



For extreme loads – iglidur® Q2



Standard range from stock

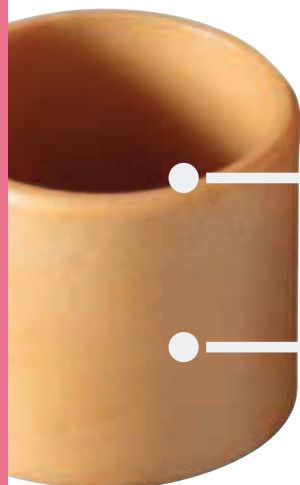
Lubricant- and maintenance-free

Wear resistant and dimensionally stable
at high loads

Good cost/performance ratio

iglidur® Q2

For extreme loads. Where previous iglidur® bearing solutions in the extreme load range end, the iglidur® Q2 starts. Made for heavy-duty pivoting applications under extreme conditions.



Lubricant- and maintenance-free

Wear resistant and dimensionally stable at high loads



Good cost/performance ratio



When to use it?

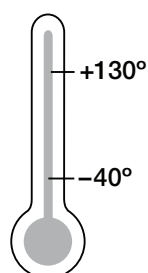
- When high dynamic loads occurs
- When impacts, shocks and contamination occur in addition to high loads
- For highly load pivoting motions



When not to use it?

- When only static loads occur
 - ▶ iglidur® X, page 173
 - ▶ iglidur® H2, page 399
- When high pv values occur in conjunction with high speeds
 - ▶ iglidur® Z, page 327
- When you need a low cost all-round bearing
 - ▶ iglidur® G, page 81
- When soft shafts are in use
 - ▶ iglidur® W300, page 151

Temperature



Product range

2 types
Ø 5–75 mm
more dimensions
on request



Material properties table

General properties	Unit	iglidur® Q2	Testing method
Density	g/cm ³	1.46	
Colour		beige-brown	
Max. moisture absorption at +23 °C/50 % r. h.	% weight	1.1	DIN 53495
Max. water absorption	% weight	4.6	
Coefficient of sliding friction, dynamic against steel	μ	0.22–0.42	
pv value, max. (dry)	MPa · m/s	0.7	
Mechanical properties			
Modulus of elasticity	MPa	8,370	DIN 53457
Tensile strength at +20 °C	MPa	240	DIN 53452
Compressive strength	MPa	130	
Max. recommended surface pressure (+20 °C)	MPa	120	
Shore D hardness		80	DIN 53505
Physical and thermal properties			
Max. long term application temperature	°C	+130	
Max. short term application temperature	°C	+200	
Max. ambient temperature, short term ¹⁾	°C	+220	
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	8	DIN 53752
Electrical properties			
Specific volume resistance	Ωcm	> 10 ¹³	DIN IEC 93
Surface resistance	Ω	> 10 ¹¹	DIN 53482

