iglidur® W360 | Endurance runner up to +180 °C

For applications with no significant influence from media or humidity

Extremely wear-resistant

Continuous use up to +180 °C

Suitable for wet environments

Good cost/ performance ratio

The new iglidur® material combines outstanding continuous running properties with excellent temperature resistance, reduced moisture absorption and good value for money – a real all-rounder in the endurance field.

When to use it?

- When extremely wear resistant bearings are required for average loads
- When regular contact with moisture occurs
- When sustained temperatures above +90 °C occur

When not to use it?

- When an extremely wear resistant bearing is sought for the standard temperature range and low to medium loads
  ▶ iglidur® J, page 141
- When the maximum temperature resistance and high wear resistance is required
  ▶ iglidur® Z, page 255
  ▶ iglidur® J350, page 173
  ▶ iglidur® V400, page 273
- When the highest wear resistance under water is required
  ▶ iglidur® UW, page 473
  ▶ iglidur® H370, page 305

Typical application areas

- Material handling
- Automation
- Two-wheel technology
- Electromobility

Available from stock
Detailed information about delivery time online.

Block pricing online
No minimum order value. From batch size 1.

Max. +180 °C
Min. –40 °C

Ø 6–20 mm
More dimensions upon request

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

iglidur® W360 | Technical data

Material properties

General properties	Unit	iglidur® W360	Testing method
Density	g/cm³	1.34	
Colour		yellow	
Max. moisture absorption at +23 °C/50 % r.h.	% weight	0.2	DIN 53495
Max. water absorption	% weight	1.6	
Coefficient of sliding friction, dynamic, against steel	µ	0.07–0.21	
pv value, max. (dry)	MPa · m/s	0.35	
Mechanical properties			
Flexural modulus	MPa	3,829	DIN 53457
Flexural strength at +20 °C	MPa	119	DIN 53452
Compressive strength	MPa	n.s.	
Max. recommended surface pressure (+20 °C)	MPa	75	
Shore-D hardness		n.s.	DIN 53505
Physical and thermal properties			
Max. long-term application temperature	°C	+180	
Max. short-term application temperature	°C	+200	
Min. long-term application temperature	°C	–40	
Heat conductivity	W/m · K	0.24	ASTM C 177
Coefficient of thermal expansion (at +23 °C)	$K^{-1} \cdot 10^{-5}$	6	DIN 53752
Electrical properties			
Specific contact resistance	Ωcm	$> 10^{13}$	DIN IEC 93
Surface resistance	Ω	$> 10^{12}$	DIN 53482

Table 01: Material properties table

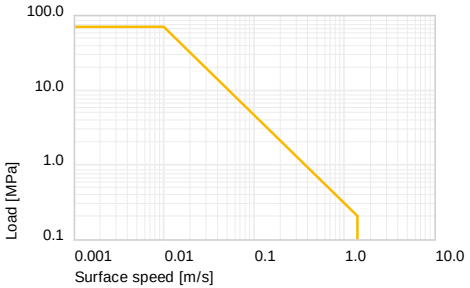

Diagram 01: Permissible pv values for iglidur® W360 bearings with a wall thickness of 1 mm dry running against a steel shaft, at +20 °C, mounted in a steel housing

Moisture absorption

The moisture absorption of iglidur® W360 is low and can be disregarded when used in a humid environment. With a full saturation of 1.6 % weight, however, underwater use is only possible to a very restricted extent.

▶ Diagram, www.igus.eu/w360-moisture

Vacuum

In a vacuum, iglidur® W360 bearing outgases only to a very small extent. Use in vacuum is possible with dehumidified bearings.

Radiation resistance

Plain bearings made from iglidur® W360 are resistant up to a radiation intensity of $2 \cdot 10^2$ Gy.

UV resistance

iglidur® W360 plain bearings are partially resistant to UV radiation.

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

+ resistant 0 conditionally resistant – not resistant
All data given at room temperature [+20 °C]
Table 02: Chemical resistance

▶ Chemical table, page 1478

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Low moisture absorption and high temperature resistance result in an extremely broad range of uses for this extremely wear resistant material.

Mechanical properties

With increasing temperatures, the compressive strength of iglidur® W360 plain bearings decreases. The diagram 02 shows this inverse relationship. At +180 °C the surface pressure is still 10 MPa. The recommended maximum surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.

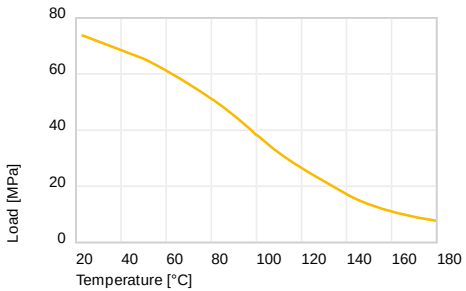

Diagram 02: Permissible maximum surface pressure of as a function of temperature (75 MPa at +20 °C)

iglidur® W360 bearings are suitable for a broad range of loads. Diagram 03 shows the deformation under temperature. It shows the material behaviour submitted to a short-term load.

