iglidur® Specialists | High Resistance to Liquid Media

iglidur® H

universal

Standard range from stock ▶ **from page 337**

iglidur® H1

long life operation

Standard range from stock ▶ **from page 349**

iglidur® H370

under water

Standard range from stock ▶ **from page 359**

New in this catalog!

iglidur® C500

Up to 250 °C, wear resistant

Standard range from stock ▶ **from page 373**

iglidur® H2

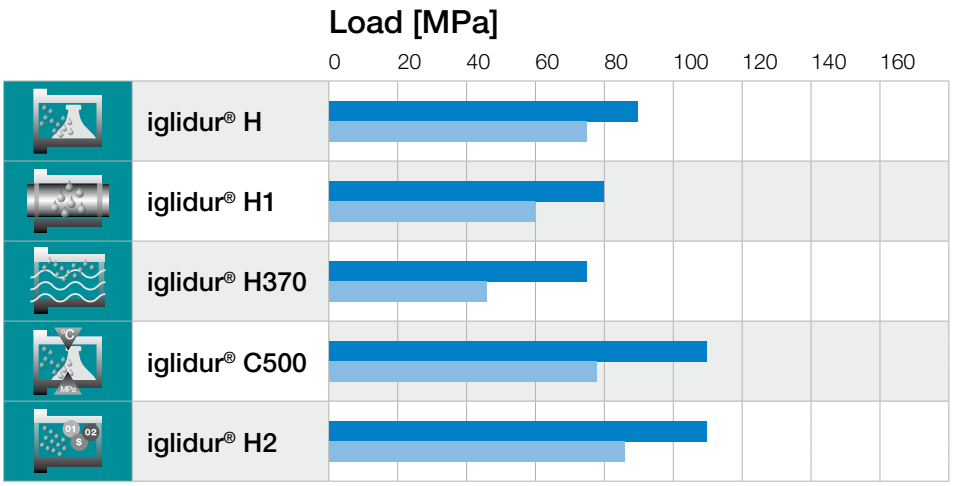
low-cost

On request ▶ **from page 383**

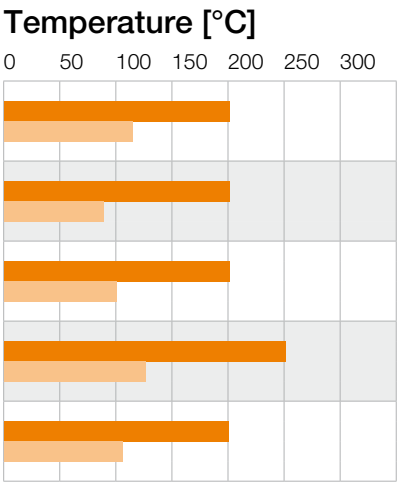
iglidur® Specialists | Selection According to Main Criteria

iglidur®-Specialists – High Resistance to Liquid Media	iglidur® H	iglidur® H1	iglidur® H370	iglidur® C500	iglidur® H2
Long life dry running		●		●	
For high loads				●	
For high temperatures	●	●	●	●	●
Low friction/high speed		●	●		
Dirt resistant					
Chemicals resistant	●	●	●	●	●
Low water absorption	●	●	●	●	●
Food-suitable					
Vibration-dampening					
Egde pressure				●	
For under water use	●	●	●	●	●
Cost-effective					
from page	337	349	359	373	383

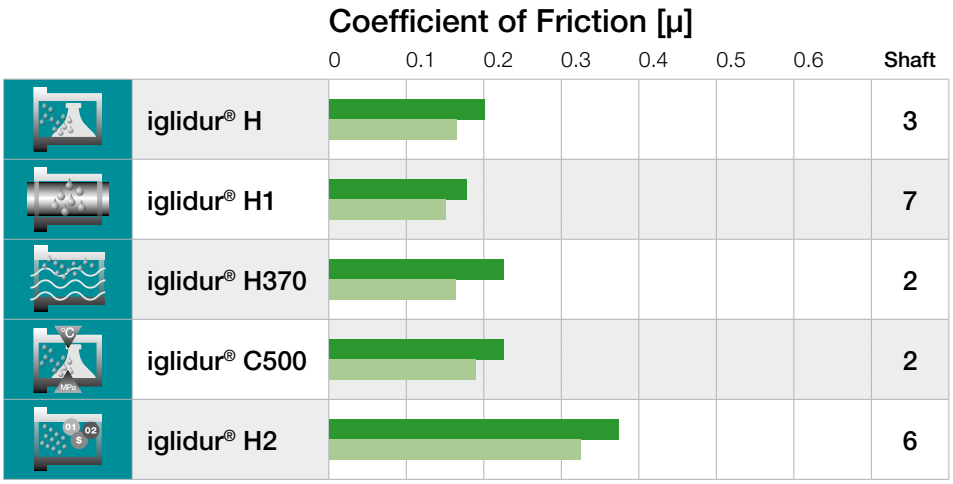
iglidur® Specialists | Selection According to Main Criteria



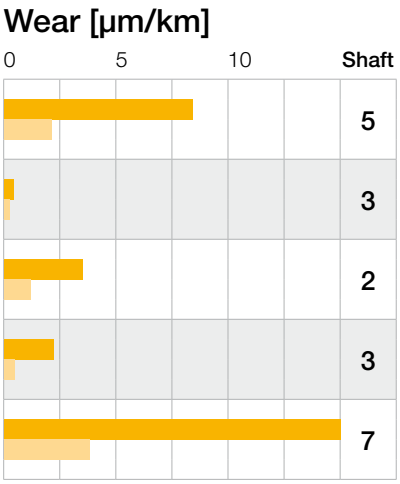
Maximum permissible radial load of iglidur® bearings at
- +20 °C
- +80 °C



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 sliding against steel, p = 1 MPa, v = 0.3 m/s
- Average coefficient of all the seven sliding combinations tested
- Coefficient of friction of best combination



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

Shaft material:

1 = Cf53
2 = Cf53, hard chromed
3 = Aluminum, hc
4 = Automatic screw steel
5 = HR carbon steel
6 = 304 SS
7 = High grade steel

iglidur® Specialists | Material Properties Table

Material properties table

General properties	Unit	iglidur® H	iglidur® H1	iglidur® H370	iglidur® C500	iglidur® H2
Density	g/cm³	1.71	1.53	1.66	1.37	1.72
Colour		grey	cream	grey	magenta	brown
Max. moisture absorption at +23 °C/50 % r.h.	% weight	0.1	0.1	0.1	0.3	0.1
Max. water absorption	% weight	0.3	0.3	0.1	0.5	0.2
Coef. of sliding friction, dynamic against steel	μ	0.07–0.2	0.06–0.20	0.07–0.17	0.07–0.19	0.07–0.3
pv value, max. (dry)	MPa · m/s	1.37	0.8	0.74	0.7	0.58
Mechanical properties						
Modulus of elasticity	MPa	12,500	2,800	11,100	3,000	10,300
Tensile strength at +20 °C	MPa	175	55	135	100	210
Compressive strength	MPa	81	78	79	110	109
Max. recommended surface pressure (+20 °C)	MPa	90	80	75	110	110
Shore D hardness		87	77	82	81	88
Physical and thermal properties						
Max. long term application temperature	°C	+200	+200	+200	+250	+200
Max. short term application temperature	°C	+240	+240	+240	+300	+240
Min. application temperature	°C	–40	–40	–40	–100	–40
Thermal conductivity	W/m · K	0.6	0.24	0.5	0.24	0.24
Coefficient of thermal expansion (at +23 °C)	$K^{-1} \cdot 10^{-5}$	4	6	5	9	4
Electrical properties						
Specific volume resistance	Ωcm	$< 10^5$	$> 10^{12}$	$< 10^5$	$> 10^{14}$	$> 10^{15}$
Surface resistance	Ω	$< 10^2$	$> 10^{11}$	$< 10^5$	$> 10^{13}$	$> 10^{14}$

Material resistance (at +20 °C)

Chemical resistance	iglidur® H	iglidur® H1	iglidur® H370	iglidur® C500	iglidur® H2
Alcohol	+	+	+	+	+
Hydrocarbons	+	+	+	+	+
Greases, oils without additives	+	+	+	+	+
Fuels	+	+	+	+	+
Diluted acids	+ to 0	+ to 0	+ to 0	+	+ to 0
Strong acids	+ to –	+ to –	+ to –	+	+ to –
Diluted alkalines	+	+	+	+	+
Strong alkalines	+	+ bis –	+	+	+
Radiation resistance [Gy] to	$2 \cdot 10^2$	$2 \cdot 10^2$	$2 \cdot 10^2$	$3 \cdot 10^2$	$2 \cdot 10^2$

+ resistant 0 conditionally resistant – not resistant

My Sketches

Universal – iglidur® H

- Standard range from stock
- Underwater applications
- Maintenance-free
- For high temperatures
- Resistant to chemicals

iglidur® H

Universal. Resistant to chemicals and suitable for temperatures up to +200 °C. Very low coefficients of friction when used with hardened shafts.

Underwater applications

Maintenance-free

For high temperatures

Resistant to chemicals

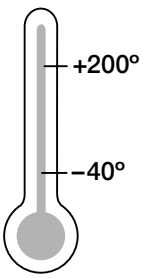
When to use it?

- Suitable for underwater applications
- When high temperature resistance is necessary
- 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 359
- When universal resistance to chemicals is needed
  ▶ iglidur® X, page 157
- For the maximum pressure at higher temperatures
  ▶ iglidur® X, page 157
  ▶ iglidur® Z, page 311

Temperature



Product Range

2 types
Ø 3–70 mm
more dimensions
on request

iglidur® H | Application Examples

Typical sectors of industry and application areas

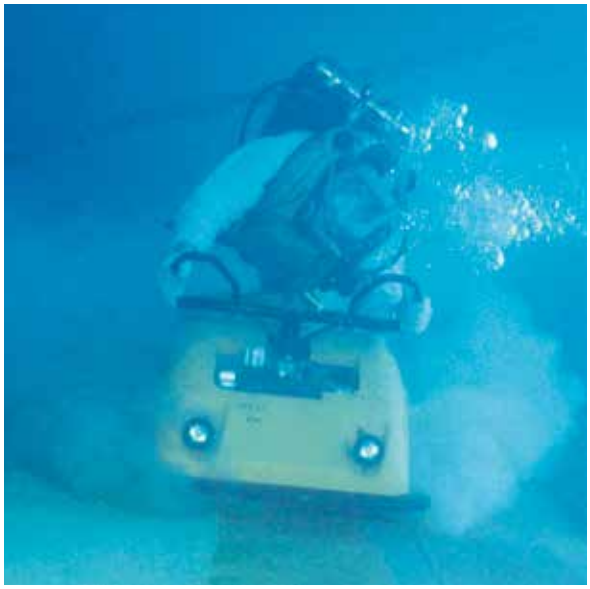
- Offshore
- Marine engineering
- Beverage technology
- Medical
- Mechatronics etc.

Improve technology and reduce costs – 310 exciting examples for iglidur® plain bearings online

▶ **www.igus.co.uk/iglidur-applications**

▶ **www.igus.co.uk/cup-filling-line**

▶ **www.igus.co.uk/pneumatic-lifting**



▶ **www.igus.co.uk/hull-cleaning**

iglidur® H | Technical Data

Material properties table			
General properties	**Unit**	**iglidur® H**	**Testing method**
Density	**g/cm³**	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)	**$K^{-1} \cdot 10^{-5}$**	4	DIN 53752
Electrical properties[1)]			
Specific volume resistance	**Ωcm**	$< 10^5$	DIN IEC 93
Surface resistance	**Ω**	$< 10^2$	DIN 53482

[1)] The good conductivity of this plastic material under certain circumstances can favour the generation of corrosion on the metallic contact component.

Table 01: Material properties table

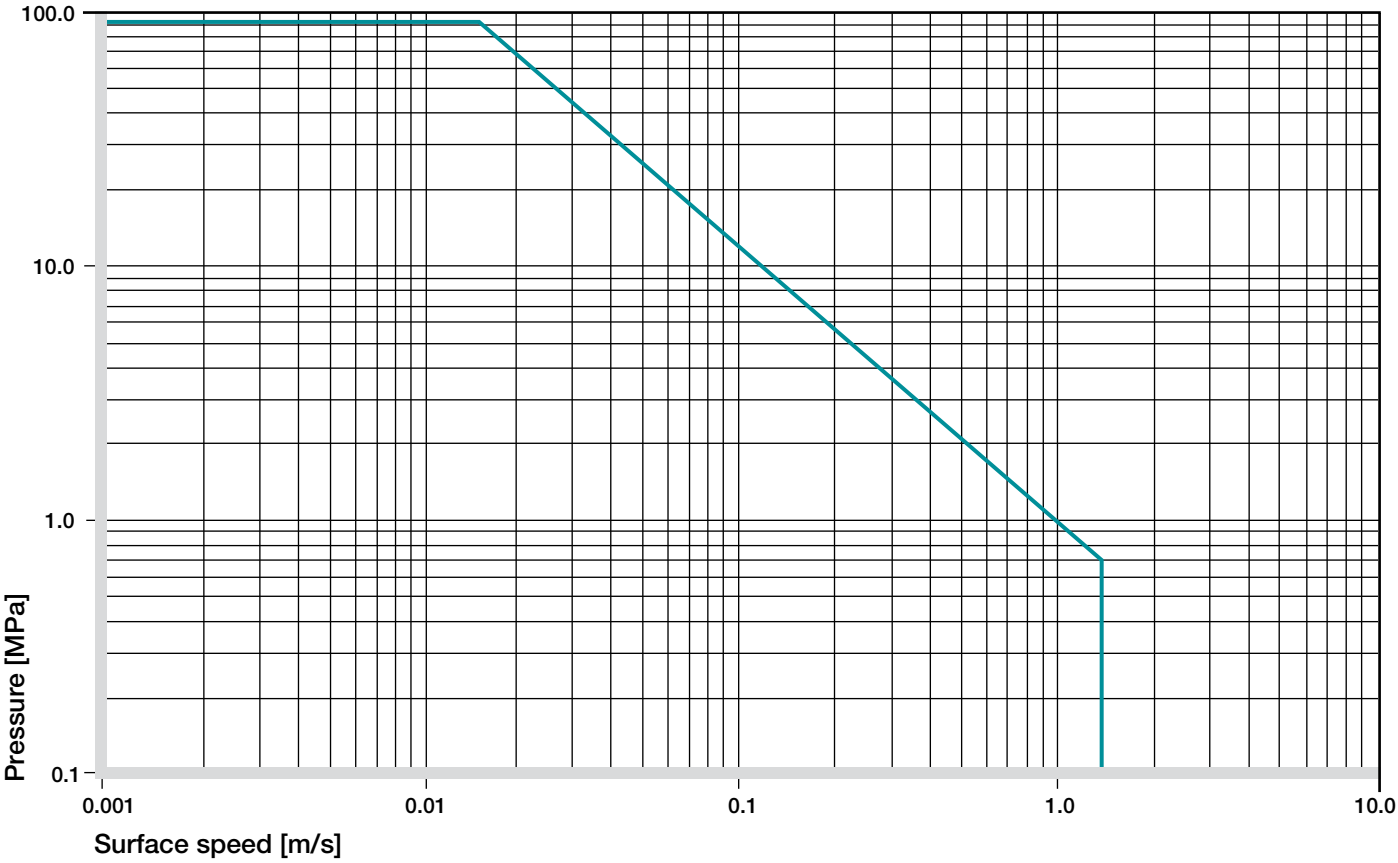


Diagram 01: Permissible pv values for iglidur® H with a wall thickness of 1 mm dry running against a steel shaft at +20 °C, mounted in a steel housing

iglidur® H | Technical Data

iglidur® H is a fibre-reinforced thermoplastic material especially developed for applications in high atmospheric humidity or under water. Bearings made of 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 inverse relationship. However, at the longterm maximum temperature of +200 °C the permissible surface pressure is almost 20 MPa. The recommended maximum surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.

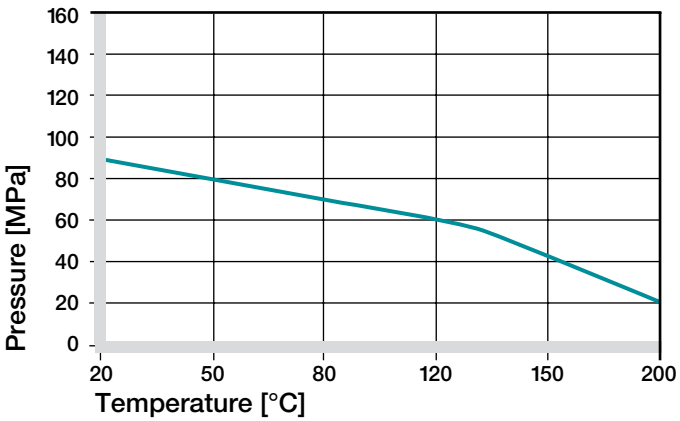


Diagram 02: Recommended maximum surface pressure as a function of temperature (90 MPa at +20 °C)

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 %.

▶ Surface Pressure, **page 47**

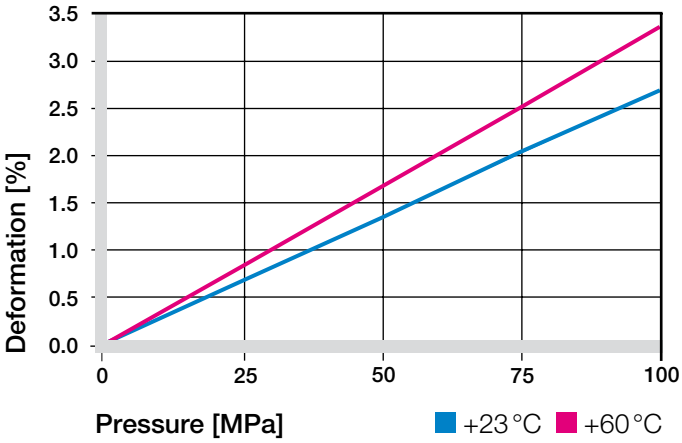


Diagram 03: Deformation under pressure and temperature

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 49**

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

Table 02: Maximum running speed

Temperatures

iglidur® H is an extremely temperature resistant material. With a maximum permissible short term temperature of +240 °C iglidur® H plain bearings may be used in heat treated applications at low loads.
With increasing temperatures, the compressive strength of iglidur® H plain bearings decreases. Diagram 02 shows this relationship.
The ambient temperatures prevalent in the bearing system also have an effect on the bearing wear.

