






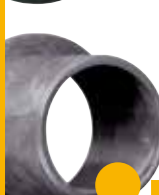



-  Ideal for plastic shafts –
iglidur® J260
▶ From page 183
-  Runs up to three time longer
than iglidur® J –
iglidur® J3
▶ From page 191
-  High temperatures, versatile –
iglidur® J350
▶ From page 199
-  General purpose endurance runner –
iglidur® W360
▶ From page 207
-  For high speeds –
iglidur® L250
▶ From page 215
-  Low-cost –
iglidur® R
▶ From page 223
-  Low-cost material with silicone –
iglidur® D
▶ From page 231
-  Specially for aluminium shafts –
iglidur® J200
▶ From page 237



For long service life


Every iglidur® bearing is naturally optimised for wear, but the materials in this group are characterised by, like the standards iglidur® J and iglidur® W300, particularly low rates of wear, or in other words a long service life. Besides the absolute service life and price level, they differ inter alia in terms of potential temperature and load ranges, and the suitability in conjunction with special shaft materials.

- Lubrication and maintenance free
- Low weight
- Good price/performance ratio
- Predictable service life

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

 max. +180 °C
min. -100 °C

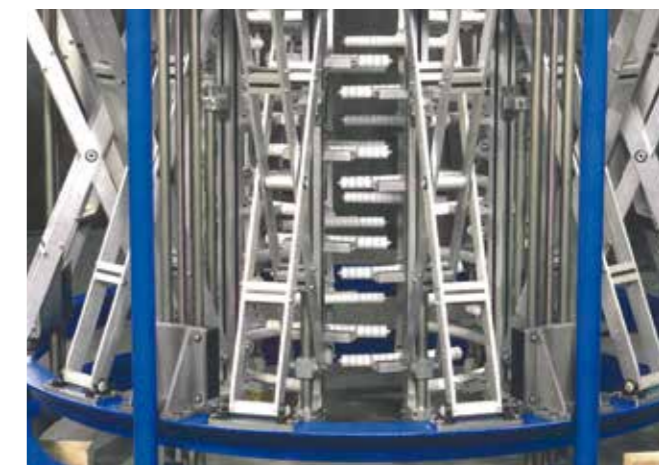
 **8 materials**
Ø 2–40 mm 

 **Available from stock**
Detailed information about delivery time online.

For long service life



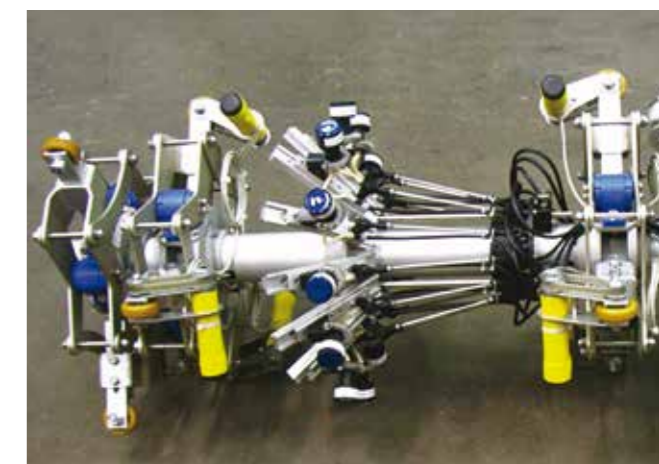
The bearing comes directly under the vehicle body and is exposed to heavy dirt accumulation.



Lubrication free iglidur® bearings are resistant to aggressive cleaning products and reliable for use in a blown film line.



Two longitudinal and one rotary motions can be combined with lubrication free iglidur® bearings in the tightest installation spaces.



Dirt-resistant iglidur® bearings are generally recommended for extremely high loads at low to medium speeds.

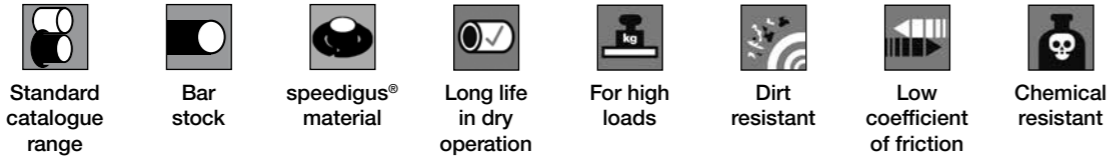


The crimpers in hose packaging machines often reach temperatures of +160 °C and above in continuous operation. The iglidur® plain bearings meet this requirement and are wear resistant.

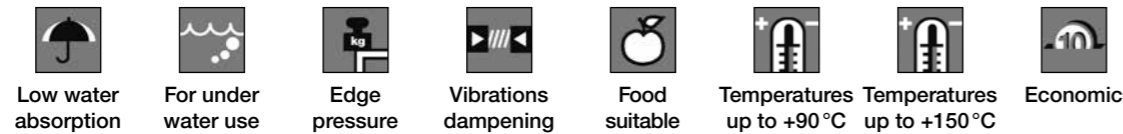


To ensure the long-term durability of the sweepers, the company decided to use lubrication free and thereby maintenance free polymer plain bearings.

For long service life

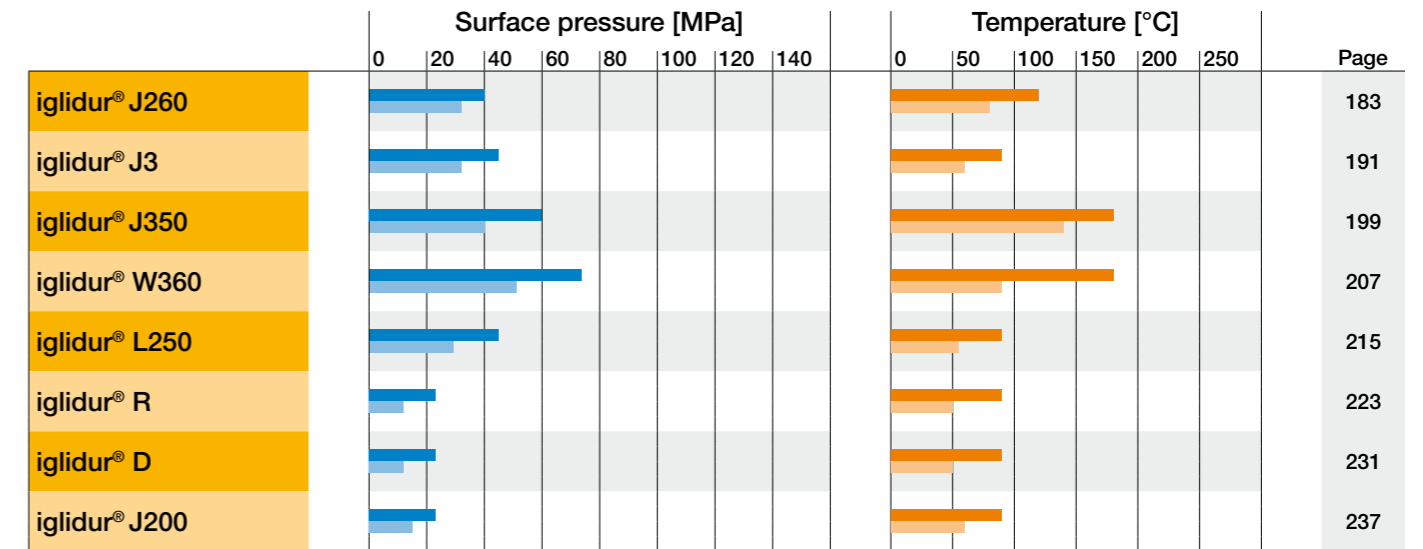


| | Standard catalogue range | Bar stock | speedigus® material | Long life in dry operation | For high loads | Dirt resistant | Low coefficient of friction | Chemical resistant |
|---------------|--------------------------|-----------|---------------------|----------------------------|----------------|----------------|-----------------------------|--------------------|
| iglidur® J260 | ● | ● | | ● | | | ● | |
| iglidur® J3 | ● | ● | | ● | | | ● | |
| iglidur® J350 | ● | ● | | ● | ● | | ● | ● |
| iglidur® W360 | ● | | | ● | | | ● | |
| iglidur® L250 | ● | | | ● | | | ● | |
| iglidur® R | ● | ● | | ● | | | ● | |
| iglidur® D | | | | | | | ● | |
| iglidur® J200 | | ● | | ● | | ● | ● | |



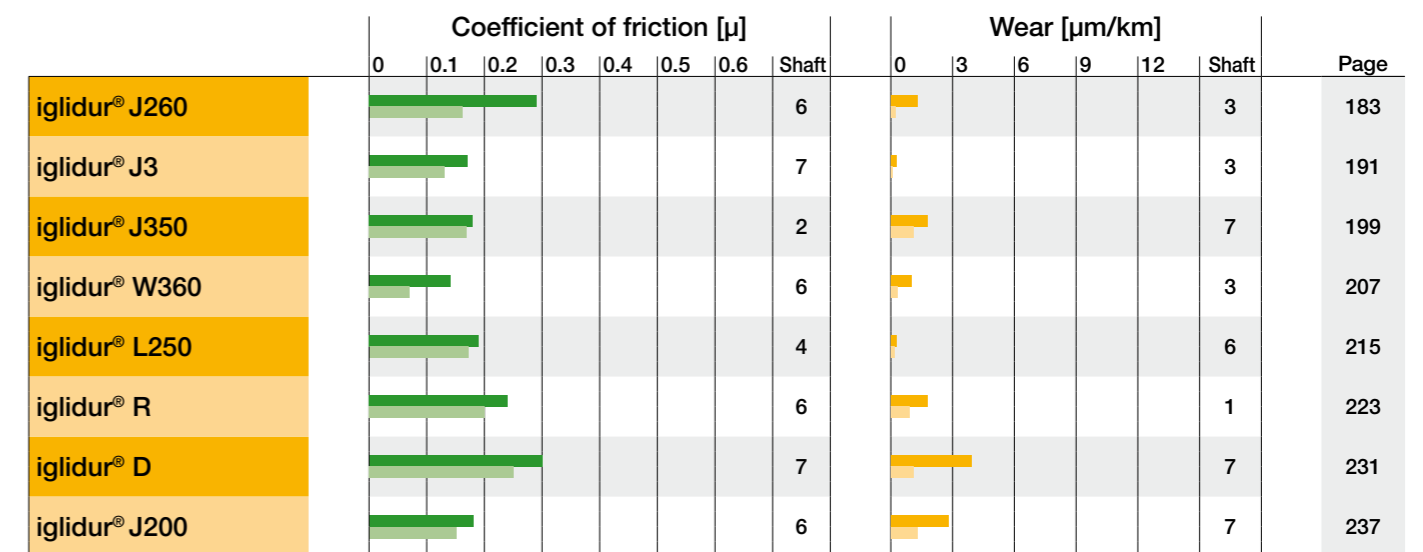
| | Low water absorption | For under water use | Edge pressure | Vibrations dampening | Food suitable | Temperatures up to +90°C | Temperatures up to +150°C | Economic |
|---------------|----------------------|---------------------|---------------|----------------------|---------------|--------------------------|---------------------------|----------|
| iglidur® J260 | ● | | | | | ● | | ● |
| iglidur® J3 | ● | | ● | | | ● | | |
| iglidur® J350 | ● | | ● | | | ● | ● | |
| iglidur® W360 | ● | | | | | ● | ● | ● |
| iglidur® L250 | | | ● | | | ● | | |
| iglidur® R | ● | | ● | | | ● | | ● |
| iglidur® D | ● | | ● | | | ● | | ● |
| iglidur® J200 | ● | | ● | | | ● | | |

For long service life



Maximum permissible surface pressure of iglidur® bearings at
 ● +20 °C
 ● +80 °C

Important temperature limits of iglidur® bearings
 ● Maximum permissible application temperature, continuous
 ● Temperature where bearings need to be secured against radial or axial movement in the housing

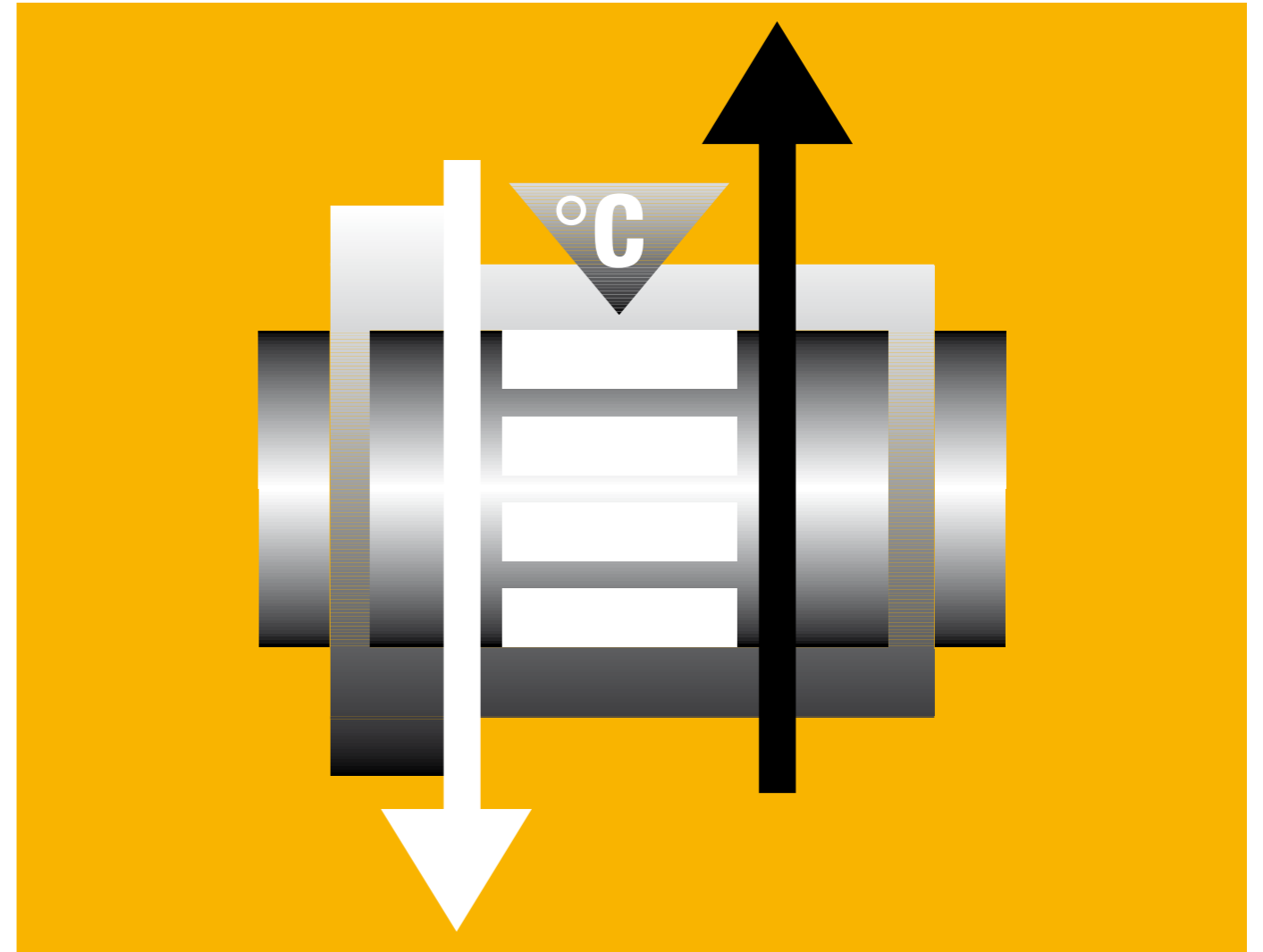


Coefficients of friction of iglidur® bearings against steel rotating, p = 1 MPa, v = 0.3 m/s
 ● Average of all the seven sliding combinations tested
 ● Coefficient of friction of best combination

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

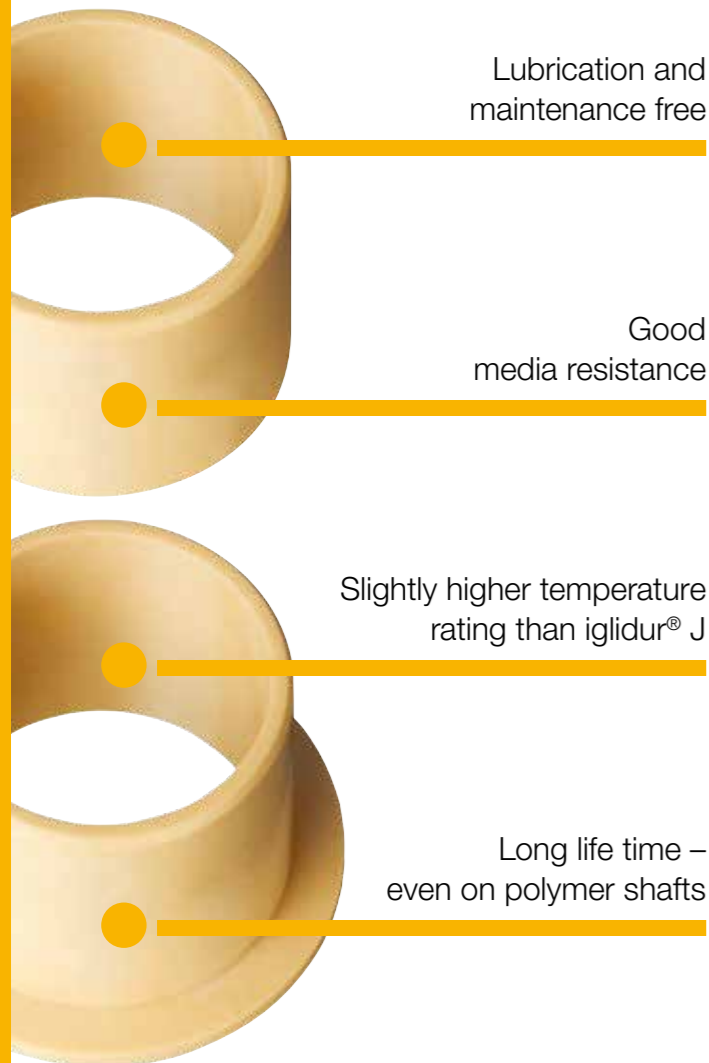
i Shaft material:

| | | | |
|------------------------|------------------------|----------|---------|
| 1 = Cf53 | 3 = Alu. hc | 5 = St37 | 7 = X90 |
| 2 = Cf53, hard chromed | 4 = Free-cutting steel | 6 = V2A | |



Ideal for plastic shafts – iglidur[®] J260

- Very good c.o.f. for low or medium loads
- Good liquid media resistance
- Slightly higher temperature rating than iglidur[®] J
- Long life time – even on polymer shafts and other special cases
- Lubrication and maintenance free
- Standard range from stock



Time and again the iglidur® J260 material proves its worth where the maximum service life and best friction coefficients are required under special application conditions - particularly in connection with plastic shafts!



When to use it?

- When polymer shafts are used
- When the temperature rating of iglidur® J is not sufficient
- If a bearing with a good coefficient of friction is required
- If high wear resistance is required at medium loads
- If good liquid media resistance is required



When not to use it?

- When high surface pressures occur
▶ iglidur® Z, page 263
- When temperatures are continuously greater than +120 °C
▶ iglidur® J350, page 199
- When maximum universal wear resistance possible is required
▶ iglidur® J, page 99



Available from stock

Detailed information about delivery time online.



max. +120 °C
min. -100 °C



Block pricing online

No minimum order value. From batch size 1



Ø 6–20 mm
more dimensions on request



Typical application areas

- Automation ● Machine design ● Test engineering and quality assurance ● Robotics
- Electronics industry etc.

Material properties table

| General properties | Unit | iglidur® J260 | Testing method |
|--|------------------------------------|--------------------|----------------|
| Density | g/cm ³ | 1.35 | |
| Colour | | yellow | |
| Max. moisture absorption at +23 °C/50 % r.h. | % weight | 0.2 | DIN 53495 |
| Max. water absorption | % weight | 0.4 | |
| Coefficient of sliding friction, dynamic against steel | μ | 0.06–0.20 | |
| pv value, max. (dry) | MPa · m/s | 0.35 | |
| Mechanical properties | | | |
| Modulus of elasticity | MPa | 2,200 | DIN 53457 |
| Tensile strength at +20 °C | MPa | 60 | DIN 53452 |
| Compressive strength | MPa | 50 | |
| Max. recommended surface pressure (+20 °C) | MPa | 40 | |
| Shore-D hardness | | 77 | DIN 53505 |
| Physical and thermal properties | | | |
| Max. long term application temperature | °C | +120 | |
| Max. short term application temperature | °C | +140 | |
| Min. application temperature | °C | -100 | |
| Thermal conductivity | W/m · K | 0.24 | ASTM C 177 |
| Coefficient of thermal expansion (at +23 °C) | K ⁻¹ · 10 ⁻⁵ | 13 | DIN 53752 |
| Electrical properties | | | |
| Specific volume resistance | Ωcm | > 10 ¹² | DIN IEC 93 |
| Surface resistance | Ω | > 10 ¹⁰ | DIN 53482 |

Table 01: Material properties table

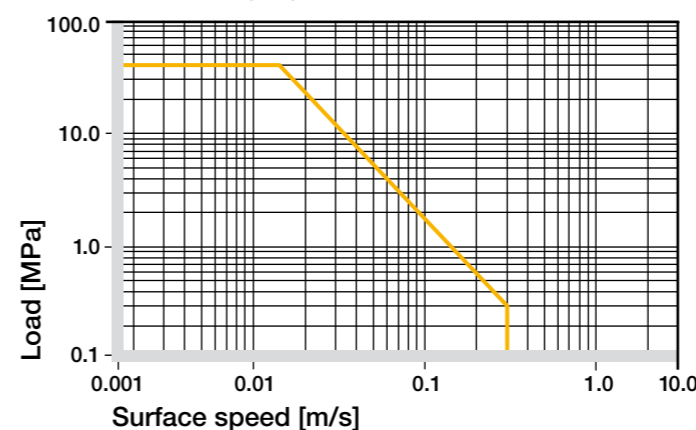


Diagram 01: Permissible pv values for iglidur® J260 bearings with a wall thickness of 1 mm dry running against a steel shaft, at +20 °C, mounted in a steel housing

Moisture absorption

The moisture absorption of iglidur® J260 plain bearings is approximately 0.2 % in ambient conditions. The saturation limit submerged in water is 0.4 %. Due to these low values considering expansion by moisture absorption is only required in extreme cases.

▶ Diagram, www.igus.eu/j260-moisture

Vacuum

In vacuum, any absorbed moisture content is outgassed. Only dehumidified iglidur® J260 bearings are suitable for vacuum.

Radiation resistance

Resistant to radiation up to an intensity of 3 · 10² Gy.

UV resistance

iglidur® J260 plain bearings are partially resistant to UV radiation.

| Medium | Resistance |
|---------------------------------|------------|
| Alcohol | + to 0 |
| Hydrocarbons | + |
| Greases, oils without additives | 0 to – |
| 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 02: Chemical resistance

▶ Chemical table, page 1226

Similar to the classic, iglidur® J, iglidur® J260 is an endurance runner with outstanding wear behaviour, but provides increased reserves at its long-term application temperature of +120 °C.

Mechanical properties

With increasing temperatures, the compressive strength of iglidur® J260 plain bearings decreases. Diagram 02 clarifies this relationship. The recommended maximum surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.

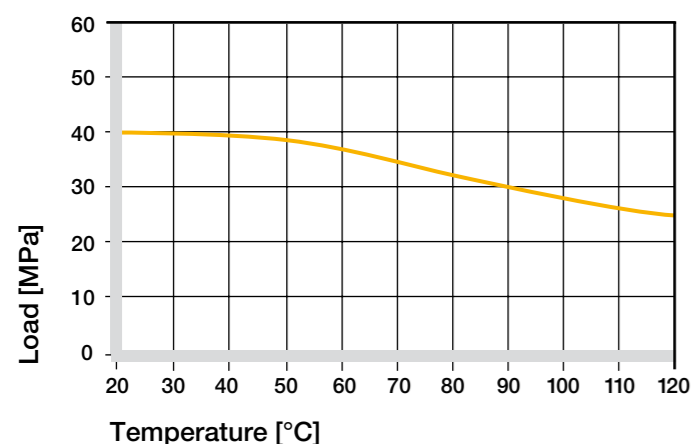


Diagram 02: Recommended maximum surface pressure of as a function of temperature (40 MPa at +20 °C)

Diagram 03 shows the elastic deformation of iglidur® J260 at radial loads. At the maximum recommended surface pressure of 40 MPa at room temperature the deformation is less than 2.5 %. A possible deformation could be, among others, dependant on the duty cycle of the load.

► Surface pressure, page 63

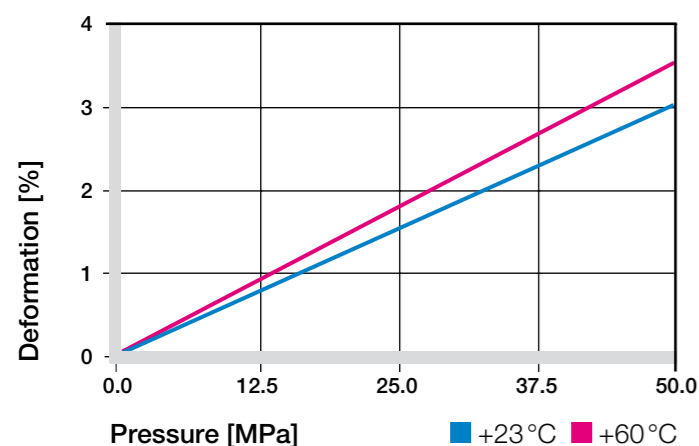


Diagram 03: Deformation under pressure and temperature

Permissible surface speeds

iglidur® J260 has been developed for low to medium surface speeds. The maximum values shown in table 03 can only be achieved at low pressures. At the given speeds, friction can cause a temperature increase to maximum permissible levels. In practice, though, this temperature level is rarely reached due to varying application conditions.

► Surface speed, page 65

| m/s | Rotating | Oscillating | Linear |
|------------|----------|-------------|--------|
| Continuous | 1 | 0.7 | 3 |
| Short term | 2 | 1.4 | 4 |

Table 03: Maximum surface speeds

Temperatures

The ambient application temperature has a direct impact on bearing wear, an increase in temperature results in an increase in wear. With increasing temperatures, the wear increases and this effect is significant when temperatures rise over +80 °C. At temperatures over +80 °C an additional securing is required.

► Application temperatures, page 66

► Additional securing, page 67

Friction and wear

Similar to wear resistance, the coefficient of friction μ also changes with the load. The coefficient of friction decreases with increasing loads, whereas an increase in surface speed causes an increase of the coefficient of friction (diagrams 04 and 05).

