



- Universal –  
**iglidur® H**  
▶ From page 283
- Long life operation –  
**iglidur® H1**  
▶ From page 291
- Under water –  
**iglidur® H370**  
▶ From page 299
- Up to +250 °C, wear-resistant –  
**iglidur® C500**  
▶ From page 307
- Low-cost –  
**iglidur® H2**  
▶ From page 315

## High media resistance


Almost at the same level as the previous group in terms of temperatures, the "iglidur® H family" is characterised by a high media resistance and a wide range of applications in the wet area. iglidur® H370 is the specialist for underwater applications, iglidur® H2 is the media-resistant, low-cost bushing solution for high volume production with low running performance and iglidur® H1, the endurance runner of this group.


- Lubrication and maintenance free
- Low weight
- Good price/performance ratio
- Predictable service life

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

 max. +250 °C  
min. -100 °C

 **5 materials**  
Ø 3–75 mm 

 **Inch dimensions available**  
▶ From page 1183

 **Available from stock**  
Detailed information about delivery time online.

## High media resistance



Enormous cost saving with high service life at the same time. Additional advantages for the customers are the corrosion-resistance and a maintenance-free operation.



In this horizontal forming, filling and sealing machine, various lubrication free igus® plain bearings solutions are used.



Safe and steady: plastic bearings which embed the boring bar such that vibrations are dampened and there is no clearance.



Many iglidur® plain bearings in the gripper make it possible to move smooth and avoid damaging the product.

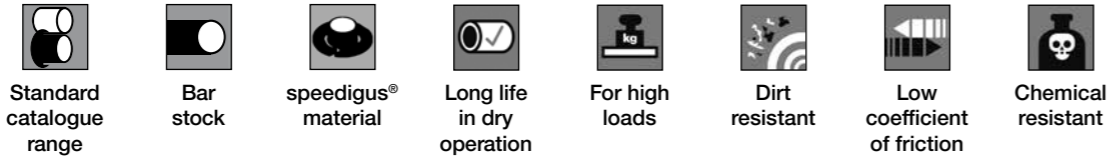


This bottle-filling system for thin to viscous materials works fast and precisely, thanks to numerous igus® products.

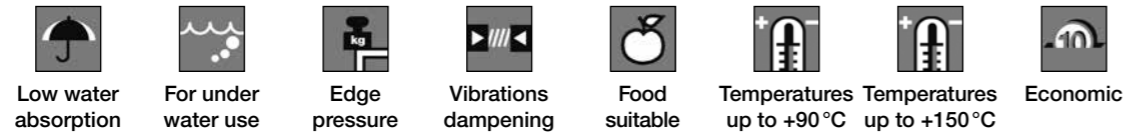


Corrosion resistant iglidur® bearings in use in a meat roller - also resistant to aggressive detergents.

High media resistance

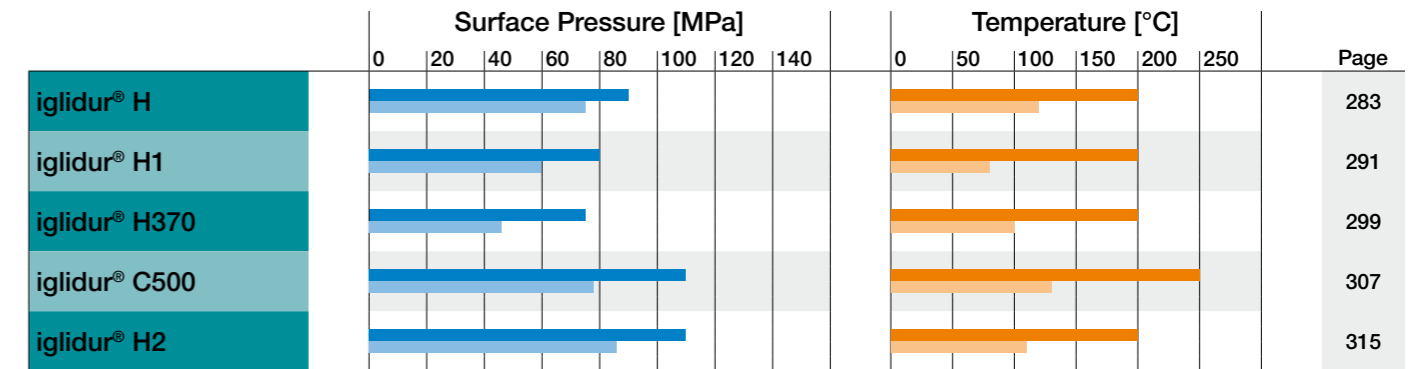


	Standard catalogue range	Bar stock	speedigus® material	Long life in dry operation	For high loads	Dirt resistant	Low coefficient of friction	Chemical resistant
iglidur® H	●		●					●
iglidur® H1	●	●		●	●		●	●
iglidur® H370	●						●	●
iglidur® C500	●			●	●			●
iglidur® H2			●					●



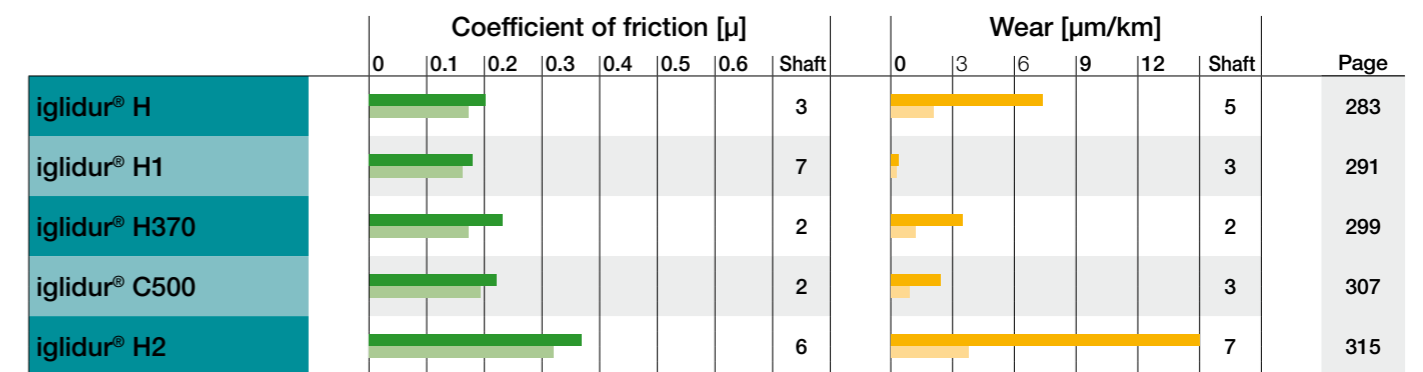
	Low water absorption	For under water use	Edge pressure	Vibrations dampening	Food suitable	Temperatures up to +90°C	Temperatures up to +150°C	Economic
iglidur® H	●	●				●	●	
iglidur® H1	●	●				●	●	
iglidur® H370	●	●				●	●	
iglidur® C500	●	●	●			●	●	
iglidur® H2	●	●				●	●	

High media resistance



Maximum permissible surface pressure of iglidur® bearings at  
 ■ +20 °C  
 ■ +80 °C

Important temperature limits of iglidur® bearings  
 ■ Maximum permissible application temperature, continuous  
 ■ Temperature where bearings need to be secured against radial or axial movement in the housing



Coefficients of friction of iglidur® bearings against steel rotating, p = 1 MPa, v = 0.3 m/s  
 ■ Average of all the seven sliding combinations tested  
 ■ Coefficient of friction of best combination

Wear of iglidur® bearings against steel rotating, p = 1 MPa  
 ■ Average of all the seven sliding combinations tested  
 ■ Wear of best combination

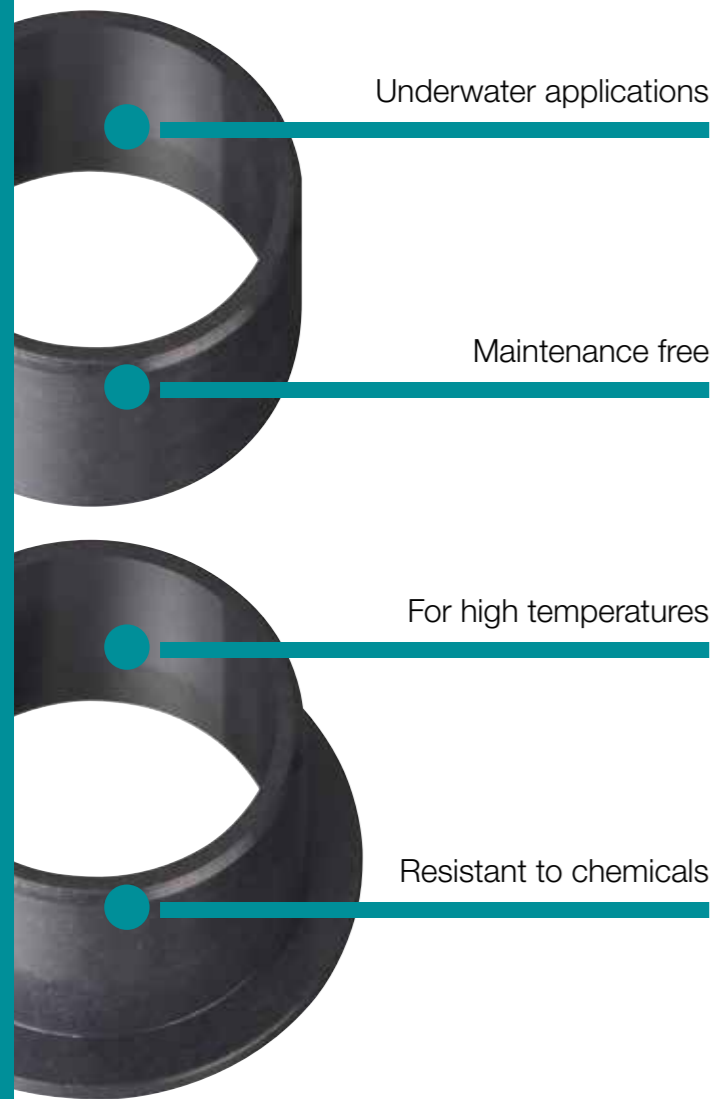
**i Shaft material:**

1 = Cf53	3 = Alu. hc	5 = St37	7 = X90
2 = Cf53, hard chromed	4 = Free-cutting steel	6 = V2A	



## Universal – iglidur<sup>®</sup> H

- Can be used underwater
- For high temperatures
- Resistant to chemicals
- Lubrication and maintenance free
- Standard range from stock



Suitable for temperatures up to +200 °C. Very low coefficients of friction when used with hardened shafts.



**When to use it?**

- For underwater applications
- When it is dependent on high temperature resistance
- For high mechanical loading
- For applications in contact with chemicals



**When not to use it?**

- When extremely high wear resistance under water is required
  - ▶ iglidur® H370, page 299
- When universal resistance to chemicals is needed
  - ▶ iglidur® X, page 133
- For the maximum pressure at higher temperatures
  - ▶ iglidur® X, page 133
  - ▶ iglidur® Z, page 263



**Available from stock**

Detailed information about delivery time online.



**max. +200 °C**  
**min. -40 °C**



**Block pricing online**

No minimum order value. From batch size 1



**Ø 3–70 mm**  
more dimensions on request



**Typical application areas**

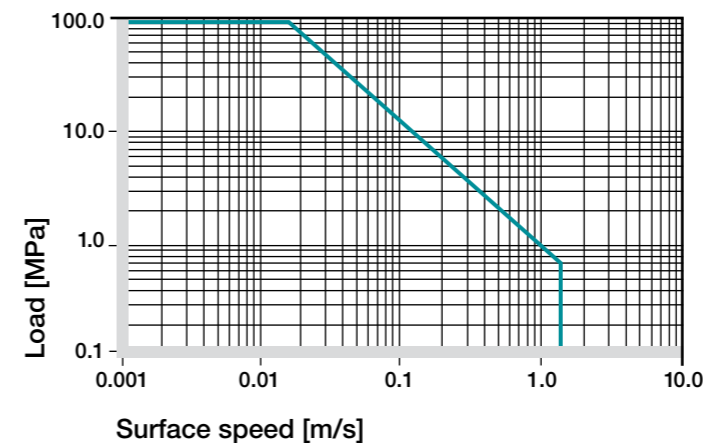
- Offshore ● Marine engineering ● Beverage technology ● Medical ● Mechatronics etc.

**Material properties table**

General properties	Unit	iglidur® H	Testing method
Density	g/cm <sup>3</sup>	1.71	
Colour		grey	
Max. moisture absorption at +23 °C/50 % r.h.	% weight	0.1	DIN 53495
Max. water absorption	% weight	0.3	
Coefficient of sliding friction, dynamic against steel	μ	0.07–0.2	
pv value, max. (dry)	MPa · m/s	1.37	
Mechanical properties			
Modulus of elasticity	MPa	12,500	DIN 53457
Tensile strength at +20 °C	MPa	175	DIN 53452
Compressive strength	MPa	81	
Max. recommended surface pressure (+20 °C)	MPa	90	
Shore-D hardness		87	DIN 53505
Physical and thermal properties			
Max. long term application temperature	°C	+200	
Max. short term application temperature	°C	+240	
Min. application temperature	°C	-40	
Thermal conductivity	W/m · K	0.6	ASTM C 177
Coefficient of thermal expansion (at +23 °C)	K <sup>-1</sup> · 10 <sup>-5</sup>	4	DIN 53752
Electrical properties <sup>5)</sup>			
Specific volume resistance	Ωcm	< 10 <sup>5</sup>	DIN IEC 93
Surface resistance	Ω	< 10 <sup>2</sup>	DIN 53482

<sup>5)</sup> The good conductivity of this plastic material under certain circumstances can favour the generation of corrosion on the metallic contact components.

**Table 01: Material properties table**



**Diagram 01: Permissible pv values for iglidur® H 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® H plain bearings is below 0.1 % in ambient conditions. The saturation limit in water is 0.3%. iglidur® H is very well suited for use in wet applications.

▶ **Diagram, [www.igus.eu/h-moisture](http://www.igus.eu/h-moisture)**

**Vacuum**

For use in a vacuum environment, it must be taken into account that a small amount of moisture is released as vapour.

**Radiation resistance**

iglidur® H plain bearings are resistant to radiation up to an intensity of 2 · 10<sup>2</sup> Gy. They also withstand neutron and gamma particle radiation.

**UV resistance**

iglidur® H plain bearings are only conditionally resistant to UV radiation.

Medium	Resistance
Alcohols	+
Hydrocarbons	+
Greases, oils without additives	+
Fuels	+
Diluted acids	+ to 0
Strong acids	+ 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 1226**

iglidur® H is a fibre-reinforced thermoplastic material especially developed for applications in high atmospheric humidity or under water. Bearings made from iglidur® H can be used completely free of lubrication; in wet applications, the surrounding media acts as additional lubricant.

### Mechanical properties

With increasing temperatures, the compressive strength of iglidur® H plain bearings decreases. The diagram 02 shows this relationship. The recommended maximum surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.

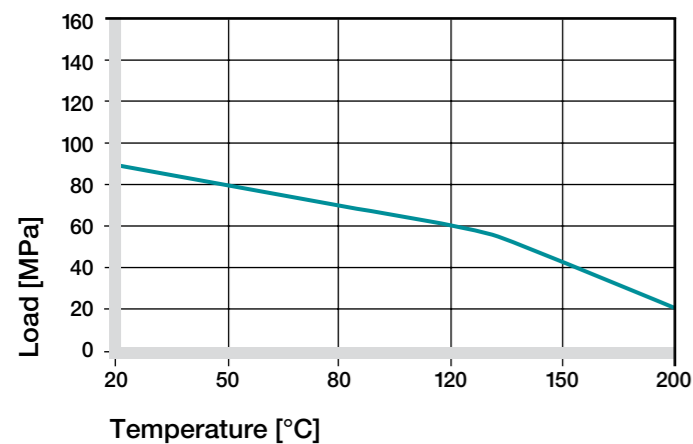


Diagram 02: Recommended maximum surface pressure of as a function of temperature (90 MPa at +20 °C)

Diagram 03 shows the elastic deformation of iglidur® H at radial loads. At the recommended maximum surface pressure of 90 MPa the deformation is about 2.5% at room temperature.

### ► Surface pressure, page 63

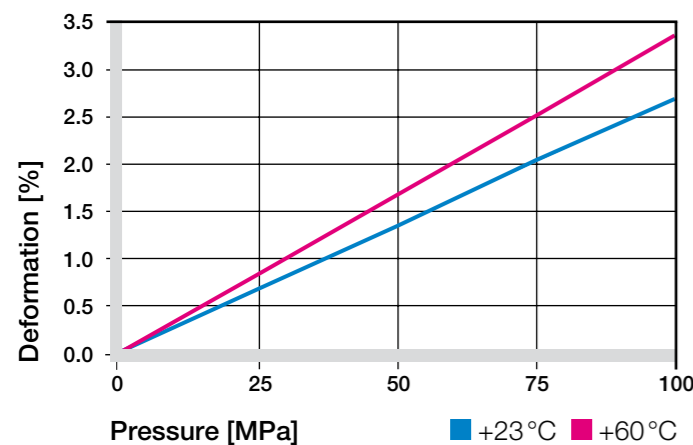


Diagram 03: Deformation under pressure and temperature

### Permissible surface speeds

The maximum permitted surface speed is dependent on whether the temperature in the bearing location rises or not. Running dry, iglidur® H can be used at a maximum surface speed of 1 m/s (rotating) and 4 m/s (linear) respectively. Linear movements enable higher surface speeds, as a large area of the shaft contributes to the cooling.