▶ Application Temperatures, **page 50**

iglidur® H	Application temperature
Minimum	−40 °C
Max. long term	+200 °C
Max. short term	+240 °C
Add. securing is required from	+120 °C

Table 03: Temperature limits

Friction and Wear

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

The choice of the shaft material to run against iglidur® H bearings is critical, as this has a large impact on the wear and friction values. More than Ra = 0.1 µm shaft surface finish raises the coefficient of friction. For applications with high loads, we recommend hardened and ground surfaces with an average surface finish of Ra = 0.3 to 0.4 µm.

▶ Coefficients of Friction and Surfaces, **page 52**

▶ Wear Resistance, **page 53**

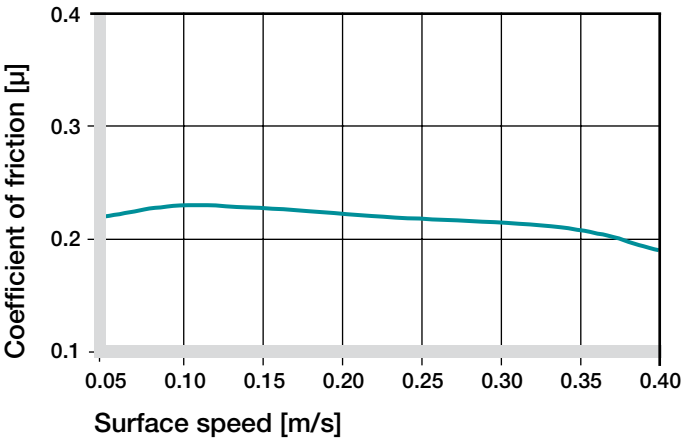


Diagram 04: Coefficient of friction as a function of the running speed, p = 0.75 MPa

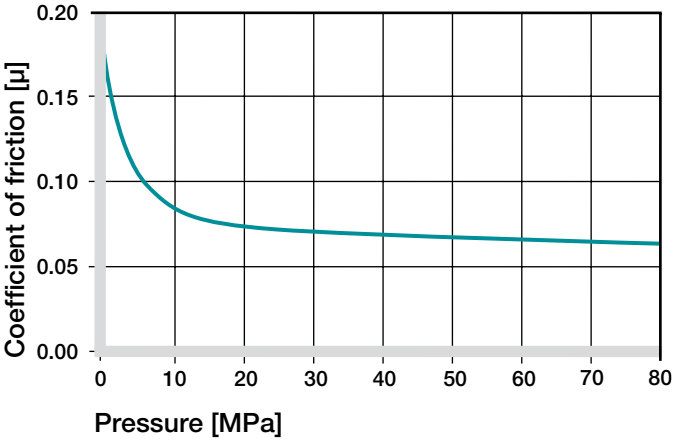


Diagram 05: Coefficient of friction as a function of the pressure, v = 0.01 m/s

Shaft Materials

Diagrams 07 to 09 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 rotary 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 55**

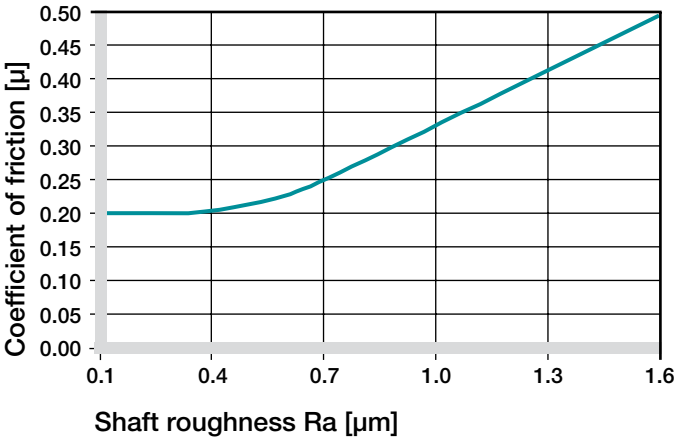


Diagram 06: Coefficient of friction as function of the shaft surface (Cf53 hardened and ground steel)

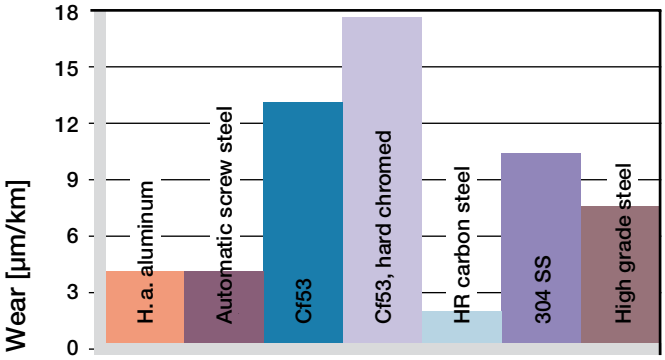


Diagram 07: Wear, rotating with different shaft materials, pressure p = 1 MPa, v = 0.3 m/s

iglidur® H | Technical Data

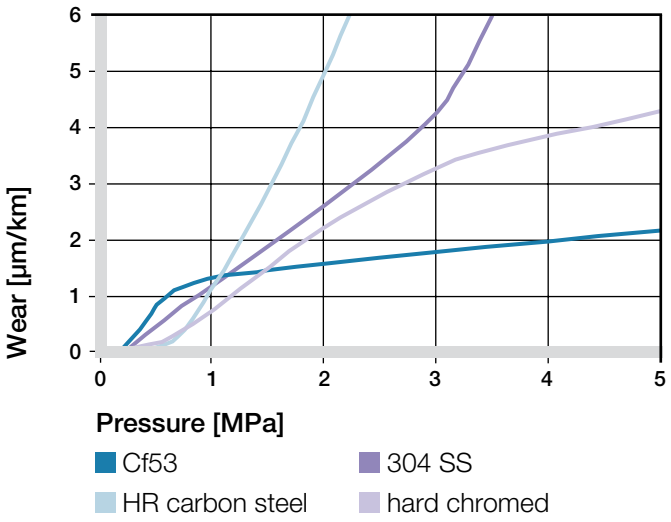


Diagram 08: Wear with different shaft materials in rotational operation, as a function of the pressure

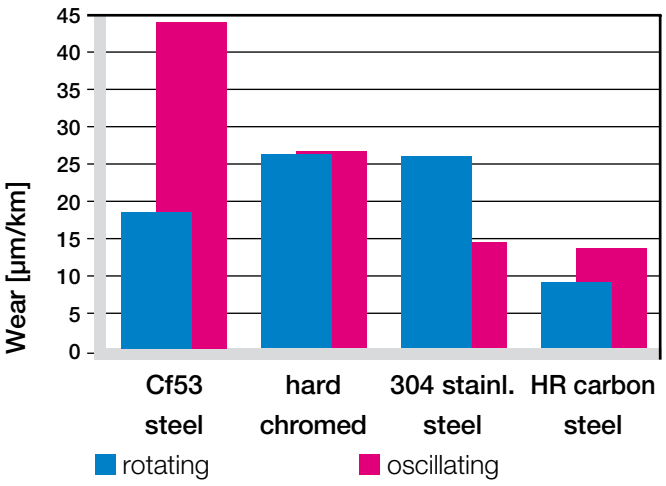


Diagram 09: Wear for rotating and oscillating applications with different shaft materials, p = 2 MPa

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

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

Additional Properties

Chemical Resistance

iglidur® H plain bearings have a good resistance to chemicals. Thus, even aggressive chemicals can act as lubricants.
Plain bearings made of iglidur® H are not resistant to hot, oxidizing acids.

▶ Chemical Table, **page 1118**

Medium	Resistance
Alcohol	+
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 05: Chemical resistance

Radiation Resistance

iglidur® H withstands both neutron as well as gamma particle radiation without noticeable loss to the excellent mechanical properties. Plain bearings made from iglidur® H are resistant to radiation up to an intensity of $2 \cdot 10^2$ Gy.

UV Resistance

iglidur® H plain bearings are only conditionally resistant against UV radiation. Under the effects of weathering, the surface of iglidur® H becomes rougher, and the compressive strength of the material decreases.

Vacuum

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

Electrical Properties

iglidur® H bearings are electrically conductive.

Volume resistance	$< 10^5$ Ωcm
Surface resistance	$< 10^2$ Ω

Moisture Absorption

The moisture absorption of iglidur® H plain bearings is below 0.1 % in standard atmosphere. The saturation limit in water is 0.3 %. iglidur® H is very well suited for use in wet applications.

Maximum moisture absorption	
At +23 °C/50 % r.h.	0.1 % weight
Max. water absorption	0.3 % weight

Table 06: Moisture absorption

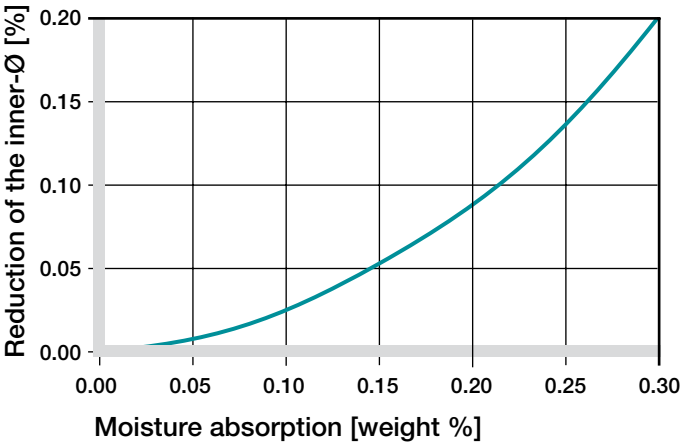


Diagram 10: Effect of moisture absorption on plain bearings

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).

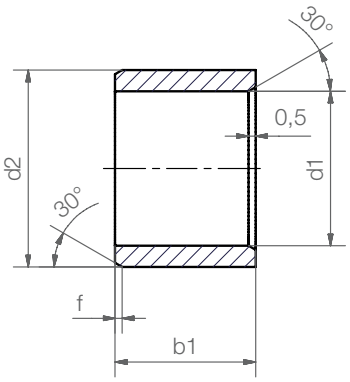
▶ Testing Methods, **page 59**

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

iglidur® H | Product Range

Sleeve bearing



Order key

HSM-0304-03

- Length b1
- Outer diameter d2
- Inner diameter d1
- Metric
- Type (Form S)
- Material iglidur® H

Dimensions according to ISO 3547-1 and special dimensions

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]

Part number	d1	d1-Tolerance*	d2	b1 h13
HSM-0304-03	3.0	+0.006 +0.046	4.5	3.0
HSM-0405-04	4.0	+0.010 +0.058	5.5	4.0
HSM-0507-05	5.0	+0.010 +0.058	7.0	5.0
HSM-0608-03	6.0	+0.010 +0.058	8.0	3.0
HSM-0608-06	6.0	+0.010 +0.058	8.0	6.0
HSM-0810-08	8.0	+0.013 +0.071	10.0	8.0
HSM-0810-10	8.0	+0.013 +0.071	10.0	10.0
HSM-1012-06	10.0	+0.013 +0.071	12.0	6.0
HSM-1012-10	10.0	+0.013 +0.071	12.0	10.0
HSM-1214-10	12.0	+0.016 +0.086	14.0	10.0
HSM-1214-12	12.0	+0.016 +0.086	14.0	12.0
HSM-1214-15	12.0	+0.016 +0.086	14.0	15.0
HSM-1214-20	12.0	+0.016 +0.086	14.0	20.0
HSM-1416-20	14.0	+0.016 +0.086	16.0	20.0
HSM-1517-15	15.0	+0.016 +0.086	17.0	15.0
HSM-1618-15	16.0	+0.016 +0.086	18.0	15.0
HSM-1618-20	16.0	+0.016 +0.086	18.0	20.0
HSM-1618-25	16.0	+0.016 +0.086	18.0	25.0

Part number	d1	d1-Tolerance*	d2	b1 h13
HSM-1820-15	18.0	+0.016 +0.086	20.0	15.0
HSM-1820-25	18.0	+0.016 +0.086	20.0	25.0
HSM-2023-20	20.0	+0.020 +0.104	23.0	20.0
HSM-2225-20	22.0	+0.020 +0.104	25.0	20.0
HSM-2528-15	25.0	+0.020 +0.104	28.0	15.0
HSM-2528-20	25.0	+0.020 +0.104	28.0	20.0
HSM-3034-20	30.0	+0.020 +0.104	34.0	20.0
HSM-3034-30	30.0	+0.020 +0.104	34.0	30.0
HSM-3034-40	30.0	+0.020 +0.104	34.0	40.0
HSM-3236-30	32.0	+0.025 +0.125	36.0	30.0
HSM-3539-40	35.0	+0.025 +0.125	39.0	40.0
HSM-4044-20	40.0	+0.025 +0.125	44.0	20.0
HSM-4044-50	40.0	+0.025 +0.125	44.0	50.0
HSM-4550-30	45.0	+0.025 +0.125	50.0	30.0
HSM-5055-40	50.0	+0.025 +0.125	55.0	40.0
HSM-5560-26	55.0	+0.030 +0.150	60.0	26.0
HSM-6065-60	60.0	+0.030 +0.150	65.0	60.0
HSM-7075-50	70.0	+0.030 +0.150	75.0	50.0

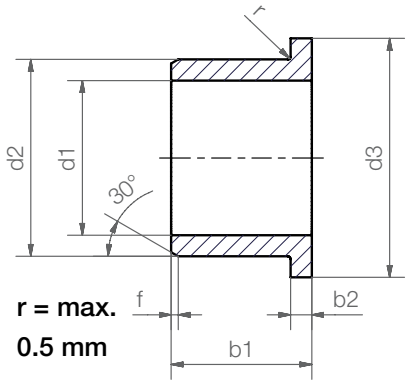
* after pressfit. Testing methods ▶ page 59

delivery time from stock

prices price list online
www.igus.co.uk/en/h

iglidur® H | Product Range

Flange bearing



r = max. 0.5 mm

Order key

HFM-0405-04

- Length b1
- Outer diameter d2
- Inner diameter d1
- Metric
- Type (Form F)
- Material iglidur® H

Dimensions according to ISO 3547-1 and special dimensions

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]

Part number	d1	d1-Tolerance*	d2	d3	b1	b2
				d13	h13	–0.14
HFM-0405-04	4.0	+0.010 +0.058	5.5	9.5	4.0	0.75
HFM-0507-05	5.0	+0.010 +0.058	7.0	11.0	5.0	1.0
HFM-0507-08	5.0	+0.010 +0.058	7.0	11.0	8.0	1.0
HFM-0608-04	6.0	+0.010 +0.058	8.0	12.0	4.0	1.0
HFM-0608-06	6.0	+0.010 +0.058	8.0	12.0	6.0	1.0
HFM-0608-10	6.0	+0.010 +0.058	8.0	12.0	10.0	1.0
HFM-0810-07	8.0	+0.013 +0.071	10.0	15.0	7.0	1.0
HFM-0810-10	8.0	+0.013 +0.071	10.0	15.0	10.0	1.0
HFM-0810-15	8.0	+0.013 +0.071	10.0	15.0	15.0	1.0
HFM-1012-04	10.0	+0.013 +0.071	12.0	18.0	4.0	1.0
HFM-1012-09	10.0	+0.013 +0.071	12.0	18.0	9.0	1.0
HFM-1012-15	10.0	+0.013 +0.071	12.0	18.0	15.0	1.0
HFM-1012-20	10.0	+0.013 +0.071	12.0	18.0	20.0	1.0
HFM-1214-07	12.0	+0.016 +0.086	14.0	20.0	7.0	1.0
HFM-1214-10	12.0	+0.016 +0.086	14.0	20.0	10.0	1.0
HFM-1214-15	12.0	+0.016 +0.086	14.0	20.0	15.0	1.0
HFM-1416-12	14.0	+0.016 +0.086	16.0	22.0	12.0	1.0
HFM-1517-17	15.0	+0.016 +0.086	17.0	23.0	17.0	1.0
HFM-1618-13	16.0	+0.016 +0.086	18.0	24.0	13.0	1.0
HFM-1618-17	16.0	+0.016 +0.086	18.0	24.0	17.0	1.0
HFM-1820-17	18.0	+0.016 +0.086	20.0	26.0	17.0	1.0

* after pressfit. Testing methods ▶ page 59

delivery time from stock

prices price list online
www.igus.co.uk/en/h

iglidur® H | Product Range

Flange bearing

Dimensions [mm]

Part number	d1	d1-Tolerance*	d2	d3	b1	b2
				d13	h13	–0.14
HFM-2023-07	20.0	+0.020 +0.104	23.0	30.0	7.0	1.0
HFM-2023-16	20.0	+0.020 +0.104	23.0	30.0	16.5	1.5
HFM-2023-30	20.0	+0.020 +0.104	23.0	30.0	30.0	1.5
HFM-2528-30	25.0	+0.020 +0.104	28.0	35.0	30.0	1.5
HFM-2730-20	27.0	+0.020 +0.104	30.0	38.0	20.0	1.5
HFM-3034-40	30.0	+0.020 +0.104	34.0	42.0	40.0	2.0
HFM-3438-13	34.0	+0.025 +0.125	38.0	46.0	13.0	2.0
HFM-3539-26	35.0	+0.025 +0.125	39.0	47.0	26.0	2.0
HFM-4044-40	40.0	+0.025 +0.125	44.0	52.0	40.0	2.0
HFM-4550-50	45.0	+0.025 +0.125	50.0	58.0	50.0	2.0
HFM-5055-50	50.0	+0.025 +0.125	55.0	63.0	50.0	2.0
HFM-6065-50	60.0	+0.030 +0.150	65.0	73.0	50.0	2.0
HFM-7075-50	70.0	+0.030 +0.150	75.0	83.0	50.0	2.0

