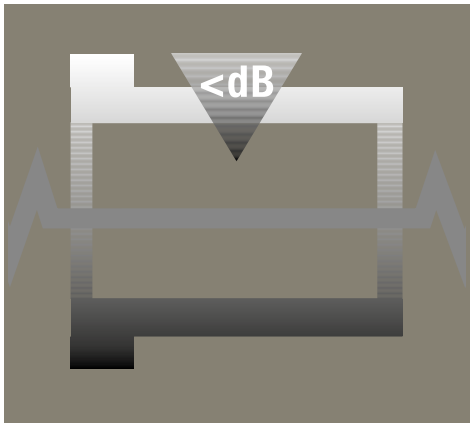

The variable one

For simple bearing applications

iglidur® B

When to use it?

- When maximum vibration dampening is required
- When sealing function has to be integrated
- When high edge loads occur

When not to use?

- In applications with high atmospheric humidity
  iglidur® J
- When a cost-effective universal plain bearing is required
  iglidur® R
- When the highest wear resistance is required
  iglidur® J

Bearing technology | Plain bearing | iglidur® B

Ø
–

Also available as:

Bar stock, round bar
Page 657

Bar stock, plate
Page 683

tribo-tape liner
Page 691

Piston rings
Page 581

Two hole flange bearings
Page 603

Moulded special parts
Page 624

igubal® spherical balls
Page 841

The variable one
For simple bearing applications

Vibration dampening is the predominant feature of the iglidur® B material, which are also well-suited for edge loads at low pressure.

- Elimination of noise
- High flexibility
- Sealing function possible
- Lubrication-free
- Maintenance-free

Descriptive technical specifications			
Wear resistance at +23°C	–		+
Wear resistance at +90°C	–		+
Wear resistance at +150°C	–		+
Low coefficient of friction	–		+
Low moisture absorption	–		+
Wear resistance under water	–		+
High media resistance	–		+
Resistant to edge pressures	–		+
Suitable for shock and impact loads	–		+
Resistant to dirt	–		+

Online product finder
www.igus.eu/iglidur-finder

Online service life calculation
www.igus.eu/iglidur-expert

iglidur® B
+100°C
40MPa

Technical data

General properties			Testing method
Density	g/cm³	1.15	
Colour		grey	
Max. moisture absorption at +23°C and 50% r.h.	% weight	1	DIN 53495
Max. moisture absorption	% weight	6.3	
Coefficient of friction, dynamic, against steel	µ	0.18 – 0.28	
pv value, max. (dry)	MPa · m/s	0.15	
Mechanical properties			
Flexural modulus	MPa	1,800	DIN 53457
Flexural strength at +20°C	MPa	55	DIN 53452
Compressive strength	MPa	20	
Max. recommended surface pressure (+20°C)	MPa	40	
Shore D hardness		69	DIN 53505
Physical and thermal properties			
Max. application temperature long-term	°C	+100	
Max. application temperature short-term	°C	+130	
Min. application temperature	°C	–40	
Thermal conductivity	W/m · K	0.24	ASTM C 177
Coefficient of thermal expansion (at +23°C)	$K^{-1} \cdot 10^{-5}$	12	DIN 53752
Electrical properties			
Specific contact resistance	Ωcm	$> 10^{10}$	DIN IEC 93
Surface resistance	Ω	$> 10^{9}$	DIN 53482

–40°C up to +100°C

40MPa

HB

RoHS-II

ISO 3547-1

Table 01: Material properties

The compressive strength of the iglidur® B plain bearings is on the one hand low, but on the other, is an important property of the bearing. They are mainly used where vibration dampening and acoustic separation are required.

Moisture absorption

Under standard climatic conditions, the moisture absorption of iglidur® B plain bearings is approximately 1% weight. The saturation limit in water is 6.3% weight. This must be taken into account for these types of applications.

Vacuum

In vacuum, any present moisture is released as vapour. Use in vacuum is only possible with dehumidified iglidur® B bearings.

Radiation resistance

Plain bearings made from iglidur® B are resistant up to a radiation intensity of $3 \cdot 10^2$Gy.

Resistance to weathering

iglidur® B plain bearings have limited resistance to weathering. The material properties are affected. Discoloration occurs. Practical tests under real application conditions are recommended.

Mechanical properties

With increasing temperatures, the compressive strength of iglidur® B plain bearings decreases. Diagram 02 shows this inverse relationship. The maximum recommended surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.

Diagram 03 shows the elastic deformation of iglidur® B at radial loads. At the maximum recommended surface pressure of 40MPa the deformation is about 5.3% at room temperature.

Surface pressure, page 41

Bearing technology | Plain bearing | iglidur® B

Permissible surface speeds

iglidur® B plain bearings can be continuously used up to 0.7m/s in rotating applications. The frictional heat provides the speed limits. In practice, though, this level is rarely reached due to varying application conditions.

Surface speed, page 44

Temperature

The maximum long-term application temperature is +100°C. For temperatures over +50°C an additional securing is required. The wear resistance also decreases exponentially from +70°C upwards.

Application temperatures, page 49
Additional securing, page 49

Friction and wear

The coefficient of friction increases slightly with the speed and decreases with the load. Surface finishes (Ra) of the shaft between 0.4 – 0.6µm are ideal. As far as the bearing load is not too high, the attained coefficient of wear is pretty good. An increase in load results in a disproportionate increase in abrasion.

Coefficient of friction and surfaces, page 47
Wear resistance, page 50

Shaft materials

The influence of the shaft is not very large on the wear resistance. Diagrams 06 and 07 clarify that very similar wear data are attained with different shaft materials.

