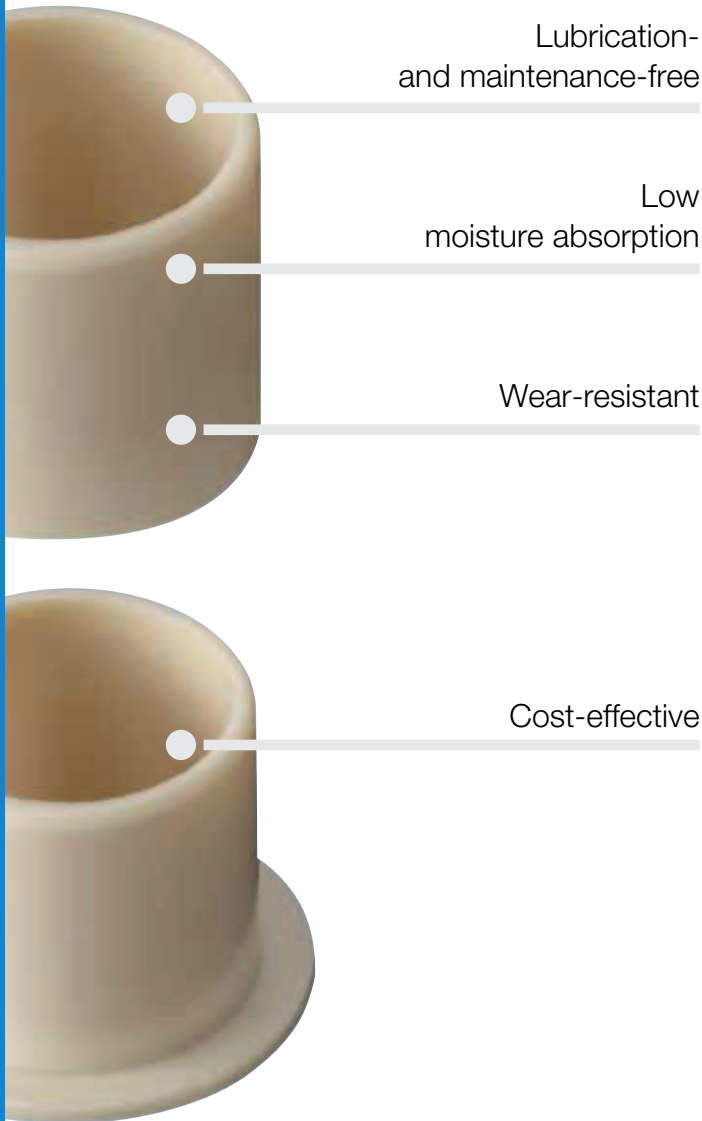


Versatile, wear-resistant universal material. iglidur® K is the new general purpose bearing for medium temperatures, low moisture absorption and good environmental resistance.



When to use it?

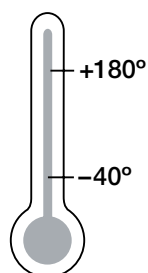
- When you need a cost-effective general purpose bearing
- For use in wet environments
- When good wear resistance is required at medium loads



When not to use it?

- When highest wear resistance is necessary
▶ **iglidur® W300, page 131**
- If high media-resistance is required
▶ **iglidur® X6, page 289**
- When a high-temperature bearing is needed
▶ **iglidur® H, page 325**