▶ Surface pressure, page 41

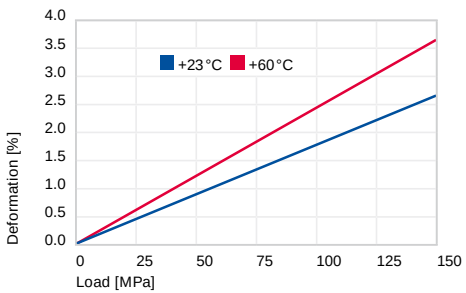

Diagram 03: Deformation under pressure and temperature

Permissible surface speeds

iglidur® W360 bearings are suitable for low to medium speeds in both rotating and oscillating applications. Even linear movements can often be realised with iglidur® W360.

▶ Surface speed, page 44

m/s	Rotating	Oscillating	Linear
Continuous	1.2	0.9	3.0
Short-term	2.7	2.0	5.0

Table 03: Maximum surface speeds

Temperatures

The temperature resistance makes iglidur® W360 a very universal material for plain bearings in different industries. Application temperatures up to +200 °C are permitted on the short-term. Please note that from +90 °C the press-in fastening of the bearings is not sufficient and an additional securing of the bearing is required.

▶ Application temperatures, page 49
▶ Additional securing, page 49

Friction and wear

The coefficients of friction of iglidur® W360 in dry operation against steel lie in a very good range. They constantly remain at a low level regardless of the speed. The Diagram 04 shows this inverse relationship. As the load increases, the coefficient of friction decreases. The correlation is especially strong up to approx. 15 MPa (diagram 05).

▶ Coefficients of friction and surfaces, page 47
▶ Wear resistance, page 50

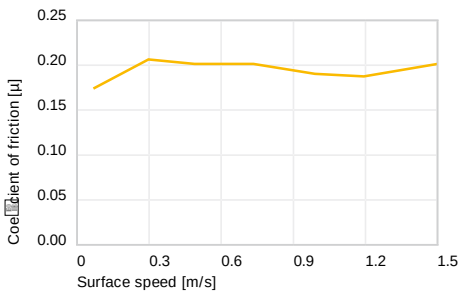

Diagram 04: Coefficient of friction as a function of the surface speed, p = 1 MPa

iglidur® W360 | Technical data

W360
+180 °C
75 MPa

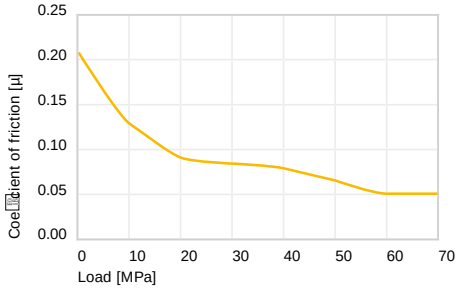

Diagram 05: Coefficient of friction as a function of the pressure, v = 0.01 m/s

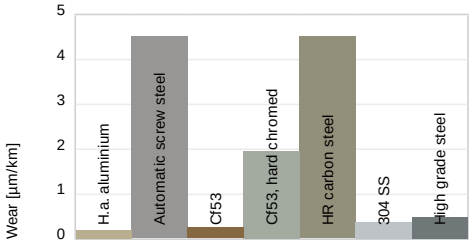

Diagram 07: Wear, rotating with different shaft materials, p = 1 MPa, v = 0.3 m/s

Shaft materials

In the case of iglidur® W360, the shaft's surface finish has practically no effect on the coefficient of friction in the range of up to 1.6 MPa (diagram 06). Diagram 07 shows an extract of results of tests with different shaft materials. iglidur® W360 bearings are suitable for all gliding partners. During rotation with a load of 1 MPa, all aluminium hc, Cf53 and stainless steel shafts stand out. A similar picture also exists with other loads or pivoting movements.
If the shaft material you plan on using is not shown in these test results, please contact us.

▶ Shaft materials, page 52

iglidur® W360	Dry	Greases	Oil	Water
C.o.f. µ	0.07–0.21	0.09	0.04	0.04

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

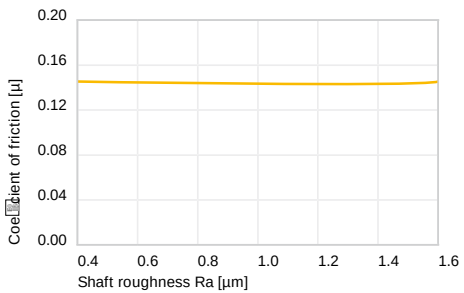

Diagram 06: Coefficient of friction as function of the shaft surface (Cf53 hardened and ground steel)

Installation tolerances

iglidur® W360 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.

▶ Testing methods, page 57

Diameter d1 [mm]	Shaft h9 [mm]	iglidur® W360 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

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