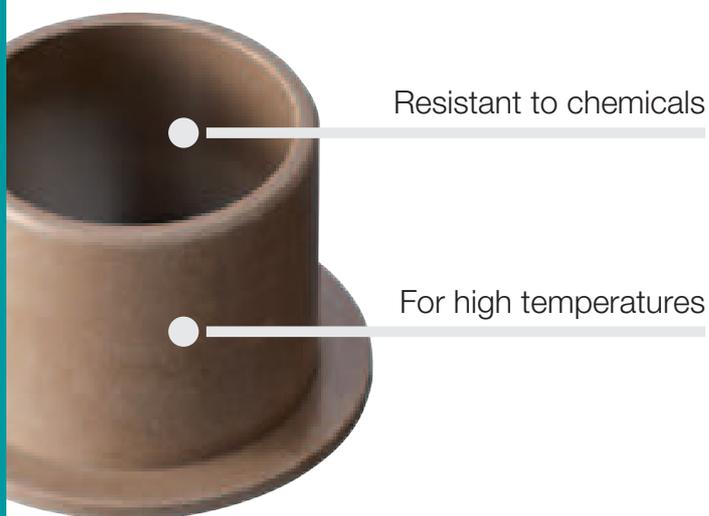
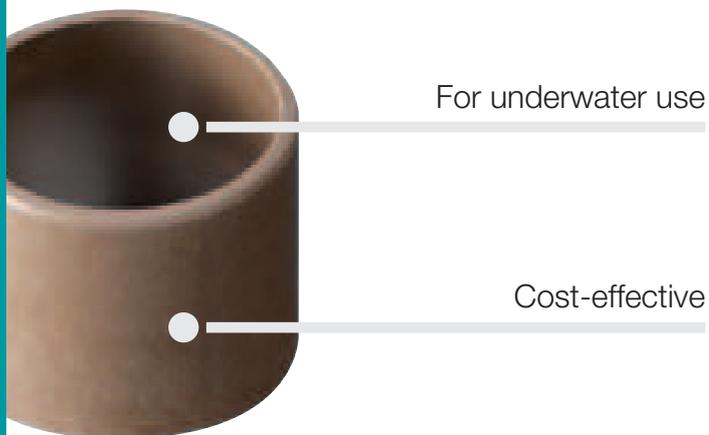


# iglidur® H2

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



### When to use it?

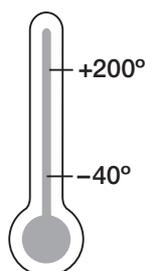
- For underwater use
- When a cost-effective bearing for high temperatures is desired
- For applications with fuels, oils etc.
- Resistant to chemicals



### When not to use it?

- When the highest wear resistance is required
  - ▶ iglidur® H1, page 337
  - ▶ iglidur® H4, page 451
  - ▶ iglidur® W300, page 131
- When vibration dampening is necessary
  - ▶ iglidur® B, page 485
  - ▶ iglidur® M250, page 107
- When neither increased temperatures nor media contact occur
  - ▶ iglidur® GLW, page 197