Temperature



Product range

2 types
Ø 6–20 mm
more dimensions
on request



iglidur® K | Application Examples



Typical sectors of industry and application areas

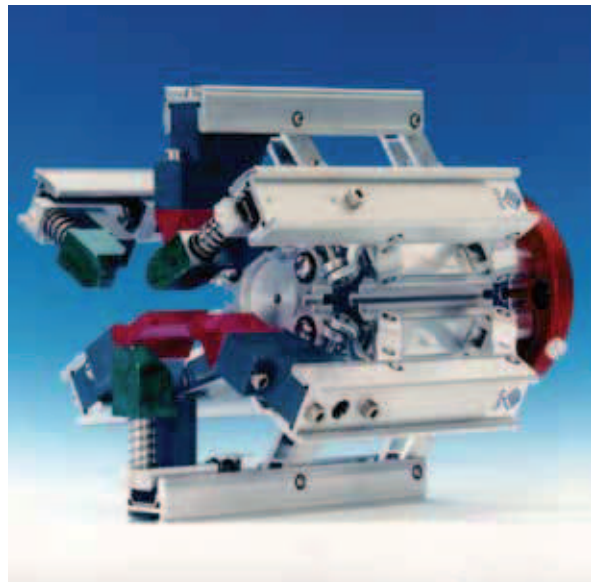
- Printing industry ● Electronics industry
- Packaging ● Medical
- Polymer processing machines etc.

Improve technology and reduce costs –
310 exciting examples for iglidur® plain bearings online

