

## High temperatures, versatile – iglidur® J350



Excellent coefficient of friction against steel

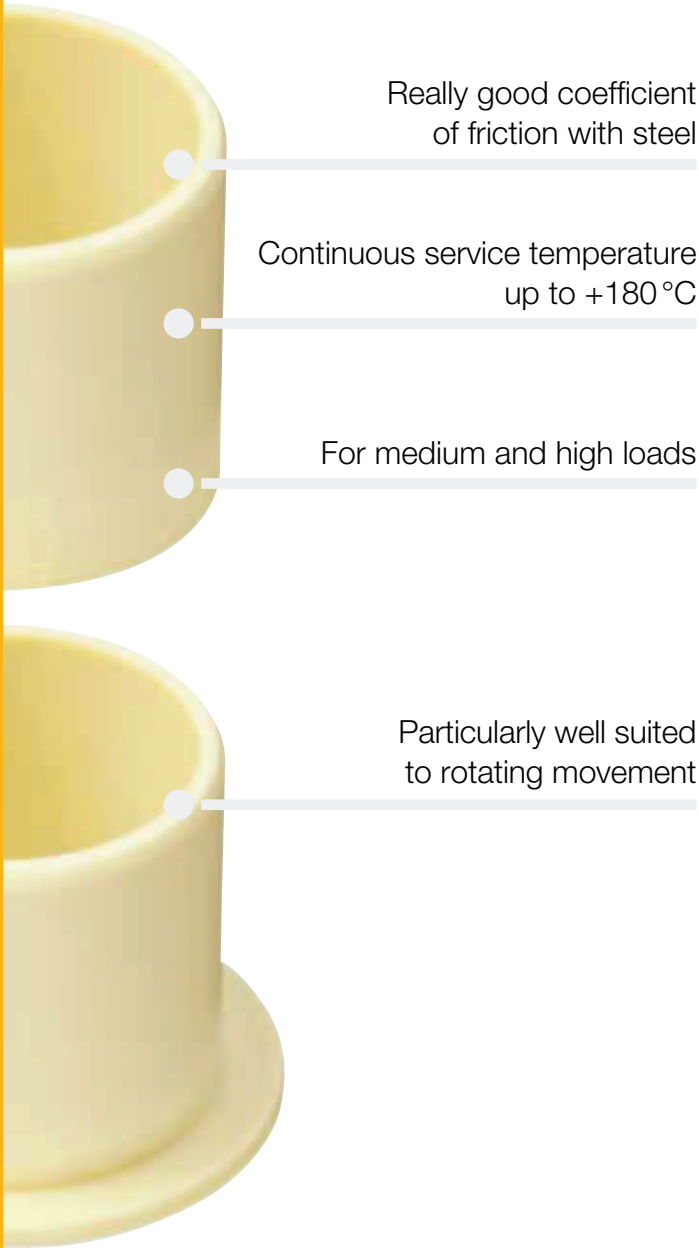
Continuous service temperature up to +180°C

For medium and high loads

Particularly well suited to rotating movement

# iglidur® J350

**High temperatures, versatile.** An outstanding bearing for rotating applications – and for a wide range of different shaft materials: With iglidur® J350 bearings, the lifetime can often be increased for applications between 1 and 50 MPa. In addition, the high temperature resistance makes it a very versatile material.



Really good coefficient of friction with steel

Continuous service temperature up to +180 °C

For medium and high loads

Particularly well suited to rotating movement



## When to use it?

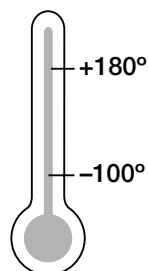
- If a high wear-resistant bearing for rotating movement at medium and high loads is required
- If an economic bearing is required for use at high temperatures.
- If pressfit up to +150 °C is necessary
- If high wear resistance is required at high loads
- If the bearing is exposed to shock loading



## When not to use it?

- If permanent temperatures exceed +180 °C
  - ▶ iglidur® X, page 173
- If low friction is required
  - ▶ iglidur® J, page 109
- When a cost-effective bearing with a low friction is needed
  - ▶ iglidur® D, page 287
  - ▶ iglidur® R, page 277
- With high rotational speeds
  - ▶ iglidur® J, page 109

