

# Bearing technology | Plain bearing | iglidur® J3B



Ø  
6.0 – 20.0mm



Also available as:



Bar stock, round bar  
Page 657

## Proven long-life material in black Wear-resistant endurance runner up to 10MPa

The proven long-life material iglidur® J3 is now available in black as well. The endurance runner is a specialist for pivoting and pulsating loads and also media-resistant.

- Aesthetically suitable
- Low coefficient of friction
- Is especially long-lasting in the most varied of applications
- Low moisture absorption



Bar stock, plate  
Page 683

### Typical application areas

- Furniture industry
- Sports and leisure
- Two-wheel technology



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

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.sk/iglidur-finder](http://www.igus.sk/iglidur-finder)

Online service life calculation  
[www.igus.sk/iglidur-expert](http://www.igus.sk/iglidur-expert)

## Technical data

General properties		Testing method	
Density	g/cm <sup>3</sup>	1.42	
Colour		black	
Max. moisture absorption at +23°C and 50% r.h.	% weight	0.3	DIN 53495
Max. moisture absorption	% weight	1.3	
Coefficient of friction, dynamic, against steel	μ	0.08 – 0.17	
pv value, max. (dry)	MPa · m/s	0.50	
Mechanical properties			
Flexural modulus	MPa	2,895	DIN 53457
Flexural strength at +20°C	MPa	65	DIN 53452
Compressive strength	MPa	k. A.	
Max. recommended surface pressure (+20°C)	MPa	44	
Shore D hardness		76	DIN 53505
Physical and thermal properties			
Max. application temperature long-term	°C	+90	
Max. application temperature short-term	°C	+110	
Min. application temperature	°C	-50	
Thermal conductivity	W/m · K	0.30	ASTM C 177
Coefficient of thermal expansion (at +23°C)	K <sup>-1</sup> · 10 <sup>-5</sup>	12.7	DIN 53752
Electrical properties			
Specific contact resistance	Ωcm	> 10 <sup>12</sup>	DIN IEC 93
Surface resistance	Ω	> 10 <sup>12</sup>	DIN 53482

Table 01: Material properties

With respect to its general mechanical and thermal specifications, iglidur® J3B is directly comparable to our classic, iglidur® J.

### Moisture absorption

Under standard climatic conditions, the moisture absorption of iglidur® J3B plain bearings is approximately 0.3% weight. The saturation limit in water is 1.3% weight. These values are so low that a moisture expansion need to be considered only in extreme cases.

### Vacuum

In vacuum, any present moisture is released as vapour. Use in vacuum is only possible with dehumidified iglidur® J3B bearings.

### Radiation resistance

Resistant to radiation up to an intensity of 3 · 10<sup>2</sup>Gy.

### Resistance to weathering

iglidur® J3B plain bearings have not yet been tested for their resistance to weathering. Please consult igus® if you're planning to use them outdoors.

### Mechanical properties

With increasing temperatures, the compressive strength of iglidur® J3B 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® J3B at radial loads. At the maximum recommended surface pressure of 44MPa at room temperature the deformation is less than 6%. A possible deformation could be, among others, dependant on the duty cycle of the load.

**Surface pressure, page 41**



-50°C up to +90°C



44MPa



## Permissible surface speeds

iglidur® J3B is also suitable for medium to high surface speeds. The maximum values shown in table 03 can only be achieved at low pressures. At the given speeds, friction can cause a temperature increase to maximum permissible levels. In practice, though, this level is rarely reached due to varying application conditions.

**Surface speed, page 44**

## Temperature

The temperatures prevailing in the bearing system also have an influence on the wear. For temperatures over +60°C an additional securing is required.

**Application temperatures, page 49**

**Additional securing, page 49**

## Friction and wear

Similar to wear resistance, the coefficient of friction  $\mu$  also changes with the surface speed and load (diagrams 04 and 05).

**Coefficient of friction and surfaces, page 47**

**Wear resistance, page 50**

## Shaft materials

The friction and wear are also dependent, to a large degree, on the shaft material. Shafts that are too smooth, increase both the coefficient of friction and the wear of the bearing. For iglidur® J3B a ground surface with an average surface finish  $R_a = 0.1 - 0.3 \mu\text{m}$  is recommended. Diagram 06 shows results of testing different shafts. Diagram 07 shows rotating and pivoting applications in comparison. With higher load, the wear increases more for rotating than for pivoting movements.

**Shaft materials, page 52**

## Installation tolerances

iglidur® J3B 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 E10 tolerances. For particular dimensions the tolerance differs depending on the wall thickness (please see product range table). In relation to the installation tolerance, the inner diameter changes with the absorption of humidity.

