NEW in this catalog!

iglidur® J350

Extremely wear-resistant in rotation. 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

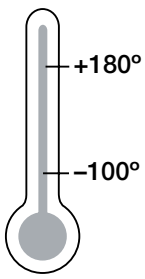
When to use it?

- 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 153**
- If low friction is required
  ▶ **iglidur® J, page 89**
- When a cost-effective bearing with a low friction is needed
  ▶ **iglidur® D, page 259**
  ▶ **iglidur® R, page 249**
- With high rotational speeds
  ▶ **iglidur® J, page 89**

Temperature



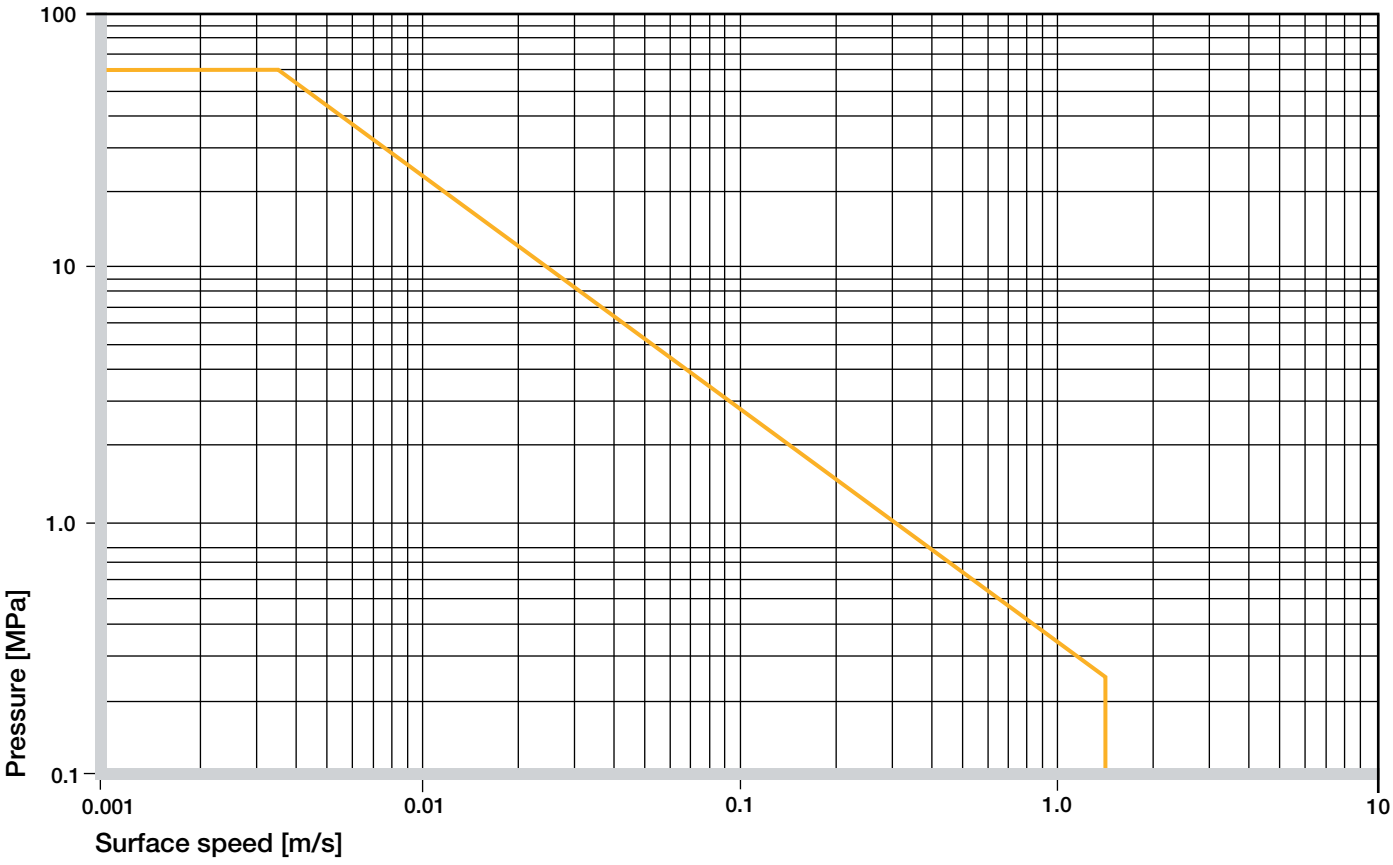
Product range

2 styles
Ø 6–20 mm
more dimensions
on request

iglidur® J350 | Technical Data

Material data			
General properties	**Unit**	**iglidur® J350**	**Testing method**
Density	**g/cm³**	1.44	
Colour		yellow	
Max. moisture absorption at +23 °C/50 % r.h.	**% weight**	0.3	DIN 53495
Max. moisture 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)	**$K^{-1} \cdot 10^{-5}$**	7	DIN 53752
Electrical properties			
Specific volume resistance	**Ωcm**	$> 10^{13}$	DIN IEC 93
Surface resistance	**Ω**	$> 10^{10}$	DIN 53482