► www.igus.eu/eu/iglidur-applications



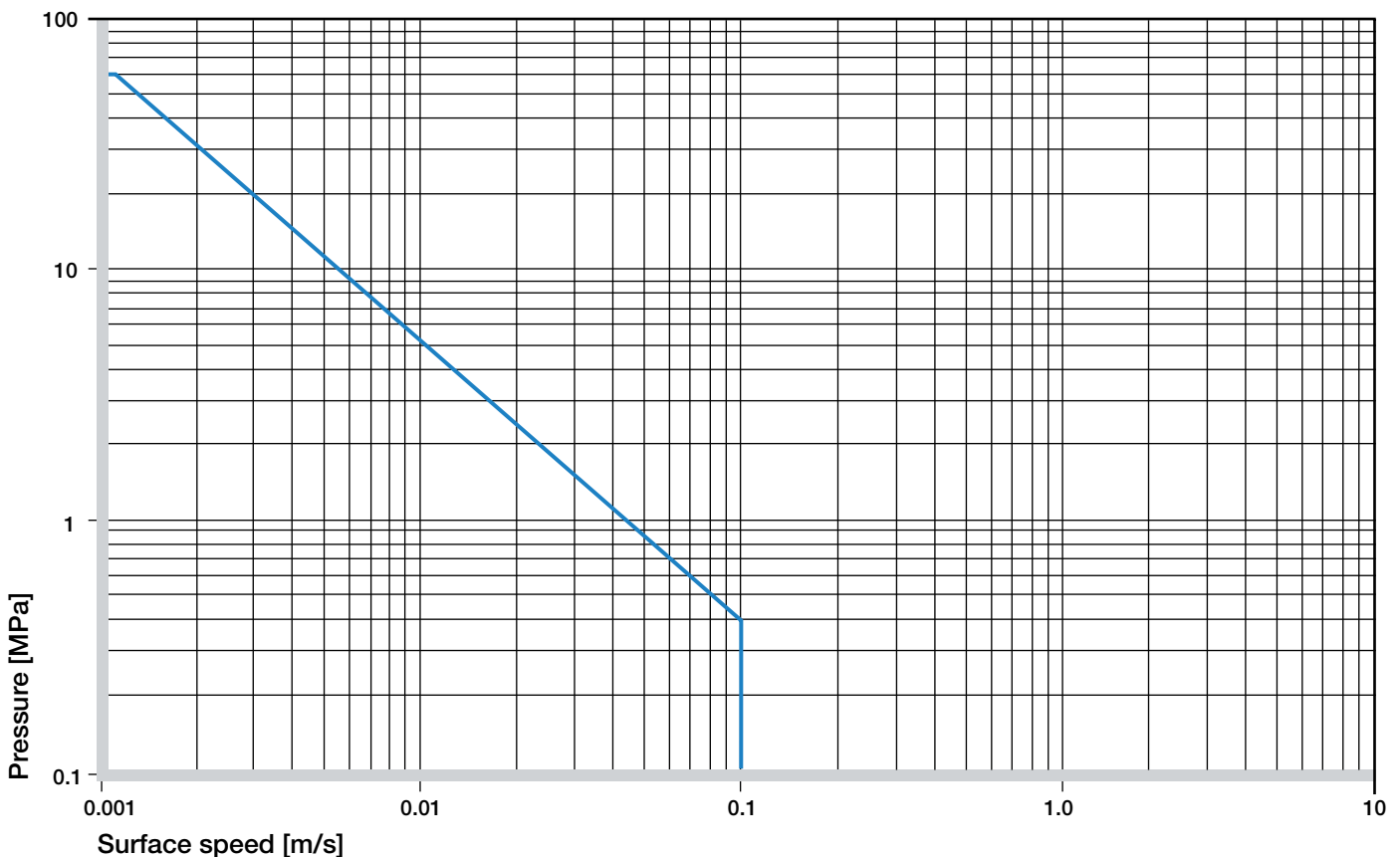
► www.igus.eu/satellite-receiver



► www.igus.eu/mechanical-hand

Material data			
General properties	Unit	iglidur® K	Testing method
Density	g/cm ³	1.52	
Colour		yellow beige	
Max. moisture absorption at +23 °C/50 % r. h.	% weight	0.1	DIN 53495
Max. moisture absorption	% weight	0.6	
Coefficient of sliding friction, dynamic against steel	μ	0,06–0,20	
pv value, max. (dry)	MPa · m/s	0.30	
Mechanical properties			
Modulus of elasticity	MPa	3,500	DIN 53457
Tensile strength at +20 °C	MPa	80	DIN 53452
Compressive strength	MPa	60	
Max. recommended surface pressure (+20 °C)	MPa	60	
Shore D hardness		72	DIN 53505
Physical and thermal properties			
Max. long term application temperature	°C	+170	
Max. short term application temperature	°C	+240	
Min. application temperature	°C	-40	
Thermal conductivity	W/m · K	0.25	ASTM C 177
Coefficient of thermal expansion (at +23 °C)	K ⁻¹ · 10 ⁻⁵	3	DIN 53752
Electrical properties			
Specific volume resistance	Ωcm	> 10 ¹²	DIN IEC 93
Surface resistance	Ω	> 10 ¹²	DIN 53482

Table 01: Material data

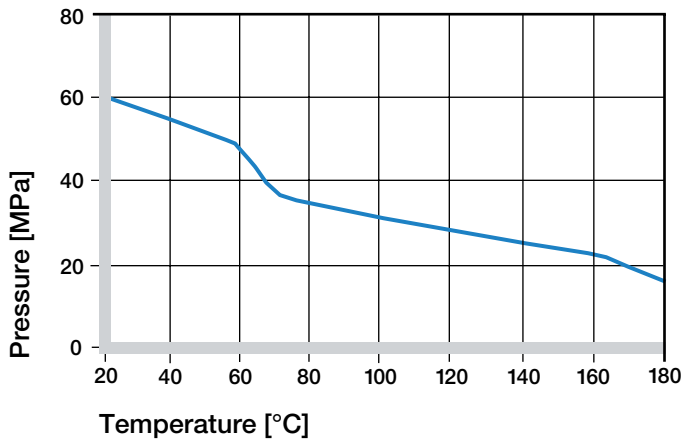


Graph 01: Permissible pv values for iglidur® K with a wall thickness of 1 mm dry running against a steel shaft at +20 °C, mounted in a steel housing

