



## Versatile and cost-effective

For medium temperatures and wet environments

### igidur® 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?

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

# Bearing technology | Plain bearing | iglidur® K



Ø  
6.0 – 20.0mm



Also available  
as:



Bar stock,  
round bar  
Page 657



Bar stock,  
plate  
Page 683



tribo-tape liner  
Page 691



Piston rings  
Page 581



Two hole  
flange  
bearings  
Page 603



Moulded  
special parts  
Page 624



igubal®  
spherical balls  
Page 841

## 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	-	<div style="width: 40%; background-color: #0070C0;"></div>	+
Wear resistance at +90°C	-	<div style="width: 40%; background-color: #0070C0;"></div>	+
Wear resistance at +150°C	-	<div style="width: 20%; background-color: #0070C0;"></div>	+
Low coefficient of friction	-	<div style="width: 80%; background-color: #0070C0;"></div>	+
Low moisture absorption	-	<div style="width: 100%; background-color: #0070C0;"></div>	+
Wear resistance under water	-	<div style="width: 40%; background-color: #0070C0;"></div>	+
High media resistance	-	<div style="width: 40%; background-color: #0070C0;"></div>	+
Resistant to edge pressures	-	<div style="width: 40%; background-color: #0070C0;"></div>	+
Suitable for shock and impact loads	-	<div style="width: 40%; background-color: #0070C0;"></div>	+
Resistant to dirt	-	<div style="width: 40%; background-color: #0070C0;"></div>	+

Online product finder  
[www.igus.eu/iglidur-finder](http://www.igus.eu/iglidur-finder)

Online service life calculation  
[www.igus.eu/iglidur-expert](http://www.igus.eu/iglidur-expert)

## Technical data

General properties		Testing method	
Density	g/cm <sup>3</sup>	1.52	
Colour		yellow-beige	
Max. moisture absorption at +23°C and 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. recommended 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 <sup>-1</sup> · 10 <sup>-5</sup>	3	DIN 53752
Electrical properties			
Specific contact resistance	Ωcm	> 10 <sup>12</sup>	DIN IEC 93
Surface resistance	Ω	> 10 <sup>12</sup>	DIN 53482

Table 01: Material properties

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

Under standard climatic conditions, the moisture absorption of iglidur® K plain bearings is approximately 0.1% weight. The saturation limit 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 · 10<sup>2</sup>Gy.

### Resistance to weathering

iglidur® K plain bearings are resistant to weathering. The material properties are slightly affected. Discoloration 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 41



-40°C up to  
+170°C



50MPa



HB



## 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 44**

## 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 49**

**Additional securing, page 49**

## Friction and wear

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

**Coefficient of friction and surfaces, page 47**

**Wear resistance, page 50**

## 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 surface finish  $R_a = 0.15 - 0.2 \mu\text{m}$  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 52**

## 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, in standard cases 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 57**

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 information given at room temperature [+20°C]

**Table 02: Chemical resistance**

**Chemical table, page 1636**

		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**

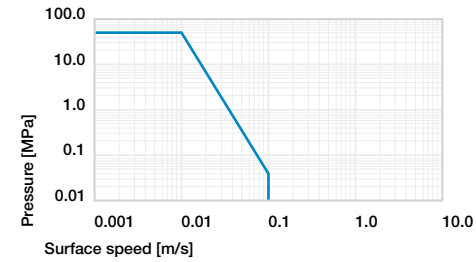
	Dry	Greases	Oil	Water
Coefficient of friction $\mu$	0.06 - 0.21	0.09	0.04	0.04

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

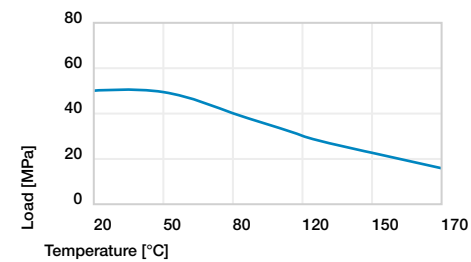
$\varnothing$ d1 [mm]	Housing		Plain bearing		Shaft	
	H7 [mm]	E10 [mm]	E10 [mm]	h9 [mm]	h9 [mm]	h9 [mm]
0 - 3	+0.000	+0.010	+0.014	+0.054	-0.025	+0.000
> 3 - 6	+0.000	+0.012	+0.020	+0.068	-0.030	+0.000
> 6 - 10	+0.000	+0.015	+0.025	+0.083	-0.036	+0.000
> 10 - 18	+0.000	+0.018	+0.032	+0.102	-0.043	+0.000
> 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**