*** after pressfit. Testing methods ▶ page 59**

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.co.uk/iglidur-specialbearings**

delivery time **from stock**

prices **price list online**
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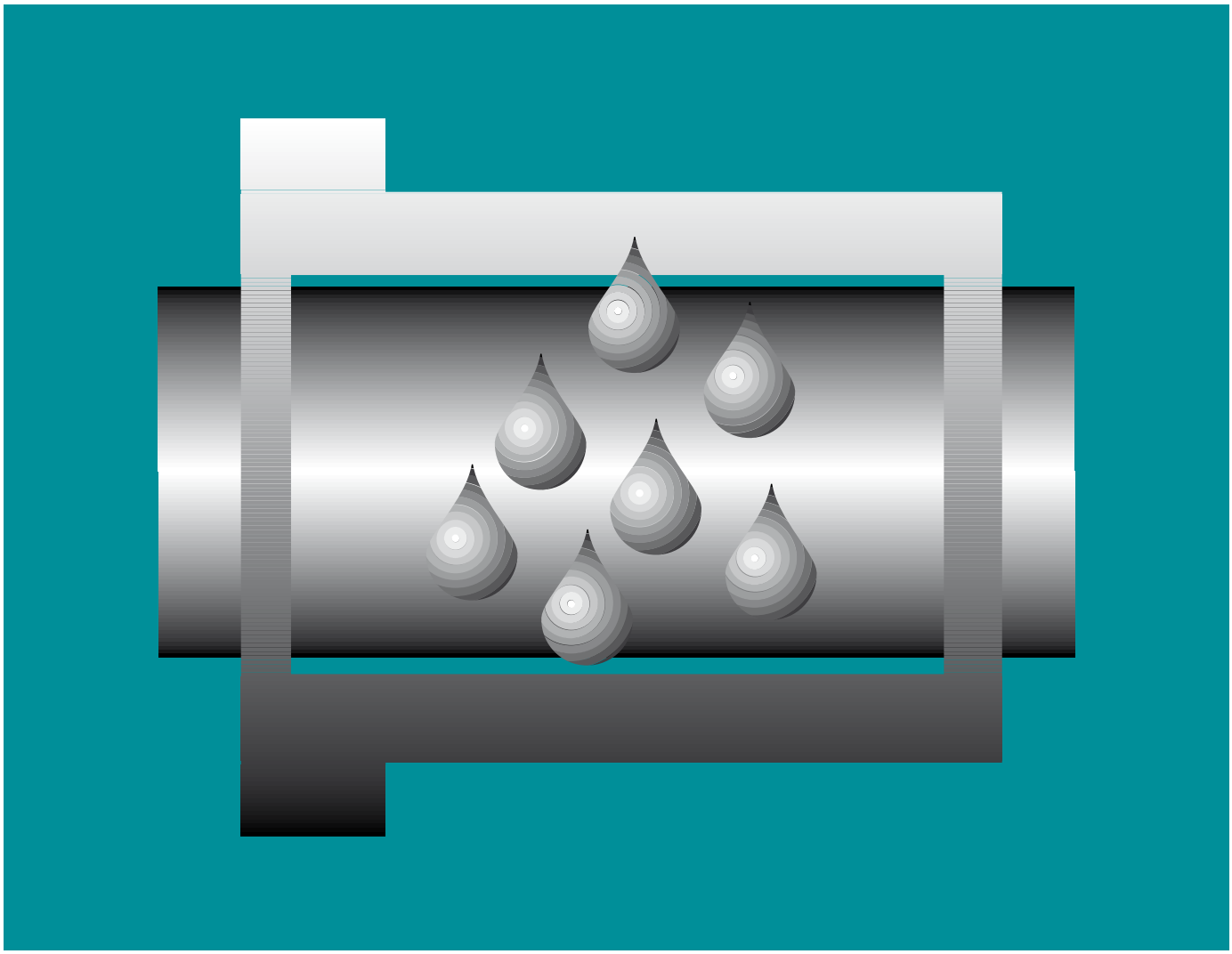
My Sketches

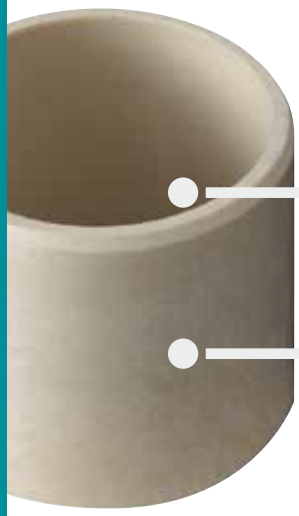


Long life operation – iglidur® H1

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

iglidur® H1

Long life operation. iglidur® H1 is the first choice when high holding times are 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.



High wear resistance in extreme ambient conditions

Very low coefficient of friction

High resistance to temperature and chemicals

For underbonnet applications

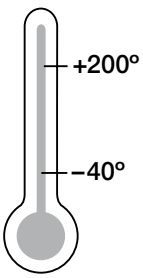
When to use it?

- When extreme service life is required under the influence of temperature and humidity
- When low coefficients of friction at high temperature are important
- When regular 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 311
- When the best universal chemical resistance is required
  ▶ iglidur® X, page 157
- When a cost-efficient high temperature bearing is sought, not the ideal wear resistance
  ▶ iglidur® H2, page 383
- When an FDA-compliant plain bearing with high temperature resistance is required
  ▶ iglidur® A500, page 431

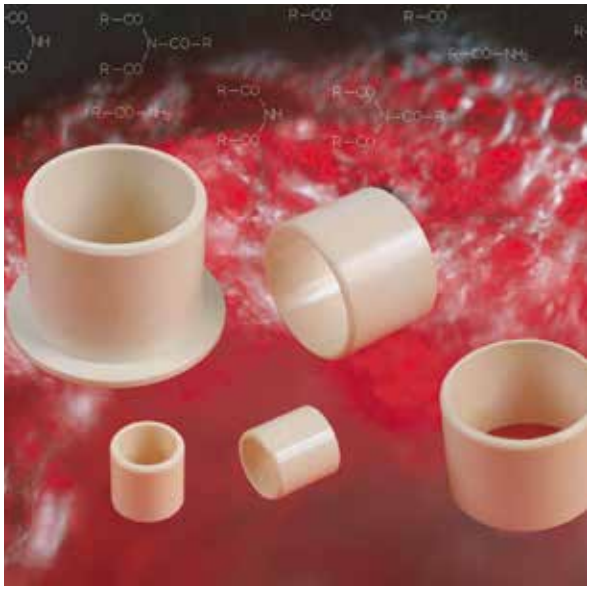
Temperature



Product range

2 types
Ø 3–40 mm
more dimensions
on request

iglidur® H1 | Application Examples



Typical sectors of industry and application areas

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

Improve technology and reduce costs – 310 exciting examples for iglidur® plain bearings online

▶ www.igus.co.uk/iglidur-applications

▶ www.igus.co.uk/washing-chain

▶ www.igus.co.uk/form-fill-seal

iglidur® H1 | Technical Data

Material properties table			
General properties	**Unit**	**iglidur® H1**	**Testing method**
Density	**g/cm³**	1.53	
Colour		cream	
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**	0.06–0.20	
pv value, max. (dry)	**MPa · m/s**	0.8	
Mechanical properties			
Modulus of elasticity	**MPa**	2,800	DIN 53457
Tensile strength at +20 °C	**MPa**	55	DIN 53452
Compressive strength	**MPa**	78	
Max. recommended surface pressure (+20 °C)	**MPa**	80	
Shore D hardness		77	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)	**$K^{-1} \cdot 10^{-5}$**	6	DIN 53752
Electrical properties			
Specific volume resistance	**Ωcm**	$> 10^{12}$	DIN IEC 93
Surface resistance	**Ω**	$> 10^{11}$	DIN 53482

Table 01: Material properties table

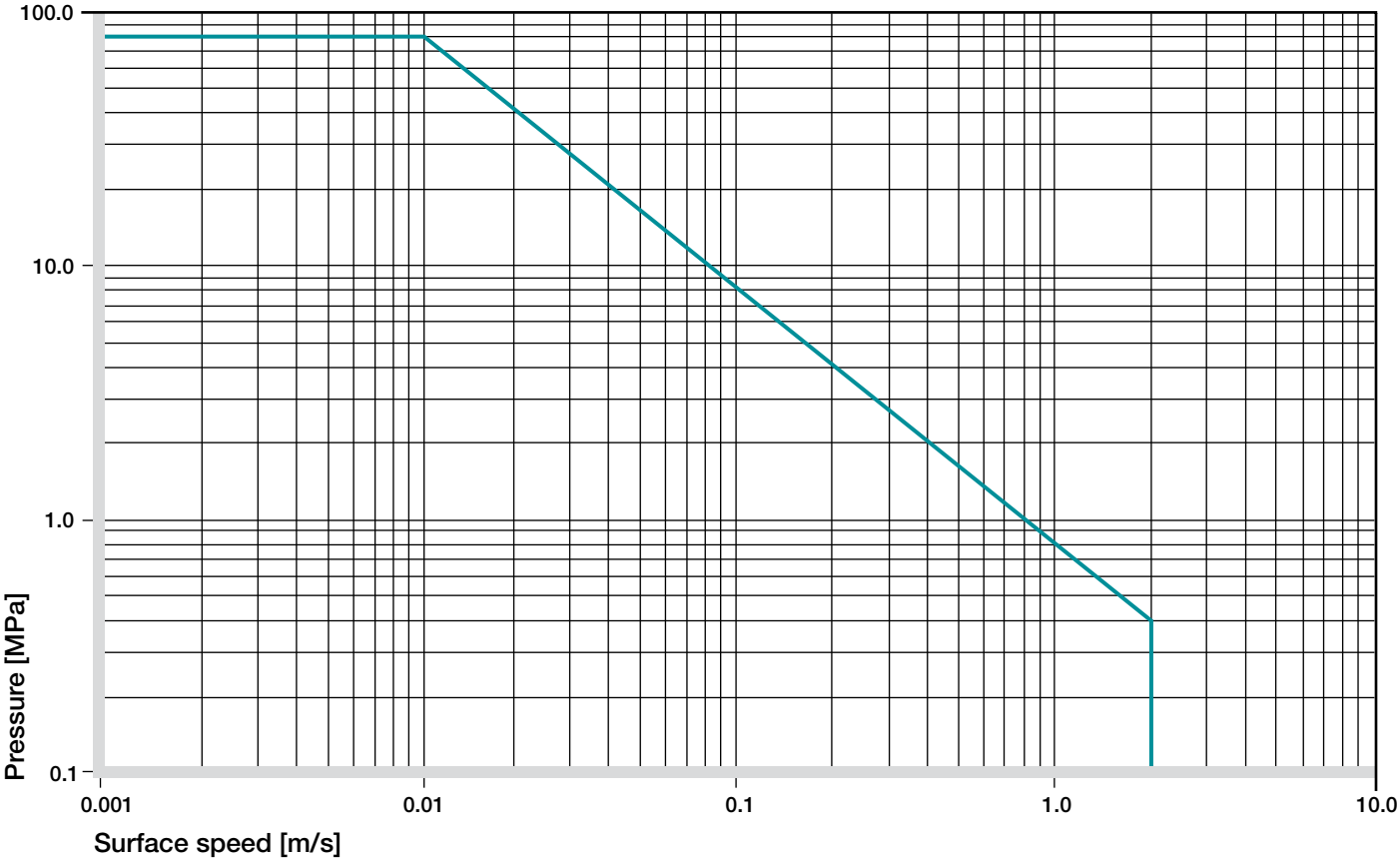


Diagram 01: Permissible pv values for iglidur® H1 with a wall thickness of 1 mm dry running against a steel shaft at +20 °C, mounted in a steel housing

iglidur® H1 | Technical Data

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 inverse relationship. However, at the longterm maximum temperature of +200° C the permissible surface pressure is almost 10 MPa. The recommended maximum surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.

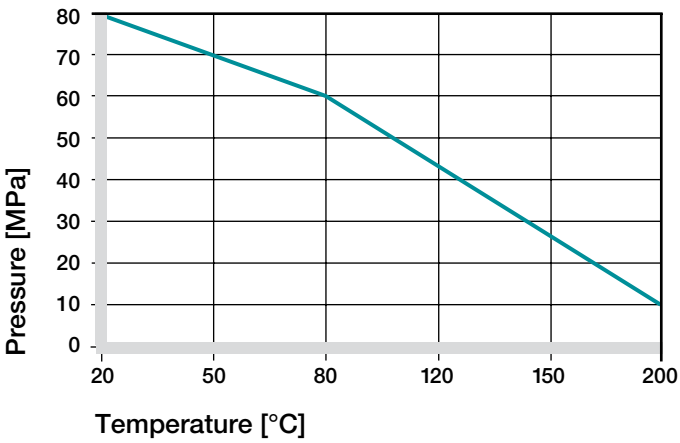


Diagram 02: Recommended maximum surface pressure as a function of temperature (80 MPa at +20 °C)

Diagram 03 shows the elastic deformation of iglidur® H1 at radial loads. 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 47**

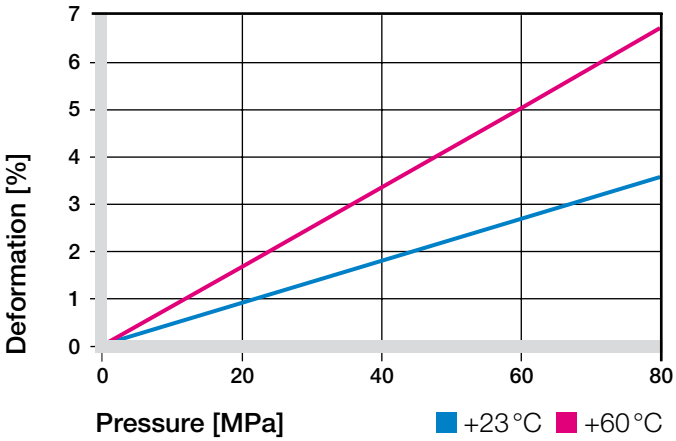


Diagram 03: Deformation under pressure and temperature

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 02 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 49**

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

Table 02: Maximum running speed

Temperatures

iglidur® H is an extremely temperature-resistant material. The short term maximum temperature is +240 °C. The pressure-resistance of iglidur® H1 decreases with rising temperature. Apart from the surounding temperature, the friction heat resulting from the movement of the shaft in the bearing must be considered. The ambient temperatures that are prevalent in applications also have an effect on the bearing wear. The wear rate rises with higher temperatures, but with iglidur® H1, this increase is small.
The temperature above which we recommend an additional axial securing is +80 °C for iglidur® H1, lower than for the other iglidur® H materials.

▶ Application Temperatures, **page 50**

iglidur® H1 | Technical Data

iglidur® H1	Application temperature
Minimum	–40 °C
Max. long term	+200 °C
Max. short term	+240 °C
Add. securing is required from	+ 80 °C

Table 03: Temperature limits

Friction and Wear

The coefficient of friction alters like the wear resistance with increasing load and speed. At constant load the coefficient of friction μ increases with the speed. At constant speed the coefficient of friction lowers with increasing load, whereupon almost constant values result from 40 MPa.
As the counter partner has a large influence on friction and wear, the choice of the appropriate shaft can be decisive. Smoother shafts than Ra = 0.1 μm raises the coefficient of friction. For applications with high loads, we recommend hardened and smoothed surfaces with an average surface finish of Ra = 0.3 to 0.4 μm.

▶ Coefficients of Friction and Surfaces, **page 52**
▶ Wear Resistance, **page 53**

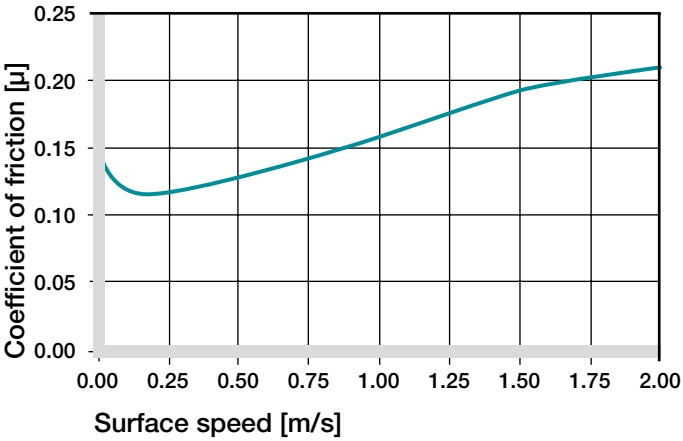


Diagram 04: Coefficient of friction as a function of the running speed, p = 0.75 MPa

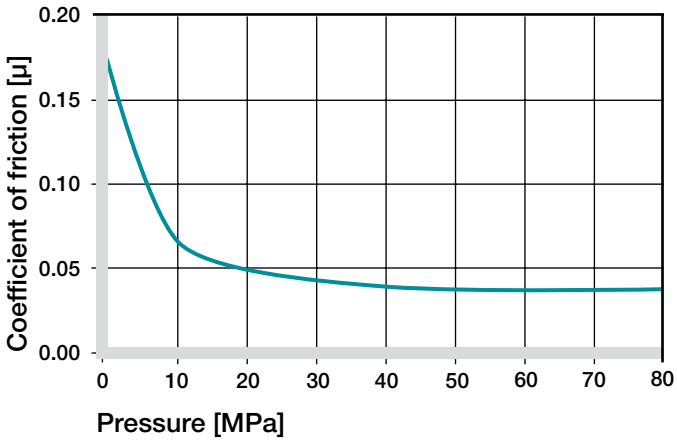


Diagram 05: Coefficient of friction as a function of the pressure, v = 0.01 m/s

Shaft Materials

Diagrams 06 to 09 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 aluminum shafts, iglidur® H1 plain bearings attain high service life in rotating applications with low to medium loads.