## Temperature



## Product range

2 styles  
 Ø 6–30 mm  
 more dimensions  
 on request



## Material properties table

General properties	Unit	iglidur® J350	Testing method
Density	g/cm <sup>3</sup>	1.44	
Colour		yellow	
Max. moisture absorption at +23 °C/50 % r.h.	% weight	0.3	DIN 53495
Max. water absorption	% weight	1.6	
Coefficient of sliding friction, dynamic against steel	μ	0.1–0.2	
pv value, max. (dry)	MPa · m/s	0.45	
Mechanical properties			
Modulus of elasticity	MPa	2,000	DIN 53457
Tensile strength at +20 °C	MPa	55	DIN 53452
Compressive strength	MPa	60	
Max. recommended surface pressure (+20 °C)	MPa	60	
Shore D hardness		80	DIN 53505
Physical and thermal properties			
Max. long term application temperature	°C	+180	
Max. short term application temperature	°C	+220	
Min. application temperature	°C	-100	
Thermal conductivity	W/m · K	0.24	ASTM C 177
Coefficient of thermal expansion (at +23 °C)	K <sup>-1</sup> · 10 <sup>-5</sup>	7	DIN 53752
Electrical properties			
Specific volume resistance	Ωcm	> 10 <sup>13</sup>	DIN IEC 93
Surface resistance	Ω	> 10 <sup>10</sup>	DIN 53482

