**iglidur® Specialists | Advantages**

**High Resistance to Liquid Media**

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

- Lubricant and maintenance free
- Lightweight
- Good price / performance ratio
- Predictable service life

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

**iglidur® Specialists | Application Examples**

**High Resistance to Liquid Media**

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

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

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

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

Corrosion-resistant iglidur® bearings in use in a meat roller – also resistant to aggressive detergents.
**iglidur® Specialists** | **Selection** | **Main Properties**

**High Resistance to Liquid Media**

<table>
<thead>
<tr>
<th>Standard catalogue range</th>
<th>Bar stock</th>
<th>speedigus® material</th>
<th>Long life in dry operation</th>
<th>For high loads</th>
<th>Dirt resistant</th>
<th>Low coefficient of friction</th>
<th>Chemical resistant</th>
</tr>
</thead>
<tbody>
<tr>
<td>iglidur® H</td>
<td></td>
<td></td>
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<tr>
<td>iglidur® C500</td>
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<td></td>
<td></td>
<td></td>
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</table>

**Low water absorption**

- iglidur® H
- iglidur® H1
- iglidur® H370
- iglidur® C500
- iglidur® H2

**For under water use**

- iglidur® H
- iglidur® H1
- iglidur® H370
- iglidur® C500
- iglidur® H2

**Edge pressure**

- iglidur® H
- iglidur® H1
- iglidur® H370
- iglidur® C500
- iglidur® H2

**Vibrations dampening**

- iglidur® H
- iglidur® H1
- iglidur® H370
- iglidur® C500
- iglidur® H2

**Food suitable**

- iglidur® H
- iglidur® H1
- iglidur® H370
- iglidur® C500
- iglidur® H2

**Temperatures up to +60°C**

- iglidur® H
- iglidur® H1
- iglidur® H370
- iglidur® C500
- iglidur® H2

**Temperatures up to +150°C**

- iglidur® H
- iglidur® H1
- iglidur® H370
- iglidur® C500
- iglidur® H2

**Economic**

- iglidur® H
- iglidur® H1
- iglidur® H370
- iglidur® C500
- iglidur® H2

---

**Surface Pressure [MPa]**

<table>
<thead>
<tr>
<th>iglidur® H</th>
<th>iglidur® H1</th>
<th>iglidur® H370</th>
<th>iglidur® C500</th>
<th>iglidur® H2</th>
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</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

**Temperature [°C]**

<table>
<thead>
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<th>iglidur® H1</th>
<th>iglidur® H370</th>
<th>iglidur® C500</th>
<th>iglidur® H2</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

**Coefficient of friction [µ]**

<table>
<thead>
<tr>
<th>iglidur® H</th>
<th>iglidur® H1</th>
<th>iglidur® H370</th>
<th>iglidur® C500</th>
<th>iglidur® H2</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0.1</td>
<td>0.2</td>
<td>0.3</td>
<td>0.4</td>
</tr>
</tbody>
</table>

**Wear [µm/km]**

<table>
<thead>
<tr>
<th>iglidur® H</th>
<th>iglidur® H1</th>
<th>iglidur® H370</th>
<th>iglidur® C500</th>
<th>iglidur® H2</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>7</td>
<td>2</td>
<td>2</td>
<td>6</td>
</tr>
</tbody>
</table>

**Shaft material:**

- 1 = Cf53
- 3 = Alu. hc
- 5 = St37
- 7 = X90
- 2 = Cf53, Hard chromed
- 4 = Free-cutting Steel
- 6 = V2A
Universal – iglidur® H

- Underwater applications
- For high temperatures
- Resistant to chemicals
- Lubricant and maintenance free
- Standard range from stock
Suitable for temperatures up to +200 °C. Very low coefficients of friction when used with hardened shafts.

**When to use it?**
- 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
- When universal resistance to chemicals is needed

---

**iglidur® H | Technical Data**

**Material properties table**

<table>
<thead>
<tr>
<th>General properties</th>
<th>Unit</th>
<th>iglidur® H</th>
<th>Testing method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Density</td>
<td>g/cm³</td>
<td>1.71</td>
<td></td>
</tr>
<tr>
<td>Colour</td>
<td></td>
<td>grey</td>
<td></td>
</tr>
<tr>
<td>Max. moisture absorbtion at +23 °C/50% r.h.</td>
<td>% weight</td>
<td>0.1</td>
<td>DIN 53495</td>
</tr>
<tr>
<td>Max. water absorption</td>
<td>% weight</td>
<td>0.3</td>
<td></td>
</tr>
<tr>
<td>Coefficient of sliding friction, dynamic against steel</td>
<td>µ</td>
<td>0.07–0.2</td>
<td></td>
</tr>
<tr>
<td>pv value, max. (dry)</td>
<td>MPa · m/s</td>
<td>1.37</td>
<td></td>
</tr>
</tbody>
</table>

**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 · 10⁻⁵ 4 DIN 33752

**Electrical properties**

- Specific volume resistance: Ωcm < 10⁵ DIN IEC 93
- Surface resistance: Ω < 10¹⁰ DIN 33482

---

Table 01: Material properties table

<table>
<thead>
<tr>
<th>Pressure [MPa]</th>
<th>Surface Speed [m/s]</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.001</td>
<td>0.01</td>
</tr>
<tr>
<td>0.01</td>
<td>0.1</td>
</tr>
<tr>
<td>0.1</td>
<td>1.0</td>
</tr>
<tr>
<td>1.0</td>
<td>10.0</td>
</tr>
</tbody>
</table>

---

**Radiation Resistance**

Iglidur® H plain bearings are resistant to radiation up to an intensity of 2 · 10² Gy. They also withstand neutron and gamma particle radiation.

