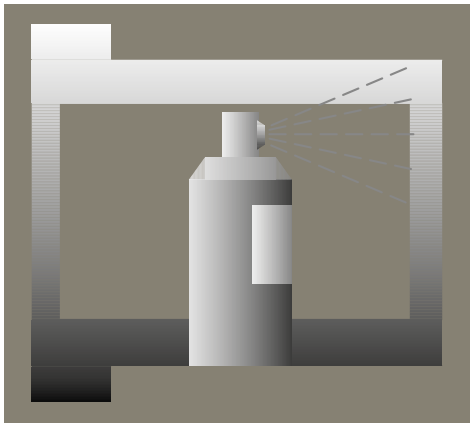

Free from PTFE and silicone

For simple applications

iglidur® C

When to use it?

- When PTFE and silicone are not allowed in your application
- For applications with low speed
- When dirt-resistant bearings is required
- When maintenance-free, self-lubricating bearings is required

When not to use?

- When the highest wear resistance is required
  iglidur® W300
- When lowest coefficient of friction is required
  iglidur® J, iglidur® L250
- When a cost-effective option is requested
  iglidur® M250
- When low moisture absorption is required
  iglidur® R

Bearing technology | Plain bearing | iglidur® C

Ø
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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

Free from PTFE and silicone
For simple applications

Although iglidur® C dispenses with the use of PTFE and silicone as lubricants, the bearings still have excellent wear resistance under low loads.

- Maintenance-free dry operation
- High wear resistance
- Lubrication-free
- Maintenance-free

Descriptive technical specifications		
Wear resistance at +23°C	–	+
Wear resistance at +90°C	–	+
Wear resistance at +150°C	–	+
Low coefficient of friction	–	+
Low moisture absorption	–	+
Wear resistance under water	–	+
High media resistance	–	+
Resistant to edge pressures	–	+
Suitable for shock and impact loads	–	+
Resistant to dirt	–	+

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

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

iglidur® C
+90°C
40MPa

Technical data

General properties			Testing method
Density	g/cm³	1.10	
Colour		off white	
Max. moisture absorption at +23°C and 50% r.h.	% weight	1	DIN 53495
Max. moisture absorption	% weight	6.9	
Coefficient of friction, dynamic, against steel	µ	0.17 – 0.25	
pv value, max. (dry)	MPa · m/s	0.10	
Mechanical properties			
Flexural modulus	MPa	1,900	DIN 53457
Flexural strength at +20°C	MPa	60	DIN 53452
Compressive strength	MPa	30	
Max. recommended surface pressure (+20°C)	MPa	40	
Shore D hardness		72	DIN 53505
Physical and thermal properties			
Max. application temperature long-term	°C	+90	
Max. application temperature short-term	°C	+130	
Min. application temperature	°C	–40	
Thermal conductivity	W/m · K	0.24	ASTM C 177
Coefficient of thermal expansion (at +23°C)	$K^{-1} \cdot 10^{-5}$	15	DIN 53752
Electrical properties			
Specific contact resistance	Ωcm	$> 10^{10}$	DIN IEC 93
Surface resistance	Ω	$> 10^{9}$	DIN 53482

Table 01: Material properties

–40°C up to +90°C

40MPa

HB

RoHS-II

Plain bearings made from iglidur® C were developed especially for applications where the use of PTFE and silicon is not possible. Such applications can be found in electronics, tobacco and beverages industry and in many painting processes. Keywords like paint compatibility and silicon-free make the further employment of this material reasonable.

Moisture absorption

The moisture absorption of iglidur® C plain bearings is approximately 6.9% weight when saturated in water. This must be taken into account for these types of applications.

Vacuum

In vacuum, any present moisture is released as vapour. The use in vacuum is only possible to a limited extent.

Radiation resistance

Plain bearings made from iglidur® C are resistant up to a radiation intensity of $2 \cdot 10^4$Gy.

Resistance to weathering

iglidur® C plain bearings have limited resistance to weathering. The material properties are affected. Discoloration occurs. Practical tests under real application conditions are recommended.

Mechanical properties

With increasing temperatures, the compressive strength of iglidur® C 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® C at radial loads. The high flexibility makes the bearing suitable for vibrations and edge loads.

Surface pressure, page 41

Bearing technology | Plain bearing | iglidur® C

Permissible surface speeds

Although important solid lubricants were intentionally avoided in the development of iglidur® C, the plain bearings are very wear-resistant and therefore also suitable for continuous movements at medium surface speeds. Despite it being possible to temporarily attain rotational speeds of up to 1.5m/s, the main applications should nevertheless involve speeds of less than 0.5m/s.

Surface speed, page 44

Temperature

The iglidur® C plain bearings can be used in short-term temperatures up to +130°C. However no real loads are possible at this temperature. It therefore makes sense to limit the temperature to around +80°C to +90°C. For temperatures over +40°C an additional securing is required.

Application temperatures, page 49
Additional securing, page 49

Friction and wear

The coefficient of friction of the iglidur® C plain bearing is dependent to a large degree on the surface finish of the shaft. The wear of the bearing is very good in applications with rotating or pivoting movements with low loads.

Coefficient of friction and surfaces, page 47
Wear resistance, page 50

Shaft materials

Diagram 06 clearly shows how important the most "suitable" shaft can be. Although all shown results of these rotation experiments can be understood as very good, the difference is sometimes significant. This difference increases still further with increasing loads.