¹⁾ Without additional load; no gliding motion; relaxation cannot be excluded

Table 01: Material properties table

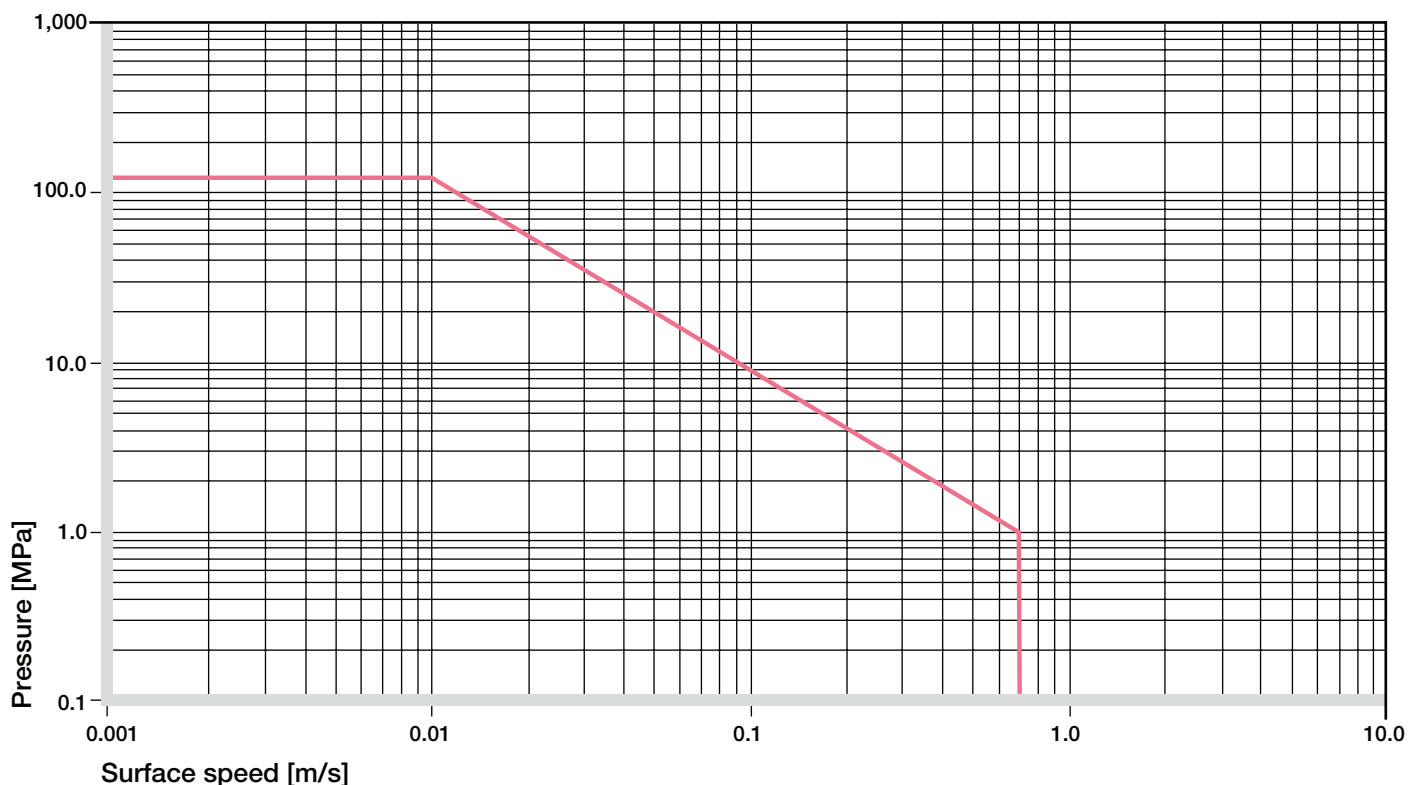


Diagram 01: Permissible pv values for iglidur® Q2 with a wall thickness of 1 mm dry running against a steel shaft at +20 °C, mounted in a steel housing

The maximum recommended surface pressure is a mechanical material parameter. This does not permit conclusions to be drawn about the tribological properties. The pressure resistance of iglidur® Q2 plain bearings declines with increasing temperatures. Diagram 02 clarifies this relationship. At a longterm permitted application temperature of +130°C, the permitted surface pressure is still 20 MPa.

Mechanical properties

iglidur® Q2 plain bearings represent high load capacities and good abrasion resistance at high loads. The price-performance ratio is outstanding. Solid lubricants reduce the coefficient of friction and improve the resistance to wear, which was markedly improved as compared to other iglidur® plain bearings, especially for highly loaded pivot applications. iglidur® Q2 plain bearings are self-lubricating and suitable for all motions.

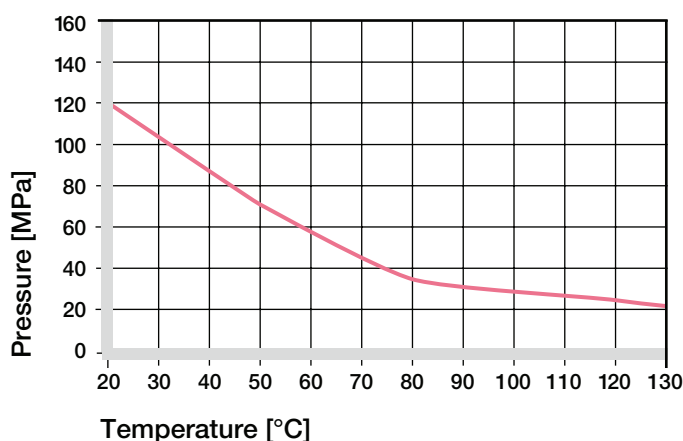


Diagram 02: Recommended maximum surface pressure of as a function of temperature (120 MPa at +20 °C)

Diagram 03 shows the elastic deformation of iglidur® Q2 at radial loads.