Table 01: Material data

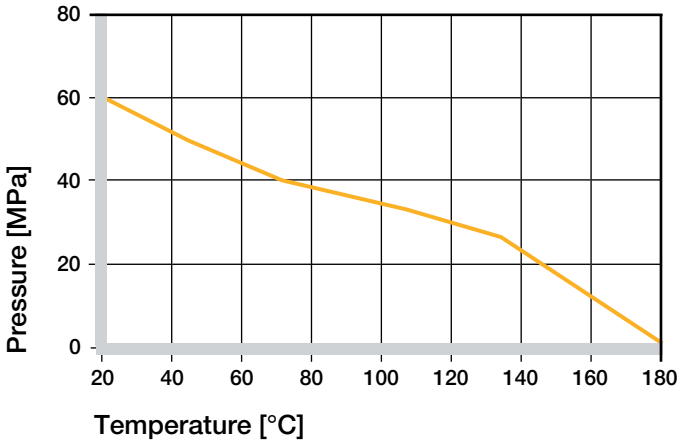


Graph 01: Permissible pv values for iglidur® J350 with a wall thickness of 1 mm dry running against a steel shaft at +20 °C, mounted in a steel housing

iglidur® J350 | Technical Data

Mechanical Properties

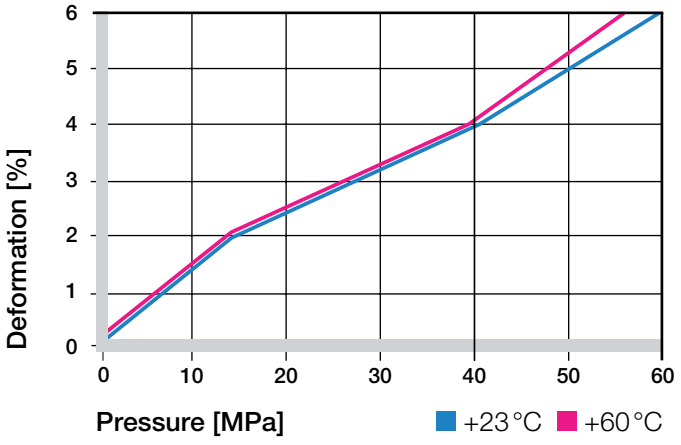
The recommended maximum surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this. With increasing temperatures, the compressive strength of iglidur® J350 plain bearings decreases. The Graph 02 shows this inverse relationship. However, at the longterm maximum temperature of +150° C the permissible surface pressure is almost 25 MPa.



Graph 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. Graph 03 shows the elastic deformation under different temperature. At the recommended maximum surface pressure of 60 MPa the deformation is less than 6 %.

▶ Surface Pressure, **page 43**



Graph 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 45**

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 trobological and thermal properties fills a gap in the group of long life materials.

▶ Application Temperatures, **page 46**

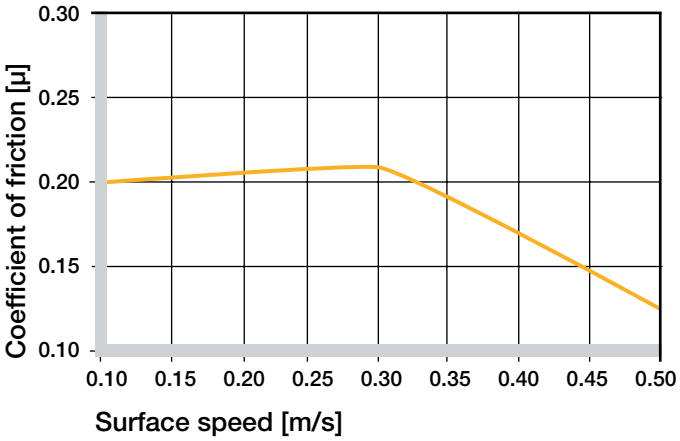
iglidur® J350	Application temperature
Minimum	–100 °C
Max. long term	+180 °C
Max. short term	+220 °C
Add. securing is required from	+150 °C

