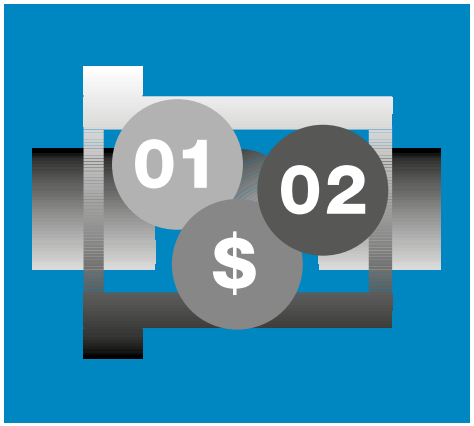

Versatile and cost-effective

For medium temperatures and wet environments

iglidur® K

When to use it?

- When a cost-effective all-round plain bearing is required
- For operations in wet environments
- When good wear resistance is required at medium loads

When not to use it?

- When the highest wear resistance is required
  iglidur® W300
- When high media resistance is required
  iglidur® X6
- When a high-temperature bearing is required
  iglidur® H

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Bearing technology | Plain bearings | iglidur® K

Ø
6.0-20.0mm

Also available as:

Bar stock, round bar
Page 743

Bar stock, plate
Page 773

tribo-tape liner
Page 781

Guide rings
Page 641

Two hole flange bearings
Page 667

Moulded special parts
Page 696

igubal® spherical balls
Page 993

Versatile and cost-effective
For medium temperatures and wet environments

iglidur® K is the cost-effective general purpose bearing for medium temperatures, low moisture absorption and good environmental resistance.

- Low moisture absorption
- Wear-resistant
- Cost-effective
- Lubrication-free
- Maintenance-free

Typical application areas

- Printing industry
- Electronics industry
- Packaging
- Medical technology
- Polymer processing machines

Descriptive technical specifications			
Wear resistance at +23°C	–	■■■□□	+
Wear resistance at +90°C	–	■■■□□	+
Wear resistance at +150°C	–	■■□□□	+
Slide property	–	■■■■□	+
Wear resistance under water	–	■■□□□	+
Media resistance	–	■■■□□	+
Resistant to edge pressures	–	■■■□□	+
Resistant to shock and impact loads	–	■■■□□	+
Dirt resistance	–	■■■■□	+

Online product finder
www.igus.eu/iglidur-finder

Online service life calculation
www.igus.eu/iglidur-expert

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iglidur® K
+170°C
50MPa

Technical data

General properties			Testing method
Density	g/cm³	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 friction, dynamic, against steel	μ	0.06-0.21	
pv value, max. (dry)	MPa · m/s	0.30	
Mechanical properties			
Flexural modulus	MPa	3,500	DIN 53457
Flexural strength at +20°C	MPa	80	DIN 53452
Compressive strength	MPa	60	
Max. permissible surface pressure (+20°C)	MPa	50	
Shore D hardness		72	DIN 53505
Physical and thermal properties			
Max. application temperature long-term	°C	+170	
Max. application temperature short-term	°C	+240	
Min. application temperature	°C	-40	
Thermal conductivity	W/m · K	0.25	ASTM C 177
Coefficient of thermal expansion (at +23°C)	$K^{-1} \cdot 10^{-5}$	3	DIN 53752
Electrical properties			
Specific transitional resistance	Ωcm	$> 10^{12}$	DIN IEC 93
Surface resistance	Ω	$> 10^{12}$	DIN 53482

Table 01: Material properties

-40°C up to +170°C

50MPa

HB

RoHS-II

ISO 3547-1

iglidur® K is characterised by its good wear characteristics at low moisture absorption and good thermal and mechanical specifications. This supports a very universal application spectrum.

Moisture absorption

The moisture absorption of iglidur® K plain bearings in ambient conditions is approximately 0.1% weight. The saturation limit submerged in water is 0.6% weight. These values are so low that a moisture expansion need to be considered only in extreme cases.

Vacuum

In vacuum, any present moisture is released as vapour. Use in vacuum is only possible with dehumidified iglidur® K bearings.

Radiation resistance

Plain bearings made from iglidur® K are resistant up to a radiation intensity of $5 \cdot 10^2$ Gy.

Resistance to weathering

iglidur® K plain bearings are resistant to weathering. The material properties are slightly affected. Discolouration occurs.

Mechanical properties

With increasing temperatures, the compressive strength of iglidur® K plain bearings decreases. Diagram 02 shows this inverse relationship. The maximum recommended surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.
Diagram 03 shows the elastic deformation of iglidur® K at radial loads. At the maximum recommended surface pressure of 50MPa, the deformation is less than 3%. A possible deformation could be, among others, dependant on the duty cycle of the load.

