NEW in this catalog!

iglidur® A350

FDA-compliant and wear-resistant at high temperatures. A very universal bearing for use in the area of food and pharmaceutical industries. Composition of FDA-conform materials allows the use in areas where due to the contact with food other bearings cannot be used. With good tribologican and mechanical properties, iglidur® A350 bearings are real allround talents for food machinery.

Complies with FOOD AND DRUG ADMINISTRATION (FDA) regulations

For use with temperatures up to +180 °C

For medium and high loads

Equally good for both oscillating and rotating applications

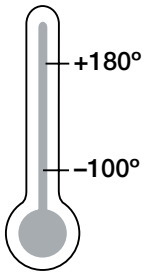
When to use it?

- If FDA-compliance is required
- If wear-resistance and FDA-conformance is necessary at high loads
- If the bearing is use in acid environment

When not to use?

- When temperatures are continuously greater than +80 °C
  ▶ **iglidur® A500, page 407**
- When the maximum abrasion resistance is necessary
  ▶ **iglidur® J, page 89**
- When a low-priced FDA bearing is sought
  ▶ **iglidur® A200, page 381**
  iglidur® A180, page 371
- For high speeds
  ▶ **iglidur® J, page 89**

Temperature

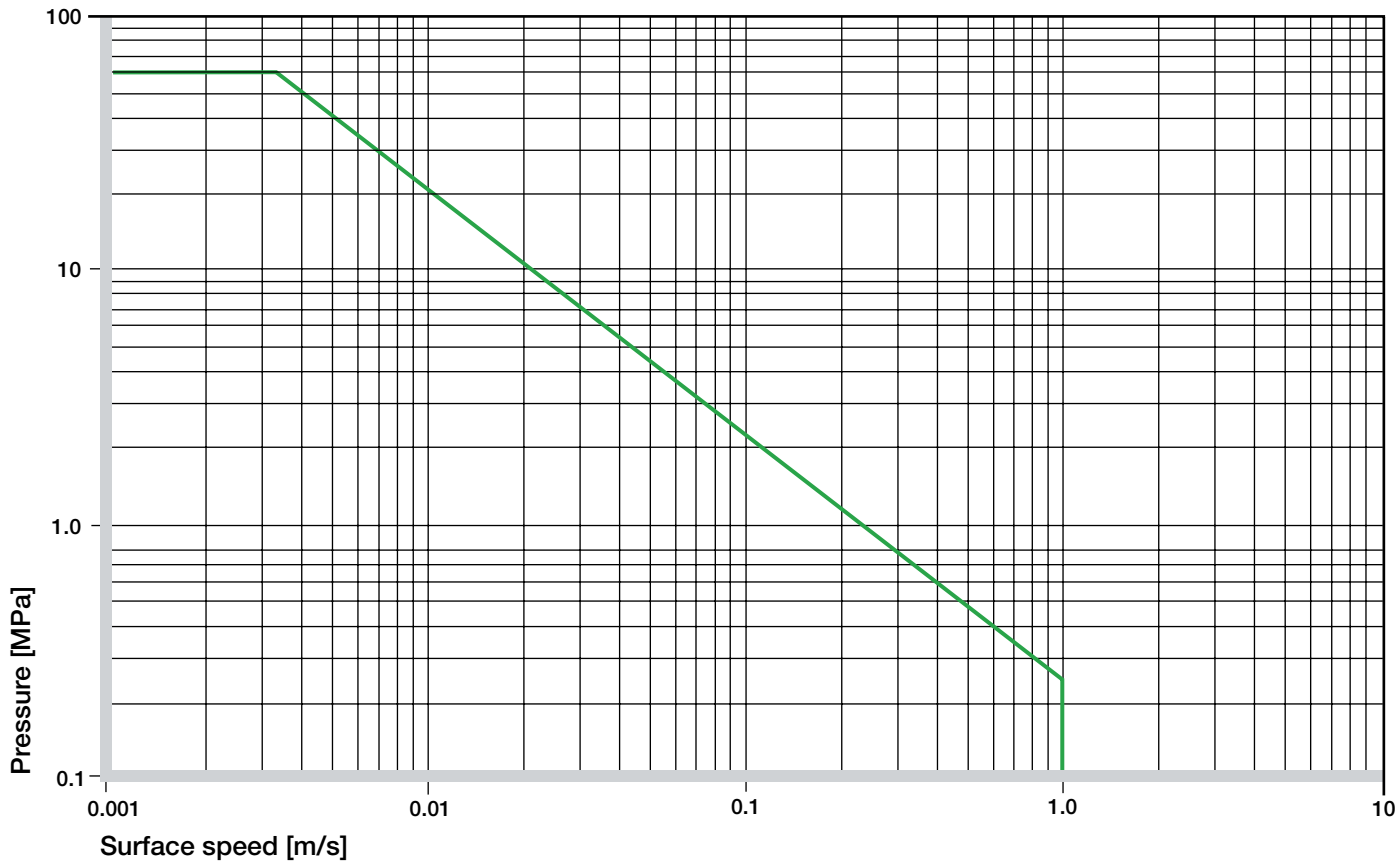


Product range

2 types
Ø 6–20 mm
more dimensions
on request

Material data			
General poperties	**Unit**	**iglidur® A350**	**Testing method**
Density	**g/cm³**	1.42	
Colour		blue	
Max. moisture absorption at +23 °C/50 % r.h.	**% weight**	0.6	DIN 53495
Max. moisture absorption	**% weight**	1.9	
Coefficient of sliding friction, dynamic against steel	**µ**	0.1–0.2	
pv value, max. (dry)	**MPa · m/s**	0.4	
Mechanical properties			
