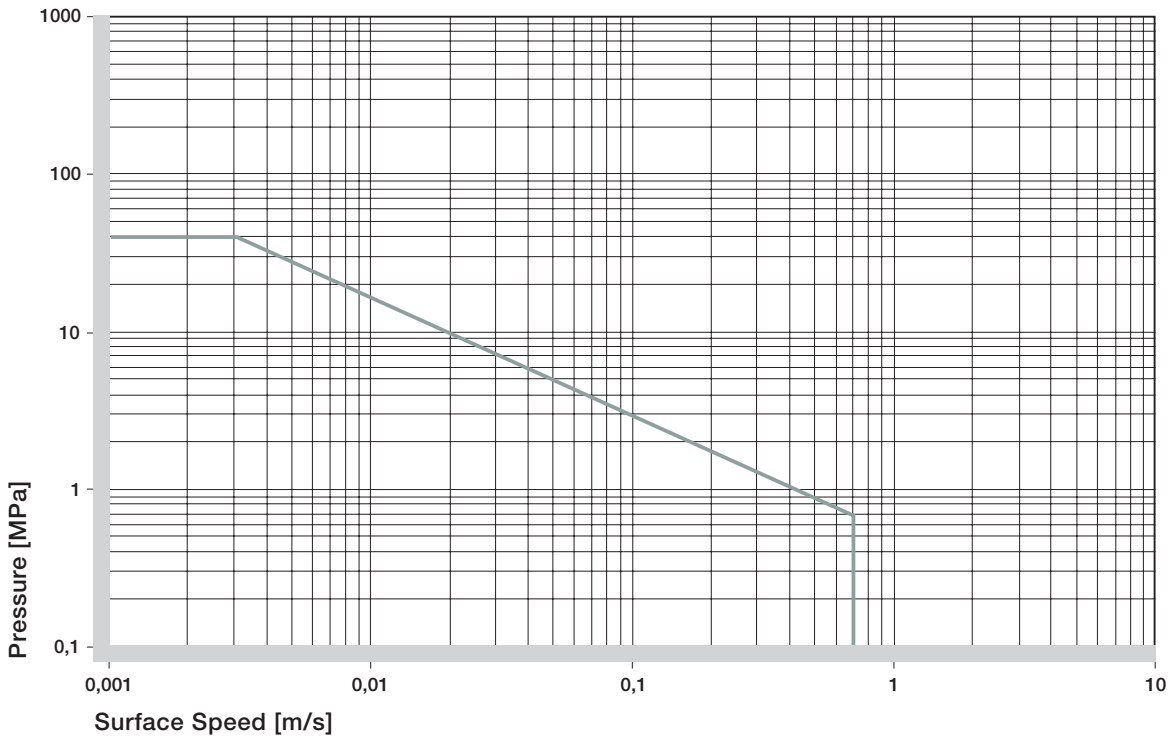
iglidur® B
Phone +49 - 22 03 - 96 49-145
Fax +49 - 22 03 - 96 49-334
igus® GmbH
51147 Cologne
Internet www.igus.de
E-mail info@igus.de

Material Table

General Properties	Unit	iglidur® B	Testing Method
Density	g/cm³	1,15	
Colour		Grey	
Max. moisture absorption at 23°C / 50% r.F.	% weight	1,0	DIN 53495
Max. moisture absorption	% weight	6,3	
Coefficient of friction, dynamic against steel	µ	0,18 - 0,28	
p x v value, max. (dry)	MPa x m/s	0,15	
Mechanical Properties			
Modulus of elasticity	MPa	1.750	DIN 53457
Tensile strength 20°C	MPa	55	DIN 53452
Compressive strength	MPa	(n.d.)	
Max. recommended surface pressure (20°C)	MPa	40	
Shore D hardness		69	DIN 53505
Physical and Thermal Properties			
Max. long term application temperature	°C	100	
Max. short term application temperature	°C	130	
Max. short term ambient temperature[1)]	°C	150	
Min. application temperature	°C	-40	
Thermal conductivity	W/m x K	0,23	ASTM C 177
Coefficient of thermal expansion (at 23°C)	$K^{-1} \times 10^{-5}$	5	DIN 53752
Electrical Properties			
Specific volume resistance	Ω x cm	$> 10^{10}$	DIN IEC 93
Surface resistance	Ω	$> 10^{9}$	DIN 53482