► Surface Pressure, [page 63](#)

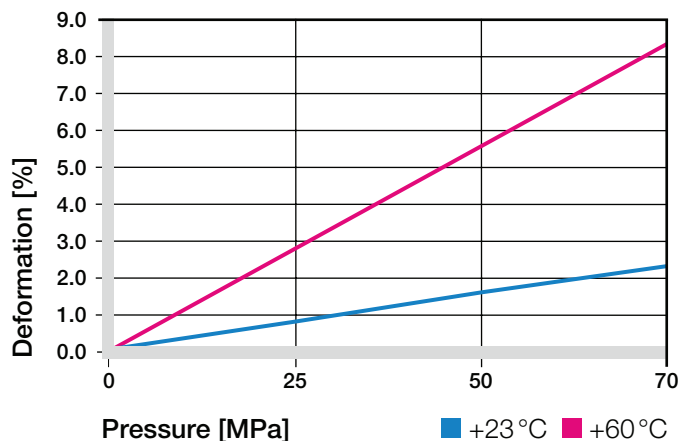


Diagram 03: Deformation under pressure and temperature

Permissible Surface Speeds

The typical applications for iglidur® Q2 plain bearings are highly loaded pivoting motions at comparatively low speeds. However relatively high speeds are still attainable. The speeds shown in Table 02 are threshold values for minimal bearing loads. As loads increase, the permissible speed is reduced with higher loads due to the limitations of the pv value.

► Surface Speed, [page 65](#)

m/s	Rotating	Oscillating	Linear
Continuous	1	0.7	4
Short term	2	1.4	5

Table 02: Maximum running speed

Temperatures

iglidur® Q2 is a very temperature resistant material. The short-term upper temperature limit is +200. The longterm upper temperature limit of +130 °C permits the broad use in applications typical for the agricultural, utility vehicle or construction equipment sectors. However, the pressure resistance of iglidur® Q2 plain bearings declines as temperatures increase.

When considering temperatures, the additional frictional heat in the bearing system must be taken into account.

► Application Temperatures, [page 66](#)

iglidur® Q2	Application temperature
Minimum	-40 °C
Max. long term	+130 °C
Max. short term	+200 °C
Add. securing is required from	+70 °C

Table 03: Temperature limits

Friction and Wear

iglidur® Q2 has a low coefficient of friction. Please note that a sliding surface with a rough surface finish will increase the friction. The highest coefficients of friction occur at $R_a = 1 \mu\text{m}$. We recommend shaft surface finishes (R_a) of 0.1 to a maximum of $0.4 \mu\text{m}$. Furthermore, the coefficient of friction of iglidur® Q2 plain bearings largely depends on the speed and load. The coefficient of friction also quickly increases as speeds increase. However, as the load is reduced, the coefficient of friction initially drops significantly, then moderately.

► Coefficients of Friction and Surfaces, **page 68**

► Wear Resistance, **page 69**

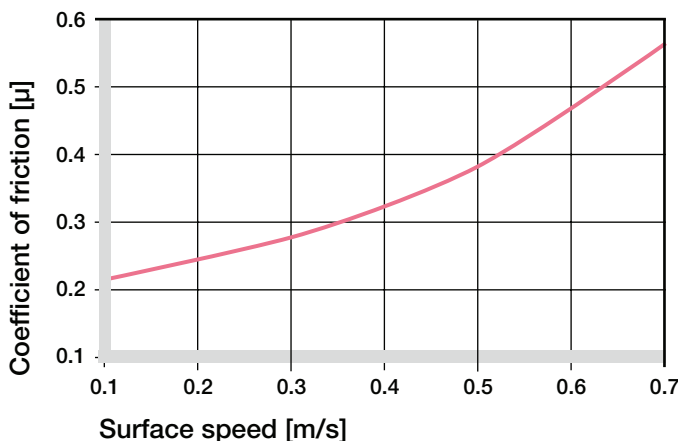


Diagram 04: Coefficient of friction as a function of the running speed, $p = 0.75 \text{ MPa}$