iglidur® K | Technical Data

Mechanical Properties

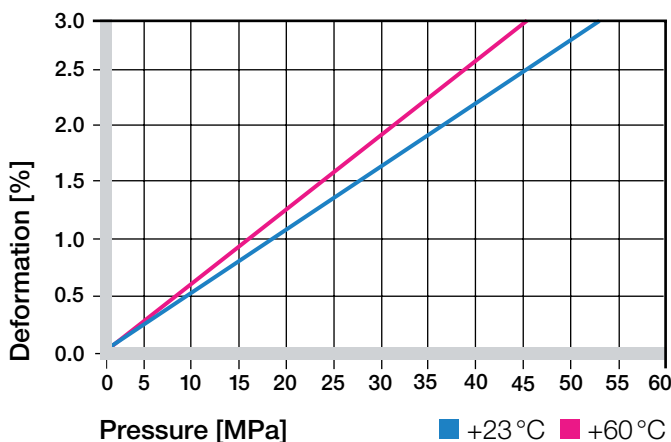
The recommended maximum surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this. With increasing temperatures, the compressive strength of iglidur® K plain bearings decreases. Graph 02 shows this inverse relationship. However, at 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)

Graph 03 shows the elastic deformation of iglidur® K during radial loading. At the recommended maximum surface pressure of 60 MPa the deformation is less than 5%. Plastic deformation can occur, this depends on the applied pressure.

► Surface Pressure, page 43



Graph 03: Deformation under pressure and temperature

Permissible Surface Speeds

iglidur® K has been developed for low to medium surface speeds. The maximum values shown in table 02 can only be achieved at low pressures. At the given speeds, friction can cause a temperature increase to maximum permissible levels. In practice, though, this temperature level is rarely reached, due to varying application conditions.

► Surface Speed, page 45

m/s	Rotating	Oscillating	Linear
Continuous	1	0.7	3
Short term	2	1.4	4

Table 02: Maximum running speed

Temperatures

iglidur® K plain bearings can be used at temperatures from -40 °C up to +170 °C. The short term maximum temperature is +240 °C. The ambient temperatures of the application also have an effect on the bearing wear. With increasing temperatures, the wear increases and this effect is significant when temperatures rise over +100 °C.

► Application Temperatures, page 46

iglidur® K	Application temperature
Minimum	-40 °C
Max. long term	+170 °C
Max. short term	+240 °C
Add. securing is required from	+70 °C

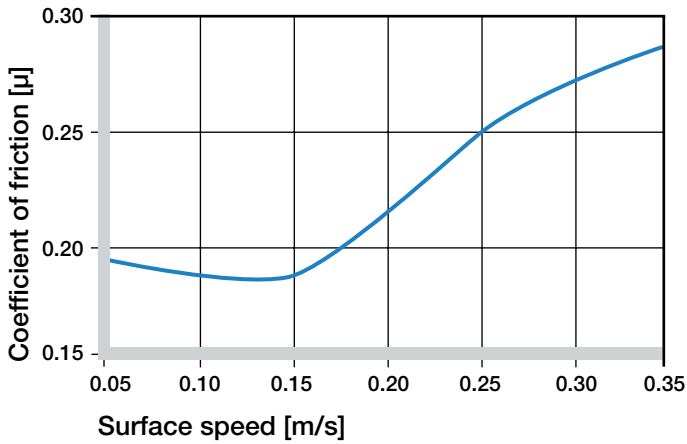
Table 03: Temperature limits

Friction and Wear

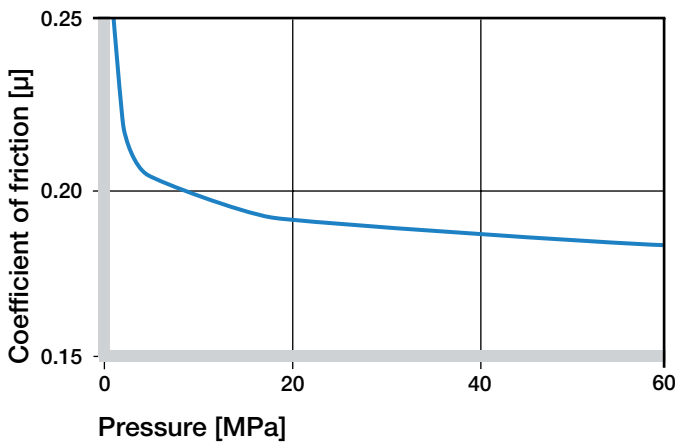
Similar to wear resistance, the coefficient of friction μ also changes with the load. The coefficient of friction decreases with increasing pressure (Graph 05), whereas an increase in surface speed causes an increase of the coefficient of friction (Graph 04). A noticeable increase is found over 0.15 m/s.