► Coefficients of friction and surfaces, page 68

► Wear resistance, page 69

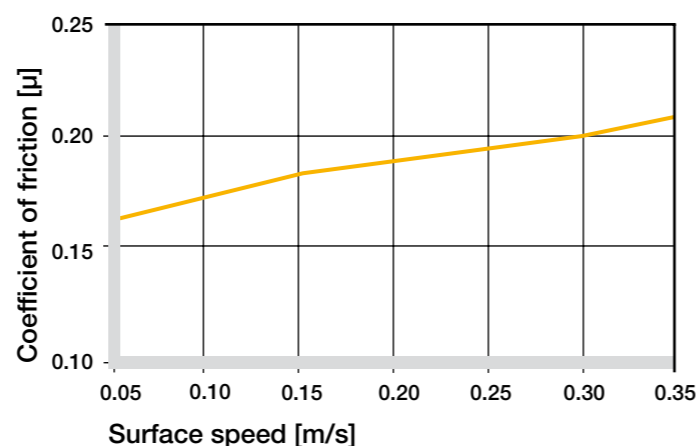


Diagram 04: Coefficient of friction as a function of the surface speed, p = 0.75 MPa

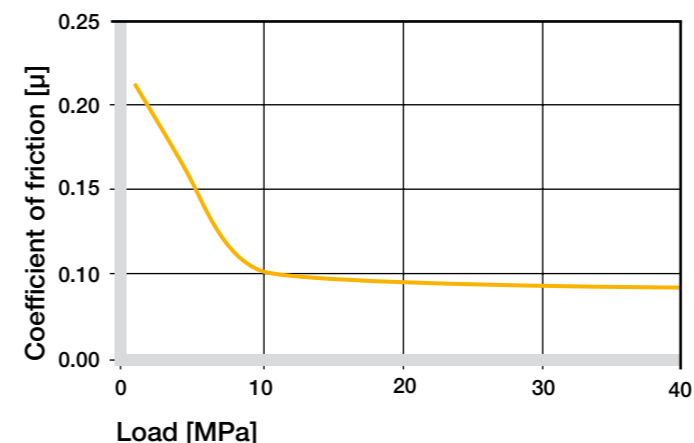


Diagram 05: Coefficient of friction as a function of the pressure, v = 0.01 m/s

Shaft materials

The friction and wear are also dependent, to a large degree, on the shaft material. Shafts that are too smooth, increase both the coefficient of friction and the wear of the bearing. For iglidur® J260 a ground surface with an average roughness Ra = 0.8 μ m is recommended. Diagram 06 shows results of testing different shaft materials with plain bearings made from iglidur® J260. In this connection it is important to note that with increasing loads, the recommended hardness of the shaft increases. The "soft" shafts tend to wear more easily and thus increase the wear of the overall system, if the loads exceed 2 MPa. The comparison of rotation and oscillating in diagram 07 makes it very clear where iglidur® J260 bearings are best used, especially in rotating operations.

► Shaft materials, page 71

| iglidur® J260 | Dry | Greases | Oil | Water |
|---------------|-----------|---------|------|-------|
| C.o.f. μ | 0.06–0.21 | 0.09 | 0.04 | 0.04 |

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

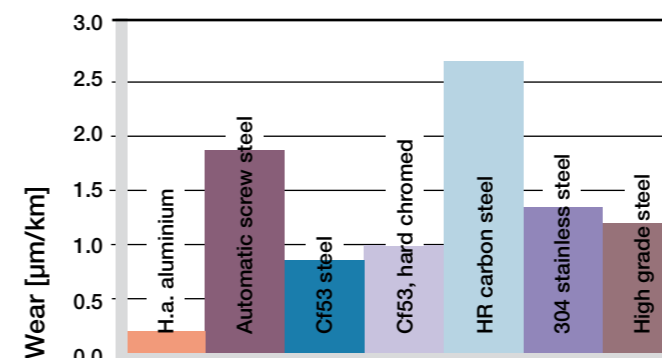


Diagram 06: Wear, rotating with different shaft materials, p = 1 MPa, v = 0.3 m/s

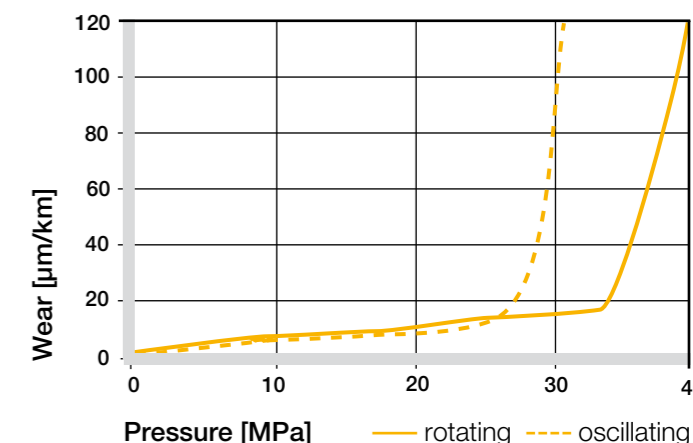


Diagram 07: Wear for oscillating and rotating applications with shaft material Cf53 hardened and ground steel, as a function of the pressure

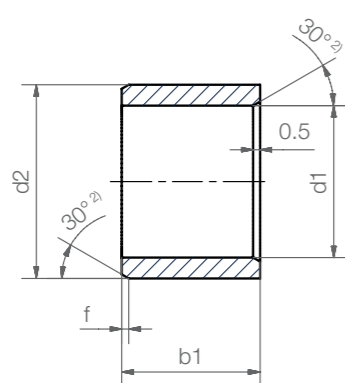
Installation tolerances

iglidur® J260 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 automatically adjusts to the E10 tolerances. For particular dimensions the tolerance differs depending on the wall thickness (please see product range table).

► Testing methods, page 75

| Diameter d1 [mm] | Shaft h9 [mm] | iglidur® J260 E10 [mm] | Housing H7 [mm] |
|------------------|---------------|------------------------|-----------------|
| up to 3 | 0–0.025 | +0.014 +0.054 | 0 +0.010 |
| > 3 to 6 | 0–0.030 | +0.020 +0.068 | 0 +0.012 |
| > 6 to 10 | 0–0.036 | +0.025 +0.083 | 0 +0.015 |
| > 10 to 18 | 0–0.043 | +0.032 +0.102 | 0 +0.018 |
| > 18 to 30 | 0–0.052 | +0.040 +0.124 | 0 +0.021 |
| > 30 to 50 | 0–0.062 | +0.050 +0.150 | 0 +0.025 |
| > 50 to 80 | 0–0.074 | +0.060 +0.180 | 0 +0.030 |
| > 80 to 120 | 0–0.087 | +0.072 +0.212 | 0 +0.035 |
| >120 to 180 | 0–0.100 | +0.085 +0.245 | 0 +0.040 |

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



Order key

Type Dimensions
J260 S M-0608-06

| | | | | | |
|-------------------|--------|--------|-----------------|-----------------|----------------|
| iglidur® material | Form S | Metric | Inner-Ø d1 [mm] | Outer-Ø d2 [mm] | Length b1 [mm] |
|-------------------|--------|--------|-----------------|-----------------|----------------|

Dimensions according to ISO 3547-1 and special dimensions

²⁾ thickness < 1 mm, chamfer = 20°

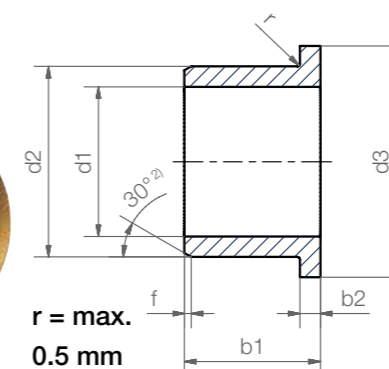
Chamfer in relation to the d1

| | | | | |
|----------|-------|--------|---------|--------|
| 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]

| d1 | d1-Tolerance ³⁾ | d2 | b1 h13 | Part No. |
|------|----------------------------|------|-----------|------------------------|
| 6.0 | +0.020 +0.068 | 8.0 | 6.0 | J260SM-0608-06 |
| 8.0 | +0.025 +0.083 | 10.0 | 6.0 | J260SM-0810-06 |
| 8.0 | +0.025 +0.083 | 10.0 | 10.0 | J260SM-0810-10 |
| 10.0 | +0.025 +0.083 | 12.0 | 10.0 | J260SM-1012-10 |
| 12.0 | +0.032 +0.102 | 14.0 | 12.0 | J260SM-1214-12 |
| 12.0 | +0.032 +0.102 | 14.0 | 15.0 | J260SM-1214-15 |
| 16.0 | +0.032 +0.102 | 18.0 | 15.0 | J260SM-1618-15 |
| 16.0 | +0.032 +0.102 | 18.0 | 13.5 | J260SM-1618-135 |
| 18.0 | +0.032 +0.102 | 20.0 | 12.0 | J260SM-1820-12 |
| 18.0 | +0.032 +0.102 | 20.0 | 20.0 | J260SM-1820-20 |
| 20.0 | +0.040 +0.124 | 23.0 | 20.0 | J260SM-2023-20 |

³⁾ after pressfit. Testing methods ► Page 75



Order key

Type Dimensions
J260 F M-0608-06

| | | | | | |
|-------------------|--------|--------|-----------------|-----------------|----------------|
| iglidur® material | Form F | Metric | Inner-Ø d1 [mm] | Outer-Ø d2 [mm] | Length b1 [mm] |
|-------------------|--------|--------|-----------------|-----------------|----------------|

Dimensions according to ISO 3547-1 and special dimensions

²⁾ thickness < 1 mm, chamfer = 20°

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 |

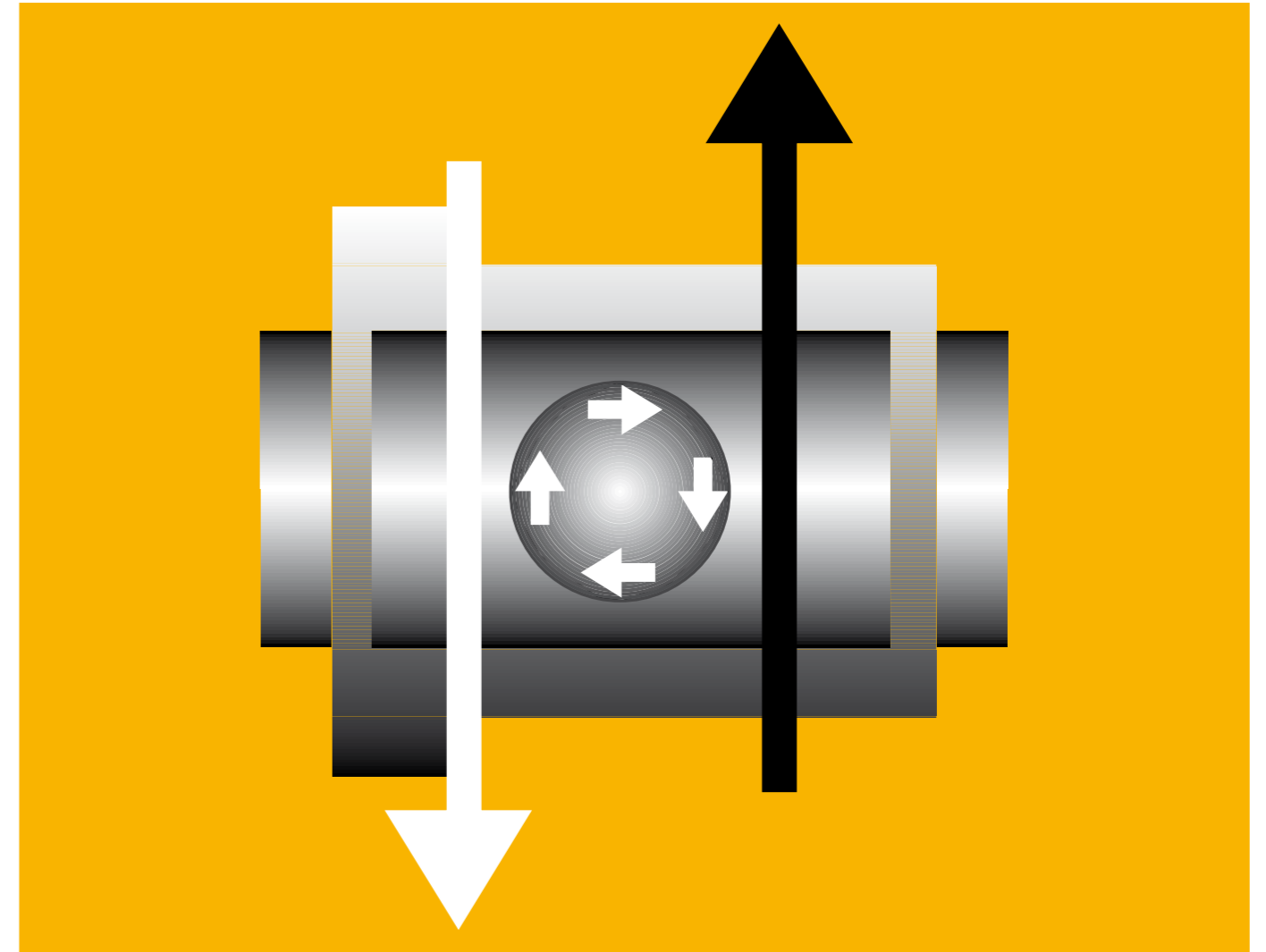
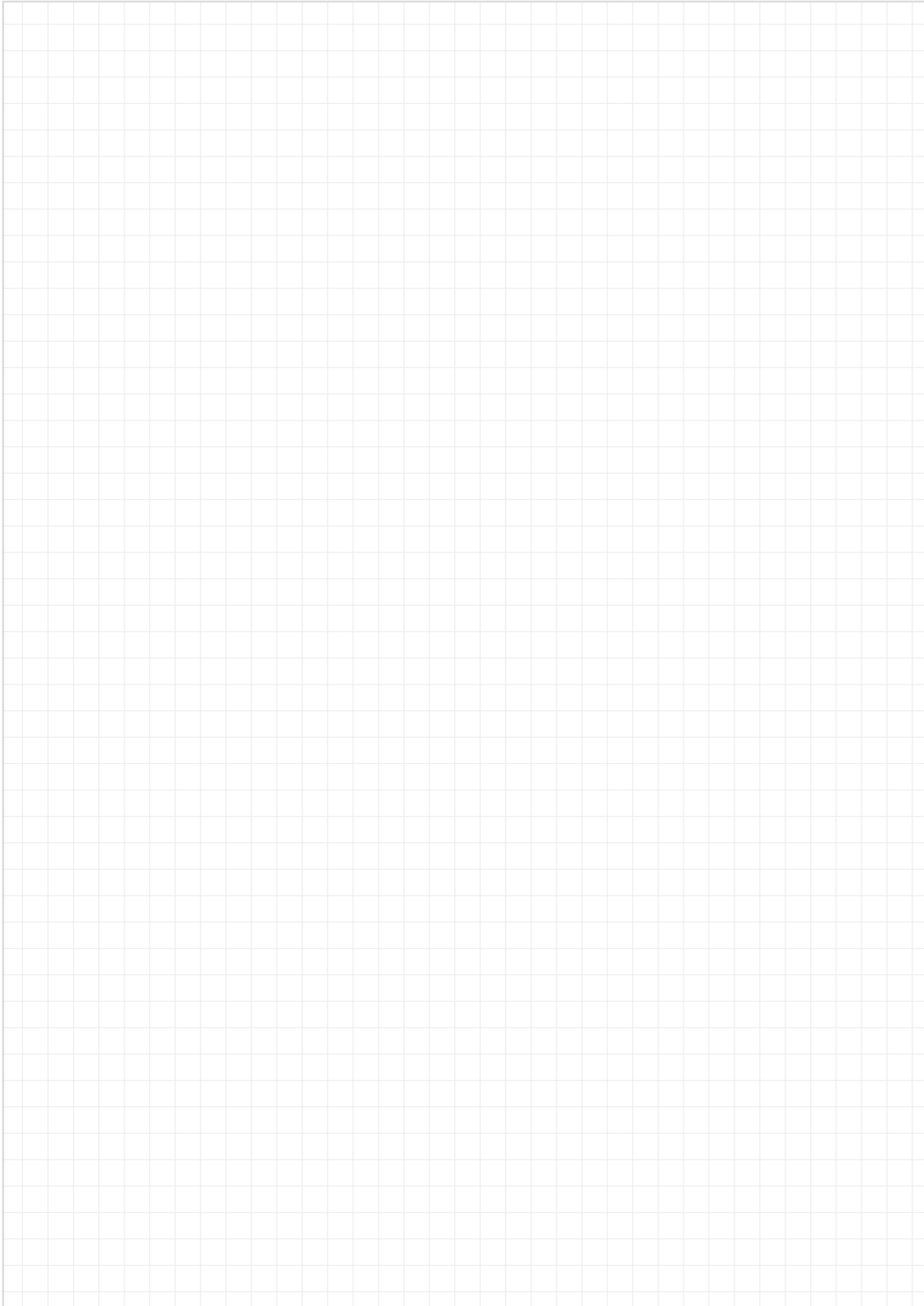
Dimensions [mm]

| d1 | d1-Tolerance ³⁾ | d2 | d3 d13 | b1 h13 | b2 -0.14 | Part No. |
|------|----------------------------|------|-----------|-----------|-------------|-----------------------|
| 6.0 | +0.020 +0.068 | 8.0 | 12.0 | 6.0 | 1.0 | J260FM-0608-06 |
| 8.0 | +0.025 +0.083 | 10.0 | 15.0 | 10.0 | 1.0 | J260FM-0810-10 |
| 10.0 | +0.025 +0.083 | 12.0 | 18.0 | 10.0 | 1.0 | J260FM-1012-10 |
| 12.0 | +0.032 +0.102 | 14.0 | 20.0 | 12.0 | 1.0 | J260FM-1214-12 |
| 16.0 | +0.032 +0.102 | 18.0 | 24.0 | 17.0 | 1.0 | J260FM-1618-17 |
| 20.0 | +0.040 +0.124 | 23.0 | 30.0 | 21.5 | 1.5 | J260FM-2023-21 |

³⁾ after pressfit. Testing methods ► Page 75

Don't find your size?

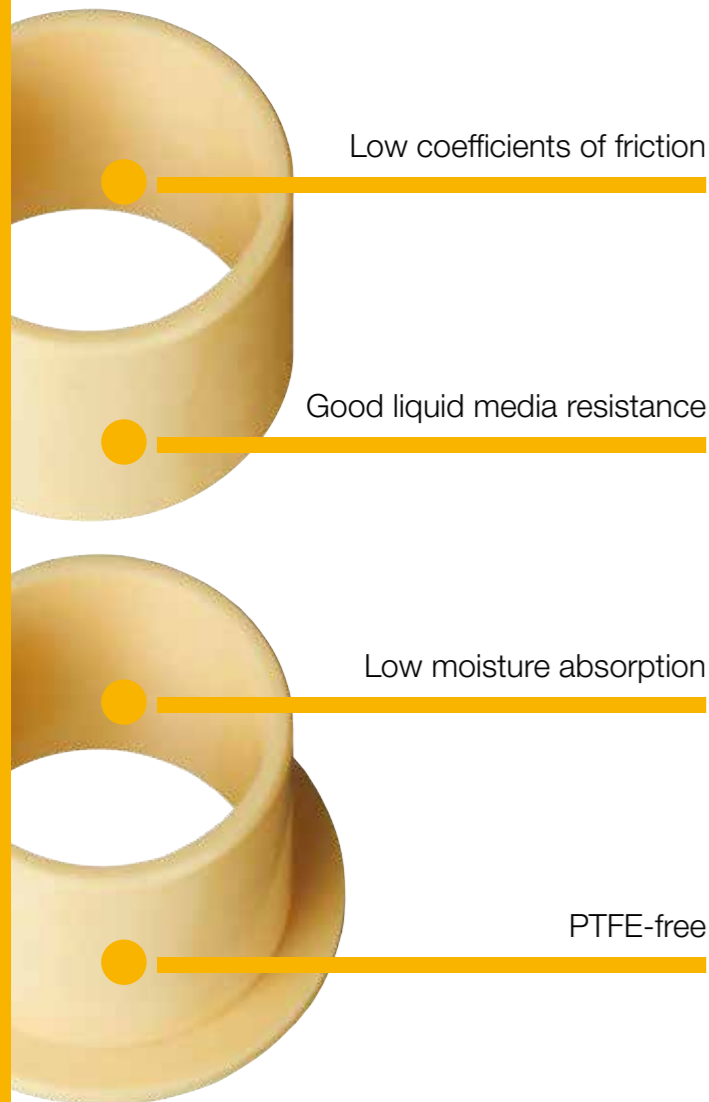
Do you need another length, other dimensions or tolerances? You need a particular design or alternative for your application? Please call us. igus® listens to your needs and provides you a solution in a very short time.



**Runs up to three times longer than
iglidur® J – iglidur® J3**

- Low coefficients of friction
- Good liquid media resistance
- Low moisture absorption
- PTFE-free
- Lubrication and maintenance free
- Standard range from stock

Low coefficients of friction



iglidur® J3 is a material with improved wear resistance at low to medium loads and high speed. The lifetime is up to 300 % longer than iglidur® J – the previous iglidur® champion.



When to use it?

- If wear resistance rotating or oscillating of iglidur® J should be optimised
- When very low coefficients of friction in dry operation are required
- If high wear resistance at low loads is required
- If low moisture absorption is requested
- If good liquid media resistance is required



When not to use it?

- If you need a wear-resistant bearing for linear motion
 - ▶ iglidur® J, page 99
- If permanent temperatures exceed +90 °C
 - ▶ iglidur® J260, page 183
- If radial surface pressure is higher than 35 MPa
 - ▶ iglidur® W300, page 121



Available from stock

Detailed information about delivery time online.



max. +90 °C
min. -50 °C



Block pricing online

No minimum order value. From batch size 1



Ø 2–40 mm
more dimensions on request



Typical application areas

● Automation ● Printing industry ● Beverage technology ● Glass industry ● Aerospace engineering etc.

Material properties table

| General properties | Unit | iglidur® J3 | Testing method |
|--|------------------------------------|--------------------|----------------|
| Density | g/cm ³ | 1.42 | |
| Colour | | yellow | |
| Max. moisture absorption at +23 °C/50 % r.h. | % weight | 0.3 | DIN 53495 |
| Max. water absorption | % weight | 1.3 | |
| Coefficient of sliding friction, dynamic against steel | μ | 0.06–0.20 | |
| pv value, max. (dry) | MPa · m/s | 0.5 | |
| Mechanical properties | | | |
| Modulus of elasticity | MPa | 2,700 | DIN 53457 |
| Tensile strength at +20 °C | MPa | 70 | DIN 53452 |
| Compressive strength | MPa | 60 | |
| Max. recommended surface pressure (+20 °C) | MPa | 45 | |
| Shore-D hardness | | 73 | DIN 53505 |
| Physical and thermal properties | | | |
| Max. long term application temperature | °C | +90 | |
| Max. short term application temperature | °C | +120 | |
| Min. application temperature | °C | -50 | |
| Thermal conductivity | W/m · K | 0.25 | ASTM C 177 |
| Coefficient of thermal expansion (at +23 °C) | K ⁻¹ · 10 ⁻⁵ | 13 | DIN 53752 |
| Electrical properties | | | |
| Specific volume resistance | Ωcm | > 10 ¹² | DIN IEC 93 |
| Surface resistance | Ω | > 10 ¹² | DIN 53482 |

Table 01: Material properties table

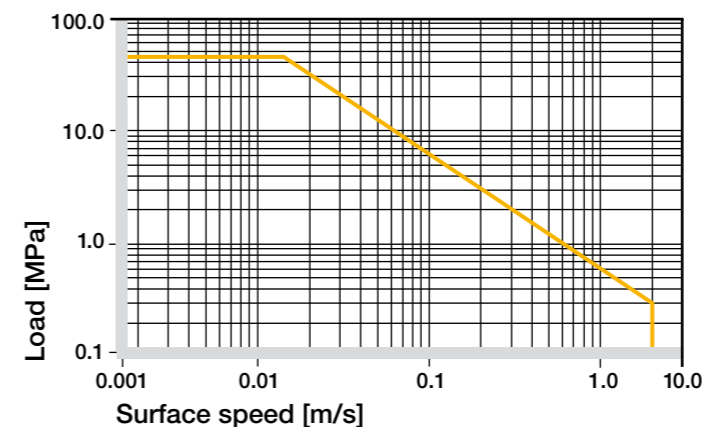


Diagram 01: Permissible pv values for iglidur® J3 bearings with a wall thickness of 1 mm dry running against a steel shaft, at +20 °C, mounted in a steel housing

Moisture absorption

The moisture absorption of iglidur® J3 plain bearings is approximately 0.3 % in ambient conditions. The saturation limit submerged in water is 1.3 %. Due to these low values considering expansion by moisture absorption is only required in extreme cases.

▶ Diagram, www.igus.eu/j3-moisture

Vacuum

In vacuum, any absorbed moisture content is outgassed. Only dehumidified iglidur® J3 bearings are suitable for vacuum.

Radiation resistance

Resistant to radiation up to an intensity of 1 · 10⁴ Gy.

UV resistance

iglidur® J3 plain bearings become discoloured under UV radiation. However, hardness, compressive strength and the wear resistance of the material do not change.

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

+ resistant 0 conditionally resistant – not resistant

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

Table 02: Chemical resistance

▶ Chemical table, page 1226

With respect to its general mechanical and thermal specifications, iglidur® J3 is directly comparable to our classic, iglidur® J.

Mechanical properties

With increasing temperatures, the compressive strength of iglidur® J3 plain bearings decreases. Diagram 02 clarifies this relationship. The recommended maximum surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.

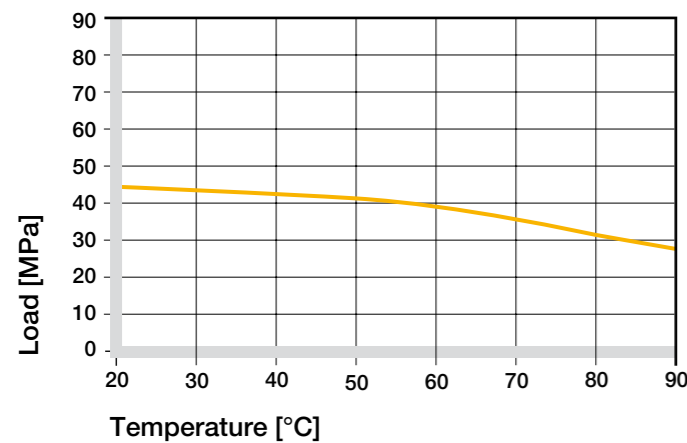


Diagram 02: Recommended maximum surface pressure of as a function of temperature (45 MPa at +20 °C)

Diagram 03 shows the elastic deformation of iglidur® J3 at radial loads. At the maximum recommended surface pressure of 45 MPa at room temperature the deformation is less than 6%. A possible deformation could be, among others, dependant on the duty cycle of the load.

► Surface pressure, page 63

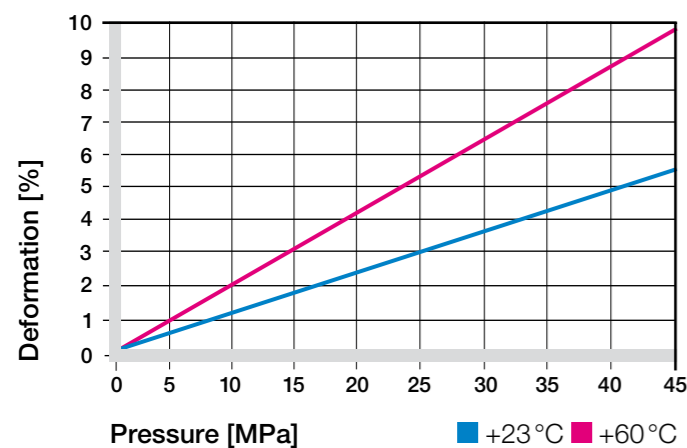


Diagram 03: Deformation under pressure and temperature

Permissible surface speeds

iglidur® J3 is also suitable for medium to high surface speeds. The maximum values shown in table 03 can only be achieved at low pressures. At the given speeds, friction can cause a temperature increase to maximum permissible levels. In practice, though, this temperature level is rarely reached, due to varying application conditions.

► Surface speed, page 65

| m/s | Rotating | Oscillating | Linear |
|------------|----------|-------------|--------|
| Continuous | 1.5 | 1.1 | 8 |
| Short term | 3 | 2.1 | 10 |

Table 03: Maximum surface speeds

Temperatures

The ambient application temperature has a direct impact on bearing wear, an increase in temperature results in an increase in wear. With increasing temperatures, the wear increases and this effect is significant when temperatures rise over +90 °C. At temperatures over +60 °C an additional securing is required.

► Application temperatures, page 66

► Additional securing, page 67

Friction and wear

Similar to wear resistance, the coefficient of friction μ also changes with the load (diagram 04 and 05).

