iglidur® H370

Wear resistant under water. iglidur® H370 is the right solution for underwater applications. The bearings absorb extremely high loads, resist 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

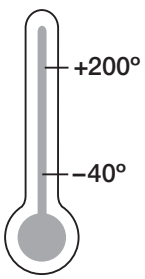
When to use it?

- 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 107**
- When high wear resistance in temperatures is required
  ▶ **iglidur® H1, page 337**
- For use in dirty surroundings
  ▶ **iglidur® Z, page 299**
- When a cost-efficient, large-volume solution is required
  ▶ **iglidur® H2, page 359**

Temperature



Product Range

2 types
Ø 3–75 mm
more dimensions
on request

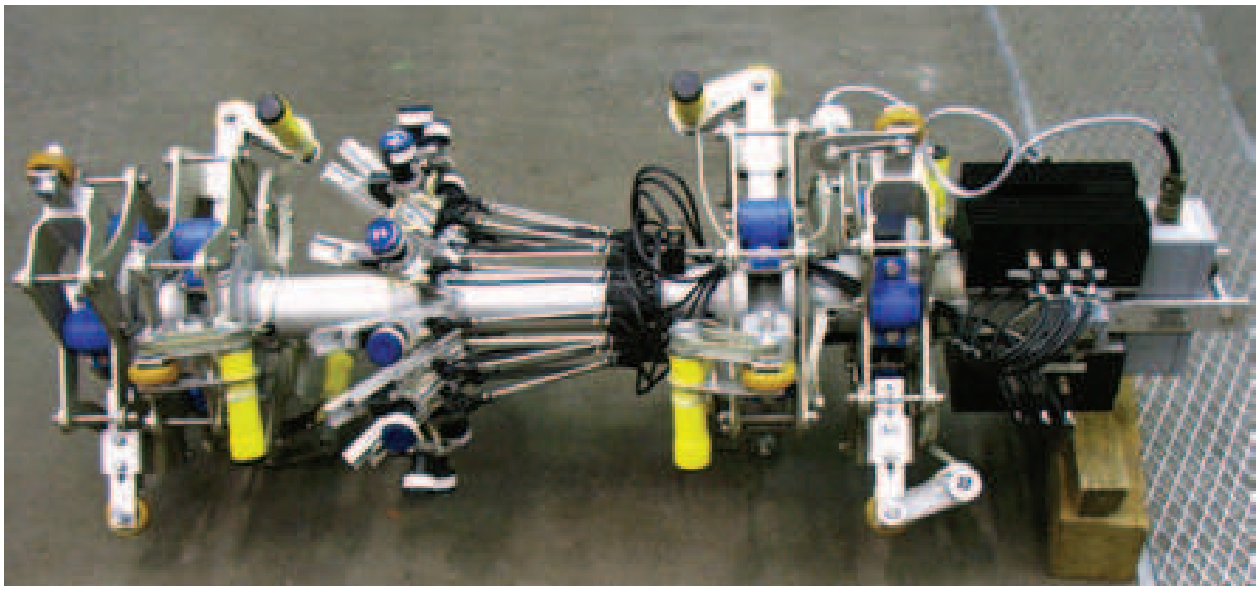
iglidur® H370 | Application Examples

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.eu/eu/iglidur-applications



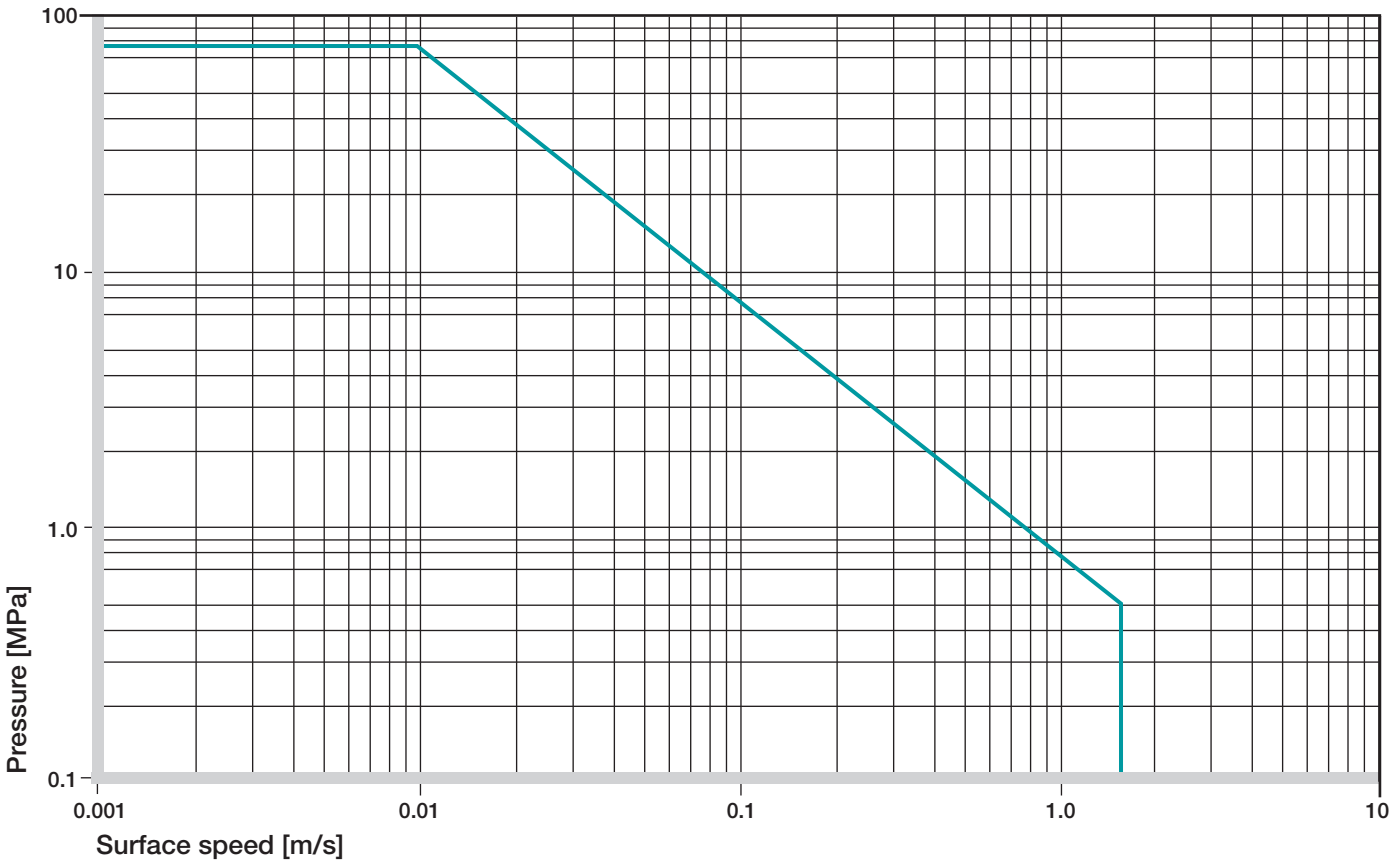
▶ www.igus.eu/oilplatform

▶ www.igus.eu/ultrasonic-tests

iglidur® H370 | Technical Data

Material data			
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. moisture 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			
Specific volume resistance	**Ωcm**	$< 10^5$	DIN IEC 93
Surface resistance	**Ω**	$< 10^5$	DIN 53482