### ► Surface speed, page 65

m/s	Rotating	Oscillating	Linear
Continuous	1	0.7	3
Short term	1.5	1.1	4

Table 03: Maximum surface speeds

### Temperatures

With increasing temperatures, the compressive strength of iglidur® H plain bearings decreases. The diagram 02 shows this relationship. The ambient application temperature has a direct impact on bearing wear, an increase in temperature results in an increase in wear. At temperatures over +120 °C an additional securing is required.

### ► Application temperatures, page 66

### ► Additional securing, page 67

### Friction and wear

Both the wear rate and the coefficient of friction values change depending on the pressure. Interestingly, the friction coefficient  $\mu$  lowers slightly with the increase of surface speed at constant load (see diagrams 04 and 05).

### ► Coefficients of friction and surfaces, page 68

### ► Wear resistance, page 69

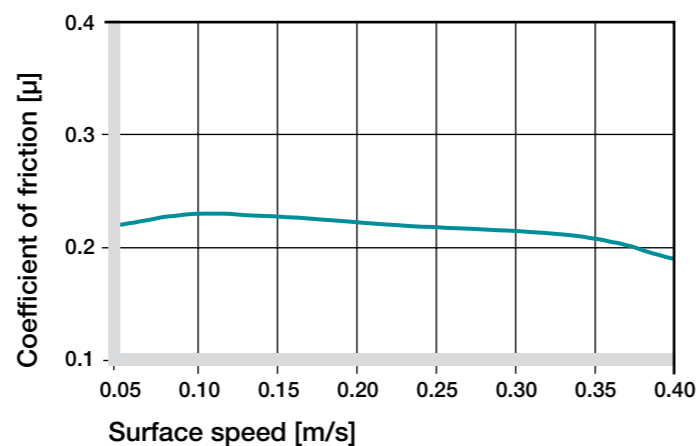


Diagram 04: Coefficient of friction as a function of the surface speed, p = 0.75 MPa

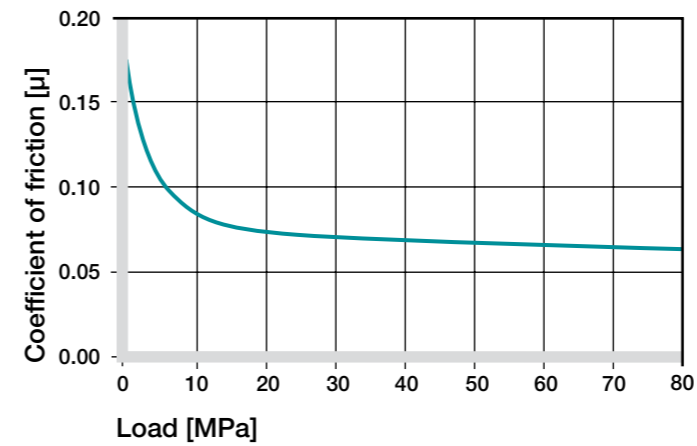


Diagram 05: Coefficient of friction as a function of the pressure, v = 0.01 m/s

### Shaft materials

Diagrams 06 and 07 show the test results of iglidur® H bearings running against various shaft materials. The iglidur® H bearings give different results when used in rotating and pivoting applications. The CF53 and St37 shafts give the best wear values in rotating applications, whereas the V2A shafts (which are not so good for rotation) give the best results in oscillating applications. Hard chromed shafts only give an advantage at low pressures when used with iglidur® H bearings.

### ► Shaft materials, page 71

iglidur® H	Dry	Greases	Oil	Water
C.o.f. $\mu$	0.07–0.2	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1  $\mu$ m, 50 HRC)

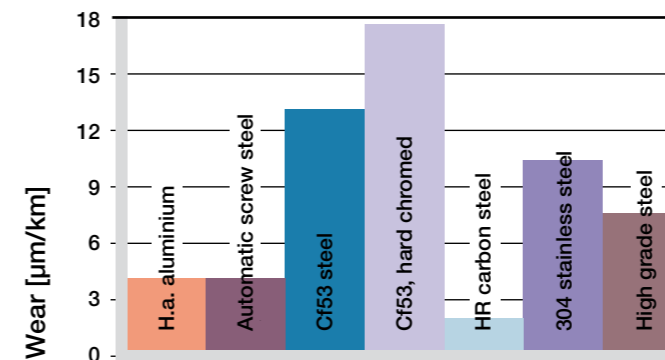


Diagram 06: Wear, rotating with different shaft materials, p = 1 MPa, v = 0.3 m/s

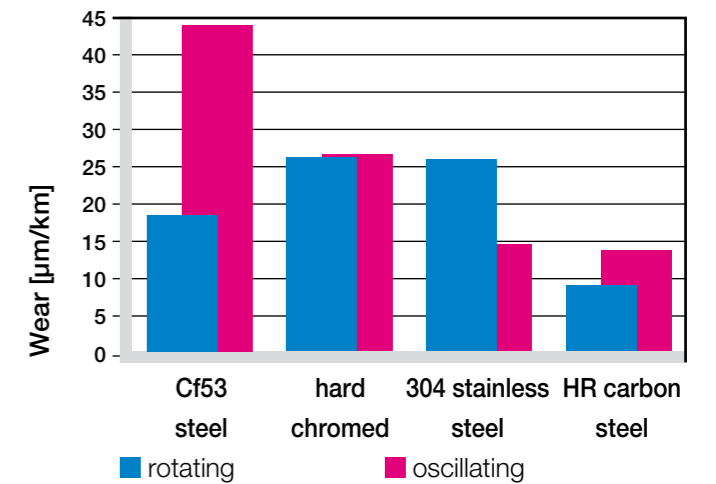


Diagram 07: Wear for rotating and oscillating applications with different shaft materials, p = 2 MPa

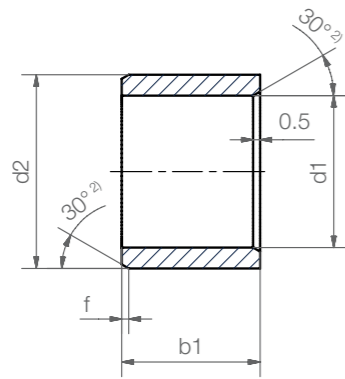
### Installation tolerances

iglidur® H plain bearings are standard bearings for shafts with h-tolerance (recommended minimum h9). The bearings are designed for pressfit 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. For particular dimensions the tolerance differs depending on the wall thickness (please see product range table).

### ► Testing methods, page 75

Diameter d1 [mm]	Shaft h9 [mm]	iglidur® H F10 [mm]	Housing H7 [mm]
up to 3	0–0.025	+0.006 +0.046	0 +0.010
> 3 to 6	0–0.030	+0.010 +0.058	0 +0.012
> 6 to 10	0–0.036	+0.013 +0.071	0 +0.015
> 10 to 18	0–0.043	+0.016 +0.086	0 +0.018
> 18 to 30	0–0.052	+0.020 +0.104	0 +0.021
> 30 to 50	0–0.062	+0.025 +0.125	0 +0.025
> 50 to 80	0–0.074	+0.030 +0.150	0 +0.030

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



## Order key

Type	Dimensions
<b>H S M-0304-03</b>	
iglidur® material	
Form S	
Metric	
Inner-Ø d1 [mm]	
Outer-Ø d2 [mm]	
Length b1 [mm]	



Dimensions according to ISO 3547-1 and special dimensions

<sup>2)</sup> thickness < 1 mm, chamfer = 20°

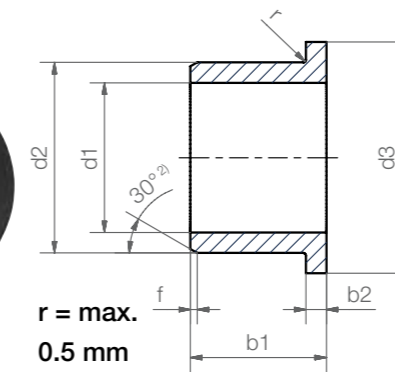
Chamfer in relation to the d1

d1 [mm]:	Ø 1-6	Ø 6-12	Ø 12-30	Ø > 30
f [mm]:	0.3	0.5	0.8	1.2

## Dimensions [mm]

d1	d1- Tolerance <sup>3)</sup>	d2	b1 h13	Part No.
3.0	+0.006 +0.046	4.5	3.0	<b>HSM-0304-03</b>
4.0		5.5	4.0	<b>HSM-0405-04</b>
5.0	+0.010	7.0	5.0	<b>HSM-0507-05</b>
6.0	+0.058	8.0	3.0	<b>HSM-0608-03</b>
6.0		8.0	6.0	<b>HSM-0608-06</b>
8.0		10.0	8.0	<b>HSM-0810-08</b>
8.0	+0.013	10.0	10.0	<b>HSM-0810-10</b>
10.0	+0.071	12.0	6.0	<b>HSM-1012-06</b>
10.0		12.0	10.0	<b>HSM-1012-10</b>
12.0		14.0	10.0	<b>HSM-1214-10</b>
12.0		14.0	12.0	<b>HSM-1214-12</b>
12.0		14.0	15.0	<b>HSM-1214-15</b>
12.0		14.0	20.0	<b>HSM-1214-20</b>
14.0	+0.016 +0.086	16.0	20.0	<b>HSM-1416-20</b>
15.0		17.0	15.0	<b>HSM-1517-15</b>
16.0		18.0	15.0	<b>HSM-1618-15</b>
16.0		18.0	20.0	<b>HSM-1618-20</b>
16.0		18.0	25.0	<b>HSM-1618-25</b>

<sup>3)</sup> after pressfit. Testing methods ► Page 75



<sup>2)</sup> thickness < 1 mm, chamfer = 20°

Chamfer in relation to the d1

d1 [mm]:	Ø 1-6	Ø 6-12	Ø 12-30	Ø > 30
f [mm]:	0.3	0.5	0.8	1.2

## Dimensions [mm]

d1	d1- Tolerance <sup>3)</sup>	d2	d3 d13	b1 h13	b2 -0.14	Part No.
4.0		5.5	9.5	4.0	0.75	<b>HFM-0405-04</b>
5.0		7.0	11.0	5.0	1.0	<b>HFM-0507-05</b>
5.0	+0.010	7.0	11.0	8.0	1.0	<b>HFM-0507-08</b>
6.0	+0.058	8.0	12.0	4.0	1.0	<b>HFM-0608-04</b>
6.0		8.0	12.0	6.0	1.0	<b>HFM-0608-06</b>
6.0		8.0	12.0	10.0	1.0	<b>HFM-0608-10</b>
8.0		10.0	15.0	7.0	1.0	<b>HFM-0810-07</b>
8.0		10.0	15.0	10.0	1.0	<b>HFM-0810-10</b>
8.0		10.0	15.0	15.0	1.0	<b>HFM-0810-15</b>
10.0	+0.013 +0.071	12.0	18.0	4.0	1.0	<b>HFM-1012-04</b>
10.0		12.0	18.0	9.0	1.0	<b>HFM-1012-09</b>
10.0		12.0	18.0	15.0	1.0	<b>HFM-1012-15</b>
10.0		12.0	18.0	20.0	1.0	<b>HFM-1012-20</b>
12.0		14.0	20.0	7.0	1.0	<b>HFM-1214-07</b>
12.0	+0.016	14.0	20.0	10.0	1.0	<b>HFM-1214-10</b>
12.0	+0.086	14.0	20.0	15.0	1.0	<b>HFM-1214-15</b>
14.0		16.0	22.0	12.0	1.0	<b>HFM-1416-12</b>

<sup>3)</sup> after pressfit. Testing methods ► Page 75



## Don't find your size?

Do you need another length, other dimensions or tolerances? You need a particular design or alternative for your application? Please call us. igus® listens to your needs and provides you a solution in a very short time.



## Even more dimensions from stock

More than 300 dimensions are now available. Search online for your required bearing.

► [www.igus.eu/iglidur-specialbearings](http://www.igus.eu/iglidur-specialbearings)



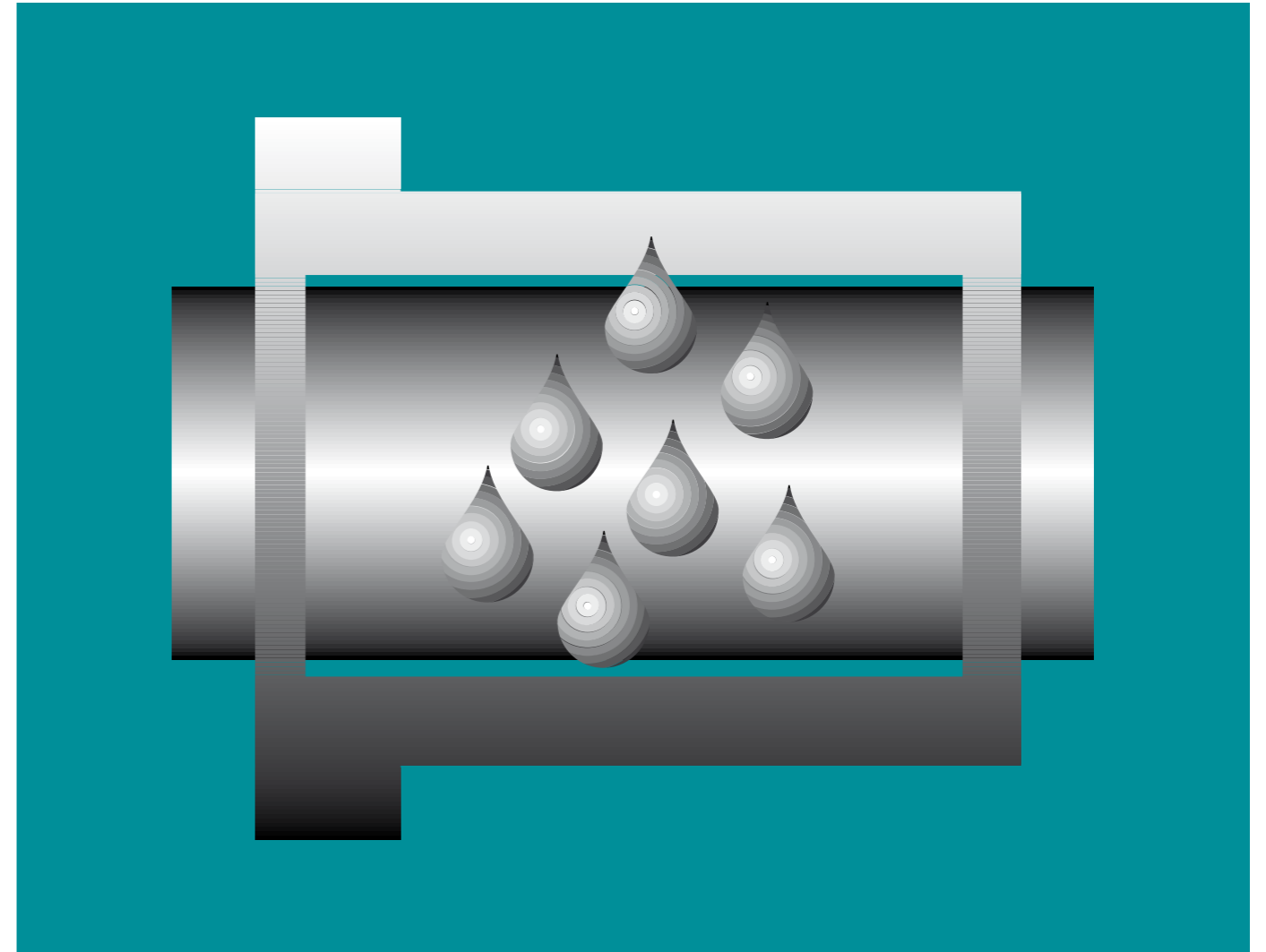
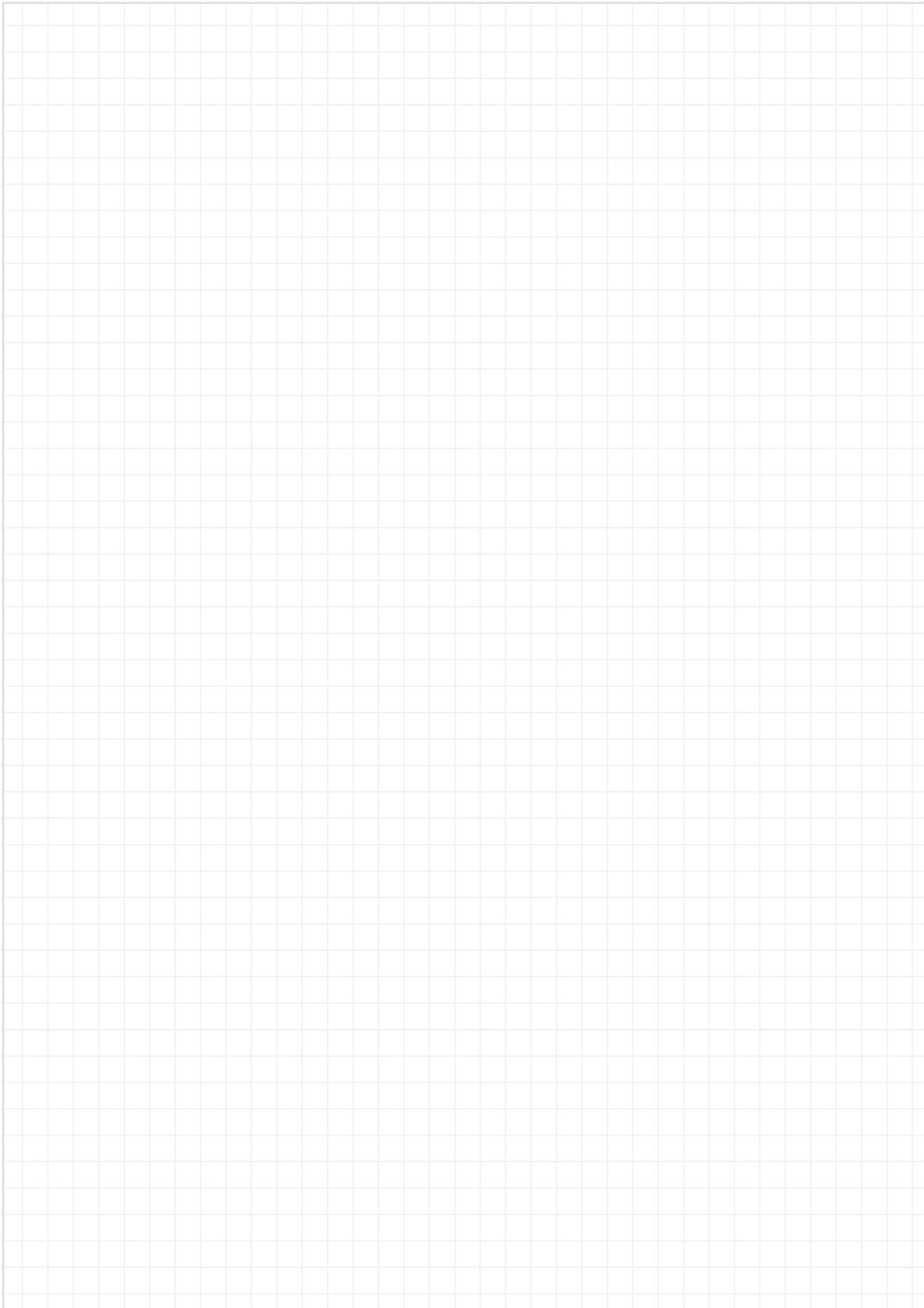
## Order key