Surface pressure, page 45

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Bearing technology | Plain bearings | iglidur® K

Permissible surface speeds

iglidur® K has been developed for low to medium surface speeds. The maximum values shown in table 03 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 level is rarely reached due to varying application conditions.

Surface speed, page 48

Temperature

The temperatures prevailing in the bearing system also have an influence on the wear. With increasing temperatures, the wear increases and this effect is significant when temperatures rise over +100°C. For temperatures over +70°C an additional securing is required.

Application temperatures, page 53
Additional securing, page 53

Friction and wear

Similar to wear resistance, the coefficient of friction μ also changes with the surface speed and load (diagrams 04 and 05).

Coefficient of friction and surfaces, page 51
Wear resistance, page 54

Shaft materials

The friction and wear are also dependent, to a large degree, on the mating partner. 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 surface finish Ra = 0,15-0,2μm is recommended. Diagram 06 shows results of testing different shaft materials with plain bearings made from iglidur® K. 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 2MPa. The comparison of rotation and pivoting shows that the wear is almost identical at a pressure up to 5MPa. The higher the loads, the greater the difference (diagram 07).

Shaft materials, page 56

Installation tolerances

iglidur® K plain bearings are standard bearings for shafts with h-tolerance (recommended minimum h9). The bearings are designed for press-fit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, the inner diameter automatically adjusts to the E10 tolerances. For particular dimensions the tolerance differs depending on the wall thickness (please see product range table). In relation to the installation tolerance, the inner diameter changes with the absorption of humidity.

Testing methods, page 61

Chemicals	Resistance
Alcohols	+ up to 0
Diluted acids	0 up to –
Diluted alkalines	+
Fuels	+
Greases, oils without additives	+
Hydrocarbons	+
Strong acids	–
Strong alkalines	0

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

Table 02: Chemical resistance

Chemical table, page 1170

		Rotating	Oscillating	linear
Long-term	m/s	1.0	0.7	3.0
Short-term	m/s	2.0	1.4	4.0

Table 03: Maximum surface speeds

	Dry	Greases	Oil	Water
Coefficient of friction μ	0.06-0.21	0.09	0.04	0.04

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

Ø d1 [mm]	Housing H7 [mm]		Plain bearings E10 [mm]		Shaft h9 [mm]	
0-3	+0.000	+0.010	+0.014	+0.054	-0.025	+0.000
> 3-6	+0.000	+0.012	+0.020	+0.068	-0.030	+0.000
> 6-10	+0.000	+0.015	+0.025	+0.083	-0.036	+0.000
> 10-18	+0.000	+0.018	+0.032	+0.102	-0.043	+0.000
> 18-30	+0.000	+0.021	+0.040	+0.124	-0.052	+0.000
> 30-50	+0.000	+0.025	+0.050	+0.150	-0.062	+0.000
> 50-80	+0.000	+0.030	+0.060	+0.180	-0.074	+0.000
> 80-120	+0.000	+0.035	+0.072	+0.212	-0.087	+0.000
> 120-180	+0.000	+0.040	+0.085	+0.245	-0.100	+0.000

Table 05: Important tolerances for plain bearings according to ISO 3547-1 after press-fit

Technical data

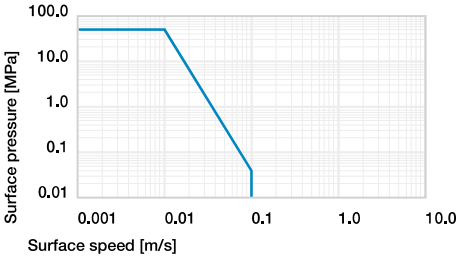


Diagram 01: Permissible pv values for iglidur® K plain bearing with a wall thickness of 1 mm dry operation against a steel shaft at +20°C, mounted in a steel housing.

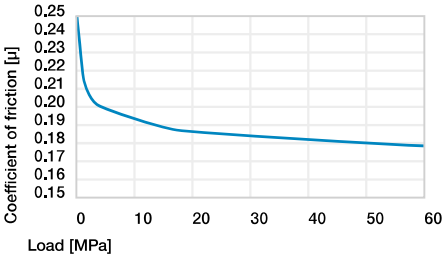


Diagram 05: Coefficient of friction as a function of the pressure, v = 0.01m/s

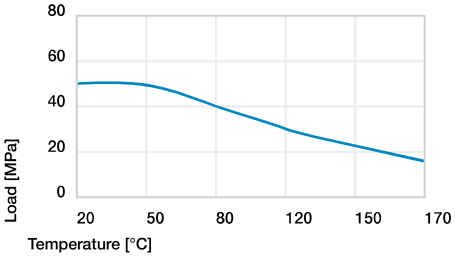


Diagram 02: Maximum recommended surface pressure as a function of temperature (50MPa at +20°C)