### Temperature



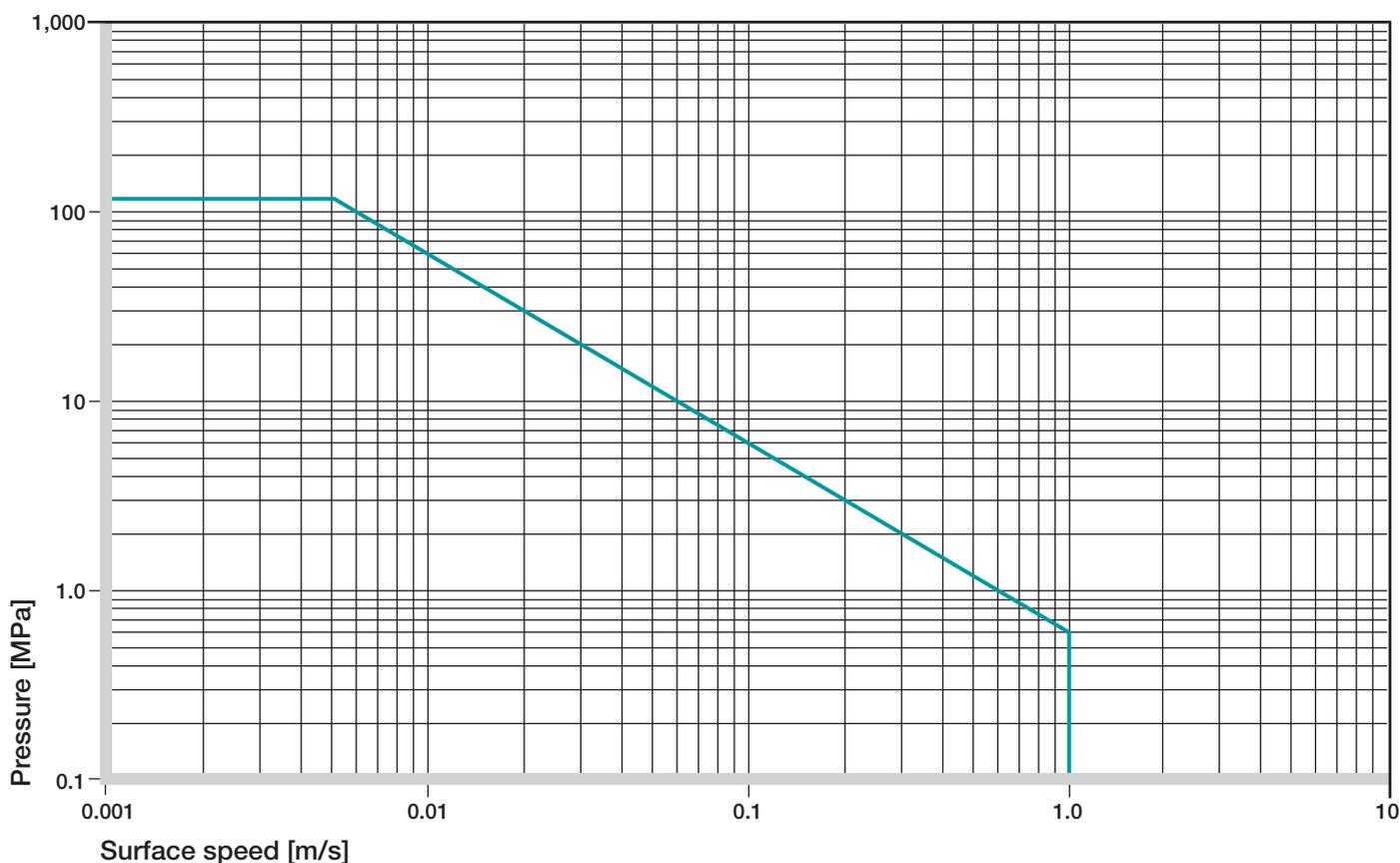
### Product range

on request



Material data			
General properties	Unit	iglidur® H2	Testing method
Density	g/cm <sup>3</sup>	1.69	
Colour		brown	
Max. moisture absorption at +23 °C/50 % r.h.	% weight	0.1	DIN 53495
Max. moisture absorption	% weight	0.2	
Coefficient of sliding friction, dynamic against steel	μ	0.07–0.3	
pv value, max. (dry)	MPa · m/s	0.58	
Mechanical properties			
Modulus of elasticity	MPa	10,300	DIN 53457
Tensile strength at +20 °C	MPa	210	DIN 53452
Compressive strength	MPa	109	
Max. recommended surface pressure (+20 °C)	MPa	110	
Shore D hardness		88	DIN 53505
Physical and thermal properties			
Max. long term application temperature	°C	+200	
Max. short term application temperature	°C	+240	
Min. application temperature	°C	-40	
Thermal conductivity	W/m · K	0.24	ASTM C 177
Coefficient of thermal expansion (at +23 °C)	K <sup>-1</sup> · 10 <sup>-5</sup>	4	DIN 53752
Electrical properties			
Specific volume resistance	Ωcm	> 10 <sup>15</sup>	DIN IEC 93
Surface resistance	Ω	> 10 <sup>14</sup>	DIN 53482