Type	Dimensions
<b>H F M-0405-04</b>	
iglidur® material	
Form F	
Metric	
Inner-Ø d1 [mm]	
Outer-Ø d2 [mm]	
Length b1 [mm]	



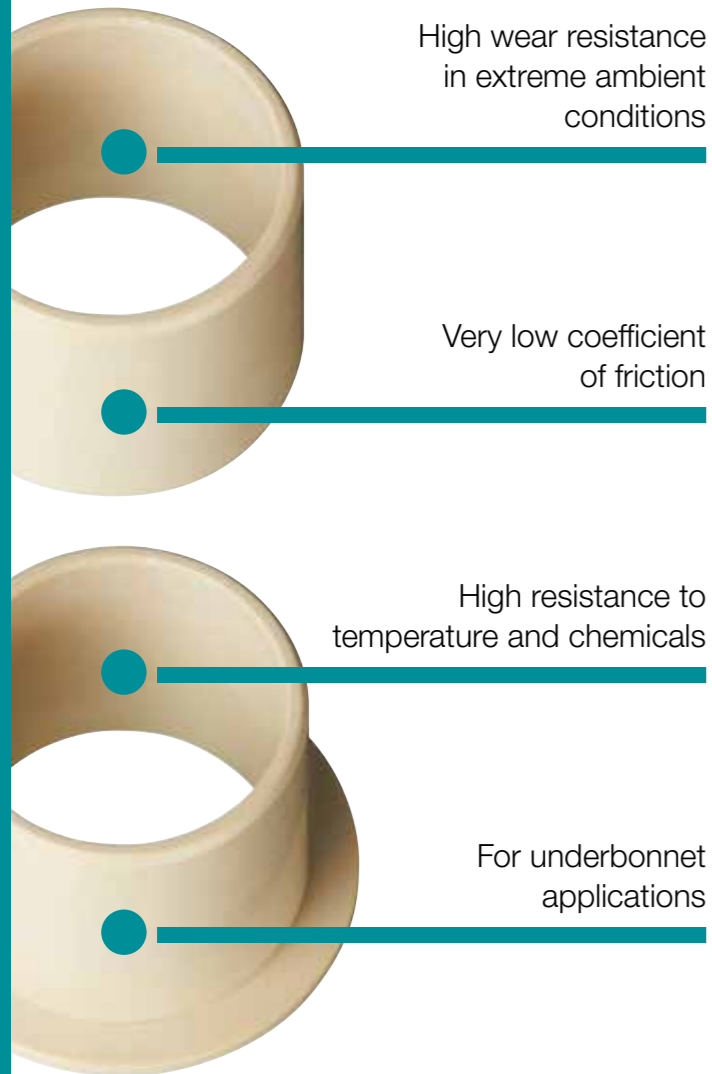
Dimensions according to ISO 3547-1 and special dimensions

d1	d1- Tolerance <sup>3)</sup>	d2	d3 d13	b1 h13	b2 -0.14	Part No.
15.0		17.0	23.0	17.0	1.0	<b>HFM-1517-17</b>
16.0	+0.016	18.0	24.0	13.0	1.0	<b>HFM-1618-13</b>
16.0	+0.086	18.0	24.0	17.0	1.0	<b>HFM-1618-17</b>
18.0		20.0	26.0	17.0	1.0	<b>HFM-1820-17</b>
20.0		23.0	30.0	7.0	1.0	<b>HFM-2023-07</b>
20.0		23.0	30.0	16.5	1.5	<b>HFM-2023-16</b>
20.0	+0.020	23.0	30.0	30.0	1.5	<b>HFM-2023-30</b>
25.0	+0.104	28.0	35.0	30.0	1.5	<b>HFM-2528-30</b>
27.0		30.0	38.0	20.0	1.5	<b>HFM-2730-20</b>
30.0		34.0	42.0	40.0	2.0	<b>HFM-3034-40</b>
34.0		38.0	46.0	13.0	2.0	<b>HFM-3438-13</b>
35.0		39.0	47.0	26.0	2.0	<b>HFM-3539-26</b>
40.0	+0.025 +0.125	44.0	52.0	40.0	2.0	<b>HFM-4044-40</b>
45.0		50.0	58.0	50.0	2.0	<b>HFM-4550-50</b>
50.0		55.0	63.0	50.0	2.0	<b>HFM-5055-50</b>
60.0	+0.030	65.0	73.0	50.0	2.0	<b>HFM-6065-50</b>
70.0	+0.150	75.0	83.0	50.0	2.0	<b>HFM-7075-50</b>



## Long life operation – iglidur® H1

- High wear resistance in extreme ambient conditions
- Very low coefficient of friction
- High resistance to temperature and chemicals
- For underbonnet applications
- Lubrication and maintenance free
- Standard range from stock



iglidur® H1 is the first choice when long life is required in extreme environmental conditions. Extreme wear resistance is coupled with excellent resistance to temperature and chemicals – not only in the packaging and foodstuff industries or the automotive industry.



### When to use it?

- When extreme service life is required under the influence of temperature and humidity
- When low coefficients of friction at high temperature are important
- When normal aggressive cleaning is required (splashes, steam blasting)
- When the bearings are used in the engine compartment



### When not to use it?

- When high surface pressures occur  
▶ iglidur® Z, page 263
- When the best universal chemical resistance is required  
▶ iglidur® X, page 133
- When a cost-efficient high temperature bearing is required, not the ideal wear resistance  
▶ iglidur® H2, page 315
- When an FDA-compliant plain bearing with high temperature resistance is required  
▶ iglidur® A500, page 359



### Available from stock

Detailed information about delivery time online.



**max. +200 °C**  
**min. -40 °C**



### Block pricing online

No minimum order value. From batch size 1



**Ø 3–40 mm**  
more dimensions on request



### Typical application areas

● Beverage technology ● Automation ● Packaging ● Textile technology ● Optical industry etc.

## Material properties table

General properties	Unit	iglidur® H1	Testing method
Density	<b>g/cm³</b>	1.53	
Colour		cream	
Max. moisture absorption at +23 °C/50 % r.h.	<b>% weight</b>	0.1	DIN 53495
Max. water absorption	<b>% weight</b>	0.3	
Coefficient of sliding friction, dynamic against steel	<b>μ</b>	0.06–0.20	
pv value, max. (dry)	<b>MPa · m/s</b>	0.8	
Mechanical properties			
Modulus of elasticity	<b>MPa</b>	2,800	DIN 53457
Tensile strength at +20 °C	<b>MPa</b>	55	DIN 53452
Compressive strength	<b>MPa</b>	78	
Max. recommended surface pressure (+20 °C)	<b>MPa</b>	80	
Shore-D hardness		77	DIN 53505
Physical and thermal properties			
Max. long term application temperature	<b>°C</b>	+200	
Max. short term application temperature	<b>°C</b>	+240	
Min. application temperature	<b>°C</b>	-40	
Thermal conductivity	<b>W/m · K</b>	0.24	ASTM C 177
Coefficient of thermal expansion (at +23 °C)	<b>K<sup>-1</sup> · 10<sup>-5</sup></b>	6	DIN 53752
Electrical properties			
Specific volume resistance	<b>Ωcm</b>	> 10 <sup>12</sup>	DIN IEC 93
Surface resistance	<b>Ω</b>	> 10 <sup>11</sup>	DIN 53482

Table 01: Material properties table

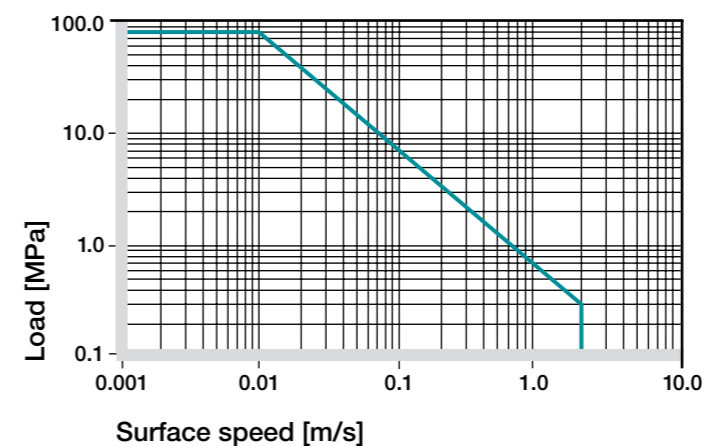


Diagram 01: Permissible pv values for iglidur® H1 bearings with a wall thickness of 1 mm dry running against a steel shaft, at +20 °C, mounted in a steel housing

### Moisture absorption

The moisture absorption of iglidur® H1 bearings is approximately 0.1 % in standard ambient conditions. The saturation limit in water is 0.3 %. Therefore iglidur® H1 is very well suited for use in wet environments.

▶ Diagram, [www.igus.eu/h1-moisture](http://www.igus.eu/h1-moisture)

### Vacuum

Water elements, even if only little, should be out gassed for use in vacuum. The use in vacuum is generally possible.

### Radiation resistance

Resistant to radiation up to an intensity of  $3 \cdot 10^2$  Gy.

### UV resistance

iglidur® H1 bearings are only conditionally resistant to UV radiation.

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

**+ resistant 0 conditionally resistant - not resistant**  
All data given at room temperature [+20 °C]

Table 02: Chemical resistance

▶ Chemical table, page 1226



iglidur® H1 plain bearings have been specially developed for use under extreme environmental conditions. Their strengths are the extremely high wear resistance and the excellent coefficients of friction even in applications in which the bearing is exposed to extreme temperatures and/or aggressive chemicals. iglidur® H1 bearings can be used completely free of lubrication; in wet area applications, the surrounding medium acts as additional lubricant.

### Mechanical properties

With increasing temperatures, the compressive strength of iglidur® H1 plain bearings decreases. The diagram 02 shows this relationship. The recommended maximum surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.

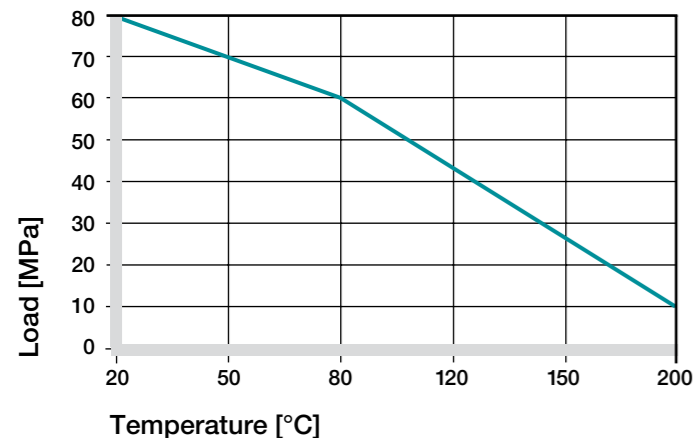


Diagram 02: Recommended maximum surface pressure of as a function of temperature (80 MPa at +20 °C)

Diagram 03 shows the elastic deformation of iglidur® H1 at radial load. Among the iglidur® H materials, iglidur® H1 material has the greatest elasticity. This must be considered for applications with high pressure or strong edge pressure.

### ► Surface pressure, page 63

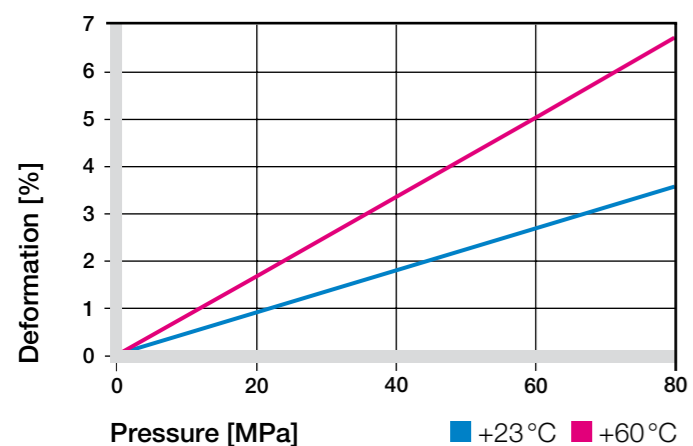


Diagram 03: Deformation under pressure and temperature

### Permissible surface speeds

Due to the excellent coefficients of friction, rotating surface speeds up to 2 m/s are possible with iglidur® H1 plain bearings in dry operation. Linear speeds up to 5 m/s are attained. The speeds stated in table 03 are limit values for the lowest bearing loads. With higher loads, the permitted speed drops with the extent of the load due to the limitations by the pv value.

### ► Surface speed, page 65

m/s	Rotating	Oscillating	Linear
Continuous	2	1.0	5
Short term	2.5	1.5	7

Table 03: Maximum surface speeds

### Temperatures

iglidur® H1 is an extremely temperature-resistant material. The ambient temperatures prevalent in the bearing system also have an effect on the bearing wear. The wear rate rises with increasing temperatures. In iglidur® H1 in particular, this increase however is very low. At temperatures over +80 °C an additional securing is required.

### ► Application temperatures, page 66

### ► Additional securing, page 67

### Friction and wear

The coefficient of friction alters like the wear resistance with increasing load and speed (diagrams 04 and 05).

### ► Coefficients of friction and surfaces, page 68

### ► Wear resistance, page 69

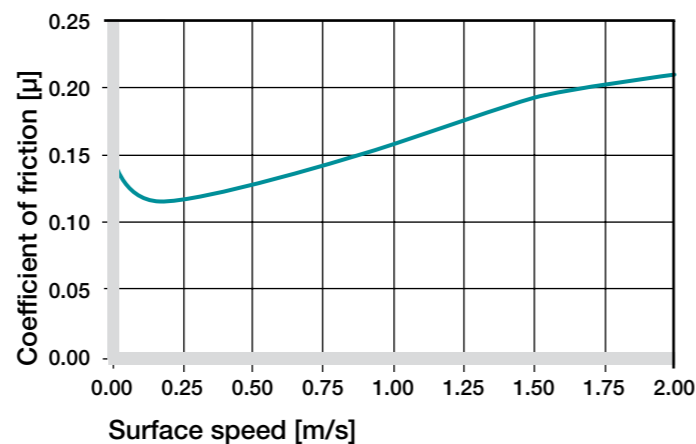


Diagram 04: Coefficient of friction as a function of the surface speed, p = 0.75 MPa

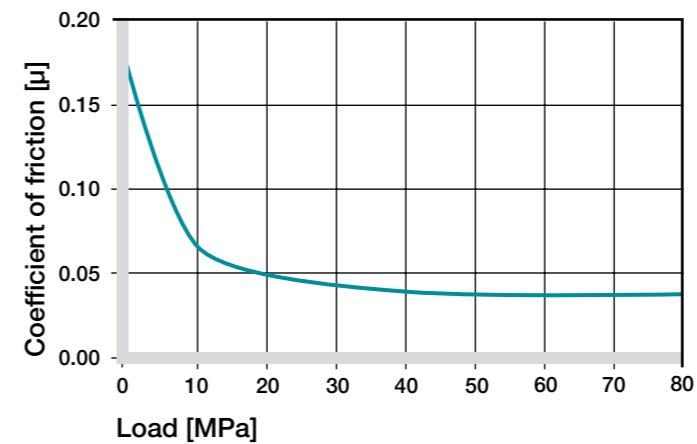


Diagram 05: Coefficient of friction as a function of the pressure, v = 0.01 m/s

### Shaft materials

Diagrams 06 and 07 display a summary of the results of tests with different shaft materials conducted with iglidur® H1 plain bearings in the igus® laboratory.

The iglidur® H1 plain bearings display excellent wear behavior in combination with a wide variety of shaft materials both in rotating and pivoting operations. On the V2A shafts in particular, iglidur® H1 attains very low wear rates both in rotating and pivoting operations. Even on hard-coated aluminium shafts, iglidur® H1 plain bearings attain high service life in rotating applications with low to medium loads.

