

## Versatile and cost-effective

For applications with infrequent movement or continuous lubrication

### igidur® J2



#### When to use it?

- When low moisture absorption and good media resistance is required for static load
- When a cost-effective plain bearing is required for use in a wet environment with low pv values
- When there is basic lubrication of the plain bearing



#### When not to use?

- When a wear-resistant plain bearing is required for continuous dry operation

*igidur® J3*

- When low moisture absorption and media resistance play a minor role

*igidur® M250*

- When a resistance to high temperatures and chemicals is required

*igidur® X*

# Bearing technology | Plain bearing | iglidur® J2



Ø  
6.0 – 25.0mm



Also available  
as:



Bar stock,  
round bar  
Page 684

## Versatile and cost-effective For applications with infrequent movement or continuous lubrication

iglidur® J2 has good universal media resistance, comparable to that of iglidur® J and similar materials. The mechanical specifications in sporadically moved applications are better although, in comparison, clear compromises have to be made with regard to friction and wear. Like all iglidur® materials, iglidur® J2 is PFOA-free.

- Robust
- Cost-effective
- High media resistance
- Lubrication-free
- Maintenance-free



Bar stock,  
plate  
Page 683



tribo-tape liner  
Page 691

### Typical application areas

- Jig construction
- Industrial handling



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	-	<div style="width: 25%; background-color: #ccc;"></div>		+
Wear resistance at +90°C	-	<div style="width: 15%; background-color: #ccc;"></div>		+
Wear resistance at +150°C	-	<div style="width: 10%; background-color: #ccc;"></div>		+
Low coefficient of friction	-	<div style="width: 75%; background-color: #ccc;"></div>		+
Low moisture absorption	-	<div style="width: 85%; background-color: #ccc;"></div>		+
Wear resistance under water	-	<div style="width: 70%; background-color: #ccc;"></div>		+
High media resistance	-	<div style="width: 80%; background-color: #ccc;"></div>		+
Resistant to edge pressures	-	<div style="width: 60%; background-color: #ccc;"></div>		+
Suitable for shock and impact loads	-	<div style="width: 50%; background-color: #ccc;"></div>		+
Resistant to dirt	-	<div style="width: 30%; background-color: #ccc;"></div>		+

Online product finder  
[www.igus.eu/igidur-finder](http://www.igus.eu/igidur-finder)

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

## Technical data

General properties		Testing method	
Density	g/cm <sup>3</sup>	1.44	
Colour		light yellow	
Max. moisture absorption at +23°C and 50% r.h.	% weight	0.2	DIN 53495
Max. moisture absorption	% weight	1.3	
Coefficient of friction, dynamic, against steel	μ	0.11 – 0.27	
pv value, max. (dry)	MPa · m/s	0.23	
Mechanical properties			
Flexural modulus	MPa	3,605	DIN 53457
Flexural strength at +20°C	MPa	101	DIN 53452
Compressive strength	MPa	77	
Max. recommended surface pressure (+20°C)	MPa	46	
Shore D hardness		74	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	0.25	ASTM C 177
Coefficient of thermal expansion (at +23°C)	K <sup>-1</sup> · 10 <sup>-5</sup>	7	DIN 53752
Electrical properties			
Specific contact resistance	Ωcm	> 10 <sup>13</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® J2 is directly comparable to our classic, iglidur® J. Therefore the iglidur® J2 is superior to iglidur® J with respect to the mechanical properties, such as maximum recommended surface pressure. However, wear resistance is reduced in dry operation.

### Moisture absorption

Under standard climatic conditions, the moisture absorption of iglidur® J2 plain bearings is approximately 0.2% 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® J2 bearings.

### Radiation resistance

Plain bearings made from iglidur® J2 are resistant up to a radiation intensity of 3 · 10<sup>2</sup>Gy.

### Resistance to weathering

iglidur® J2 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® J2 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® J2 at radial loads. 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



46MPa



HB



## Permissible surface speeds

iglidur® J2 is mainly suitable for low surface speeds in dry operation, but the specified values shown in table O3 can only be achieved at very 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. With increasing temperatures, the wear increases and this effect is significant when temperatures rise over +90°C. For temperatures over +60°C an additional securing is required.

**Application temperatures, page 49**

**Additional securing, page 49**

## Friction and wear

Coefficient of friction and wear resistance are dependent on the application parameters (diagrams O4 and O5).

**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. Diagram O6 shows results of testing different shafts. Diagram O6 shows that iglidur® J2 delivers good coefficient of wear especially with free cutting steel in rotation at 1MPa. In dry operation, the coefficient of wear is sometimes significantly higher on other shafts. Unlike many other iglidur® materials, the wear rate in pivoting is slightly higher compared to the rate in rotation with otherwise identical parameters (diagram O7).

