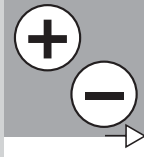


iglidur® J200

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# iglidur® J200 – For Anodized Aluminium



**Very long service life with hard anodized aluminium**

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**Low coefficients of friction**

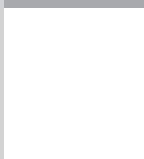
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**Low wear**

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**Maintenance-free**

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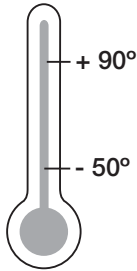


The specialist for low friction-values and minimal wear with hard anodized aluminium shaft

iglidur® J200

Product range  
on request

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igus® GmbH  
51147 Cologne

Price index



## For Anodized Aluminium



**When to use iglidur® J200  
plain bearings:**

- For applications with anodized aluminium shafts
- When lowest coefficients of friction are required
- If long service life is required
- Low wear
- Maintenance-free



**When not to use iglidur® J200  
plain bearings:**

- For steel shafts
  - ▶ iglidur® J (chapter 3), W300 (chapter 5)
- When temperatures are continuously higher than 80°C
  - ▶ iglidur® V400 (chapter 21)
- When a cost-effective universal bearing is required
  - ▶ iglidur® G (chapter 2), J (chapter 3)

Internet [www.igus.de](http://www.igus.de)  
E-mail [info@igus.de](mailto:info@igus.de)

## Material Table

General Properties	Unit	iglidur® J200	Testing Method
Density	g/cm <sup>3</sup>	1,72	
Colour		Dark grey	
Max. moisture absorption at 23°C / 50% r.F.	% weight	0,2	DIN 53495
Max. moisture absorption	% weight	0,7	
Coefficient of friction, dynamic against steel	μ	0,11 - 0,17	
p x v value, max. (dry)	MPa x m/s	0,30	

### Mechanical Properties

Modulus of elasticity	MPa	2800	DIN 53457
Tensile strength 20°C	MPa	58	DIN 53452
Compressive strength	MPa	43	
Max. recommended surface pressure (20°C)	MPa	40	
Shore D hardness		70	DIN 53505

### Physical and Thermal Properties

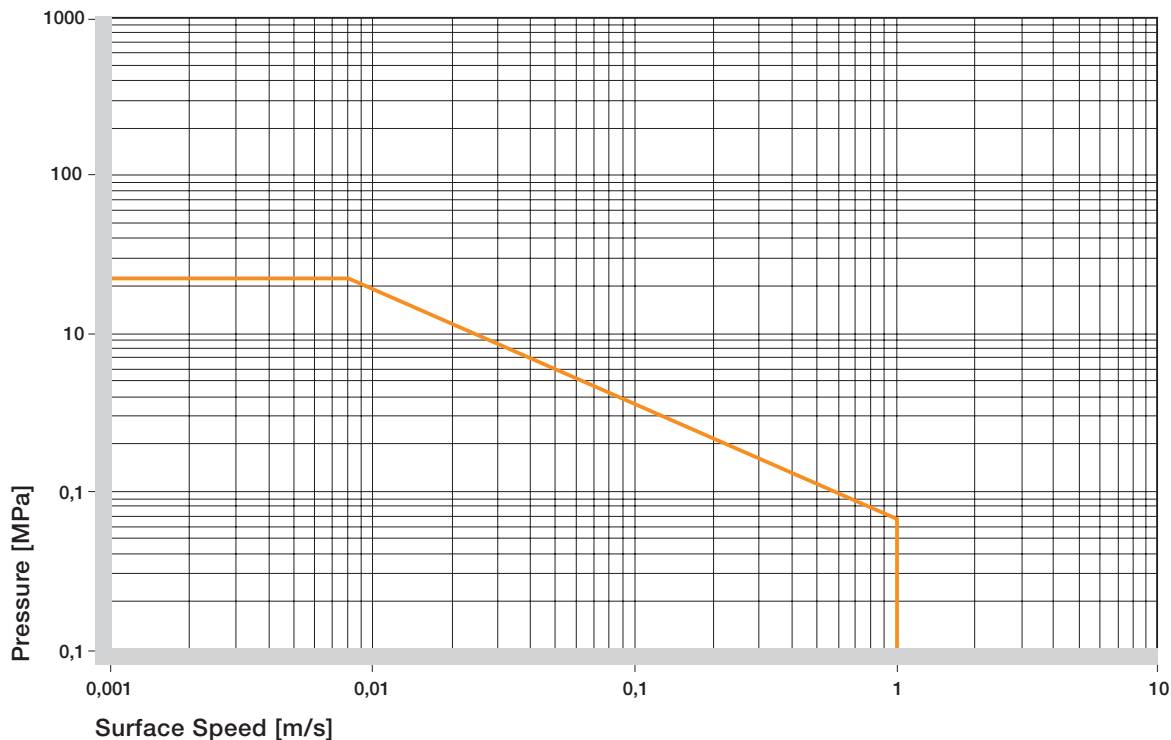
Max. long term application temperature	°C	90	
Max. short term application temperature	°C	120	
Maximum ambient temperature, short term <sup>1)</sup>	°C	140	
Min. application temperature	°C	-50	
Thermal conductivity	W/m x K	0,24	ASTM C 177
Coefficient of thermal expansion (at 23°C)	K <sup>-1</sup> x 10 <sup>-5</sup>	8	DIN 53752