### ► Shaft materials, page 71

iglidur® H1	Dry	Greases	Oil	Water
C.o.f. μ	0.06–0.20	0.09	0.04	0.04

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

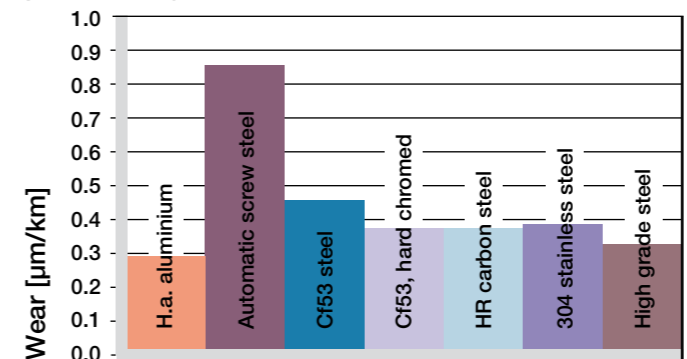


Diagram 06: Wear, rotating with different shaft materials, p = 1 MPa, v = 0.3 m/s

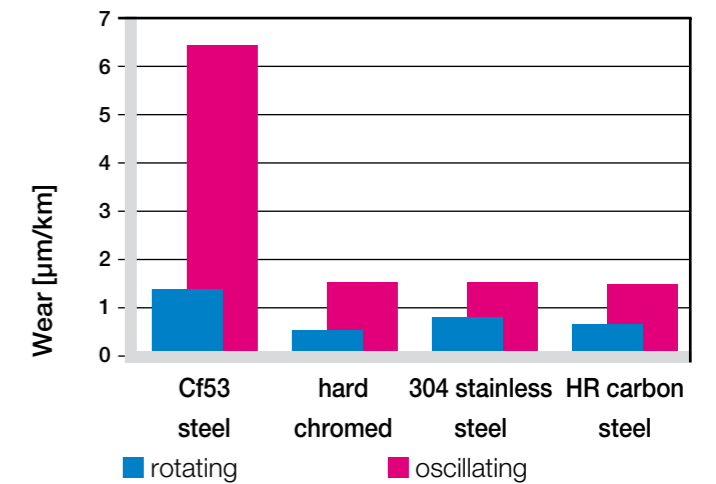


Diagram 07: Wear for rotating and oscillating applications with different shaft materials, p = 2 MPa

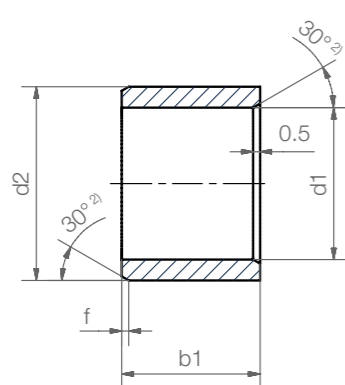
### Installation tolerances

iglidur® H1 plain bearings are standard bearings for shafts with h-tolerance (recommended minimum h9). The bearings are designed for pressfit 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. For particular dimensions the tolerance differs depending on the wall thickness (please see product range table).

### ► Testing methods, page 75

Diameter d1 [mm]	Shaft h9 [mm]	iglidur® H1 F10 [mm]	Housing H7 [mm]
up to 3	0–0.025	+0.006 +0.046	0 +0.010
> 3 to 6	0–0.030	+0.010 +0.058	0 +0.012
> 6 to 10	0–0.036	+0.013 +0.071	0 +0.015
> 10 to 18	0–0.043	+0.016 +0.086	0 +0.018
> 18 to 30	0–0.052	+0.020 +0.104	0 +0.021
> 30 to 50	0–0.062	+0.025 +0.125	0 +0.025
> 50 to 80	0–0.074	+0.030 +0.150	0 +0.030

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



Order key

Type	Dimensions
<b>H1 S M-0304-05</b>	
iglidur® material	
Form S	
Metric	
Inner-Ø d1 [mm]	
Outer-Ø d2 [mm]	
Length b1 [mm]	

Dimensions according to ISO 3547-1 and special dimensions

<sup>2)</sup> thickness < 1 mm, chamfer = 20°

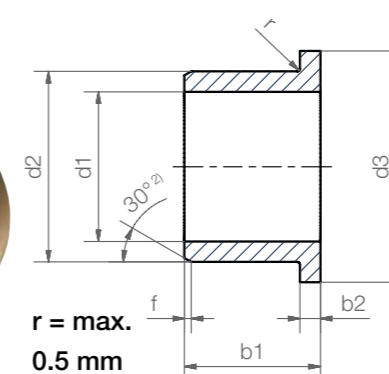
Chamfer in relation to the d1

d1 [mm]:	Ø 1-6	Ø 6-12	Ø 12-30	Ø > 30
f [mm]:	0.3	0.5	0.8	1.2

#### Dimensions [mm]

d1	d1-Tolerance <sup>3)</sup>	d2	b1 h13	Part No.
3.0	+0.006 +0.046	4.5	5.0	<b>H1SM-0304-05</b>
5.0	+0.010 +0.058	7.0	5.0	<b>H1SM-0507-05</b>
6.0	+0.010 +0.058	8.0	6.0	<b>H1SM-0608-06</b>
6.0	+0.010 +0.058	8.0	10.0	<b>H1SM-0608-10</b>
8.0	+0.013 +0.071	10.0	10.0	<b>H1SM-0810-10</b>
8.0	+0.013 +0.071	10.0	15.0	<b>H1SM-0810-15</b>
10.0	+0.013 +0.071	12.0	10.0	<b>H1SM-1012-10</b>
10.0	+0.013 +0.071	12.0	15.0	<b>H1SM-1012-15</b>
12.0	+0.016 +0.086	14.0	12.0	<b>H1SM-1214-12</b>
16.0	+0.016 +0.086	18.0	15.0	<b>H1SM-1618-15</b>
20.0	+0.020 +0.104	23.0	15.0	<b>H1SM-2023-15</b>
20.0	+0.020 +0.104	23.0	20.0	<b>H1SM-2023-20</b>
20.0	+0.020 +0.104	23.0	30.0	<b>H1SM-2023-30</b>
25.0	+0.020 +0.104	28.0	30.0	<b>H1SM-2528-30</b>
30.0	+0.020 +0.104	34.0	30.0	<b>H1SM-3034-30</b>
35.0	+0.025 +0.125	39.0	30.0	<b>H1SM-3539-30</b>
40.0	+0.025 +0.125	44.0	40.0	<b>H1SM-4044-40</b>

<sup>3)</sup> after pressfit. Testing methods ► Page 75



Order key

Type	Dimensions
<b>H1 F M-0304-05</b>	
iglidur® material	
Form F	
Metric	
Inner-Ø d1 [mm]	
Outer-Ø d2 [mm]	
Length b1 [mm]	

Dimensions according to ISO 3547-1 and special dimensions

<sup>2)</sup> thickness < 1 mm, chamfer = 20°

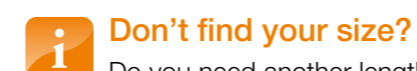
Chamfer in relation to the d1

d1 [mm]:	Ø 1-6	Ø 6-12	Ø 12-30	Ø > 30
f [mm]:	0.3	0.5	0.8	1.2

#### Dimensions [mm]

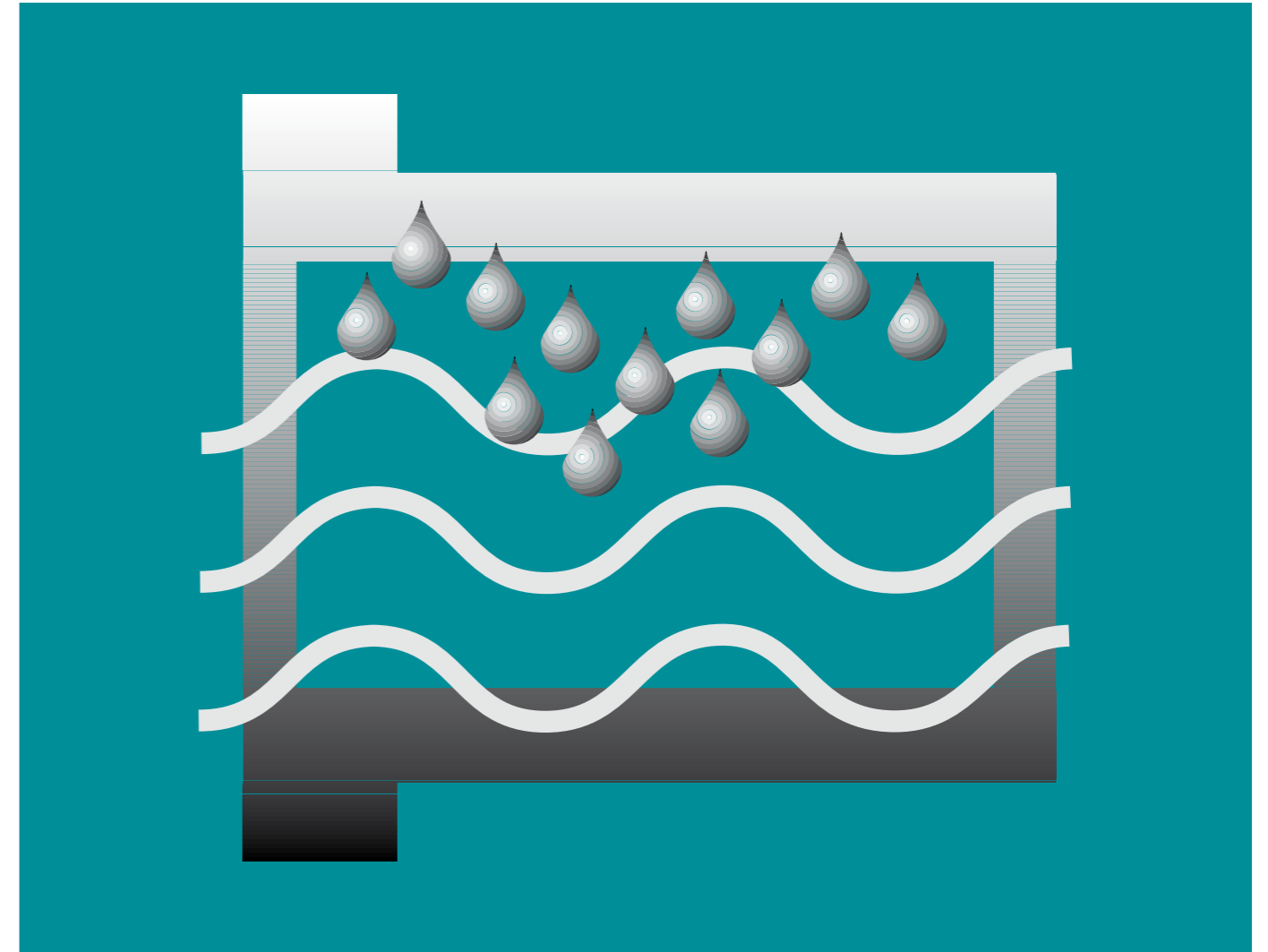
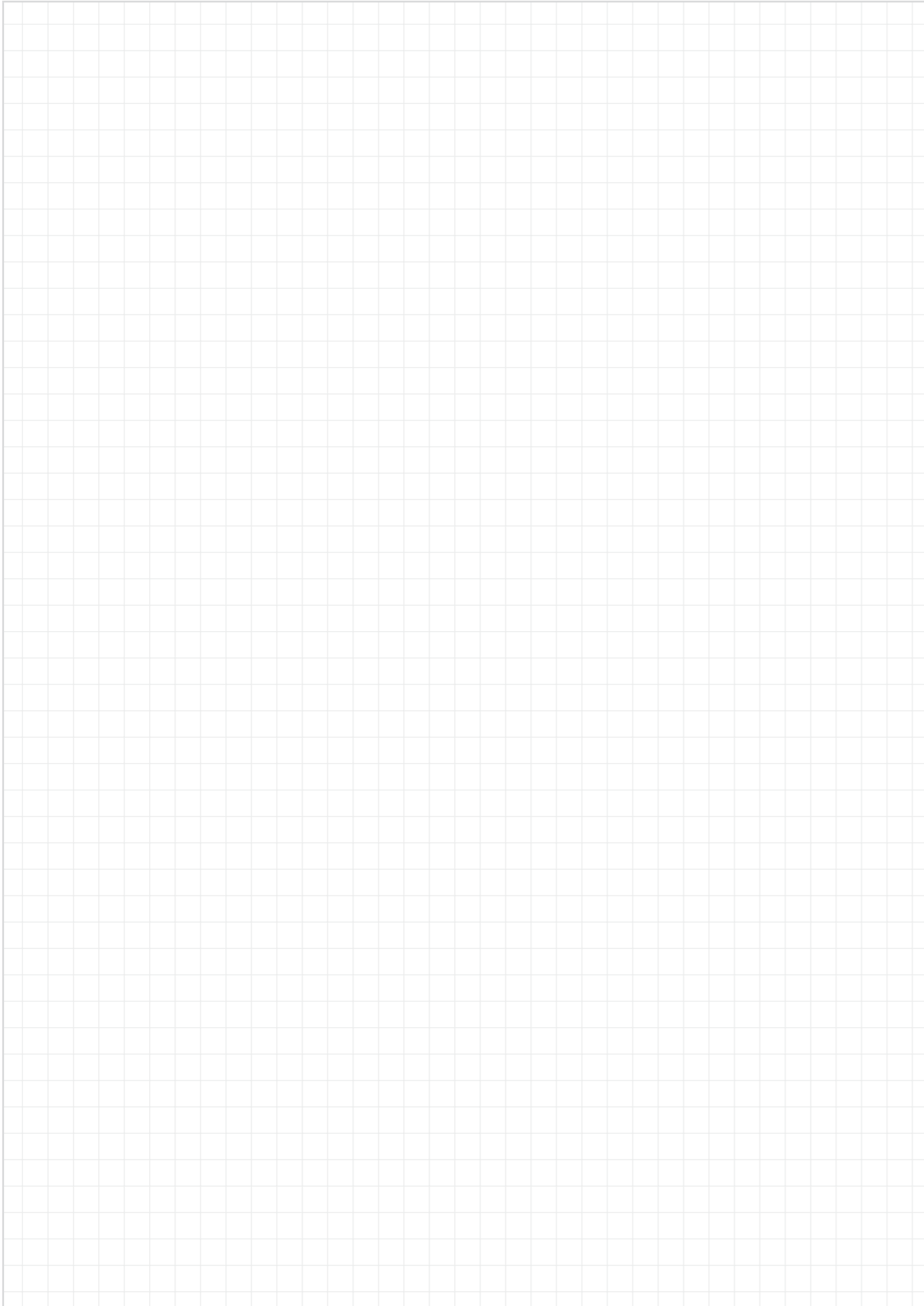
d1	d1-Tolerance <sup>3)</sup>	d2	d3 d13	b1 h13	b2 -0.14	Part No.
3.0	+0.006 +0.046	4.5	7.5	5.0	0.75	<b>H1FM-0304-05</b>
5.0	+0.010 +0.058	7.0	11.0	5.0	1.0	<b>H1FM-0507-05</b>
6.0	+0.010 +0.058	8.0	12.0	6.0	1.0	<b>H1FM-0608-06</b>
6.0	+0.010 +0.058	8.0	12.0	10.0	1.0	<b>H1FM-0608-10</b>
8.0	+0.013 +0.071	10.0	15.0	6.5	1.0	<b>H1FM-0810-065</b>
8.0	+0.013 +0.071	10.0	15.0	10.0	1.0	<b>H1FM-0810-10</b>
10.0	+0.013 +0.071	12.0	18.0	10.0	1.0	<b>H1FM-1012-10</b>
12.0	+0.016 +0.086	14.0	20.0	12.0	1.0	<b>H1FM-1214-12</b>
12.0	+0.016 +0.086	14.0	20.0	20.0	1.0	<b>H1FM-1214-20</b>
16.0	+0.016 +0.086	18.0	24.0	17.0	1.0	<b>H1FM-1618-17</b>
16.0	+0.016 +0.086	18.0	24.0	25.0	1.0	<b>H1FM-1618-25</b>
18.0	+0.016 +0.086	20.0	26.0	12.0	1.0	<b>H1FM-1820-12</b>
20.0	+0.020 +0.104	23.0	30.0	21.5	1.5	<b>H1FM-2023-21</b>
20.0	+0.020 +0.104	23.0	30.0	30.0	1.5	<b>H1FM-2023-30</b>
25.0	+0.020 +0.104	28.0	35.0	21.0	1.5	<b>H1FM-2528-21</b>
30.0	+0.020 +0.104	34.0	42.0	26.0	2.0	<b>H1FM-3034-26</b>
35.0	+0.025 +0.125	39.0	47.0	26.0	2.0	<b>H1FM-3539-26</b>
40.0	+0.025 +0.125	44.0	52.0	40.0	2.0	<b>H1FM-4044-40</b>

<sup>3)</sup> after pressfit. Testing methods ► Page 75



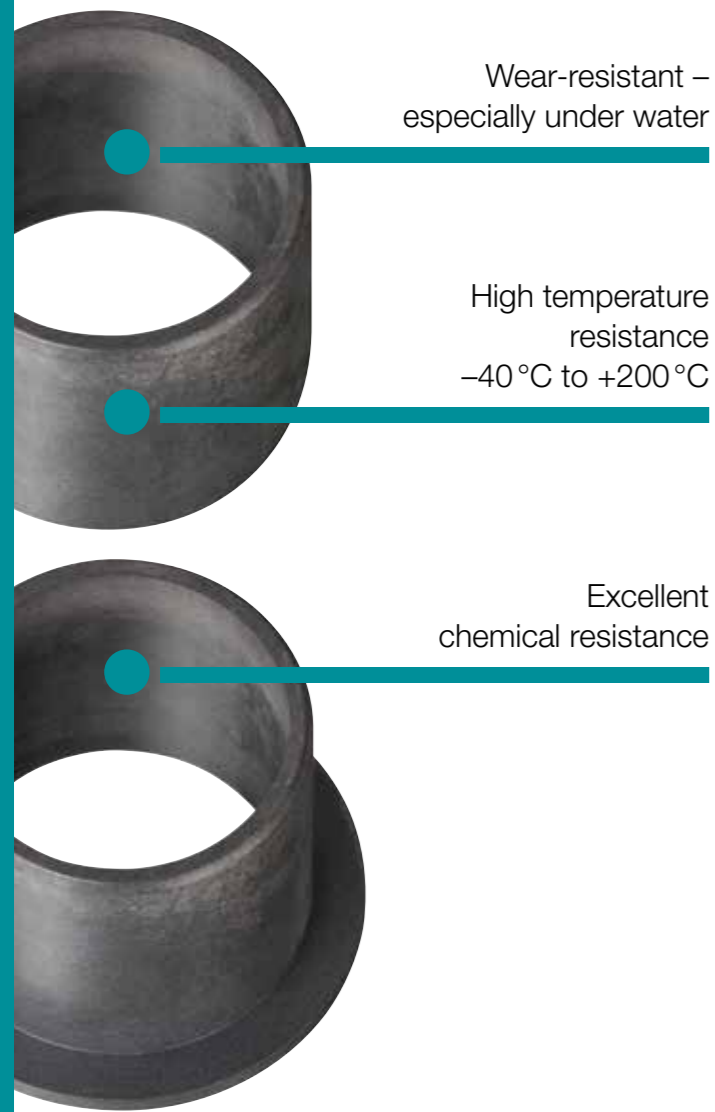
**Don't find your size?**

Do you need another length, other dimensions or tolerances? You need a particular design or alternative for your application? Please call us. igus® listens to your needs and provides you a solution in a very short time.