Modulus of elasticity	**MPa**	2,000	DIN 53457
Tensile strength at +20 °C	**MPa**	110	DIN 53452
Compressive strength	**MPa**	78	
Max. recommended surface pressure (+20 °C)	**MPa**	60	
Shore D hardness		76	DIN 53505
Physical and thermal properties			
Max. long term application temperature	**°C**	+180	
Max. short term application temperature	**°C**	+210	
Min. application temperature	**°C**	–100	
Thermal conductivity	**W/m · K**	0.24	ASTM C 177
Coefficient of thermal expansion (at +23 °C)	**$K^{-1} \cdot 10^{-5}$**	8	DIN 53752
Electrical properties			
Specific volume resistance	**Ωcm**	$> 10^{11}$	DIN IEC 93
Surface resistance	**Ω**	$> 10^{11}$	DIN 53482

Table 01: Material data

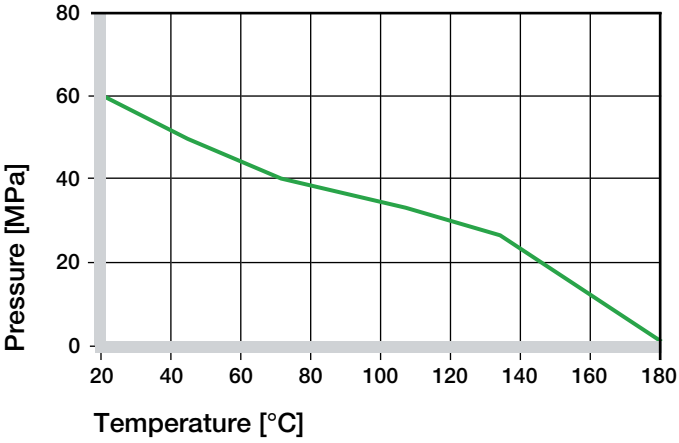


Graph 01: Permissible pv values for iglidur® A350 with a wall thickness of 1 mm dry running against a steel shaft at +20 °C, mounted in a steel housing

iglidur® A350 | Technical Data

Mechanical Properties

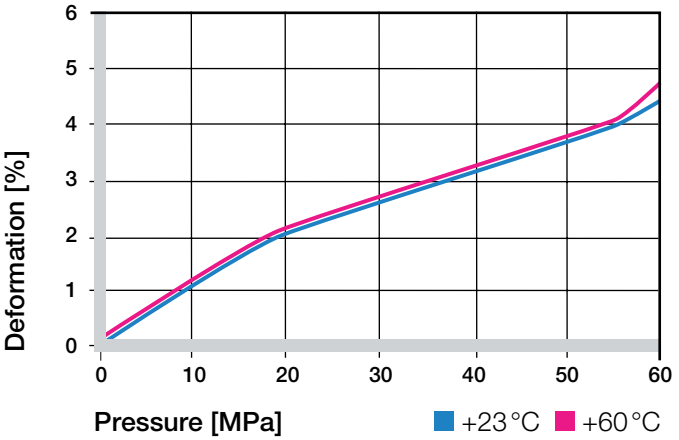
The recommended maximum surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this. With increasing temperatures, the compressive strength of iglidur® A350 plain bearings decreases. The Graph 02 shows this inverse relationship. However, 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® A350 bearings are made for practically all loads in food and packaging machinery. Even Even high loads, often seen in lifting equipment, are taken easily and the bearings work flawlessly without any external lubrication. Graph 03 shows the elastic deformation of iglidur® A358 during radial loading. At the recommended maximum surface pressure of 60 MPa the deformation is less than 5 %.