Table 03: Temperature limits

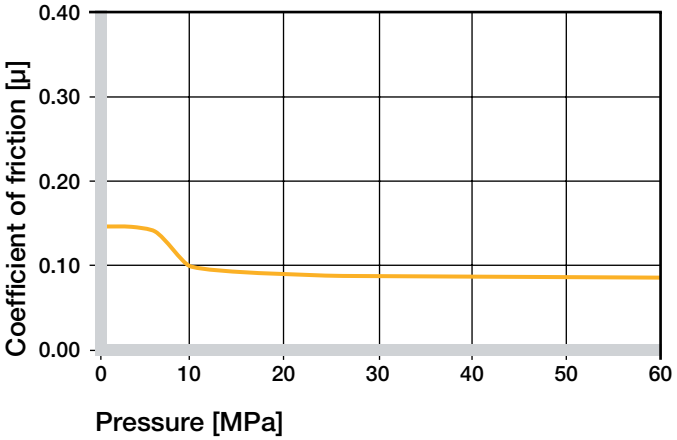
Friction and Wear

The coefficient of friction of iglidur® J350 in dry operation on a steel shaft are 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 graph 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 48**
▶ Wear Resistance, **page 49**



Graph 04: Coefficient of friction as a function of the running speed, p = 1 MPa

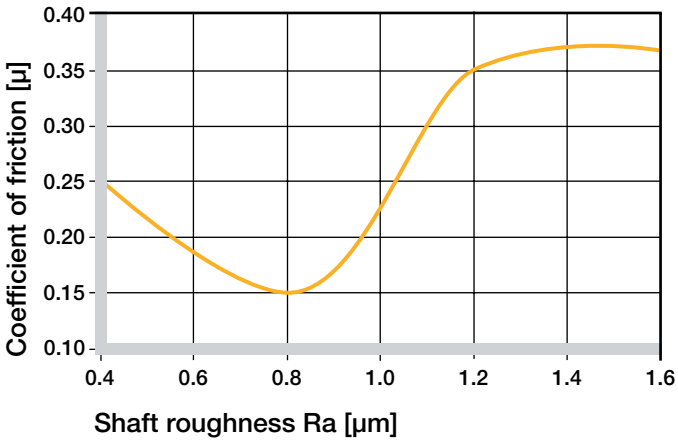


Graph 05: Coefficient of friction as a function of the pressure, v = 0.01 m/s

Shaft Materials

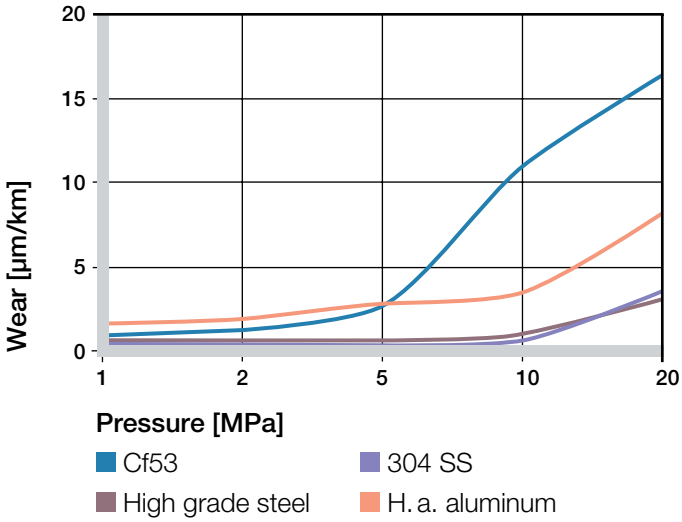
Graph 06 and 07 shows results of testing different shaft materials with plain bearings made of iglidur® J350.
iglidur® J350 plain bearings can be combined with various shaft materials.
One shaft – bearing combination stands out when looking at the wear results of the test: iglidur® J350 with soft stainless 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 51**

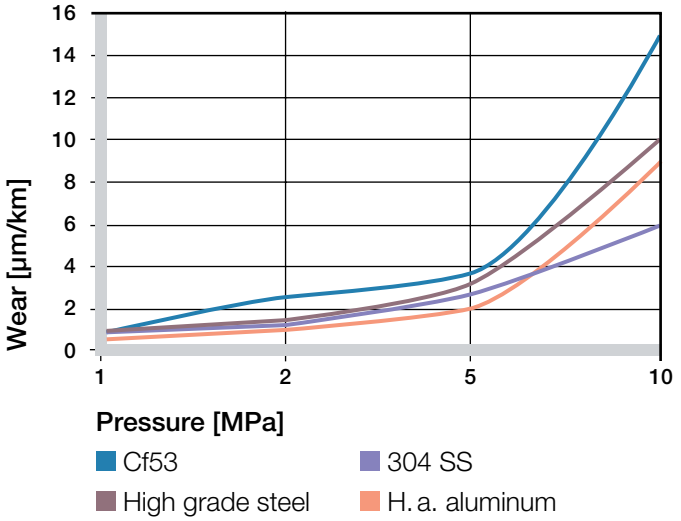


Graph 06: Coefficient of friction as function of the shaft surface (Cf53 hardened and ground steel)

iglidur® J350 | Technical Data



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



Graph 08: 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 974**

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.