## Under water – iglidur® H370

- Wear-resistant – especially under water
- High temperature resistance  $-40^{\circ}\text{C}$  to  $+200^{\circ}\text{C}$
- High resistance to chemicals
- Lubrication and maintenance free
- Standard range from stock



iglidur® H370 is the right solution for underwater applications. The bearings absorb extremely high loads, resist to chemicals and can be used at temperatures up to +200 °C.



### When to use it?

- For underwater use
- When it is dependent on high temperature resistance
- When high mechanical loading and wear resistance is required
- When good resistance to chemicals is required



### When not to use it?

- When mechanical reaming of the wall surface is necessary  
▶ iglidur® M250, page 111
- When high wear resistance in temperatures is required  
▶ iglidur® H1, page 291
- For use in dirty surroundings  
▶ iglidur® Z, page 263
- When a cost-efficient, large-volume solution is required  
▶ iglidur® H2, page 315



### Available from stock

Detailed information about delivery time online.



max. +200 °C  
min. -40 °C



### Block pricing online

No minimum order value. From batch size 1



Ø 3–75 mm  
more dimensions on request



Inch dimensions available  
▶ From page 1183



### Typical application areas

- Offshore ● Marine engineering
- Fluid technology ● Packaging
- Plant construction etc.

## Material properties table

General properties	Unit	iglidur® H370	Testing method
Density	g/cm <sup>3</sup>	1.72	
Colour		grey	
Max. moisture absorption at +23 °C/50 % r.h.	% weight	0.1	DIN 53495
Max. water absorption	% weight	0.1	
Coefficient of sliding friction, dynamic against steel	μ	0.07–0.17	
pv value, max. (dry)	MPa · m/s	0.74	
Mechanical properties			
Modulus of elasticity	MPa	11,100	DIN 53457
Tensile strength at +20 °C	MPa	135	DIN 53452
Compressive strength	MPa	79	
Max. recommended surface pressure (+20 °C)	MPa	75	
Shore-D hardness		82	DIN 53505
Physical and thermal properties			
Max. long term application temperature	°C	+200	
Max. short term application temperature	°C	+240	
Min. application temperature	°C	-40	
Thermal conductivity	W/m · K	0.5	ASTM C 177
Coefficient of thermal expansion (at +23 °C)	K <sup>-1</sup> · 10 <sup>-5</sup>	5	DIN 53752
Electrical properties <sup>5)</sup>			
Specific volume resistance	Ωcm	< 10 <sup>5</sup>	DIN IEC 93
Surface resistance	Ω	< 10 <sup>5</sup>	DIN 53482

Table 01: Material properties table

<sup>5)</sup> The good conductivity of this plastic material under certain circumstances can favour the generation of corrosion on the metallic contact components.

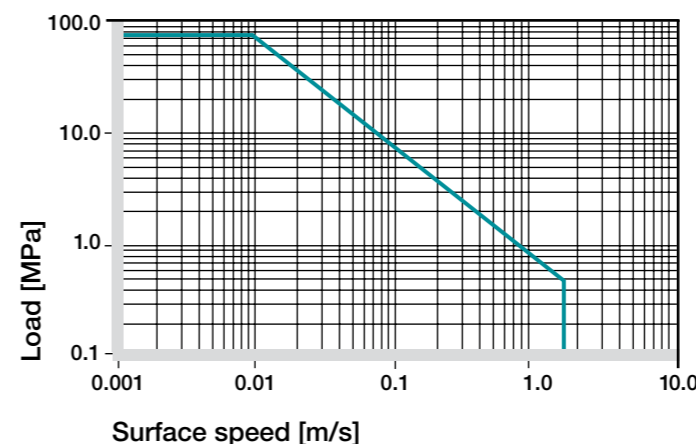


Diagram 01: Permissible pv values for iglidur® H370 bearings with a wall thickness of 1 mm dry running against a steel shaft, at +20 °C, mounted in a steel housing

### Moisture absorption

The moisture absorption of iglidur® H370 plain bearings is below 0.1 % in ambient conditions. The saturation limit in water is also below 0.1 %. For this reason, iglidur® H370 plain bearings are often used for underwater applications.

▶ Diagram, [www.igus.eu/h370-moisture](http://www.igus.eu/h370-moisture)

### Vacuum

In vacuum, the moisture content is released as vapour. Due to its low moisture absorption, use in a vacuum is possible.

### Radiation resistance

iglidur® H370 withstands neutron and gamma particle radiation. Plain bearings made from iglidur® H370 are resistant to radiation up to an intensity of 2 · 10<sup>2</sup> Gy.

### UV resistance

iglidur® H370 plain bearings are resistant to UV radiation.

Medium	Resistance
Alcohols	+
Hydrocarbons	+
Greases, oils without additives	+
Fuels	+
Diluted acids	+ to 0
Strong acids	+ 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 1226

iglidur® H370 is an advanced development of the iglidur® H series. The material is characterised by particularly low water absorption and clearly enhanced wear resistance. With regard to the mechanical and thermal characteristic values, iglidur® H370 shows the same features as iglidur® H.

### Mechanical properties

With increasing temperatures, the compressive strength of iglidur® H370 bearings decreases. The diagram 02 shows this relationship. The recommended maximum surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.

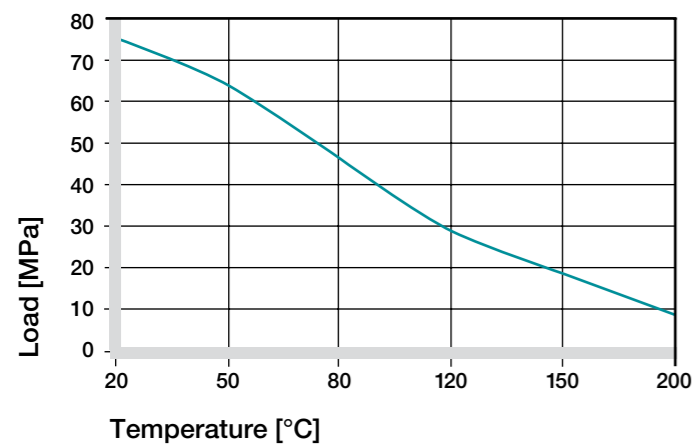


Diagram 02: Recommended maximum surface pressure of as a function of temperature (75 MPa at +20 °C)

Diagram 03 shows the elastic deformation of iglidur® H370 bearings at radial load. At the maximum recommended surface pressure of 75 MPa, the deformation at room temperature is about 2.5 %.

► Surface pressure, page 63

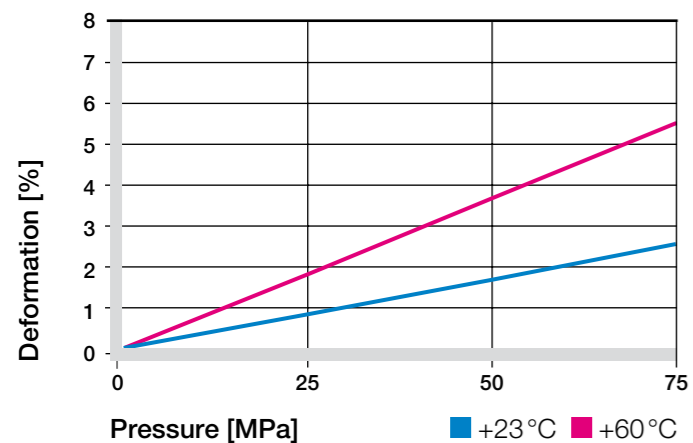


Diagram 03: Deformation under pressure and temperature

### Permissible surface speeds

The maximum permitted surface speed is dependent on whether the temperature in the bearing location rises strongly or not. iglidur® H370 is suitable for surface speeds up to 1.2 m/s (rotating) and 4 m/s (linear) respectively.

The maximum values stated in table 03 are valid only with minimum pressure loads and are often not attained in practice.

► Surface speed, page 65

m/s	Rotating	Oscillating	Linear
Continuous	1.2	0.8	4
Short term	1.5	1.1	5

Table 03: Maximum surface speeds

### Temperatures

With increasing temperatures, the compressive strength of iglidur® H370 bearings decreases. The ambient temperatures prevalent in the bearing system also have an effect on the bearing wear. The wear rises with increasing temperatures. At temperatures over +100 °C an additional securing is required.

► Application temperatures, page 66

► Additional securing, page 67

### Friction and wear

The coefficient of friction alters only little, like the wear resistance with increasing load and surface speed (diagrams 04 and 05).

► Coefficients of friction and surfaces, page 68

► Wear resistance, page 69

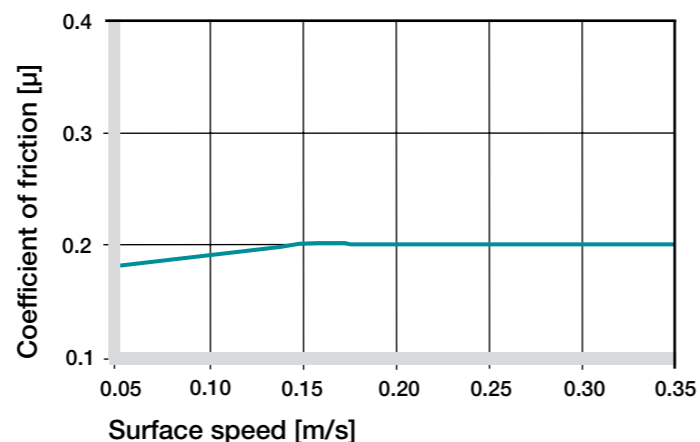


Diagram 04: Coefficient of friction as a function of the surface speed, p = 0.75 MPa

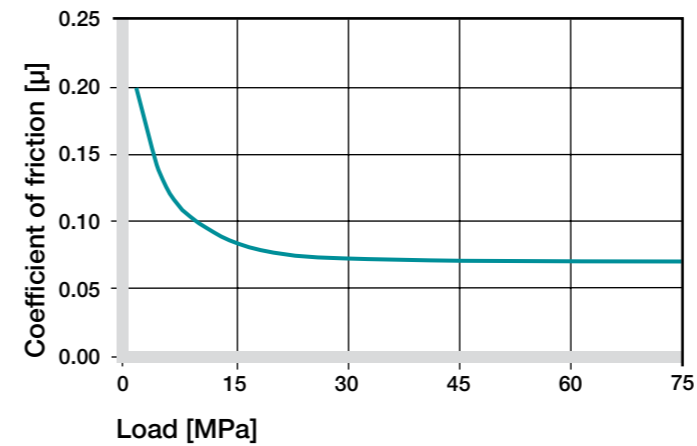


Diagram 05: Coefficient of friction as a function of the pressure, v = 0.01 m/s

### Shaft materials

Diagrams 06 and 07 show the test results of iglidur® H370 bearings running against various shaft materials.

For loads up to 2 MPa in rotating applications, the hard-chromed shaft is the best material for the iglidur® H370 bearings. The high wear values with V2A shafts, which due to their extremely smooth surfaces are prone to the stick-slip effect, are striking. Despite same values in the lowest range, the St37 shaft shows already better values than Cf53 with loads of 2 MPa. On the other hand, the V2A shaft shows a clear advantage in pivoting movements.

► Shaft materials, page 71

iglidur® H370	Dry	Greases	Oil	Water
C. o. f. μ	0.07–0.17	0.09	0.04	0.04

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

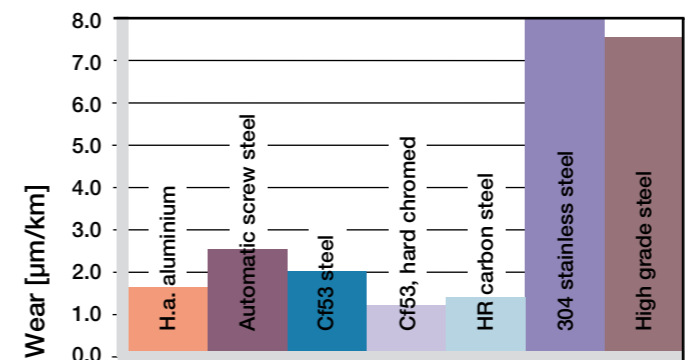


Diagram 06: Wear, rotating with different shaft materials, p = 1 MPa, v = 0.3 m/s

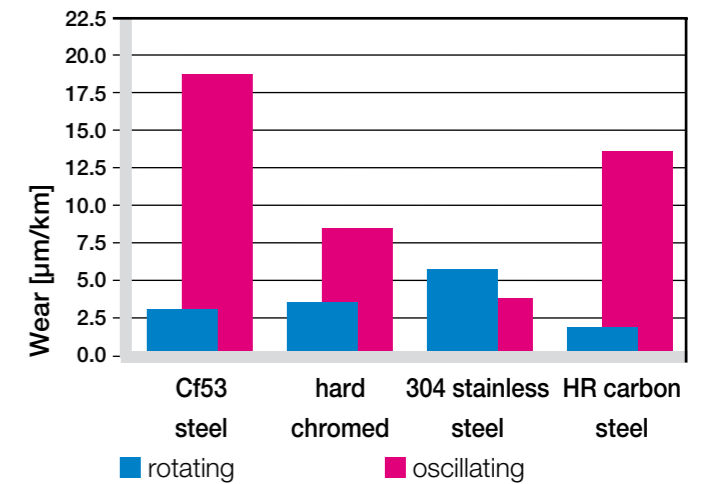


Diagram 07: Wear for rotating and oscillating applications with different shaft materials, p = 2 MPa

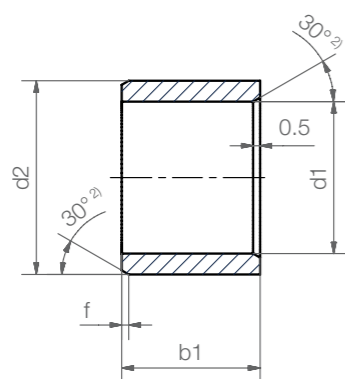
### Installation tolerances

iglidur® H370 plain bearings are standard bearings for shafts with h-tolerance (recommended minimum h9). The bearings are designed for pressfit 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. For particular dimensions the tolerance differs depending on the wall thickness (please see product range table).