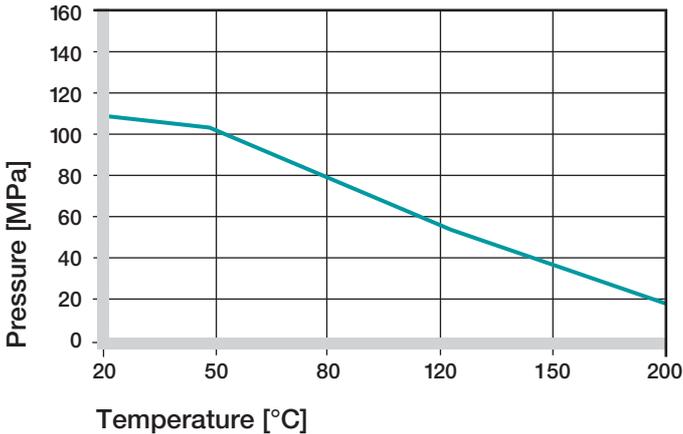
Table 01: Material data



Graph 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

## Mechanical Properties

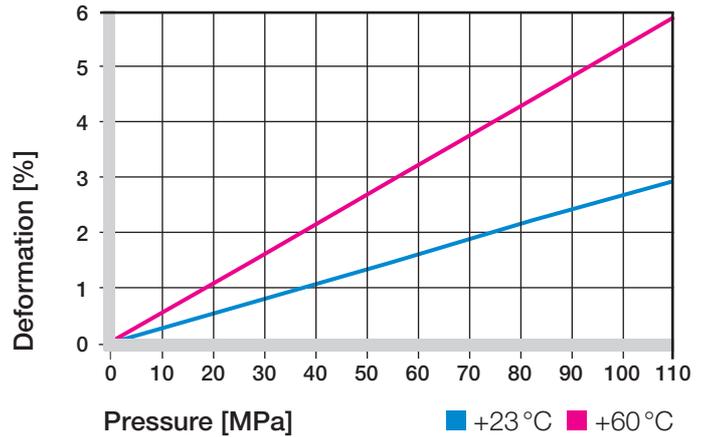
The recommended maximum surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this. With increasing temperatures, the compressive strength of iglidur® H2 plain bearings decreases. The Graph 02 shows this inverse relationship. However, at the longterm maximum temperature of +200 °C the permissible surface pressure is almost 20 MPa.



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

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/mm<sup>2</sup>, 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. Graph 03 shows the elastic deformation of iglidur® H2 during radial loading. At the recommended maximum surface pressure of 110 MPa the deformation is less than 3%. The values for tensile and compressive strength are higher than those of iglidur® H at room temperature.

► Surface Pressure, [page 43](#)



**Graph 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 45](#)

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 46](#)