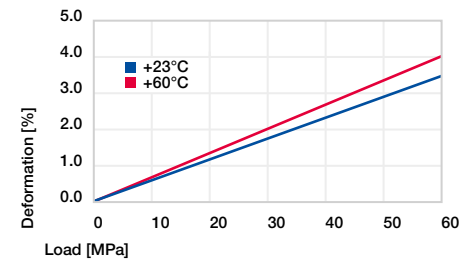
## Technical data



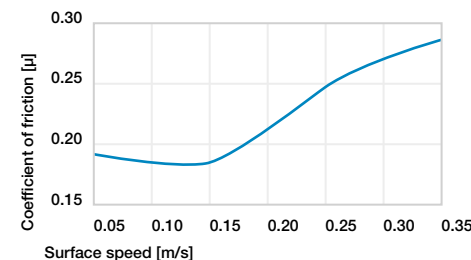
**Diagram 01: Permissible pv values for iglidur® K plain bearings with a wall thickness of 1mm, dry operation against a steel shaft, at +20°C, mounted in a steel housing**



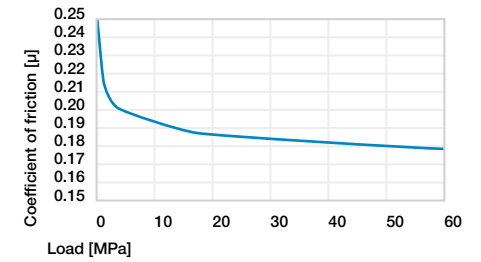
**Diagram 02: Maximum recommended surface pressure as a function of temperature (50MPa at +20°C)**



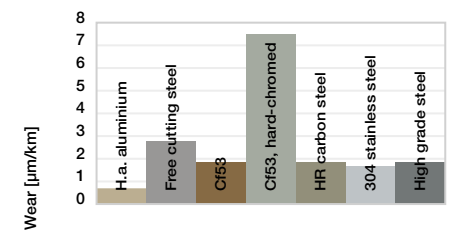
**Diagram 03: Deformation under pressure and temperature**



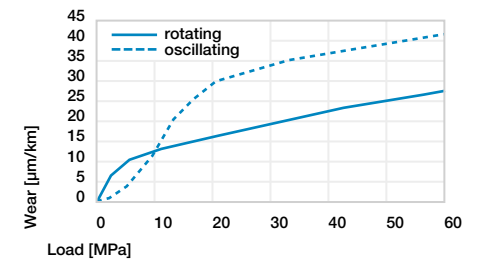
**Diagram 04: Coefficient of friction as a function of the surface speed,  $p = 0.75\text{MPa}$**



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



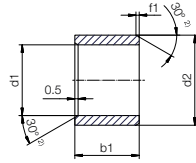
**Diagram 06: Wear, rotating with different shaft materials, pressure,  $p = 1\text{MPa}$ ,  $v = 0.3\text{m/s}$**



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

## Bearing technology | Plain bearing | iglidur® K

### Sleeve bearing (form S)



<sup>2)</sup> Thickness < 0.6mm: Chamfer = 20°

**i** Dimensions according to ISO 3547-1 and special dimensions

#### Chamfer in relation to d1

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



Order example: **KSM-0608-06** – no minimum order quantity.

**K** iglidur® material **S** Sleeve bearing **M** Metric **06** Inner Ø d1 **08** Outer Ø d2 **06** Total length b1

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

<sup>3)</sup> After press-fit. *Testing methods, page 57*



#### Available from stock

Detailed information about delivery time online.

[www.igus.eu/24](http://www.igus.eu/24)



#### Online ordering

Including delivery times, prices, online tools

[www.igus.eu/K](http://www.igus.eu/K)



#### Ordering note

Our prices are scaled according to order quantities, current prices can be found online.

Discount scaling		
1 – 9	50 – 99	500 – 999
10 – 24	100 – 199	1,000 – 2,499
25 – 49	200 – 499	2,500 – 4,999

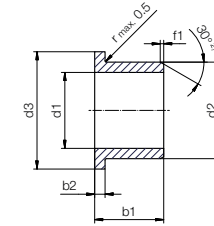
No minimum order value.

No low-quantity surcharges.

Free shipping within Germany for orders above €150.

## Bearing technology | Plain bearing | iglidur® K

### Flange bearing (form F)



<sup>2)</sup> Thickness < 0.6mm: Chamfer = 20°

**i** Dimensions according to ISO 3547-1 and special dimensions

#### Chamfer in relation to d1

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



Order example: **KFM-0608-06** – no minimum order quantity.

**K** iglidur® material **F** Flange bearing **M** Metric **06** Inner Ø d1 **08** Outer Ø d2 **06** Total length b1

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

<sup>3)</sup> After press-fit. *Testing methods, page 57*



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