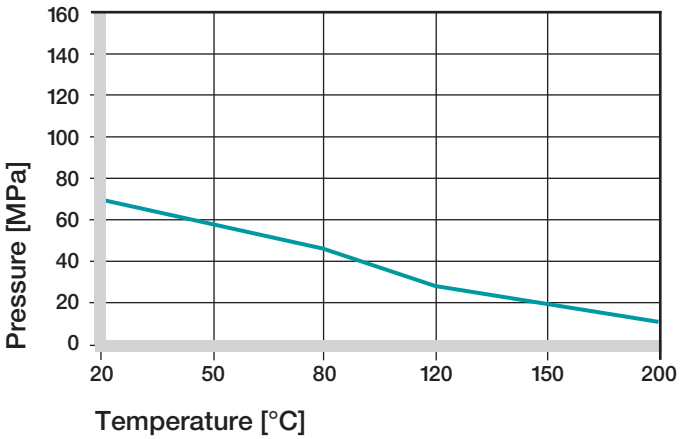
Table 01: Material data



Graph 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

Mechanical Properties

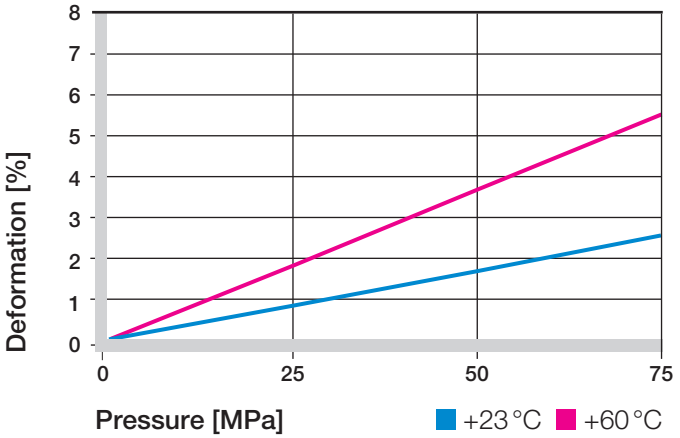
The recommended maximum surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this. With increasing temperatures, the compressive strength of iglidur® H370 plain bearings decreases. The Graph 02 shows this inverse relationship. However, at the longterm maximum temperature of +200 ° C the permissible surface pressure is almost 10 MPa.



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

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. Graph 02 shows how iglidur® H370 elastically deforms under radial load. Under the maximum recommended surface pressure of 75 MPa, the deformation at room temperature amounts to about 2.5 %.

▶ Surface Pressure, **page 43**



Graph 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 m/s (rotating) and 3 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 45**

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 46**

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

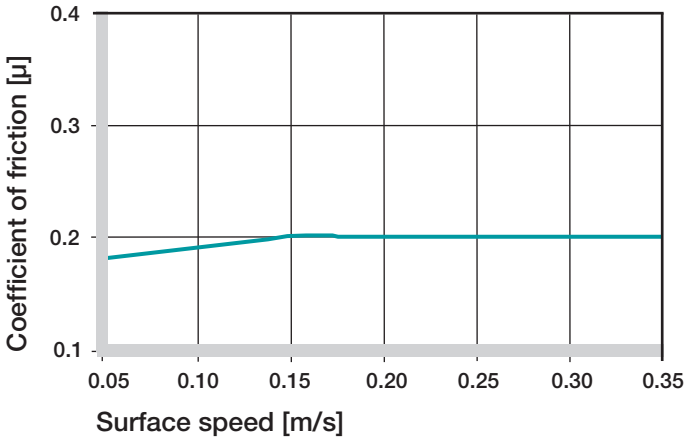
Table 03: Temperature limits

Friction and Wear

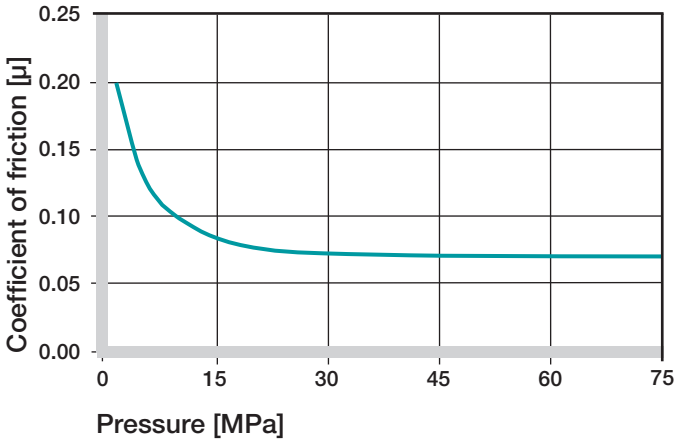
The coefficients of friction and wear in iglidur® H370 are more favorable than in iglidur® H. There is no better material than iglidur® H370 especially for underwater applications. The coefficient of friction alters only little, like the wear resistance with increasing load and surface speed. This connection 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 48**
▶ Wear Resistance, **page 49**