**UV Resistance**

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

**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

---

**Table 02: Chemical resistance**

---

**Vacuum**

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

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**typical application areas**

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

---

**iglidur® H | Universal**

High temperature and chemicals resistance
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. The recommended maximum surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.

- **Surface Pressure, page 63**

**Permissible Surface Speeds**

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

- **Surface Speed, page 65**

**Temperatures**

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. At temperatures over +120°C an additional securing is required.

- **Application Temperatures, page 66**
- **Additional securing, page 67**

**Friction and Wear**

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

- **Coefficients of Friction and Surfaces, page 68**
- **Wear Resistance, page 69**

**Shaft Materials**

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

- **Shaft Materials, page 71**

**Installation Tolerances**

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

**Testing Methods, page 75**

**Table 03: Maximum surface speeds**

<table>
<thead>
<tr>
<th>Pressure [MPa]</th>
<th>Rotating</th>
<th>Oscillating</th>
<th>Linear</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continuous</td>
<td>1</td>
<td>0.7</td>
<td>3</td>
</tr>
<tr>
<td>Short term</td>
<td>1.5</td>
<td>1.1</td>
<td>4</td>
</tr>
</tbody>
</table>

**Diagram 03: Deformation under pressure and temperature**

**Diagram 04: Coefficient of friction as a function of the pressure, \( v = 0.01 \text{ m/s} \)**

**Diagram 05: Coefficient of friction as a function of the pressure, \( v = 0.3 \text{ m/s} \)**

**Diagram 06: Wear, rotating with different shaft materials, \( p = 1 \text{ MPa} \)**

**Diagram 07: Wear for rotating and oscillating applications with different shaft materials, \( p = 2 \text{ MPa} \)**
iglidur® H | Product Range
Sleeve bearing (Form S)

* after pressfit. Testing methods ▶ page 75

Dimensions [mm]

<table>
<thead>
<tr>
<th>d1</th>
<th>d1- Tolerance*</th>
<th>d2</th>
<th>b1</th>
<th>Part No.</th>
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<tr>
<td>3.0</td>
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<td>6.0</td>
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<td>70.0</td>
<td>75.0</td>
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HSM HFM

Tolerance:

+0.016 +0.104 +0.125 +0.150

Order key

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<thead>
<tr>
<th>Type</th>
<th>Dimensions</th>
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</thead>
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<td>S</td>
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<td>-0304-03</td>
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Dimensions according to ISO 3547-1

and special dimensions

---

iglidur® H | Product Range
Flange bearing (Form F)

* after pressfit. Testing methods ▶ page 75

Dimensions [mm]

<table>
<thead>
<tr>
<th>d1</th>
<th>d1- Tolerance*</th>
<th>d2</th>
<th>b1</th>
<th>Part No.</th>
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<td>75.0</td>
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HSM HFM

Tolerance:

+0.016 +0.016 +0.016 +0.016

Order key

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
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<td>Form F</td>
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<tr>
<td>F</td>
<td>Material</td>
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<tr>
<td>M</td>
<td>h13</td>
</tr>
<tr>
<td>-0405-04</td>
<td></td>
</tr>
</tbody>
</table>

Dimensions according to ISO 3547-1

and special dimensions

---

Don’t find your size?
Do you need another length, other dimensions or tolerances? You need a particular design or alternative for your application? Please call us. igus® listens to your needs and provides you a solution in a very short time.

Even more dimensions from stock
More than 300 dimensions are now available. Search online for your required bearing.

www.igus.eu/iglidur-specialbearings
Long life operation – iglidur® H1

- High wear resistance in extreme ambient conditions
- Very low coefficient of friction
- High resistance to temperature and chemicals
- For underbonnet applications
- Lubricant and maintenance free
- Standard range from stock
iglidur® H1 is the first choice when long life is required in extreme environmental conditions. Extreme wear resistance is coupled with excellent resistance to temperature and chemicals — not only in the packaging and foodstuff industries or the automotive industry.

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

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

### Technical Data

#### General properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Unit</th>
<th>iglidur® H1</th>
<th>Testing method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Density</td>
<td>g/cm³</td>
<td>1.53</td>
<td></td>
</tr>
<tr>
<td>Colour</td>
<td></td>
<td>cream</td>
<td></td>
</tr>
<tr>
<td>Max. moisture absorption at +23°C/50% r.h.</td>
<td>% weight</td>
<td>0.1</td>
<td>DIN 53495</td>
</tr>
<tr>
<td>Max. water absorption</td>
<td>% weight</td>
<td>0.3</td>
<td></td>
</tr>
<tr>
<td>Coefficient of sliding friction, dynamic against steel</td>
<td>µ</td>
<td>0.06–0.20</td>
<td></td>
</tr>
<tr>
<td>pv value, max. (dry)</td>
<td>MPa · m/s</td>
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#### Mechanical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Unit</th>
<th>iglidur® H1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modulus of elasticity</td>
<td>MPa</td>
<td>2,800</td>
</tr>
<tr>
<td>Tensile strength at +20°C</td>
<td>MPa</td>
<td>55</td>
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<td>78</td>
</tr>
<tr>
<td>Max. recommended surface pressure (+20°C)</td>
<td>MPa</td>
<td>80</td>
</tr>
<tr>
<td>Shore D hardness</td>
<td></td>
<td>77</td>
</tr>
</tbody>
</table>

