



## High temperature endurance runner

Extreme wear and media resistance  
up to +250°C

### iglidur® C500



#### When to use it?

- When an extremely media-resistant plain bearing with high flexibility is required
- When you need a highly wear-resistant and media-resistant plain bearing



#### When not to use it?

- When an FDA-compliant high-temperature plain bearing is required  
*iglidur® A500*
- When a media-resistant, high-temperature plain bearing with the largest possible range of dimensions is required  
*iglidur® X*

Bearing technology | Plain bearings | iglidur® C500



Ø  
6.0-40.0mm



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  
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igubal®  
spherical balls  
Page 993

High temperature endurance runner  
Extreme wear and media resistance up to +250°C

iglidur® C500 can be used up to +250°C and is extremely media-resistant (even in cleaning processes using hydrogen peroxide). It is also wear-resistant and has low coefficient of friction. Also suitable for various special designs. The colour shows the use under extreme environmental influences.

- High temperature resistance
- Resistant to water vapour
- Low coefficient of friction
- Lubrication-free
- High wear resistance
- High media resistance
- Maintenance-free

Typical application areas

- Plant construction
- Valves
- Chemical industry
- Process technology

Descriptive technical specifications				
Wear resistance at +23°C	-	<div><div></div><div></div><div></div><div></div><div></div></div>	+	
Wear resistance at +90°C	-	<div><div></div><div></div><div></div><div></div><div></div></div>	+	
Wear resistance at +150°C	-	<div><div></div><div></div><div></div><div></div><div></div></div>	+	
Slide property	-	<div><div></div><div></div><div></div><div></div><div></div></div>	+	
Wear resistance under water	-	<div><div></div><div></div><div></div><div></div><div></div></div>	+	
Media resistance	-	<div><div></div><div></div><div></div><div></div><div></div></div>	+	
Resistant to edge pressures	-	<div><div></div><div></div><div></div><div></div><div></div></div>	+	
Resistant to shock and impact loads	-	<div><div></div><div></div><div></div><div></div><div></div></div>	+	
Dirt resistance	-	<div><div></div><div></div><div></div><div></div><div></div></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/cm³	1.37	
Colour	magenta		
Max. moisture absorption at +23°C/50% r.h.	% weight	0.3	DIN 53495
Max. moisture absorption	% weight	0.5	
Coefficient of friction, dynamic, against steel	μ	0.07-0.19	
pv value, max. (dry)	MPa · m/s	0.70	
Mechanical properties			
Flexural modulus	MPa	3,300	DIN 53457
Flexural strength at +20°C	MPa	100	DIN 53452
Compressive strength	MPa	110	
Max. permissible surface pressure (+20°C)	MPa	80	
Shore D hardness		80	DIN 53505
Physical and thermal properties			
Max. application temperature long-term	°C	+250	
Max. application temperature short-term	°C	+300	
Min. application temperature	°C	-100	
Thermal conductivity	W/m · K	0.24	ASTM C 177
Coefficient of thermal expansion (at +23°C)	K <sup>-1</sup> · 10 <sup>-5</sup>	9	DIN 53752
Electrical properties			
Specific transitional resistance	Ωcm	> 10 <sup>14</sup>	DIN IEC 93
Surface resistance	Ω	> 10 <sup>13</sup>	DIN 53482

Table 01: Material properties

iglidur® C500 is a member of the family of extremely media and temperature-resistant iglidur® materials X, X6 and A500. This material is characterised by improved wear resistance and increased design freedom.

Moisture absorption

The moisture absorption of iglidur® C500 plain bearings is below 0.3% weight in ambient conditions. The saturation limit submerged in water is 0.5% weight.

Vacuum

In vacuum, any present moisture is released as vapour. The use in vacuum is generally possible.

Radiation resistance

iglidur® C500 withstands neutron and gamma particle radiation without detectable losses of its excellent mechanical properties. Plain bearings made from iglidur® C500 are resistant up to a radiation intensity of 3 · 10<sup>2</sup> Gy.

Resistance to weathering

iglidur® C500 plain bearings are resistant to weathering. The material properties are slightly affected. Discolouration occurs.

Mechanical properties

When temperatures increase, the compressive strength of iglidur® C500 plain bearings decreases. Diagram 02 shows this inverse relationship. However, at an operation temperature of +200°C the permissible surface pressure is close to 20MPa. 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® C500 under different loads. At the maximum recommended surface pressure of 80MPa, the deformation is less than 4.5%.

**Surface pressure, page 45**



-100°C up to  
+250°C



80MPa



V-0



RoHS-II



ISO  
35474

## Permissible surface speeds

The maximum recommended surface speed is based on the frictional heat generated at the bearing surface. The temperature should only be permitted to increase to a value that will ensure a sustainable use of the bearing with respect to wear and dimensional integrity. The maximum values stated in table 03 are valid only with minimum pressure loads and are often not attained in practice.