▶ Shaft Materials, **page 55**

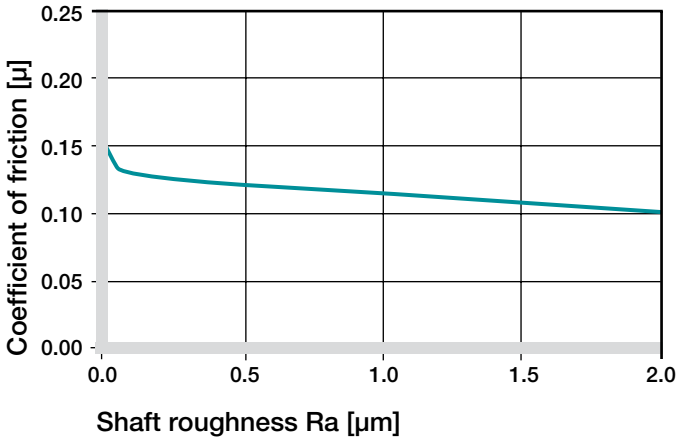


Diagram 06: Coefficient of friction as function of the shaft surface (Cf53 hardened and ground steel)

iglidur® H1 | Technical Data

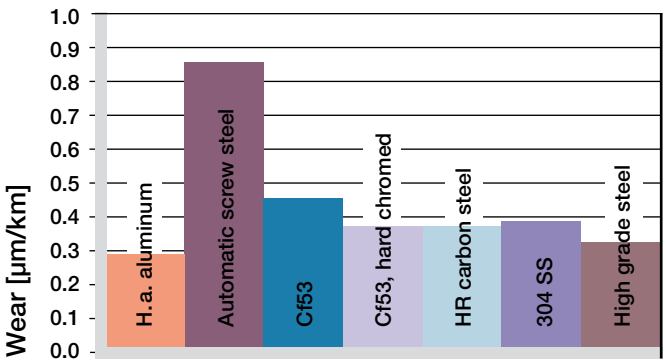


Diagram 07: Wear, rotating with different shaft materials, pressure p = 1 MPa, v = 0.3 m/s

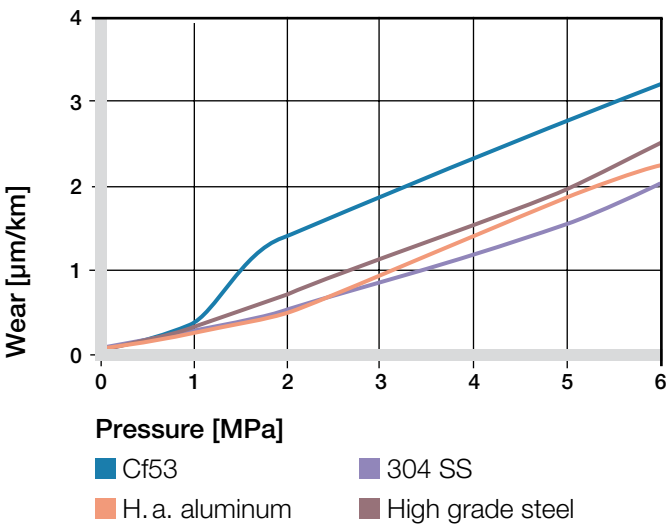


Diagram 08: Wear with different shaft materials in rotational operation, as a function of the pressure

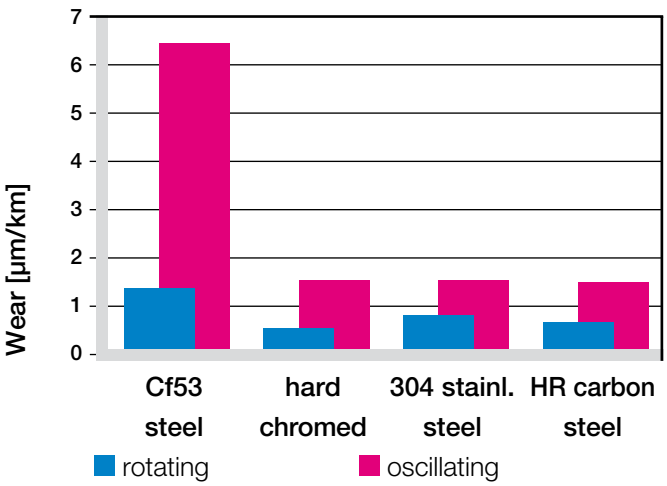


Diagram 09: Wear for rotating and oscillating applications with different shaft materials, p = 2 MPa

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)

Additional Properties

Chemical Resistance

iglidur® H1 bearings have a good resistance against chemicals. Hence even chemicals can act as lubricants. The iglidur® H1 plain bearings are not resistant against hot, oxidizing acids and some other particularly aggressive chemicals.

▶ Chemical Table, **page 1118**

Medium	Resistance
Alcohol	+
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 05: Chemical resistance

Radiation Resistance

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

UV Resistance

iglidur® H1 bearings are only conditionally resistant to UV rays. The surface of iglidur® H1 becomes coarser under the influence of atmospheric conditions and the wear increases. Therefore the use of iglidur® H1 plain bearings in applications directly exposed to weathering should be tested in individual cases.

Vacuum

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

Electrical Properties

iglidur® H1 plain bearings are electrically insulating.

Volume resistance	$> 10^{12}$ Ωcm
Surface resistance	$> 10^{11}$ Ω

iglidur® H1 | Technical Data

Moisture Absorption

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

Maximal moisture absorption	
At +23 °C/50 % r.h.	0.1 % weight
Max. water absorption	0.3 % weight

Table 06: Moisture absorption

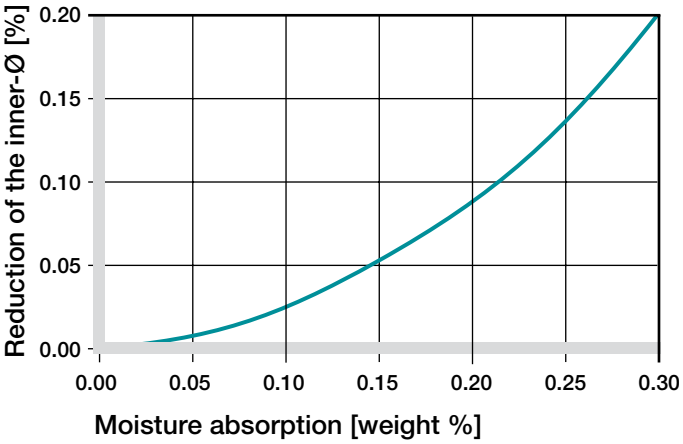


Diagram 10: Effect of moisture absorption on plain bearings

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).

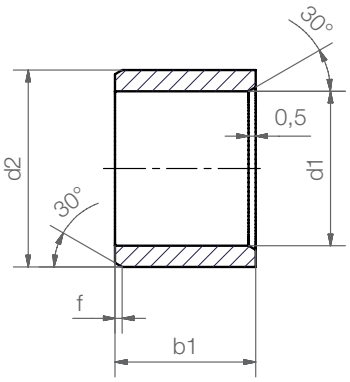
▶ Testing Methods, **page 59**

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

iglidur® H1 | Product Range

Sleeve bearing



Order key

H1SM-0304-05

- Length b1
- Outer diameter d2
- Inner diameter d1
- Metric
- Type (Form S)
- Material iglidur® H1

Dimensions according to ISO 3547-1 and special dimensions

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]

Part number	d1	d1-Tolerance*	d2	b1 h13
H1SM-0304-05	3.0	+0.006 +0.046	4.5	5.0
H1SM-0507-05	5.0	+0.010 +0.058	7.0	5.0
H1SM-0608-06	6.0	+0.010 +0.058	8.0	6.0
H1SM-0608-10	6.0	+0.010 +0.058	8.0	10.0
H1SM-0810-10	8.0	+0.013 +0.071	10.0	10.0
H1SM-0810-15	8.0	+0.013 +0.071	10.0	15.0
H1SM-1012-10	10.0	+0.013 +0.071	12.0	10.0
H1SM-1012-15	10.0	+0.013 +0.071	12.0	15.0
H1SM-1214-12	12.0	+0.016 +0.086	14.0	12.0
H1SM-1618-15	16.0	+0.016 +0.086	18.0	15.0
H1SM-2023-15	20.0	+0.020 +0.104	23.0	15.0
H1SM-2023-20	20.0	+0.020 +0.104	23.0	20.0
H1SM-2023-30	20.0	+0.020 +0.104	23.0	30.0
H1SM-2528-30	25.0	+0.020 +0.104	28.0	30.0
H1SM-3034-30	30.0	+0.020 +0.104	34.0	30.0
H1SM-3539-30	35.0	+0.025 +0.125	39.0	30.0
H1SM-4044-40	40.0	+0.025 +0.125	44.0	40.0

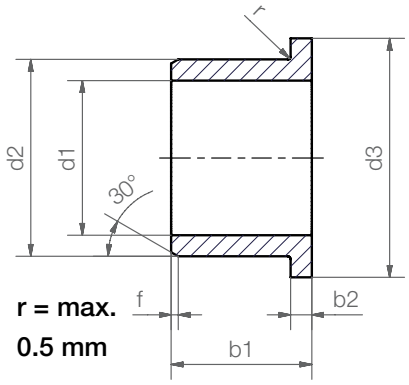
* after pressfit. Testing methods ▶ page 59

delivery time from stock

prices price list online
www.igus.co.uk/en/h1

iglidur® H1 | Product Range

Flange bearing



r = max. 0.5 mm

Order key

H1FM-0304-05

- Length b1
- Outer diameter d2
- Inner diameter
- Metric
- Type (Form F)
- Material iglidur® H1

Dimensions according to ISO 3547-1 and special dimensions

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]

Part number	d1	d1-Tolerance*	d2	d3	b1	b2
				d13	h13	–0.14
H1FM-0304-05	3.0	+0.006 +0.046	4.5	7.5	5.0	0.75
H1FM-0507-05	5.0	+0.010 +0.058	7.0	11.0	5.0	1.0
H1FM-0608-06	6.0	+0.010 +0.058	8.0	12.0	6.0	1.0
H1FM-0608-10	6.0	+0.010 +0.058	8.0	12.0	10.0	1.0
H1FM-0810-065	8.0	+0.013 +0.071	10.0	15.0	6.5	1.0
H1FM-0810-10	8.0	+0.013 +0.071	10.0	15.0	10.0	1.0
H1FM-1012-10	10.0	+0.013 +0.071	12.0	18.0	10.0	1.0
H1FM-1214-12	12.0	+0.016 +0.086	14.0	20.0	12.0	1.0
H1FM-1214-20	12.0	+0.016 +0.086	14.0	20.0	20.0	1.0
H1FM-1618-17	16.0	+0.016 +0.086	18.0	24.0	17.0	1.0
H1FM-1618-25	16.0	+0.016 +0.086	18.0	24.0	25.0	1.0
H1FM-1820-12	18.0	+0.016 +0.086	20.0	26.0	12.0	1.0
H1FM-2023-21	20.0	+0.020 +0.104	23.0	30.0	21.5	1.5
H1FM-2023-30	20.0	+0.020 +0.104	23.0	30.0	30.0	1.5
H1FM-2528-21	25.0	+0.020 +0.104	28.0	35.0	21.0	1.5
H1FM-3034-26	30.0	+0.020 +0.104	34.0	42.0	26.0	2.0
H1FM-3539-26	35.0	+0.025 +0.125	39.0	47.0	26.0	2.0
H1FM-4044-40	40.0	+0.025 +0.125	44.0	52.0	40.0	2.0

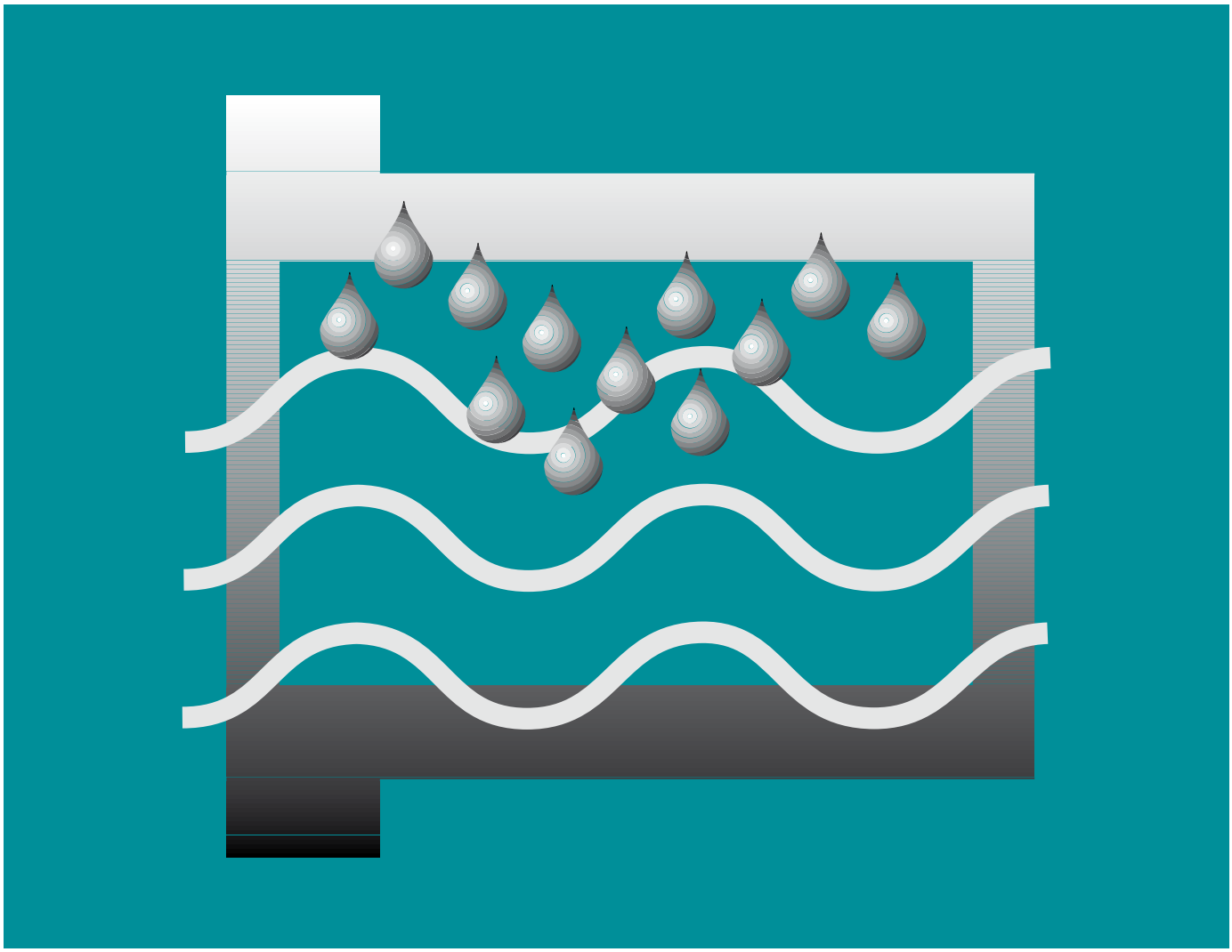
* after pressfit. Testing methods ▶ page 59

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.

delivery time from stock

prices price list online
www.igus.co.uk/en/h1

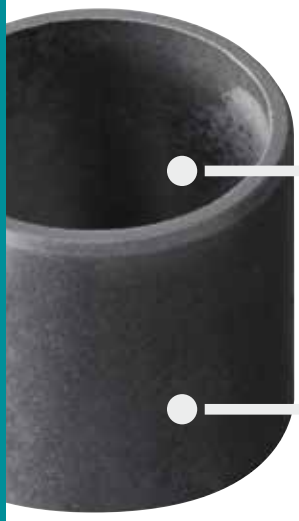


Under water – iglidur® H370

- Standard range from stock
- Wear-resistant – especially under water
- High temperature resistance –40 °C to +200 °C
- High resistance to chemicals

iglidur® H370

Under water. 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.



Wear-resistant – especially under water

High temperature resistance –40 °C to +200 °C

High resistance to chemicals

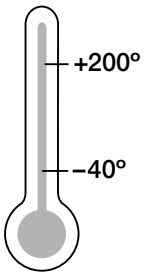
When to use it?

- 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 349
- For use in dirty surroundings
  ▶ iglidur® Z, page 311
- When a cost-efficient, large-volume solution is required
  ▶ iglidur® H2, page 383

Temperature



Product Range

2 types
Ø 3–75 mm
more dimensions
on request

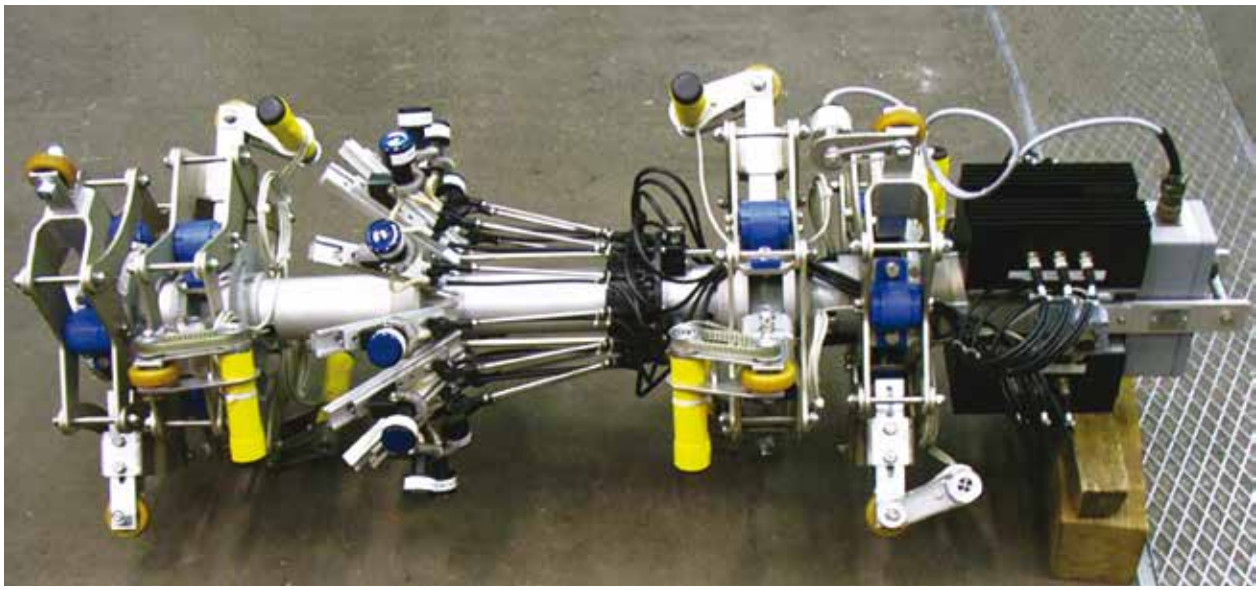
iglidur® H370 | Application Examples

Typical sectors of industry and application areas

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

Improve technology and reduce costs – 310 exciting examples for iglidur® plain bearings online

▶ www.igus.co.uk/iglidur-applications



▶ www.igus.co.uk/oilplatform

▶ www.igus.co.uk/ultrasonic-tests

iglidur® H370 | Technical Data

Material properties table			
General properties	**Unit**	**iglidur® H370**	**Testing method**
Density	**g/cm³**	1.66	
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)	**$K^{-1} \cdot 10^{-5}$**	5	DIN 53752
Electrical properties[1]			
Specific volume resistance	**Ωcm**	$< 10^5$	DIN IEC 93
Surface resistance	**Ω**	$< 10^5$	DIN 53482

[1] The good conductivity of this plastic material under certain circumstances can favour the generation of corrosion on the metallic contact component.