#### Physical and thermal properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Unit</th>
<th>iglidur® H1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. long term application temperature</td>
<td>°C</td>
<td>+200</td>
</tr>
<tr>
<td>Max. short term application temperature</td>
<td>°C</td>
<td>+240</td>
</tr>
<tr>
<td>Min. application temperature</td>
<td>°C</td>
<td>−40</td>
</tr>
<tr>
<td>Thermal conductivity</td>
<td>W/m · K</td>
<td>0.24</td>
</tr>
<tr>
<td>Coefficient of thermal expansion (at +23°C)</td>
<td>K⁻¹ · 10⁻⁵</td>
<td>6</td>
</tr>
</tbody>
</table>

#### Electrical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Unit</th>
<th>iglidur® H1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specific volume resistance</td>
<td>Ωcm</td>
<td>&gt; 10¹²</td>
</tr>
<tr>
<td>Surface resistance</td>
<td>Ω</td>
<td>&gt; 10¹¹</td>
</tr>
</tbody>
</table>

#### Chemical resistance

<table>
<thead>
<tr>
<th>Medium</th>
<th>Resistance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcohol</td>
<td>+</td>
</tr>
<tr>
<td>Hydrocarbons</td>
<td>+</td>
</tr>
<tr>
<td>Greases, oils without additives</td>
<td>+</td>
</tr>
<tr>
<td>Fuels</td>
<td>+</td>
</tr>
<tr>
<td>Diluted acids</td>
<td>+ to 0</td>
</tr>
<tr>
<td>Strong acids</td>
<td>+ to –</td>
</tr>
<tr>
<td>Diluted alkalines</td>
<td>+</td>
</tr>
<tr>
<td>Strong alkalines</td>
<td>+ to –</td>
</tr>
<tr>
<td>+ resistant</td>
<td>0 conditionally resistant</td>
</tr>
</tbody>
</table>
| – not resistant                | All data given at room temperature [+20°C]

#### Table 02: Chemical resistance

Table 01: Material properties table

<table>
<thead>
<tr>
<th>Pressure [MPa]</th>
<th>Surface Speed [m/s]</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.001</td>
<td>0.01</td>
</tr>
<tr>
<td>0.01</td>
<td>0.1</td>
</tr>
<tr>
<td>0.1</td>
<td>1.0</td>
</tr>
<tr>
<td>1.0</td>
<td>10.0</td>
</tr>
<tr>
<td>10.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Diagram 01: Permissible pv values for iglidur® H1 running dry against a steel shaft, at +20°C

### Typical application areas

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

### Additional information

- Available from stock
- Detailed information about delivery time online
- Block pricing online
- No minimum order value. From batch size 1
- Ø 3–40 mm
- more dimensions on request
- Max. +200 °C
- min. –40 °C
- Water elements, even if only little, should be out gassed for use in vacuum. The use in vacuum is generally possible.

---

3D-CAD files, prices and delivery time ➤ www.igus.eu/h1

Lifetime calculation, configuration and more ➤ www.igus.eu/h1

---

292 293
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. The recommended maximum surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.

**Permissible Surface Speeds**

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

**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 load. Among the iglidur® H materials, iglidur® H1 material has the greatest elasticity. This must be considered for applications with high pressure or strong edge pressure.

**Temperature**

iglidur® H1 is an extremely temperature-resistant material. 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. At temperatures over +80 °C an additional securing is required.

**Diagram 03: Deformation under pressure and temperature**

**Friction and Wear**

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

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

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

**Diagram 06: Wear, rotating with different shaft materials, p = 2 MPa**

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

**Shaft Materials**

Diagrams 06 and 07 display a summary of the results of tests with different shaft materials conducted with iglidur® H1 plain bearings in the igus® laboratory. The iglidur® H1 plain bearings display excellent wear behavior in combination with a wide variety of shaft materials both in rotating and pivoting operations. On the V2A shafts in particular, iglidur® H1 attains very low wear rates both in rotating and pivoting operations. Even on hard-coated aluminium shafts, iglidur® H1 plain bearings attain high service life in rotating applications with low to medium loads.