**Testing methods, page 57**

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

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

Table 02: Chemical resistance

**Chemical table, page 1636**

	Rotating	Oscillating	linear
long-term	m/s 1.5	1.1	8.0
short-term	m/s 3.0	2.1	10.0

Table 03: Maximum surface speeds

	Dry	Greases	Oil	Water
Coefficient of friction $\mu$	0.08 - 0.17	0.09	0.04	0.04

Table 04: Coefficient of friction against steel ( $R_a = 1 \mu\text{m}$ , 50HRC)

$\varnothing d1$ [mm]	Housing		Plain bearing		Shaft	
	H7 [mm]	E10 [mm]	E10 [mm]	h9 [mm]	h9 [mm]	h9 [mm]
0 - 3	+0.000	+0.010	+0.014	+0.054	-0.025	+0.000
> 3 - 6	+0.000	+0.012	+0.020	+0.068	-0.030	+0.000
> 6 - 10	+0.000	+0.015	+0.025	+0.083	-0.036	+0.000
> 10 - 18	+0.000	+0.018	+0.032	+0.102	-0.043	+0.000
> 18 - 30	+0.000	+0.021	+0.040	+0.124	-0.052	+0.000
> 30 - 50	+0.000	+0.025	+0.050	+0.150	-0.062	+0.000
> 50 - 80	+0.000	+0.030	+0.060	+0.180	-0.074	+0.000
> 80 - 120	+0.000	+0.035	+0.072	+0.212	-0.087	+0.000
> 120 - 180	+0.000	+0.040	+0.085	+0.245	-0.100	+0.000

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

## Technical data

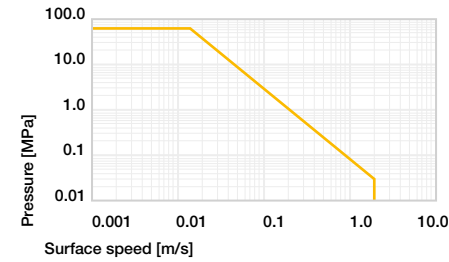


Diagram 01: Permissible pv values for iglidur® J3B plain bearings with a wall thickness of 1mm, dry operation against a steel shaft, at +20°C, mounted in a steel housing

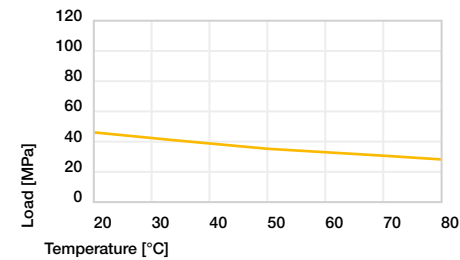


Diagram 02: Maximum recommended surface pressure as a function of temperature (44MPa at +20°C)

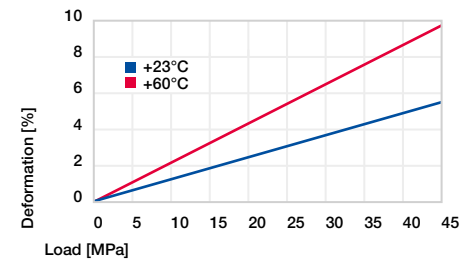


Diagram 03: Deformation under pressure and temperature

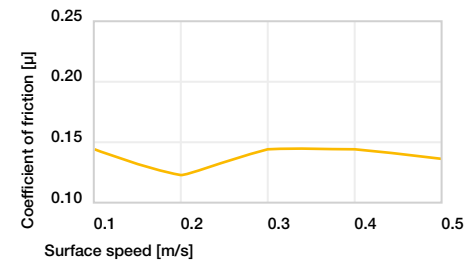


Diagram 04: Coefficient of friction as a function of the surface speed,  $p = 0.75 \text{MPa}$

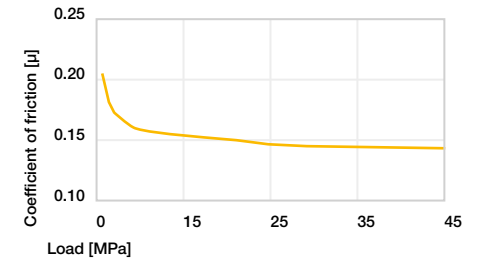


Diagram 05: Coefficient of friction as a function of the pressure,  $v = 0.01 \text{m/s}$