Table 01: Material properties table

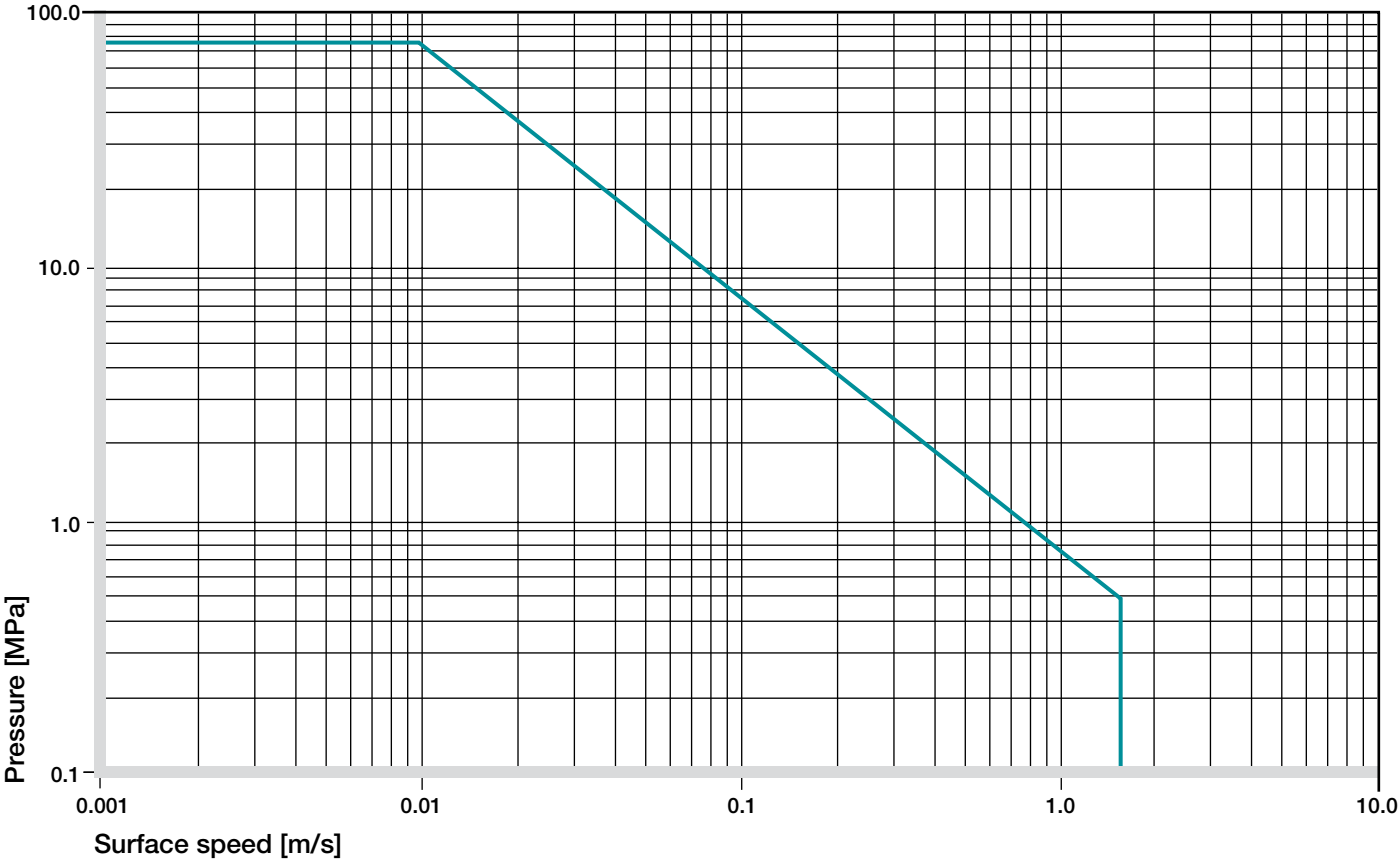


Diagram 01: Permissible pv values for iglidur® H370 with a wall thickness of 1 mm dry running against a steel shaft at +20 °C, mounted in a steel housing

iglidur® H370 | Technical Data

iglidur® H370 is an advanced development of the iglidur® H series. The material is characterized 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 plain bearings decreases. The Diagram 02 shows this inverse relationship. However, at the longterm maximum temperature of +200 °C the permissible surface pressure is 9 MPa. The recommended maximum surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.

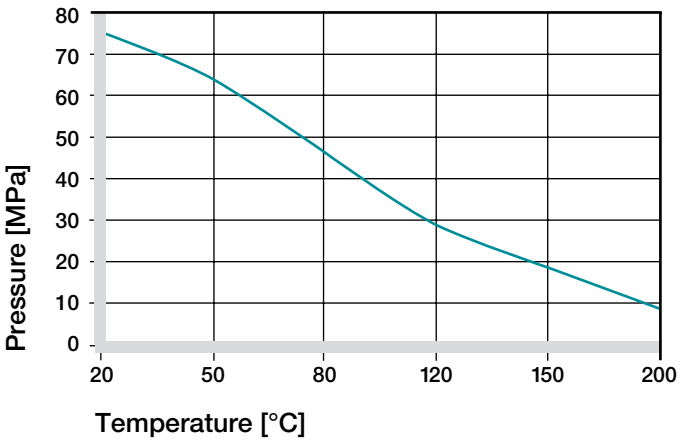


Diagram 02: Recommended maximum surface pressure as a function of temperature (75 MPa at +20 °C)

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

▶ Surface Pressure, **page 47**

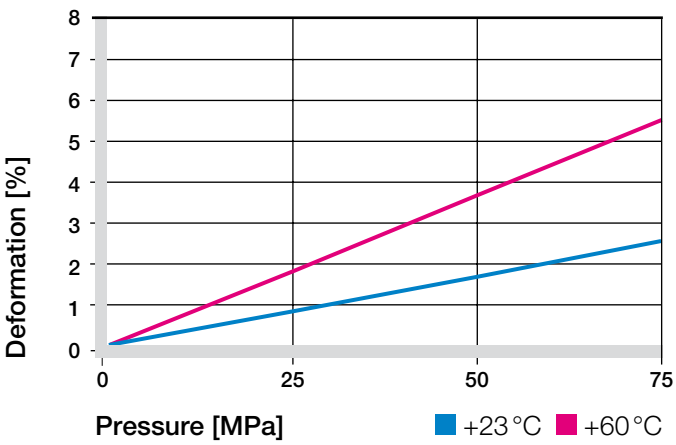


Diagram 03: Deformation under pressure and temperature

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 02 are valid only with minimum pressure loads and are often not attained in practice.

▶ Surface Speed, **page 49**

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

Table 02: Maximum running speed

Temperatures

iglidur® H370 is an extremely temperature-resistant material. With a short-term permitted maximum temperature of +240 °C, the iglidur® H370 bearings can in otherwise unloaded condition be subjected for instance, to a paint drying process. With increasing temperatures, the compressive strength of iglidur® H370 bearings decreases. The ambient temperatures that are pre-valent in applications also have an effect on the bearing wear. The wear rises with increasing temperatures.
iglidur® H370 loses about 75 % of its compressive strength with a rise in temperature range, from room temperature to +150 °C. In contrast the increase in wear is hardly noticeable in the same temperature range.

▶ Application Temperatures, **page 50**

iglidur® H370	Application temperature
Minimum	–40 °C
Max. long term	+200 °C
Max. short term	+240 °C
Add. securing is required from	+100 °C

Table 03: Temperature limits

iglidur® H370 | Technical Data

Friction and Wear

The coefficients of friction and wear in iglidur® H370 are more favorable than in iglidur® H. There is no better material than iglidur® H370 especially for underwater applications. The coefficient of friction alters only little, like the wear resistance with increasing load and surface speed. This connection illustrates the excellent suitability of iglidur® H370 bearings with high loads.

Friction and wear also depend to a high degree on the reverse partner. Very smooth shafts increase the coefficient of both friction and wear. The ideally suited is a smoothed surface with an average surface finish of Ra = 0.2 to 0.4 µm.

▶ Coefficients of Friction and Surfaces, **page 52**
▶ Wear Resistance, **page 53**

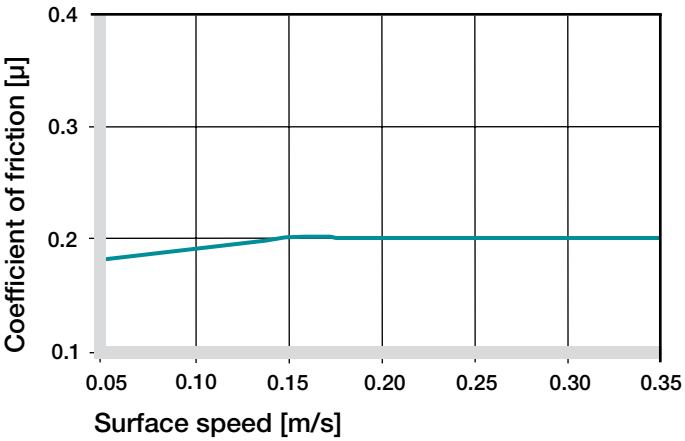


Diagram 04: Coefficient of friction as a function of the running speed, p = 0.75 MPa

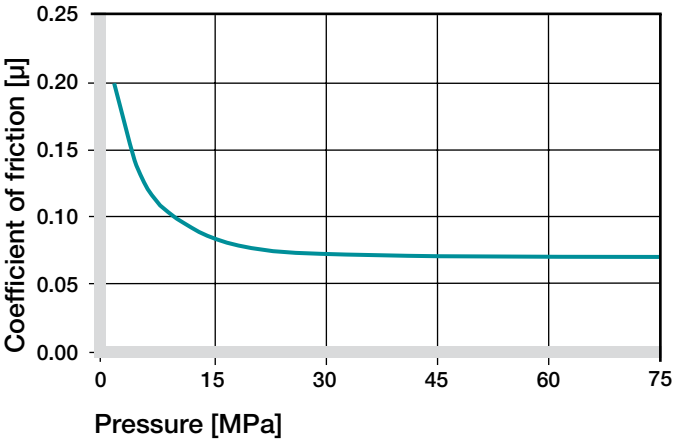


Diagram 05: Coefficient of friction as a function of the pressure, v = 0.01 m/s

Shaft Materials

Diagrams 06 to 09 show the test results of iglidur® H370 bearings running against various shaft materials.

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

On the other hand, the V2A shaft shows a clear advantage in pivoting movements. (Diagram 08).

▶ Shaft Materials, **page 55**

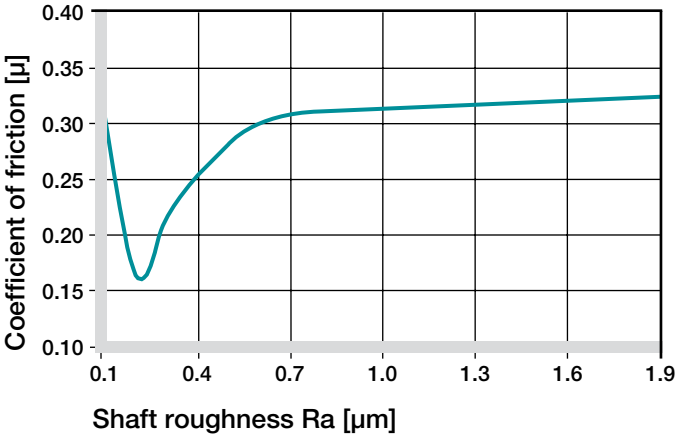


Diagram 06: Coefficient of friction as function of the shaft surface (Cf53 hardened and ground steel)

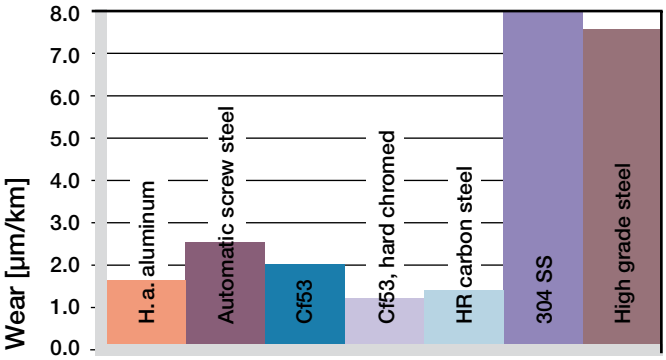


Diagram 07: Wear, rotating with different shaft materials, pressure, p = 1 MPa, v = 0.3 m/s

iglidur® H370 | Technical Data

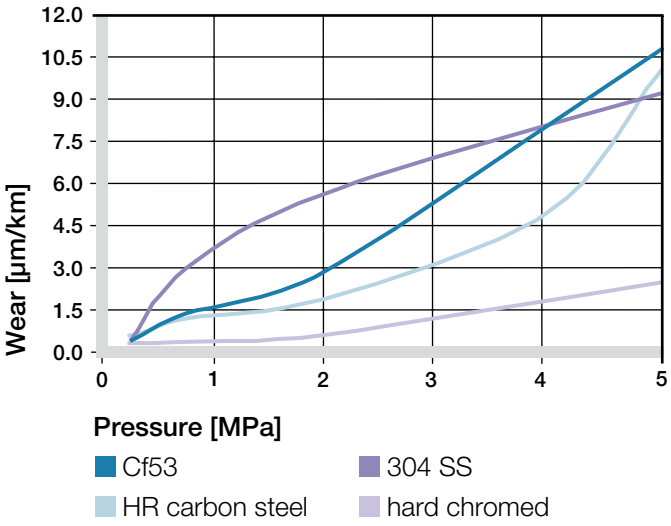


Diagram 08: Wear with different shaft materials in rotational operation, as a function of the pressure

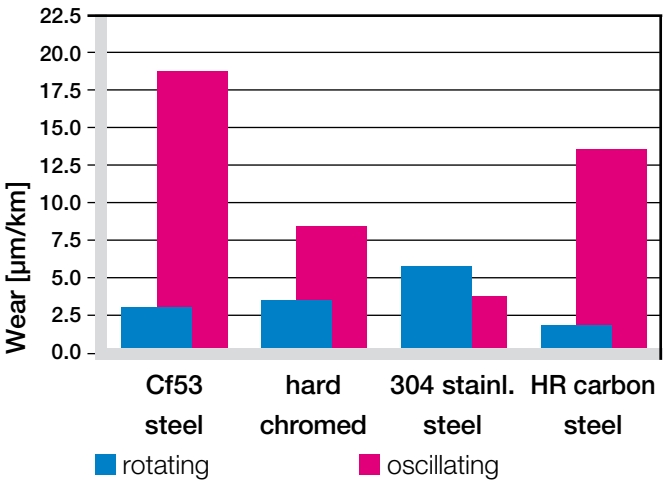


Diagram 09: Wear for rotating and oscillating applications with different shaft materials, p = 2 MPa

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)

Additional Properties

Chemical Resistance

iglidur® H370 bearings have a good resistance against chemicals. They are resistant to most lubricants.
The iglidur® is not affected by most weak organic and inorganic acids.

▶ Chemical Table, **page 1118**

Medium	Resistance
Alcohol	+
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 05: Chemical resistance

Radiation Resistance

iglidur® H370 withstands neutron and gamma particle radiation without detectable losses of its excellent mechanical properties. Plain bearings made from iglidur® H370 are resistant to radiation up to an intensity of $2 \cdot 10^2$ Gy.

UV Resistance

iglidur® H370 plain bearings are permanently resistant against UV radiation.

Vacuum

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

Electrical Properties

iglidur® H370 plain bearings are electrically conductive.

Volume resistance	$< 10^5$ Ωcm
Surface resistance	$< 10^5$ Ω

iglidur® H370 | Technical Data

Moisture Absorption

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

Maximum moisture absorption	
At +23 °C/50 % r.h.	0.1 % weight
Max. water absorption	0.1 % weight

Table 06: Moisture absorption

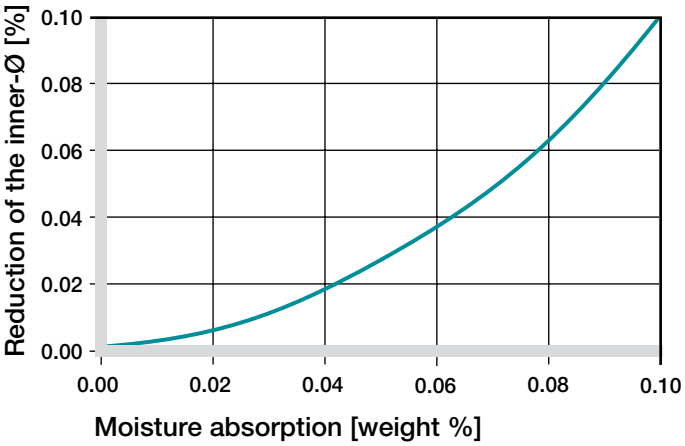


Diagram 10: Effect of moisture absorption on plain bearings

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).