**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).

**Table 03: Maximum surface speeds**

<table>
<thead>
<tr>
<th>m/s</th>
<th>Rotating</th>
<th>Oscillating</th>
<th>Linear</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continuous</td>
<td>2</td>
<td>1.0</td>
<td>5</td>
</tr>
<tr>
<td>Short term</td>
<td>2.5</td>
<td>1.5</td>
<td>7</td>
</tr>
</tbody>
</table>

**Diagram 06: Wear Resistance, page 69**

**Table 04: Coefficient of friction against steel (Ra = 1 µm, V2A steel, p = 2 MPa)**

<table>
<thead>
<tr>
<th>Shaft Material</th>
<th>Dry</th>
<th>Greases</th>
<th>Oil</th>
<th>Water</th>
</tr>
</thead>
<tbody>
<tr>
<td>C. o. f. µ</td>
<td>0.06-0.20</td>
<td>0.09</td>
<td>0.04</td>
<td>0.04</td>
</tr>
</tbody>
</table>

**Table 05: Important tolerances for plain bearings**

<table>
<thead>
<tr>
<th>Diameter d1</th>
<th>Shaft h9</th>
<th>iglidur® H1</th>
<th>Housing H7</th>
</tr>
</thead>
<tbody>
<tr>
<td>up to 3</td>
<td>+0.025</td>
<td>+0.006 +0.046</td>
<td>+0.010</td>
</tr>
<tr>
<td>3 to 6</td>
<td>+0.030</td>
<td>+0.010 +0.058</td>
<td>+0.012</td>
</tr>
<tr>
<td>6 to 10</td>
<td>+0.036</td>
<td>+0.013 +0.071</td>
<td>+0.015</td>
</tr>
<tr>
<td>10 to 18</td>
<td>+0.043</td>
<td>+0.016 +0.086</td>
<td>+0.018</td>
</tr>
<tr>
<td>18 to 30</td>
<td>+0.052</td>
<td>+0.020 +0.104</td>
<td>+0.021</td>
</tr>
<tr>
<td>30 to 50</td>
<td>+0.062</td>
<td>+0.025 +0.125</td>
<td>+0.025</td>
</tr>
<tr>
<td>&gt; 50 to 80</td>
<td>+0.074</td>
<td>+0.030 +0.150</td>
<td>+0.030</td>
</tr>
</tbody>
</table>

**Table 06: Wear for rotating and oscillating applications according to ISO 3547-1 after pressfit**
**iglidur® H1 | Product Range**

**Sleeve bearing (Form S)**

![Image of a sleeve bearing](image)

**Order key**

- **Type**
  - H1
  - S
- **Dimensions**
  - H1SM-0304-05

**Dimensions [mm]**

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

* after pressfit. Testing methods [page 75]

**iglidur® H1 | Product Range**

**Flange bearing (Form F)**

![Image of a flange bearing](image)

**Order key**

- **Type**
  - H1
  - F
- **Dimensions**
  - H1FM-0304-05

**Dimensions [mm]**

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

* after pressfit. Testing methods [page 75]

---

**Don't find your size?**

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

---

**iglidur® Material**

- **Form S**
  - Metric
- **Form F**
  - Metric

**Dimensions according to ISO 3547-1 and special dimensions**

- **Thickness < 1 mm, chamfer = 20°**
- **Chamfer in relation to the d1**

---

**Lifetime calculation, configuration and more** [www.igus.eu/h1](http://www.igus.eu/h1)

**3D-CAD files, prices and delivery time** [www.igus.eu/h1](http://www.igus.eu/h1)
Under water – iglidur® H370

- Wear-resistant – especially under water
- High temperature resistance –40°C to +200°C
- High resistance to chemicals
- Lubricant and maintenance free
- Standard range from stock
iglidur® H370 is the right solution for underwater applications. The bearings absorb extremely high loads, resist to chemicals and can be used at temperatures up to +200 °C.

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

**When not to use it?**
- When mechanical reaming of the wall surface is necessary
  - iglidur® M250, page 111
- When high wear resistance in temperatures is required
  - iglidur® H1, page 291
- For use in dirty surroundings
  - iglidur® Z, page 263
- When a cost-efficient, large-volume solution is required
  - iglidur® H2, page 315

---

### Technical Data

<table>
<thead>
<tr>
<th>General properties</th>
<th>Unit</th>
<th>iglidur® H370</th>
<th>Testing method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Density</td>
<td>g/cm³</td>
<td>1.72</td>
<td>Din S3495</td>
</tr>
<tr>
<td>Colour</td>
<td>grey</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. moisture absorption at +23 °C/50% r.h.</td>
<td>% weight</td>
<td>0.1</td>
<td>Din S3495</td>
</tr>
<tr>
<td>Max. water absorption</td>
<td>% weight</td>
<td>0.1</td>
<td></td>
</tr>
<tr>
<td>Coefficient of sliding friction, dynamic against steel</td>
<td>µ</td>
<td>0.07–0.17</td>
<td></td>
</tr>
<tr>
<td>pv value, max. (dry)</td>
<td>MPa · m/s</td>
<td>0.74</td>
<td></td>
</tr>
</tbody>
</table>

**Mechanical properties**
- Modulus of elasticity: MPa 11,100 Din S3457
- Tensile strength at +20 °C: MPa 135 Din S3452
- Compressive strength: MPa 79
- Max. recommended surface pressure (+20 °C): MPa 75
- Shore D hardness: 82 Din S3505

**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 · 10⁻⁵ 5 Din S3752

**Electrical properties**
- Specific volume resistance: Ωcm < 10⁵ Din IEC 93
- Surface resistance: Ω < 10⁵ Din S3482

* The good conductivity of this plastic material under certain circumstances can favour the generation of corrosion on the metallic contact components.