[1)] Without additional load; no sliding movement; relaxation possible

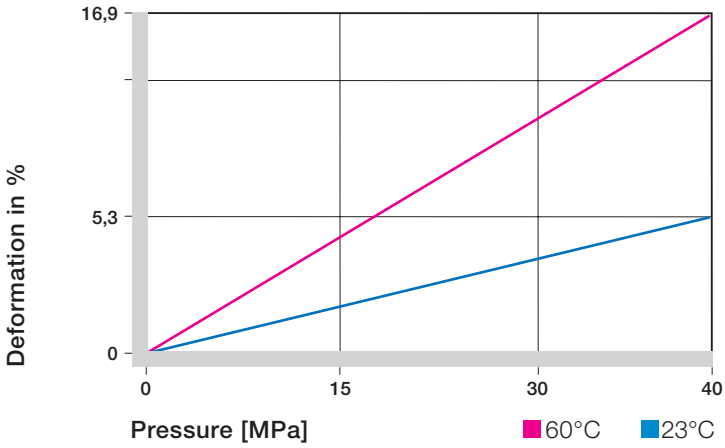
Table 23.1: Material Data



Graph 23.1: Permissible p x v values for iglidur® B with a wall thickness of 1 mm running dry against a steel shaft at 20°C, mounted in a steel housing

Phone +49 - 22 03 - 96 49-145
Fax +49 - 22 03 - 96 49-334

iglidur® B | **Technical data**



Graph 23.2: Deformation under pressure and temperature

The main aim when developing iglidur® B was to have a material which eliminates noise and dampens vibrations. Both aims have been achieved with the elastic yet wear resistant iglidur® B.

Surface Pressure

The compressive strength of iglidur® B plain bearings is low. However, this is an important property of the material as it is used primarily for applications where vibration dampening and noise reduction are required.

Graph 23.2
▶ Surface Pressure, page 1.18

m/s	Rotating	Oscillating	Linear
Continuous	0,7	0,5	2
Short term	1	0,7	3

Table 23.2: Maximum surface speeds

Permissible Surface Speeds

iglidur® B plain bearings can be constantly used at speeds up to 0.7 m/s. The frictional heat determines the speed limits.

▶ Surface Speed, page 1.20
▶ p x v value, page 1.22

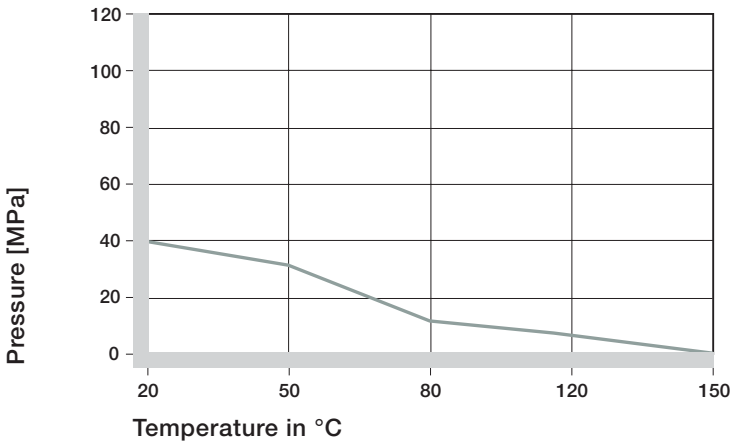
iglidur® B	Application Temperature
Minimum	- 40 °C
Max. long term	+ 100 °C
Max. short term	+ 130 °C

Table 23.3: Temperature limits for iglidur® B

Temperatures

The application temperature of the iglidur® B plain bearings is limited to 100°C. Even at a temperature of 50°C the very flexible bearings should be secured mechanically, thus preventing the bearings from moving out of the housing. Wear resistance also decreases significantly from 70°C.