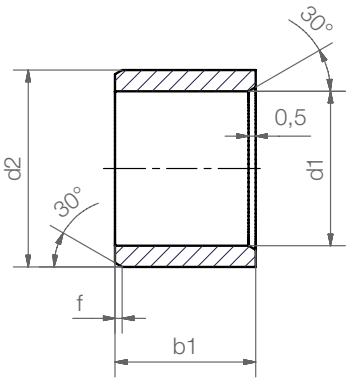
▶ Testing Methods, **page 59**

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

iglidur® H370 | Product Range

Sleeve bearing



Order key

H370SM-0304-03

- Length b1
- Outer diameter d2
- Inner diameter d1
- Metric
- Type (Form S)
- Material iglidur® H370

Dimensions according to ISO 3547-1 and special dimensions

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]

Bestellnummer	d1	d1-Toleranz*	d2	b1 h13
H370SM-0304-03	3.0	+0.006 +0.046	4.5	3.0
H370SM-0405-04	4.0	+0.010 +0.058	5.5	4.0
H370SM-0405-12	4.0	+0.010 +0.058	5.5	12.0
H370SM-0507-05	5.0	+0.010 +0.058	7.0	5.0
H370SM-0608-06	6.0	+0.010 +0.058	8.0	6.0
H370SM-0608-10	6.0	+0.010 +0.058	8.0	10.0
H370SM-0810-08	8.0	+0.013 +0.071	10.0	8.0
H370SM-0810-10	8.0	+0.013 +0.071	10.0	10.0
H370SM-0810-15	8.0	+0.013 +0.071	10.0	15.0
H370SM-1012-10	10.0	+0.013 +0.071	12.0	10.0
H370SM-1012-12	10.0	+0.013 +0.071	12.0	12.0
H370SM-1012-15	10.0	+0.013 +0.071	12.0	15.0
H370SM-1214-10	12.0	+0.016 +0.086	14.0	10.0
H370SM-1214-15	12.0	+0.016 +0.086	14.0	15.0
H370SM-1517-15	15.0	+0.016 +0.086	17.0	15.0

Bestellnummer	d1	d1-Toleranz*	d2	b1 h13
H370SM-1618-15	16.0	+0.016 +0.086	18.0	15.0
H370SM-1618-20	16.0	+0.016 +0.086	18.0	20.0
H370SM-1820-15	18.0	+0.016 +0.086	20.0	15.0
H370SM-2023-20	20.0	+0.020 +0.104	23.0	20.0
H370SM-2225-20	22.0	+0.020 +0.104	25.0	20.0
H370SM-2528-20	25.0	+0.020 +0.104	28.0	20.0
H370SM-3034-30	30.0	+0.020 +0.104	34.0	30.0
H370SM-3539-40	35.0	+0.025 +0.125	39.0	40.0
H370SM-4044-30	40.0	+0.025 +0.125	44.0	30.0
H370SM-4044-50	40.0	+0.025 +0.125	44.0	50.0
H370SM-4550-50	45.0	+0.025 +0.125	50.0	50.0
H370SM-5055-40	50.0	+0.000 +0.100	55.0	40.0
H370SM-5560-26	55.0	+0.030 +0.150	60.0	26.0
H370SM-6065-60	60.0	+0.030 +0.150	65.0	60.0
H370SM-7580-60	75.0	+0.030 +0.150	80.0	60.0

* after pressfit. Testing methods ▶ page 59

delivery time from stock

prices price list online
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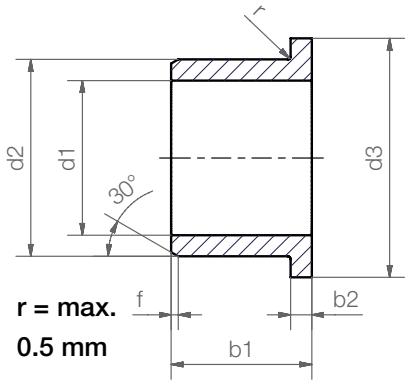
iglidur® H370 | Product Range

Flange bearing



r = max.
0.5 mm

Dimensions according to ISO 3547-1 and special dimensions

Order key

H370FM-0405-04

- Length b1
- Outer diameter d2
- Inner diameter d1
- Metric
- Type (Form F)
- Material iglidur® H370

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]

Part number	d1	d1-Tolerance*	d2	d3	b1	b2
				d13	h13	–0.14
H370FM-0405-04	4.0	+0.010 +0.058	5.5	9.5	4.0	0.75
H370FM-0507-05	5.0	+0.010 +0.058	7.0	11.0	5.0	1.0
H370FM-0608-06	6.0	+0.010 +0.058	8.0	12.0	6.0	1.0
H370FM-0810-06	8.0	+0.013 +0.071	10.0	15.0	6.0	1.0
H370FM-0810-10	8.0	+0.013 +0.071	10.0	15.0	10.0	1.0
H370FM-0810-15	8.0	+0.013 +0.071	10.0	15.0	15.0	1.0
H370FM-1012-10	10.0	+0.013 +0.071	12.0	18.0	10.0	1.0
H370FM-1012-20	10.0	+0.013 +0.071	12.0	18.0	20.0	1.0
H370FM-1012-145	10.0	+0.013 +0.071	12.0	18.0	14.5	1.0
H370FM-1214-07	12.0	+0.016 +0.086	14.0	20.0	7.0	1.0
H370FM-1214-12	12.0	+0.016 +0.086	14.0	20.0	12.0	1.0
H370FM-1214-15	12.0	+0.016 +0.086	14.0	20.0	15.0	1.0
H370FM-1214-20	12.0	+0.016 +0.086	14.0	20.0	20.0	1.0
H370FM-1416-12	14.0	+0.016 +0.086	16.0	22.0	12.0	1.0
H370FM-1517-17	15.0	+0.016 +0.086	17.0	23.0	17.0	1.0
H370FM-161822-10	16.0	+0.016 +0.086	18.0	22.0	10.0	1.0
H370FM-1618-10	16.0	+0.016 +0.086	18.0	24.0	10.0	1.0
H370FM-1618-17	16.0	+0.016 +0.086	18.0	24.0	17.0	1.0
H370FM-1618-25	16.0	+0.016 +0.086	18.0	24.0	25.0	1.0
H370FM-1820-12	18.0	+0.016 +0.086	20.0	26.0	12.0	1.0
H370FM-1820-17	18.0	+0.016 +0.086	20.0	26.0	17.0	1.0
H370FM-2023-16	20.0	+0.020 +0.104	23.0	30.0	16.0	1.5
H370FM-2023-21	20.0	+0.020 +0.104	23.0	30.0	21.5	1.5
H370FM-2023-30	20.0	+0.020 +0.104	23.0	30.0	30.0	1.5
H370FM-222532-215	22.0	+0.020 +0.104	25.0	32.0	21.5	1.5

* after pressfit. Testing methods ▶ page 59

delivery time from stock

prices price list online
www.igus.co.uk/en/h370

iglidur® H370 | Product Range

Flange bearing

Dimensions [mm]

Part number	d1	d1-Tolerance*	d2	d3	b1	b2
				d13	h13	–0.14
H370FM-2528-30	25.0	+0.020 +0.104	28.0	35.0	30.0	1.5
H370FM-3034-40	30.0	+0.020 +0.104	34.0	42.0	40.0	2.0
H370FM-3539-26	35.0	+0.025 +0.125	39.0	47.0	26.0	2.0
H370FM-4044-40	40.0	+0.025 +0.125	44.0	52.0	40.0	2.0
H370FM-5055-50	50.0	+0.025 +0.125	55.0	63.0	50.0	2.0
H370FM-6065-50	60.0	+0.030 +0.150	65.0	73.0	50.0	2.0
H370FM-7075-50	70.0	+0.030 +0.150	75.0	83.0	50.0	2.0

*** after pressfit. Testing methods ▶ page 59**

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.

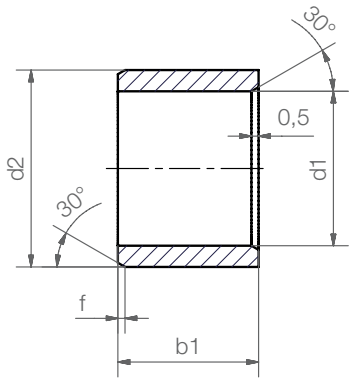
▶ **www.igus.co.uk/iglidur-specialbearings**

delivery time **from stock**

prices **price list online**
www.igus.co.uk/en/h370

iglidur® H370 | Product Range

Sleeve bearing



Order key

H370SI-0203-03

- Length b1
- Outer diameter d2
- Inner diameter d1
- Inch
- Type (Form S)
- Material iglidur® H370

Chamfer in relation to the d1

d1 [Inch]:	**Ø 0.040–0.236**	**Ø 0.236–0.472**	**Ø 0.472–1.18**	**Ø > 1.18**
f [Inch]:	**0.012**	**0.019**	**0.031**	**0.047**

Dimensions [Inch]

Part number	d1	d2	b1	d1*		Housing Bore		Shaft Size	
			h13	max.	min.	max.	min.	max.	min.
H370SI-0203-03	1/8	3/16	3/16	.1269	.1251	.1878	.1873	.1243	.1236
H370SI-0304-04	3/16	1/4	1/4	.1892	.1873	.2503	.2497	.1865	.1858
H370SI-0405-04	1/4	5/16	1/4	.2521	.2498	.3128	.3122	.2490	.2481
H370SI-0506-06	5/16	3/8	3/8	.3148	.3125	.3753	.3747	.3115	.3106
H370SI-0607-08	3/8	15/32	1/2	.3773	.3750	.4691	.4684	.3740	.3731
H370SI-0809-08	1/2	19/32	1/2	.5030	.5003	.5941	.5934	.4990	.4980
H370SI-1011-12	5/8	23/32	3/4	.6280	.6253	.7192	.7184	.6240	.6230
H370SI-1214-12	3/4	7/8	3/4	.7541	.7505	.8755	.8747	.7491	.7479
H370SI-1416-16	7/8	1	1	.8791	.8757	1.0005	.9997	.8741	.8729
H370SI-1618-16	1	1 1/8	1	1.0041	1.0007	1.1255	1.1247	.9991	.9979
H370SI-2022-20	1 1/4	1 13/32	1 1/4	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472

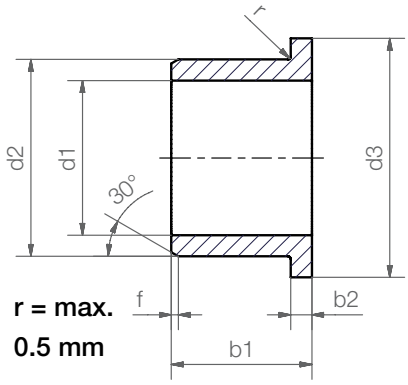
*** after pressfit. Testing methods ▶ page 59**

delivery time **from stock**

prices **price list online**
www.igus.co.uk/en/h370

iglidur® H370 | Product Range

Flange bearing



r = max.
0.5 mm

Order key

H370FI-0203-03

- Length b1
- Outer diameter d2
- Inner diameter d1
- Inch
- Type (Form F)
- Material iglidur® H370

Chamfer in relation to the d1

d1 [Inch]:	Ø 0.040–0.236	Ø 0.236–0.472	Ø 0.472–1.18	Ø > 1.18
f [Inch]:	0.012	0.019	0.031	0.047

Dimensions [Inch]

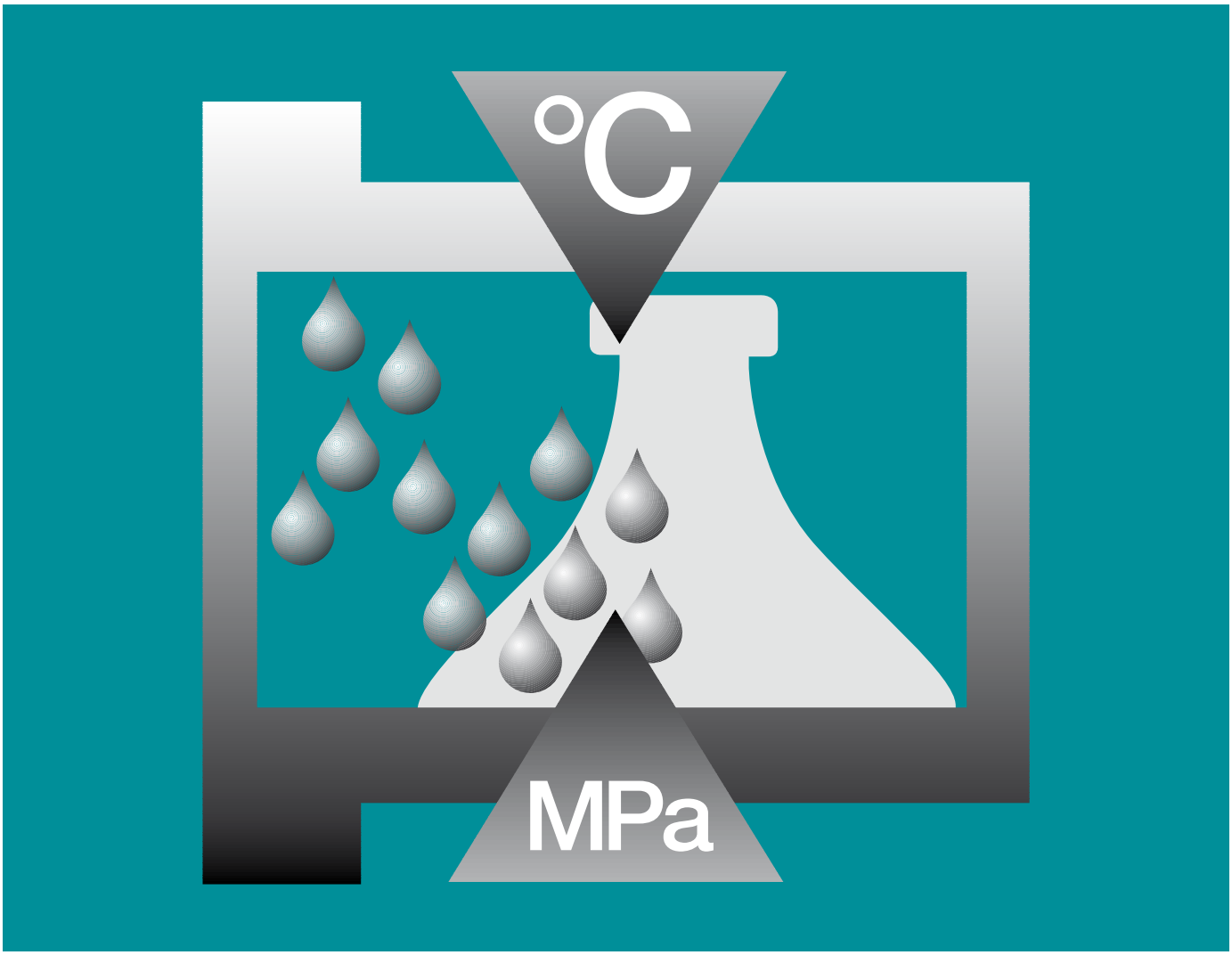
Part number	d1	d2	b1	d3	b2	d1*		Housing Bore		Shaft Size	
			h13		–0.14	max.	min.	max.	min.	max.	min.
H370FI-0203-03	1/8	3/16	3/16	.312	.032	.1269	.1251	.1878	.1873	.1243	.1236
H370FI-0304-04	3/16	1/4	1/4	.375	.032	.1892	.1873	.2503	.2497	.1865	.1858
H370FI-0405-04	1/4	5/16	1/4	.500	.032	.2521	.2498	.3128	.3122	.2490	.2481
H370FI-0506-06	5/16	3/8	3/8	.562	.032	.3148	.3125	.3753	.3747	.3115	.3106
H370FI-0607-08	3/8	15/32	1/2	.687	.046	.3773	.3750	.4691	.4684	.3740	.3731
H370FI-0809-08	1/2	19/32	1/2	.875	.046	.5030	.5003	.5941	.5934	.4990	.4980
H370FI-1011-12	5/8	23/32	3/4	1.000	.046	.6280	.6253	.7192	.7184	.6240	.6230
H370FI-1214-12	3/4	7/8	3/4	1.125	.062	.7541	.7505	.8755	.8747	.7491	.7479
H370FI-1416-16	7/8	1	1	1.250	.062	.8791	.8757	1.0005	.9997	.8741	.8729
H370FI-1618-16	1	1 1/8	1	1.375	.062	1.0041	1.0007	1.1255	1.1247	.9991	.9979
H370FI-2022-20	1 1/4	1 13/32	1 1/4	1.687	.078	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472

* after pressfit. Testing methods ▶ page 59

delivery time from stock

prices price list online
www.igus.co.uk/en/h370

My Sketches



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

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

New in this catalog!

iglidur® C500

Up to 250 °C, wear resistant. iglidur® C500 can be used in 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 color represents extreme environmental conditions.

High resistance to media and temperature

Resistant to water vapor

Good coefficients of friction and wear

Lubrication- and maintenance-free

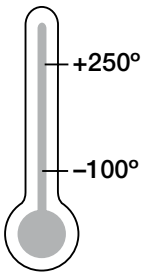
When to use it?

- 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 431
- When you need a media-resistant high-temperature bearing with the largest possible range of dimensions
  ▶ iglidur® X, page 157

Temperature



Product range

2 types
Ø 6–20 mm
more dimensions
on request

iglidur® C500 | Technical Data

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)	**$K^{-1} \cdot 10^{-5}$**	9	DIN 53752
Electrical properties[1)]			
Specific volume resistance	**Ωcm**	$> 10^{14}$	DIN IEC 93
Surface resistance	**Ω**	$> 10^{13}$	DIN 53482

Table 01: Material properties table

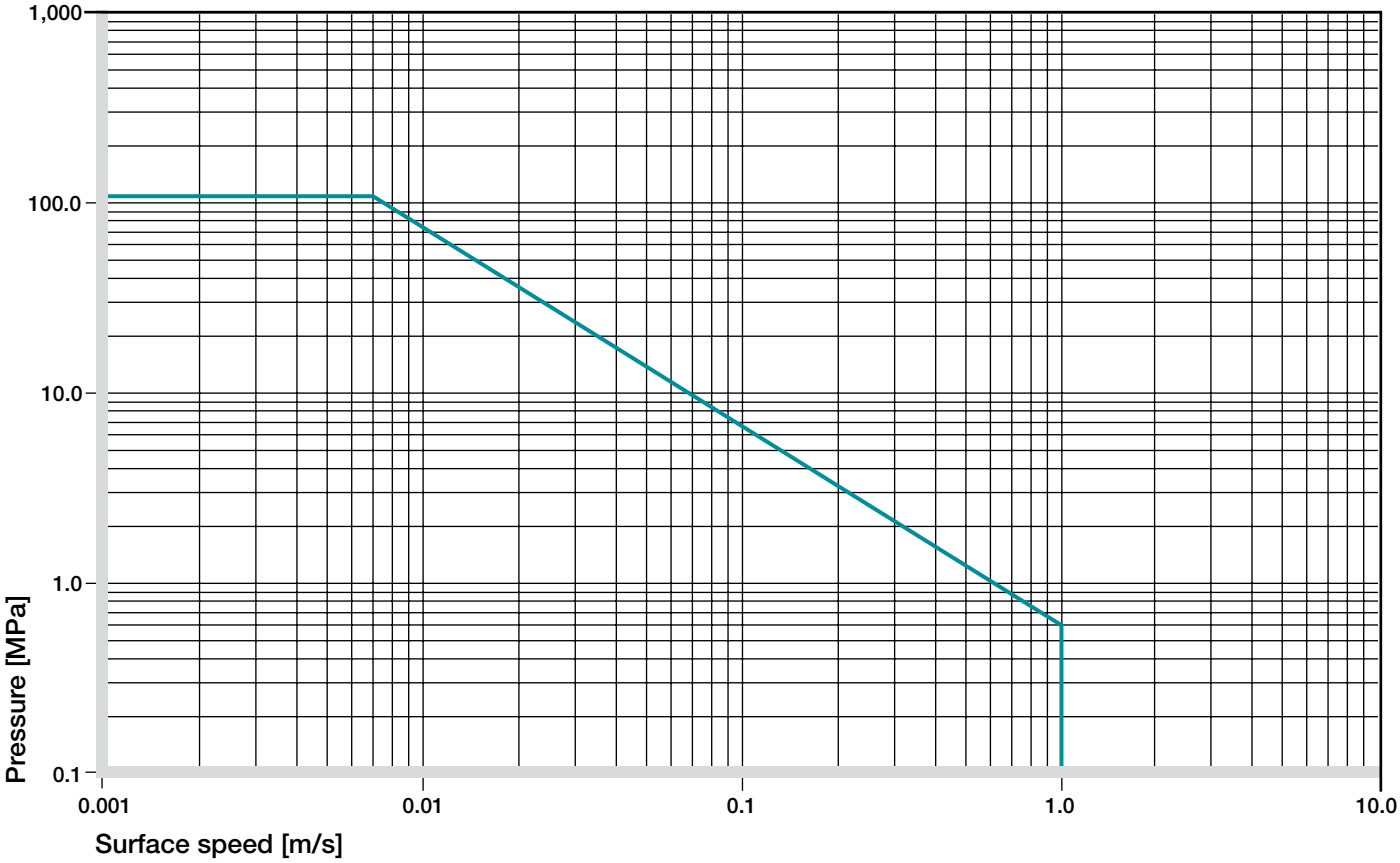


Diagram 01: Permissible pv values for iglidur® C500 with a wall thickness of 1 mm dry running against a steel shaft at +20 °C, mounted in a steel housing

iglidur® C500 | Technical Data

iglidur® C500 is a member of the family of extremely media and temperature-resistant iglidur® materials X, X6 and A500. This material is characterized by improved wear resistance and it's flexibility, allowing the use of this material as a piston ring, for example.