▶ Surface Pressure, **page 43**



Graph 03: Deformation under pressure and temperature

Permissible Surface Speeds

iglidur® A350 bearings are suitable for low to medium speeds in both rotating and oscillating applications. Even linear movements can often be realised with iglidur® A350. With high sliding speeds, iglidur® J or iglidur® L250 can be interesting alternatives because the wear rate of these materials is better.

▶ Surface Speed, **page 45**

m/s	Rotating	Oscillating	Linear
Continuous	1	0.8	2.5
Short term	1.2	0.9	3

Table 02: Maximum running speed

Temperatures

Its temperature resistance makes iglidur® A350 an ideal material for bearing in the area of foodstuffs. Typically, temperatures range up to +130 °C, which corresponds perfectly with the applicable temperature range for iglidur® A350. Short-term temperatures up to +210 °C are possible. Please note that at temperatures over +140 °C, the pressfit forces of the bearings may decrease and an additional axial security device is recommended.
The wear-rate of iglidur® A350 bearings rises only little with higher temperatures. Tests have shown good wear results at +100 °C on all tested shaft materials.

▶ Application Temperatures, **page 46**

iglidur® A350	Application temperature
Minimum	–100 °C
Max. long term	+180 °C
Max. short term	+210 °C
Add. securing is required from	+140 °C

Table 03: Temperature limits

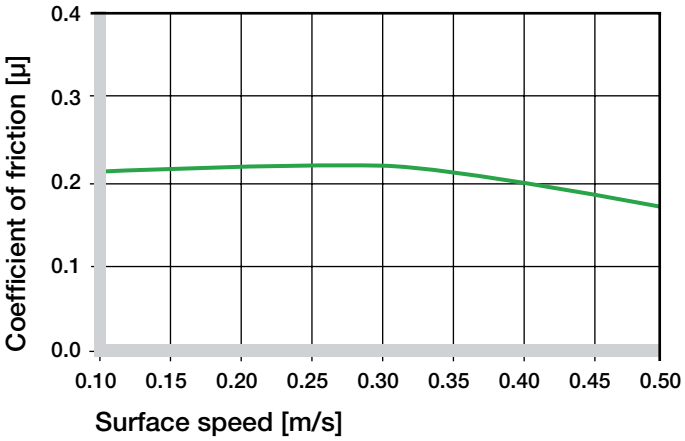
Friction and Wear

The coefficient of friction of iglidur® A350 on a steel shaft are in the mid range. They decrease at higher temperatures, which in dry operation is somewhat unusual. Graph. 04 shows this phenomenon graphically.

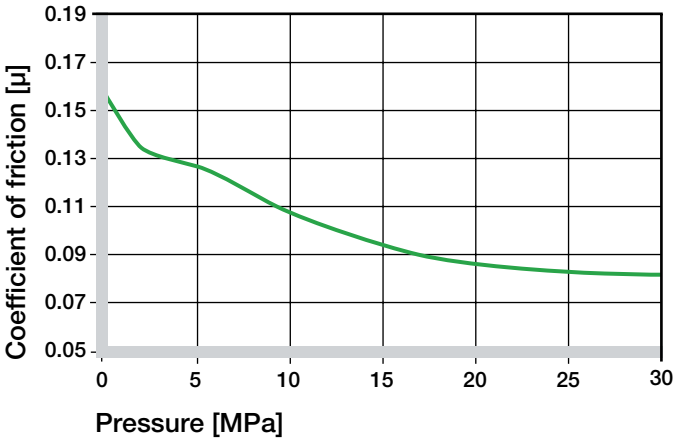
All wear results of iglidur® A350 bearings show good results on a low level. Of all iglidur® materials for food contact, they are often the best choice.

