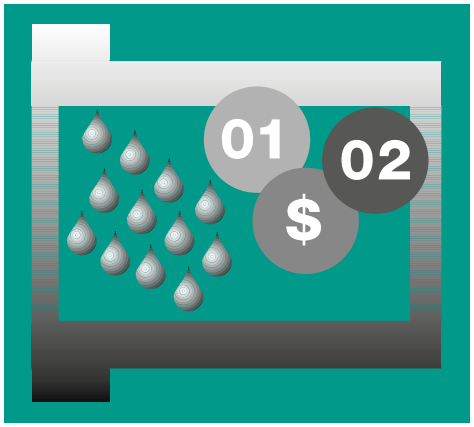

The low-cost specialist for chemicals and temperatures

Up to +200°C, most capable under static load

iglidur® H2

When to use it?

- For underwater applications
- When a cost-effective plain bearing for high temperatures is required
- For applications with fuels, oils, etc.

When not to use?

- When the highest wear resistance is required
  iglidur® H1, iglidur® H4, iglidur® W300
- When vibration dampening is necessary
  iglidur® B, iglidur® M250
- When neither increased temperatures nor media contact occur
  iglidur® GLW

Bearing technology | Plain bearing | iglidur® H2

Ø
–

Also available as:

Bar stock, round bar
Page 657

Bar stock, plate
Page 683

tribo-tape liner
Page 691

Piston rings
Page 581

Two hole flange bearings
Page 603

Moulded special parts
Page 624

igubal® spherical balls
Page 841

The low-cost specialist for chemicals and temperatures

Up to +200°C, most capable under static load

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

- Suitable for underwater applications
- Cost-effective
- Resistant to chemicals
- High temperature resistance
- Lubrication-free
- Maintenance-free

Typical application areas

- Automotive industry
- Actuator
- Bicycle industry

Descriptive technical specifications		
Wear resistance at +23°C	–	+
Wear resistance at +90°C	–	+
Wear resistance at +150°C	–	+
Low coefficient of friction	–	+
Low moisture absorption	–	+
Wear resistance under water	–	+
High media resistance	–	+
Resistant to edge pressures	–	+
Suitable for shock and impact loads	–	+
Resistant to dirt	–	+

Online product finder
www.igus.eu/iglidur-finder

Online service life calculation
www.igus.eu/iglidur-expert

iglidur® H2
+200°C
110MPa

Technical data

General properties			Testing method
Density	g/cm³	1.72	
Colour		brown	
Max. moisture absorption at +23°C and 50% r.h.	% weight	0.1	DIN 53495
Max. moisture absorption	% weight	0.2	
Coefficient of friction, dynamic, against steel	µ	0.07 – 0.30	
pv value, max. (dry)	MPa · m/s	0.58	
Mechanical properties			
Flexural modulus	MPa	10,300	DIN 53457
Flexural 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. application temperature long-term	°C	+200	
Max. application temperature short-term	°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 contact resistance	Ωcm	$> 10^{15}$	DIN IEC 93
Surface resistance	Ω	$> 10^{14}$	DIN 53482

–40°C up to +200°C

110MPa

V-0

RoHS-II

Table 01: Material properties

In applications with iglidur® H2 plain bearings, economical aspects are in focus. It is the first time that it is possible to offer such a high-performance bearing for high volume applications with these technical advantages at such a low price: temperatures up to +200°C, permitted surface pressure up to 110N/mm², and excellent chemical resistance. The iglidur® H2 plain bearings are self-lubricating and suitable for all motions.

Moisture absorption

Under standard climatic conditions, the moisture absorption of iglidur® H2 plain bearings is below 0.1% weight. The saturation limit in water is 0.2% weight. iglidur® H2 is an ideal material for wet environments.

Vacuum

In vacuum, any present moisture is released as vapour. The use in vacuum is generally possible.

Radiation resistance

iglidur® H2 withstands neutron and gamma particle radiation. Plain bearings made from iglidur® H2 are resistant up to a radiation intensity of $2 \cdot 10^2$Gy.

Resistance to weathering

iglidur® H2 plain bearings are continuously resistant to weathering. The material properties are only slightly affected. Possible discolorations are only superficial.

Mechanical properties

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

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

Surface pressure, page 41

Bearing technology | Plain bearing | iglidur® H2

Permissible surface speeds

During the development of iglidur® H2, costs and mechanical stability were the main considerations. 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 44

Temperature

iglidur® H2 is an extremely temperature-resistant material. The short-term maximum permissible temperature is +240°C and allows the use of iglidur® H2 plain bearings in applications where the bearings are not subjected to any additional load such as a paint drying process. The temperatures prevailing in the bearing system also have an influence on the wear. The wear rises with increasing temperatures. For temperatures over +110°C an additional securing is required.

Application temperatures, page 49
Additional securing, page 49

Friction and wear

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

Coefficient of friction and surfaces, page 47
Wear resistance, page 50

Shaft materials

Regarding the wear resistance of combinations with iglidur® H2, it must be indicated once again that this bearing was developed for statically high mechanical stability. The wear resistance however does not attain, with none of the bearing-shaft combinations, the values of iglidur® H370 with the corresponding shaft. When the iglidur® H2 bearings are used, they should not be combined with hard-chromed shafts. Shafts made from Cf53 steel and 304 stainless steel are essentially better, as is found in diagrams 06 and 07.