Mechanical Properties

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

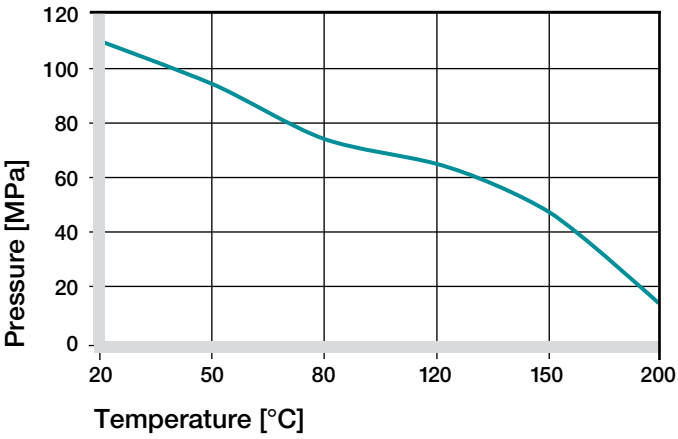


Diagram 02: Recommended maximum surface pressure as a function of temperature (110 MPa at +20 °C)

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 47**

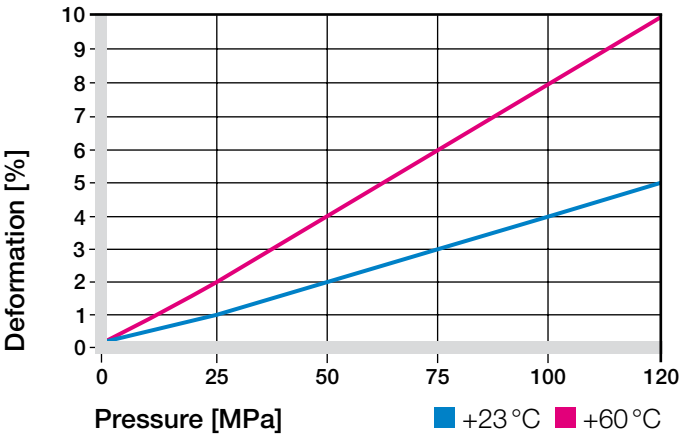


Diagram 03: Deformation under pressure and temperature

Permissible Surface Speeds

The maximum allowable gliding 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 02 are valid only with minimum pressure loads and are often not attained in practice.

▶ Surface Speed, **page 49**

m/s	Rotating	Oscillating	Linear
Continuous	0.9	0.7	2.4
Short term	1.1	1	2.8

Table 02: Maximum running speed

Temperatures

iglidur® C500 belongs to the most temperature resistant iglidur® materials. The long-term permitted temperature is +250 °C and on the short-term the temperature can even reach +300 °C. Similar to all thermoplastics, with increasing temperatures, the compressive strength of iglidur® C500 bearings decreases.The ambient temperatures that are prevalent in applications also have an effect on the bearing wear. The wear rises with increasing temperatures.

▶ Application Temperatures, **page 50**

iglidur® C500	Application temperature
Minimum	–100 °C
Max. long term	+250 °C
Max. short term	+300 °C
Add. securing is required from	+130 °C

Table 03: Temperature limits

iglidur® C500 | Technical Data

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 gliding 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. Very smooth shafts increase the coefficient of both friction and wear. The ideal shaft has an average surface finish of Ra = 0.6 to 0.8 µm.

▶ Coefficients of Friction and Surfaces, **page 52**
▶ Wear Resistance, **page 53**

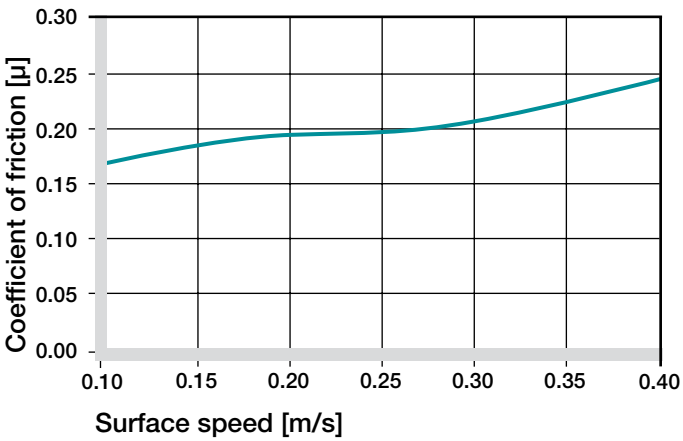


Diagram 04: Coefficient of friction as a function of the running speed, p = 1 MPa

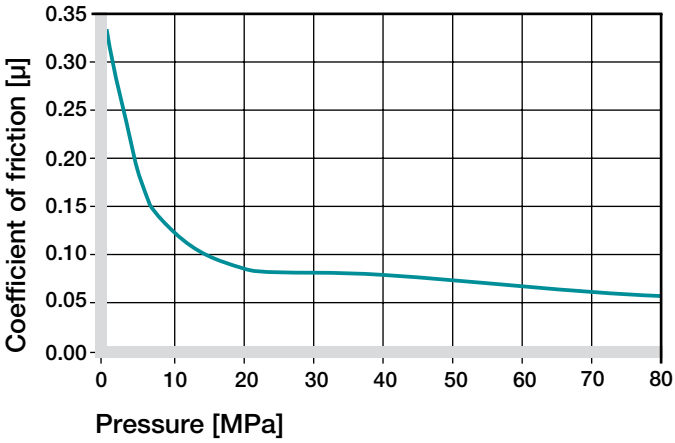


Diagram 05: Coefficient of friction as a function of the pressure, v = 0.01 m/s

Shaft Materials

Diagrams 07 and 08 show 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 Aluminum.

The wear under rotational loads is higher, specifically with increasing radial loads as compared to pivoting motions (Diagram 08).

▶ Shaft Materials, **page 55**

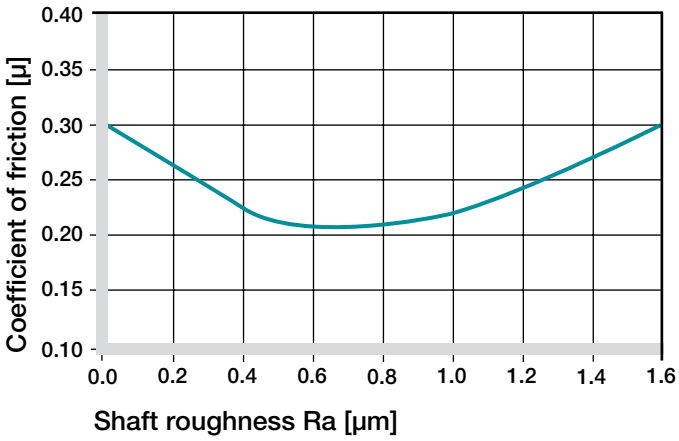


Diagram 06: Coefficient of friction as function of the shaft surface (Cf53 hardened and ground steel)

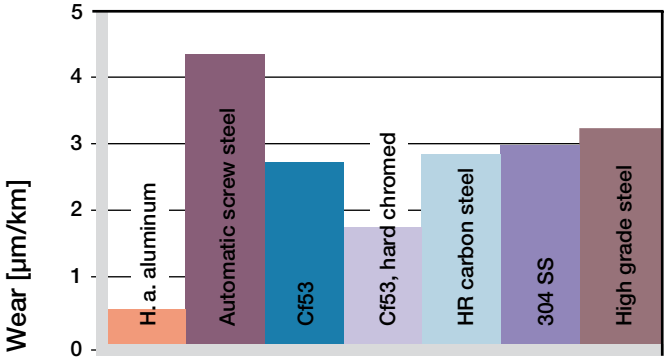


Diagram 07: Wear, rotating with different shaft materials, pressure, p = 1 MPa, v = 0.3 m/s

iglidur® C500 | Technical Data

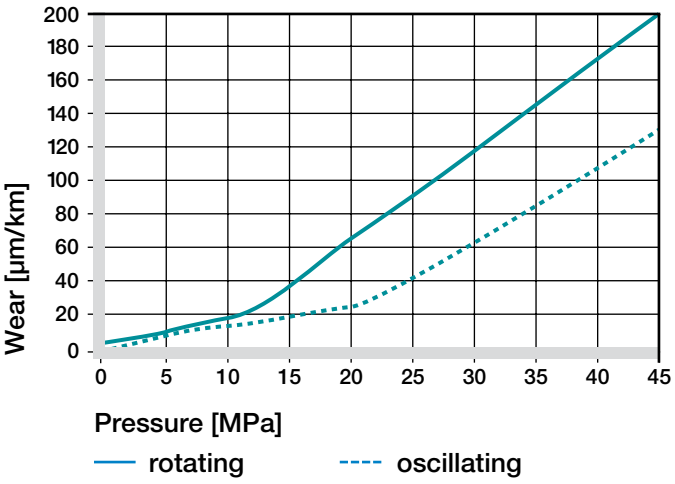


Diagram 08: Wear for oscillating and rotating applications with shaft material Cf53 hardened and ground steel, as a function of the pressure

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)

Additional Properties

Chemical Resistance

iglidur® C500 bearings have a very good resistance against chemicals. Most organic and inorganic acids, alkaline solutions or lubricants do not affect iglidur® C500.

▶ Chemical Table, **page 1118**

Medium	Resistance
Alcohol	+
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 05: Chemical resistance

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 $3 \cdot 10^2$ Gy.

UV Resistance

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

Vacuum

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

Electrical Properties

iglidur® C500 plain bearings are electrically isolating.

Volume resistance	$> 10^{14}$ Ωcm
Surface resistance	$> 10^{13}$ Ω

iglidur® C500 | Technical Data

Moisture Absorption

The moisture absorption of iglidur® C500 plain bearings is below 0.3 % in standard atmosphere. The saturation limit in water is also below 0.5 %.

Maximum moisture absorption	
At +23 °C/50 % r.h.	0.3 % weight
Max. water absorption	0.5 % weight

Table 06: Moisture absorption

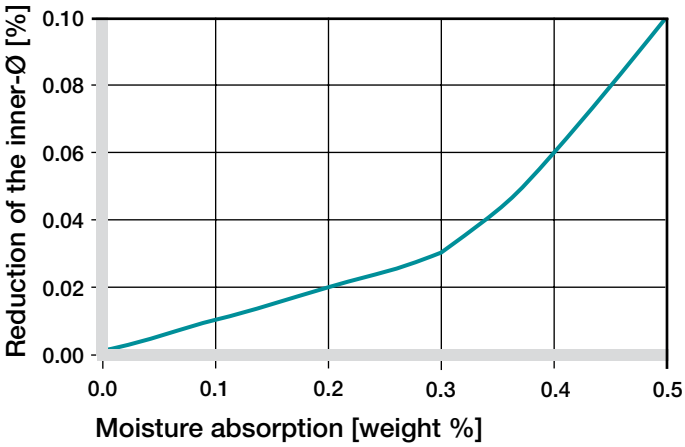


Diagram 09: Effect of moisture absorption on plain bearings

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 59**

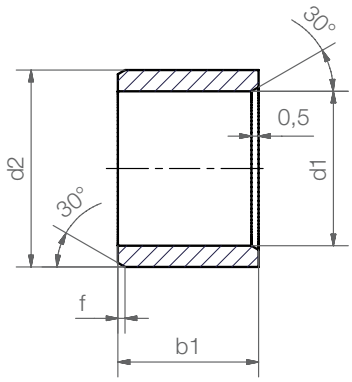
Diameter d1 [mm]	Shaft h9 [mm]	iglidur® C500 F10 [mm]	Housing H7 [mm]
up to 3	0–0.025	+0.006 +0.046	0 +0.010
> 3 to 6	0–0.030	+0.010 +0.058	0 +0.012
> 6 to 10	0–0.036	+0.013 +0.071	0 +0.015
> 10 to 18	0–0.043	+0.016 +0.086	0 +0.018
> 18 to 30	0–0.052	+0.020 +0.104	0 +0.021
> 30 to 50	0–0.062	+0.025 +0.125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

Table 07: Important tolerances for plain bearings according to ISO 3547-1 after pressfit

New in this catalog!

iglidur® C500 | Product Range

Sleeve bearing



Dimensions according to ISO 3547-1 and special dimensions

Order key

C500SM-0608-06

- Length b1
- Outer diameter d2
- Inner diameter d1
- Metric
- Type (Form S)
- Material iglidur® C500

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]

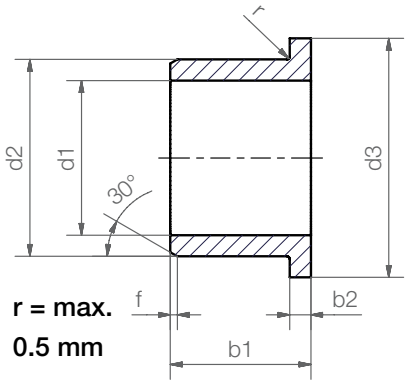
Part number	d1	d1-Tolerance*	d2	b1 h13
C500SM-0608-06 New!	6.0	+0.010 +0.058	8.0	6.0
C500SM-0810-10 New!	8.0	+0.013 +0.071	10.0	10.0
C500SM-1012-10 New!	10.0	+0.013 +0.071	12.0	10.0
C500SM-1214-12 New!	12.0	+0.016 +0.086	14.0	12.0
C500SM-1618-15 New!	16.0	+0.016 +0.086	18.0	15.0
C500SM-2023-20 New!	20.0	+0.020 +0.104	23.0	20.0

* after pressfit. Testing methods ▶ page 59

delivery time from stock

prices price list online
www.igus.co.uk/en/c500

Flange bearing



r = max. 0.5 mm

Order key

C500FM-0608-06

- Length b1
- Outer diameter d2
- Inner diameter d1
- Metric
- Type (Form F)
- Material iglidur® C500

Dimensions according to ISO 3547-1 and special dimensions

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]

Part number		d1	d1-Tolerance*	d2	d3	b1	b2
					d13	h13	–0.14
C500FM-0608-06	New!	6.0	+0.010 +0.058	8.0	12.0	6.0	1.0
C500FM-0810-10	New!	8.0	+0.013 +0.071	10.0	15.0	10.0	1.0
C500FM-1012-10	New!	10.0	+0.013 +0.071	12.0	18.0	10.0	1.0
C500FM-1214-12	New!	12.0	+0.016 +0.086	14.0	20.0	12.0	1.0
C500FM-1618-17	New!	16.0	+0.016 +0.086	18.0	24.0	17.0	1.0
C500FM-2023-21	New!	20.0	+0.020 +0.104	23.0	30.0	21.5	1.5

* after pressfit. Testing methods ▶ page 59

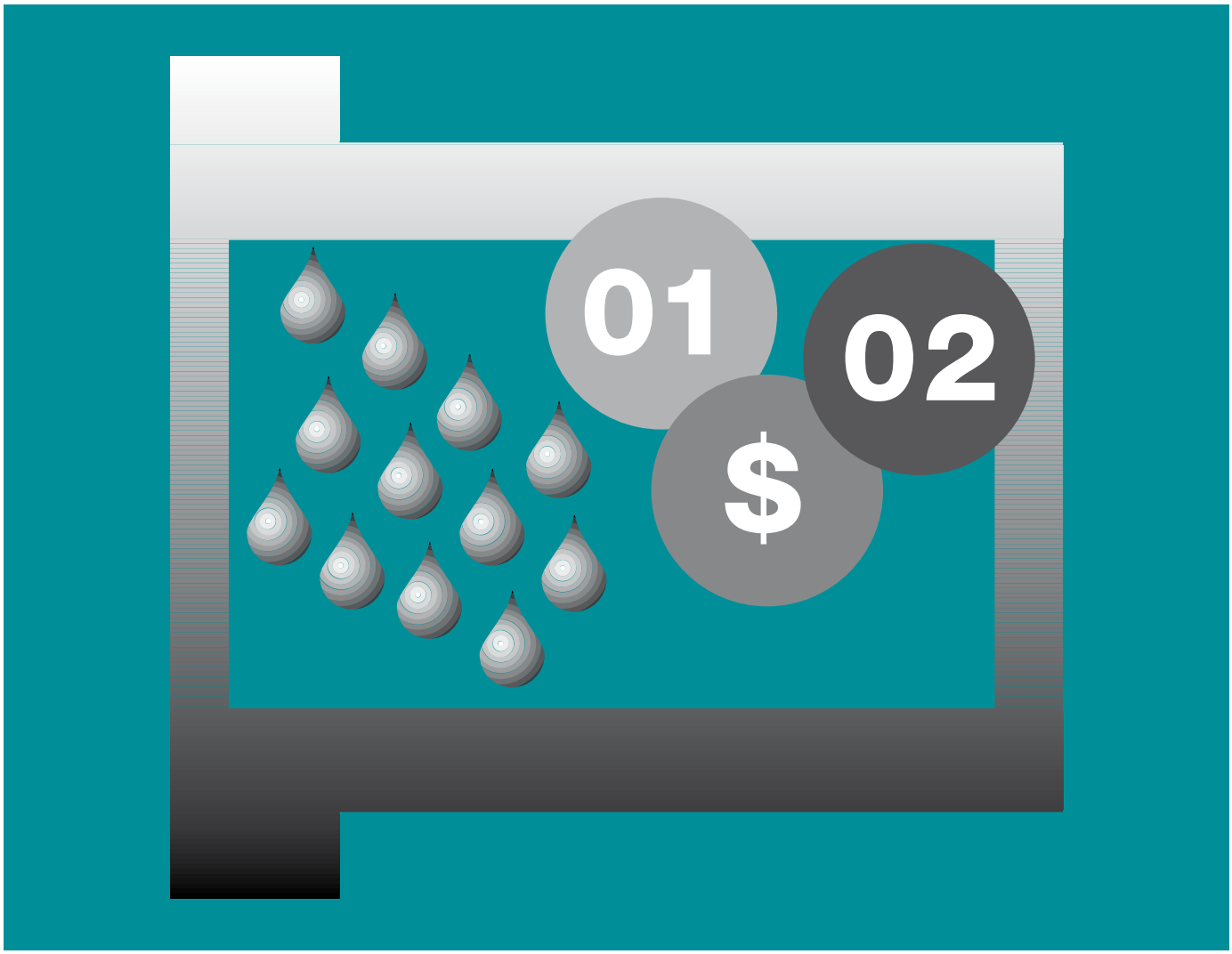
Don't find your size?