► Coefficients of friction and surfaces, page 68

► Wear resistance, page 69

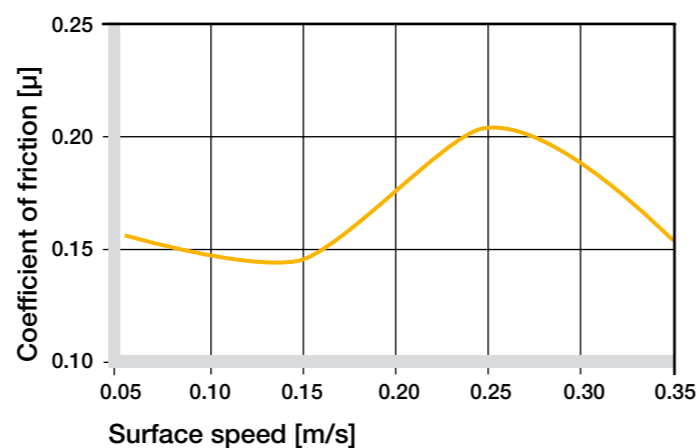


Diagram 04: Coefficient of friction as a function of the surface speed, p = 0.75 MPa

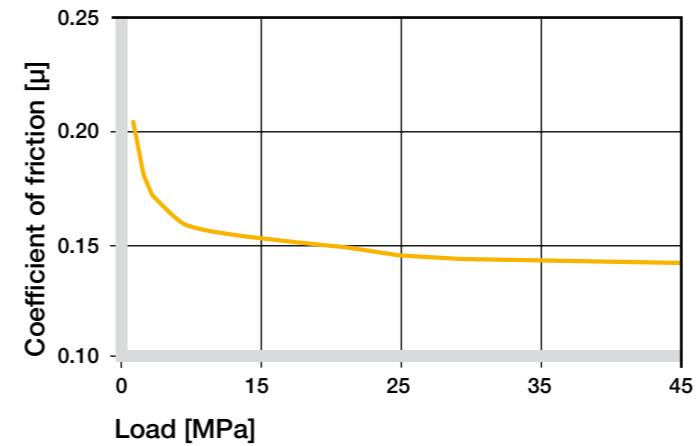


Diagram 05: Coefficient of friction as a function of the pressure, v = 0.01 m/s

Shaft materials

The friction and wear are also dependent, to a large degree, on the shaft material. Shafts that are too smooth, increase both the coefficient of friction and the wear of the bearing. For iglidur® J3 a ground surface with an average roughness Ra = 0.1–0.3 μm is recommended. The diagram 06 shows that iglidur® J3 can be combined with various shaft materials. Diagram 07 shows rotating and oscillating tests in comparison. With higher load, the wear increases more for rotating than for oscillating movements.

► Shaft materials, page 71

| iglidur® J3 | Dry | Greases | Oil | Water |
|----------------|-------------|---------|------|-------|
| C. o. f. μ | 0.06 – 0.20 | 0.09 | 0.04 | 0.04 |

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

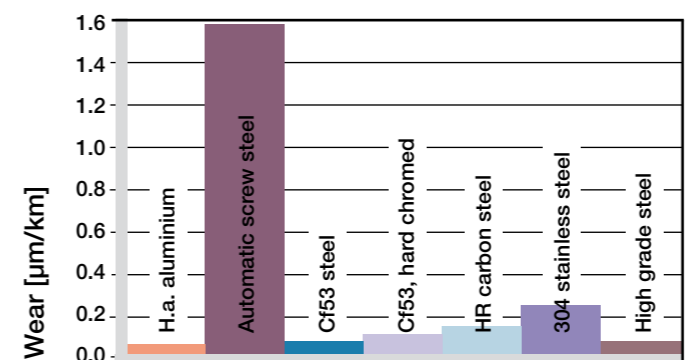


Diagram 06: Wear, rotating with different shaft materials, p = 1 MPa, v = 0.3 m/s

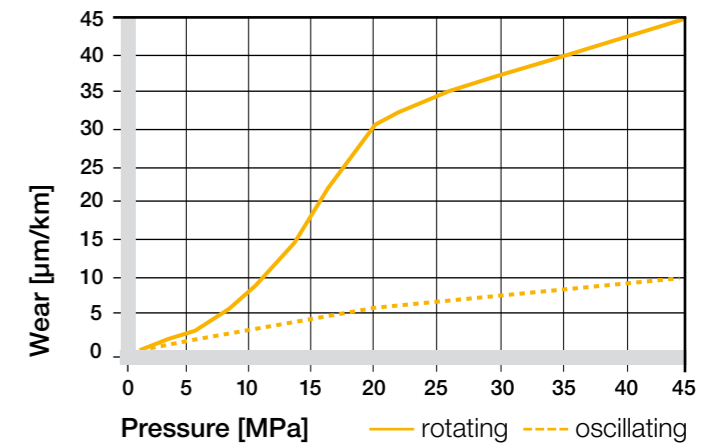


Diagram 07: Wear for oscillating and rotating applications with shaft material Cf53 hardened and ground steel, as a function of the pressure

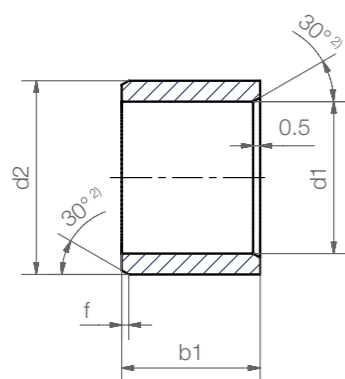
Installation tolerances

iglidur® J3 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 automatically adjusts to the E10 tolerances. For particular dimensions the tolerance differs depending on the wall thickness (please see product range table). In relation to the installation tolerance, the inner diameter changes with the absorption of humidity.

► Testing methods, page 75

| Diameter d1 [mm] | Shaft h9 [mm] | iglidur® J3 E10 [mm] | Housing H7 [mm] |
|------------------|---------------|----------------------|-----------------|
| up to 3 | 0–0.025 | +0.014 +0.054 | 0 +0.010 |
| > 3 to 6 | 0–0.030 | +0.020 +0.068 | 0 +0.012 |
| > 6 to 10 | 0–0.036 | +0.025 +0.083 | 0 +0.015 |
| > 10 to 18 | 0–0.043 | +0.032 +0.102 | 0 +0.018 |
| > 18 to 30 | 0–0.052 | +0.040 +0.124 | 0 +0.021 |
| > 30 to 50 | 0–0.062 | +0.050 +0.150 | 0 +0.025 |
| > 50 to 80 | 0–0.074 | +0.060 +0.180 | 0 +0.030 |
| > 80 to 120 | 0–0.087 | +0.072 +0.212 | 0 +0.035 |
| > 120 to 180 | 0–0.100 | +0.085 +0.245 | 0 +0.040 |

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



Order key

Type Dimensions
J3 S M-0304-05

| | | | | | |
|-------------------|--------|--------|-----------------|-----------------|----------------|
| iglidur® material | Form S | Metric | Inner-Ø d1 [mm] | Outer-Ø d2 [mm] | Length b1 [mm] |
|-------------------|--------|--------|-----------------|-----------------|----------------|

Dimensions according to ISO 3547-1 and special dimensions

²⁾ thickness < 1 mm, chamfer = 20°

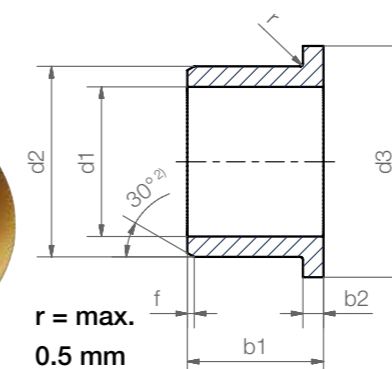
Chamfer in relation to the d1

| | | | | |
|----------|-------|--------|---------|--------|
| 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]

| d1 | d1-Tolerance ³⁾ | d2 | b1 h13 | Part No. |
|------|----------------------------|------|-----------|---------------------|
| 3.0 | +0.014 +0.054 | 4.5 | 5.0 | J3SM-0304-05 |
| 5.0 | +0.020 +0.068 | 7.0 | 5.0 | J3SM-0507-05 |
| 6.0 | +0.020 +0.068 | 8.0 | 6.0 | J3SM-0608-06 |
| 8.0 | +0.025 +0.083 | 10.0 | 10.0 | J3SM-0810-10 |
| 8.0 | +0.025 +0.083 | 10.0 | 12.0 | J3SM-0810-12 |
| 10.0 | +0.025 +0.083 | 12.0 | 10.0 | J3SM-1012-10 |
| 12.0 | +0.032 +0.102 | 14.0 | 15.0 | J3SM-1214-15 |
| 15.0 | +0.032 +0.102 | 17.0 | 20.0 | J3SM-1517-20 |
| 15.0 | +0.032 +0.102 | 17.0 | 30.0 | J3SM-1517-30 |
| 16.0 | +0.032 +0.102 | 18.0 | 15.0 | J3SM-1618-15 |
| 18.0 | +0.032 +0.102 | 20.0 | 20.0 | J3SM-1820-20 |
| 18.0 | +0.032 +0.102 | 21.0 | 25.0 | J3SM-1821-25 |
| 20.0 | +0.040 +0.124 | 23.0 | 20.0 | J3SM-2023-20 |
| 25.0 | +0.040 +0.124 | 28.0 | 30.0 | J3SM-2528-30 |
| 30.0 | +0.040 +0.124 | 34.0 | 30.0 | J3SM-3034-30 |
| 35.0 | +0.050 +0.150 | 39.0 | 40.0 | J3SM-3539-40 |
| 40.0 | +0.050 +0.150 | 44.0 | 40.0 | J3SM-4044-40 |
| 50.0 | +0.050 +0.150 | 55.0 | 30.0 | J3SM-5055-30 |

³⁾ after pressfit. Testing methods ► Page 75



Order key

Type Dimensions
J3 F M-0304-05

| | | | | | |
|-------------------|--------|--------|-----------------|-----------------|----------------|
| iglidur® material | Form F | Metric | Inner-Ø d1 [mm] | Outer-Ø d2 [mm] | Length b1 [mm] |
|-------------------|--------|--------|-----------------|-----------------|----------------|

Dimensions according to ISO 3547-1 and special dimensions

²⁾ thickness < 1 mm, chamfer = 20°

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]

| d1 | d1-Tolerance ³⁾ | d2 | d3 d13 | b1 h13 | b2 -0.14 | Part No. |
|------|----------------------------|------|-----------|-----------|-------------|------------------------|
| 2.0 | +0.014 +0.054 | 3.5 | 5.0 | 5.0 | 0.75 | J3FM-0203505-05 |
| 3.0 | +0.014 +0.054 | 4.5 | 7.5 | 5.0 | 0.75 | J3FM-0304-05 |
| 5.0 | +0.020 +0.068 | 7.0 | 11.0 | 5.0 | 1.0 | J3FM-0507-05 |
| 6.0 | +0.020 +0.068 | 8.0 | 12.0 | 6.0 | 1.0 | J3FM-0608-06 |
| 8.0 | +0.025 +0.083 | 10.0 | 15.0 | 10.0 | 1.0 | J3FM-0810-10 |
| 10.0 | +0.025 +0.083 | 12.0 | 18.0 | 10.0 | 1.0 | J3FM-1012-10 |
| 12.0 | +0.032 +0.102 | 14.0 | 20.0 | 12.0 | 1.0 | J3FM-1214-12 |
| 14.0 | +0.032 +0.102 | 16.0 | 22.0 | 12.0 | 1.0 | J3FM-1416-12 |
| 16.0 | +0.032 +0.102 | 18.0 | 24.0 | 17.0 | 1.0 | J3FM-1618-17 |
| 18.0 | +0.040 +0.124 | 20.0 | 26.0 | 12.0 | 1.0 | J3FM-1820-12 |
| 18.0 | +0.040 +0.124 | 21.0 | 25.0 | 12.0 | 1.0 | J3FM-1821-12 |
| 20.0 | +0.040 +0.124 | 23.0 | 30.0 | 21.5 | 1.5 | J3FM-2023-21 |
| 25.0 | +0.040 +0.124 | 28.0 | 35.0 | 21.0 | 1.5 | J3FM-2528-21 |
| 30.0 | +0.040 +0.124 | 34.0 | 42.0 | 26.0 | 2.0 | J3FM-3034-26 |
| 35.0 | +0.050 +0.150 | 39.0 | 47.0 | 26.0 | 2.0 | J3FM-3539-26 |
| 40.0 | +0.050 +0.150 | 44.0 | 52.0 | 40.0 | 2.0 | J3FM-4044-40 |

³⁾ after pressfit. Testing methods ► Page 75

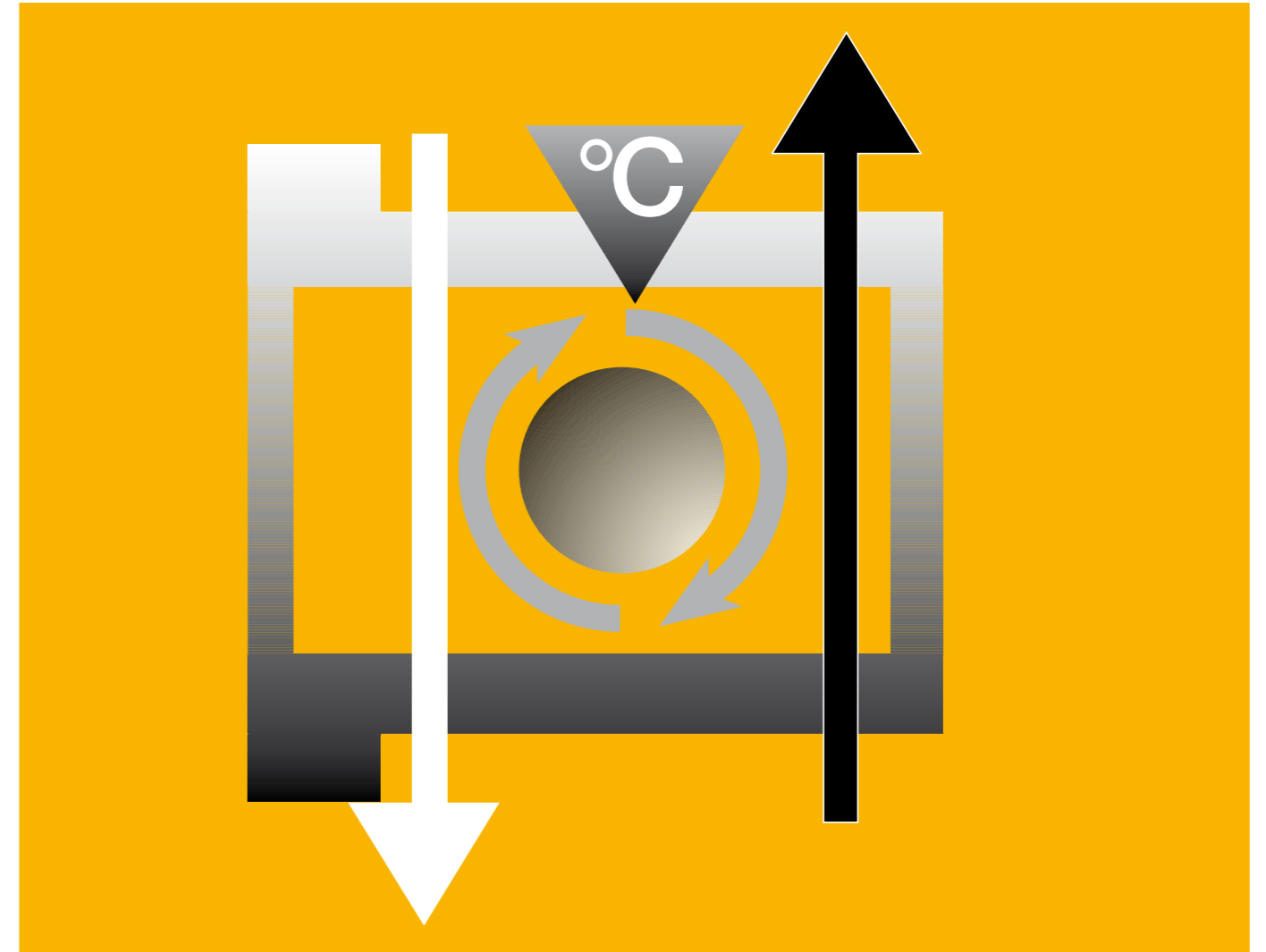
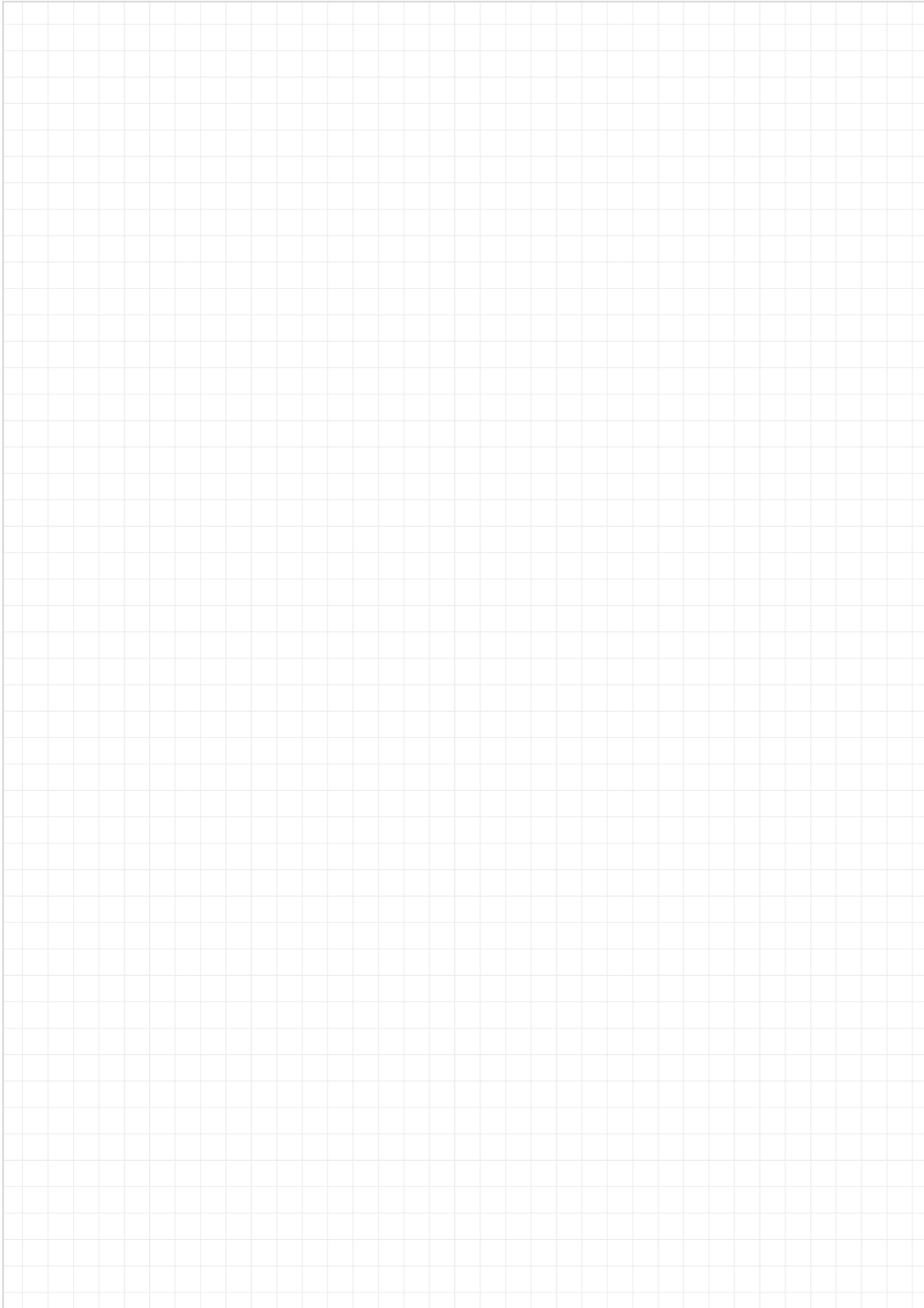
Don't find your size?

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.

Even more dimensions from stock

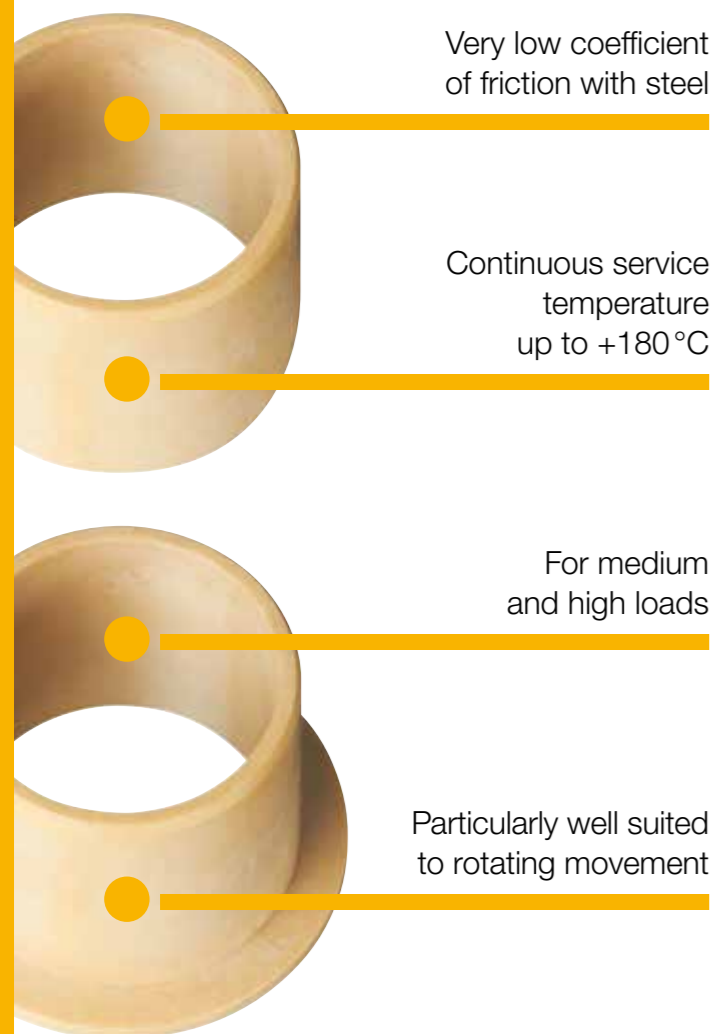
More than 300 dimensions are now available. Search online for your required bearing.

► www.igus.eu/iglidur-specialbearings



High temperatures, versatile – iglidur® J350

- Excellent coefficient of friction against steel
- Continuous service temperature up to +180°C
- For medium and high loads
- Particularly well suited to rotating movement
- Lubrication and maintenance free
- Standard range from stock



An outstanding bearing for rotating applications – and for a wide range of different shaft materials: With iglidur® J350 bearings, the lifetime can often be increased for applications between 2 and 50 MPa. In addition, the high temperature resistance makes it a very versatile material.



When to use it?

- If a high wear-resistant bearing for rotating movement at medium and high loads is required
- If an economic bearing is required for use at high temperatures
- If pressfit up to +150 °C is necessary
- If high wear resistance is required at high loads
- If the bearing is exposed to shock loading



When not to use it?

- If permanent temperatures exceed +180 °C
 - ▶ iglidur® X, page 133
- If low friction is required
 - ▶ iglidur® J, page 99
- When a cost-effective bearing with a low friction is needed
 - ▶ iglidur® D, page 231
 - ▶ iglidur® R, page 223
- With high rotational speeds
 - ▶ iglidur® J, page 99



Available from stock

Detailed information about delivery time online.



max. +180 °C
min. -100 °C



Block pricing online

No minimum order value. From batch size 1



Ø 6–30 mm
more dimensions on request



Typical application areas

- Automation ● Mechanical engineering ● Automotive ● Glass industry

Material properties table

| General properties | Unit | iglidur® J350 | Testing method |
|--|------------------------------------|--------------------|----------------|
| Density | g/cm ³ | 1.44 | |
| Colour | | yellow | |
| Max. moisture absorption at +23 °C/50 % r.h. | % weight | 0.3 | DIN 53495 |
| Max. water absorption | % weight | 1.6 | |
| Coefficient of sliding friction, dynamic against steel | μ | 0.1–0.2 | |
| pv value, max. (dry) | MPa · m/s | 0.45 | |
| Mechanical properties | | | |
| Modulus of elasticity | MPa | 2,000 | DIN 53457 |
| Tensile strength at +20 °C | MPa | 55 | DIN 53452 |
| Compressive strength | MPa | 60 | |
| Max. recommended surface pressure (+20 °C) | MPa | 60 | |
| Shore-D hardness | | 80 | DIN 53505 |
| Physical and thermal properties | | | |
| Max. long term application temperature | °C | +180 | |
| Max. short term application temperature | °C | +220 | |
| Min. application temperature | °C | -100 | |
| Thermal conductivity | W/m · K | 0.24 | ASTM C 177 |
| Coefficient of thermal expansion (at +23 °C) | K ⁻¹ · 10 ⁻⁵ | 7 | DIN 53752 |
| Electrical properties | | | |
| Specific volume resistance | Ωcm | > 10 ¹³ | DIN IEC 93 |
| Surface resistance | Ω | > 10 ¹⁰ | DIN 53482 |

Table 01: Material properties table

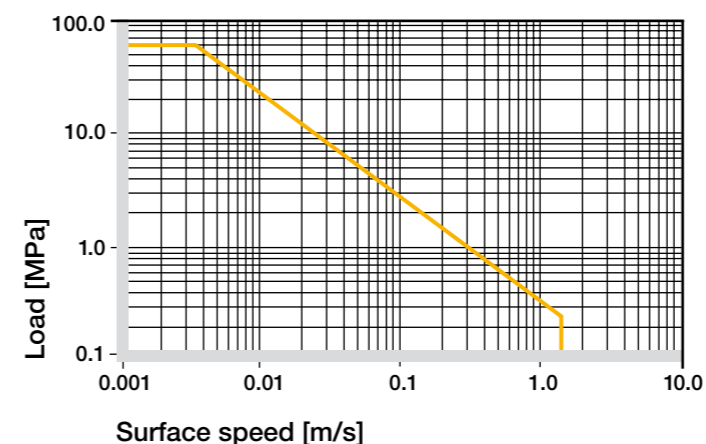


Diagram 01: Permissible pv values for iglidur® J350 bearings with a wall thickness of 1 mm dry running against a steel shaft, at +20 °C, mounted in a steel housing

Moisture absorption

The humidity absorption of iglidur® J350 is low and can be ignored when using standard-bearings. Even when saturated with water, iglidur® J350 does not absorb more than 1.6 % of water (by weight).

▶ Diagram, www.igus.eu/j350-moisture

Vacuum

iglidur® J350 plain bearings outgas to a very limited extent. Use in vacuum is possible with dehumidified bearings.

Radiation resistance

Plain bearings made from iglidur® J350 are resistant to radiation up to an intensity of 2 · 10² Gy.

UV resistance

iglidur® J350 plain bearings are partially resistant to UV radiation.

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

+ resistant 0 conditionally resistant – not resistant

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

Table 02: Chemical resistance

▶ Chemical table, page 1226

iglidur® J350 blends universally good wear resistance, flexibility and temperature resistance into a very versatile iglidur® material with a broad application spectrum.

Mechanical properties

With increasing temperatures, the compressive strength of iglidur® J350 plain bearings decreases. Diagram 02 clarifies this relationship. The recommended maximum surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.

