

## Endurance runner up to +180°C

For applications that are clean and dry

### igidur® W360



#### When to use it?

- When an extremely wear-resistant plain bearing is required for medium loads
- When a low coefficient of friction at higher temperatures is required
- When continuous operating temperatures are higher than +90°C



#### When not to use?

- When a wear-resistant plain bearing is sought for the standard temperature range and low to medium loads  
*igidur® J*
- When the maximum temperature resistance and high wear resistance is required  
*igidur® Z, iglidur® J350, iglidur® V400*
- When the highest wear resistance under water is required  
*igidur® UW, iglidur® H370*

# Bearing technology | Plain bearing | iglidur® W360



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

## Endurance runner up to +180°C For applications that are clean and dry

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

- High wear resistance
- Temperature-resistant up to +180°C
- Suitable for wet environments
- Good price-performance ratio
- Lubrication-free
- Maintenance-free

### Typical application areas

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

### Descriptive technical specifications

Wear resistance at +23°C	-	<div style="width: 100%; height: 10px; background-color: yellow;"></div>	+
Wear resistance at +90°C	-	<div style="width: 80%; height: 10px; background-color: yellow;"></div>	+
Wear resistance at +150°C	-	<div style="width: 60%; height: 10px; background-color: yellow;"></div>	+
Low coefficient of friction	-	<div style="width: 100%; height: 10px; background-color: yellow;"></div>	+
Low moisture absorption	-	<div style="width: 100%; height: 10px; background-color: yellow;"></div>	+
Wear resistance under water	-	<div style="width: 80%; height: 10px; background-color: yellow;"></div>	+
High media resistance	-	<div style="width: 100%; height: 10px; background-color: yellow;"></div>	+
Resistant to edge pressures	-	<div style="width: 100%; height: 10px; background-color: yellow;"></div>	+
Suitable for shock and impact loads	-	<div style="width: 100%; height: 10px; background-color: yellow;"></div>	+
Resistant to dirt	-	<div style="width: 100%; height: 10px; background-color: yellow;"></div>	+

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

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

## Technical data

General properties		Testing method	
Density	g/cm <sup>3</sup>	1.34	
Colour		yellow	
Max. moisture absorption at +23°C and 50% r.h.	% weight	0.2	DIN 53495
Max. moisture absorption	% weight	1.6	
Coefficient of 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	75	
Max. recommended surface pressure (+20°C)	MPa	75	
Shore D hardness		80	DIN 53505
Physical and thermal properties			
Max. application temperature long-term	°C	+180	
Max. application temperature short-term	°C	+200	
Min. application temperature	°C	-40	
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>	6	DIN 53752
Electrical properties			
Specific contact resistance	Ωcm	> 10 <sup>13</sup>	DIN IEC 93
Surface resistance	Ω	> 10 <sup>12</sup>	DIN 53482

Table 01: Material properties

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

### 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.

### Vacuum

In vacuum, any present moisture is released as vapour. Use in vacuum is only possible with dehumidified iglidur® W360 bearings.

### Radiation resistance

Plain bearings made from iglidur® W360 are resistant up to a radiation intensity of 2 · 10<sup>2</sup>Gy.

### Resistance to weathering

iglidur® W360 plain bearings are resistant to weathering. The material properties are slightly affected. Discoloration occurs.

### Mechanical properties

With increasing temperatures, the compressive strength of iglidur® W360 plain bearings decreases. Diagram 02 shows this inverse relationship. However, at the long-term maximum temperature of +180°C the permissible surface pressure is around 10MPa. The maximum recommended surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.

iglidur® W360 plain 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**



-40°C up to  
+180°C



75MPa



## Permissible surface speeds

iglidur® W360 plain bearings are suitable for low and medium speeds in rotating and oscillating applications. The wear rates, however, are much better in the case of rotating applications. iglidur® W360 is also excellent for linear movements.

**Surface speed, page 44**

## Temperature

The temperature resistance makes iglidur® W360 a universal material for plain bearings in different industries. Short-term application temperatures up to +200°C are permitted. For temperatures over +90°C an additional securing is required.

**Application temperatures, page 49**

**Additional securing, page 49**

## Friction and wear

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

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

**Wear resistance, page 50**

## 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 1.6MPa (diagram 06). Diagram 07 shows results of testing different shafts. iglidur® W360 plain bearings are suitable for all sliding surfaces. During rotation with a load of 1MPa, all HC aluminium, 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**

## 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, in standard cases the inner diameter automatically adjusts to the E10 tolerances.