Shaft materials, page 52

Installation tolerances

iglidur® C 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 D11 tolerances. For particular dimensions the tolerance differs depending on the wall thickness (please see product range table).

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	2.0
short-term	m/s	1.5	1.1	3.0

Table 03: Maximum surface speeds

	Dry	Greases	Oil	Water
Coefficient of friction μ	0.17 – 0.25	0.09	0.04	0.04

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

	Housing		Plain bearing		Shaft	
Ø d1 [mm]	H7 [mm]		D11 [mm]		h9 [mm]	
0 – 3	+0.000	+0.010	+0.020	+0.080	–0.025	+0.000
> 3 – 6	+0.000	+0.012	+0.030	+0.105	–0.030	+0.000
> 6 – 10	+0.000	+0.015	+0.040	+0.130	–0.036	+0.000
> 10 – 18	+0.000	+0.018	+0.050	+0.160	–0.043	+0.000
> 18 – 30	+0.000	+0.021	+0.065	+0.195	–0.052	+0.000
> 30 – 50	+0.000	+0.025	+0.080	+0.240	–0.062	+0.000
> 50 – 80	+0.000	+0.030	+0.100	+0.290	–0.074	+0.000
> 80 – 120	+0.000	+0.035	+0.120	+0.340	–0.087	+0.000
> 120 – 180	+0.000	+0.040	+0.145	+0.395	–0.100	+0.000

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

iglidur® C plain bearings are manufactured to special order.

Technical data

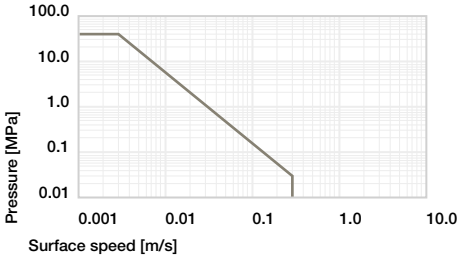

Diagram 01: Permissible pv values for iglidur® C plain bearings with a wall thickness of 1mm, dry operation against a steel shaft, at +20°C, mounted in a steel housing

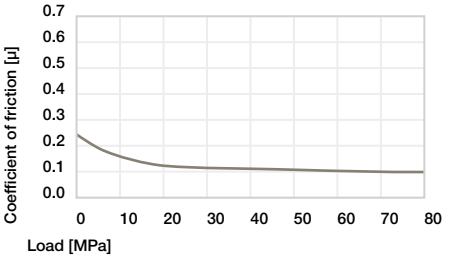

Diagram 05: Coefficient of friction as a function of the load, v = 0.01m/s

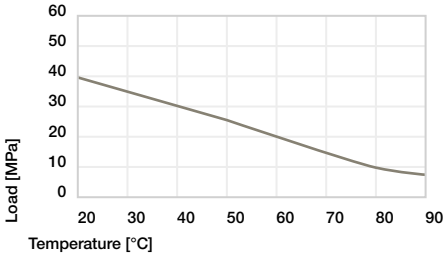

Diagram 02: Maximum recommended surface pressure as a function of temperature (40MPa at +20°C)

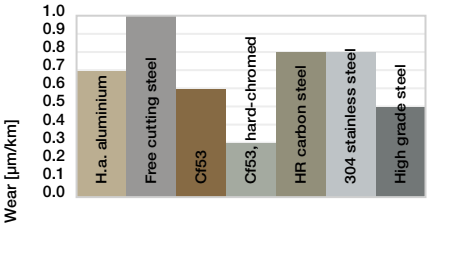

Diagram 06: Wear, rotating with different shaft materials, pressure, p = 1MPa, v = 0.3m/s

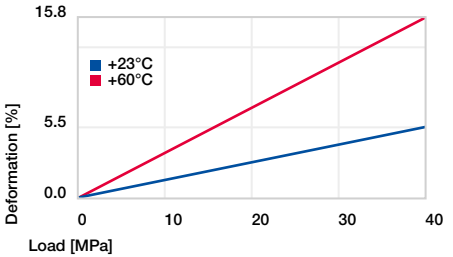

Diagram 03: Deformation under pressure and temperature

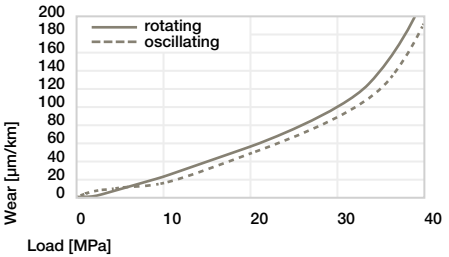

Diagram 07: Wear for oscillating and rotating applications with shaft material Cf53 hardened and ground steel, as a function of the load

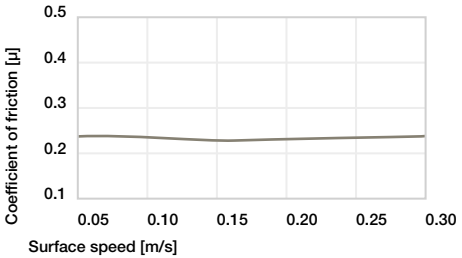

Diagram 04: Coefficient of friction as a function of the surface speed, p = 0.75MPa