► Coefficients of Friction and Surfaces, page 48

► Wear Resistance, page 49



Graph 04: Coefficient of friction as a function of the running speed, $p = 0.75 \text{ MPa}$



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

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. For iglidur® K a ground surface with an average roughness $R_a = 0,15\text{--}0,20 \text{ μm}$ is recommended.

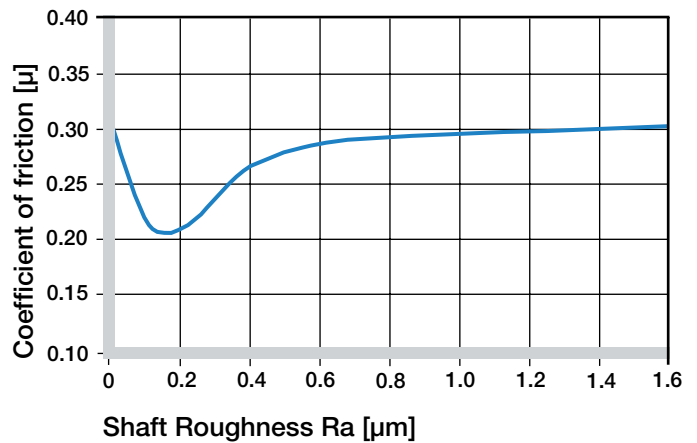
Graphs 06 and 07 show results of testing different shaft materials with plain bearings made of iglidur® K. It can be seen from Graph 07 that iglidur® K can be combined with a large number of different shaft materials. Only hard-chromed shafts are unsuitable. It is important to notice that with increasing loads, the recommended hardness of the shaft increases. The “soft” shafts tend to wear more easily and thus increase the wear of the overall system, if the loads exceed 2 MPa.

The comparison of rotational movements to oscillating movements shows that the wear is almost identical at a pressure up to 5 MPa. The higher the loads, the greater the difference.

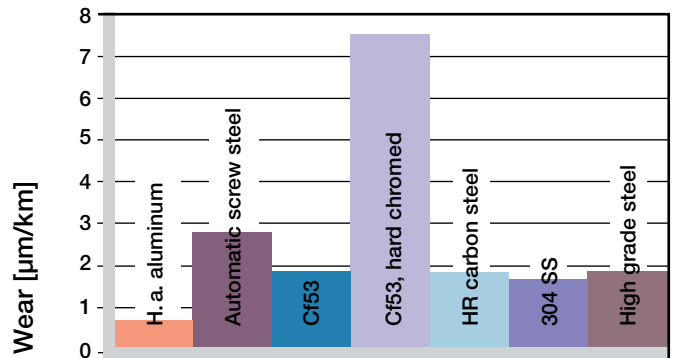
► Shaft Materials, page 51

iglidur® K	Dry	Greases	Oil	Water
C. o. f. μ	0,06–0,21	0,09	0,04	0,04

Table 04: Coefficient of friction against steel ($R_a = 1 \text{ μm}$, 50 HRC)