---

**Material properties table**

<table>
<thead>
<tr>
<th>Pressure [MPa]</th>
<th>Surface Speed [m/s]</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.01</td>
<td>100.0</td>
</tr>
<tr>
<td>0.1</td>
<td>10.0</td>
</tr>
<tr>
<td>0.5</td>
<td>1.0</td>
</tr>
<tr>
<td>1.0</td>
<td>0.1</td>
</tr>
<tr>
<td>10.0</td>
<td>0.01</td>
</tr>
</tbody>
</table>

**Diagram 01:** Permissible pv values for iglidur® H370 running dry against a steel shaft, at +20 °C

**Moisture Absorption**

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

**Vacuum**

In vacuum, moisture is released as a vapour. Due to its low moisture absorption, use in vacuum is possible.
iglidur® H370 is an advanced development of the iglidur® H series. The material is characterised by particularly low water absorption and clearly enhanced wear resistance. With regard to the mechanical and thermal characteristic values, iglidur® H370 shows the same features as iglidur® H.

**Mechanical Properties**

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

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

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

Surface Pressure, page 63

**Permissible Surface Speeds**

The maximum permitted surface speed is dependent on whether the temperature in the bearing location rises strongly or not. iglidur® H370 is suitable for surface speeds up to 1.2 m/s (rotating) and 4 m/s (linear) respectively. The maximum values stated in table 03 are valid only with minimum pressure loads and are often not attained in practice.

Surface Speed, page 65

**Diagram 03: Deformation under pressure and temperature**

Diagram 03: Deformation under pressure and temperature

**Temperatures**

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

Application Temperatures, page 66

**Additional securing, page 67**

**Diagram 04: Coefficient of friction as a function of the pressure, \( v = 0.01 \text{ m/s} \)**

**Diagram 05: Coefficient of friction as a function of the surface speed, \( p = 0.75 \text{ MPa} \)**

**Friction and Wear**

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

Coefficients of Friction and Surfaces, page 68

Wear Resistance, page 69

**Diagram 06: Wear, rotating with different shaft materials, \( p = 1 \text{ MPa} \), \( v = 0.3 \text{ m/s} \)**

**Diagram 07: Wear for rotating and oscillating applications with different shaft materials, \( p = 2 \text{ MPa} \)**

**Shaft Materials**

Diagrams 06 and 07 show the test results of iglidur® H370 bearings running against various shaft materials. For loads up to 2 MPa in rotating applications, the hardened shaft is the best material for the iglidur® H370 bearings. The high wear values with V2A shafts, which due to their extremely smooth surfaces are prone to the stick-slip effect, are striking. Despite same values in the lowest range, the St37 shaft shows already better values than Cf53 with loads of 2 MPa. On the other hand, the V2A shaft shows a clear advantage in pivoting movements.

Shaft Materials, page 71

**Installation Tolerances**

iglidur® H370 plain bearings are standard bearings for shafts with h-tolerance (recommended minimum h9). The bearings are designed for pressfit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, in standard cases the inner diameter automatically adjusts to the F10 tolerances. For particular dimensions the tolerance differs depending on the wall thickness (please see product range table).

Testing Methods, page 75

**Diagram 08: Important tolerances for plain bearings**

**Table 05: Important tolerances for plain bearings**

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

**Table 03: Maximum surface speeds**

**Table 02: Technical Data**

**Table 01: Maximum surface speeds**

<table>
<thead>
<tr>
<th>Pressure [MPa]</th>
<th>Temperature [°C]</th>
<th>Deformation [%]</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>+23°C</td>
<td>0.0</td>
</tr>
<tr>
<td>75</td>
<td>+60°C</td>
<td>2.5</td>
</tr>
</tbody>
</table>

**Diagram 03:**

Diagram 03: Deformation under pressure and temperature

**Diagram 04:**

Diagram 04: Coefficient of friction as a function of the surface speed, \( p = 0.75 \text{ MPa} \)

**Diagram 05:**

Diagram 05: Coefficient of friction as a function of the pressure, \( v = 0.01 \text{ m/s} \)

**Diagram 06:**

Diagram 06: Wear, rotating with different shaft materials, \( p = 1 \text{ MPa} \), \( v = 0.3 \text{ m/s} \)

**Diagram 07:**

Diagram 07: Wear for rotating and oscillating applications with different shaft materials, \( p = 2 \text{ MPa} \)

**Diagram 08:**

Diagram 08: Important tolerances for plain bearings
**iglidur® H370 | Product Range**

**Sleeve bearing (Form S)**

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

- **Dimensions according to ISO 3547-1 and special dimensions**

- **Thicknes < 1 mm, chamfer = 20°**
- **Chamfer in relation to the d1**

<table>
<thead>
<tr>
<th>d1 [mm]</th>
<th>Ø 1–6</th>
<th>Ø 6–12</th>
<th>Ø 12–30</th>
<th>Ø &gt; 30</th>
</tr>
</thead>
<tbody>
<tr>
<td>f [mm]</td>
<td>0.3</td>
<td>0.5</td>
<td>0.8</td>
<td>1.2</td>
</tr>
</tbody>
</table>