Table 01: Material properties table

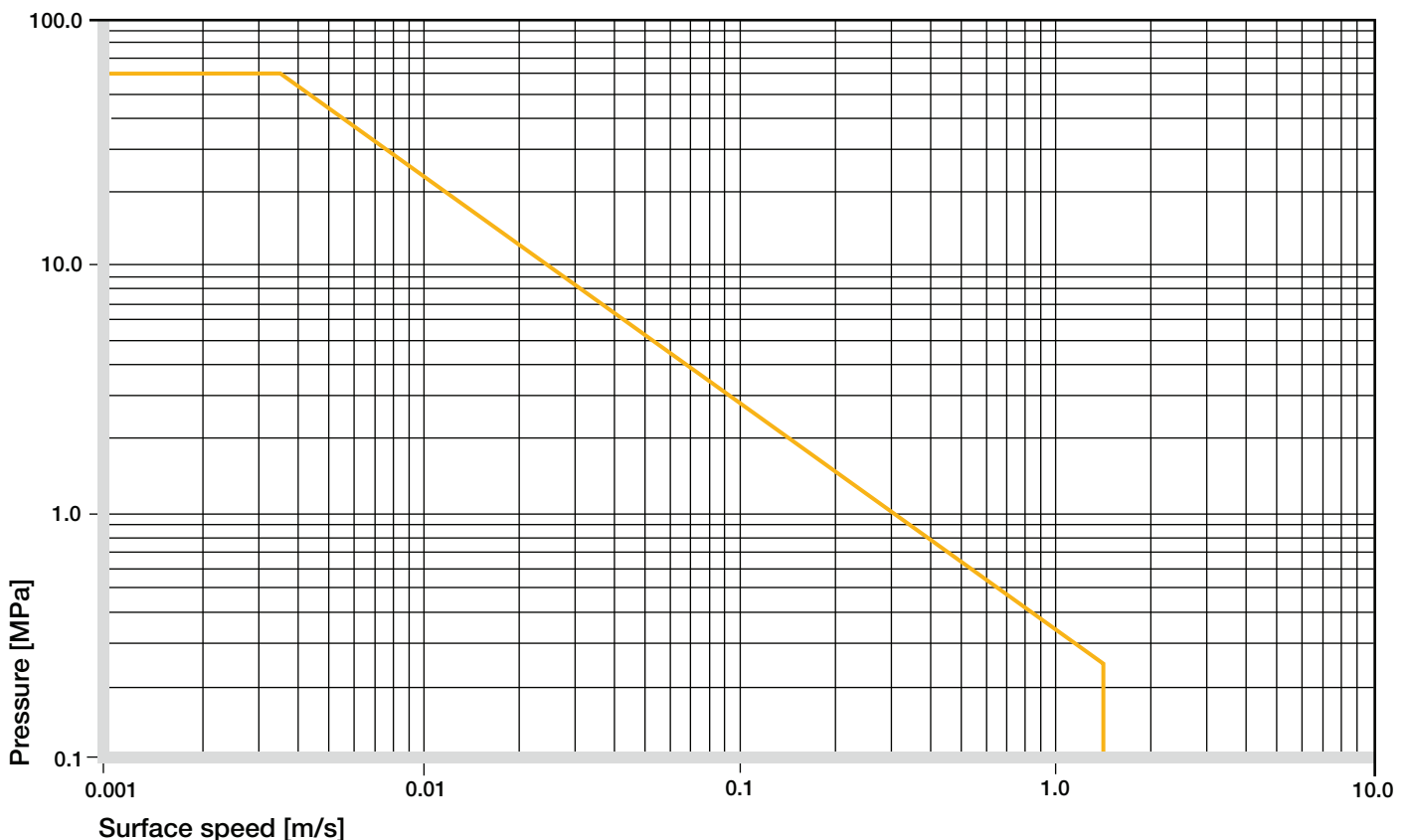


Diagram 01: Permissible pv values for iglidur® J350 with a wall thickness of 1 mm dry running against a steel shaft at +20 °C, mounted in a steel housing

iglidur® J350 blends universally good wear resistance, flexibility and temperature resistance into a very versatile iglidur® material with a broad application spectrum.

## Mechanical Properties

With increasing temperatures, the compressive strength of iglidur® J350 plain bearings decreases. The Diagram 02 shows this inverse relationship. However, at the longterm maximum temperature of +180°C the permissible surface pressure is 20 MPa. The recommended maximum surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.

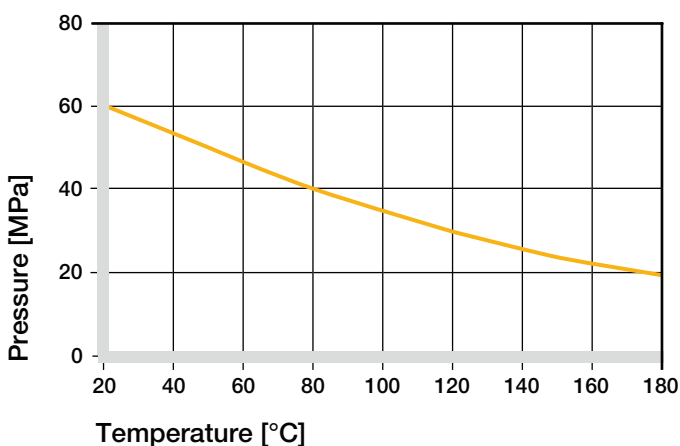


Diagram 02: Recommended maximum surface pressure as a function of temperature (60 MPa at +20 °C)

iglidur® J350 bearings are adequate for medium and high loads. Diagram 03 shows the elastic deformation under different temperatures. It shows the material behaviour submitted to a short term load. The surrounding temperatures are only noticeable at 60 MPa.

### ► Surface Pressure, page 63

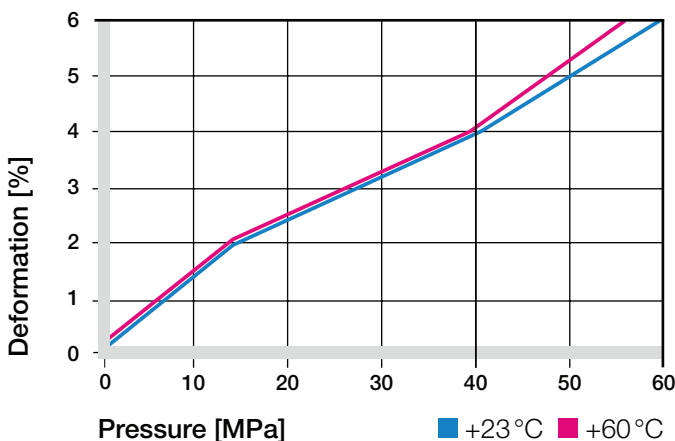


Diagram 03: Deformation under pressure and temperature

## Permissible Surface Speeds

iglidur® J350 has been developed for low and medium speeds in rotating and oscillating use. The wear rate is much better with rotating movement.

iglidur® J350 plain bearings can also be used for linear motion.