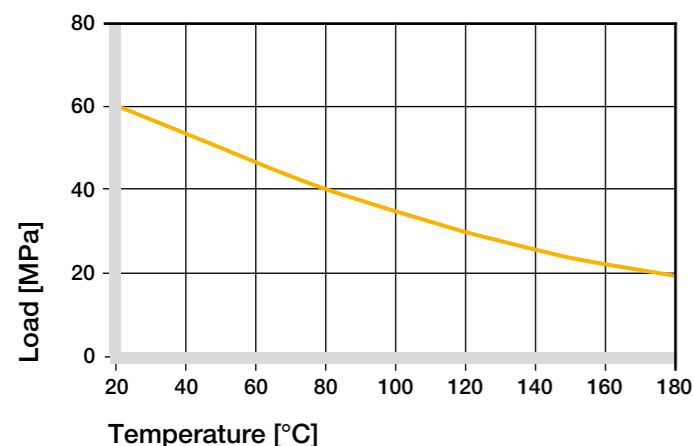


Diagram 02: Recommended maximum surface pressure of as a function of temperature (60 MPa at +20 °C)

iglidur® J350 bearings are adequate for medium and high loads. Diagram 03 shows the elastic deformation of iglidur® J350 under different loads. It shows the material behaviour submitted to a short term load. The surrounding temperatures are only noticeable at 60 MPa.

► Surface pressure, page 63

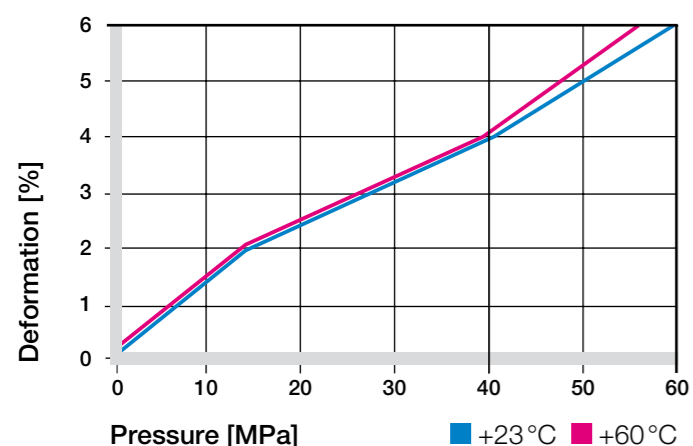


Diagram 03: Deformation under pressure and temperature

Permissible surface speeds

iglidur® J350 bearings are suitable for low and medium speeds in rotating and oscillating use. The wear rates are much better in rotating applications. And linear motions can be well mounted with iglidur® J350.

► Surface speed, page 65

| m/s | Rotating | Oscillating | Linear |
|------------|----------|-------------|--------|
| Continuous | 1.3 | 1 | 4 |
| Short term | 3 | 2.3 | 8 |

Table 03: Maximum surface speeds

Temperatures

The temperature in an application also has an effect on the bearing wear. The wear-rate of iglidur® J350 bearings changes very little at high temperatures. In some cases, the wear even decreases at +100 °C. At temperatures over +140 °C an additional securing is required.

► Application temperatures, page 66

► Additional securing, page 67

Friction and wear

The coefficients of friction of iglidur® J350 in dry operation against steel lie in a very good range. They decrease significantly at higher surface speeds. This benefits the service life of the bearings in continuous operations with high surface speeds. Diagram 04 shows this inverse relationship. Especially with loads larger than 2 MPa, the iglidur® J350 bearings are clearly superior to other bearings in rotating applications.

► Coefficients of friction and surfaces, page 68

► Wear resistance, page 69

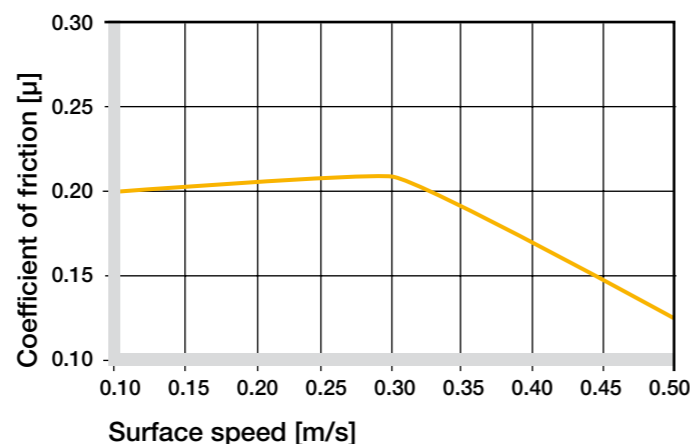


Diagram 04: Coefficient of friction as a function of the surface speed, p = 1 MPa

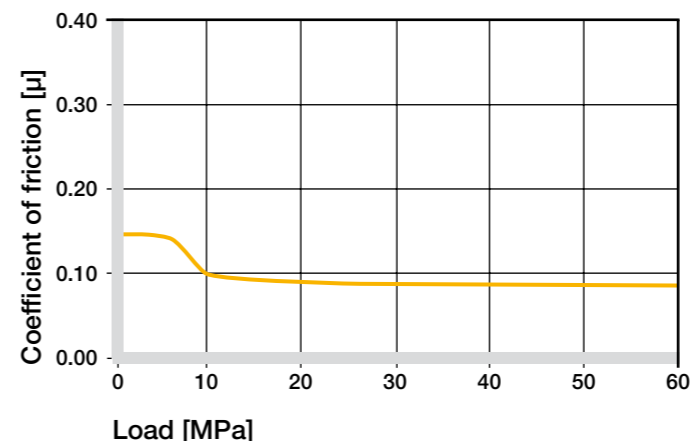


Diagram 05: Coefficient of friction as a function of the pressure, v = 0.01 m/s

Shaft materials

Diagrams 06 and 07 show results of testing different shaft materials with plain bearings made from iglidur® J350. iglidur® plain bearings can be combined with various shaft materials. One shaft – bearing combination stands out when looking at the wear results of the test: iglidur® J350 with soft stainless steel (V2A). Not many bearing materials are suitable for use with this rather difficult soft stainless steel material (V2A) and achieve good wear results. Also, iglidur J350 shows good properties with hard anodised aluminium shafts. If the shaft material you plan to use is not contained in this list, please contact us.

► Shaft materials, page 71

| iglidur® J350 | Dry | Greases | Oil | Water |
|---------------|---------|---------|------|-------|
| C. o. f. μ | 0.1–0.2 | 0.09 | 0.04 | 0.04 |

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

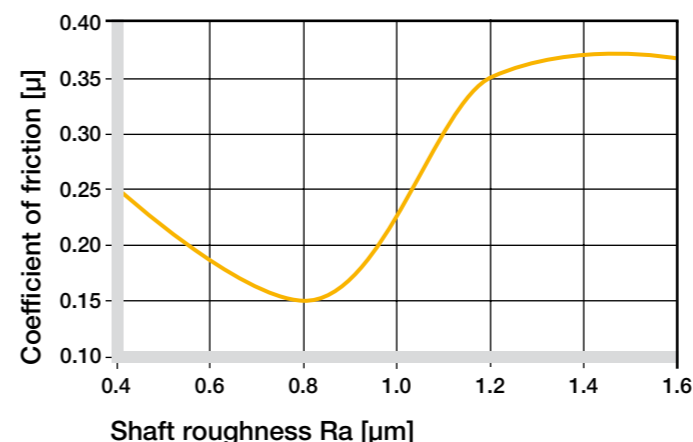


Diagram 06: Coefficient of friction as function of the shaft surface (Cf53 hardened and ground steel)

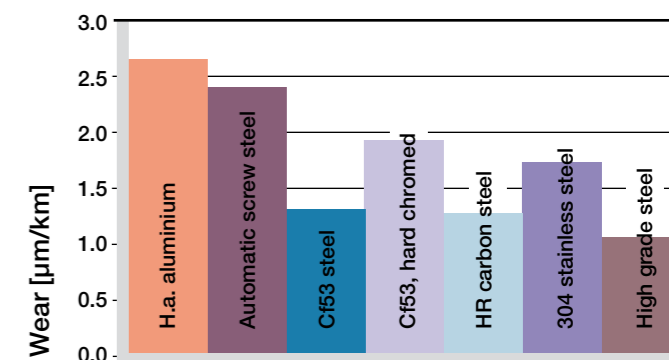


Diagram 07: Wear, rotating with different shaft materials, pressure, p = 1 MPa, v = 0.3 m/s

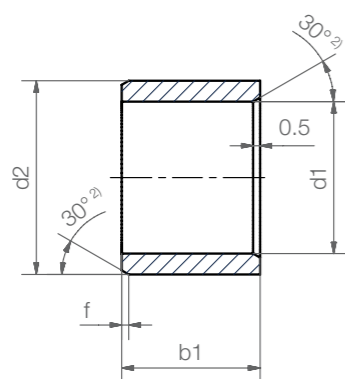
Installation tolerances

iglidur® J350 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

| Diameter d1 [mm] | Shaft h9 [mm] | iglidur® J350 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 05: Important tolerances for plain bearings according to ISO 3547-1 after pressfit



Order key

Type Dimensions
J350 S M-0608-06

| | | | | | |
|-------------------|--------|--------|-----------------|-----------------|----------------|
| iglidur® material | Form S | Metric | Inner-Ø d1 [mm] | Outer-Ø d2 [mm] | Length b1 [mm] |
|-------------------|--------|--------|-----------------|-----------------|----------------|

Dimensions according to ISO 3547-1 and special dimensions

²⁾ thickness < 1 mm, chamfer = 20°

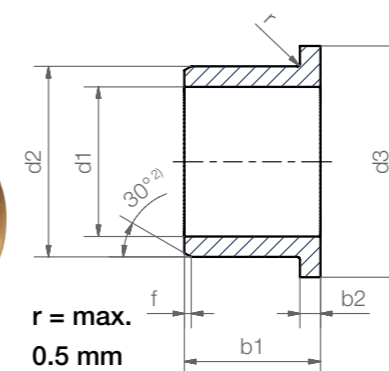
Chamfer in relation to the d1

| | | | | |
|----------|-------|--------|---------|--------|
| 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]

| d1 | d1-Tolerance ³⁾ | d2 | b1 h13 | Part No. |
|------|----------------------------|------|-----------|-----------------------|
| 6.0 | +0.010 +0.058 | 8.0 | 6.0 | J350SM-0608-06 |
| 8.0 | +0.013 +0.071 | 10.0 | 8.0 | J350SM-0810-08 |
| 8.0 | +0.013 +0.071 | 10.0 | 10.0 | J350SM-0810-10 |
| 10.0 | +0.013 +0.071 | 12.0 | 10.0 | J350SM-1012-10 |
| 12.0 | +0.016 +0.086 | 14.0 | 12.0 | J350SM-1214-12 |
| 16.0 | +0.016 +0.086 | 18.0 | 4.0 | J350SM-1618-04 |
| 16.0 | +0.016 +0.086 | 18.0 | 15.0 | J350SM-1618-15 |
| 20.0 | +0.020 +0.104 | 23.0 | 20.0 | J350SM-2023-20 |
| 25.0 | +0.020 +0.104 | 28.0 | 45.0 | J350SM-2528-45 |

³⁾ after pressfit. Testing methods ► Page 75



²⁾ thickness < 1 mm, chamfer = 20°

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]

| d1 | d1-Tolerance ³⁾ | d2 | d3 d13 | b1 h13 | b2 -0.14 | Part No. |
|------|----------------------------|------|-----------|-----------|-------------|-----------------------|
| 6.0 | +0.010 +0.058 | 8.0 | 12.0 | 6.0 | 1.0 | J350FM-0608-06 |
| 8.0 | +0.013 +0.071 | 10.0 | 15.0 | 10.0 | 1.0 | J350FM-0810-10 |
| 10.0 | +0.013 +0.071 | 12.0 | 18.0 | 7.0 | 1.0 | J350FM-1012-07 |
| 10.0 | +0.013 +0.071 | 12.0 | 18.0 | 10.0 | 1.0 | J350FM-1012-10 |
| 12.0 | +0.016 +0.086 | 14.0 | 20.0 | 12.0 | 1.0 | J350FM-1214-12 |
| 16.0 | +0.016 +0.086 | 18.0 | 24.0 | 17.0 | 1.0 | J350FM-1618-17 |
| 20.0 | +0.020 +0.104 | 23.0 | 30.0 | 21.5 | 1.5 | J350FM-2023-21 |
| 30.0 | +0.025 +0.125 | 34.0 | 42.0 | 22.0 | 2.0 | J350FM-3034-22 |
| 30.0 | +0.020 +0.104 | 34.0 | 42.0 | 37.0 | 2.0 | J350FM-3034-37 |

³⁾ after pressfit. Testing methods ► Page 75

Order key

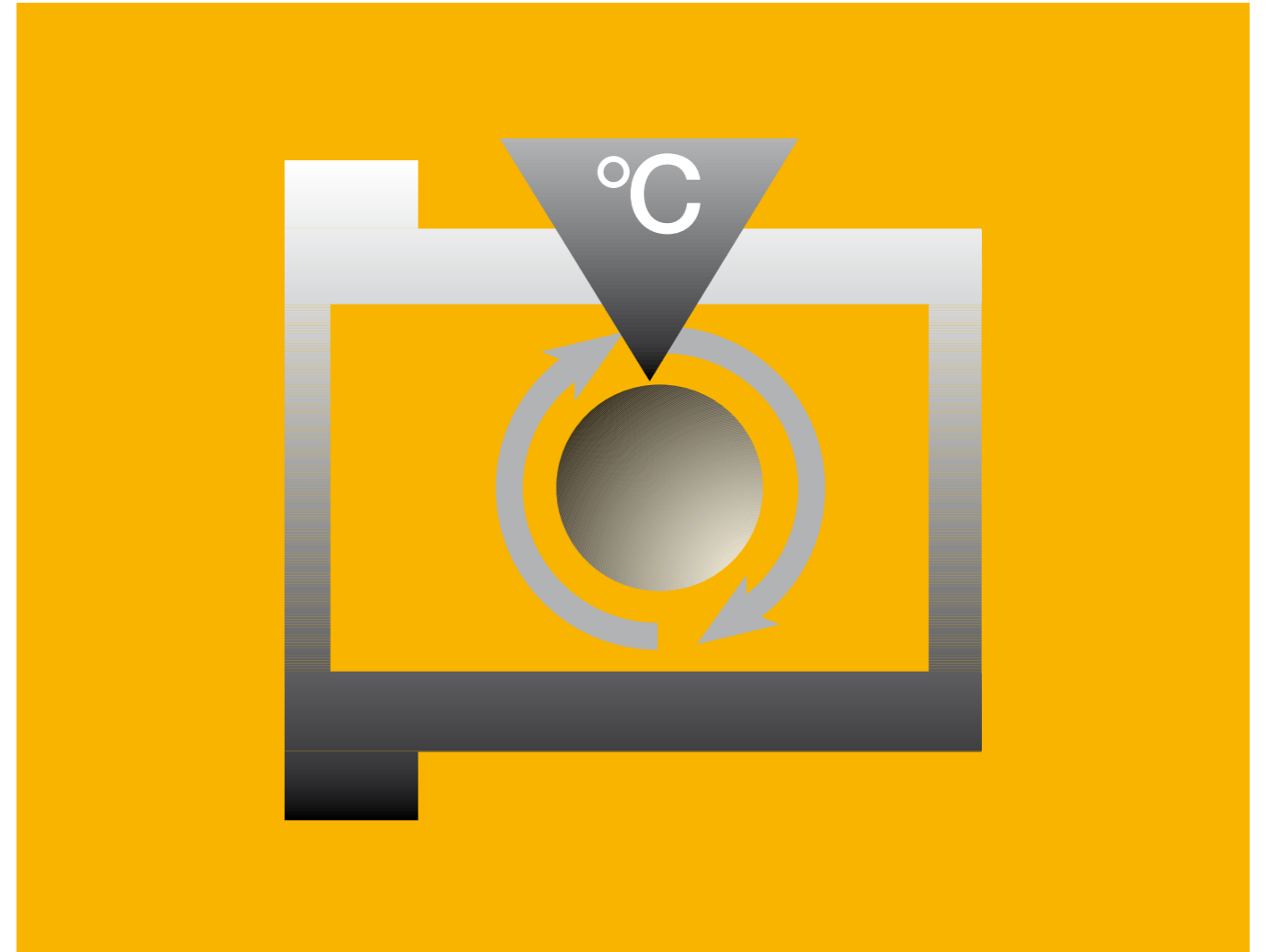
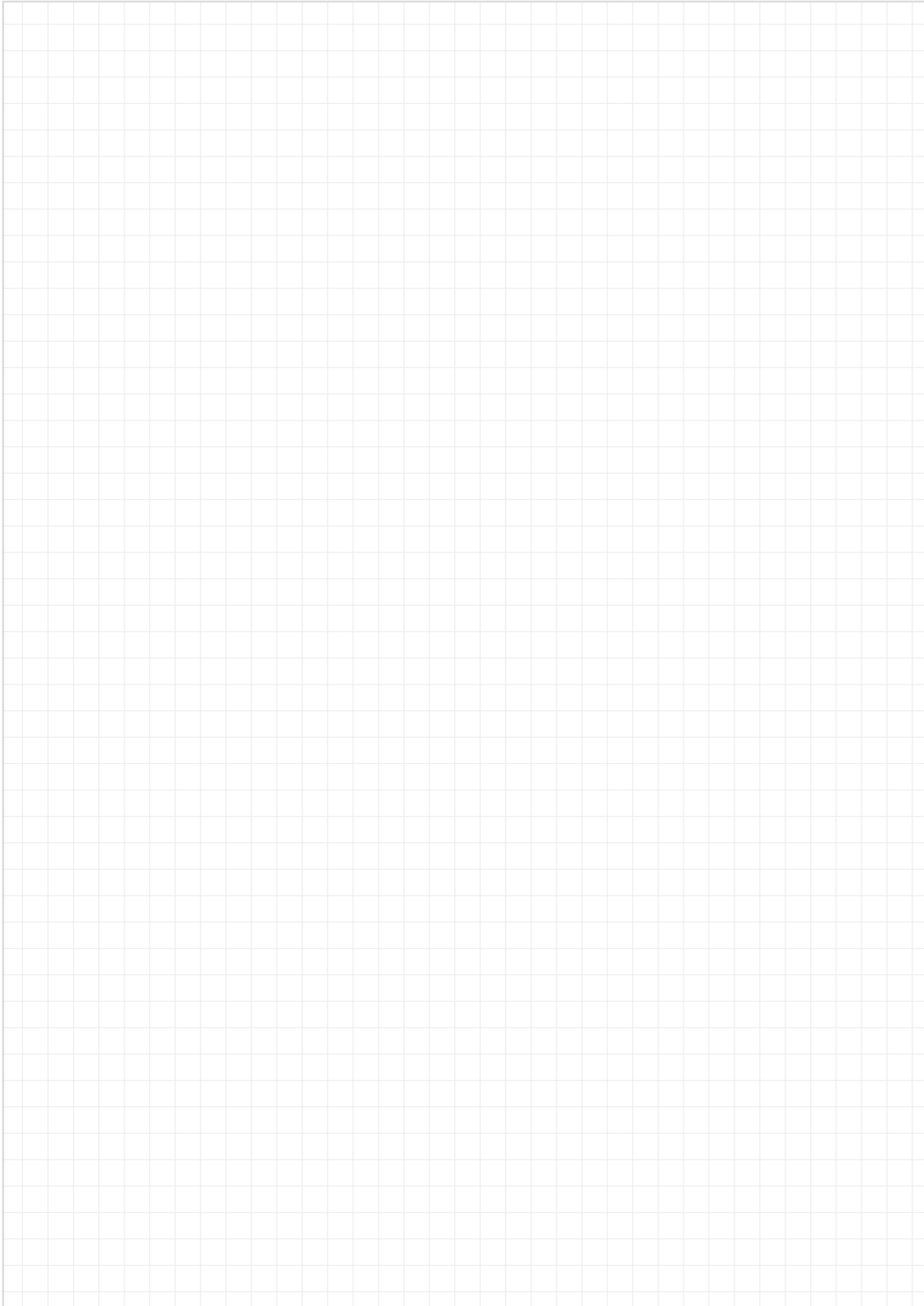
Type Dimensions
J350 F M-0608-06

| | | | | | |
|-------------------|--------|--------|-----------------|-----------------|----------------|
| iglidur® material | Form F | Metric | Inner-Ø d1 [mm] | Outer-Ø d2 [mm] | Length b1 [mm] |
|-------------------|--------|--------|-----------------|-----------------|----------------|

Dimensions according to ISO 3547-1 and special dimensions

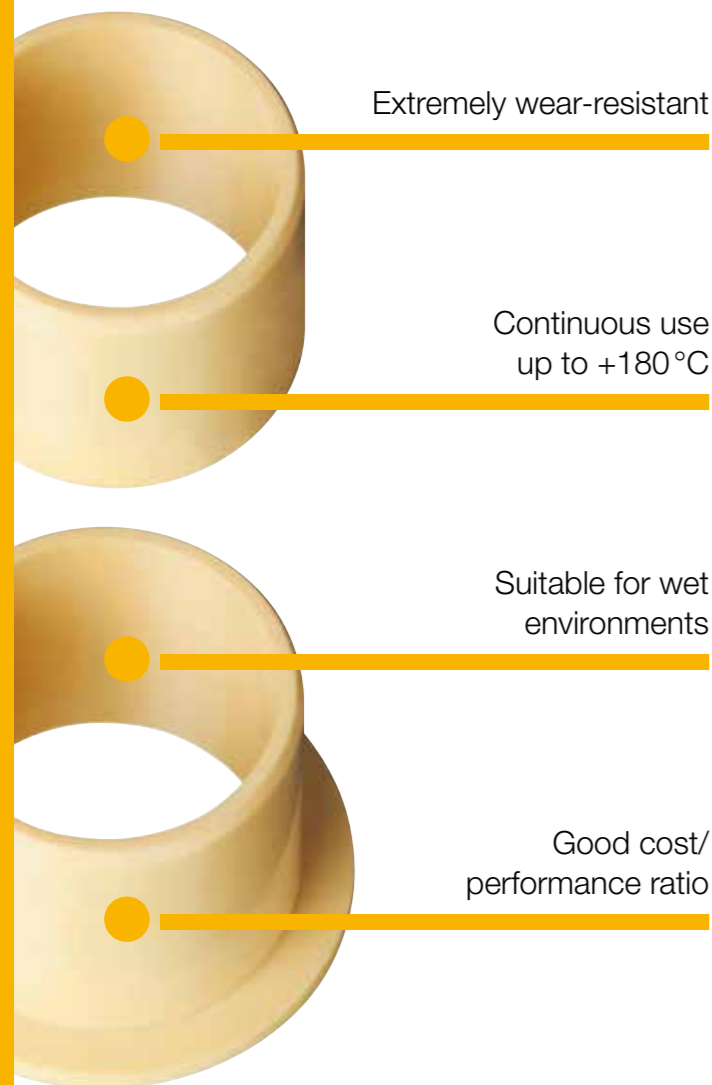
Don't find your size?

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.



General purpose endurance runner – iglidur® W360

- Extremely wear-resistant
- Continuous use up to +180 °C
- Suitable for wet environments
- Good price/performance ratio
- Lubrication and maintenance free
- Standard range from stock



The new iglidur® material combines outstanding continuous running properties with excellent temperature resistance, reduced moisture absorption and good value for money – a real all-rounder in the endurance field.



When to use it?

- When highly wear resistant bearings are required for average loads
- When regular contact with moisture occurs
- When sustained temperatures above +90 °C occur



When not to use it?

- When a highly wear resistant bearing is sought for the standard temperature range and low to medium loads
 - ▶ iglidur® J, page 99
- When the maximum temperature resistance and high wear resistance is required
 - ▶ iglidur® Z, page 263
 - ▶ iglidur® J350, page 199
 - ▶ iglidur® V400, page 255
- When the highest wear resistance under water is required
 - ▶ iglidur® UW, page 453
 - ▶ iglidur® H370, page 299



Available from stock

Detailed information about delivery time online.



max. +180 °C
min. -40 °C



Block pricing online

No minimum order value. From batch size 1



Ø 6–20 mm
more dimensions on request



Typical application areas

- Material handling
- Automation
- Two-wheel technology
- Electromobility, etc.

Material properties table

| General properties | Unit | iglidur® W360 | Testing method |
|--|------------------------------------|--------------------|----------------|
| Density | g/cm³ | 1.34 | |
| Colour | | yellow | |
| Max. moisture absorption at +23 °C/50 % r.h. | % weight | 0.2 | DIN 53495 |
| Max. water absorption | % weight | 1.6 | |
| Coefficient of sliding friction, dynamic against steel | μ | 0.07–0.21 | |
| pv value, max. (dry) | MPa · m/s | 0.35 | |
| Mechanical properties | | | |
| Modulus of elasticity | MPa | 3,829 | DIN 53457 |
| Tensile strength at +20 °C | MPa | 119 | DIN 53452 |
| Compressive strength | MPa | n.b. | |
| Max. recommended surface pressure (+20 °C) | MPa | 75 | |
| Shore-D hardness | | n.b. | DIN 53505 |
| Physical and thermal properties | | | |
| Max. long term application temperature | °C | +180 | |
| Max. short term application temperature | °C | +200 | |
| 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 | 6 | DIN 53752 |
| Electrical properties | | | |
| Specific volume resistance | Ωcm | > 10 ¹³ | DIN IEC 93 |
| Surface resistance | Ω | > 10 ¹² | DIN 53482 |

Table 01: Material properties table

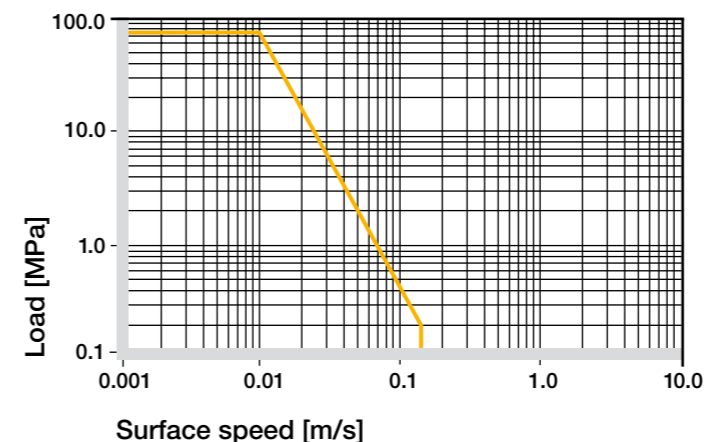


Diagram 01: Permissible pv values for iglidur® W360 bearings with a wall thickness of 1 mm dry running against a steel shaft, at +20 °C, mounted in a steel housing

Moisture absorption

The moisture absorption of iglidur® W360 is low and can be disregarded when used in a humid environment. With a full saturation of 1.6 %, however, underwater use is only possible to a very restricted extent.

Vacuum

In a vacuum, iglidur® W360 bearing outgases only to a very small extent. Use in vacuum is possible with dehumidified bearings.

Radiation resistance

Plain bearings made from iglidur® W360 are resistant to radiation up to an intensity of 2 · 10² Gy.

UV resistance

iglidur® W360 plain bearings are partially resistant to UV radiation.

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

+ resistant 0 conditionally resistant – not resistant

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

Table 02: Chemical resistance

▶ Chemical table, page 1226

Low moisture absorption and high temperature resistance result in an extremely broad range of uses for this extremely wear resistant material.

Mechanical properties

With increasing temperatures, the compressive strength of iglidur® W360 plain bearings decreases. Diagram 02 clarifies this relationship. At +180 °C the surface pressure is still 10 MPa. The recommended maximum surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.