Graph 23.3
▶ Application Temperatures, page 1.23



Graph 23.3: Recommended maximum surface pressure of iglidur® B as a function of temperature

Friction and Wear

When compared to the complete iglidur® range, the wear of iglidur® B plain bearings is average. Providing the load is not too high, good wear values can be achieved. An increase in load results in a significant increase in wear rate.

Graphs 23.4 to 23.6
▶ Coefficients of Friction and Surfaces, page 1.25
▶ Wear Resistance, page 1.26

Shaft Materials

The wear resistance of an iglidur® B bearing system is not greatly affected by the shaft material.
Graphs 23.7 and 23.8 make it clear that very similar wear data could be attained with different shaft materials. If a high operational performance is required, the load of the bearing should not be too high.

Graphs 23.7 to 23.9
▶ Shaft Materials, page 1.28

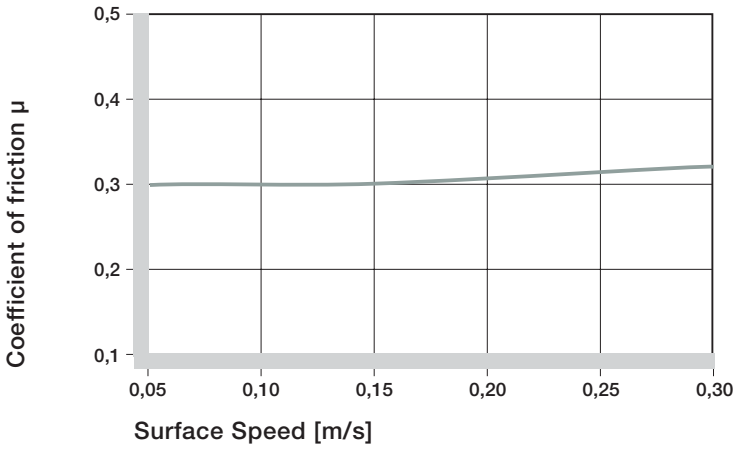
Installation Tolerances

iglidur® B plain bearings are standard bearings for shafts with a h tolerance (h9 recommended at least).
The bearings are designed for pressfit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, the inner diameter of the bearings is automatically adjusted to an E10 tolerance.