### ► Surface Speed, page 65

m/s	Rotating	Oscillating	Linear
Continuous	1.3	1	4
Short term	3	2,3	8

Table 02: Maximum running speed

## Temperatures

The temperature resistance of iglidur® J250 allows universal applications in many different industries. The short term maximum temperature is +220°C. At temperatures above +150°C the bearing should be mechanically fixed in the bore. Higher temperatures may result in a loss of the pressfit of the plain bearings, potentially allowing the bearing to drift within the housing bore.

The wear-rate of iglidur® J350 bearings changes very little at high temperatures. In some cases, the wear even decreases at +100°C. Generally, the wear figures between +20°C and +150°C are very similar.

The iglidur® J350 is a highly wear-resistant bearing material, which can also be used at higher temperatures. The combination of excellent tribological and thermal properties fills a gap in the group of long life materials.

### ► Application Temperatures, page 66

iglidur® J350	Application temperature
Minimum	-100 °C
Max. long term	+180 °C
Max. short term	+220 °C
Add. securing is required from	+140 °C

Table 03: Temperature limits

# iglidur® J350 | Technical Data

## Friction and Wear

The coefficient of friction of iglidur® J350 in dry operation on a steel shaft is very good. It is even lower at high speed, which makes the material very suitable for permanently dry-running application at high rotation speed, as can be seen in diagram 04.

iglidur® J350 bearings are clearly superior to other bearing materials in rotating applications over 2 MPa. The lifetime of iglidur® J350 can be several times higher.

- ▶ Coefficients of Friction and Surfaces, **page 68**
- ▶ Wear Resistance, **page 69**

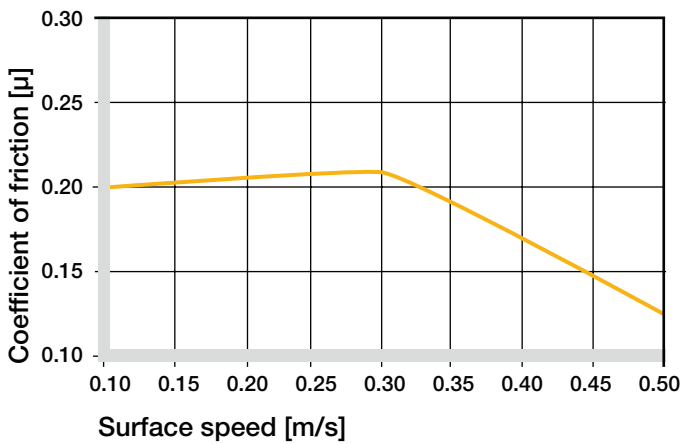


Diagram 04: Coefficient of friction as a function of the running speed,  $p = 1 \text{ MPa}$

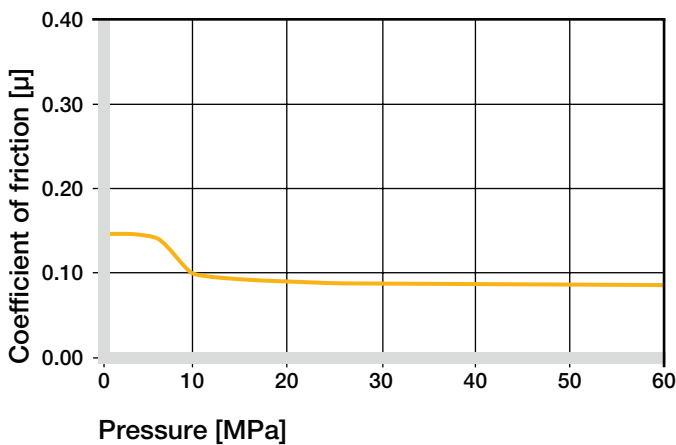


Diagram 05: Coefficient of friction as a function of the pressure,  $v = 0.01 \text{ m/s}$

## Shaft Materials

Diagram 06 and 07 shows results of testing different shaft materials with plain bearings made of iglidur® J350.

iglidur® J350 plain bearings can be combined with various shaft materials.