▶ 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



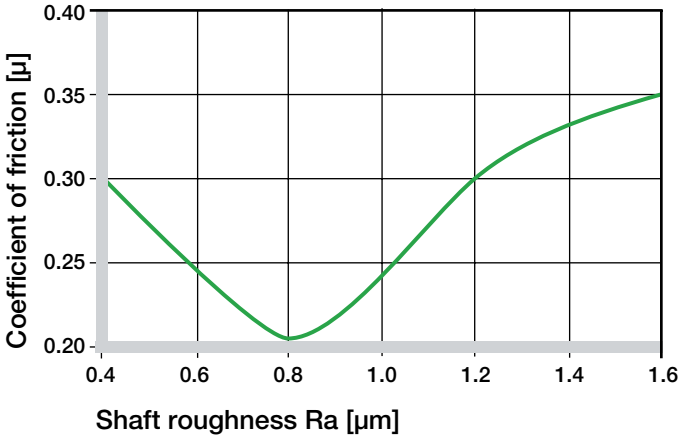
Graph 05: Coefficient of friction as a function of the pressure, v = 0.01 m/s

Shaft Materials

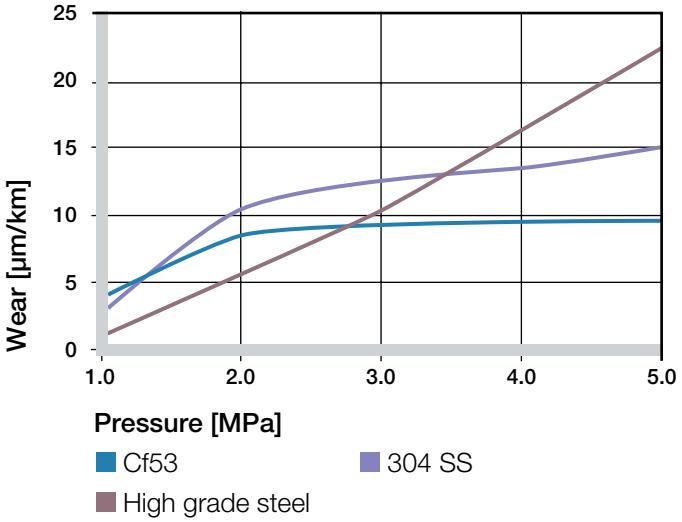
The corrosion-resistant steels are rather considered a natural choice for use in the food industry.

The trials were therefore carried out especially on such materials. It has been shown that there is no clear favorite and A2, X90 and hard chrome plated steel are all suitable. Hard-anodized aluminum is also well suited for both linear and rotating movements.

▶ Shaft Materials, **page 51**

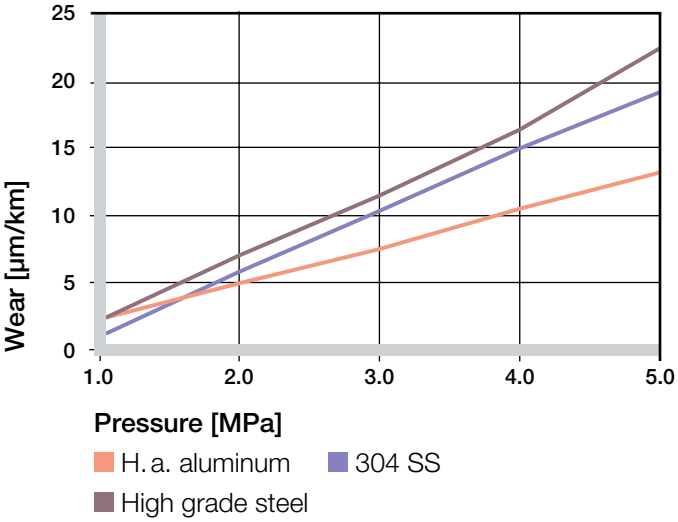


Graph 06: Coefficient of friction as function of the shaft surface (Cf53 hardened and ground steel)



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

iglidur® A350 | Technical Data



Graph 08: Wear with different shaft materials in oscillating operation, as a function of the pressure

iglidur® A350	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® A350 plain bearings are resistant to diluted acids and alkalis, alcohols and detergents. They are also resistant to most lubricants. The iglidur® A350 plain bearings are resistant to common cleaning agents in the food industry. iglidur® A350 is affected by esters, ketones, chlorinated hydrocarbons, aromatics and highly polar solvents.

▶ Chemical Table, **page 974**

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

+ resistant 0 conditionally resistant – not resistant
All data given at room temperature [+20 °C]
Table 05: Chemical resistance

Radiation Resistance

Plain bearings made of iglidur® A350 are resistant to radiation up to an intensity of $2 \cdot 10^2$ Gy.

UV Resistance

iglidur® A350 bearings are resistant to UV radiation.

Vacuum

When used in a vacuum environment, the iglidur® A350 plain bearings release moisture as a vapour. Therefore, only dehumidified bearings are suitable in a vacuum invironment.