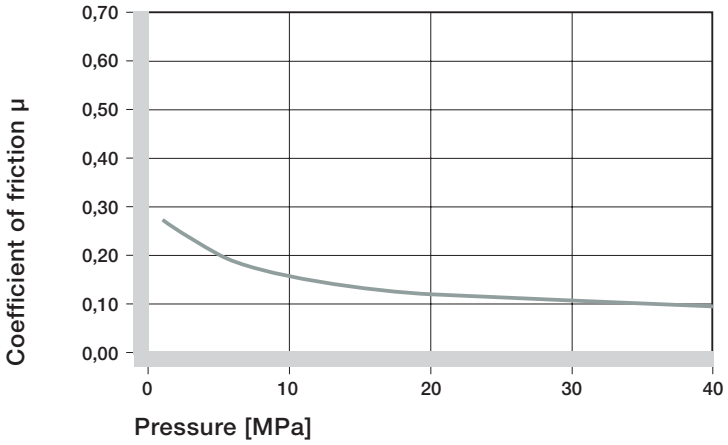
▶ Testing Methods, page 1.32/1.33

iglidur® B	Dry	Grease	Oil	Water
C.o.f. [µ]	0,18 - 0,28	0,09	0,04	0,04

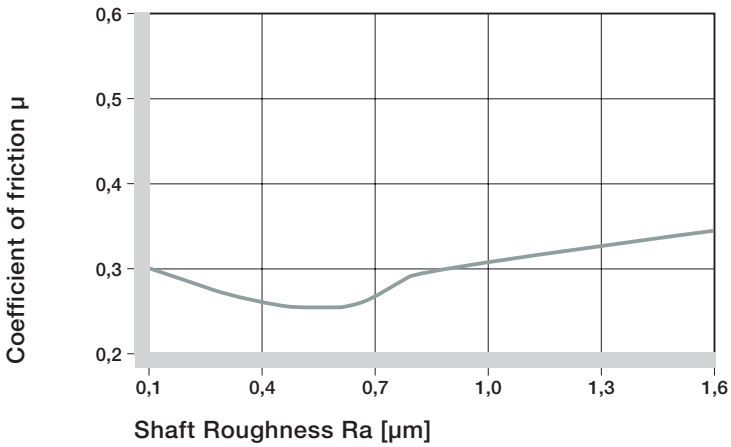
Table 23.4: Coefficient of friction of iglidur® B against steel (Ra = 1 µm, 50 HRC)



Graph 23.4: Coefficients of friction of iglidur® B as a function of the surface speed, p = 0.75 MPa



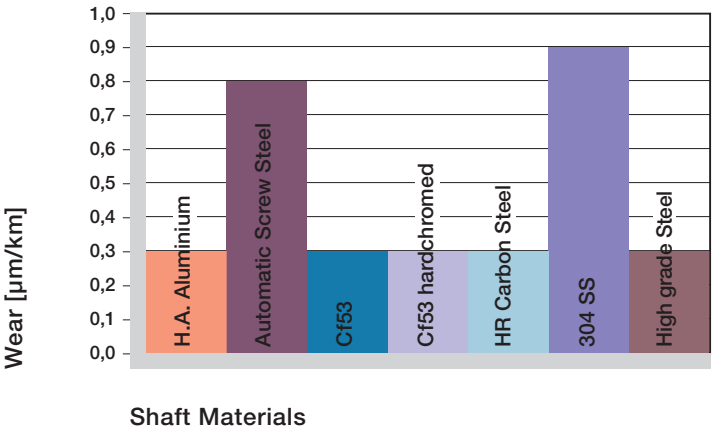
Graph 23.5: Coefficients of friction of iglidur® B as a function of the pressure, v = 0.01 m/s



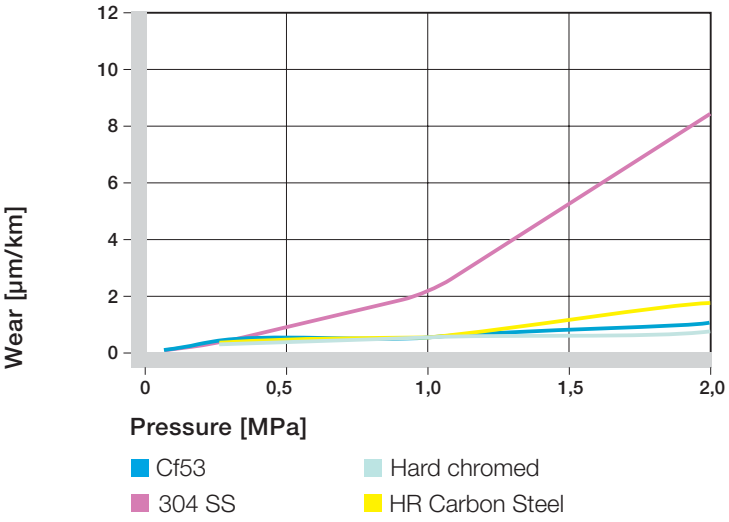
Graph 23.6: Coefficients of friction of iglidur® B as a function of the shaft surface (Cf53 hardened and ground steel)