### Electrical Properties

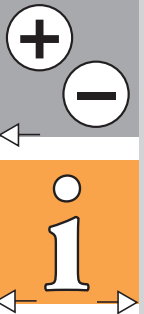
Specific volume resistance	Ωcm	> 10 <sup>8</sup>	DIN IEC 93
Surface resistance	Ω	> 10 <sup>8</sup>	DIN 53482

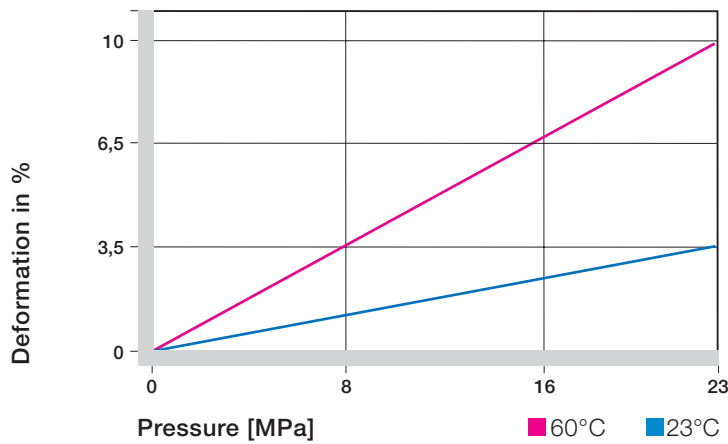
<sup>1)</sup> Without additional load; no sliding movement; relaxation possible

Table 28.1: Material Data



Graph 28.1: Permissible p x v values for iglidur® J200 with a wall thickness of 1 mm dry running against a steel shaft at 20°C, mounted in a steel housing





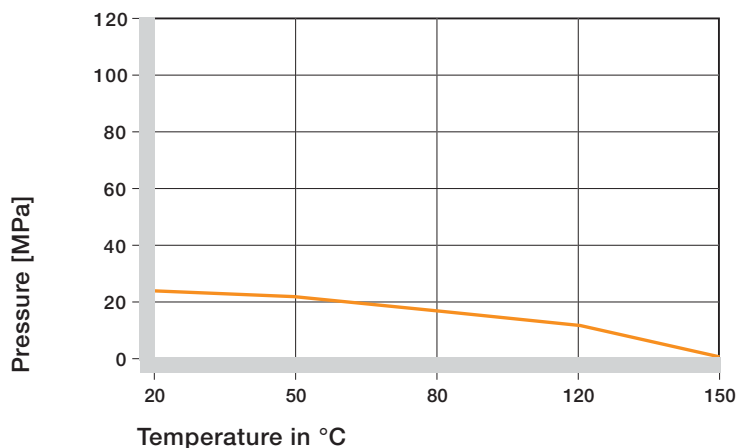
Graph 28.2: Deformation under pressure and temperature

m/s	Rotating	Oscillating	Linear
Continuous	1	0,7	10
Short term	1,5	1,1	15

Table 28.2: Maximum surface speeds

iglidur® J200	Application Temperature
Minimum	- 50 °C
Max. long term	+ 90 °C
Max. short term	+ 120 °C

Table 28.3: Temperature limits for iglidur® J200



Graph 28.3: Recommended maximum surface pressure for iglidur® J200 as a function of temperature

iglidur® J200 is the result of the development of extremely low friction plain bearing materials. When using plain bearings in linear motion, friction can be critical. Many materials can give low coefficients of friction under high loads, but iglidur® J200 can give excellent friction values even at low loads.

iglidur® J200 presents the lowest coefficients of friction of all iglidur® materials. The average coefficient of friction of all measurements, even with different shaft materials, is 0.11. The use of hard anodised aluminium as a shaft material is also of importance.