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



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

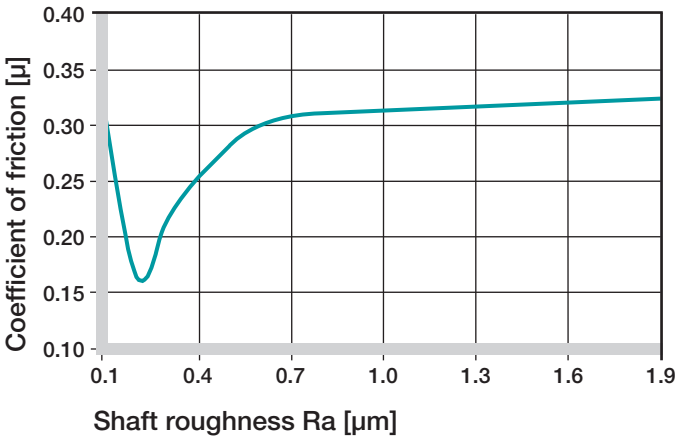
Shaft Materials

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

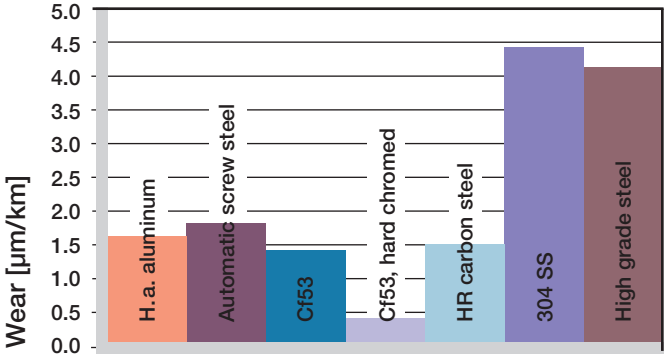
For loads up to 2 MPa, the hard-chromed shaft is the best counter partner for the iglidur® H370 bearings in rotating applications. The high coefficients of wear with V2A shafts are striking, which due to their extremely smooth surfaces are prone to the stick-slip effect. The St37 shaft shows better values 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. (Graph 08).