Shaft materials, page 52

Installation tolerances

iglidur® B plain bearings are standard bearings for shafts with h tolerance (recommended minimum h9). The bearings are designed for press-fit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, in standard cases the inner diameter automatically adjusts to the D11 tolerances. For particular dimensions the tolerance differs depending on the wall thickness (please see product range table).

Testing methods, page 57

Chemicals	Resistance
Alcohols	+ up to 0
Diluted acids	0 up to –
Diluted alkalines	–
Fuels	–
Greases, oils without additives	–
Hydrocarbons	–
Strong acids	–
Strong alkalines	–

All information given at room temperature [+20°C]

Table 02: Chemical resistance

Chemical table, page 1636

		Rotating	Oscillating	linear
long-term	m/s	0.7	0.5	2.0
short-term	m/s	1.0	0.7	3.0

Table 03: Maximum surface speeds

	Dry	Greases	Oil	Water
Coefficient of friction µ	0.18 – 0.28	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1µm, 50HRC)

	Housing		Plain bearing		Shaft	
Ø d1 [mm]	H7 [mm]		D11 [mm]		h9 [mm]	
0 – 3	+0.000	+0.010	+0.020	+0.080	–0.025	+0.000
> 3 – 6	+0.000	+0.012	+0.030	+0.105	–0.030	+0.000
> 6 – 10	+0.000	+0.015	+0.040	+0.130	–0.036	+0.000
> 10 – 18	+0.000	+0.018	+0.050	+0.160	–0.043	+0.000
> 18 – 30	+0.000	+0.021	+0.065	+0.195	–0.052	+0.000
> 30 – 50	+0.000	+0.025	+0.080	+0.240	–0.062	+0.000
> 50 – 80	+0.000	+0.030	+0.100	+0.290	–0.074	+0.000
> 80 – 120	+0.000	+0.035	+0.120	+0.340	–0.087	+0.000
> 120 – 180	+0.000	+0.040	+0.145	+0.395	–0.100	+0.000

Table 05: Important tolerances for plain bearings according to ISO 3547-1 after press-fit

iglidur® B plain bearings are manufactured to special order.

Technical data

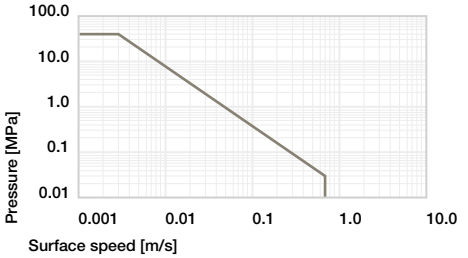

Diagram 01: Permissible pv values for iglidur® B plain bearings with a wall thickness of 1mm, dry operation against a steel shaft, at +20°C, mounted in a steel housing

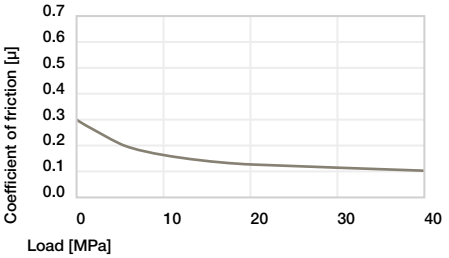

Diagram 05: Coefficient of friction as a function of the load, v = 0.01m/s

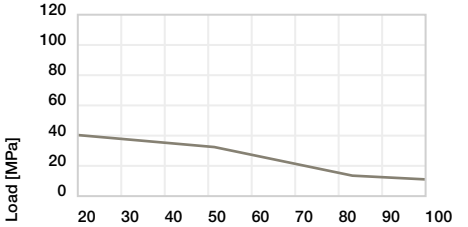

Diagram 02: Maximum recommended surface pressure as a function of temperature (40MPa at +20°C)

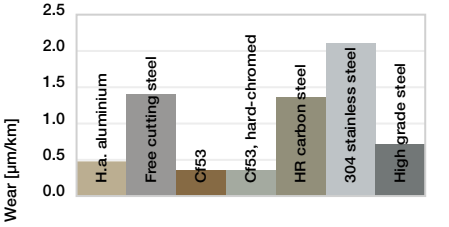

Diagram 06: Wear, rotating with different shaft materials, pressure, p = 1MPa, v = 0.3m/s

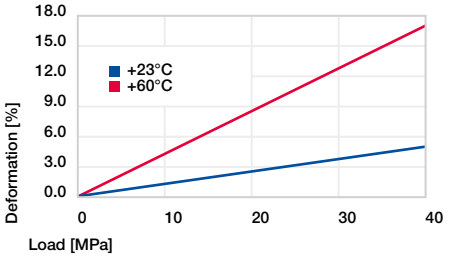

Diagram 03: Deformation under pressure and temperature

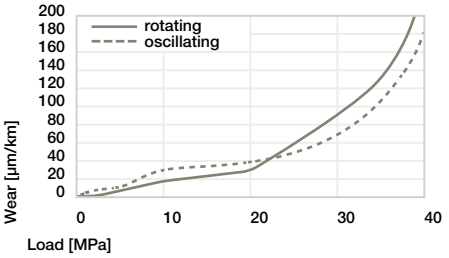

Diagram 07: Wear for oscillating and rotating applications with shaft material Cf53 hardened and ground steel, as a function of the load

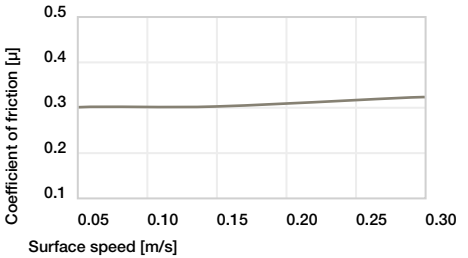

Diagram 04: Coefficient of friction as a function of the surface speed, p = 0.75MPa