Electrical Properties

iglidur® A350 plain bearings are electrically insulating.

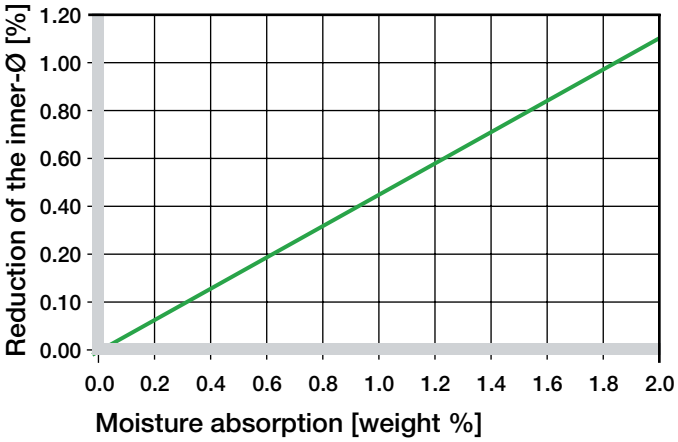
Volume resistance	$> 10^{11}$ Ωcm
Surface resistance	$> 10^{11}$ Ω

Moisture Absorption

The moisture absorption of iglidur® A350 is low and can be disregarded when using standard bearings.
Even at full saturation the iglidur® A350 does not absorb more than 1.9 % of water.

Maximum moisture absorption	
At +23 °C/50 % r.h.	0.6 % weight
Max. moisture absorption	1.9 % weight

Table 06: Moisture absorption



Graph 10: Effect of moisture absorption on plain bearings

Installation Tolerances

iglidur® A350 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**

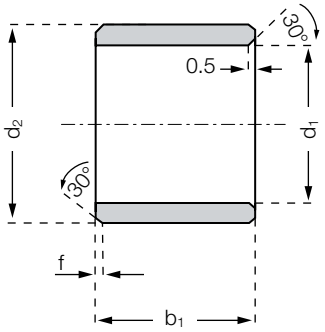
Diameter d1 [mm]			Shaft h9 [mm]	iglidur® A350 F10 [mm]	Housing H7 [mm]
	up to	3	0–0.025	+0.006 +0.046	0 +0.010
>	3 to	6	0–0.030	+0.010 +0.058	0 +0.012
>	6 to	10	0–0.036	+0.013 +0.071	0 +0.015
>	10 to	18	0–0.043	+0.016 +0.086	0 +0.018
>	18 to	30	0–0.052	+0.020 +0.104	0 +0.021
>	30 to	50	0–0.062	+0.025 +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® A350 | Product Range

Sleeve bearing



Order key

A350SM-0608-06

- Length b1
- Outer diameter d2
- Inner diameter d1
- Metric
- Type (Form S)
- Material iglidur® A350

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

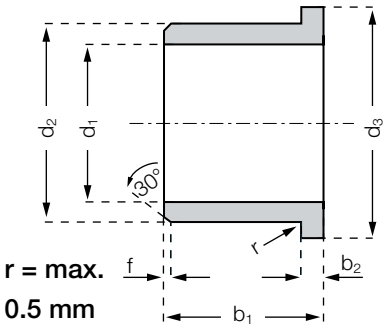
Dimensions [mm]

Part number	d1	d1-Tolerance*	d2	b1
A350SM-0608-06	6	+0.010 +0.058	8	6
A350SM-0810-10	8	+0.013 +0.071	10	10
A350SM-1012-10	10	+0.013 +0.071	12	10
A350SM-1214-12	12	+0.016 +0.068	14	12
A350SM-1618-15	16	+0.016 +0.068	18	15
A350SM-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/a350 | order example part number A350SM-0608-06

Flange bearing



Order key

A350FM-0608-06

- Length b1
- Outer diameter d2
- Inner diameter d1
- Metric
- Type (Form F)
- Material iglidur® A350

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
A350FM-0608-06	6	+0.010 +0.058	8	12	6	1
A350FM-0810-10	8	+0.013 +0.071	10	15	10	1
A350FM-1012-10	10	+0.013 +0.071	12	18	10	1
A350FM-1214-12	12	+0.016 +0.068	14	20	12	1
A350FM-1618-17	16	+0.016 +0.068	18	24	17	1
A350FM-2023-21	20	+0.020 +0.104	23	30	21,5	1,5

* after pressfit. Testing methods ▶ page 55

My Sketches