**Shaft materials, page 52**

## Installation tolerances

iglidur® J2 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. 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 O2: Chemical resistance

**Chemical table, page 1636**

	Rotating	Oscillating	linear
long-term m/s	0.8	0.7	3.0
short-term m/s	1.9	1.1	5.0

Table O3: Maximum surface speeds

	Dry	Greases	Oil	Water
Coefficient of friction $\mu$	0.11 – 0.27	0.08	0.07	0.04

Table O4: Coefficient of friction against steel (Ra = 1  $\mu$ 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 O5: Important tolerances for plain bearings according to ISO 3547-1 after press-fit

## Technical data

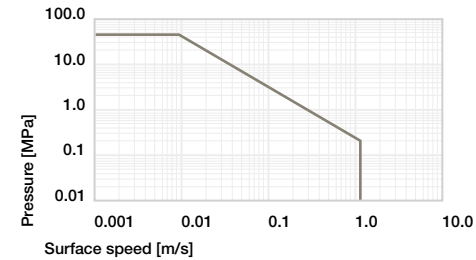


Diagram O1: Permissible pv values for iglidur® J2 plain bearings with a wall thickness of 1mm, dry operation against a steel shaft, at +20°C, mounted in a steel housing

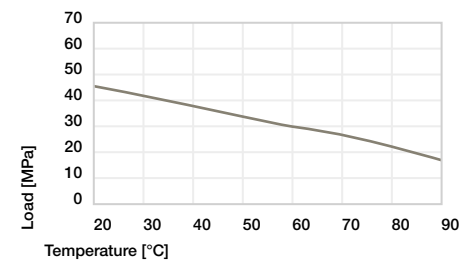


Diagram O2: Maximum recommended surface pressure as a function of temperature (46MPa at +20°C)

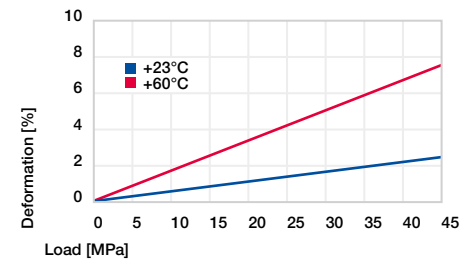


Diagram O3: Deformation under pressure and temperature

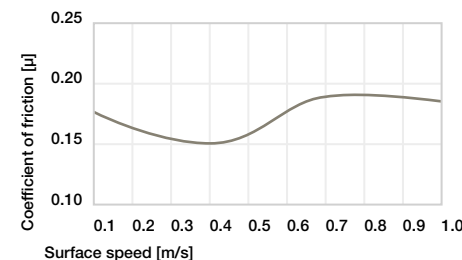


Diagram O4: Coefficient of friction as a function of the surface speed, p = 1MPa

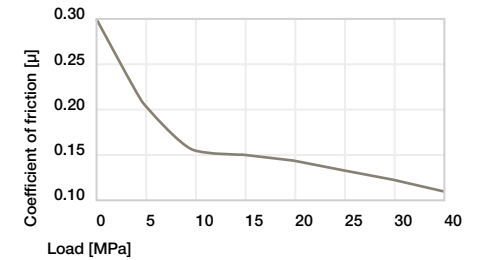


Diagram O5: Coefficient of friction as a function of the load, v = 0.01m/s

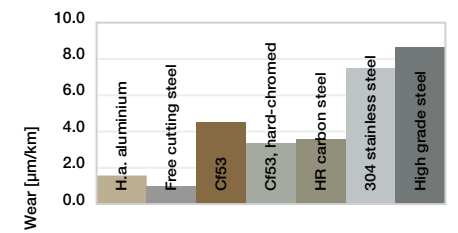


Diagram O6: Wear, rotating with different shaft materials, pressure, p = 1MPa, v = 0.3m/s

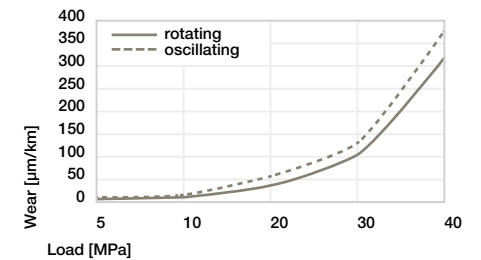
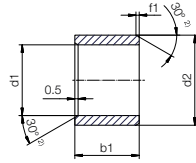


Diagram O7: Wear for oscillating and rotating applications with shaft material Cf53 hardened and ground steel, as a function of the load

## Bearing technology | Plain bearing | iglidur® J2

### 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 6–12	Ø 12–30
f1 [mm]	0.5	0.8



**Order example:** J2SM-0608-06 – no minimum order quantity.

J2 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	J2SM-0608-06
8.0	+0.025 +0.083	10.0	10.0	J2SM-0810-10
10.0		12.0	10.0	J2SM-1012-10
12.0	+0.032 +0.102	14.0	12.0	J2SM-1214-12
16.0		18.0	15.0	J2SM-1618-15
20.0	+0.040 +0.124	23.0	20.0	J2SM-2023-20
25.0		28.0	20.0	J2SM-2528-20

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



#### Available from stock

Detailed information about delivery time online.

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



#### Online ordering

Including delivery times, prices, online tools

[www.igus.eu/J2](http://www.igus.eu/J2)



#### 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

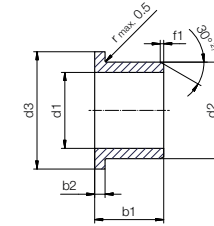
No minimum order value.

No low-quantity surcharges.

Free shipping within Germany for orders above €150.

## Bearing technology | Plain bearing | iglidur® J2

### 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 6–12	Ø 12–30
f1 [mm]	0.5	0.8



**Order example:** J2FM-0608-06 – no minimum order quantity.

J2 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	6.0	1.00	J2FM-0608-06
8.0	+0.025 +0.083	10.0	15.0	10.0	1.00	J2FM-0810-10
10.0		12.0	18.0	10.0	1.00	J2FM-1012-10
12.0	+0.032 +0.102	14.0	20.0	12.0	1.00	J2FM-1214-12
16.0		18.0	24.0	17.0	1.00	J2FM-1618-17
20.0	+0.040 +0.124	23.0	30.0	21.5	1.50	J2FM-2023-21

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



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