## Surface Pressure

The comparison to the other iglidur® materials reveals that iglidur® J200 plain bearings are more suitable for lower loads. Graph 28.2 shows the deformation of the material at room temperature to the recommended maximum limit. As with all thermoplastics, the compressive strength decreases with increasing temperature. This is shown in Graph 28.3.

Graph 28.2

Surface Pressure, page 1.18

## Permissible Surface Speeds

Due to the very good coefficients of friction, iglidur® J200 can be used at high surface speeds.

Continuous rotational speeds of 1 m/s are possible. The permissible speeds are even higher in linear movements or in short-term operation. For linear movements, speeds of over 15 m/s have been successfully tested.

Surface Speed, page 1.20

p x v value, page 1.22

## Temperatures

The plain bearings made of iglidur® J200 were not developed for high temperatures. The maximum permissible temperature of 120°C may not be exceeded. Also, the heat produced by friction has to be added to the ambient temperature. Even from 60°C, the bearings should be secured mechanically, preventing the bearing to move out of the housing. Also the wear resistance decreases significantly from 70°C.

- ☑ Graph 28.3
- ▶ Application Temperatures, page 1.23

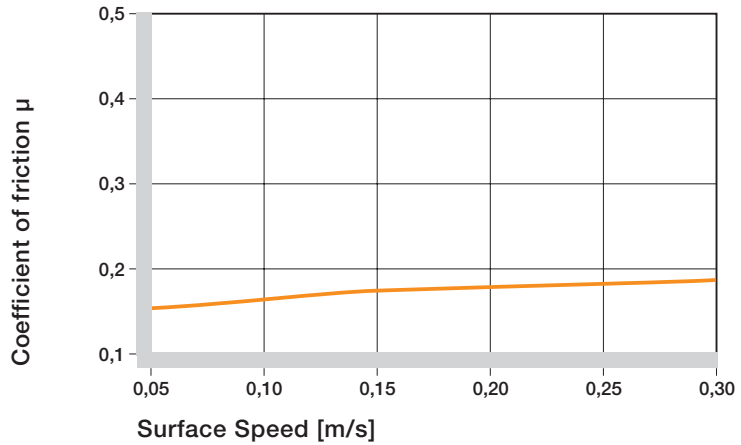
## Friction and Wear

Friction is the principle reason for the use of iglidur® J200 plain bearings. The friction of these bearings is more favourable in combination with many shaft materials than that of any other iglidur® bearings. With regard to wear resistance, however, the effect of the shaft is very great. Even at low loads, it's worthwhile to take a look at the extensive results of the tests carried out. Graphs 28.7 and 28.8 clarify this statement. Up to the maximum pressure of 23 MPa, the wear resistance of the plain bearings is extremely good, and the bearings are best suited to rotating movements.

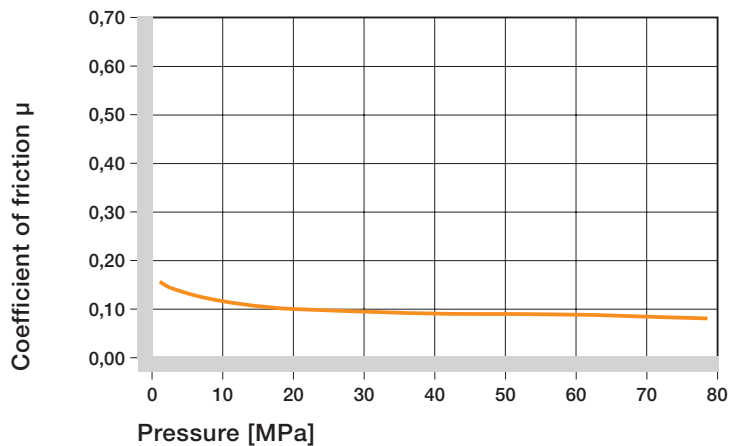
- ☑ Graphs 28.4 to 28.6
- ▶ Coefficients of Friction and Surfaces, page 1.25
- ▶ Wear Resistance, page 1.26