► Testing methods, page 75

Diameter d1 [mm]	Shaft h9 [mm]	iglidur® H370 F10 [mm]	Housing H7 [mm]
up to 3	0–0.025	+0.006 +0.046	0 +0.010
> 3 to 6	0–0.030	+0.010 +0.058	0 +0.012
> 6 to 10	0–0.036	+0.013 +0.071	0 +0.015
> 10 to 18	0–0.043	+0.016 +0.086	0 +0.018
> 18 to 30	0–0.052	+0.020 +0.104	0 +0.021
> 30 to 50	0–0.062	+0.025 +0.125	0 +0.025
> 50 to 80	0–0.074	+0.030 +0.150	0 +0.030

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



## Order key

Type Dimensions  
**H370 S M-0304-03**

iglidur® material	Form S	Metric	Inner-Ø d1 [mm]	Outer-Ø d2 [mm]	Length b1 [mm]
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Dimensions according to ISO 3547-1 and special dimensions

<sup>2)</sup> thickness < 1 mm, chamfer = 20°

Chamfer in relation to the d1

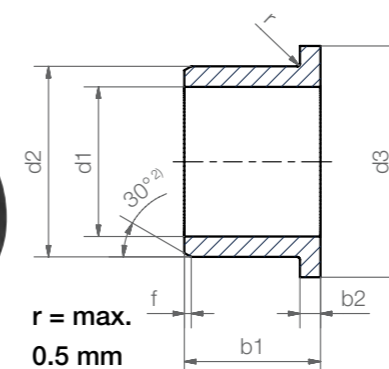
d1 [mm]:	Ø 1-6	Ø 6-12	Ø 12-30	Ø > 30
f [mm]:	0.3	0.5	0.8	1.2

## Dimensions [mm]

d1	d1- Tolerance <sup>3)</sup>	d2	b1 h13	Part No.
3.0	+0.006 +0.046	4.5	3.0	H370SM-0304-03
4.0		5.5	4.0	H370SM-0405-04
4.0	+0.010	5.5	12.0	H370SM-0405-12
5.0	+0.058	7.0	5.0	H370SM-0507-05
6.0		8.0	6.0	H370SM-0608-06
6.0		8.0	10.0	H370SM-0608-10
8.0		10.0	8.0	H370SM-0810-08
8.0		10.0	10.0	H370SM-0810-10
8.0	+0.013	10.0	15.0	H370SM-0810-15
10.0	+0.071	12.0	10.0	H370SM-1012-10
10.0		12.0	12.0	H370SM-1012-12
10.0		12.0	15.0	H370SM-1012-15
12.0	+0.016	14.0	10.0	H370SM-1214-10
12.0	+0.086	14.0	15.0	H370SM-1214-15
15.0		17.0	15.0	H370SM-1517-15

<sup>3)</sup> after pressfit. Testing methods ► Page 75

d1	d1- Tolerance <sup>3)</sup>	d2	b1 h13	Part No.
16.0		18.0	15.0	H370SM-1618-15
16.0	+0.016	18.0	20.0	H370SM-1618-20
18.0	+0.086	20.0	15.0	H370SM-1820-15
20.0		23.0	20.0	H370SM-2023-20
22.0	+0.020	25.0	20.0	H370SM-2225-20
25.0	+0.104	28.0	20.0	H370SM-2528-20
30.0		34.0	30.0	H370SM-3034-30
35.0		39.0	40.0	H370SM-3539-40
40.0	+0.025	44.0	30.0	H370SM-4044-30
40.0	+0.125	44.0	50.0	H370SM-4044-50
45.0		50.0	50.0	H370SM-4550-50
50.0	+0.000 +0.100	55.0	40.0	H370SM-5055-40
55.0	+0.030	60.0	26.0	H370SM-5560-26
60.0	+0.150	65.0	60.0	H370SM-6065-60
75.0		80.0	60.0	H370SM-7580-60



<sup>2)</sup> thickness < 1 mm, chamfer = 20°

Chamfer in relation to the d1

d1 [mm]:	Ø 1-6	Ø 6-12	Ø 12-30	Ø > 30
f [mm]:	0.3	0.5	0.8	1.2

## Dimensions [mm]

d1	d1- Tolerance <sup>3)</sup>	d2	d3 d13	b1 h13	b2 -0.14	Part No.
4.0		5.5	9.5	4.0	0.75	H370FM-0405-04
5.0	+0.010	7.0	11.0	5.0	1.0	H370FM-0507-05
6.0	+0.058	8.0	12.0	6.0	1.0	H370FM-0608-06
8.0		10.0	15.0	6.0	1.0	H370FM-0810-06
8.0		10.0	15.0	10.0	1.0	H370FM-0810-10
8.0	+0.013	10.0	15.0	15.0	1.0	H370FM-0810-15
10.0	+0.071	12.0	18.0	10.0	1.0	H370FM-1012-10
10.0		12.0	18.0	20.0	1.0	H370FM-1012-20
10.0		12.0	18.0	14.5	1.0	H370FM-1012-145
12.0		14.0	20.0	7.0	1.0	H370FM-1214-07
12.0		14.0	20.0	12.0	1.0	H370FM-1214-12
12.0	+0.016	14.0	20.0	15.0	1.0	H370FM-1214-15
12.0	+0.086	14.0	20.0	20.0	1.0	H370FM-1214-20
14.0		16.0	22.0	12.0	1.0	H370FM-1416-12
15.0		17.0	23.0	17.0	1.0	H370FM-1517-17
16.0		18.0	22.0	10.0	1.0	H370FM-161822-10

<sup>3)</sup> after pressfit. Testing methods ► Page 75



## Order key

Type Dimensions  
**H370 F M-0405-04**

iglidur® material	Form F	Metric	Inner-Ø d1 [mm]	Outer-Ø d2 [mm]	Length b1 [mm]
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Dimensions according to ISO 3547-1 and special dimensions

d1	d1- Tolerance <sup>3)</sup>	d2	d3 d13	b1 h13	b2 -0.14	Part No.
16.0		18.0	24.0	10.0	1.0	H370FM-1618-10
16.0	+0.016	18.0	24.0	17.0	1.0	H370FM-1618-17
16.0	+0.086	18.0	24.0	25.0	1.0	H370FM-1618-25
18.0		20.0	26.0	12.0	1.0	H370FM-1820-12
18.0		20.0	26.0	17.0	1.0	H370FM-1820-17
20.0		23.0	30.0	16.0	1.5	H370FM-2023-16
20.0		23.0	30.0	21.5	1.5	H370FM-2023-21
20.0	+0.020	23.0	30.0	30.0	1.5	H370FM-2023-30
22.0	+0.104	25.0	32.0	21.5	1.5	H370FM-222532-215
25.0		28.0	35.0	30.0	1.5	H370FM-2528-30
30.0		34.0	42.0	40.0	2.0	H370FM-3034-40
35.0	+0.025	39.0	47.0	26.0	2.0	H370FM-3539-26
40.0	+0.125	44.0	52.0	40.0	2.0	H370FM-4044-40
50.0		55.0	63.0	50.0	2.0	H370FM-5055-50
60.0	+0.030	65.0	73.0	50.0	2.0	H370FM-6065-50
70.0	+0.150	75.0	83.0	50.0	2.0	H370FM-7075-50



## Don't find your size?

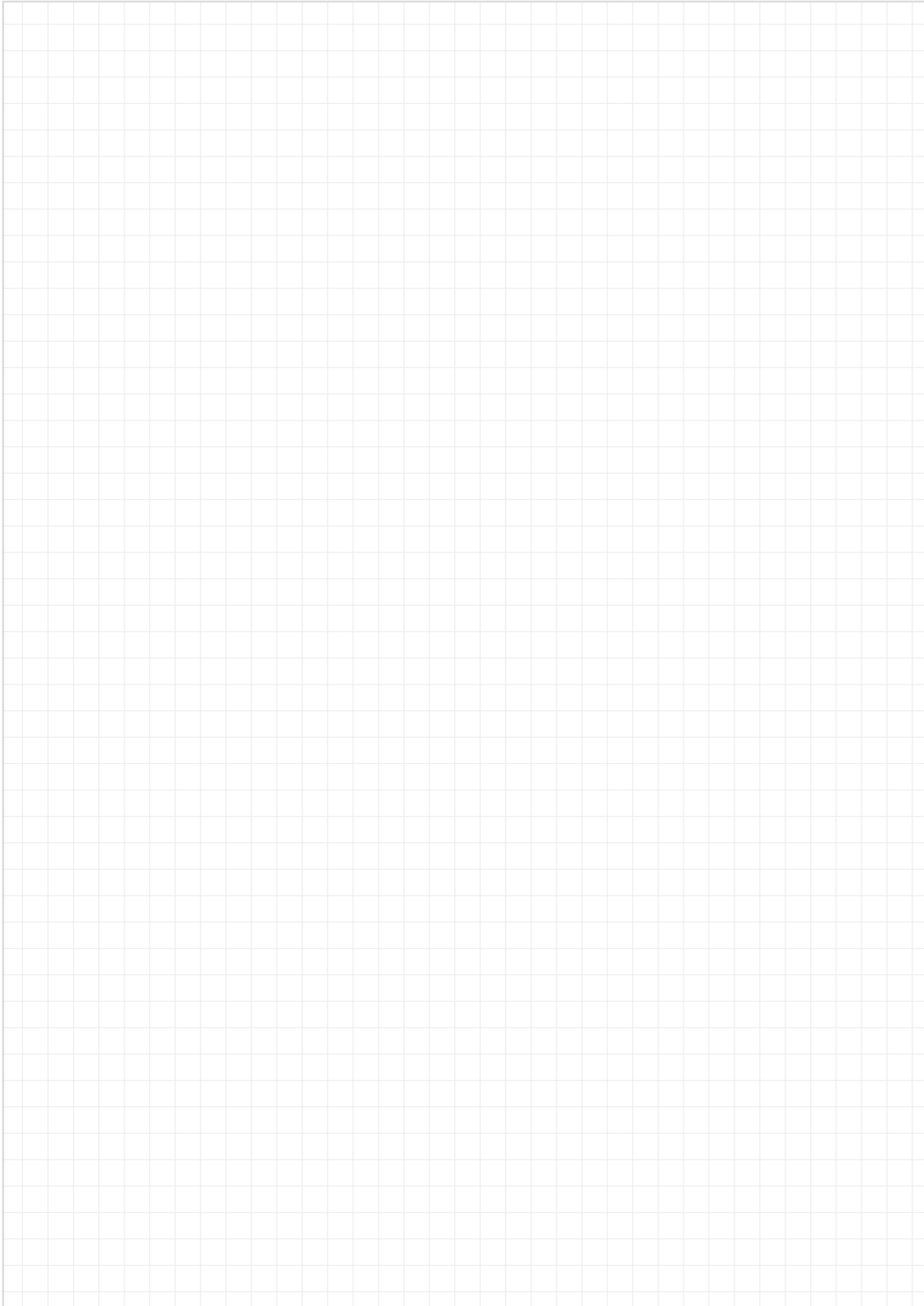
Do you need another length, other dimensions or tolerances? You need a particular design or alternative for your application? Please call us. igus® listens to your needs and provides you a solution in a very short time.



## Even more dimensions from stock

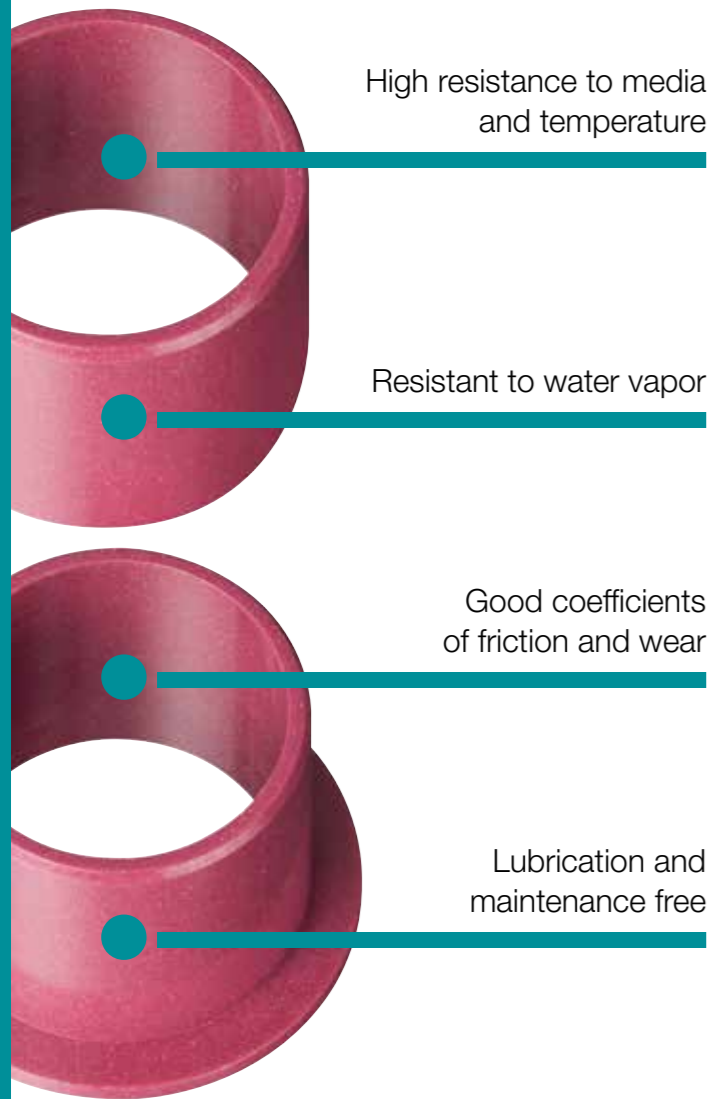
More than 300 dimensions are now available. Search online for your required bearing.

► [www.igus.eu/iglidur-specialbearings](http://www.igus.eu/iglidur-specialbearings)



## Up to +250 °C, wear-resistant – iglidur® C500

- High resistance to media and temperature
- Resistant to steam
- Good coefficients of friction and wear
- Lubrication and maintenance free
- Standard range from stock



iglidur® C500 can be used up to +250 °C and is extremely resistant to media – even in cleaning processes using hydrogen peroxide – it is also wear resistant and has low coefficients of friction. Also suitable for various special designs. The colour represents extreme environmental conditions.



**When to use it?**

- When you need an extremely media-resistant bearing with high flexibility
- When you need a very wear-resistant and media resistant bearing



**When not to use it?**

- When you need an FDA compliant high temperature material  
▶ iglidur® A500, page 359
- When you need a media-resistant high-temperature bearing with the largest possible range of dimensions  
▶ iglidur® X, page 133



**Available from stock**

Detailed information about delivery time online.



**max. +250 °C**

**min. -100 °C**



**Block pricing online**

No minimum order value. From batch size 1



**Ø 6–20 mm**

more dimensions on request



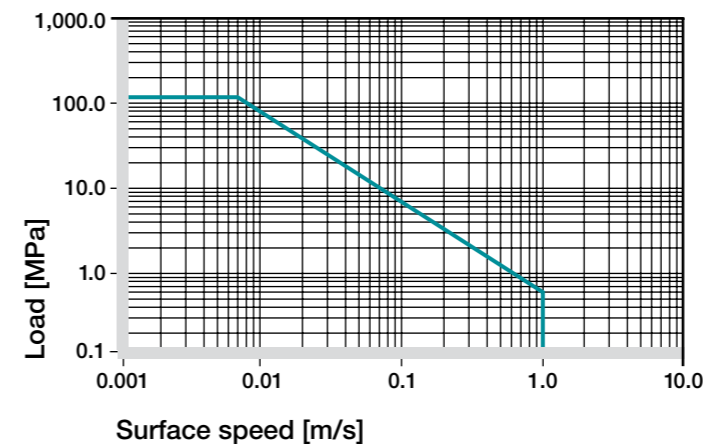
**Typical application areas**

- Plant construction ● Valves ● Chemical industry ● Process technology

**Material properties table**

General properties	Unit	iglidur® C500	Testing method
Density	g/cm³	1.37	
Colour		magenta	
Max. moisture absorption at +23 °C/50 % r.h.	% weight	0.3	DIN 53495
Max. water absorption	% weight	0.5	
Coefficient of sliding friction, dynamic against steel	μ	0.07–0.19	
pv value, max. (dry)	MPa · m/s	0.7	
Mechanical properties			
Modulus of elasticity	MPa	3,000	DIN 53457
Tensile strength at +20 °C	MPa	100	DIN 53452
Compressive strength	MPa	110	
Max. recommended surface pressure (+20 °C)	MPa	110	
Shore-D hardness		81	DIN 53505
Physical and thermal properties			
Max. long term application temperature	°C	+250	
Max. short term application temperature	°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 volume resistance	Ωcm	> 10 <sup>14</sup>	DIN IEC 93
Surface resistance	Ω	> 10 <sup>13</sup>	DIN 53482

**Table 01: Material properties table**



**Diagram 01: Permissible pv values for iglidur® C500 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® C500 plain bearings is below 0.3 % in ambient conditions. The saturation limit in water is also below 0.5 %.

▶ **Diagram, [www.igus.eu/c500-moisture](http://www.igus.eu/c500-moisture)**

**Vacuum**

iglidur® C500 plain bearings outgas in a vacuum. Due to its low moisture absorption, use in a vacuum is 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 to radiation up to an intensity of 3 · 10<sup>2</sup> Gy.

**UV resistance**

iglidur® C500 plain bearings are permanently resistant to UV radiation.

Medium	Resistance
Alcohols	+
Hydrocarbons	+
Greases, oils without additives	+
Fuels	+
Diluted acids	+
Strong acids	+
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 1226**



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 flexibility – for instance as a piston ring.

### Mechanical properties

With increasing temperatures, the compressive strength of iglidur® C500 plain bearings decreases. The diagram 02 shows this inverse relationship. However, at an operation temperature of +200 °C the permissible surface pressure is close to 20 MPa. The recommended maximum surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.

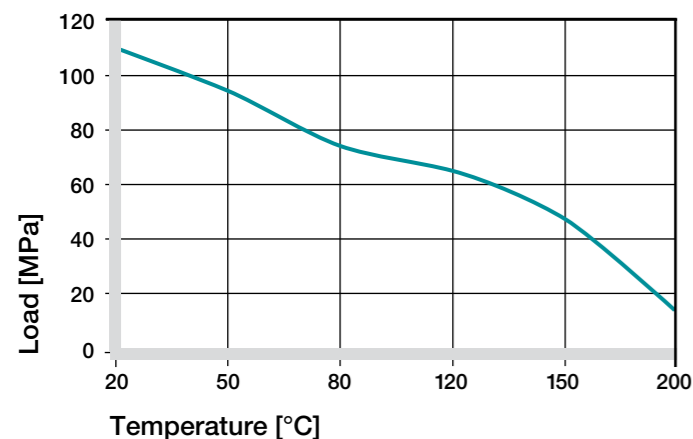


Diagram 02: Recommended maximum surface pressure of as a function of temperature (110 MPa at +20 °C)

Diagram 03 shows the elastic deformation of iglidur® C500 bearings as a function of radial pressure. At the maximum recommended surface pressure of 110 MPa, the deformation at room temperature is only 4.5 %.