# iglidur® H2 | Technical Data

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

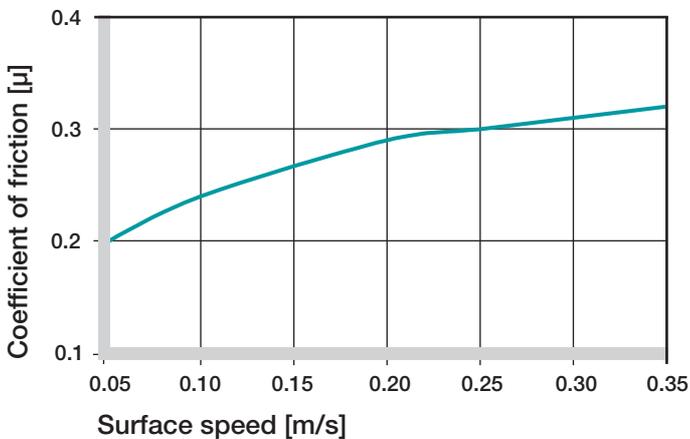
**Table 03: Temperature limits**

## Friction and Wear

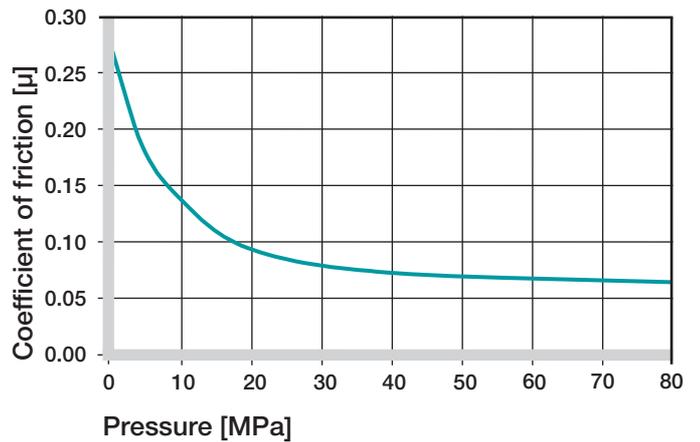
The coefficients of friction of iglidur® H2 plain bearings change with different surface speeds, loads and roughness, as indicated in the graphs 04-06. Paired with hardened steel shafts, the friction of the iglidur® H2 bearing reduces sharply and in the high load range attains (> 30 MPa) values of 0.07.

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 48**
- ▶ Wear Resistance, **page 49**



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



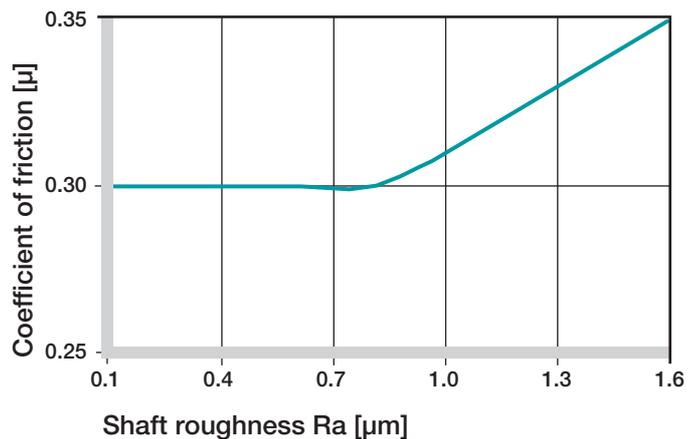
**Graph 05: Coefficient of friction as a function of the pressure, v = 0.01 m/s**

## Shaft Materials

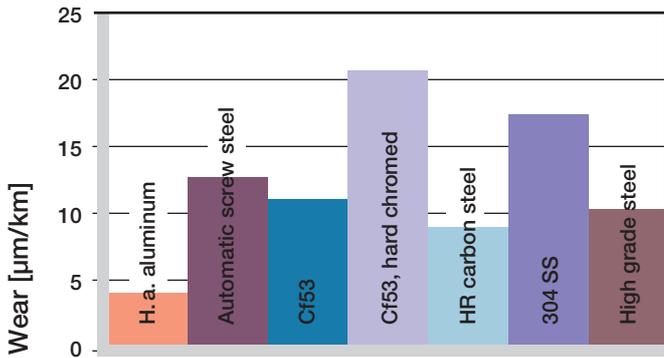
Regarding the wear resistance of combinations with iglidur® H2, it must be indicated once again that this bearing was developed for statically high mechanical stability. The wear resistance however does not attain, with none of the bearing-shaft combinations, the values of iglidur® H370 with the corresponding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

When the iglidur® H2 bearings are used, they should not be combined with hard-chromed shafts. Shafts made of Cf53 and V2A are essentially better, as is found in Graphs 08 and 09.