Phone +49 - 22 03 - 96 49-145
Fax +49 - 22 03 - 96 49-334

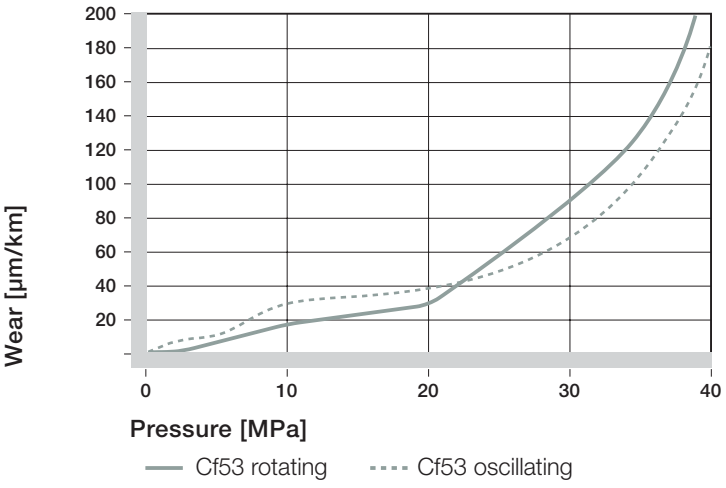
iglidur® B | **Technical data**



Graph 23.7: Wear of iglidur® B, rotating applications with different shaft materials, p = 0.75 MPa, v = 0.5 m/s



Graph 23.8: Wear of iglidur® B with different shaft materials in rotational applications



Graph 23.9: Wear for rotating and oscilllating applications as a function of the pressure (Cf53 hardened and ground steel shaft)

Chemical Resistance

iglidur® B plain bearings are not very resistant to chemicals. Where chemical resistance is required, other iglidur® materials featuring better characteristics should be used.

Graph 23.10
▶ Chemical Table, page 70.1

Radiation Resistance

Plain bearings of iglidur® B are radiation resistant to a radiation intensity of 3 x 10^2 Gy.

UV Resistance

iglidur® B plain bearings are not resistant to the impact of UV radiation.

Vacuum

Use of iglidur® B plain bearings is limited in a vacumn. Only dehumidified bearings should be tested.

Electrical Properties

Plain bearings of iglidur® B are electrically insulating.

Availability

iglidur® B plain bearings are manufactured to special order.

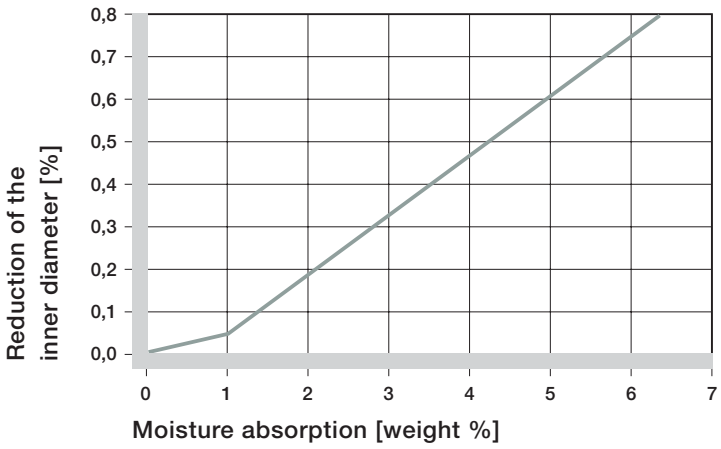
Diameter d1 [mm]	Shaft h9 [mm]	iglidur® B D11 [mm]
up to 3	0 - 0,025	+0,020 + 0,080
> 3 to 6	0 - 0,030	+0,030 + 0,105
> 6 to 10	0 - 0,036	+0,040 + 0,130
> 10 to 18	0 - 0,043	+0,050 + 0,160
> 18 to 30	0 - 0,052	+0,065 + 0,195
> 30 to 50	0 - 0,062	+0,080 + 0,240

Table 23.5: Essential tolerances for iglidur® B plain bearings according to ISO 3547-1 after pressfit

Medium	Resistance
Alcohol	+ to 0
Hydrocarbons	–
Greases, oils without additives	–
Fuels	–
Diluted acids	0 to –
Strong acids	–
Diluted alkalines	–
Strong alkalines	–

Table 23.6: Chemical resistance of iglidur® B – detailed list, page 70.1

+ resistant 0 conditionally resistant – not resistant
All data given at room temperature [20°C]



Graph 23.10: Effect of moisture absorption on iglidur® B plain bearings

iglidur® B	
Specific volume resistance	> 10^{10} Ωcm
Surface resistance	> 10^{9} Ω

Table 23.7: Electrical properties of iglidur® B

Phone +49 - 22 03 - 96 49-145
Fax +49 - 22 03 - 96 49-334