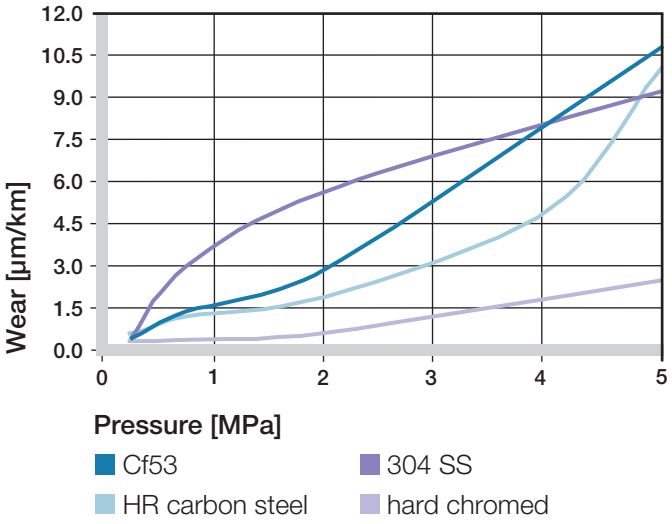
▶ Shaft Materials, **page 51**



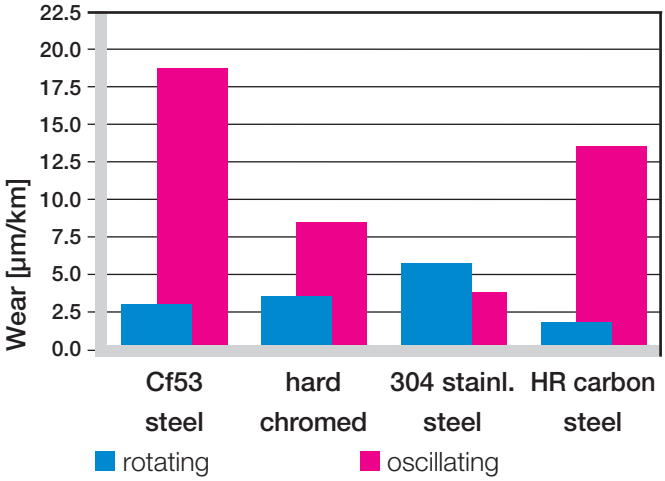
Graph 06: Coefficient of friction as function of the shaft surface (Cf53 hardened and ground steel)



Graph 07: Wear, rotating with different shaft materials, pressure, p = 1 MPa, v = 0,3 m/s



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



Graph 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 974**

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

+ 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

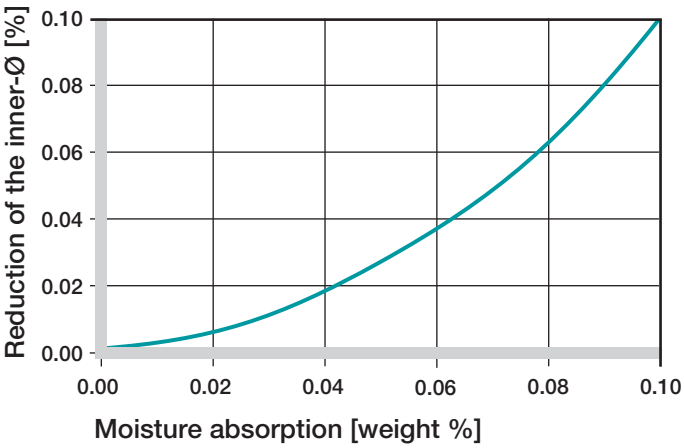
Moisture Absorption

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. moisture absorption	0.1 % weight

Table 06: Moisture absorption



Graph 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, the inner diameter adjusts to meet the specified tolerances.

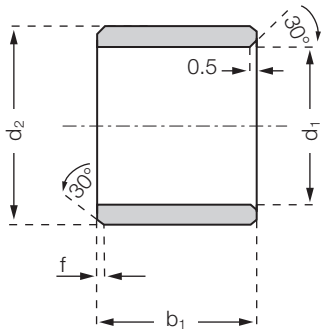
▶ Testing Methods, **page 55**

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]

Part number	d1	d1-Tolerance*	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-0810-08	8.0	+0.013 +0.071	10.0	8.0
H370SM-1012-10	10.0	+0.013 +0.071	12.0	10.0
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
H370SM-1618-15	16.0	+0.016 +0.086	18.0	15.0

Part number	d1	d1-Tolerance*	d2	b1 h13
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-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-4044-50	40.0	+0.025 +0.125	44.0	50.0
H370SM-5055-40	50.0	+0.025 +0.125	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

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 55

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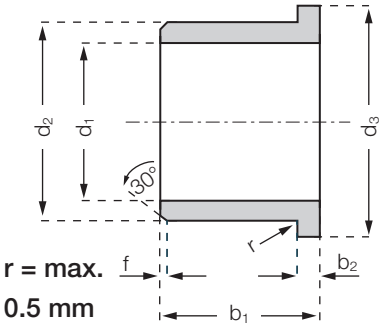
iglidur® H370 | Product Range

Flange bearing



r = max. 0.5 mm

Order key

H370FM-0405-04

- Length b1
- Outer diameter d2
- Inner diameter d1
- Metric
- Type (Form F)
- 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]

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-0810-15	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-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-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-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
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

* after pressfit. Testing methods ▶ page 55

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iglidur® H370 | Product Range

Flange bearing

Dimensions [mm]

Part number	d1	d1-Tolerance*	d2	d3	b1	b2
				d13	h13	–0,14
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 55

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 55

My Sketches