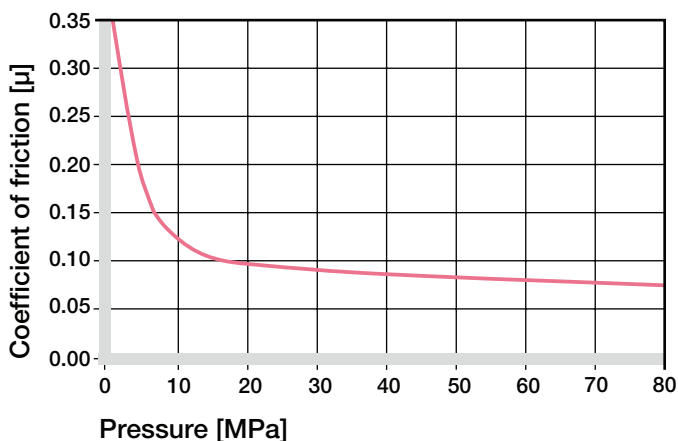


Diagram 05: Coefficient of friction as a function of the pressure, $v = 0.01 \text{ m/s}$

Shaft Materials

Generally speaking, we recommend the use of hardened shafts for highly loaded applications. Furthermore, even at low to medium loads, iglidur® Q2 will give increased service life with "hard" shafts as compared to "soft" shafts. But for low load applications, the results are outstanding with free cutting steel as well. For high loads, the wear in pivoting applications is much lower than for rotations.

► Shaft Materials, **page 71**

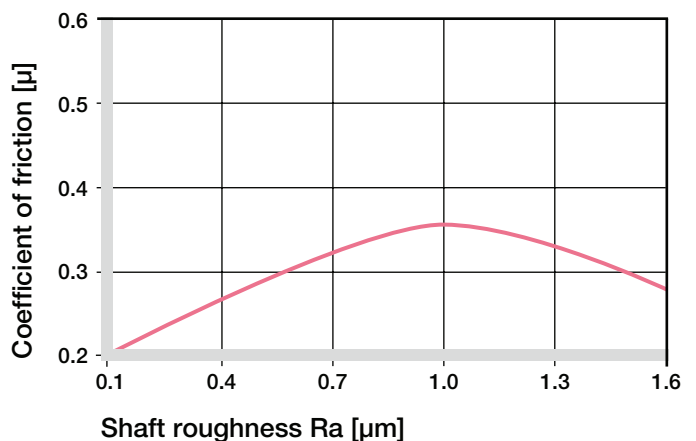


Diagram 06: Coefficient of friction as function of the shaft surface (Cf53 hardened and ground steel)

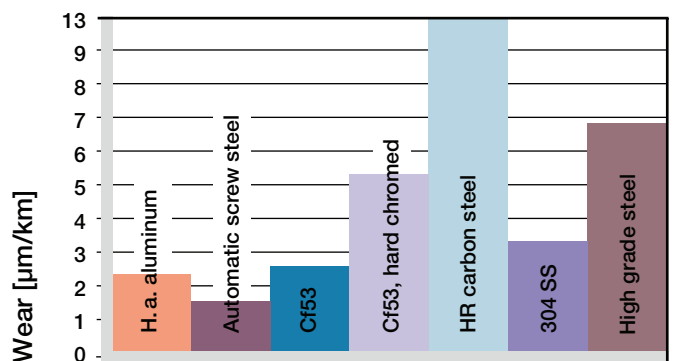


Diagram 07: Wear, rotating with different shaft materials, pressure $p = 1 \text{ MPa}$, $v = 0.3 \text{ m/s}$