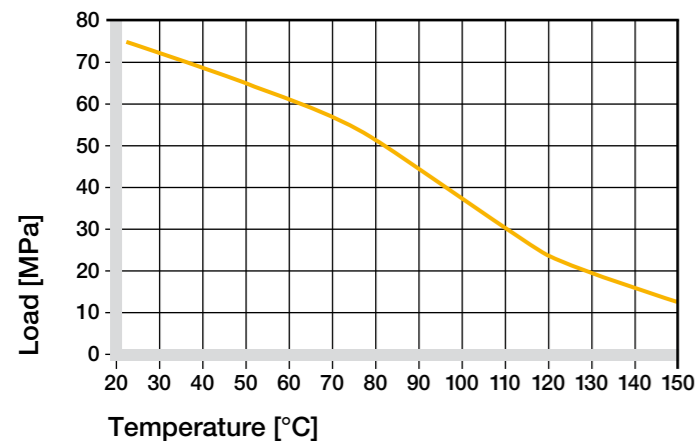


Diagram 02: Recommended maximum surface pressure of as a function of temperature (60 MPa at +20 °C)

iglidur® W360 bearings are suitable for a broad range of loads. Diagram 03 shows the deformation under temperature. It shows the material behaviour submitted to a short term load.

► Surface pressure, page 63

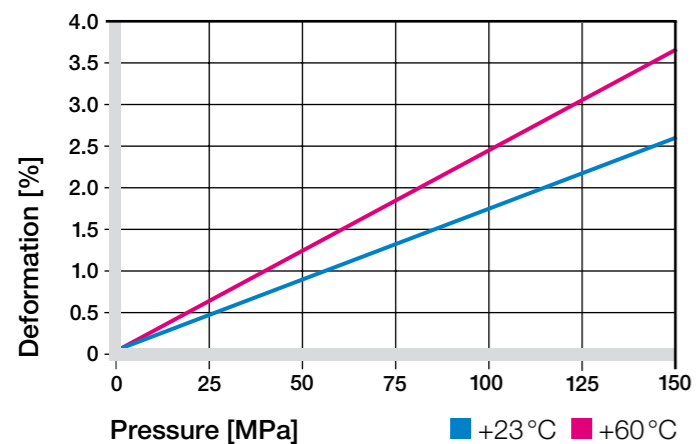


Diagram 03: Deformation under pressure and temperature

Permissible surface speeds

iglidur® W360 bearings are suitable for low to medium speeds in both rotating and oscillating applications. Even linear movements can often be realised with iglidur® W360.

► Surface speed, page 65

| m/s | Rotating | Oscillating | Linear |
|------------|----------|-------------|--------|
| Continuous | 1.2 | 0.9 | 3.0 |
| Short term | 2.7 | 2.0 | 5.0 |

Table 03: Maximum surface speeds

Temperatures

The temperature resistance makes iglidur® W360 a very universal material for plain bearings in different industries. Application temperatures up to +220 °C are permitted on the short term. Please note that from +90 °C the press-in fastening of the bearings is not sufficient and an additional securing of the bushings is required.

► Application temperatures, page 66

► Additional securing, page 67

Friction and wear

The coefficients of friction of iglidur® W360 in dry operation against steel lie in a very good range. They constantly remain at a low level regardless of the speed. The Diagram 04 shows this inverse relationship. As the load increases, the coefficient of friction decreases. The correlation is especially strong up to approx. 15 MPa (diagram 05).

► Coefficients of friction and surfaces, page 68

► Wear resistance, page 69

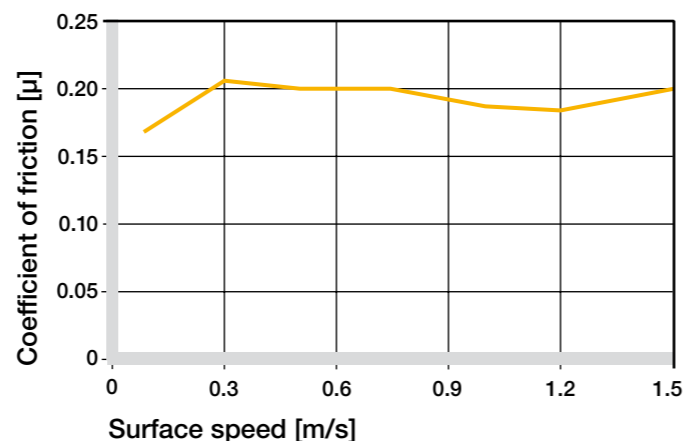


Diagram 04: Coefficient of friction as a function of the surface speed, p = 1 MPa

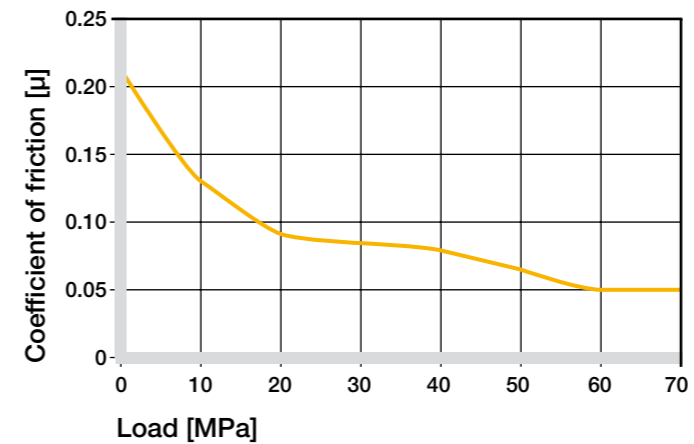


Diagram 05: Coefficient of friction as a function of the pressure, v = 0.01 m/s

Shaft materials

In the case of iglidur® W360, the shaft's surface finish has practically no effect on the coefficient of friction in the range of up to 1.6 MPa (diagram 06). Diagram 07 shows an extract of results of tests with different shaft materials. iglidur® W360 bearings are suitable for all gliding partners. During rotation with a load of 1 MPa, all aluminium hc, Cf53 and stainless steel shafts stand out. A similar picture also exists with other loads or pivoting movements.

If the shaft material you plan on using is not shown in these test results, please contact us.

► Shaft materials, page 71

| iglidur® W360 | Dry | Greases | Oil | Water |
|---------------|-----------|---------|------|-------|
| C. o. f. μ | 0.07–0.21 | 0.09 | 0.04 | 0.04 |

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

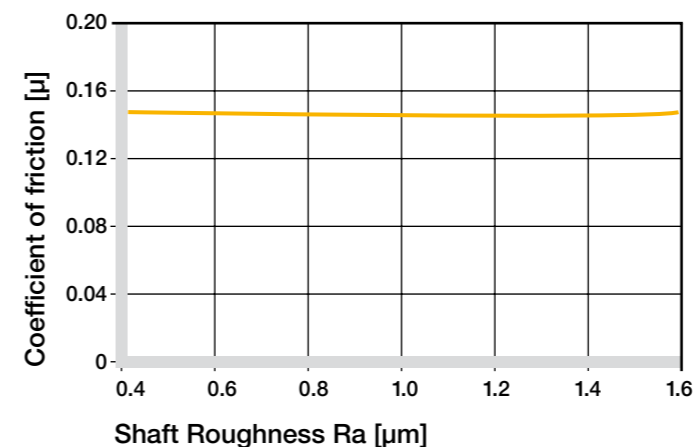


Diagram 06: Coefficient of friction as function of the shaft surface (Cf53)

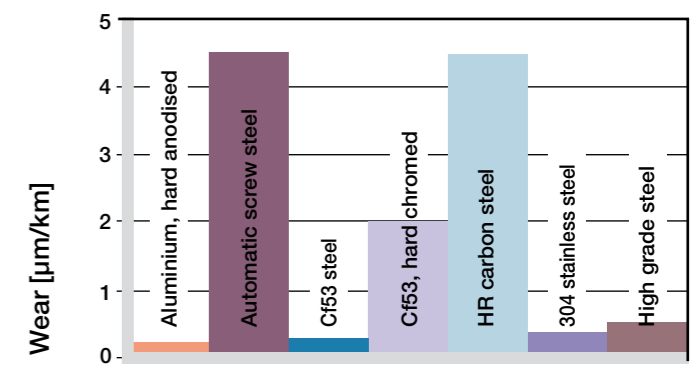


Diagram 07: Wear, rotating with different shaft materials, p = 1 MPa, v = 0.3 m/s

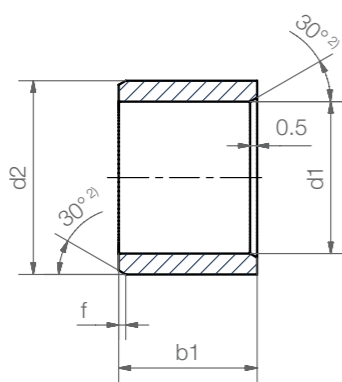
Installation tolerances

iglidur® W360 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 automatically adjusts to the E10 tolerances.

► Testing methods, page 75

| Diameter d1 [mm] | Shaft h9 [mm] | iglidur® W360 E10 [mm] | Housing H7 [mm] |
|------------------|---------------|------------------------|-----------------|
| up to 3 | 0–0.025 | +0.014 +0.054 | 0 +0.010 |
| > 3 to 6 | 0–0.030 | +0.020 +0.068 | 0 +0.012 |
| > 6 to 10 | 0–0.036 | +0.025 +0.083 | 0 +0.015 |
| > 10 to 18 | 0–0.043 | +0.032 +0.102 | 0 +0.018 |
| > 18 to 30 | 0–0.052 | +0.040 +0.124 | 0 +0.021 |
| > 30 to 50 | 0–0.062 | +0.050 +0.150 | 0 +0.025 |
| > 50 to 80 | 0–0.074 | +0.060 +0.180 | 0 +0.030 |

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



Order key

Type Dimensions

W360 S M-0608-06

| | | | | | |
|-------------------|--------|--------|-----------------|-----------------|----------------|
| iglidur® material | Form S | Metric | Inner-Ø d1 [mm] | Outer-Ø d2 [mm] | Length b1 [mm] |
|-------------------|--------|--------|-----------------|-----------------|----------------|

Dimensions according to ISO 3547-1 and special dimensions

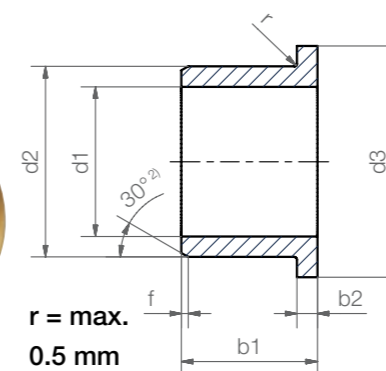
²⁾ thickness < 1 mm, chamfer = 20°

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]

| d1 | d1-Tolerance ³⁾ | d2 | b1 h13 | Part No. |
|------|----------------------------|------|-----------|----------------|
| 6.0 | +0.020 +0.068 | 8.0 | 6.0 | W360SM-0608-06 |
| 8.0 | +0.025 +0.083 | 10.0 | 10.0 | W360SM-0810-10 |
| 10.0 | +0.025 +0.083 | 12.0 | 10.0 | W360SM-1012-10 |
| 12.0 | +0.032 +0.102 | 14.0 | 12.0 | W360SM-1214-12 |
| 16.0 | +0.032 +0.102 | 18.0 | 15.0 | W360SM-1618-15 |
| 20.0 | +0.040 +0.124 | 23.0 | 20.0 | W360SM-2023-20 |

³⁾ after pressfit. Testing methods ► Page 75

 $r = \max.$
0.5 mm

²⁾ thickness < 1 mm, chamfer = 20°

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]

| d1 | d1-Tolerance ³⁾ | d2 | d3 d13 | b1 h13 | b2 -0.14 | Part No. |
|------|----------------------------|------|-----------|-----------|-------------|----------------|
| 6.0 | +0.020 +0.068 | 8.0 | 12.0 | 6.0 | 1.0 | W360FM-0608-06 |
| 8.0 | +0.025 +0.083 | 10.0 | 15.0 | 10.0 | 1.0 | W360FM-0810-10 |
| 10.0 | +0.025 +0.083 | 12.0 | 18.0 | 10.0 | 1.0 | W360FM-1012-10 |
| 12.0 | +0.032 +0.102 | 14.0 | 20.0 | 12.0 | 1.0 | W360FM-1214-12 |
| 16.0 | +0.032 +0.102 | 18.0 | 24.0 | 17.0 | 1.0 | W360FM-1618-17 |
| 20.0 | +0.040 +0.124 | 23.0 | 30.0 | 21.5 | 1.5 | W360FM-2023-21 |

³⁾ after pressfit. Testing methods ► Page 75

Order key

Type Dimensions

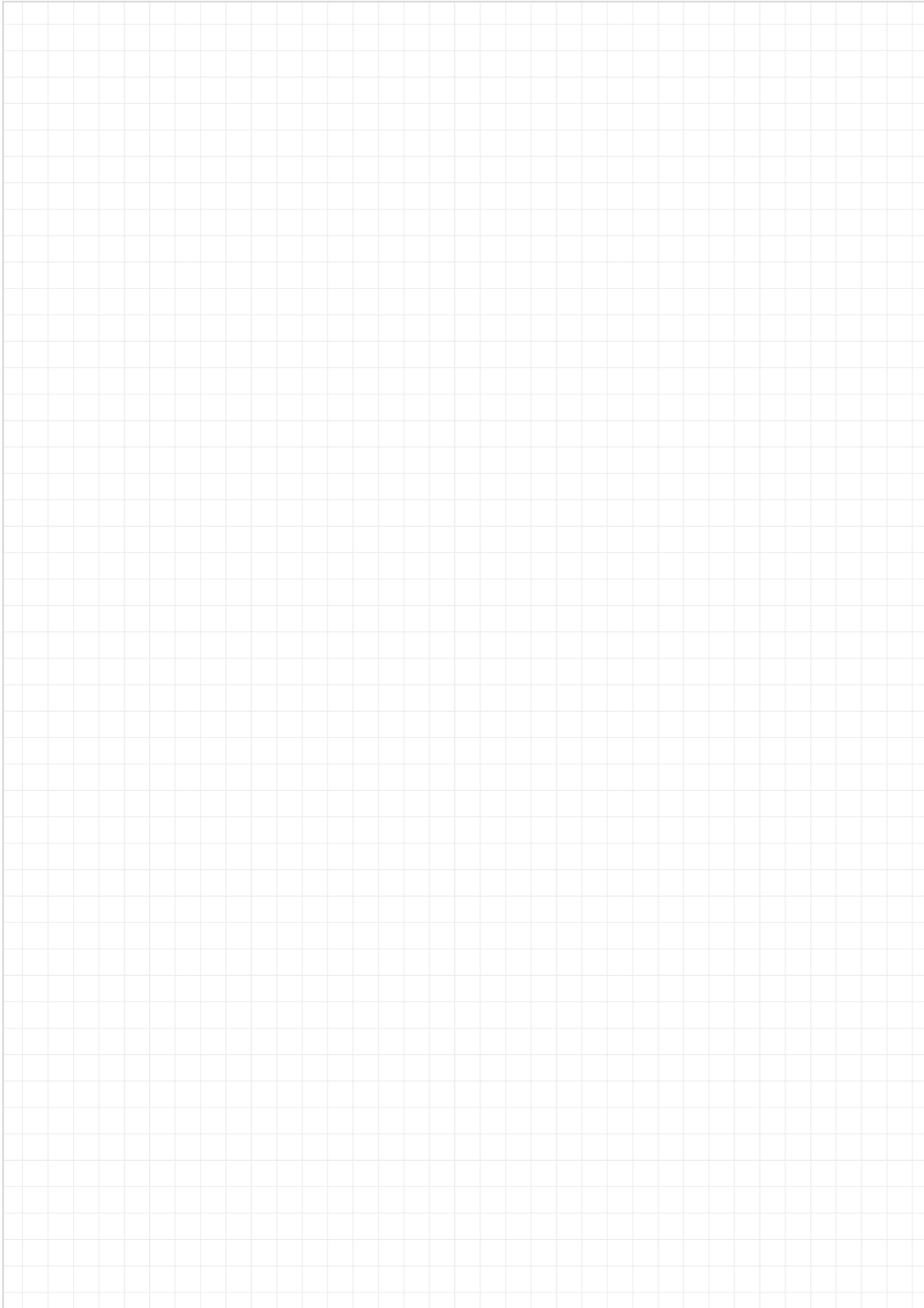
W360 F M-0608-06

| | | | | | |
|-------------------|--------|--------|-----------------|-----------------|----------------|
| iglidur® material | Form F | Metric | Inner-Ø d1 [mm] | Outer-Ø d2 [mm] | Length b1 [mm] |
|-------------------|--------|--------|-----------------|-----------------|----------------|

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. iglus® listens to your needs and provides you a solution in a very short time.



For high speeds – iglidur® L250

- Specially made for fast rotating applications
- Very low coefficients of friction
- Excellent wear resistance
- Lubrication and maintenance free
- Standard range from stock

Specially made for fast rotating applications

Very low coefficients of friction

Excellent wear resistance

Plain bearings for high speed rotation applications, especially for fan- and motors.



When to use it?

- For rotating applications at high speed
- If highest service life is required
- Low load applications
- If low noise level is required
- For very low coefficients of friction



When not to use it?

- When high pressure loads occur
 - ▶ iglidur® Q, page 401
 - ▶ iglidur® W300, page 121
- When sustained temperatures above +90 °C is a condition
 - ▶ iglidur® V400, page 255
- When low moisture absorption is required
 - ▶ iglidur® H1, page 291
 - ▶ iglidur® J, page 99



Available from stock

Detailed information about delivery time online.



max. +90 °C
min. -40 °C



Block pricing online

No minimum order value. From batch size 1



Ø 6–20 mm
more dimensions on request



Typical application areas

● Automotive ● Electronics industry ● Mechatronics ● Optical industry ● Test engineering and quality assurance etc.

Material properties table

| General properties | Unit | iglidur® L250 | Testing method |
|--|------------------------------------|--------------------|----------------|
| Density | g/cm ³ | 1.50 | |
| Colour | | beige | |
| Max. moisture absorption at +23 °C/50 % r.h. | % weight | 0.7 | DIN 53495 |
| Max. water absorption | % weight | 3.9 | |
| Coefficient of sliding friction, dynamic against steel | μ | 0.08–0.19 | |
| pv value, max. (dry) | MPa · m/s | 0.4 | |
| Mechanical properties | | | |
| Modulus of elasticity | MPa | 1,950 | DIN 53457 |
| Tensile strength at +20 °C | MPa | 67 | DIN 53452 |
| Compressive strength | MPa | 47 | |
| Max. recommended surface pressure (+20 °C) | MPa | 45 | |
| Shore-D hardness | | 68 | DIN 53505 |
| Physical and thermal properties | | | |
| Max. long term application temperature | °C | +90 | |
| Max. short term application temperature | °C | +180 | |
| 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 | 10 | DIN 53752 |
| Electrical properties | | | |
| Specific volume resistance | Ωcm | > 10 ¹⁰ | DIN IEC 93 |
| Surface resistance | Ω | > 10 ¹¹ | DIN 53482 |

Table 01: Material properties table

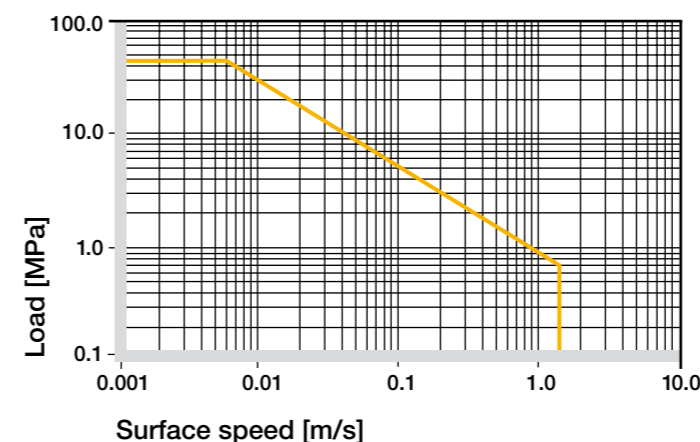


Diagram 01: Permissible pv values for iglidur® L250 bearings with a wall thickness of 1 mm dry running against a steel shaft, at +20 °C, mounted in a steel housing

Moisture absorption

With regard to applications where the smallest bearing clearances are concerned, please take the moisture absorption into consideration.

▶ Diagram, www.igus.eu/I250-moisture

Vacuum

In vacuum, any absorbed moisture content is outgassed. Therefore, only dehumidified bearings of iglidur® L250 are suitable for a vacuum application.

Radiation resistance

iglidur® L250 bearings are resistant to radiation up to a radiation intensity of 3 · 10⁴ Gy. Higher radiation affects the material and may result in a significant decrease in mechanical properties.

UV resistance

When subjected to UV radiation, iglidur® L250 plain bearings change colour. Their properties, however, are not affected.

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

+ resistant 0 conditionally resistant - not resistant

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

Table 02: Chemical resistance

▶ Chemical table, page 1226

iglidur® L250 is a bearing material for high rotation speeds and low coefficients of friction. The iglidur® L250 material can feature these advantages particularly with low loads. Applications which feature these advantages are fans, small motors, fast-running sensors or the magnet technology.

Mechanical properties

With increasing temperatures, the compressive strength of iglidur® L250 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.

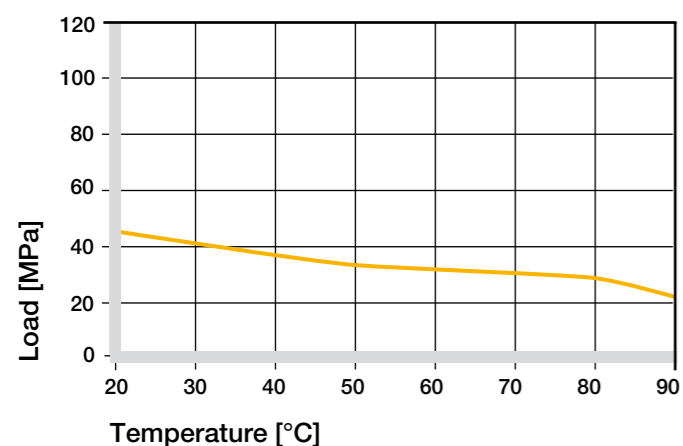


Diagram 02: Recommended maximum surface pressure of as a function of temperature (45 MPa at +20°C)

Diagram 03 shows the elastic deformation of iglidur® L250 at radial load. At the maximum recommended surface pressure of 45 MPa at room temperature the deformation is less than 3%. A plastic deformation can be negligible up to this value. It is however also dependent on the duty cycle of the load.

► Surface pressure, page 63

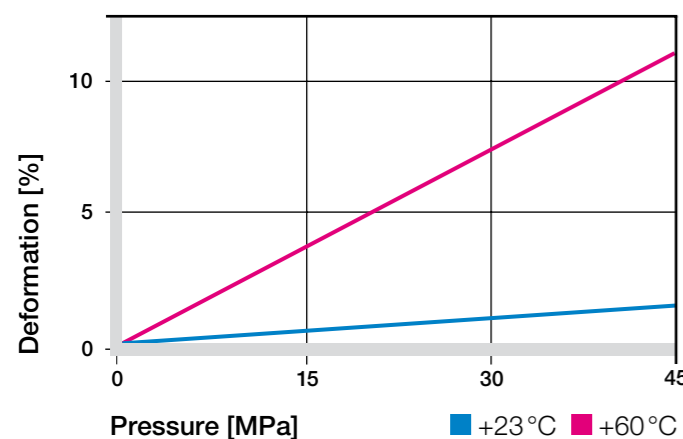


Diagram 03: Deformation under pressure and temperature

Permissible surface speeds

iglidur® L250 has been developed especially for high surface speeds with low loads. Besides the physical limit, which is preset by the heating of the bearing, the coefficients of wear also act limitingly if rapidly high glide paths emerge at high peripheral speeds and the permitted wear limit is thus reached earlier. The maximum speeds are shown in table 03.

► Surface speed, page 65

| m/s | Rotating | Oscillating | Linear |
|------------|----------|-------------|--------|
| Continuous | 1 | 0.7 | 2 |
| Short term | 1.5 | 1.1 | 3 |

Table 03: Maximum surface speeds

Temperatures

The iglidur® L250 bearings can be used in temperatures up to +180°C for the short-term. Note that a mechanical securing of the bearing is required from temperatures of +55°C. Higher temperatures can also cause the bearing to lose its press-fit seating and move in the bore.

► Application temperatures, page 66

► Additional securing, page 67

Friction and wear

In the best pairing (with V2A shafts), coefficients of friction of 0.14 are already reached with low loads. Coefficients of friction under 0.1 were measured already below 10 MPa (diagrams 04 and 05).

► Coefficients of friction and surfaces, page 68

► Wear resistance, page 69

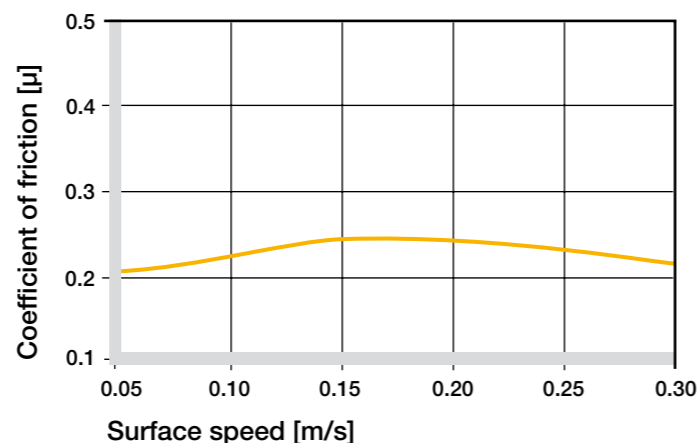


Diagram 04: Coefficient of friction as a function of the surface speed, p = 0.75 MPa

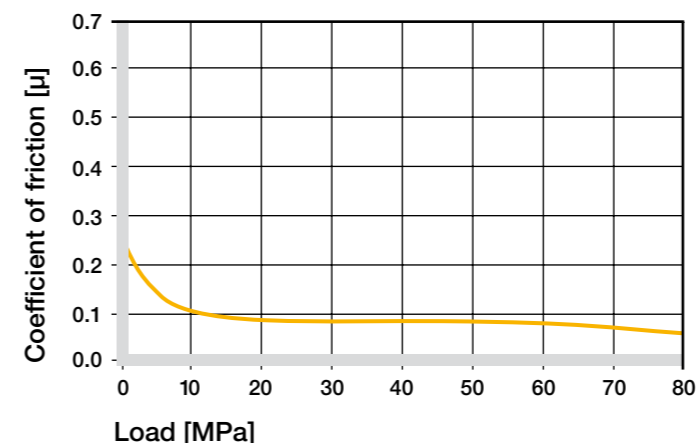


Diagram 05: Coefficient of friction as a function of the pressure, v = 0.01 m/s

Shaft materials

As seen in diagram 06, many shafts are recommendable for low loads and low rotations. The good coefficients of friction are additionally retained over a wide range of recommendable shaft surfaces finish. For loads higher than 1 MPa, particular attention should be paid to the shaft material used.