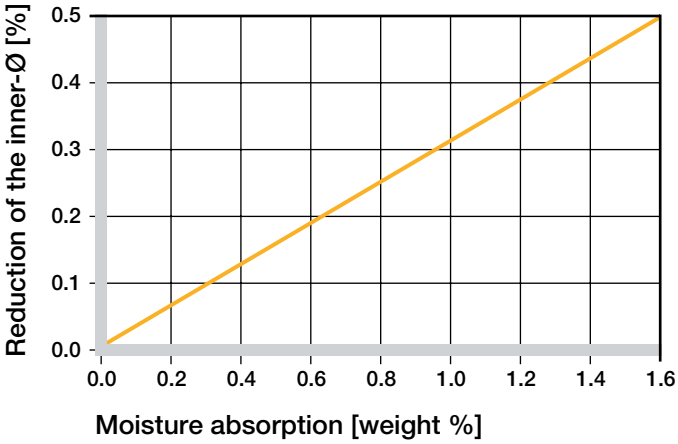
Volume resistance	$> 10^{13}$ Ωcm
Surface resistance	$> 10^{10}$ Ω

Moisture Absorption

The humidity absorbtion 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. moisture absorption	1.6 % weight

Table 06: Moisture absorption



Graph 09: 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, the inner diameter adjusts to meet the specified tolerances.

▶ Testing Methods, **page 55**

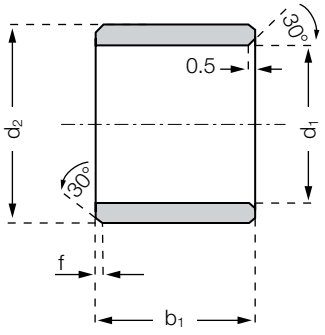
Diameter d1 [mm]	Shaft h9 [mm]	iglidur® J350 F10 [mm]	Housing H7 [mm]
up to 3	0–0.025	+0.006 +0.046	0 +0.010
> 3 to 6	0–0.030	+0.010 +0.058	0 +0.012
> 6 to 10	0–0.036	+0.013 +0.071	0 +0.015
> 10 to 18	0–0.043	+0.016 +0.086	0 +0.018
> 18 to 30	0–0.052	+0.020 +0.104	0 +0.021
> 30 to 50	0–0.062	+0.025 +0.125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

NEW in this catalog!

iglidur® J350 | Product Range

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

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

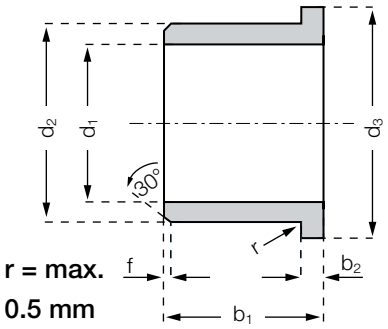
Dimensions [mm]

Part number	d1	d1-Tolerance*	d2	b1
J350SM-0608-06	6	+0.010 +0.058	8	6
J350SM-0810-10	8	+0.013 +0.071	10	10
J350SM-1012-10	10	+0.013 +0.071	12	10
J350SM-1214-12	12	+0.016 +0.068	14	12
J350SM-1618-15	16	+0.016 +0.068	18	15
J350SM-2023-20	20	+0.020 +0.104	23	20

* after pressfit. Testing methods ▶ page 55

delivery time available from stock | prices price list online www.igus.eu/eu/j350 | order example part number J350SM-0608-06

Flange bearing



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

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	b1	b2
J350FM-0608-06	6	+0.010 +0.058	8	12	6	1
J350FM-0810-10	8	+0.013 +0.071	10	15	10	1
J350FM-1012-10	10	+0.013 +0.071	12	18	10	1
J350FM-1214-12	12	+0.016 +0.068	14	20	12	1
J350FM-1618-17	16	+0.016 +0.068	18	24	17	1
J350FM-2023-21	20	+0.020 +0.104	23	30	21.5	1.5

* after pressfit. Testing methods ▶ page 55

My Sketches