**Surface speed, page 48**

## Temperature

iglidur® C500 belongs to the most temperature resistant iglidur® materials. As in the case of all thermoplastics, the compressive strength of iglidur® C500 bearings decreases when temperatures rise. The temperatures prevailing in the bearing system also have an influence on the wear. The wear rises with increasing temperatures. For temperatures over +130°C an additional securing is required.

**Application temperatures, page 53**

**Additional securing, page 53**

## Friction and wear

The coefficient of friction and wear in iglidur® C500 are more favourable than in the other high temperature materials iglidur® X and A500. The coefficient of friction increases moderately as the sliding speed increases. The coefficient of friction initially drops rapidly to less than 0,1 under loads of up to approximately 20MPa, and then only marginally increases as loads continue to increase. 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. Ground surfaces with an average surface finish Ra of 0,6 to 0,8µm are ideal.

**Coefficient of friction and surfaces, page 51**

**Wear resistance, page 54**

## Shaft materials

Diagram 06 shows a summary of the results of tests with different shaft materials executed with plain bearings made of iglidur® C500. Using the example of a rotating motion at 1MPa and a speed of 0,3m/s, it becomes apparent that iglidur® C500 has consistent wear characteristics across a variety of shaft types. This wear rate spikes in combination with free cutting steel, and, notably so, reduces in combination with HC aluminium. The wear under rotational loads is higher, specifically with increasing radial loads as compared to pivoting movements (diagram 07).

**Shaft materials, page 56**

## Installation tolerances

iglidur® C500 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 F10 tolerances.

**Testing methods, page 61**

Chemicals	Resistance
Alcohols	+
Diluted acids	+
Diluted alkalines	+
Fuels	+
Greases, oils without additives	+
Hydrocarbons	+
Strong acids	+
Strong alkalines	+

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

Table 02: Chemical resistance

**Chemical table, page 1170**

	Rotating	Oscillating	linear
Long-term	m/s 0.9	0.7	2.4
Short-term	m/s 1.1	1.0	2.8

Table 03: Maximum surface speeds

	Dry	Greases	Oil	Water
Coefficient of friction $\mu$	0.07-0.19	0.09	0.04	0.04

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

	Housing	Plain bearings	Shaft
Ø d1 [mm]	H7 [mm]	F10 [mm]	h9 [mm]
0-3	+0.000 +0.010	+0.006 +0.046	-0.025 +0.000
> 3-6	+0.000 +0.012	+0.010 +0.058	-0.030 +0.000
> 6-10	+0.000 +0.015	+0.013 +0.071	-0.036 +0.000
> 10-18	+0.000 +0.018	+0.016 +0.086	-0.043 +0.000
> 18-30	+0.000 +0.021	+0.020 +0.104	-0.052 +0.000
> 30-50	+0.000 +0.025	+0.025 +0.125	-0.062 +0.000
> 50-80	+0.000 +0.030	+0.030 +0.150	-0.074 +0.000
> 80-120	+0.000 +0.035	-0.036 +0.176	-0.087 +0.000
> 120-180	+0.000 +0.040	+0.043 +0.203	+0.000 +0.100

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

# Technical data

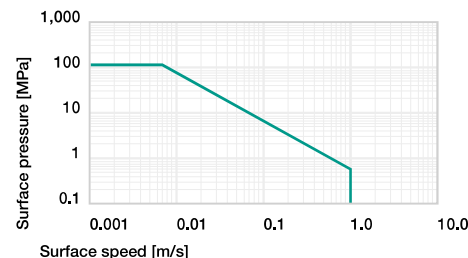


Diagram 01: Permissible pv values for iglidur® C500 with a wall thickness of 1mm dry operation against a steel shaft at +20°C, mounted in a steel housing

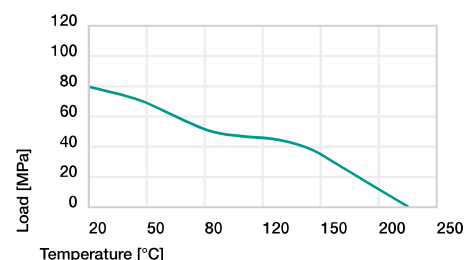


Diagram 02: Maximum recommended surface pressure as a function of temperature (80MPa at +20°C)