► Shaft materials, page 71

| iglidur® L250 | Dry | Greases | Oil | Water |
|---------------|-----------|---------|------|-------|
| C.o.f. μ | 0.08–0.19 | 0.09 | 0.04 | 0.04 |

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

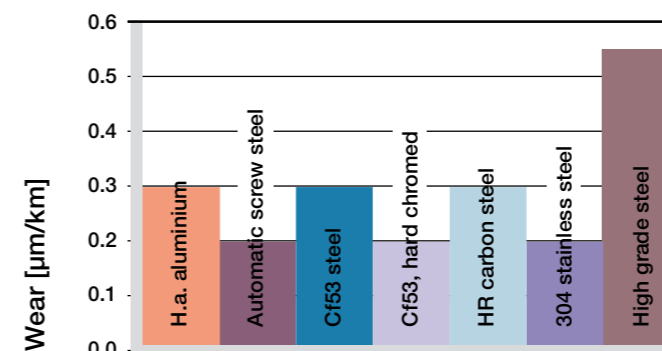


Diagram 06: Wear, rotating with different shaft materials, p = 1 MPa, v = 0.3 m/s

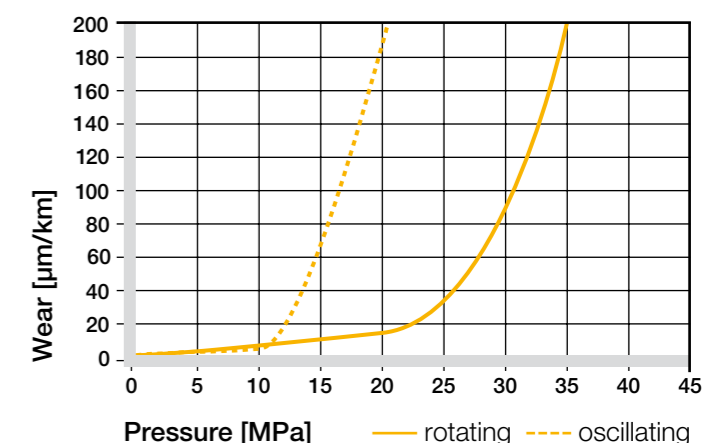


Diagram 07: Wear for oscillating and rotating applications with shaft material Cf53 hardened and ground steel, as a function of the pressure

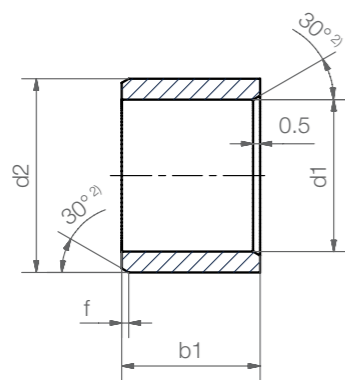
Installation tolerances

iglidur® L250 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 automatically adjusts to the E10 tolerances. For particular dimensions the tolerance differs depending on the wall thickness (please see product range table).

► Testing methods, page 75

| Diameter d1 [mm] | Shaft h9 [mm] | iglidur® L250 E10 [mm] | Housing H7 [mm] |
|------------------|---------------|------------------------|-----------------|
| up to 3 | 0–0.025 | +0.014 +0.054 | 0 +0.010 |
| > 3 to 6 | 0–0.030 | +0.020 +0.068 | 0 +0.012 |
| > 6 to 10 | 0–0.036 | +0.025 +0.083 | 0 +0.015 |
| > 10 to 18 | 0–0.043 | +0.032 +0.102 | 0 +0.018 |
| > 18 to 30 | 0–0.052 | +0.040 +0.124 | 0 +0.021 |
| > 30 to 50 | 0–0.062 | +0.050 +0.150 | 0 +0.025 |
| > 50 to 80 | 0–0.074 | +0.060 +0.180 | 0 +0.030 |
| > 80 to 120 | 0–0.087 | +0.072 +0.212 | 0 +0.035 |
| >120 to 180 | 0–0.100 | +0.085 +0.245 | 0 +0.040 |

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



Order key

Type Dimensions
L250 S M-0608-06

| | | | | | |
|-------------------|--------|--------|-----------------|-----------------|----------------|
| iglidur® material | Form S | Metric | Inner-Ø d1 [mm] | Outer-Ø d2 [mm] | Length b1 [mm] |
|-------------------|--------|--------|-----------------|-----------------|----------------|

Dimensions according to ISO 3547-1 and special dimensions

²⁾ thickness < 1 mm, chamfer = 20°

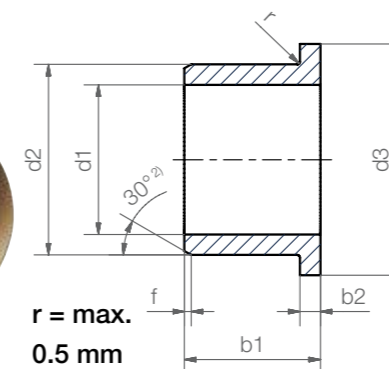
Chamfer in relation to the d1

| | | | | |
|----------|-------|--------|---------|--------|
| 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]

| d1 | d1-Tolerance ³⁾ | d2 | b1 h13 | Part No. |
|------|----------------------------|------|-----------|-----------------------|
| 6.0 | +0.020 +0.068 | 8.0 | 6.0 | L250SM-0608-06 |
| 8.0 | +0.025 +0.083 | 10.0 | 10.0 | L250SM-0810-10 |
| 10.0 | +0.025 +0.083 | 12.0 | 10.0 | L250SM-1012-10 |
| 12.0 | +0.032 +0.102 | 14.0 | 12.0 | L250SM-1214-12 |
| 16.0 | +0.032 +0.102 | 18.0 | 15.0 | L250SM-1618-15 |
| 20.0 | +0.040 +0.124 | 23.0 | 20.0 | L250SM-2023-20 |

³⁾ after pressfit. Testing methods ► Page 75



Order key

Type Dimensions
L250 F M-0608-06

| | | | | | |
|-------------------|--------|--------|-----------------|-----------------|----------------|
| iglidur® material | Form F | Metric | Inner-Ø d1 [mm] | Outer-Ø d2 [mm] | Length b1 [mm] |
|-------------------|--------|--------|-----------------|-----------------|----------------|

Dimensions according to ISO 3547-1 and special dimensions

²⁾ thickness < 1 mm, chamfer = 20°

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 |

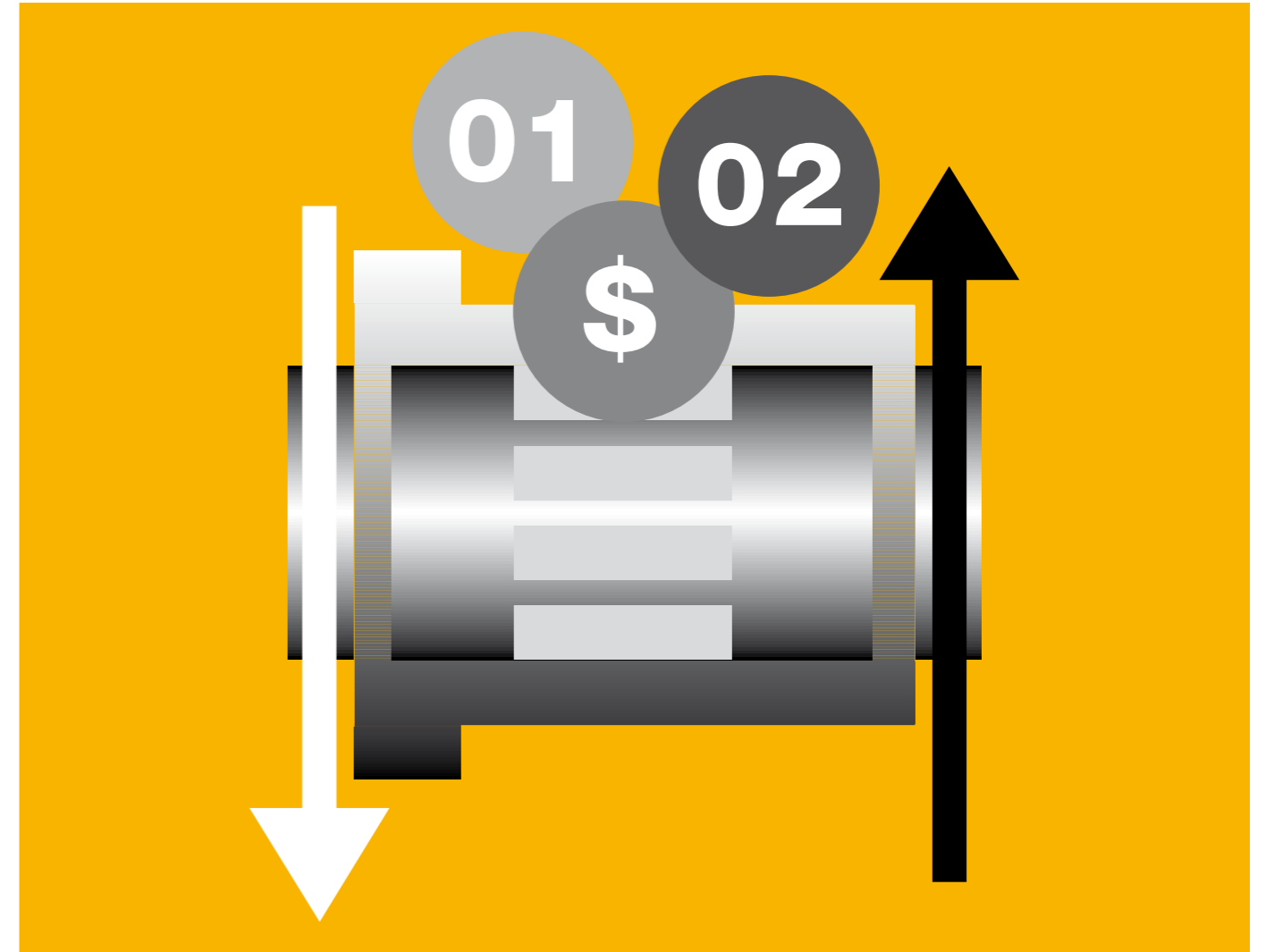
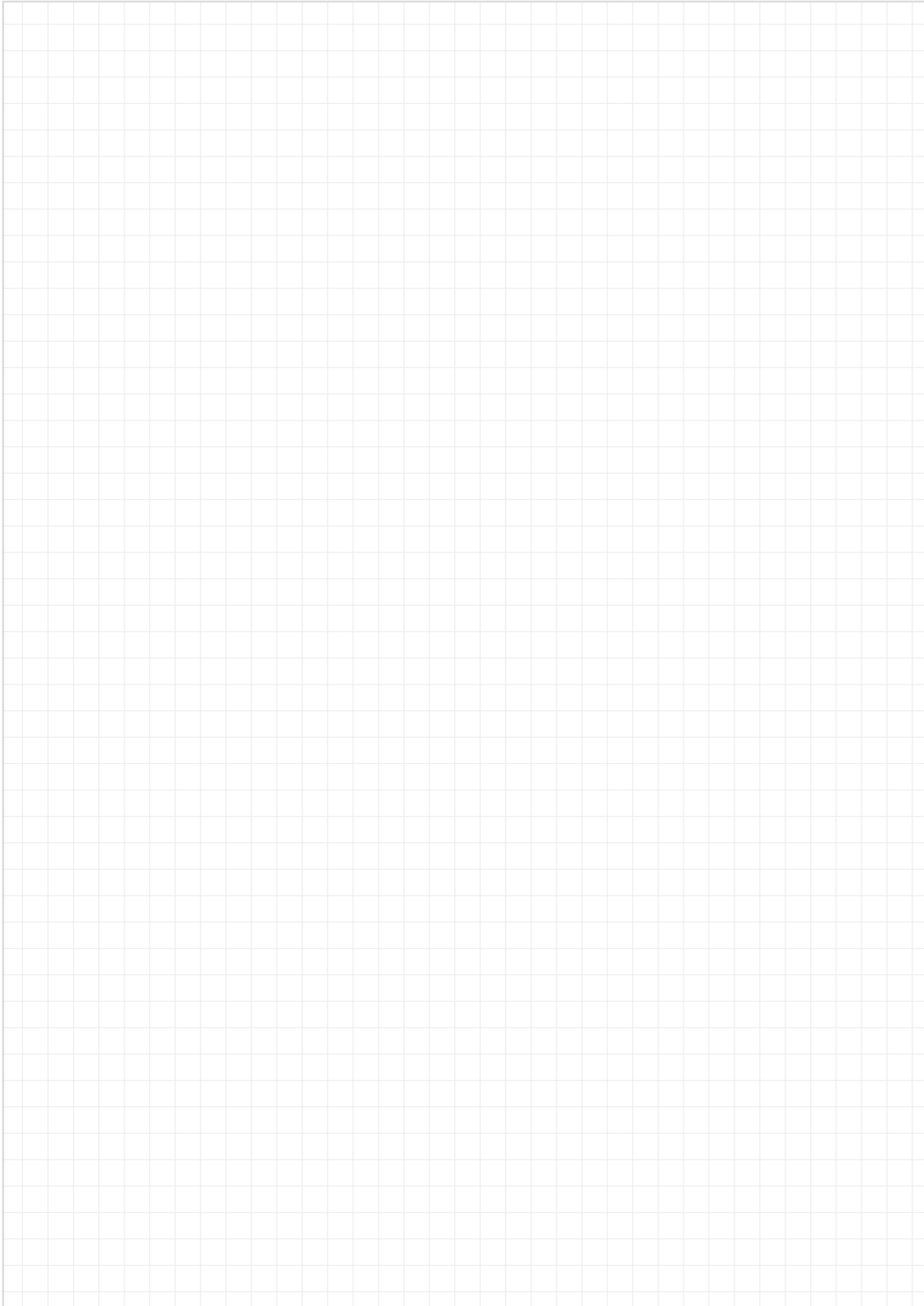
Dimensions [mm]

| d1 | d1-Tolerance ³⁾ | d2 | d3 d13 | b1 h13 | b2 -0.14 | Part No. |
|------|----------------------------|------|-----------|-----------|-------------|-----------------------|
| 6.0 | +0.020 +0.068 | 8.0 | 12.0 | 6.0 | 1.0 | L250FM-0608-06 |
| 8.0 | +0.025 +0.083 | 10.0 | 15.0 | 10.0 | 1.0 | L250FM-0810-10 |
| 10.0 | +0.025 +0.083 | 12.0 | 18.0 | 10.0 | 1.0 | L250FM-1012-10 |
| 12.0 | +0.032 +0.102 | 14.0 | 20.0 | 12.0 | 1.0 | L250FM-1214-12 |
| 16.0 | +0.032 +0.102 | 18.0 | 24.0 | 17.0 | 1.0 | L250FM-1618-17 |
| 20.0 | +0.040 +0.124 | 23.0 | 30.0 | 21.5 | 1.5 | L250FM-2023-21 |

³⁾ after pressfit. Testing methods ► Page 75

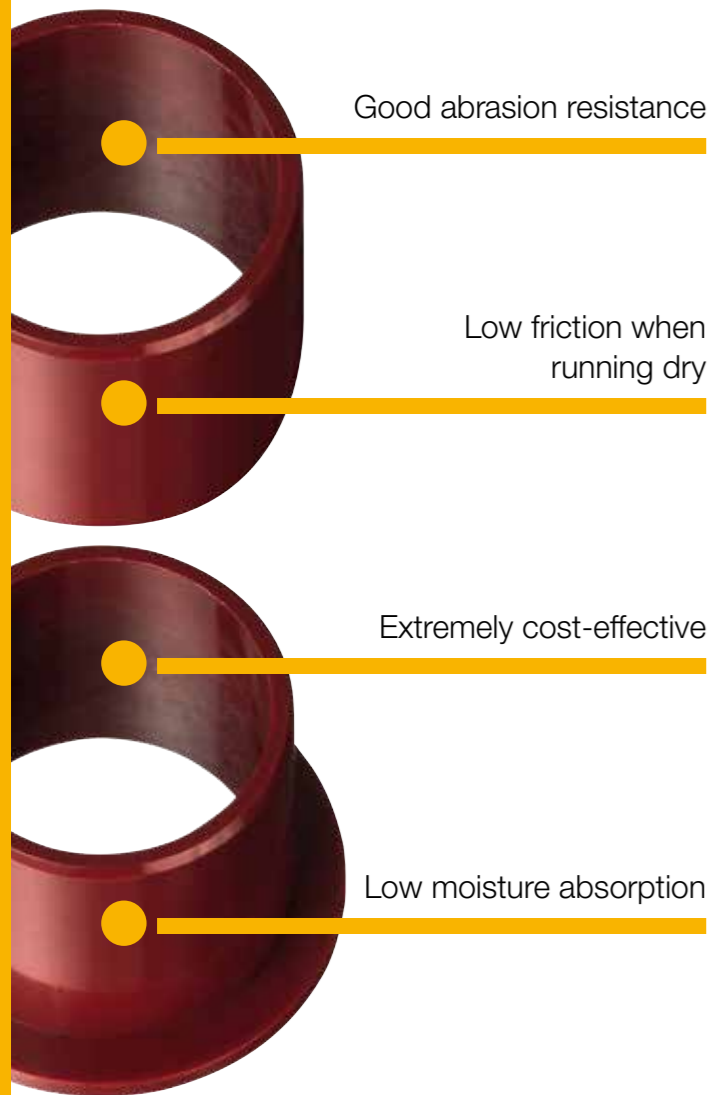
Don't find your size?

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.



Low-cost – iglidur® R

- Good abrasion resistance
- Low coefficients of friction running dry
- Very cost-effective
- Low moisture absorption
- Lubrication and maintenance free
- Standard range from stock



Low-cost-material with low coefficients of friction and good wear resistance at low to medium loads.



When to use it?

- If high wear resistance at low loads is required
- If you are looking for a very cost-effective bearing
- When very low coefficients of friction in dry operation are required
- If edge loads occur
- If you are looking for low water absorption
- If PTFE and silicone are prohibited in the application



When not to use it?

- If high pressure occurs
 - ▶ iglidur® G, page 83
- When constant temperatures exceed +90 °C
 - ▶ iglidur® G, page 83
 - ▶ iglidur® P, page 149
- If best wear resistance is required
 - ▶ iglidur® J, page 99



Available from stock

Detailed information about delivery time online.



max. +90 °C
min. -50 °C



Block pricing online

No minimum order value. From batch size 1



Ø 2–35 mm
more dimensions on request



Typical application areas

- Sports and leisure
- Model making
- Furniture industry
- Mechatronics, etc.

Material properties table

| General properties | Unit | iglidur® R | Testing method |
|--|------------------------------------|--------------------|----------------|
| Density | g/cm ³ | 1.39 | |
| Colour | | dark red | |
| Max. moisture absorption at +23 °C/50 % r.h. | % weight | 0.2 | DIN 53495 |
| Max. water absorption | % weight | 1.1 | |
| Coefficient of sliding friction, dynamic against steel | μ | 0.09–0.25 | |
| pv value, max. (dry) | MPa · m/s | 0.27 | |
| Mechanical properties | | | |
| Modulus of elasticity | MPa | 1,950 | DIN 53457 |
| Tensile strength at +20 °C | MPa | 70 | DIN 53452 |
| Compressive strength | MPa | 68 | |
| Max. recommended surface pressure (+20 °C) | MPa | 23 | |
| Shore-D hardness | | 77 | DIN 53505 |
| Physical and thermal properties | | | |
| Max. long term application temperature | °C | +90 | |
| Max. short term application temperature | °C | +110 | |
| Min. application temperature | °C | -50 | |
| Thermal conductivity | W/m · K | 0.25 | ASTM C 177 |
| Coefficient of thermal expansion (at +23 °C) | K ⁻¹ · 10 ⁻⁵ | 11 | DIN 53752 |
| Electrical properties | | | |
| Specific volume resistance | Ωcm | > 10 ¹² | DIN IEC 93 |
| Surface resistance | Ω | > 10 ¹² | DIN 53482 |

Table 01: Material properties table

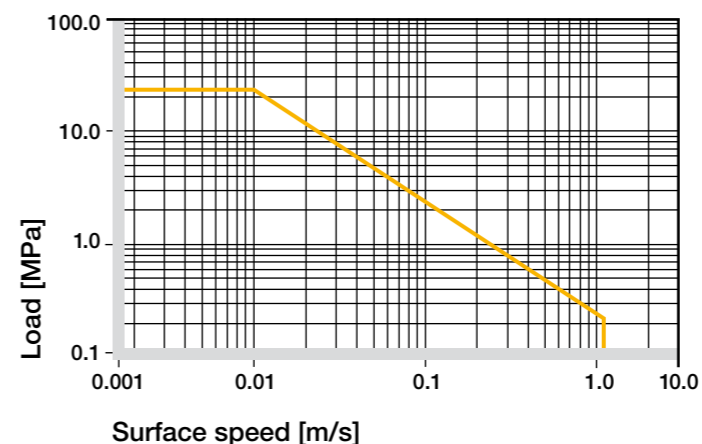


Diagram 01: Permissible pv values for iglidur® R bearings with a wall thickness of 1 mm dry running against a steel shaft, at +20 °C, mounted in a steel housing

Moisture absorption

The moisture absorption of iglidur® R plain bearings is approximately 0.2% in ambient conditions. The saturation limit submerged in water is 1.1%. This must be taken into account along with other environmental influences.

▶ **Diagram, www.igus.eu/r-moisture**

Vacuum

In vacuum, iglidur® R plain bearings release gases. Use in vacuum is only possible to a limited extent.

Radiation resistance

Plain bearings made from iglidur® R are resistant to radiation up to an intensity of 3 · 10² Gy.

UV resistance

iglidur® R plain bearings are resistant to UV radiation, but the tribological properties are reduced by permanent exposure.

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

+ resistant 0 conditionally resistant – not resistant
All data given at room temperature [+20 °C]

Table 02: Chemical resistance

▶ **Chemical table, page 1226**

The development of the iglidur® R as a bearing material focused on high performance and very low cost. Especially in the dry operation low coefficients of friction and wear were to be achieved. Bearings made from iglidur® R are selectively supported by a combination of solid lubricants. The PTFE- and silicon-free material achieves extremely low coefficients of friction in dry operation and runs largely free of stick-slip effects.

Mechanical properties

With increasing temperatures, the compressive strength of iglidur® R 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.

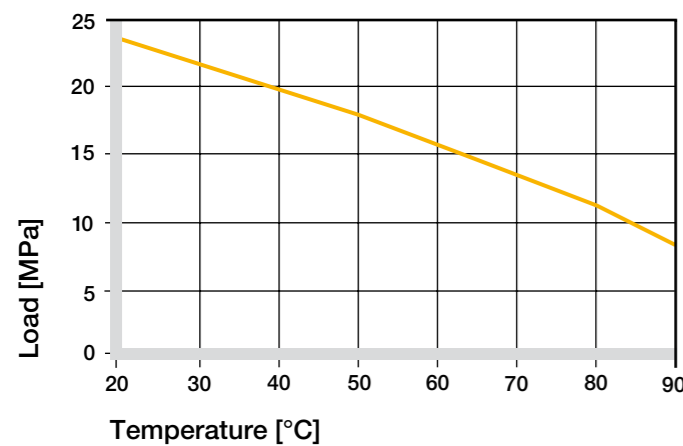


Diagram 02: Recommended maximum surface pressure of as a function of temperature (23 MPa at +20 °C)

Diagram 03 shows the elastic deformation of iglidur® R at radial loads. At the maximum permissible load of 23 MPa, the deformation is approximately 4%. Plastic deformation is not detectable up to this value. However, it is also dependent on the service time.

► Surface pressure, page 63

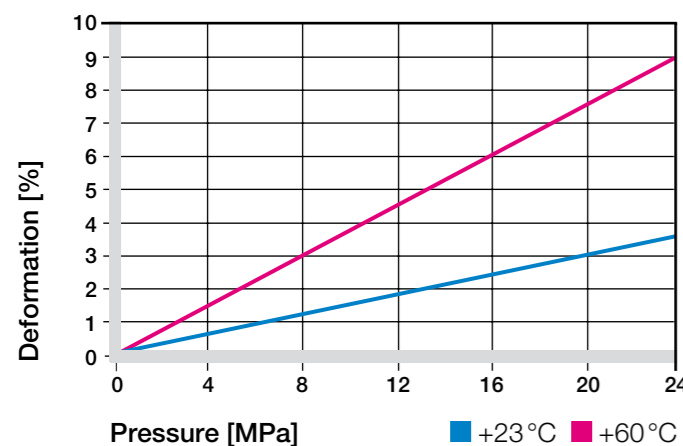


Diagram 03: Deformation under pressure and temperature

Permissible surface speeds

iglidur® R bearings are suitable for high surface speeds. Speeds of up to 10 m/s are permitted in linear motions. Here too the specified maximum values can be achieved only with minimum pressure loads. The specified values show the speed at which due to friction an increase in temperature up to the long-term permitted value can occur.

► Surface speed, page 65

| m/s | Rotating | Oscillating | Linear |
|------------|----------|-------------|--------|
| Continuous | 0.8 | 0.6 | 3.5 |
| Short term | 1.2 | 1 | 5 |

Table 03: Maximum surface speeds

Temperatures

With increasing temperatures, the compressive strength of iglidur® R plain bearings decreases. Diagram 02 clarifies this relationship. The ambient temperature in the application also has an impact on the wear of the bearing, an increase in temperature will result in an increase in wear. At temperatures over +50 °C an additional securing is required.

► Application temperatures, page 66

► Additional securing, page 67

Friction and wear

The coefficient of friction decreases like the wear resistance with increasing load. iglidur® R is suitable for applications in which high pv values are given mainly through the high surface speed and not as much through the surface pressure. Less distinct is the dependency of the coefficient of friction of the iglidur® R bearings on the shaft surface.

► Coefficients of friction and surfaces, page 68

► Wear resistance, page 69

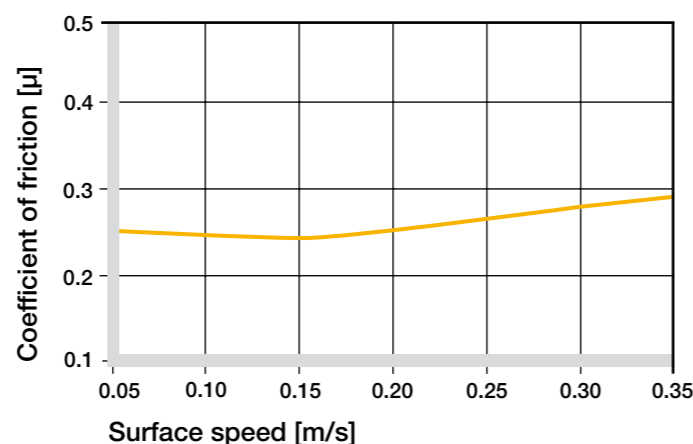


Diagram 04: Coefficient of friction as a function of the surface speed, p = 0.75 MPa

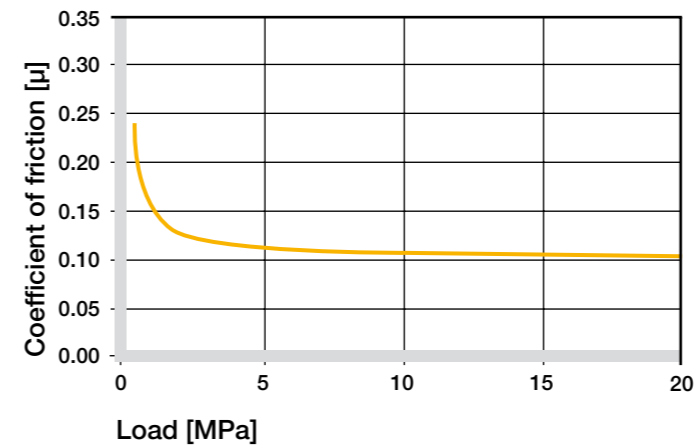


Diagram 05: Coefficient of friction as a function of the pressure, v = 0.01 m/s

Shaft materials

Diagrams 06 and 07 display a summary of the results of tests with different shaft materials conducted with bearings made from iglidur® R. At 0.3 m/s and 1 MPa, the X90 and Cf53 shafts are the best materials. With increasing loads the iglidur® R bearings feature the best wear behavior with Cf53 and V2A shafts. In oscillating applications, the hard chromed shaft proves to be the ideal material.

If the shaft material you plan on using is not shown in these test results, please contact us.