iglidur®J200	Dry	Grease	Oil	Water
C.o.f. [ $\mu$ ]	0,11 - 0,17	0,09	0,04	0,04

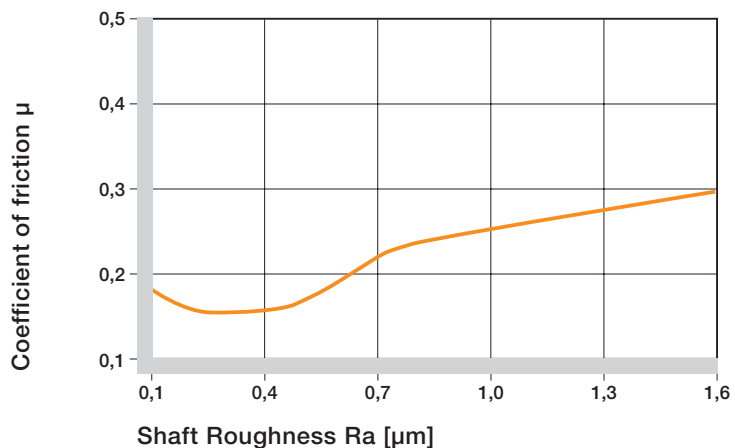
**Table 28.4: Coefficient of friction of iglidur® J200 against steel (Ra = 1  $\mu$ m, 50 HRC)**



**Graph 28.4: Coefficients of friction of iglidur® J200 as a function of the running speed;  $p = 0.75$  MPa**

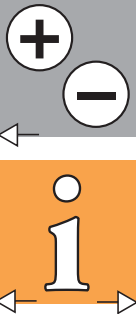


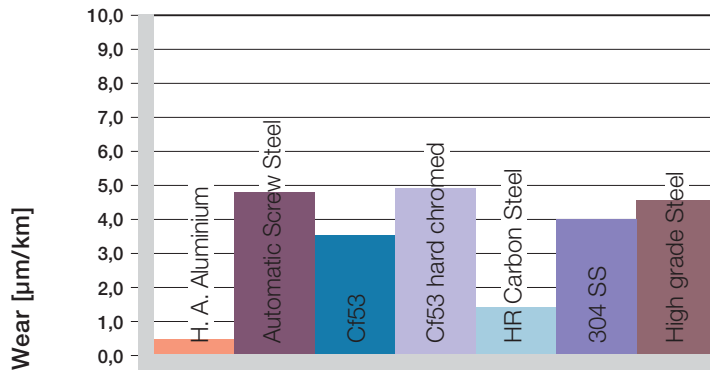
**Graph 28.5: Coefficients of friction of iglidur® J200 as a function of the pressure,  $v = 0.01$  m/s**



**Graph 28.6: Coefficients of friction of iglidur® J200 as a function of the shaft surface (Cf53 hardened and ground steel)**

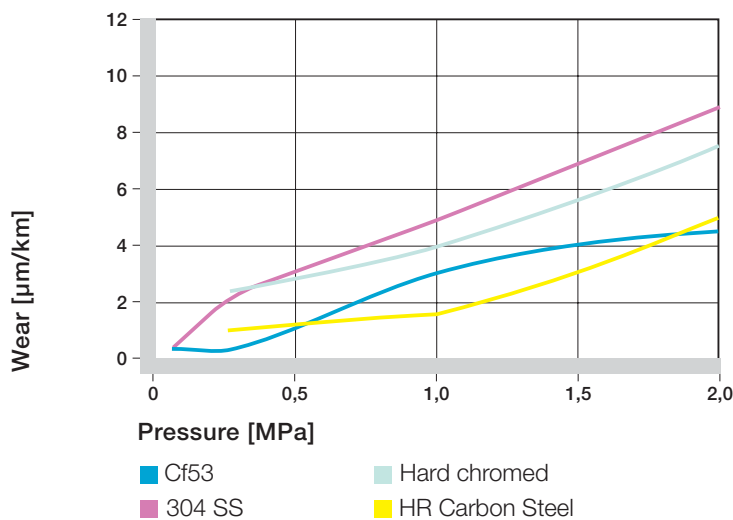
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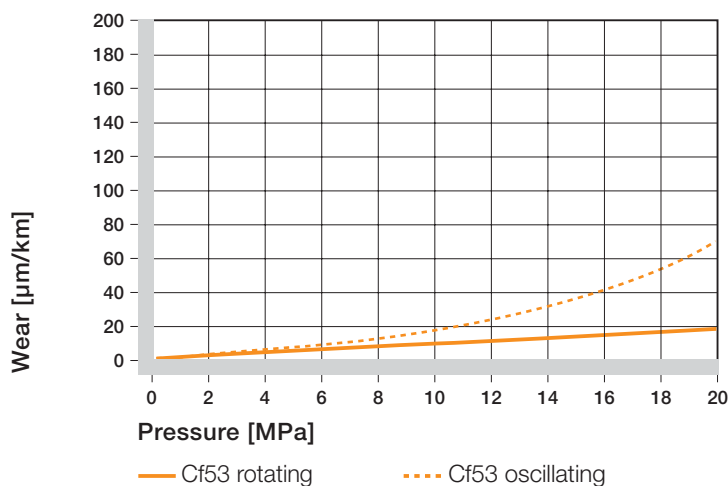