- **d1 [mm]**
  - Ø 1–6
  - Ø 6–12
  - Ø 12–30
  - Ø > 30

- **Thickness after pressfit. Testing methods**

- **Dimensions [mm]**

<table>
<thead>
<tr>
<th>d1</th>
<th>d1-</th>
<th>d2</th>
<th>b1</th>
<th>Part No.</th>
</tr>
</thead>
<tbody>
<tr>
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<td>+0.006</td>
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<td>4.0</td>
<td>H370SM-0405-04</td>
</tr>
<tr>
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<td>+0.058</td>
<td>6.0</td>
<td>5.0</td>
<td>H370SM-0507-05</td>
</tr>
<tr>
<td>6.0</td>
<td>+0.104</td>
<td>8.0</td>
<td>6.0</td>
<td>H370SM-0608-06</td>
</tr>
<tr>
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<td>10.0</td>
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<tr>
<td>8.0</td>
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</tr>
<tr>
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<td>10.0</td>
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<tr>
<td>15.0</td>
<td>+0.015</td>
<td>17.0</td>
<td>15.0</td>
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</tbody>
</table>

- **after pressfit. Testing methods**

---

**iglidur® H370 | Product Range**

**Flange bearing (Form F)**

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

- **Dimensions according to ISO 3547-1 and special dimensions**

- **Thicknes < 1 mm, chamfer = 20°**
- **Chamfer in relation to the d1**

<table>
<thead>
<tr>
<th>d1 [mm]</th>
<th>Ø 1–6</th>
<th>Ø 6–12</th>
<th>Ø 12–30</th>
<th>Ø &gt; 30</th>
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</thead>
<tbody>
<tr>
<td>f [mm]</td>
<td>0.3</td>
<td>0.5</td>
<td>0.8</td>
<td>1.2</td>
</tr>
</tbody>
</table>

- **Dimensions [mm]**

<table>
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<tr>
<th>d1</th>
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<th>d2</th>
<th>b1</th>
<th>b2</th>
<th>Part No.</th>
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<tr>
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<td>3.0</td>
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<td></td>
</tr>
<tr>
<td>4.0</td>
<td>+0.010</td>
<td>5.5</td>
<td>4.0</td>
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<td>5.0</td>
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<td>6.0</td>
<td>+0.104</td>
<td>8.0</td>
<td>6.0</td>
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<td></td>
</tr>
<tr>
<td>8.0</td>
<td>+0.200</td>
<td>10.0</td>
<td>8.0</td>
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<td></td>
</tr>
<tr>
<td>8.0</td>
<td>+0.013</td>
<td>10.0</td>
<td>10.0</td>
<td>H370SM-0810-10</td>
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<tr>
<td>10.0</td>
<td>+0.071</td>
<td>12.0</td>
<td>10.0</td>
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<td>10.0</td>
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<td>10.0</td>
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<tr>
<td>10.0</td>
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<td>10.0</td>
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<tr>
<td>15.0</td>
<td>+0.015</td>
<td>17.0</td>
<td>15.0</td>
<td>H370SM-1517-15</td>
<td></td>
</tr>
</tbody>
</table>

- **after pressfit. Testing methods**

---

**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.

More information:
- **www.igus.eu/h370**
- **www.igus.eu/iglidur-specialbearings**

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**3D-CAD files, prices and delivery time**

More information:
- **www.igus.eu/h370**

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**Lifetime calculation, configuration and more**

More information:
- **www.igus.eu/h370**

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**Application? Please call us. igus® listens to your needs and provides you a solution in a very short time.**

**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.**

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**www.igus.eu/h370**

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**www.igus.eu/h370**

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**www.igus.eu/h370**
Up to +250 °C, wear resistant – iglidur® C500

- High resistance to media and temperature
- Resistant to water vapor
- Good coefficients of friction and wear
- Lubricant and maintenance free
- Standard range from stock
iglidur® C500 can be used up to +250 °C and is extremely resistant to media – even in cleaning processes using hydrogen peroxide – it is also wear resistant and has low coefficients of friction. Also suitable for various special designs. The colour represents extreme environmental conditions.

+ When to use it?
- When you need an extremely media-resistant bearing with high flexibility
- When you need a very wear-resistant and media resistant bearing

- When not to use it?
- When you need an FDA compliant high temperature material
- When you need a media-resistant high-temperature bearing with the largest possible range of dimensions