► Shaft materials, page 71

| iglidur® R | Dry | Greases | Oil | Water |
|------------|-----------|---------|------|-------|
| C. o. f. μ | 0.09–0.25 | 0.09 | 0.04 | 0.04 |

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

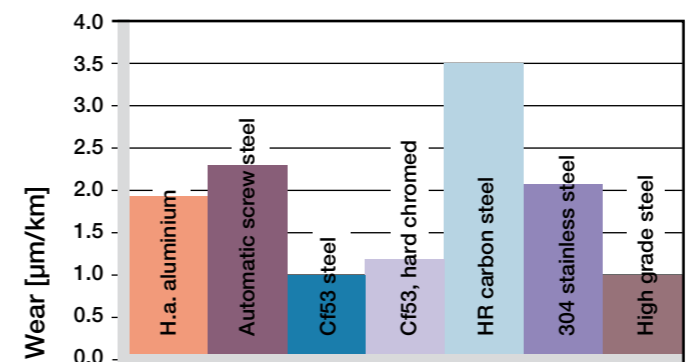


Diagram 06: Wear, rotating with different shaft materials, p = 1 MPa, v = 0.3 m/s

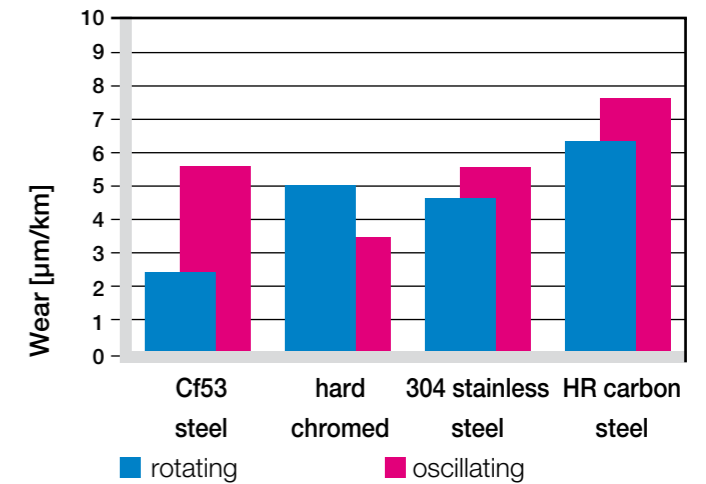


Diagram 07: Wear for rotating and oscillating applications with different shaft materials, p = 2 MPa

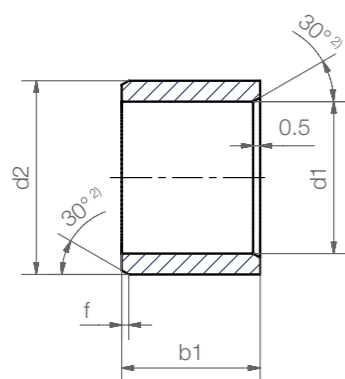
Installation tolerances

iglidur® R 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 automatically adjusts to the E10 tolerances. For particular dimensions the tolerance differs depending on the wall thickness (please see product range table).

► Testing methods, page 75

| Diameter d1 [mm] | Shaft h9 [mm] | iglidur® R E10 [mm] | Housing H7 [mm] |
|------------------|---------------|---------------------|-----------------|
| up to 3 | 0–0.025 | +0.014 +0.054 | 0 +0.010 |
| > 3 to 6 | 0–0.030 | +0.020 +0.068 | 0 +0.012 |
| > 6 to 10 | 0–0.036 | +0.025 +0.083 | 0 +0.015 |
| > 10 to 18 | 0–0.043 | +0.032 +0.102 | 0 +0.018 |
| > 18 to 30 | 0–0.052 | +0.040 +0.124 | 0 +0.021 |
| > 30 to 50 | 0–0.062 | +0.050 +0.150 | 0 +0.025 |
| > 50 to 80 | 0–0.074 | +0.060 +0.180 | 0 +0.030 |
| > 80 to 120 | 0–0.087 | +0.072 +0.212 | 0 +0.035 |
| >120 to 180 | 0–0.100 | +0.085 +0.245 | 0 +0.040 |

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



Order key

| Type | Dimensions |
|----------------------|------------|
| R S M-0203-07 | |
| iglidur® material | |
| Form S | |
| Metric | |
| Inner-Ø d1 [mm] | |
| Outer-Ø d2 [mm] | |
| Length b1 [mm] | |



Dimensions according to ISO 3547-1 and special dimensions

²⁾ thickness < 1 mm, chamfer = 20°

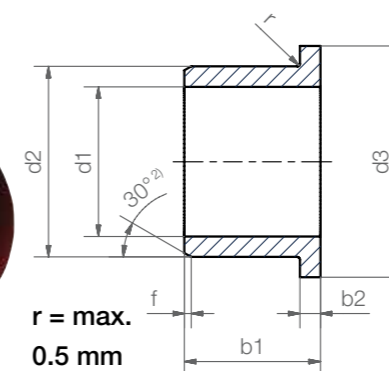
Chamfer in relation to the d1

| | | | | |
|----------|-------|--------|---------|--------|
| 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]

| d1 | d1-Tolerance ³⁾ | d2 | b1 h13 | Part No. |
|------|----------------------------|------|-----------|--------------------|
| 2.0 | +0.014 +0.054 | 3.6 | 7.0 | RSM-0203-07 |
| 4.0 | +0.020 +0.068 | 5.5 | 4.0 | RSM-0405-04 |
| 5.0 | +0.020 +0.068 | 7.0 | 5.0 | RSM-0507-05 |
| 6.0 | +0.020 +0.068 | 8.0 | 6.0 | RSM-0608-06 |
| 8.0 | +0.025 +0.083 | 10.0 | 10.0 | RSM-0810-10 |
| 10.0 | +0.025 +0.083 | 12.0 | 5.0 | RSM-1012-05 |
| 10.0 | +0.025 +0.083 | 12.0 | 10.0 | RSM-1012-10 |
| 10.0 | +0.025 +0.083 | 12.0 | 15.0 | RSM-1012-15 |
| 12.0 | +0.032 +0.102 | 14.0 | 12.0 | RSM-1214-12 |
| 14.0 | +0.032 +0.102 | 16.0 | 15.0 | RSM-1416-15 |
| 15.0 | +0.032 +0.102 | 17.0 | 15.0 | RSM-1517-15 |
| 16.0 | +0.032 +0.102 | 18.0 | 15.0 | RSM-1618-15 |
| 18.0 | +0.032 +0.102 | 20.0 | 25.0 | RSM-1820-25 |
| 20.0 | +0.040 +0.124 | 23.0 | 15.0 | RSM-2023-15 |
| 20.0 | +0.040 +0.124 | 23.0 | 20.0 | RSM-2023-20 |
| 25.0 | +0.040 +0.124 | 28.0 | 25.0 | RSM-2528-25 |
| 28.0 | +0.040 +0.124 | 32.0 | 12.0 | RSM-2832-12 |
| 30.0 | +0.040 +0.124 | 34.0 | 25.0 | RSM-3034-25 |
| 30.0 | +0.040 +0.124 | 34.0 | 30.0 | RSM-3034-30 |
| 35.0 | +0.050 +0.150 | 39.0 | 30.0 | RSM-3539-30 |

³⁾ after pressfit. Testing methods ► Page 75



Order key

| Type | Dimensions |
|----------------------|------------|
| R F M-0405-04 | |
| iglidur® material | |
| Form F | |
| Metric | |
| Inner-Ø d1 [mm] | |
| Outer-Ø d2 [mm] | |
| Length b1 [mm] | |



Dimensions according to ISO 3547-1 and special dimensions

²⁾ thickness < 1 mm, chamfer = 20°

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]

| d1 | d1-Tolerance ³⁾ | d2 | d3 d13 | b1 h13 | b2 -0.14 | Part No. |
|------|----------------------------|------|-----------|-----------|-------------|-----------------------|
| 4.0 | +0.020 +0.068 | 5.0 | 9.0 | 3.0 | 0.5 | RFM-0405-03 |
| 4.0 | +0.020 +0.068 | 5.5 | 9.5 | 4.0 | 0.75 | RFM-0405-04 |
| 5.0 | +0.020 +0.068 | 7.0 | 11.0 | 5.0 | 1.0 | RFM-0507-05 |
| 6.0 | +0.020 +0.068 | 8.0 | 12.0 | 6.0 | 1.0 | RFM-0608-06 |
| 8.0 | +0.025 +0.083 | 10.0 | 15.0 | 5.0 | 1.0 | RFM-0810-05 |
| 8.0 | +0.025 +0.083 | 10.0 | 15.0 | 10.0 | 1.0 | RFM-0810-10 |
| 10.0 | +0.025 +0.083 | 12.0 | 18.0 | 10.0 | 1.0 | RFM-1012-10 |
| 10.0 | +0.025 +0.083 | 12.0 | 18.0 | 18.0 | 1.0 | RFM-1012-18 |
| 12.0 | +0.032 +0.102 | 14.0 | 20.0 | 10.0 | 1.0 | RFM-1214-10 |
| 12.0 | +0.032 +0.102 | 14.0 | 20.0 | 12.0 | 1.0 | RFM-1214-12 |
| 14.0 | +0.032 +0.102 | 16.0 | 22.0 | 17.0 | 1.0 | RFM-1416-17 |
| 15.0 | +0.032 +0.102 | 17.0 | 23.0 | 17.0 | 1.0 | RFM-1517-17 |
| 16.0 | +0.032 +0.102 | 18.0 | 24.0 | 17.0 | 1.0 | RFM-1618-17 |
| 18.0 | +0.032 +0.102 | 20.0 | 26.0 | 17.0 | 1.0 | RFM-1820-17 |
| 20.0 | +0.040 +0.124 | 23.0 | 30.0 | 21.5 | 1.5 | RFM-2023-21 |
| 22.0 | +0.040 +0.124 | 25.0 | 29.0 | 4.5 | 1.5 | RFM-222529-045 |
| 25.0 | +0.040 +0.124 | 28.0 | 35.0 | 21.5 | 1.5 | RFM-2528-21 |

³⁾ after pressfit. Testing methods ► Page 75



Don't find your size?

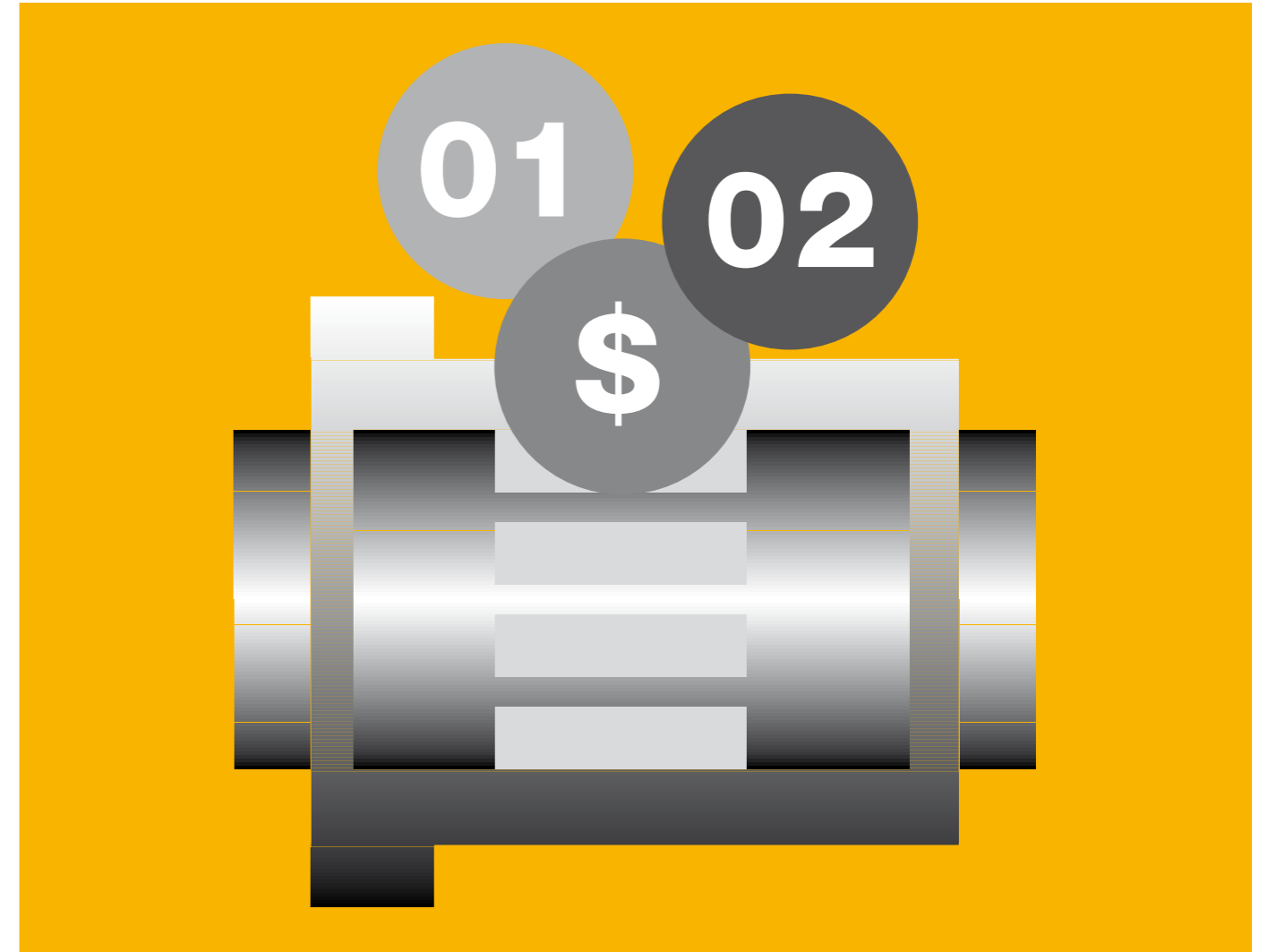
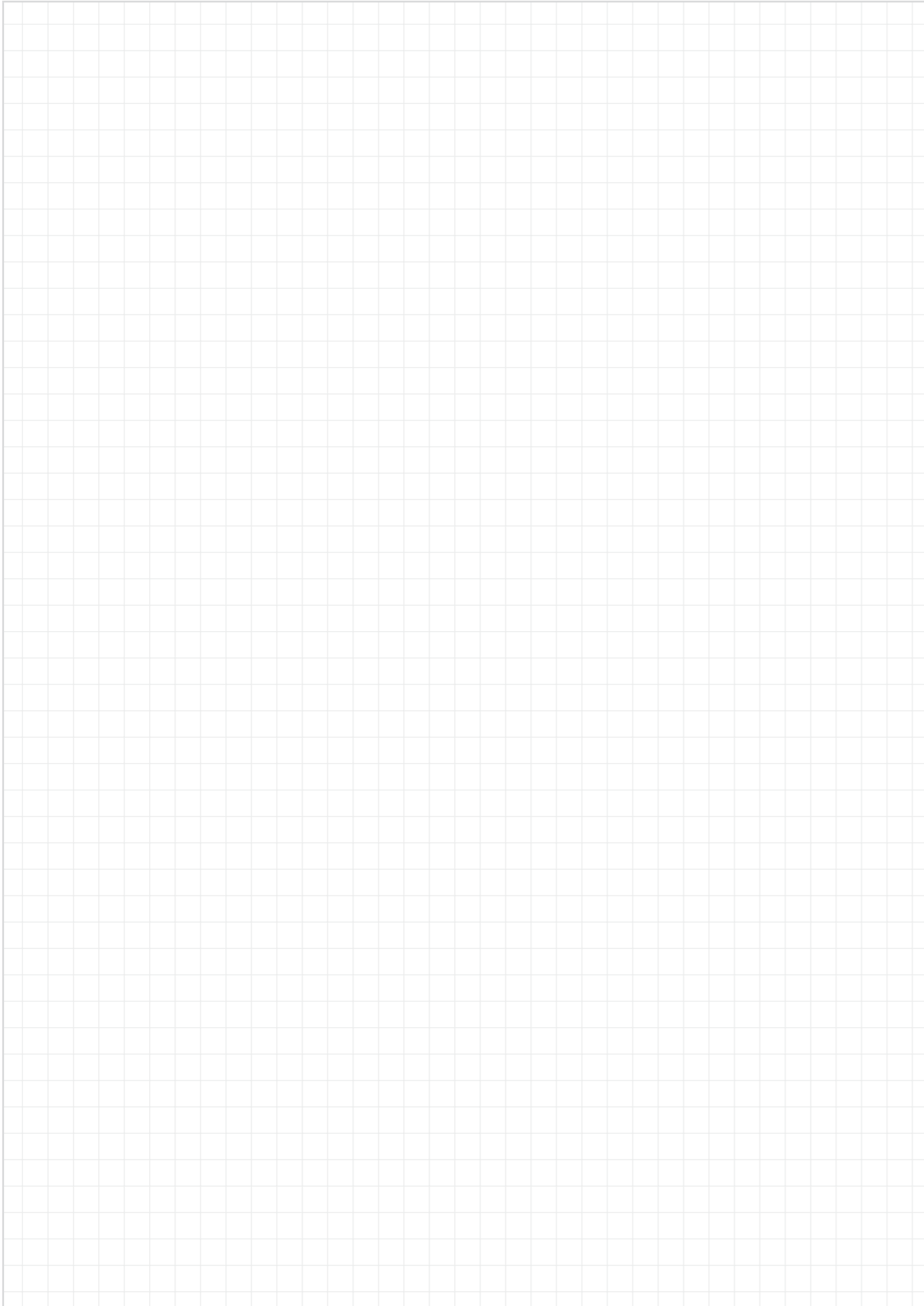
Do you need another length, other dimensions or tolerances? You need a particular design or alternative for your application? Please call us. igus® listens to your needs and provides you a solution in a very short time.



Even more dimensions from stock

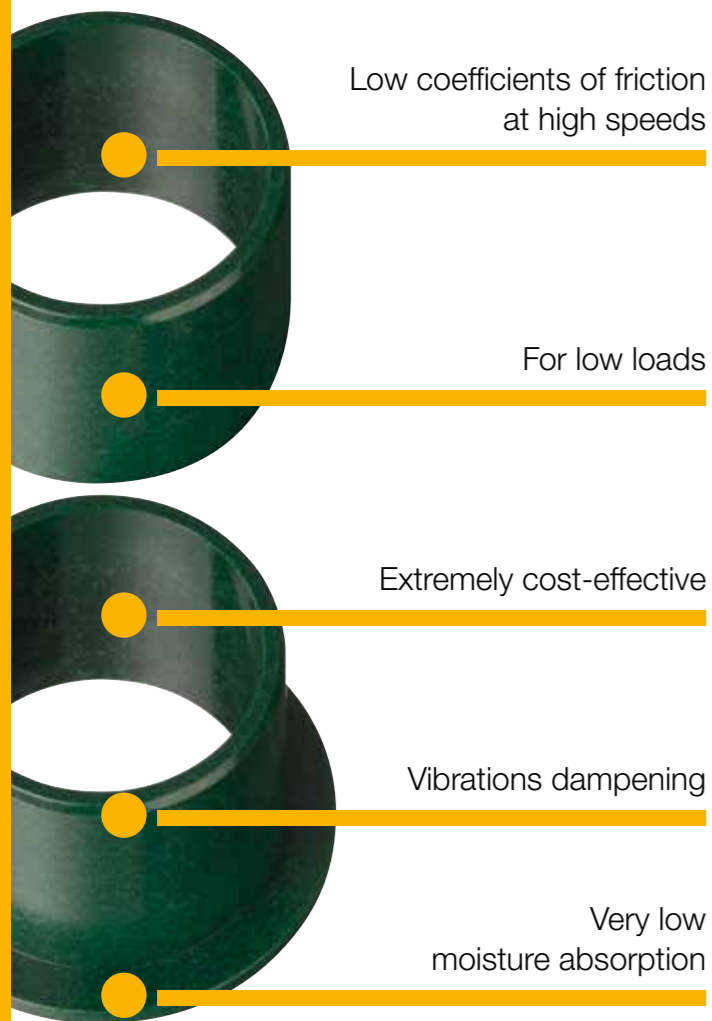
More than 300 dimensions are now available. Search online for your required bearing.

► www.igus.eu/iglidur-specialbearings



Low-cost material with silicone – iglidur® D

- Low coefficients of friction at high speeds
- For low loads
- Very cost-efficient
- Vibration dampening
- Very low moisture absorption
- Lubrication and maintenance free



Low-cost-material with low coefficients of friction and good wear resistance at low loads.



When to use it?

- When low coefficients of friction are needed
- For high speeds
- For low load
- If you are looking for a very cost-effective bearing



When not to use it?

- When high pressure occur
 - ▶ iglidur® G, page 83
- When the part should be free of silicon
 - ▶ iglidur® J, page 99
 - ▶ iglidur® R, page 223
- When constant temperatures exceed +90 °C
 - ▶ iglidur® G, page 83
 - ▶ iglidur® P, page 149



Available on request

Detailed information about delivery time online.



max. +90 °C
min. -50 °C



Order-related



Order-related



Typical application areas

- Sports and leisure
- Model making
- Furniture industry
- Mechatronics, etc.

Material properties table

| General properties | Unit | iglidur® D | Testing method |
|--|------------------------------------|--------------------|----------------|
| Density | g/cm ³ | 1.40 | |
| Colour | | green | |
| Max. moisture absorption at +23 °C/50 % r.h. | % weight | 0.3 | DIN 53495 |
| Max. water absorption | % weight | 1.1 | |
| Coefficient of sliding friction, dynamic against steel | μ | 0.08–0.26 | |
| pv value, max. (dry) | MPa · m/s | 0.27 | |
| Mechanical properties | | | |
| Modulus of elasticity | MPa | 2,000 | DIN 53457 |
| Tensile strength at +20 °C | MPa | 72 | DIN 53452 |
| Compressive strength | MPa | 70 | |
| Max. recommended surface pressure (+20 °C) | MPa | 23 | |
| Shore-D hardness | | 78 | DIN 53505 |
| Physical and thermal properties | | | |
| Max. long term application temperature | °C | +90 | |
| Max. short term application temperature | °C | +110 | |
| Min. application temperature | °C | -50 | |
| Thermal conductivity | W/m · K | 0.25 | ASTM C 177 |
| Coefficient of thermal expansion (at +23 °C) | K ⁻¹ · 10 ⁻⁵ | 11 | DIN 53752 |
| Electrical properties | | | |
| Specific volume resistance | Ωcm | > 10 ¹⁴ | DIN IEC 93 |
| Surface resistance | Ω | > 10 ¹⁴ | DIN 53482 |

Table 01: Material properties table

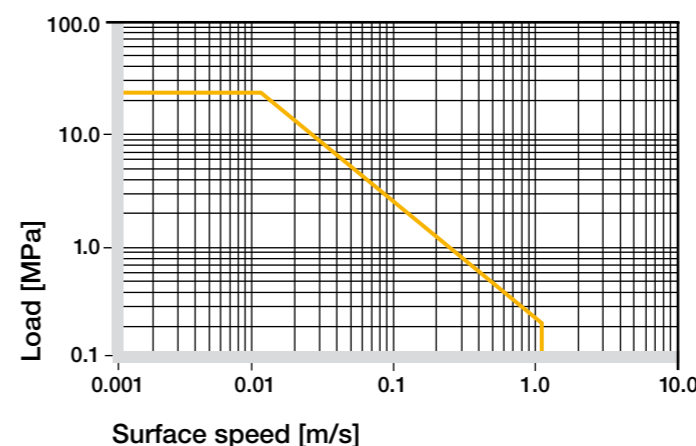


Diagram 01: Permissible pv values for iglidur® D bearings with a wall thickness of 1 mm dry running against a steel shaft, at +20 °C, mounted in a steel housing

Moisture absorption

The moisture absorption of iglidur® D plain bearings is approximately 0.3% in ambient conditions. The saturation limit in water is 1.1%. This low moisture absorption allows for design in wet environments.

▶ Diagram, www.igus.eu/d-moisture

Vacuum

In vacuum, iglidur® D plain bearings release gases. Use in vacuum is only possible to a limited extent.

Radiation resistance

Plain bearings made from iglidur® D are resistant to radiation up to an intensity of 3 · 10² Gy.

UV resistance

iglidur® D plain bearings are resistant to UV radiation, but the tribological properties are reduced by permanent exposure.

| Medium | Resistance |
|---------------------------------|------------|
| Alcohols | + |
| Hydrocarbons | + |
| Greases, oils without additives | + |
| Fuels | + |
| Diluted acids | 0 to - |
| Strong acids | - |
| Diluted alkalines | + |
| Strong alkalines | + to 0 |

+ resistant 0 conditionally resistant - not resistant

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

Table 02: Chemical resistance

▶ Chemical table, page 1226

During the development process of iglidur® D as a bearing material, high performance and a very low price were the top requirements. In particular, low coefficients of friction were needed at high speeds when running dry. This material containing silicone achieves excellently low friction values in dry operation and runs with virtually no stick-slip.

Mechanical properties

With increasing temperatures, the compressive strength of iglidur® D 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.

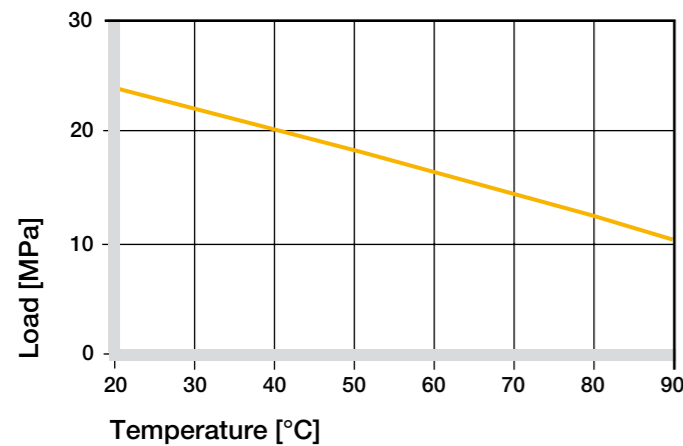


Diagram 02: Recommended maximum surface pressure of as a function of temperature (23 MPa at +20 °C)

iglidur® D bearings were specially developed for low radial loads. Diagram 03 shows the elastic deformation of iglidur® D at radial loads. At the recommended maximum surface pressure of 23 MPa the deformation is less than 3%. Plastic deformation is not detectable up to this value. However, it is also dependent on the service time.

► Surface pressure, page 63

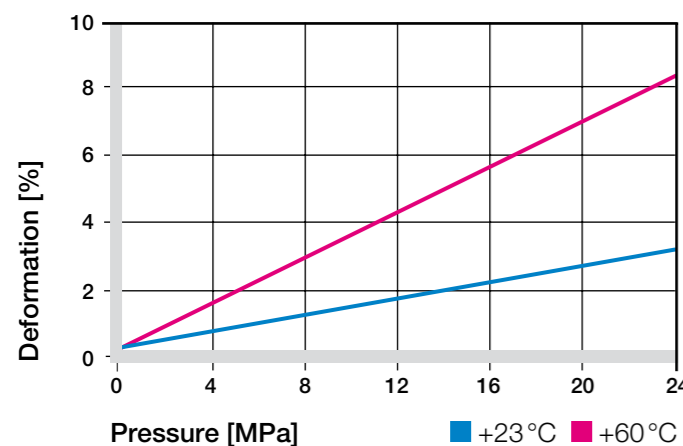


Diagram 03: Deformation under pressure and temperature

Permissible surface speeds

iglidur® D bearings are suitable for high surface speeds. Speeds of up to 10 m/s are permitted in linear motions. Here too the specified maximum values can be achieved only with minimum pressure loads. The specified values show the speed at which due to friction an increase in temperature up to the long-term permitted value can occur.

► Surface speed, page 65

| m/s | Rotating | Oscillating | Linear |
|------------|----------|-------------|--------|
| Continuous | 1.5 | 1.1 | 8 |
| Short term | 3 | 2.1 | 10 |

Table 03: Maximum surface speeds

Temperatures

With increasing temperatures, the compressive strength of iglidur® D plain bearings decreases. Diagram 02 clarifies this relationship. The ambient application temperature has a direct impact on bearing wear, an increase in temperature results in an increase in wear. At temperatures over +50 °C an additional securing is required.

► Application temperatures, page 66

► Additional securing, page 67

Friction and wear

The coefficient of friction decreases like the wear resistance with increasing load. In the Ra range between 0.4 and 0.6 µm, the coefficient of friction attains the optimum value.