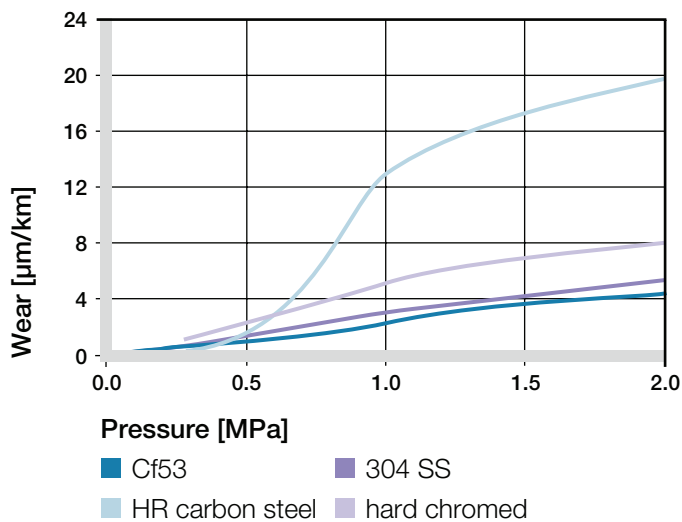


Diagram 08: Wear with different shaft materials in rotational operation, as a function of the pressure

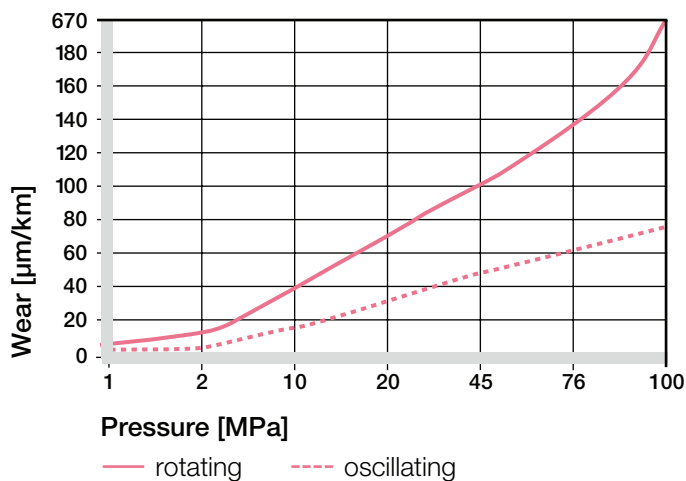


Diagram 09: Wear for oscillating and rotating applications with shaft material Cf53 hardened and ground steel, as a function of the pressure

iglidur® Q2	Dry	Greases	Oil	Water
C.o.f. μ	0.22–0.42	0.09	0.04	0.04

Table 04: Coefficient of friction against steel ($R_a = 1 \mu\text{m}$, 50 HRC)

Additional Properties

Chemical Resistance

iglidur® Q2 bearings have a good resistance against chemicals. They are resistant to most lubricants. The resistance is only limited for acids.

► Chemical Table, page 1258

Medium	Resistance
Alcohol	+
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 05: Chemical resistance

Radiation Resistance

Plain bearings made from iglidur® Q2 are resistant to radiation up to an intensity of applications $3 \cdot 10^2 \text{ Gy}$.

UV Resistance

iglidur® Q2 are permanently resistant to UV radiation.

Vacuum

Any absorbed water will be emitted as gas in a vacuum. Applications under vacuum conditions are possible with restrictions.

Electrical Properties

iglidur® Q2 plain bearings are electrically insulating.

Volume resistance	$> 10^{13} \Omega\text{cm}$
Surface resistance	$> 10^{11} \Omega$

Moisture Absorption

The humidity absorption of iglidur® Q2 bearings amounts to about 1.1 % in standard climatic conditions. The saturation limit in water is 4.6 %.