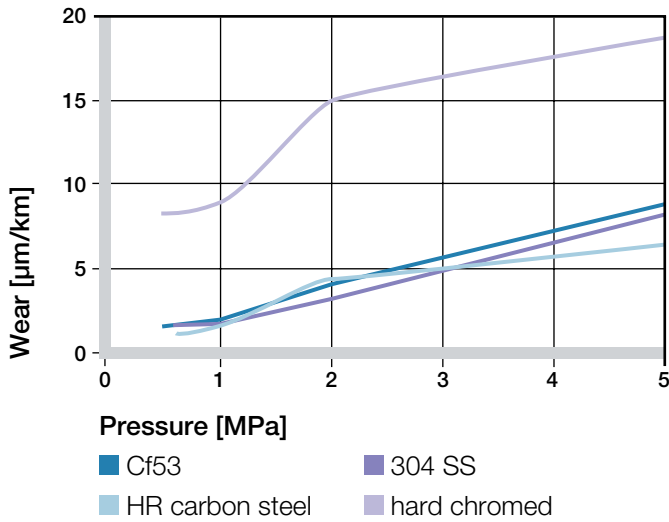


Graph 06: Coefficient of friction as function of the shaft surface (Cf53 hardened and ground steel)

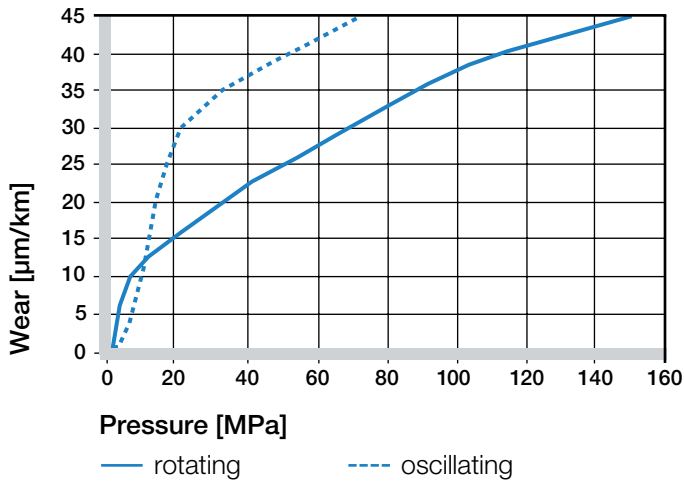


Graph 07: Wear, rotating with different shaft materials, pressure $p = 1 \text{ MPa}$, $v = 0.3 \text{ m/s}$

iglidur® K | Technical Data



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



Graph 09: Wear for oscillating and rotating applications with shaft material Cf53 hardened and ground steel, as a function of the pressure

Additional Properties

Chemical Resistance

iglidur® K plain bearings are resistant to diluted alkaline and very weak acids, as well as fuels and all types of lubricants. The low moisture absorption also permits use in wet or damp environments.

► Chemical Table, page 974

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

+ 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® K are resistant to radiation up to an intensity of $5 \cdot 10^2$ Gy.

UV Resistance

iglidur® K plain bearings become discoloured under UV radiation. However, hardness, compressive strength and the wear resistance of the material do not change.

Vacuum

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

Electrical Properties

iglidur® K plain bearings are electrically insulating.

Volume resistance	> $10^{12} \Omega\text{cm}$
Surface resistance	> $10^{12} \Omega$

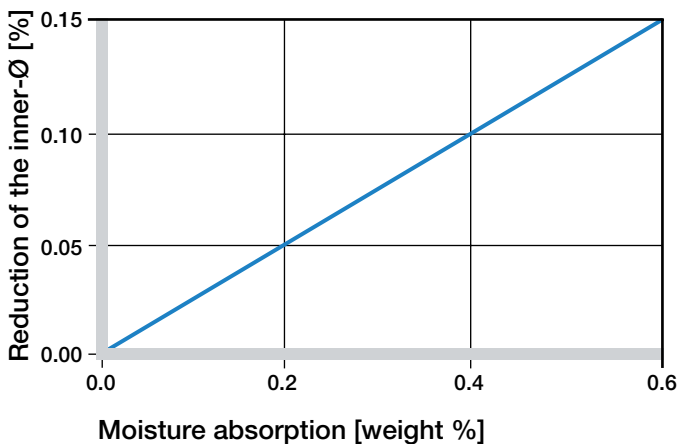
Moisture Absorption

The moisture absorption of iglidur® K plain bearings is approximately 0.1 % in the standard atmosphere. The saturation limit submerged in water is 0.6 %. These values are so low that the swelling only has to be considered in extreme cases.