► Surface pressure, page 63

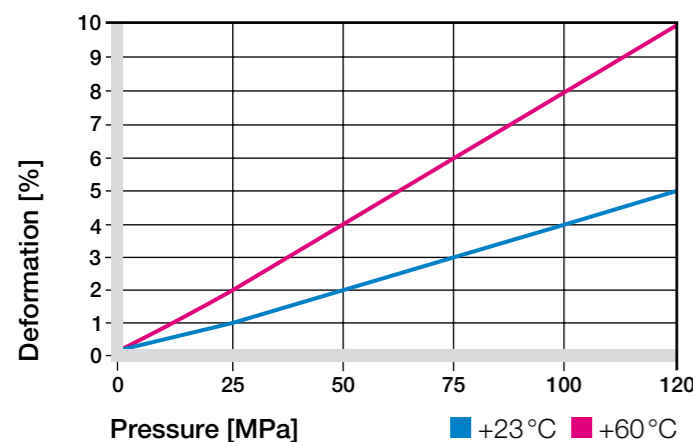


Diagram 03: Deformation under pressure and temperature

### Permissible surface speeds

The maximum allowable sliding speed is based on the friction 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 65

m/s	Rotating	Oscillating	Linear
Continuous	0.9	0.7	2.4
Short term	1.1	1.0	2.8

Table 03: Maximum surface speeds

### Temperatures

iglidur® C500 belongs to the most temperature resistant iglidur® materials. Similar to all thermoplastics, with increasing temperatures, the compressive strength of iglidur® C500 bearings decreases. The ambient temperatures prevalent in the bearing system also have an effect on the bearing wear. The wear rises with increasing temperatures. At temperatures over +130 °C an additional securing is required.

► Application temperatures, page 66

► Additional securing, page 67

### Friction and wear

The coefficients of friction and wear in iglidur® C500 are more favorable than in the other high temperature materials iglidur® X and A500. The friction value increases moderately as the sliding speed increases. The friction value initially drops rapidly to less than 0.1 under loads of up to approx. 20 MPa, and then only marginally increases as loads continue to increase.

Friction and wear also depend to a high degree on the reverse partner. Shafts that are too smooth, increase both the coefficient of friction and the wear of the bearing. The ideal shaft has an average surface finish of Ra = 0.6 to 0.8 µm.

► Coefficients of friction and surfaces, page 68

► Wear resistance, page 69

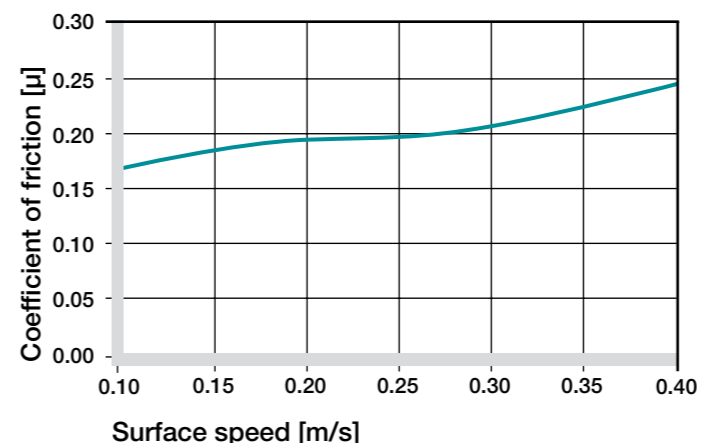


Diagram 04: Coefficient of friction as a function of the surface speed, p = 1 MPa

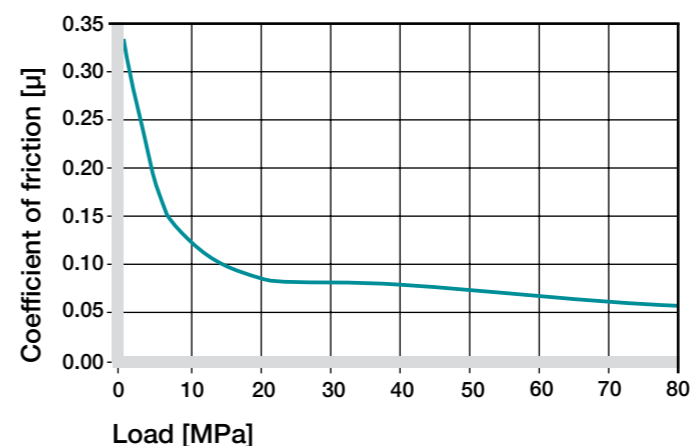


Diagram 05: Coefficient of friction as a function of the pressure, v = 0.01 m/s

### Shaft materials

Diagram 06 shows the test results of iglidur® C500 bearings running against various shaft materials.

Using the example of a rotating motion at 1 MPa and a speed of 0.3 m/s, it becomes apparent that iglidur® C500 has very consistent wear characteristics across a variety of shaft types. This wear rate spikes upward in combination with free-machining steel, and, notably so, spikes downward in combination with HC aluminium.

The wear under rotational loads is higher, specifically with increasing radial loads as compared to pivoting motions (diagram 07).

► Shaft materials, page 71

iglidur® C500	Dry	Greases	Oil	Water
C. o. f. µ	0.07–0.19	0.09	0.04	0.04

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

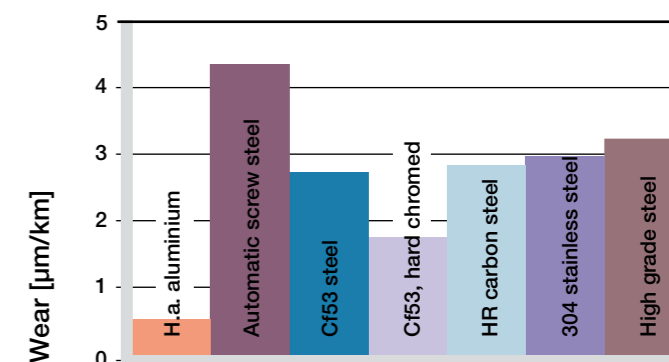


Diagram 06: Wear, rotating with different shaft materials, pressure, p = 1 MPa, v = 0.3 m/s

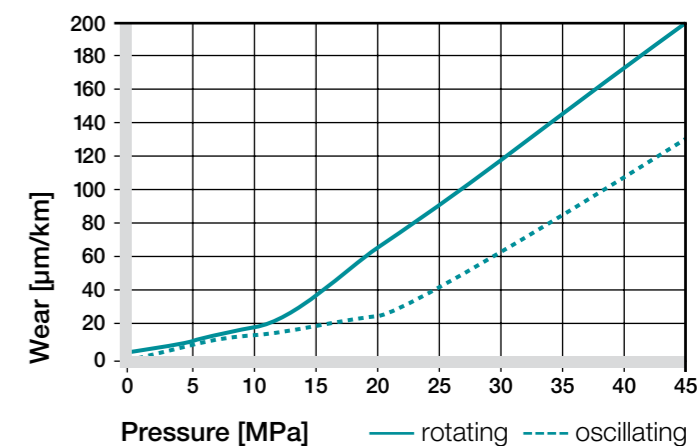


Diagram 07: Wear for oscillating and rotating applications with shaft material Cf53 hardened and ground steel, as a function of the pressure

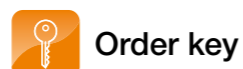
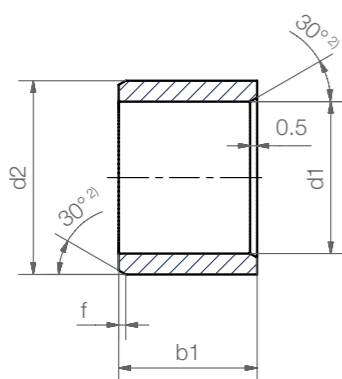
### Installation tolerances

iglidur® C500 plain bearings are standard bearings for shafts with h-tolerance (recommended minimum h9). The bearings are designed for pressfit 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 75

Diameter d1 [mm]	Shaft h9 [mm]	iglidur® C500 F10 [mm]	Housing H7 [mm]
up to 3	0–0.025	+0.006 +0.046	0 +0.010
> 3 to 6	0–0.030	+0.010 +0.058	0 +0.012
> 6 to 10	0–0.036	+0.013 +0.071	0 +0.015
> 10 to 18	0–0.043	+0.016 +0.086	0 +0.018
> 18 to 30	0–0.052	+0.020 +0.104	0 +0.021
> 30 to 50	0–0.062	+0.025 +0.125	0 +0.025
> 50 to 80	0–0.074	+0.030 +0.150	0 +0.030

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



Order key

Type Dimensions

C500 S M-06 08-06

iglidur® material	Form S	Metric	Inner-Ø d1 [mm]	Outer-Ø d2 [mm]	Length b1 [mm]
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Dimensions according to ISO 3547-1 and special dimensions

<sup>2)</sup> thickness < 1 mm, chamfer = 20°

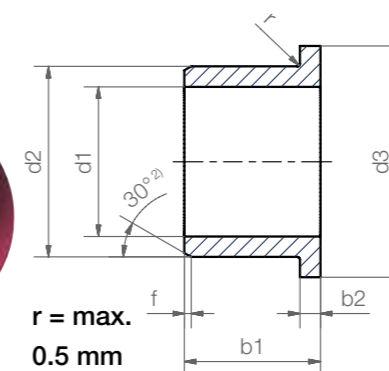
Chamfer in relation to the d1

d1 [mm]:	Ø 1-6	Ø 6-12	Ø 12-30	Ø > 30
f [mm]:	0.3	0.5	0.8	1.2

## Dimensions [mm]

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

<sup>3)</sup> after pressfit. Testing methods ► Page 75



Order key

Type Dimensions

C500 F M-06 08-06

iglidur® material	Form F	Metric	Inner-Ø d1 [mm]	Outer-Ø d2 [mm]	Length b1 [mm]
-------------------	--------	--------	-----------------	-----------------	----------------

Dimensions according to ISO 3547-1 and special dimensions

<sup>2)</sup> thickness < 1 mm, chamfer = 20°

Chamfer in relation to the d1

d1 [mm]:	Ø 1-6	Ø 6-12	Ø 12-30	Ø > 30
f [mm]:	0.3	0.5	0.8	1.2

## Dimensions [mm]

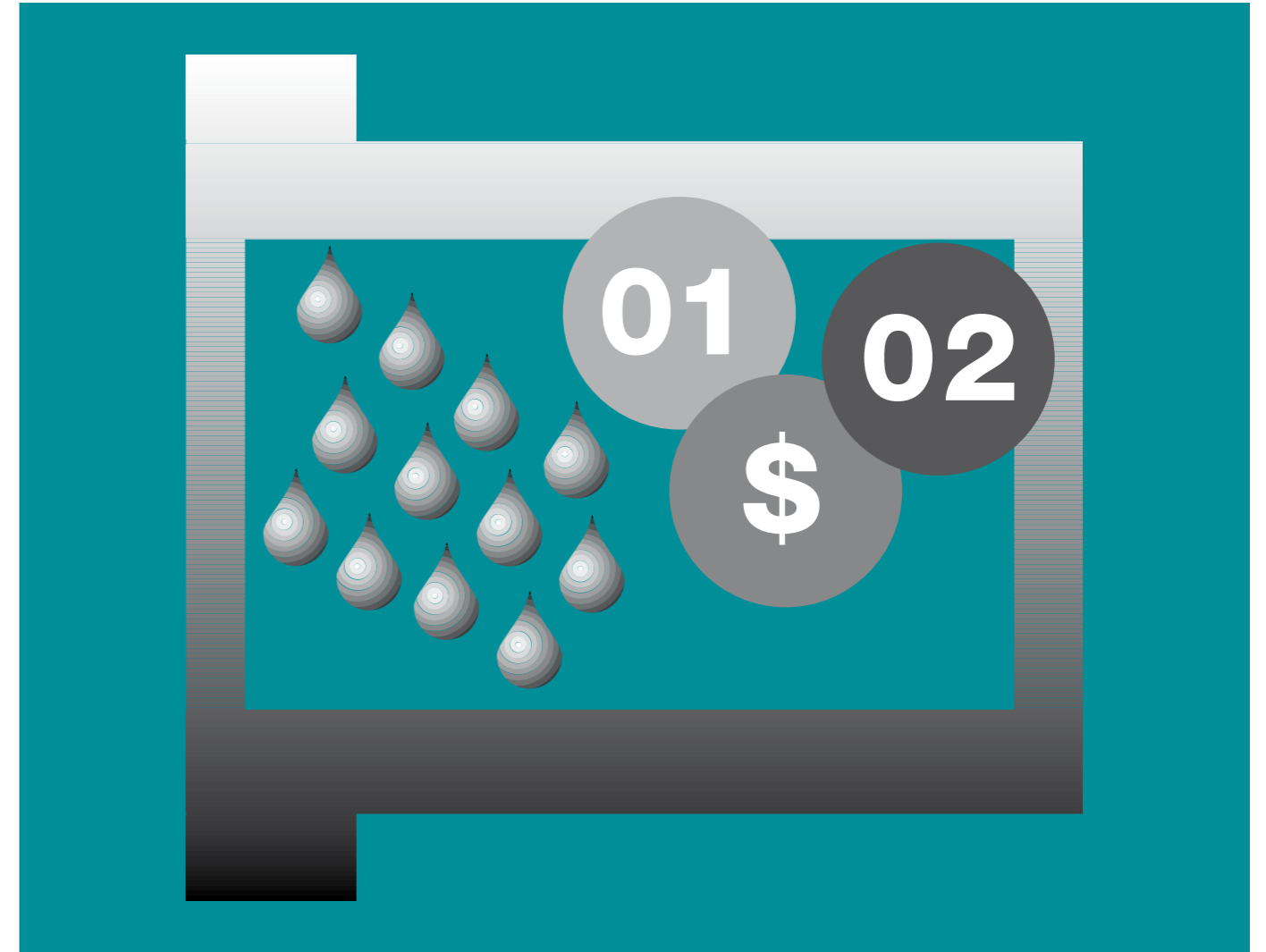
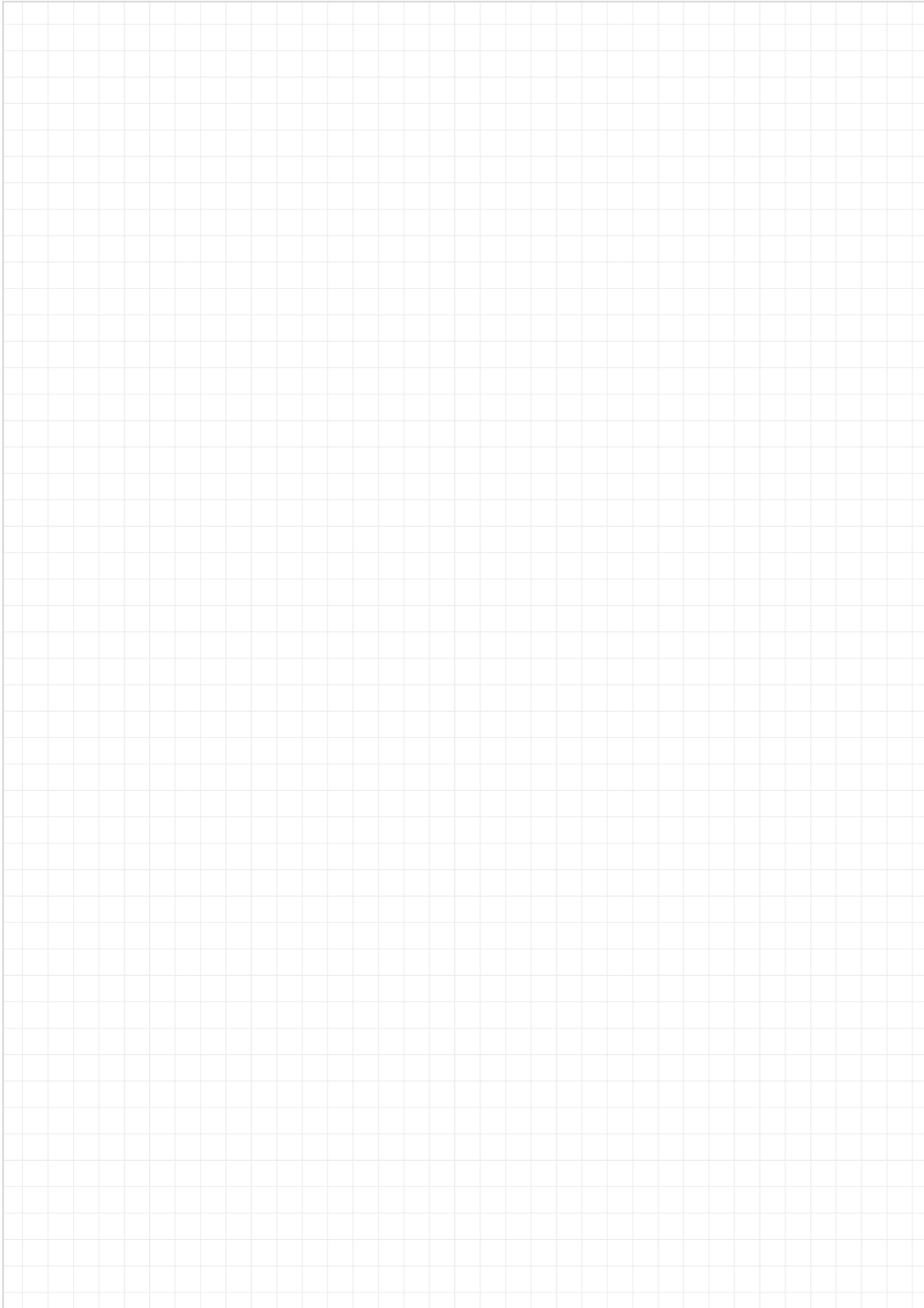
d1	d1-Tolerance <sup>3)</sup>	d2	d3 d13	b1 h13	b2 -0.14	Part No.
6.0	+0.010 +0.058	8.0	12.0	6.0	1.0	C500FM-0608-06
8.0	+0.013 +0.071	10.0	15.0	10.0	1.0	C500FM-0810-10
10.0	+0.013 +0.071	12.0	18.0	10.0	1.0	C500FM-1012-10
12.0	+0.016 +0.086	14.0	20.0	12.0	1.0	C500FM-1214-12
16.0	+0.016 +0.086	18.0	24.0	17.0	1.0	C500FM-1618-17
20.0	+0.020 +0.104	23.0	30.0	21.5	1.5	C500FM-2023-21