**Testing methods, page 57**

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

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

Table 02: Chemical resistance

**Chemical table, page 1636**

	Rotating	Oscillating	linear
long-term m/s	1.2	0.9	3.0
short-term m/s	2.7	2.0	5.0

Table 03: Maximum surface speeds

	Dry	Greases	Oil	Water
Coefficient of friction $\mu$	0.07 – 0.21	0.09	0.04	0.04

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

Ø 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

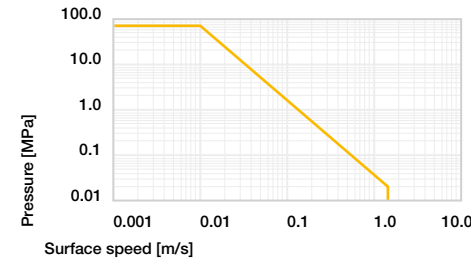


Diagram 01: Permissible pv values for iglidur® W360 plain bearings with a wall thickness of 1mm, dry operation against a steel shaft, at +20°C, mounted in a steel housing

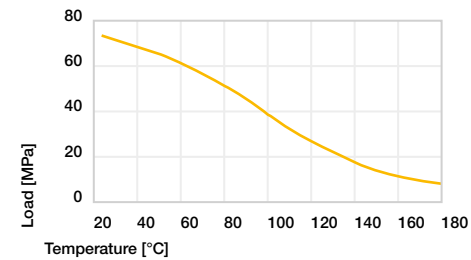


Diagram 02: Maximum recommended surface pressure as a function of temperature (75MPa at +20°C)

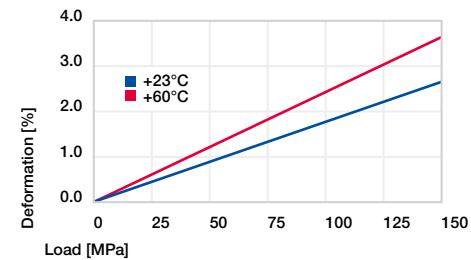


Diagram 03: Deformation under pressure and temperature

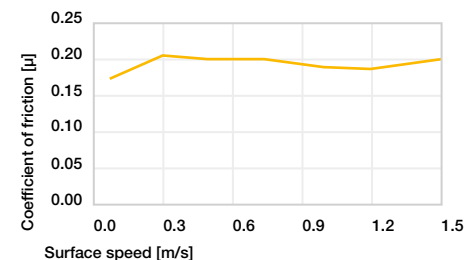


Diagram 04: Coefficient of friction as a function of the surface speed, p = 1MPa

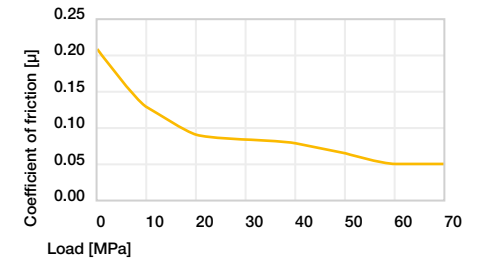


Diagram 05: Coefficient of friction as a function of the load, v = 0.01m/s

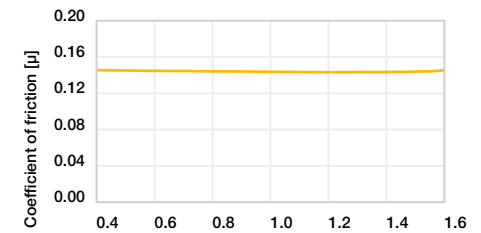


Diagram 06: Coefficient of friction as a function of the shaft surface (Cf53 shaft)

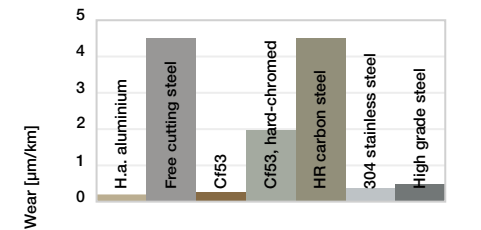
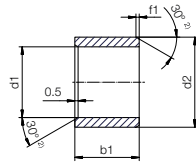


Diagram 07: Wear, rotating with different shaft materials, p = 1MPa, v = 0.3m/s

## Bearing technology | Plain bearing | iglidur® W360

### 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: W360SM-0608-06** – no minimum order quantity.

W360 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	W360SM-0608-06
8.0	+0.025 +0.083	10.0	10.0	W360SM-0810-10
10.0		12.0	10.0	W360SM-1012-10
12.0		14.0	12.0	W360SM-1214-12
16.0	+0.032 +0.102	18.0	15.0	W360SM-1618-15
20.0	+0.040 +0.124	23.0	20.0	W360SM-2023-20

<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/W360](http://www.igus.eu/W360)



#### 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

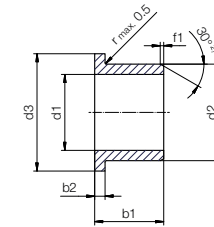
No minimum order value.

No low-quantity surcharges.

Free shipping within Germany for orders above €150.

## Bearing technology | Plain bearing | iglidur® W360

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



**Order example: W360FM-0608-06** – no minimum order quantity.

W360 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	W360FM-0608-06
8.0	+0.025 +0.083	10.0	15.0	10.0	1.00	W360FM-0810-10
10.0		12.0	18.0	10.0	1.00	W360FM-1012-10
12.0		14.0	20.0	12.0	1.00	W360FM-1214-12
16.0	+0.032 +0.102	18.0	24.0	17.0	1.00	W360FM-1618-17
20.0	+0.040 +0.124	23.0	30.0	21.5	1.50	W360FM-2023-21

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



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