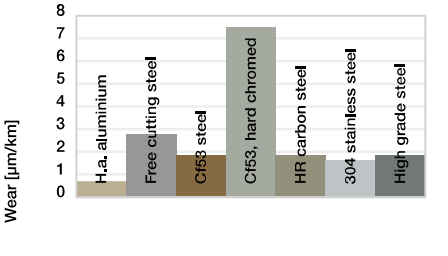


Diagram 06: Wear, rotating with different shaft materials, pressure, p = 1MPa, v = 0.3m/s

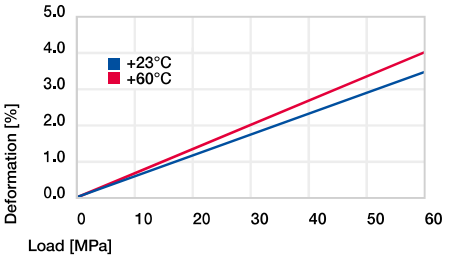


Diagram 03: Deformation under pressure and temperature

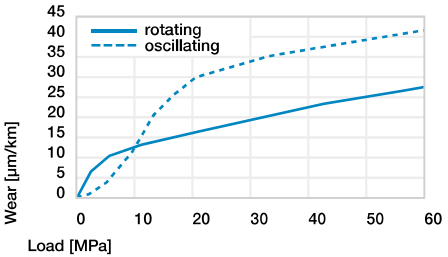


Diagram 07: Wear for oscillating and rotating applications with shaft material Cf53 hardened and ground steel, as a function of the load

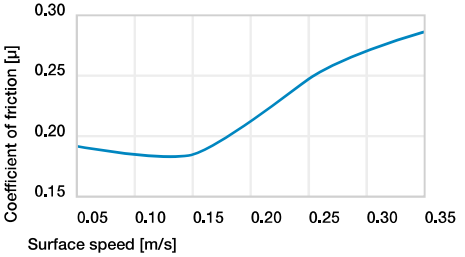
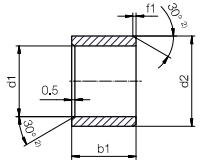


Diagram 04: Coefficient of friction as a function of the surface speed, p = 0.75MPa

Bearing technology | Plain bearings | iglidur® K

Sleeve bearings (form S)



[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30
f1 [mm]	0.3	0.5	0.8

Dimensions according to ISO 3547-1 and special dimensions

Order example: KSM-0608-06 – no minimum order quantity.
K iglidur® material S Cylindrical M Metric 06 Inner Ø d1 08 Outer Ø d2 06 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	b1 h13 [mm]	Part No.
6.0	+0.020 +0.068	8.0	6.0	KSM-0608-06
8.0	+0.025 +0.083	10.0	10.0	KSM-0810-10
10.0		12.0	10.0	KSM-1012-10
12.0	+0.032 +0.102	14.0	12.0	KSM-1214-12
16.0		18.0	15.0	KSM-1618-15
20.0	+0.040 +0.124	23.0	20.0	KSM-2023-20

[3] After press-fit. *Testing methods, page 61*

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iglidur® K
+170°C
50MPa

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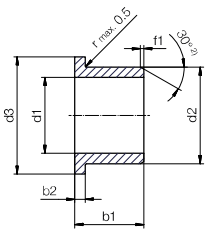
Flange bearings (form F)



[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 6-12	Ø 12-30
f1 [mm]	0.5	0.8

Dimensions according to ISO 3547-1 and special dimensions

Order example: KFM-0608-06 – no minimum order quantity.
K iglidur® material F With flange M Metric 06 Inner Ø d1 08 Outer Ø d2 06 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	d3 d13[3] [mm]	b1 h13 [mm]	b2 h13 [mm]	Part No.
6.0	+0.020 +0.068	8.0	12.0	6.0	1.00	KFM-0608-06
8.0	+0.025 +0.083	10.0	15.0	10.0	1.00	KFM-0810-10
10.0		12.0	18.0	10.0	1.00	KFM-1012-10
12.0	+0.032 +0.102	14.0	20.0	12.0	1.00	KFM-1214-12
16.0		18.0	24.0	17.0	1.00	KFM-1618-17
20.0	+0.040 +0.124	23.0	30.0	21.5	1.50	KFM-2023-21

[3] After press-fit. *Testing methods, page 61*

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