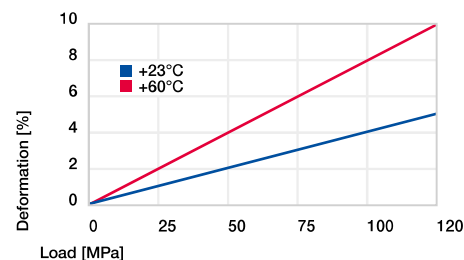


Diagram 03: Deformation under pressure and temperature

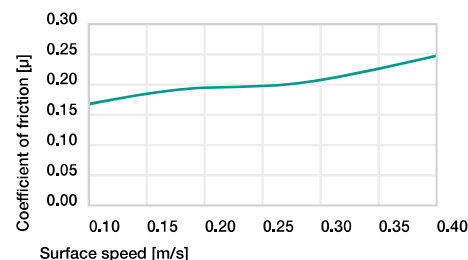


Diagram 04: Coefficient of friction as a function of the surface speed, p = 1MPa

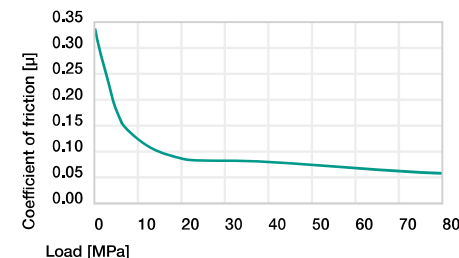


Diagram 05: Coefficient of friction as a function of the pressure, v = 0.01m/s

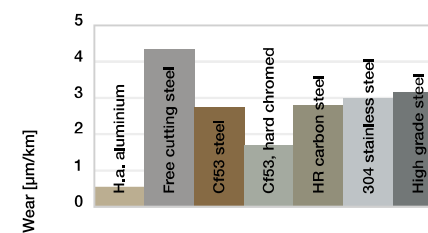


Diagram 06: Wear, rotating with different shaft materials, pressure, p = 1MPa, v = 0.3m/s

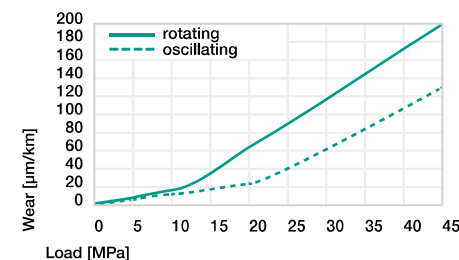
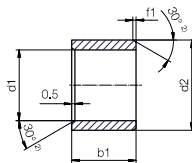


Diagram 07: Wear for oscillating and rotating applications with shaft material Cf53 hardened and ground steel, as a function of the load

## Bearing technology | Plain bearings | iglidur® C500

### Sleeve bearings (form S)



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

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30	Ø > 30	Dimensions according to ISO 3547-1 and special dimensions
f1 [mm]	0.3	0.5	0.8	1.2	

Order example: **C500SM-0608-06** – no minimum order quantity.

**C500** iglidur® material **S** Cylindrical **M** Metric **06** Inner Ø d1 **08** Outer Ø d2 **06** Total length b1

d1	d1 Tolerance <sup>3)</sup>	d2	b1 h13	Part No.
[mm]		[mm]	[mm]	
6.0	+0.010 +0.058	8.0	6.0	<b>C500SM-0608-06</b>
8.0	+0.013 +0.071	10.0	10.0	<b>C500SM-0810-10</b>
10.0		12.0	10.0	<b>C500SM-1012-10</b>
12.0		14.0	12.0	<b>C500SM-1214-12</b>
16.0	+0.016 +0.086	18.0	15.0	<b>C500SM-1618-15</b>
20.0	+0.020 +0.104	23.0	20.0	<b>C500SM-2023-20</b>
40.0	+0.025 +0.125	44.0	30.0	<b>C500SM-4044-30</b>

<sup>3)</sup> After press-fit. *Testing methods, page 61*

Available from stock

Detailed information about delivery time online.  
[www.igus.eu/24](http://www.igus.eu/24)

Order online

including delivery times, prices, online tools  
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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

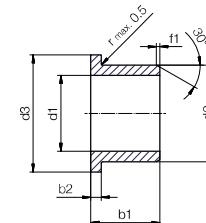
No minimum order value.

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Free shipping within Germany for orders above €150.

## Bearing technology | Plain bearings | iglidur® C500

### Flange bearings (form F)



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

Chamfer in relation to d1

d1 [mm]	Ø 6-12	Ø 12-30	Dimensions according to ISO 3547-1 and special dimensions
f1 [mm]	0.5	0.8	

Order example: **C500FM-0608-06** – no minimum order quantity.

**C500** iglidur® material **F** With flange **M** Metric **06** Inner Ø d1 **08** Outer Ø d2 **06** Total length b1

d1	d1 Tolerance <sup>3)</sup>	d2	d3 d13 <sup>3)</sup>	b1 h13	b2 h13	Part No.
[mm]		[mm]	[mm]	[mm]	[mm]	
6.0	+0.010 +0.058	8.0	12.0	6.0	1.00	<b>C500FM-0608-06</b>
8.0		10.0	15.0	10.0	1.00	<b>C500FM-0810-10</b>
10.0	+0.013 +0.071	12.0	18.0	10.0	1.00	<b>C500FM-1012-10</b>
12.0		14.0	20.0	12.0	1.00	<b>C500FM-1214-12</b>
16.0	+0.016 +0.086	18.0	24.0	17.0	1.00	<b>C500FM-1618-17</b>
20.0	+0.020 +0.104	23.0	30.0	21.5	1.50	<b>C500FM-2023-21</b>

<sup>3)</sup> After press-fit. *Testing methods, page 61*

Available from stock

Detailed information about delivery time online.  
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including delivery times, prices, online tools  
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