Shaft Material

Graph 28.7: Wear of iglidur® J200, rotating applications with different shaft materials,  $p = 0.75 \text{ MPa}$ ,  $v = 0.5 \text{ m/s}$



Graph 28.8: Wear of iglidur® J200 with different shaft materials in rotational applications



Graph 28.9: Wear for rotating and oscillating applications as a function of the pressure (Cf53 hardened and ground steel shaft)

## Shaft Materials

The shaft material used has a great impact on the wear resistance. In fact, all shaft materials (smooth or hardened) are suitable for use with iglidur® J200. However, the best results are achieved with hard anodized aluminium. In particular when used in linear motion, this running surface has proven its value.

Graphs 28.7 to 28.9

Shaft Materials, page 1.28

## Installation Tolerances

igidur® J200 plain bearings are standard bearings for shafts with 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

## Chemical Resistance

igidur® J200 plain bearings are resistant to diluted alkalines, as well as to solvents and all types of lubricants.

The moisture absorption of iglidur® J200 plain bearings in standard atmosphere is approximately 0.2%. The saturation limit in water is 0.7%. Due to these low values considering expansion by moisture absorption is only required in extreme cases.

Graph 28.10

Chemical Table, page 70.1

# iglidur® J200 | Technical data

## Radiation Resistance

Plain bearings made of iglidur® J200 are radiation resistant up to a radiation intensity of  $3 \times 10^2$  Gy.

## UV Resistance

iglidur® J200 plain bearings are very resistant to the impact of UV radiation.

## Vacuum

Use in a vacuum is only possible to a limited extent.

Also, only dehumidified bearings made from iglidur® J200 should be tested in a vacuum.

## Electrical Properties

Plain bearings made from iglidur® J200 are electrically insulating.

## Availability

At present, iglidur® J200 plain bearings are made to special order.

Diameter d1 [mm]	Shaft h9 [mm]	iglidur® J200 E10 [mm]
up to 3	0 - 0,025	+0,014 + 0,054
> 3 to 6	0 - 0,030	+0,020 + 0,068
> 6 to 10	0 - 0,036	+0,025 + 0,083
> 10 to 18	0 - 0,043	+0,032 + 0,102
> 18 to 30	0 - 0,052	+0,040 + 0,124
> 30 to 50	0 - 0,062	+0,050 + 0,150

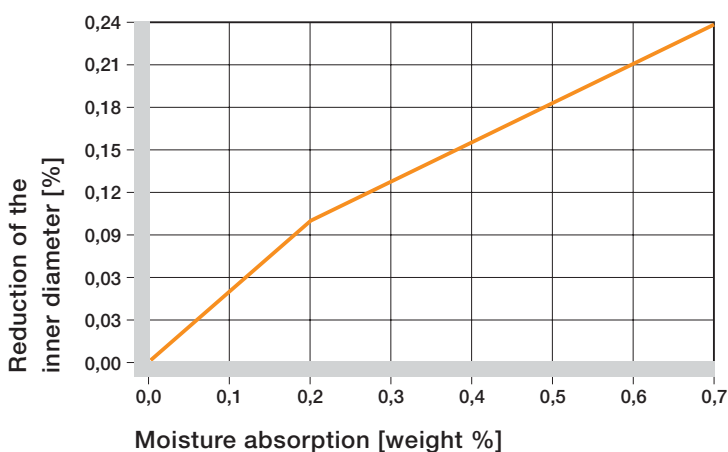
**Table 28.5: Essential tolerances for iglidur® J200 plain bearings according to ISO 3547-1 after pressfit**

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

**Table 28.6: Chemical resistance of iglidur® J200 – detailed list, page 70.1**

+ resistant 0 conditionally resistant - not resistant

All data given at room temperature [20°C]



**Graph 28.10: Effect of moisture absorption on iglidur® J200 plain bearings**

iglidur® J200	
Specific volume resistance	> $10^8 \Omega\text{cm}$
Surface resistance	> $10^8 \Omega$

**Table 28.7: Electrical properties of iglidur® J200**

iglidur® J200

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