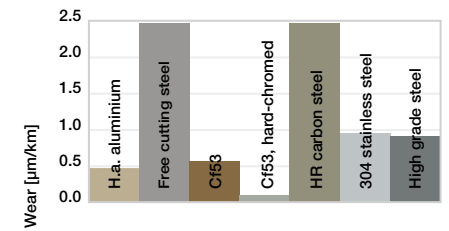


Diagram 06: Wear, rotating with different shaft materials, pressure,  $p = 1 \text{MPa}$ ,  $v = 0.3 \text{m/s}$

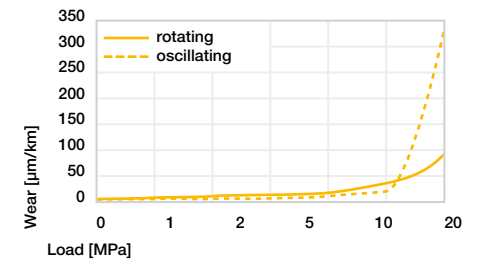
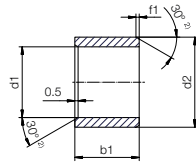


Diagram 07: Wear for oscillating and rotating applications with shaft material Cf53 hardened and ground, as a function of the load

## Bearing technology | Plain bearing | iglidur® J3B

### Sleeve bearing (form S)



<sup>2)</sup> Thickness < 0.6mm: Chamfer = 20°

**i** Dimensions according to ISO 3547-1 and special dimensions

#### Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30
f1 [mm]	0.3	0.5	0.8

**i** Order example: **J3BSM-0608-06** – no minimum order quantity.

**J3B** iglidur® material **S** Sleeve bearing **M** Metric **06** Inner Ø d1 **08** Outer Ø d2 **06** Total length b1

d1	d1	d2	b1	Part No.
[mm]	Tolerance <sup>3)</sup>	[mm]	h13 [mm]	
6.0	+0.020 +0.068	8.0	6.0	<b>J3BSM-0608-06</b>
8.0	+0.025 +0.083	10.0	10.0	<b>J3BSM-0810-10</b>
10.0	+0.032 +0.102	12.0	10.0	<b>J3BSM-1012-10</b>
12.0	+0.032 +0.102	14.0	12.0	<b>J3BSM-1214-12</b>
16.0	+0.040 +0.124	18.0	15.0	<b>J3BSM-1618-15</b>
20.0	+0.040 +0.124	23.0	20.0	<b>J3BSM-2023-20</b>

<sup>3)</sup> After press-fit. *Testing methods, page 57*

**i** Available from stock

Detailed information about delivery time online.

[www.igus.sk/24](http://www.igus.sk/24)

**i** Online ordering

Including delivery times, prices, online tools

[www.igus.sk/J3B](http://www.igus.sk/J3B)

**i** Ordering note

Our prices are scaled according to order quantities, current prices can be found online.

Discount scaling		
1 – 9	50 – 99	500 – 999
10 – 24	100 – 199	1,000 – 2,499
25 – 49	200 – 499	2,500 – 4,999

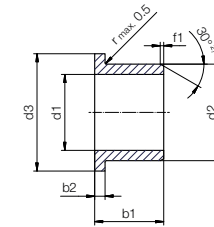
No minimum order value.

No low-quantity surcharges.

Free shipping within Germany for orders above €150.

## Bearing technology | Plain bearing | iglidur® J3B

### Flange bearing (form F)



<sup>2)</sup> Thickness < 0.6mm: Chamfer = 20°

**i** Dimensions according to ISO 3547-1 and special dimensions

#### Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30
f1 [mm]	0.3	0.5	0.8

**i** Order example: **J3BFM-0608-06** – no minimum order quantity.

**J3B** iglidur® material **F** Flange bearing **M** Metric **06** Inner Ø d1 **08** Outer Ø d2 **06** Total length b1

d1	d1	d2	d3	b1	b2	Part No.
[mm]	Tolerance <sup>3)</sup>	[mm]	d13 <sup>3)</sup> [mm]	h13 [mm]	h13 [mm]	
6.0	+0.020 +0.068	8.0	12.0	8.0	1.00	<b>J3BFM-0608-06</b>
8.0	+0.025 +0.083	10.0	15.0	9.5	1.00	<b>J3BFM-0810-10</b>
10.0	+0.032 +0.102	12.0	18.0	9.0	1.00	<b>J3BFM-1012-10</b>
12.0	+0.032 +0.102	14.0	20.0	12.0	1.00	<b>J3BFM-1214-12</b>
16.0	+0.040 +0.124	18.0	24.0	17.0	1.00	<b>J3BFM-1618-17</b>
20.0	+0.040 +0.124	23.0	30.0	21.5	1.50	<b>J3BFM-2023-21</b>

<sup>3)</sup> After press-fit. *Testing methods, page 57*

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