Material properties table

<table>
<thead>
<tr>
<th>General properties</th>
<th>Unit</th>
<th>iglidur® C500</th>
<th>Testing method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Density</td>
<td>g/cm³</td>
<td>1.37</td>
<td></td>
</tr>
<tr>
<td>Colour</td>
<td></td>
<td>magenta</td>
<td></td>
</tr>
<tr>
<td>Max. moisture absorption at +23 °C/50% r.h.</td>
<td>% weight</td>
<td>0.3</td>
<td>DIN 53495</td>
</tr>
<tr>
<td>Max. water absorption</td>
<td>% weight</td>
<td>0.5</td>
<td></td>
</tr>
<tr>
<td>Coefficient of sliding friction, dynamic against steel</td>
<td>µ</td>
<td>0.07–0.19</td>
<td></td>
</tr>
<tr>
<td>pv value, max. (dry)</td>
<td>MPa · m/s</td>
<td>0.7</td>
<td></td>
</tr>
<tr>
<td>Mechanical properties</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Modulus of elasticity</td>
<td>MPa</td>
<td>3,000</td>
<td>DIN 53457</td>
</tr>
<tr>
<td>Tensile strength at +20 °C</td>
<td>MPa</td>
<td>100</td>
<td>DIN 53452</td>
</tr>
<tr>
<td>Compressive strength</td>
<td>MPa</td>
<td>110</td>
<td></td>
</tr>
<tr>
<td>Max. recommended surface pressure (+20 °C)</td>
<td>MPa</td>
<td>110</td>
<td></td>
</tr>
<tr>
<td>Shore D hardness</td>
<td></td>
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<tr>
<td>Thermal conductivity</td>
<td>W/m · K</td>
<td>0.24</td>
<td>ASTM C 177</td>
</tr>
<tr>
<td>Coefficient of thermal expansion (at +23 °C)</td>
<td>K⁻¹ · 10⁻⁵</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Electrical properties</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Specific volume resistance</td>
<td>Ωcm</td>
<td>&gt; 10¹⁴</td>
<td>DIN IEC 93</td>
</tr>
<tr>
<td>Surface resistance</td>
<td>Ω</td>
<td>&gt; 10¹⁴</td>
<td>DIN 3482</td>
</tr>
</tbody>
</table>

Diagram 01: Permissible pv values for iglidur® C500 running dry against a steel shaft, at +20 °C

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 · 10² Gy.

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

Medium Resistance

<table>
<thead>
<tr>
<th>Medium</th>
<th>Resistance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcohol</td>
<td>+</td>
</tr>
<tr>
<td>Hydrocarbons</td>
<td>+</td>
</tr>
<tr>
<td>Greases, oils without additives</td>
<td>+</td>
</tr>
<tr>
<td>Fuels</td>
<td>+</td>
</tr>
<tr>
<td>Diluted acids</td>
<td>+</td>
</tr>
<tr>
<td>Strong acids</td>
<td>+</td>
</tr>
<tr>
<td>Diluted alkalines</td>
<td>+</td>
</tr>
<tr>
<td>Strong alkalines</td>
<td>+</td>
</tr>
<tr>
<td>+ resistant 0 conditionally resistant – not resistant All data given at room temperature [+20 °C]</td>
<td></td>
</tr>
</tbody>
</table>

Table 02: Chemical resistance

When in vacuum, the iglidur® C500 plain bearings release moisture as a vapour. Due to its low moisture absorption, use in a vacuum is possible.

Vacuum

Available from stock
Detailed information about delivery time online
Block pricing online
No minimum order value. From batch size 1
Typical application areas
- Plant construction
- Valves
- Chemical industry
- Process technology

iglidur® C500 | Up to +250 °C, wear resistant
High resistance to media and temperature
iglidur® C500 is a member of the family of extremely media and temperature-resistant iglidur® materials X, X6 and A500. This material is characterised by improved wear resistance and increased design flexibility – for instance as a piston ring.

**Mechanical Properties**

With increasing temperatures, the compressive strength of iglidur® C500 plain bearings decreases. 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.

- **Surface Pressure**: page 65
- **Application Temperatures**: page 66
- **Additional securing**: page 67

**Permissible Surface Speeds**

The maximum allowable sliding speed is based on the friction heat generated at the bearing surface. The temperature should only be permitted to increase to a value that will ensure a sustainable use of the bearing with respect to wear and dimensional integrity. The maximum values stated in table 03 are valid only with minimum pressure loads and are often not attained in practice.

- **Surface Speed**: page 66
- **Wear Resistance**: page 69

**Temperatures**

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

- **Application Temperatures**: page 66
- **Additional securing**: page 67

**Friction and Wear**

The coefficients of friction and wear in iglidur® C500 are more favorable than in the other high temperature materials iglidur® X and A500. The friction value increases moderately as the sliding speed increases. The friction value initially drops rapidly to less than 0.1 under loads of up to approx. 20 MPa, and then only marginally increases as loads continue to increase. Friction and wear also depend on the friction and wear of both friction and wear. The ideal shaft has an average surface finish of Ra = 0.6 to 0.8 µm.

- **Friction and Wear**: page 66

**Shaft Materials**

Diagram 06 shows the test results of iglidur® C500 bearings running against various shaft materials. Using the example of a rotating motion at 1 MPa and a speed of 0.3 m/s, it becomes apparent that iglidur® C500 has very consistent wear characteristics across a variety of shaft types. This wear rate spikes upward in combination with free-machining steel, and, notably so, spikes downward in combination with HC Aluminium. The wear under rotational loads is higher, specifically with increasing radial loads as compared to pivoting motions (Diagram 07).
### iglidur® C500 | Product Range

#### Sleeve bearing (Form S)

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimensions</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>C500</td>
<td>S</td>
<td>Metric</td>
</tr>
<tr>
<td></td>
<td>M-0608-06</td>
<td></td>
</tr>
</tbody>
</table>

**Order key**

- **Type**: Form S, Metric
- **Dimensions**: C500SM-0608-06
- **Material**: iglidur®