Maximum moisture absorption

At +23 °C/50 % r. h. 1.1 % weight

Max. water absorption 4.6 % weight

Table 06: Moisture absorption

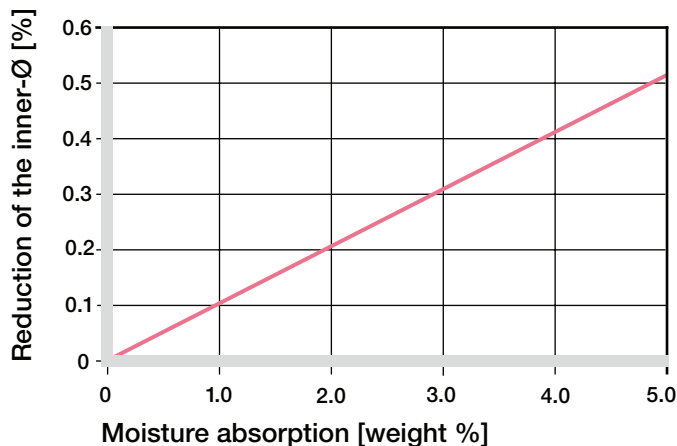


Diagram 10: Effect of moisture absorption on plain bearings

Installation Tolerances

iglidur® Q2 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.

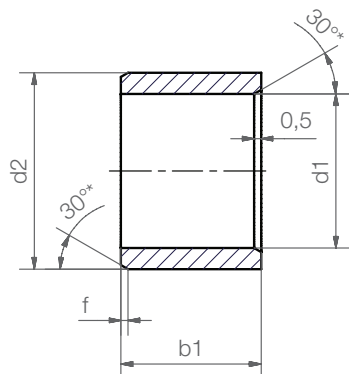
After being assembled into a nominal size housing, in standard cases the inner diameter automatically adjusts to the E10 tolerances. For particular dimensions the tolerance differs depending on the wall thickness (please see product range table).

► Testing Methods, page 75

Diameter d1 [mm]	Shaft h9 [mm]	iglidur® Q2 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 07: Important tolerances for plain bearings according to ISO 3547-1 after pressfit

Sleeve bearing



Order key

Q2SM-0608-06



Length b1
Outer diameter d2
Inner diameter d1
Metric
Type (Form S)
Material iglidur® Q2

Dimensions according to ISO 3547-1 and special dimensions

* 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]

Part number	d1	d1-Tolerance*	d2	b1 h13
Q2SM-0507-05	5.0	+0.020 +0.068	7.0	5.0
Q2SM-0608-06	6.0	+0.020 +0.068	8.0	6.0
Q2SM-0810-10	8.0	+0.025 +0.083	10.0	10.0
Q2SM-1012-10	10.0	+0.025 +0.083	12.0	10.0
Q2SM-1214-12	12.0	+0.032 +0.102	14.0	12.0
Q2SM-1517-15	15.0	+0.032 +0.102	17.0	15.0
Q2SM-1618-15	16.0	+0.032 +0.102	18.0	15.0
Q2SM-2023-20	20.0	+0.040 +0.124	23.0	20.0
Q2SM-2023-30	20.0	+0.040 +0.124	23.0	30.0
Q2SM-2528-20	25.0	+0.040 +0.124	28.0	20.0
Q2SM-3034-30	30.0	+0.040 +0.124	34.0	30.0
Q2SM-3240-40	32.0	+0.050 +0.150	40.0	40.0
Q2SM-3539-40	35.0	+0.050 +0.150	39.0	40.0
Q2SM-4044-40	40.0	+0.050 +0.150	44.0	40.0
Q2SM-4550-50	45.0	+0.050 +0.150	50.0	50.0
Q2SM-5055-50	50.0	+0.050 +0.150	55.0	50.0
Q2SM-6065-60	60.0	+0.060 +0.180	65.0	60.0
Q2SM-6570-60	65.0	+0.060 +0.180	70.0	60.0
Q2SM-7075-60	70.0	+0.060 +0.180	75.0	60.0
Q2SM-7580-40	75.0	+0.060 +0.180	80.0	40.0

* after pressfit. Testing methods ► page 75

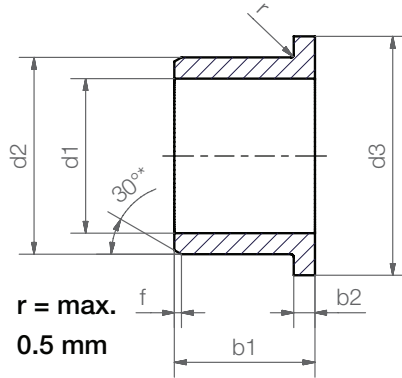


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Flange bearing



Order key

Q2FM-0608-06



Length b1
Outer diameter d2
Inner diameter d1
Metric
Type (Form F)
Material iglidur® Q2