<sup>3)</sup> after pressfit. Testing methods ► Page 75



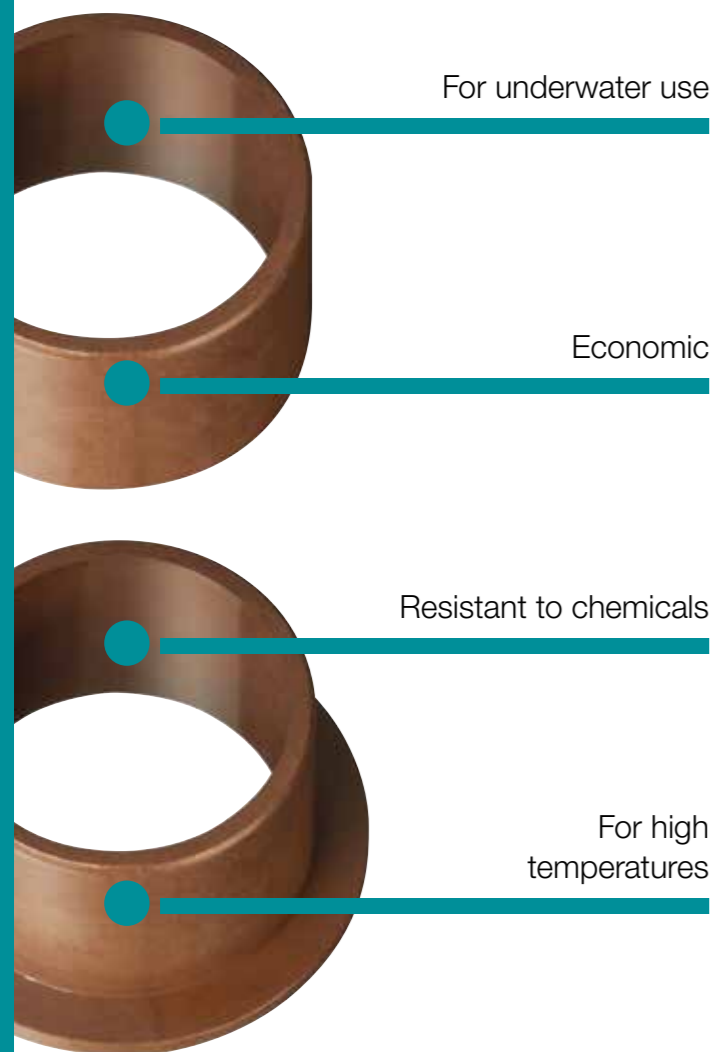
## Don't find your size?

Do you need another length, other dimensions or tolerances? You need a particular design or alternative for your application? Please call us. igus® listens to your needs and provides you a solution in a very short time.



## Low-cost – iglidur® H2

- Can be used underwater
- Cost-effective
- Resistant to chemicals
- For high temperatures
- Lubrication and maintenance free



For application with high temperature requirements. Can be conditionally used in dry operation; excellent properties with additional lubrication.



**When to use it?**

- For underwater use
- If an economic bearing is required for use at high temperatures
- For applications with fuels, oils, etc.
- Resistant to chemicals



**When not to use it?**

- When the highest wear resistance is required
  - ▶ iglidur® H1, page 291
  - ▶ iglidur® H4, page 445
  - ▶ iglidur® W300, page 121
- When vibration dampening is necessary
  - ▶ iglidur® B, page 485
  - ▶ iglidur® M250, page 111
- When neither increased temperatures nor media contact occur
  - ▶ iglidur® GLW, page 173



**Available on request**

Detailed information about delivery time online.



**max. +200 °C**  
**min. -40 °C**



**Order-related**



**Order-related**



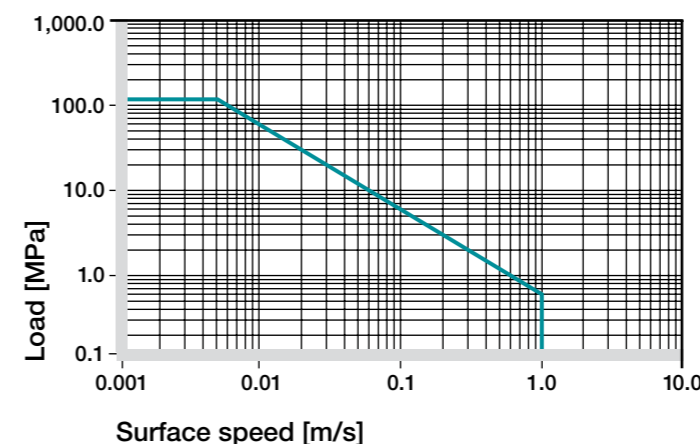
**Typical application areas**

- Automotive ● Actuator ● Bicycle industry, etc.

**Material properties table**

General properties	Unit	iglidur® H2	Testing method
Density	g/cm³	1.72	
Colour		brown	
Max. moisture absorption at +23 °C/50 % r.h.	% weight	0.1	DIN 53495
Max. water absorption	% weight	0.2	
Coefficient of sliding friction, dynamic against steel	μ	0.07–0.3	
pv value, max. (dry)	MPa · m/s	0.58	
Mechanical properties			
Modulus of elasticity	MPa	10,300	DIN 53457
Tensile strength at +20 °C	MPa	210	DIN 53452
Compressive strength	MPa	109	
Max. recommended surface pressure (+20 °C)	MPa	110	
Shore-D hardness		88	DIN 53505
Physical and thermal properties			
Max. long term application temperature	°C	+200	
Max. short term application temperature	°C	+240	
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>	4	DIN 53752
Electrical properties			
Specific volume resistance	Ωcm	> 10 <sup>15</sup>	DIN IEC 93
Surface resistance	Ω	> 10 <sup>14</sup>	DIN 53482

**Table 01: Material properties table**



**Diagram 01: Permissible pv values for iglidur® H2 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® H2 bearings is below 0.3% in ambient conditions. The saturation limit in water is 0.2%. iglidur® H2 is an ideal material for wet environments.

▶ Diagram, [www.igus.eu/h2-moisture](http://www.igus.eu/h2-moisture)

**Vacuum**

In a vacuum, any moisture content will outgas. It is possible to use iglidur® H2 in a vacuum.

**Radiation resistance**

iglidur® H2 withstands neutron and gamma particle radiation. Plain bearings of iglidur® H2 are radiation resistant up to a radiation intensity of 2 · 10<sup>2</sup> Gy.

**UV resistance**

The use of iglidur® H2 in applications that are permanently exposed to weathering should be checked.

Medium	Resistance
Alcohols	+
Hydrocarbons	+
Greases, oils without additives	+
Fuels	+
Diluted acids	+ to 0
Strong acids	+ 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 1226

In applications with the iglidur® H2 bearings, economical aspects are in focus. It is the first time that it is possible to offer such a high-performance bearing for large volume applications with these technical advantages at such a low price: Temperatures up to +200 °C, permitted surface pressure up to 110 N/mm<sup>2</sup>, and excellent chemical resistance. The iglidur® H2 bearings are self-lubricating and suitable for all motions.

### Mechanical properties

With increasing temperatures, the compressive strength of iglidur® H2 plain bearings decreases. The diagram 02 shows this inverse relationship. The recommended maximum surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.

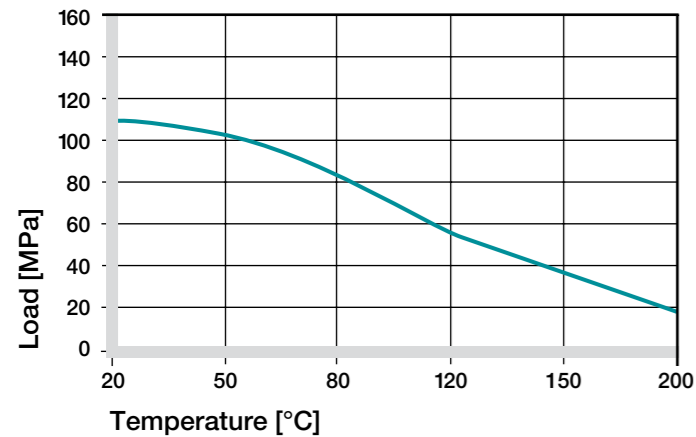


Diagram 02: Recommended maximum surface pressure of as a function of temperature (110 MPa at +20 °C)

Diagram 03 shows the elastic deformation of iglidur® H2 at radial loads. At the maximum recommended surface pressure of 110 MPa at room temperature the deformation is less than 3%. The values for tensile and compressive strength are higher than those of iglidur® H at room temperature.

► Surface pressure, page 63

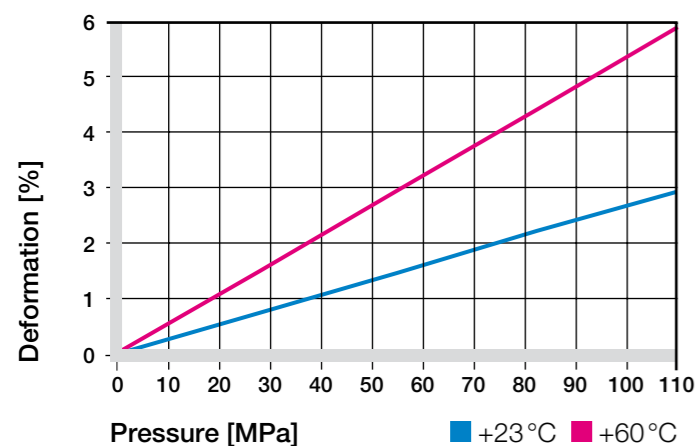


Diagram 03: Deformation under pressure and temperature

### Permissible surface speeds

In the development of iglidur® H2, cost aspects and mechanical stability were in focus. The permitted surface speeds of this bearing are rather low, which primarily permits an application with slow movements or in intermittent service.

► Surface speed, page 65

m/s	Rotating	Oscillating	Linear
Continuous	0.9	0.6	2.5
Short term	1	0.7	3

Table 03: Maximum surface speeds

### Temperatures

iglidur® H2 is an extremely temperature-resistant material. The short-term permitted maximum temperature is +240 °C and this enables the iglidur® H2 bearings to be subjected, for instance to a paint drying process without further load. The temperatures prevailing in the bearing system also have an influence on the bearing wear. The wear rises with increasing temperatures. At temperatures over +110 °C an additional securing is required.

► Application temperatures, page 66

► Additional securing, page 67

### Friction and wear

The coefficients of friction of iglidur® H2 plain bearings change with different surface speeds, loads and roughness, as indicated in the diagrams 04 and 05.

► Coefficients of friction and surfaces, page 68

► Wear resistance, page 69

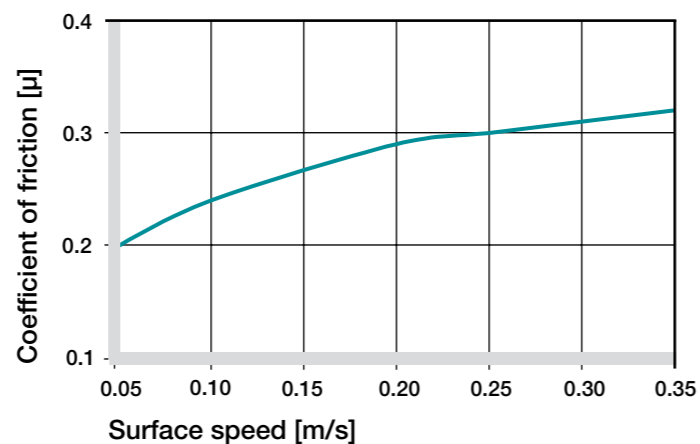


Diagram 04: Coefficient of friction as a function of the surface speed, p = 0.75 MPa

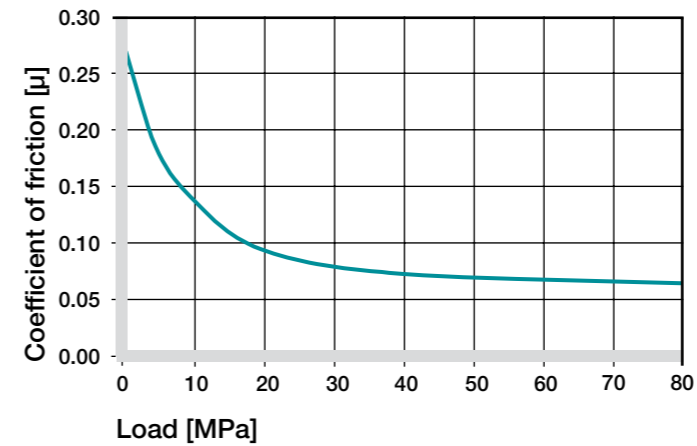


Diagram 05: Coefficient of friction as a function of the pressure, v = 0.01 m/s

### Shaft materials

Regarding the wear resistance of combinations with iglidur® H2, it must be indicated once again that this bearing was developed for statically high mechanical stability. The wear resistance however does not attain, with none of the bearing-shaft combinations, the values of iglidur® H370 with the corresponding shaft.

When the iglidur® H2 bearings are used, they should not be combined with hard-chromed shafts. Shafts made from automatic screw steel and V2A are essentially better, as is found in diagrams 06 and 07.

► Shaft materials, page 71

iglidur® H2	Dry	Greases	Oil	Water
C. o. f. μ	0.07–0.30	0.09	0.04	0.04

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

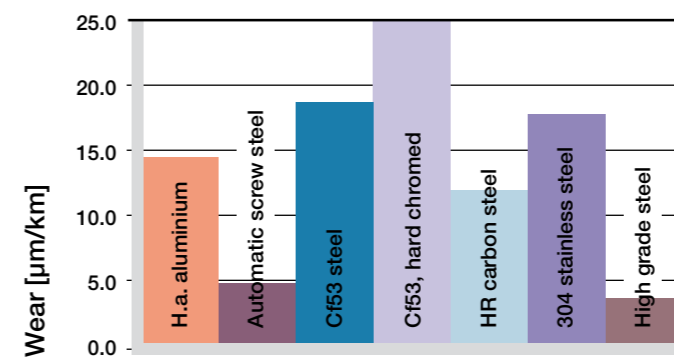


Diagram 06: Wear, rotating with different shaft materials, p = 1 MPa, v = 0.3 m/s

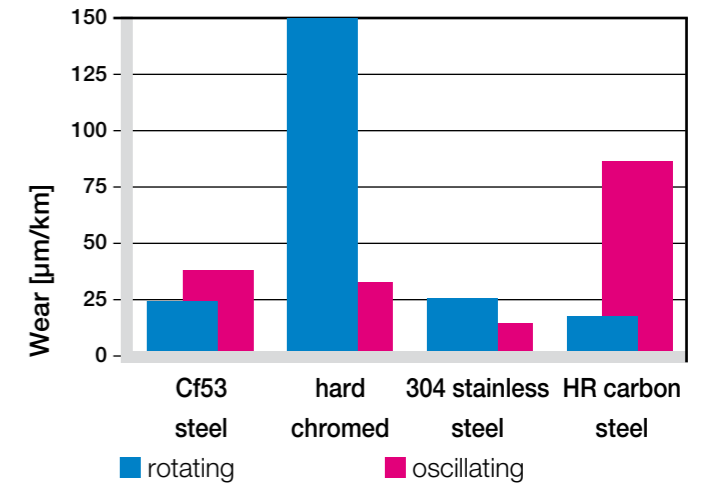


Diagram 07: Wear for rotating and oscillating applications with different shaft materials, p = 2 MPa

### Installation tolerances

iglidur® H2 bearings are standard bearings for shafts with h-tolerance (recommended minimum h9). The bearings are designed for pressfit 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. For particular dimensions the tolerance differs depending on the wall thickness (please see product range table).

► Testing methods, page 75

Diameter d1 [mm]	Shaft h9 [mm]	iglidur® H2 F10 [mm]	Housing H7 [mm]
up to 3	0–0.025	+0.006 +0.046	0 +0.010
> 3 to 6	0–0.030	+0.010 +0.058	0 +0.012
> 6 to 10	0–0.036	+0.013 +0.071	0 +0.015
> 10 to 18	0–0.043	+0.016 +0.086	0 +0.018
> 18 to 30	0–0.052	+0.020 +0.104	0 +0.021
> 30 to 50	0–0.062	+0.025 +0.125	0 +0.025
> 50 to 80	0–0.074	+0.030 +0.150	0 +0.030

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

### Product range

Plain bearings made from iglidur® H2 are manufactured to special order. Please request iglidur® H2 bearings as an alternative to iglidur® H and iglidur® H4 bearings in high volume applications.