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.

delivery time from stock

prices price list online
www.igus.co.uk/en/c500

My Sketches



Low-cost – iglidur® H2

- Can be used underwater
- Cost-effective
- Resistant to chemicals
- For high temperatures

iglidur® H2

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

For underwater use

Cost-effective

Resistant to chemicals

For high temperatures

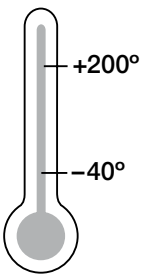
When to use it?

- For underwater use
- When a cost-effective bearing for high temperatures is desired
- For applications with fuels, oils etc.
- Resistant to chemicals

When not to use it?

- When the highest wear resistance is required
  ▶ iglidur® H1, page 349
  ▶ iglidur® H4, page 475
  ▶ iglidur® W300, page 135
- When vibration dampening is necessary
  ▶ iglidur® B, page 539
  ▶ iglidur® M250, page 111
- When neither increased temperatures nor media contact occur
  ▶ iglidur® GLW, page 209

Temperature



Product range

on request

iglidur® H2 | Technical Data

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)	**$K^{-1} \cdot 10^{-5}$**	4	DIN 53752
Electrical properties			
Specific volume resistance	**Ωcm**	> 10^{15}	DIN IEC 93
Surface resistance	**Ω**	> 10^{14}	DIN 53482

Table 01: Material properties table

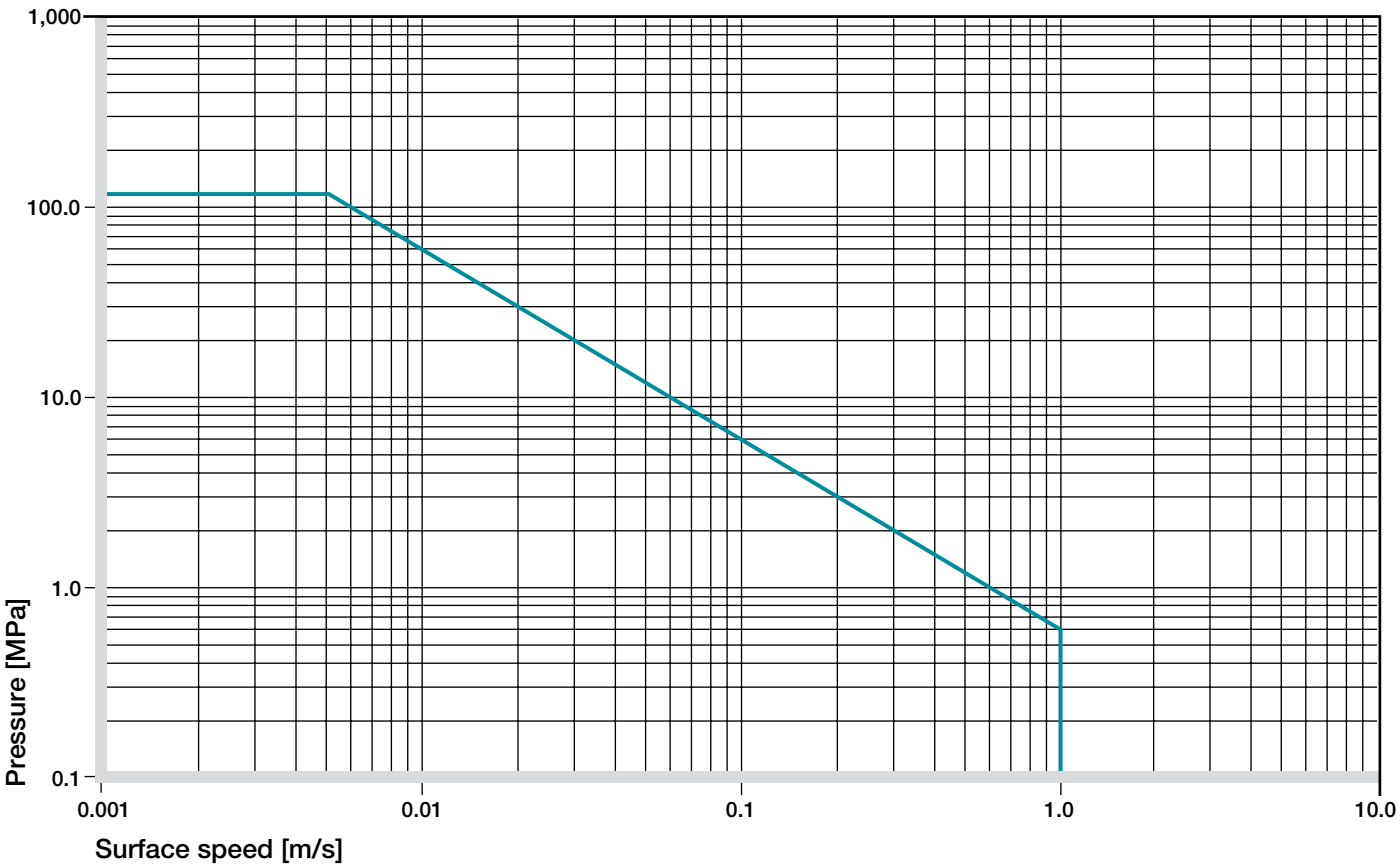


Diagram 01: Permissible pv values for iglidur® H2 with a wall thickness of 1 mm dry running against a steel shaft at +20 °C, mounted in a steel housing

iglidur® H2 | Technical Data

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 till 110 N/mm², and excellent chemical resistance. A mixture of solid lubricants lowers the coefficient of friction and supports the wear 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. However, at the longterm maximum temperature of +200 °C the permissible surface pressure is 17 MPa. The recommended maximum surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.

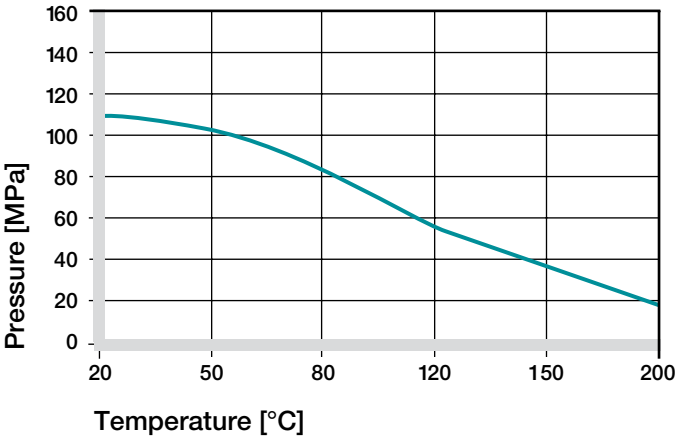


Diagram 02: Recommended maximum surface pressure as a function of temperature (110 MPa at +20 °C)

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

▶ Surface Pressure, **page 47**

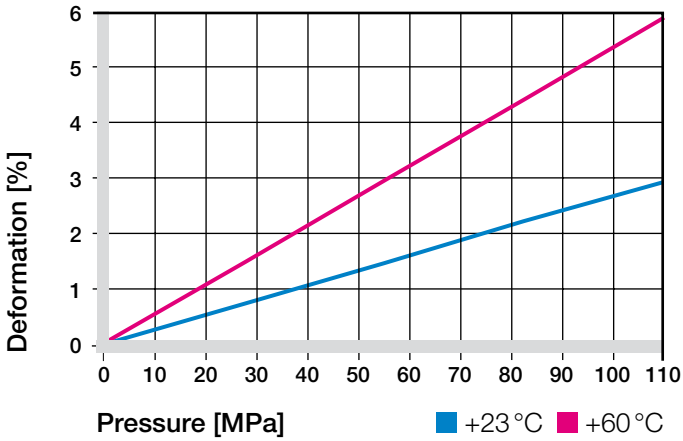


Diagram 03: Deformation under pressure and temperature

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 49**

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

Table 02: Maximum running speed

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. With increasing temperatures, the compressive strength of iglidur® H2 bearings however decreases more strongly than in iglidur® H.
The temperatures prevailing in the bearing system also have an influence on the bearing wear. The wear rises with increasing temperatures.

▶ Application Temperatures, **page 50**

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iglidur® H2	Application temperature
Minimum	–40 °C
Max. long term	+200 °C
Max. short term	+240 °C
Add. securing is required from	+110 °C

Table 03: Temperature limits

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 04-06. Paired with hardened steel shafts, the friction of the iglidur® H2 bearing reduces sharply and in the high load range attains (> 30 MPa) values of 0.07.

The hardness and brittleness of the material are the reason for the sensitivity of the iglidur® H2 bearing with coarse shafts; smooth shafts (Ra = 0.1) in contrast do not increase the friction of the systems.

▶ Coefficients of Friction and Surfaces, **page 52**
▶ Wear Resistance, **page 53**

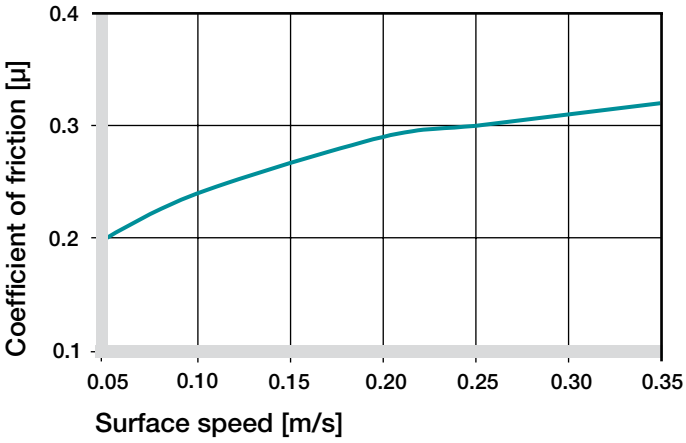

Diagram 04: Coefficient of friction as a function of the running speed, p = 0.75 MPa

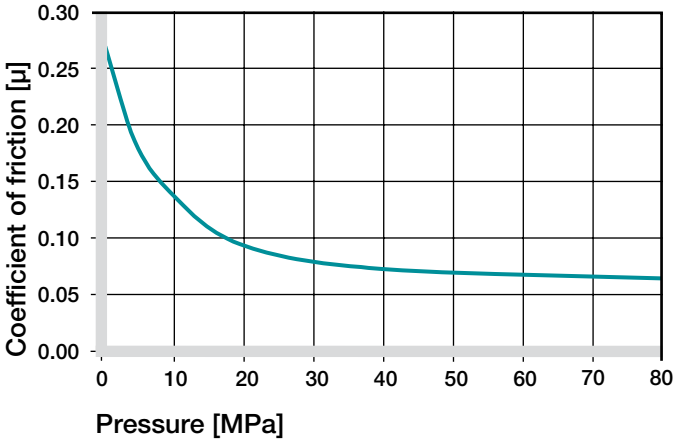

Diagram 05: Coefficient of friction as a function of the pressure, v = 0.01 m/s

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 of automatic screw steel and V2A are essentially better, as is found in Diagrams 08 and 09.

▶ Shaft Materials, **page 55**

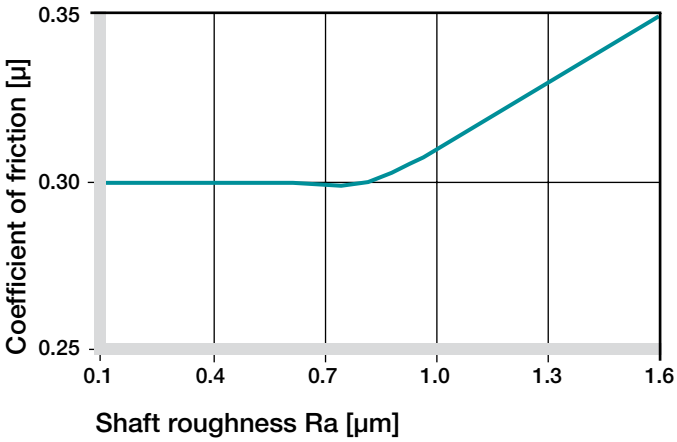

Diagram 06: Coefficient of friction as function of the shaft surface (Cf53 hardened and ground steel)

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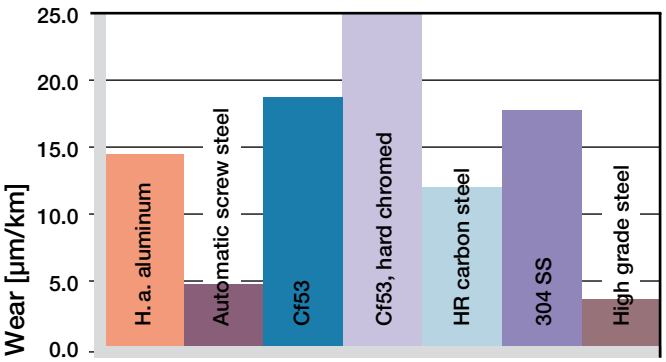

Diagram 07: Wear, rotating with different shaft materials, pressure p = 1 MPa, v = 0.3 m/s

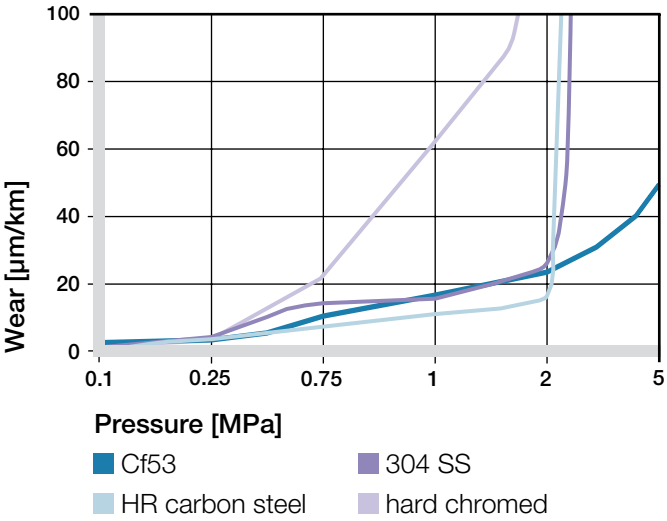

Diagram 08: Wear with different shaft materials in rotational operation, as a function of the pressure

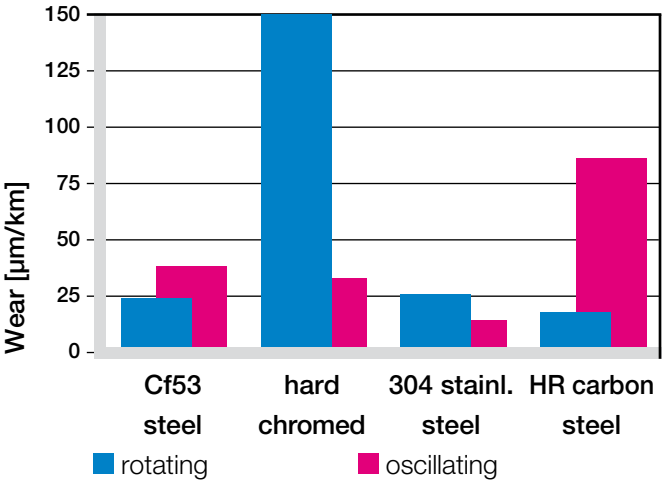

Diagram 09: Wear for rotating and oscillating applications with different shaft materials, p = 2 MPa

iglidur® H2	Greases	Fett	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)

Additional Properties

Chemical Resistance

iglidur® H2 bearings have a good resistance against chemicals. They are resistant to most lubricants.
The iglidur® H2 is not affected by most weak organic and inorganic acids.

▶ Chemical Table, **page 1118**

Medium	Resistance
Alcohol	+
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 05: Chemical resistance

Radiation Resistance

iglidur® H2 withstands neutron and gamma particle radiation without detectable losses of its excellent mechanical properties. Plain bearings made of iglidur® H2 are resistant to radiation up to an intensity of $2 \cdot 10^2$ Gy.

UV Resistance

iglidur® H2 plain bearings change under the influence of UV radiation and other weathering effects. The surface becomes rougher and the compressive strength decreases. The use of iglidur® H2 in applications that are permanently exposed to weathering should be checked.

Vacuum

In a vacuum environment, small moisture components are released as vapour. It is possible to use iglidur® H2 in a vacuum.

iglidur® H2 | Technical Data

Electrical Properties

iglidur® H2 plain bearings are electrically insulating.

Volume resistance	> 10^{15} Ωcm
Surface resistance	> 10^{14} Ω

Moisture Absorption

The moisture absorption of iglidur® H2 bearings is approximately 0.1 % in standard climatic conditions. The saturation limit in water is 0.3 %. iglidur® H2 is an ideal material for wet environments.

Maximal Moisture Absorption	
At +23 °C/50 % r.h.	0.1 % weight
Max. water absorption	0.2 % weight

Table 06: Moisture absorption

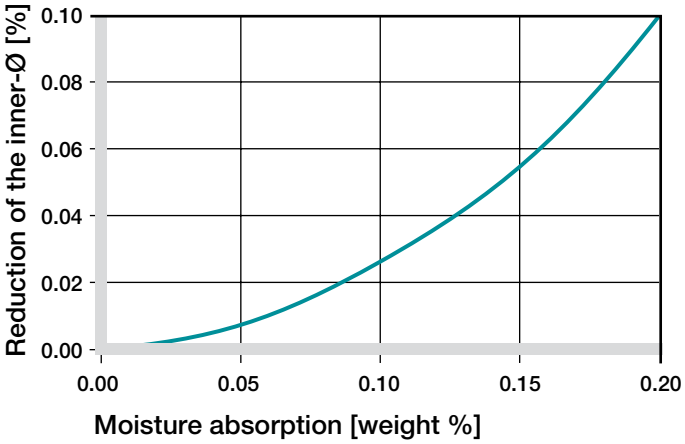

Diagram 10: Effect of moisture absorption on plain bearings

Installation Tolerances

iglidur® H2 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 59**

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

Product Range

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