Dimensions according to ISO 3547-1 and special dimensions

* 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]

Part number	d1	d1-Tolerance*	d2	d3 d13	b1 h13	b2 -0.14
Q2FM-0507-05	5.0	+0.020 +0.068	7.0	11.0	5.0	1.0
Q2FM-0608-06	6.0	+0.020 +0.068	8.0	12.0	6.0	1.0
Q2FM-0810-10	8.0	+0.025 +0.083	10.0	15.0	10.0	1.0
Q2FM-1012-10	10.0	+0.025 +0.083	12.0	18.0	10.0	1.0
Q2FM-1214-12	12.0	+0.032 +0.102	14.0	20.0	12.0	1.0
Q2FM-1416-05 New!	14.0	+0.032 +0.102	16.0	22.0	5.0	1.0
Q2FM-1517-17	15.0	+0.032 +0.102	17.0	23.0	17.0	1.0
Q2FM-1618-17	16.0	+0.032 +0.102	18.0	24.0	17.0	1.0
Q2FM-2023-21	20.0	+0.040 +0.124	23.0	30.0	21.5	1.5
Q2FM-2528-21	25.0	+0.040 +0.124	28.0	35.0	21.5	1.5
Q2FM-3034-37 New!	30.0	+0.040 +0.124	34.0	42.0	37.0	2.0
Q2FM-3034-40	30.0	+0.040 +0.124	34.0	42.0	40.0	2.0
Q2FM-3539-40	35.0	+0.050 +0.150	39.0	47.0	40.0	2.0
Q2FM-4044-40	40.0	+0.050 +0.150	44.0	52.0	40.0	2.0
Q2FM-4550-50	45.0	+0.050 +0.150	50.0	58.0	50.0	2.0
Q2FM-5055-50	50.0	+0.050 +0.150	55.0	63.0	50.0	2.0
Q2FM-6065-60	60.0	+0.060 +0.180	65.0	73.0	60.0	2.0
Q2FM-100105125-90 New!	100.0	+0.072 +0.212	105.0	125.0	90.0	2.5
Q2FM-120125145-90 New!	120.0	+0.085 +0.245	125.0	145.0	90.0	2.5

* 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.

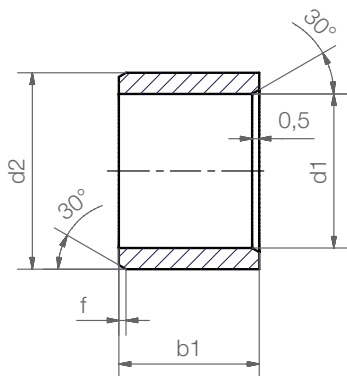


delivery from stock
time



prices price list online
www.igus.eu/eu/q2

Sleeve bearing



Order key

Q2SI-0608-06



Length b1
Outer diameter d2
Inner diameter d1
Inch
Type (Form S)
Material iglidur® Q2

Chamfer in relation to the d1

d1 [Inch]:	Ø 0.040–0.236	Ø 0.236–0.472	Ø 0.472–1.18	Ø > 1.18
f [Inch]:	0.012	0.019	0.031	0.047

Dimensions [mm]

Part number		d1	d2	b1	d1*		Housing bore		Shaft size	
					max.	min.	max.	min.	max.	min.
Q2SI-1216-16	New!	3/4	1	3/4	0.7541	0.7508	1.0010	1.0000	0.7491	0.7479
Q2SI-1620-24	New!	1	1 1/4	1 1/2	1.0041	1.0007	1.2510	1.2500	0.9991	0.9979
Q2SI-2024-24	New!	1 1/4	1 1/2	1 1/2	1.2548	1.2508	1.5005	1.4995	1.2488	1.2472
Q2SI-2428-24	New!	1 1/2	1 3/4	1 1/2	1.5048	1.5008	1.7505	1.7495	1.4988	1.4972
Q2SI-3236-36	New!	2	2 1/4	2 1/4	2.0059	2.0012	2.2505	2.2495	1.9981	1.9969

* after pressfit. Testing methods ► page 75



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time



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