One shaft – bearing combination stands out when looking at the wear results of the test: iglidur® J350 with soft stainless steel (V2A). Not many bearing materials are suitable for use with this rather difficult soft stainless steel material (V2A) and achieve good wear results. Also, iglidur® J350 shows good properties with hard-anodized aluminum shafts.

If the shaft material you plan on using is not shown in these test results, please contact us.

- ▶ Shaft Materials, **page 71**

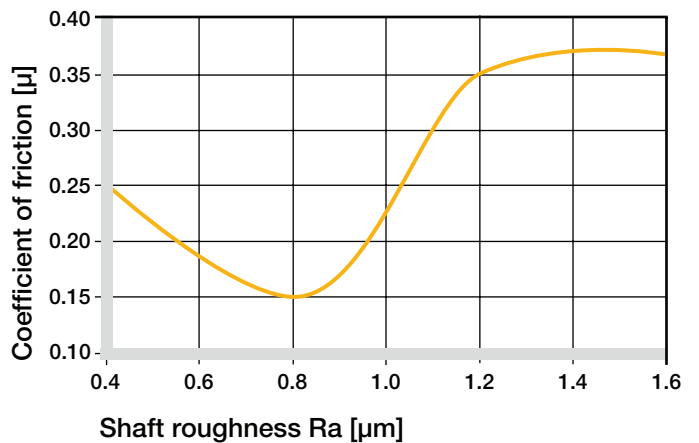


Diagram 06: Coefficient of friction as function of the shaft surface (Cf53 hardened and ground steel)

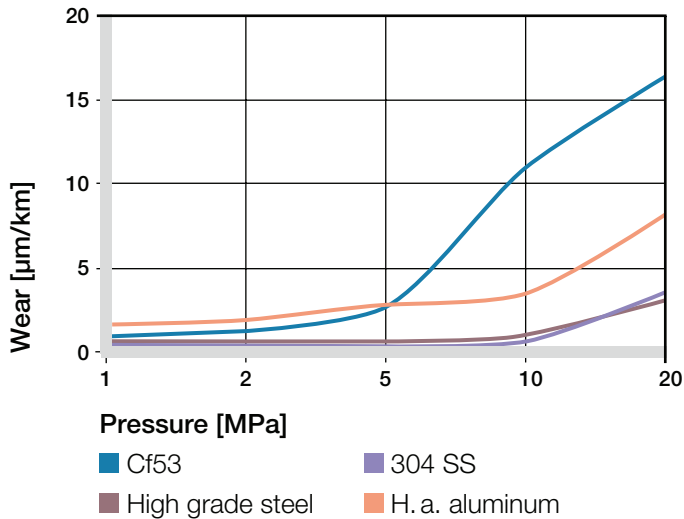


Diagram 07: Wear with different shaft materials in rotational operation, as a function of the pressure

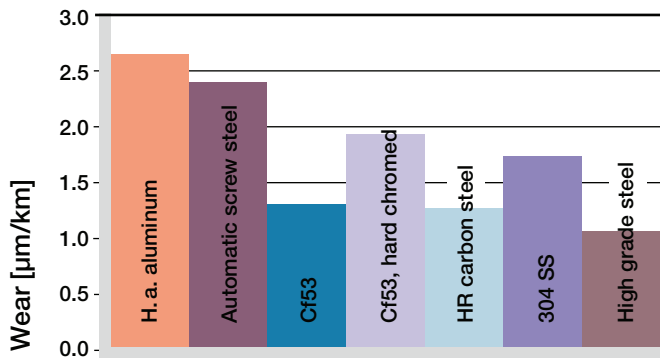


Diagram 08: Wear, rotating with different shaft materials, p = 1 MPa, v = 0.3 m/s