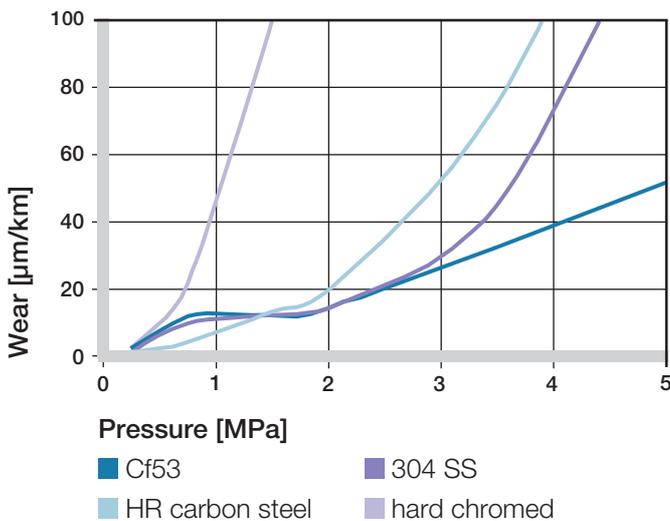
- ▶ Shaft Materials, **page 51**



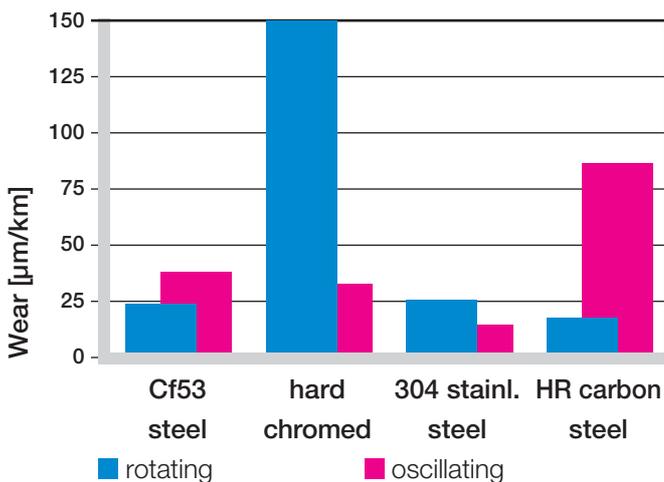
**Graph 06: Coefficient of friction as function of the shaft surface (Cf53 hardened and ground steel)**



Graph 07: Wear, rotating with different shaft materials, pressure  $p = 0.75 \text{ MPa}$ ,  $v = 0.5 \text{ m/s}$



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,  $p = 2 \text{ MPa}$

iglidur® H2	Greases	Fett	Oil	Water
C. o. f. $\mu$	0.07–0.30	0.09	0.04	0.04

Table 04: Coefficient of friction against steel ( $R_a = 1 \text{ }\mu\text{m}$ , 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 974

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 [ $+20 \text{ }^\circ\text{C}$ ]

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  $2 \cdot 10^2 \text{ Gy}$ .

### 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 <sup>15</sup> Ωcm
Surface resistance	> 10 <sup>14</sup> Ω

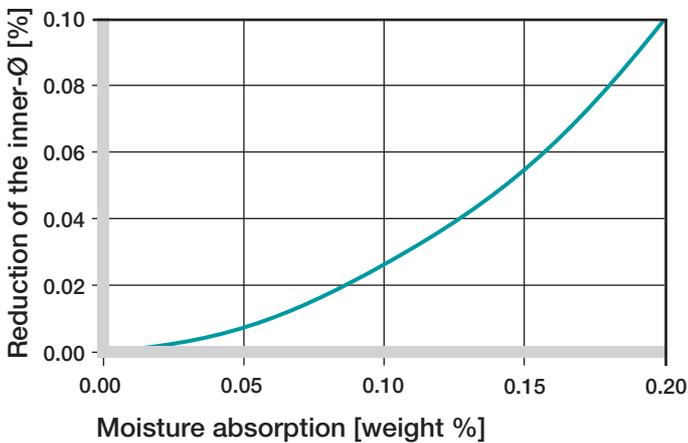
## Moisture Absorption

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. moisture absorption	0.2 % weight

Table 06: Moisture absorption



Graph 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 retainer, the inner diameter is adjusted to meet our specified tolerances.

► Testing Methods, page 55

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® H370 bearings in high volume applications.