**Dimensions [mm]**

<table>
<thead>
<tr>
<th>d1</th>
<th>d1-Tolerance</th>
<th>d2</th>
<th>b1</th>
<th>Part No.</th>
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<tbody>
<tr>
<td>6.0</td>
<td>+0.010</td>
<td>8.0</td>
<td>6.0</td>
<td>C500SM-0608-06</td>
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<tr>
<td>8.0</td>
<td>+0.013</td>
<td>10.0</td>
<td>10.0</td>
<td>C500SM-0810-10</td>
</tr>
<tr>
<td>10.0</td>
<td>+0.013</td>
<td>12.0</td>
<td>10.0</td>
<td>C500SM-1012-10</td>
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<td>+0.016</td>
<td>14.0</td>
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<td>C500SM-1214-12</td>
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<tr>
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<tr>
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</table>

**Note**: thickness < 1 mm, chamfer = 20°

#### Flange bearing (Form F)

<table>
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<th>Type</th>
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<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>C500</td>
<td>F</td>
<td>Metric</td>
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<tr>
<td></td>
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</tbody>
</table>

**Order key**

- **Type**: Form F, Metric
- **Dimensions**: C500FM-0608-06
- **Material**: iglidur®

**Dimensions [mm]**

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<th>d3</th>
<th>b1</th>
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<td>1.0</td>
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<td>20.0</td>
<td>12.0</td>
<td>1.0</td>
<td>C500FM-1214-12</td>
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<td>+0.016</td>
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<td>1.0</td>
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<td>30.0</td>
<td>21.5</td>
<td>1.5</td>
<td>C500FM-2023-21</td>
</tr>
</tbody>
</table>

**Note**: thickness < 1 mm, chamfer = 20°

---

**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.

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312  Lifetime calculation, configuration and more ► www.igus.eu/c500

3D-CAD files, prices and delivery time ► www.igus.eu/c500
Low-cost – iglidur® H2

- Can be used underwater
- Cost-effective
- Resistant to chemicals
- For high temperatures
- Lubricant and maintenance free
For application with high temperature requirements. Can be conditionally used in dry operation; excellent properties with additional lubrication.

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

**When not to use it?**
- When the highest wear resistance is required
  - iglidur® H1, page 291
  - iglidur® H4, page 445
  - iglidur® W300, page 121
- When vibration dampening is necessary
  - iglidur® B, page 485
  - iglidur® M250, page 111
- When neither increased temperatures nor media contact occur
  - iglidur® GLW, page 173

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**Material properties table**

<table>
<thead>
<tr>
<th>General properties</th>
<th>Unit</th>
<th>iglidur® H2</th>
<th>Testing method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Density</td>
<td>g/cm³</td>
<td>1.72</td>
<td></td>
</tr>
<tr>
<td>Colour</td>
<td>brown</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. moisture absorbtion at +23°C/50% r.h.</td>
<td>% weight</td>
<td>0.1</td>
<td>DIN 53495</td>
</tr>
<tr>
<td>Max. water absorbtion</td>
<td>% weight</td>
<td>0.2</td>
<td></td>
</tr>
<tr>
<td>Coefficient of sliding friction, dynamic against steel</td>
<td>μ</td>
<td>0.07–0.3</td>
<td></td>
</tr>
<tr>
<td>pv value, max. (dry)</td>
<td>MPa · m/s</td>
<td>0.58</td>
<td></td>
</tr>
</tbody>
</table>

**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 · 10⁻⁵ | 4 | DIN 53752 |

**Electrical properties**

- Specific volume resistance | Ωcm | > 10¹⁵ | DIN IEC 93 |
- Surface resistance | Ω | > 10¹⁴ | DIN 53482 |

**Chemical resistance**

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

**Vacuum**

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

**Radioactive resistance**

Igli dur® H2 withstands neutron and gamma particle radiation. Plain bearings made of iglidur® H2 are resistant to radiation up to an intensity of 2 · 10² Gy.

**UV resistance**

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

**Mechanical Properties**

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

**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.

<table>
<thead>
<tr>
<th>Surface Speed, page 65</th>
</tr>
</thead>
<tbody>
<tr>
<td>m/s Rotating Oscillating Linear</td>
</tr>
<tr>
<td>Continuous 0.9 0.6 2.5</td>
</tr>
<tr>
<td>Short term 1 0.7 3</td>
</tr>
</tbody>
</table>

**Temperatures**

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

**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 load. 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.

**Friction and Wear**

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

**Diagram 03: Deformation under pressure and temperature**

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

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

**Diagram 06: Wear, rotating with different shaft materials, pressure p = 1 MPa, v = 0.3 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 06 and 07.

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

**Installation Tolerances**

iglidur® H2 plain bearings are standard bearings for shafts with h-tolerance (recommended minimum h8). 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).

**Diagram 08: Wear for rotating and oscillating applications with different shaft materials, p = 2 MPa**

**Diagram 09: Coefficient of friction as a function of the pressure, v = 0.01 m/s**

**Diagram 10: Wear for rotating and oscillating applications with different shaft materials, pressure p = 1 MPa, v = 0.3 m/s**

**Diagram 11: Wear, rotating with different shaft materials, pressure p = 1 MPa, v = 0.3 m/s**

**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® H4 bearings in high volume applications.