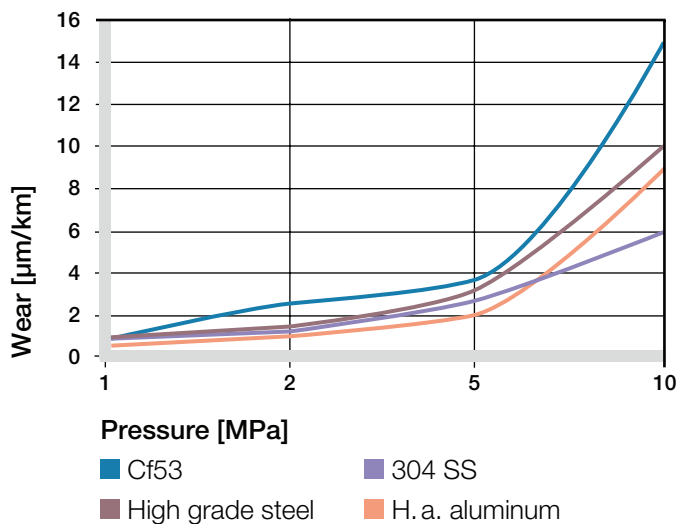


Diagram 09: Wear with oscillating movement of different shaft materials according to applied load

iglidur® J350	Dry	Greases	Oil	Water
C.o.f. µ	0.1–0.2	0.09	0.04	0.04

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

## Additional Properties

### Chemical Resistance

iglidur® J350 plain bearings are resistant to diluted alkalines and acids, alcohols, cleaning agents and lubricants.

iglidur® J350 will be attacked by esters, ketones, chlorinated hydrocarbons, and other solvents, please refer to the chemical resistance chart at the back of this catalogue.

► Chemical Table, page 1258

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

+ resistant 0 conditionally resistant – not resistant

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

Table 05: Chemical resistance

### Radiation Resistance

Plain bearings made from iglidur® J350 are resistant to radiation up to an intensity of  $2 \cdot 10^2$  Gy.

### UV Resistance

iglidur® J350 plain bearings are conditionally resistant to UV radiation.

### Vacuum

iglidur® J260 plain bearings outgas in a vacuum. Use in a vacuum environment is only possible with dehumidified bearings.

### Electrical Properties

iglidur® J350 plain bearings are electrically insulating.

Volume resistance	> $10^{13}$ Ωcm
Surface resistance	> $10^{10}$ Ω

# iglidur® J350 | Technical Data

## Moisture Absorption

The humidity absorption of iglidur® J350 is low and can be ignored when using standard-bearings. Even when saturated with water, iglidur® J350 does not absorb more than 1.6 % of water (by weight).

### Maximum moisture absorption

At +23 °C/50 % r.h. 0.3 % weight

Max. water absorption 1.6 % weight

Table 06: Moisture absorption

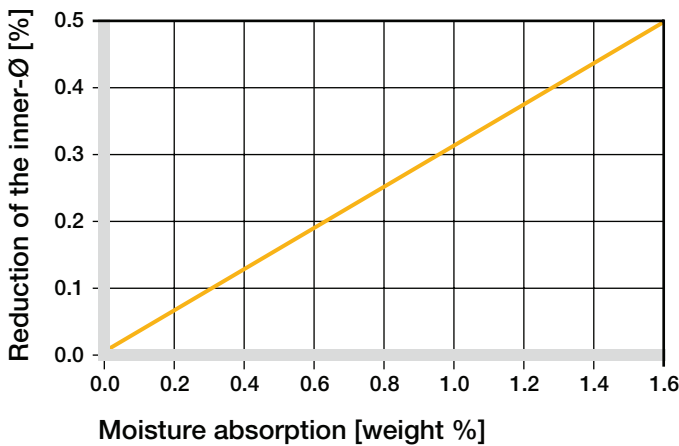


Diagram 10: Effect of moisture absorption on plain bearings

## Installation Tolerances

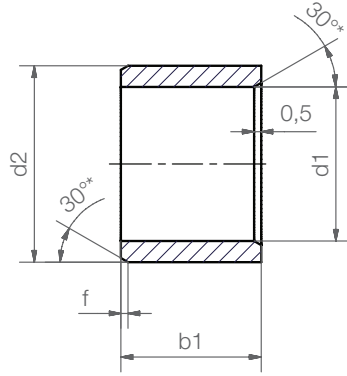
iglidur® J350 plain bearings are standard bearings for shafts with h-tolerance (recommended minimum h9). The bearings are designed for pressfit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, in standard cases the inner diameter automatically adjusts to the F10 tolerances. For particular dimensions the tolerance differs depending on the wall thickness (please see product range table).