► Coefficients of friction and surfaces, page 68

► Wear resistance, page 69

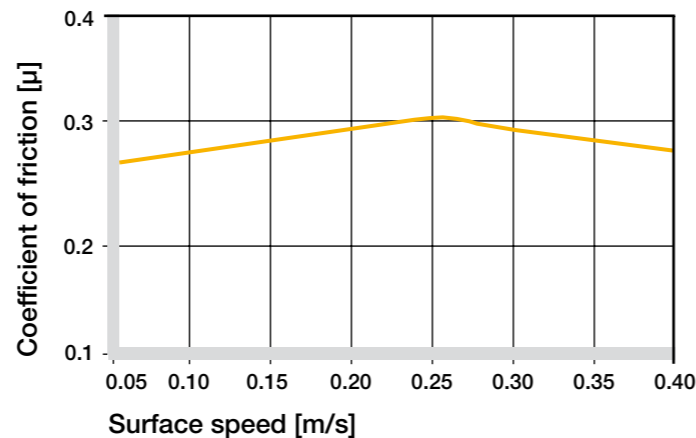


Diagram 04: Coefficient of friction as a function of the surface speed, p = 0.75 MPa

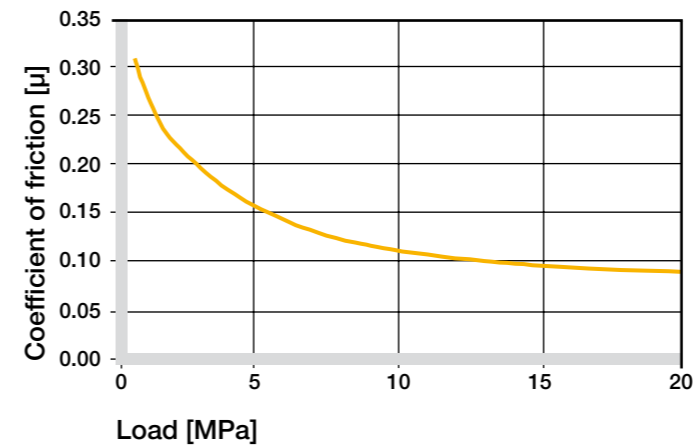


Diagram 05: Coefficient of friction as a function of the pressure, v = 0.01 m/s

Shaft materials

Diagrams 06 and 07 display a summary of the results of tests with different shaft materials conducted with bearings made from iglidur® D. Please contact us if you would like to use a shaft material not included in this list.

► Shaft materials, page 71

| iglidur® D | Dry | Greases | Oil | Water |
|------------|-----------|---------|------|-------|
| C. o. f. µ | 0.08–0.26 | 0.09 | 0.04 | 0.04 |

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

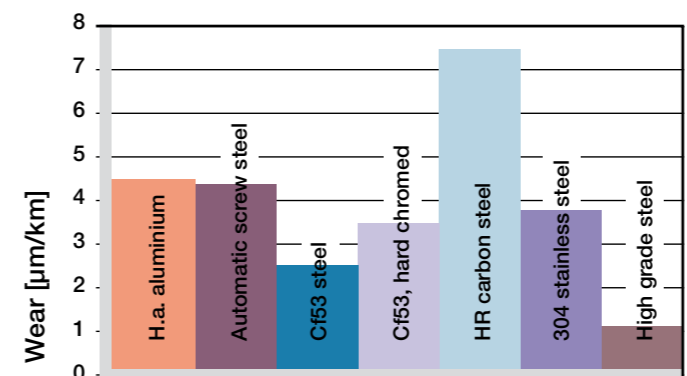


Diagram 06: Wear, rotating with different shaft materials, p = 1 MPa, v = 0.3 m/s

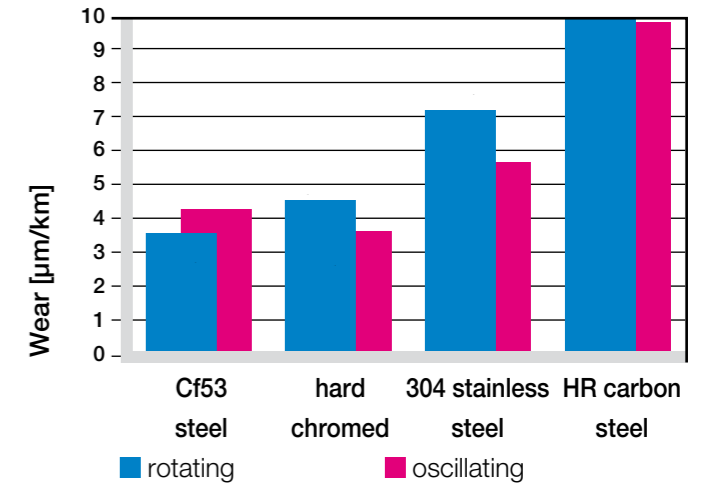


Diagram 07: Wear for rotating and oscillating applications with different shaft materials, p = 2 MPa

Installation tolerances

iglidur® D 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 E10 tolerances.

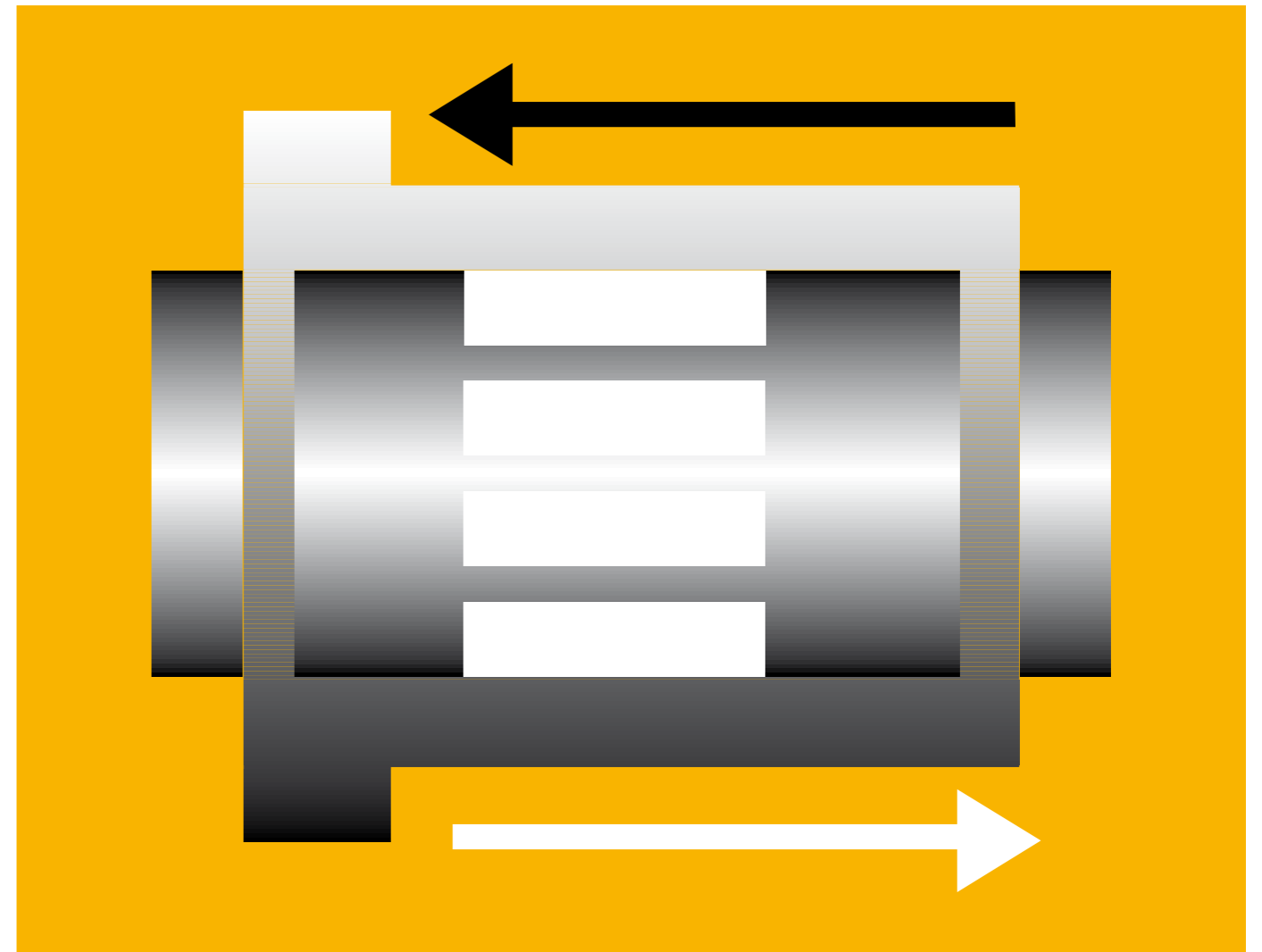
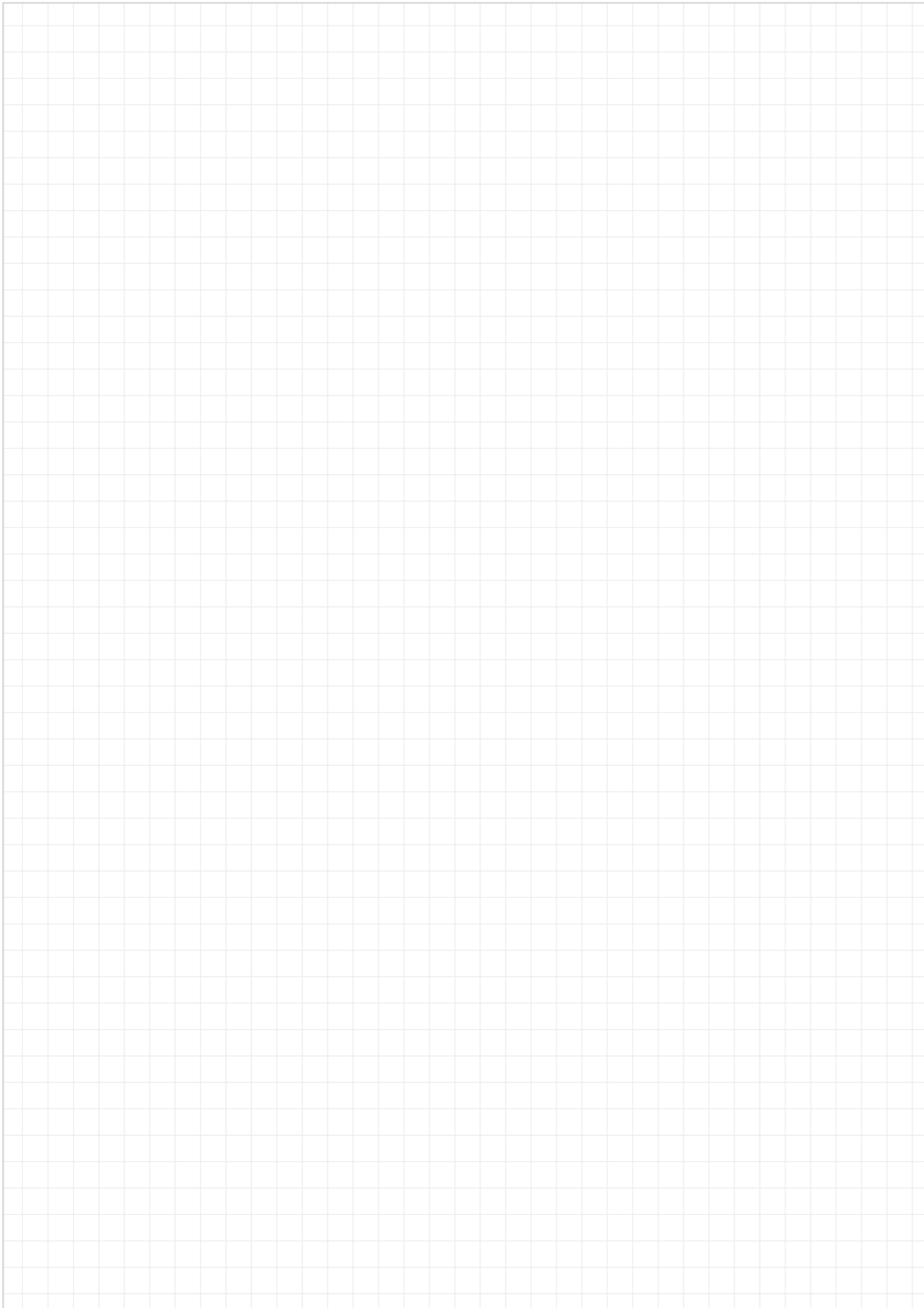
► Testing methods, page 75

| Diameter d1 [mm] | Shaft h9 [mm] | iglidur® D E10 [mm] | Housing H7 [mm] |
|------------------|---------------|---------------------|-----------------|
| up to 3 | 0–0.025 | +0.014 +0.054 | 0 +0.010 |
| > 3 to 6 | 0–0.030 | +0.020 +0.068 | 0 +0.012 |
| > 6 to 10 | 0–0.036 | +0.025 +0.083 | 0 +0.015 |
| > 10 to 18 | 0–0.043 | +0.032 +0.102 | 0 +0.018 |
| > 18 to 30 | 0–0.052 | +0.040 +0.124 | 0 +0.021 |
| > 30 to 50 | 0–0.062 | +0.050 +0.150 | 0 +0.025 |
| > 50 to 80 | 0–0.074 | +0.060 +0.180 | 0 +0.030 |
| > 80 to 120 | 0–0.087 | +0.072 +0.212 | 0 +0.035 |
| >120 to 180 | 0–0.100 | +0.085 +0.245 | 0 +0.040 |

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

Product range

iglidur® D plain bearings are manufactured to special order.



Specially for aluminum shafts – iglidur® J200

- Very long service life with hard anodised aluminium
- Low coefficients of friction
- Low wear
- For low to medium loads
- Lubrication and maintenance free

Very long service life with hard anodised aluminium

Low coefficients of friction

Low wear

For low to medium loads

The specialist for low friction-values and minimal wear with hard anodised aluminium shaft.



When to use it?

- For applications with anodised aluminium shafts
- When lowest coefficients of friction are required
- When it comes to high service life with low loads



When not to use it?

- For steel shafts
 - ▶ iglidur® J, page 99
 - ▶ iglidur® W300, page 121
- When temperatures are continuously higher than +90 °C
 - ▶ iglidur® V400, page 255
- When a cost-effective universal bearing is required
 - ▶ iglidur® G, page 83
 - ▶ iglidur® P, page 149



Available on request

Detailed information about delivery time online.



max. +90 °C
min. -50 °C



Order-related



Order-related



Typical application areas

- Automation
- Linear technology
- Actuator, etc.

Material properties table

| General properties | Unit | iglidur® J200 | Testing method |
|--|------------|---------------|----------------|
| Density | g/cm³ | 1.72 | |
| Colour | | dark grey | |
| Max. moisture absorption at +23 °C/50 % r.h. | % weight | 0.2 | DIN 53495 |
| Max. water absorption | % weight | 0.7 | |
| Coefficient of sliding friction, dynamic against steel | μ | 0.11–0.17 | |
| pv value, max. (dry) | MPa · m/s | 0.30 | |
| Mechanical properties | | | |
| Modulus of elasticity | MPa | 2,800 | DIN 53457 |
| Tensile strength at +20 °C | MPa | 58 | DIN 53452 |
| Compressive strength | MPa | 43 | |
| Max. recommended surface pressure (+20 °C) | MPa | 23 | |
| Shore-D hardness | | 70 | DIN 53505 |
| Physical and thermal properties | | | |
| Max. long term application temperature | °C | +90 | |
| Max. short term application temperature | °C | +120 | |
| Min. application temperature | °C | -50 | |
| Thermal conductivity | W/m · K | 0.24 | ASTM C 177 |
| Coefficient of thermal expansion (at +23 °C) | K⁻¹ · 10⁻⁵ | 8 | DIN 53752 |
| Electrical properties | | | |
| Specific volume resistance | Ωcm | > 10⁸ | DIN IEC 93 |
| Surface resistance | Ω | > 10⁸ | DIN 53482 |

Table 01: Material properties table

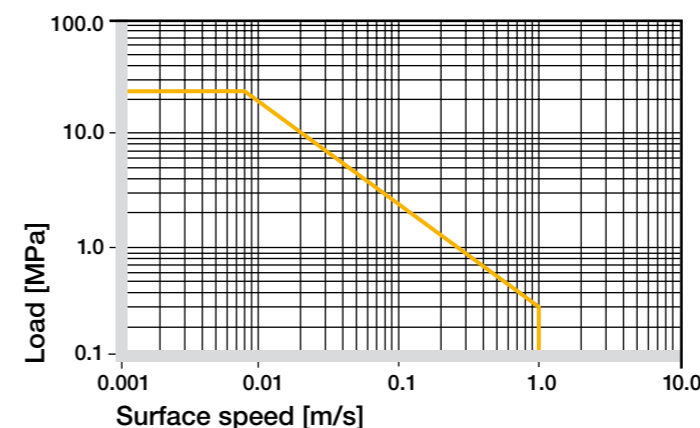


Diagram 01: Permissible pv values for iglidur® J200 bearings with a wall thickness of 1 mm dry running against a steel shaft, at +20 °C, mounted in a steel housing

Moisture absorption

The moisture absorption of iglidur® J200 plain bearings is approximately 0.2 % in ambient conditions. The saturation limit in water is 0.7 %. Due to these low values considering expansion by moisture absorption is only required in extreme cases.

▶ Diagram, www.igus.eu/j200-moisture

Vacuum

Use in vacuum is only possible to a limited extent. Only dehumidified iglidur® J200 bearings should be used in vacuum.

3D-CAD files, prices and delivery time ▶ www.igus.eu/j200

Radiation resistance

Plain bearings made from iglidur® J200 are resistant to radiation up to an intensity of $3 \cdot 10^2$ Gy.

UV resistance

iglidur® J200 plain bearings are very resistant to UV radiation.

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

+ resistant **0 conditionally resistant** **- not resistant**
All data given at room temperature [+20 °C]

Table 02: Chemical resistance

▶ Chemical table, page 1226

iglidur® J200 is the result of the development of extremely low friction plain bearing materials. When using plain bearings in linear motion, friction can be critical. Many materials can give low coefficients of friction under high loads, but iglidur® J200 can give excellent friction values even at low loads.

Mechanical properties

With increasing temperatures, the compressive strength of iglidur® J200 plain bearings decreases. Diagram 02 clarifies this relationship. The recommended maximum surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.

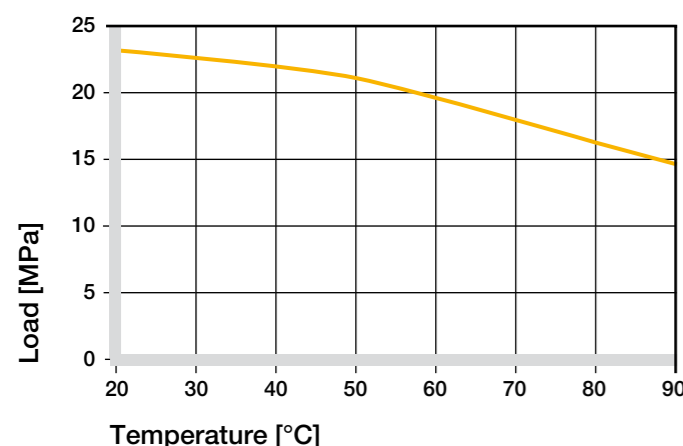


Diagram 02: Recommended maximum surface pressure of as a function of temperature (23 MPa at +20 °C)

At maximum recommended surface pressure of 23 MPa at room temperature, the deformation of iglidur® J200 is 3.5% (diagram 03). A plastic deformation can be ignored up to this value. However, it is also dependent on the service time.

► Surface pressure, page 63

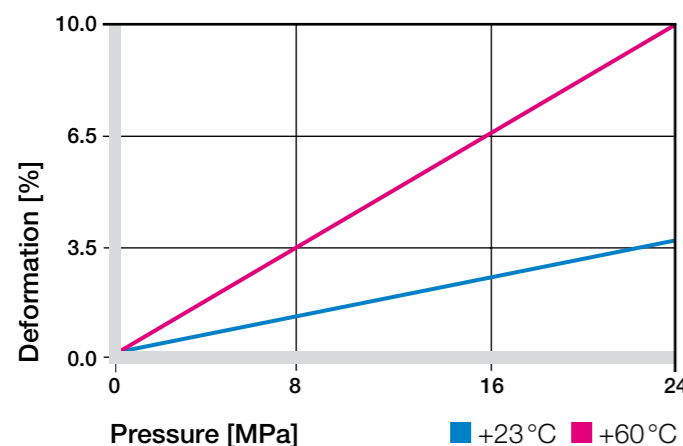


Diagram 03: Deformation under pressure and temperature

Permissible surface speeds

iglidur® J200 attains high surface speeds through its excellent coefficients of friction. Continuous rotation speeds of 1 m/s are possible. The permitted speeds are clearly higher yet in linear movements or in short-term operation. Speeds of over 15 m/s were successfully tested in linear movements.

► Surface speed, page 65

| m/s | Rotating | Oscillating | Linear |
|------------|----------|-------------|--------|
| Continuous | 1 | 0.7 | 10 |
| Short term | 1.5 | 1.1 | 15 |

Table 03: Maximum surface speeds

Temperatures

The maximum permitted temperature of 120 °C should not be exceeded. Therefore the ambient temperature generated by friction has to be added. From +60 °C onward, the bearing should be mechanically fastened, so that the danger of bushings creeping out of the bores is avoided. The wear resistance too declines disproportionately from +70 °C.

► Application temperatures, page 66

► Additional securing, page 67

Friction and wear

iglidur® J200 presents the lowest coefficients of friction of all iglidur® materials. The average coefficient of friction of all measurements, even with different shaft materials, is 0.11 μ . The use of hard anodised aluminum as a shaft material is also of importance. The comparison to the other iglidur® materials reveals that iglidur® J200 plain bearings are more suitable for lower loads. The influence of sliding speed and load on the wear is small. The change of the coefficient of friction at high loads is in the normal range (diagrams 04 and 05). The optimum shaft roughness is between 0.2 and 0.4 μ m Ra. The influence of the shaft material on the wear is significant. Even at low loads, we recommend to have a closer look into the wear database.

► Coefficients of friction and surfaces, page 68

► Wear resistance, page 69

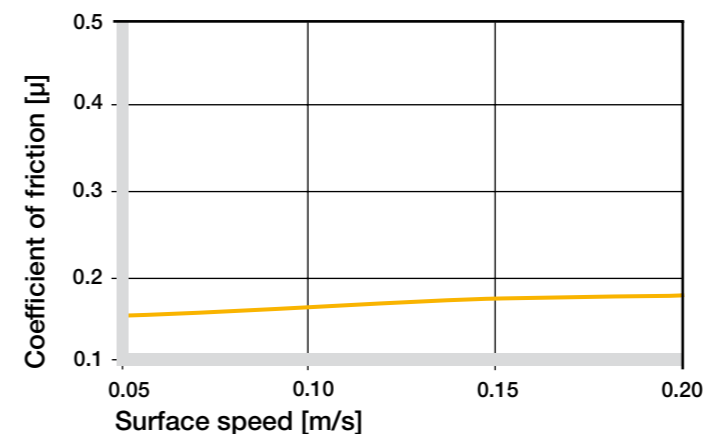


Diagram 04: Coefficient of friction as a function of the surface speed, p = 0.75 MPa

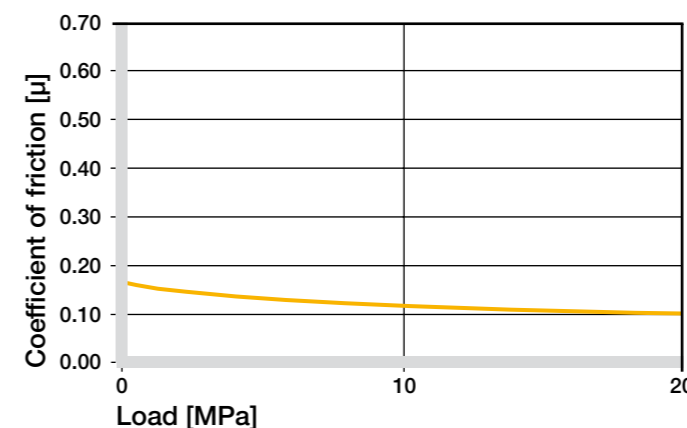


Diagram 05: Coefficient of friction as a function of the pressure, v = 0.01 m/s

Shaft materials

The shaft material has a great impact on the wear resistance. In fact, all shaft materials (smooth or hardened) are suitable for use with iglidur® J200, but the best results are achieved with hard anodised aluminium. In particular when used in linear motion, this running surface has proven its value.

► Shaft materials, page 71

| iglidur® J200 | Dry | Greases | Oil | Water |
|----------------|-----------|---------|------|-------|
| C. o. f. μ | 0.11–0.17 | 0.09 | 0.04 | 0.04 |

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

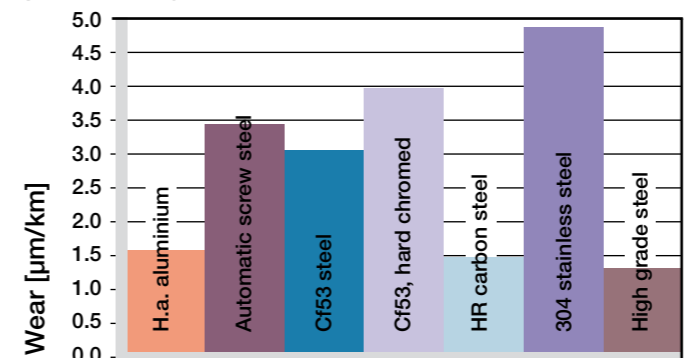


Diagram 06: Wear, rotating with different shaft materials, p = 1 MPa, v = 0.3 m/s

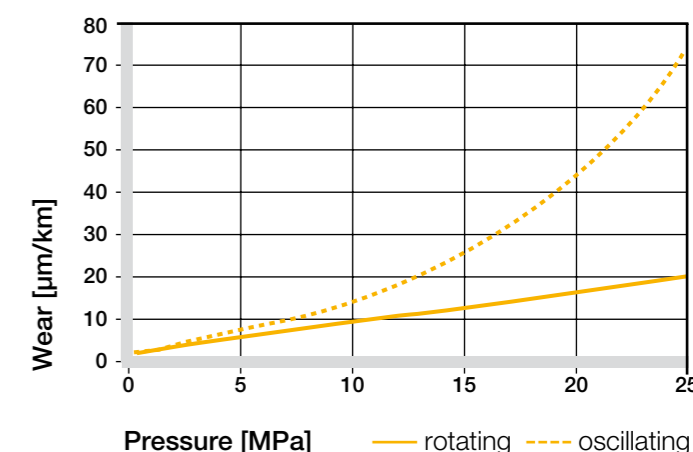


Diagram 07: Wear for pivoting and rotating applications with shaft material Cf53 hardened and ground steel, as a function of the pressure

Installation tolerances

iglidur® J200 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 automatically adjusts to the E10 tolerances. For particular dimensions the tolerance differs depending on the wall thickness (please see product range table).

► Testing methods, page 75

| Diameter d1 [mm] | Shaft h9 [mm] | iglidur® J200 E10 [mm] | Housing H7 [mm] |
|------------------|---------------|------------------------|-----------------|
| up to 3 | 0–0.025 | +0.014 +0.054 | 0 +0.010 |
| > 3 to 6 | 0–0.030 | +0.020 +0.068 | 0 +0.012 |
| > 6 to 10 | 0–0.036 | +0.025 +0.083 | 0 +0.015 |
| > 10 to 18 | 0–0.043 | +0.032 +0.102 | 0 +0.018 |
| > 18 to 30 | 0–0.052 | +0.040 +0.124 | 0 +0.021 |
| > 30 to 50 | 0–0.062 | +0.050 +0.150 | 0 +0.025 |
| > 50 to 80 | 0–0.074 | +0.060 +0.180 | 0 +0.030 |
| > 80 to 120 | 0–0.087 | +0.072 +0.212 | 0 +0.035 |
| >120 to 180 | 0–0.100 | +0.085 +0.245 | 0 +0.040 |

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

Product range

At present, iglidur® J200 plain bearings are made to special order.