Shaft materials, page 52

Installation tolerances

iglidur® H2 plain bearings are standard bearings for shafts with h tolerance (recommended minimum h9). The bearings are designed for press-fit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, in standard cases the inner diameter automatically adjusts to the F10 tolerances. For particular dimensions the tolerance differs depending on the wall thickness (please see product range table).

Testing methods, page 57

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

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

Table 02: Chemical resistance

Chemical table, page 1636

		Rotating	Oscillating	linear
long-term	m/s	0.9	0.6	2.5
short-term	m/s	1.0	0.7	3.0

Table 03: Maximum surface speeds

	Dry	Greases	Oil	Water
Coefficient of friction μ	0.07 – 0.30	0.09	0.04	0.04

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

Ø d1 [mm]	Housing H7 [mm]		Plain bearing F10 [mm]		Shaft h9 [mm]	
0 – 3	+0.000	+0.010	+0.006	+0.046	–0.025	+0.000
> 3 – 6	+0.000	+0.012	+0.010	+0.058	–0.030	+0.000
> 6 – 10	+0.000	+0.015	+0.013	+0.071	–0.036	+0.000
> 10 – 18	+0.000	+0.018	+0.016	+0.086	–0.043	+0.000
> 18 – 30	+0.000	+0.021	+0.020	+0.104	–0.052	+0.000
> 30 – 50	+0.000	+0.025	+0.025	+0.125	–0.062	+0.000
> 50 – 80	+0.000	+0.030	+0.030	+0.150	–0.074	+0.000
> 80 – 120	+0.000	+0.035	+0.036	+0.176	–0.087	+0.000
> 120 – 180	+0.000	+0.040	+0.043	+0.203	+0.000	+0.100

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

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

Technical data

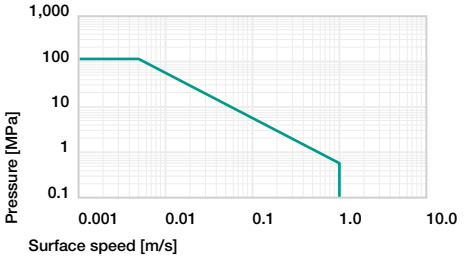

Diagram 01: Permissible pv values for iglidur® H2 plain bearings with a wall thickness of 1mm, dry operation against a steel shaft, at +20°C, mounted in a steel housing

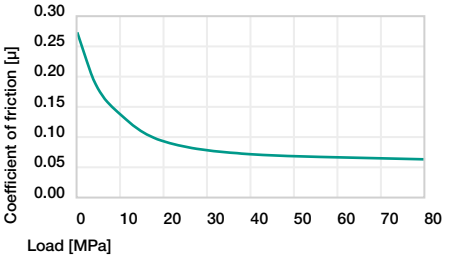

Diagram 05: Coefficient of friction as a function of the load, v = 0.01m/s

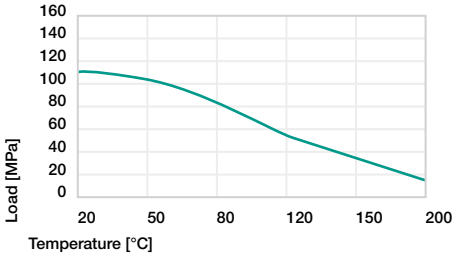

Diagram 02: Maximum recommended surface pressure as a function of temperature (110MPa at +20°C)

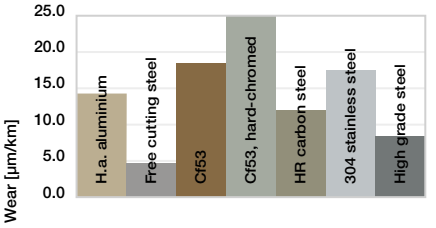

Diagram 06: Wear, rotating with different shaft materials, pressure, p = 1MPa, v = 0.3m/s

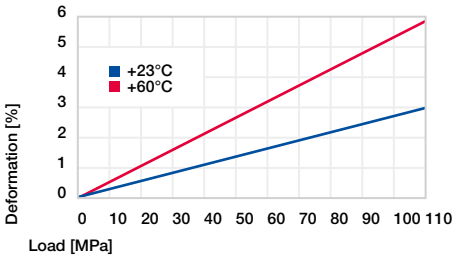

Diagram 03: Deformation under pressure and temperature

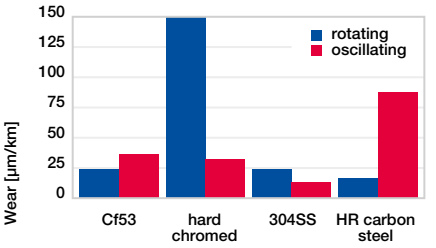

Diagram 07: Wear for rotating and oscillating applications with different shaft materials, p = 2MPa

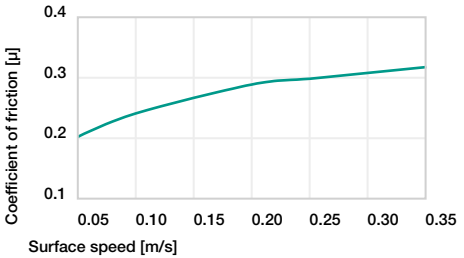

Diagram 04: Coefficient of friction as a function of the surface speed, p = 0.75MPa