► Testing Methods, page 75

Diameter d1 [mm]	Shaft h9 [mm]	iglidur® J350 F10 [mm]	Housing H7 [mm]
up to 3	0-0.025	+0.006 +0.046	0 +0.010
> 3 to 6	0-0.030	+0.010 +0.058	0 +0.012
> 6 to 10	0-0.036	+0.013 +0.071	0 +0.015
> 10 to 18	0-0.043	+0.016 +0.086	0 +0.018
> 18 to 30	0-0.052	+0.020 +0.104	0 +0.021
> 30 to 50	0-0.062	+0.025 +0.125	0 +0.025
> 50 to 80	0-0.074	+0.030 +0.150	0 +0.030

Table 07: Important tolerances for plain bearings according to ISO 3547-1 after pressfit

## Sleeve bearing



Order key

**J350SM-0608-06**



- Length b1
- Outer diameter d2
- Inner diameter d1
- Metric
- Type (Form S)
- Material iglidur® J350

Dimensions according to ISO 3547-1 and special dimensions

\* thickness < 1 mm, chamfer = 20°

Chamfer in relation to the d1

d1 [mm]:	Ø 1-6	Ø 6-12	Ø 12-30	Ø > 30
f [mm]:	0.3	0.5	0.8	1.2

## Dimensions [mm]

Part number	d1	d1-Tolerance*	d2	b1 h13
J350SM-0608-06	6.0	+0.010 +0.058	8.0	6.0
J350SM-0810-10	8.0	+0.013 +0.071	10.0	10.0
J350SM-1012-10	10.0	+0.013 +0.071	12.0	10.0
J350SM-1214-12	12.0	+0.016 +0.086	14.0	12.0
J350SM-1618-15	16.0	+0.016 +0.086	18.0	15.0
J350SM-2023-20	20.0	+0.020 +0.104	23.0	20.0

\* after pressfit. Testing methods ► page 75



delivery from stock  
time

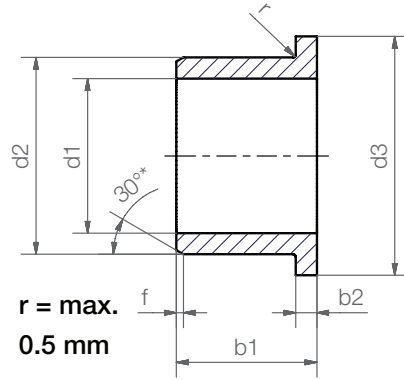


prices price list online  
www.igus.eu/eu/j350



# iglidur® J350 | Product Range

## Flange bearing



r = max.  
0.5 mm



Order key

**J350FM-0608-06**



Length b1  
Outer diameter d2  
Inner diameter d1  
Metric  
Type (Form F)  
Material iglidur® J350

Dimensions according to ISO 3547-1 and special dimensions

\* thickness < 1 mm, chamfer = 20°

Chamfer in relation to the d1

d1 [mm]:    Ø 1-6    |    Ø 6-12    |    Ø 12-30    |    Ø > 30

f [mm]:        0.3    |    0.5    |    0.8    |    1.2

### Dimensions [mm]

Part number	d1	d1-Tolerance*	d2	d3 d13	b1 h13	b2 -0.14
J350FM-0608-06	6.0	+0.010 +0.058	8.0	12.0	6.0	1.0
J350FM-0810-10	8.0	+0.013 +0.071	10.0	15.0	10.0	1.0
J350FM-1012-07	10.0	+0.013 +0.071	12.0	18.0	7.0	1.0
J350FM-1012-10	10.0	+0.013 +0.071	12.0	18.0	10.0	1.0
J350FM-1214-12	12.0	+0.016 +0.086	14.0	20.0	12.0	1.0
J350FM-1618-17	16.0	+0.016 +0.086	18.0	24.0	17.0	1.0
J350FM-2023-21	20.0	+0.020 +0.104	23.0	30.0	21.5	1.5
J350FM-3034-37	30.0	+0.020 +0.104	34.0	42.0	37.0	2.0

\* after pressfit. Testing methods ► page 75



### Don't find your size?

Do you need another length, other dimensions or tolerances? You need a particular design or alternative for your application? Please call us. igus® listens to your needs and provides you a solution in a very short time.



**delivery** from stock  
time



**prices** price list online  
[www.igus.eu/eu/j350](http://www.igus.eu/eu/j350)