Maximum moisture absorption

At +23°C/50 % r.h	0.1 % weight
Max. moisture absorption	0.6 % weight

Table 06: Moisture absorption



Graph 10: Effect of moisture absorption on plain bearings

Installation Tolerances

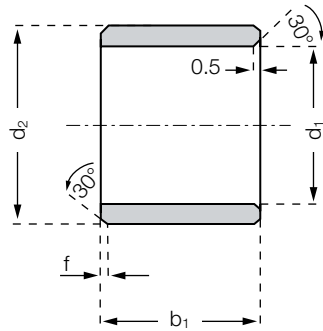
iglidur® K plain bearings are meant to be oversized before pressfit. The bearings are designed for pressfit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, the inner diameter adjusts to meet our specified tolerances. In relation to the installation tolerance, the inner diameter changes with the absorption of humidity.

► Testing Methods, page 55

Diameter d1 [mm]	Shaft h9 [mm]	iglidur® K E10 [mm]	Housing H7 [mm]
up to 3	0-0.025	+0.014 +0.054	0 +0.010
> 3 to 6	0-0.030	+0.020 +0.068	0 +0.012
> 6 to 10	0-0.036	+0.025 +0.083	0 +0.015
> 10 to 18	0-0.043	+0.032 +0.102	0 +0.018
> 18 to 30	0-0.052	+0.040 +0.124	0 +0.021
> 30 to 50	0-0.062	+0.050 +0.150	0 +0.025
> 50 to 80	0-0.074	+0.060 +0.180	0 +0.030
> 80 to 120	0-0.087	+0.072 +0.212	0 +0.035
> 120 to 180	0-0.100	+0.085 +0.245	0 +0.040

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

Sleeve bearing



Order key

KSM-0608-06



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

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 [mm]	Tolerance pressfitted in H7	d2 [mm]	b1 [mm]
KSM-0608-06	6	+0.020 +0.068	8	6
KSM-0810-10	8	+0.025 +0.083	10	10
KSM-1012-10	10	+0.025 +0.083	12	10
KSM-1214-12	12	+0.032 +0.102	14	12
KSM-1618-15	16	+0.032 +0.102	18	15
KSM-2023-20	20	+0.040 +0.124	23	20



delivery available
time from stock

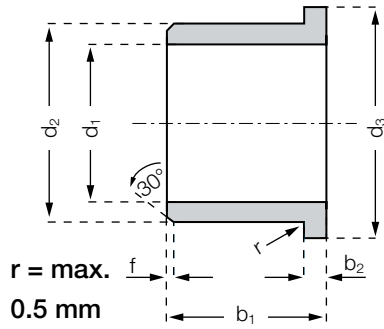


prices price list online
www.igus.eu/eu/k



order part number
example KSM-0608-06

Flange bearing



Order key

KFM-0608-06



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

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 [mm]	Tolerance pressfitted in H7	d2 [mm]	d3 [mm]	b1 [mm]	b2 [mm]
KFM-0608-06	6	+0.020 +0.068	8	12	6	1
KFM-0810-10	8	+0.025 +0.083	10	15	10	1
KFM-1012-10	10	+0.025 +0.083	12	18	10	1
KFM-1214-12	12	+0.032 +0.102	14	20	12	1
KFM-1618-17	16	+0.032 +0.102	18	24	17	1
KFM-2023-21	20	+0.040 +0.124	23	30	21.5	1.5

delivery available from stock

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

order part number example KFM-0608-06