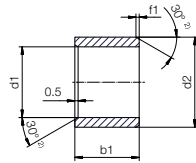


Bearing technology | Plain bearing | iglidur® Q2E

Sleeve bearing (form S)



²⁾ Thickness < 0.6mm: Chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 12–30	Ø > 30
f1 [mm]	0.8	1.2



Order example: **Q2ESM-2025-20** – no minimum order quantity.

Q2E iglidur® material **S** Sleeve bearing **M** Metric **20** Inner Ø d1 **25** Outer Ø d2 **20** Total length b1

d1 [mm]	d1 Tolerance ³⁾	d2 [mm]	b1 h13 [mm]	Part No.
20.0	+0.040 +0.164	25.0	20.0	Q2ESM-2025-20
25.0		30.0	30.0	Q2ESM-2530-30
30.0		35.0	30.0	Q2ESM-3035-30
35.0	+0.050 +0.190	40.0	40.0	Q2ESM-3540-40
40.0		45.0	40.0	Q2ESM-4045-40
45.0		50.0	50.0	Q2ESM-4550-50
50.0	+0.060 +0.220	55.0	50.0	Q2ESM-5055-50
60.0		65.0	60.0	Q2ESM-6065-60

³⁾ After press-fit. *Testing methods, page 57*



Available from stock

Detailed information about delivery time online.

www.igus.eu/24



Online ordering

Including delivery times, prices, online tools

www.igus.eu/Q2E



Ordering note

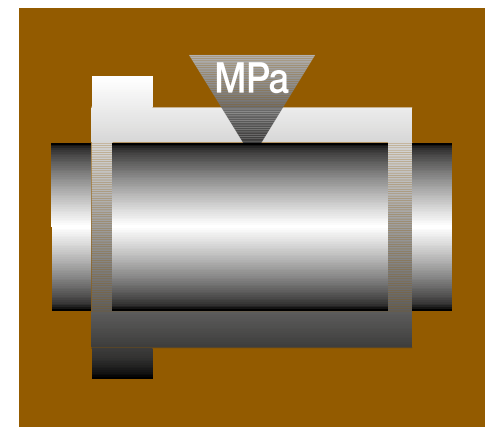
Our prices are scaled according to order quantities, current prices can be found online.

Discount scaling		
1 – 9	50 – 99	500 – 999
10 – 24	100 – 199	1,000 – 2,499
25 – 49	200 – 499	2,500 – 4,999

No minimum order value.

No low-quantity surcharges.

Free shipping within Germany for orders above €150.



The peak of stability

Long service life at medium to high loads

iglidur® Q



When to use it?

- For pivoting applications
- For excellent wear resistance, especially for extreme loads
- For extreme pv values
- When dirt-resistant bearings is required



When not to use?

- For underwater applications
iglidur® H370
- When continuous operating temperatures are higher than +135°C
iglidur® H, iglidur® X, iglidur® Z
- In situations involving high edge loads or strong impact loads
iglidur® Q2

Bearing technology | Plain bearing | iglidur® Q



Ø
6.0 – 90.0mm



Also available as:



Bar stock, round bar
Page 657



Bar stock, plate
Page 683



tribo-tape liner
Page 691



Piston rings
Page 581



Two hole flange bearings
Page 603



Moulded special parts
Page 624



igubal® spherical balls
Page 841

The peak of stability Long service life at medium to high loads

iglidur® Q is the cost-effective solution for heavy-duty cycles with extreme loads. Plain bearings made from this material can be used in all types of motion, but is best suited for pivoting applications.

- Very wear-resistant
- Very high pv values
- Low coefficient of friction
- Resistant to dirt
- Lubrication-free
- Standard range from stock
- Maintenance-free

Typical application areas

- Construction machinery industry
- Sheet metal industry
- Agricultural machines
- Railway technology
- Doors and gates

Descriptive technical specifications

Wear resistance at +23°C	-	<div style="width: 100%; height: 10px; background-color: #8B4513;"></div>	+
Wear resistance at +90°C	-	<div style="width: 100%; height: 10px; background-color: #8B4513;"></div>	+
Wear resistance at +150°C	-	<div style="width: 100%; height: 10px; background-color: #8B4513;"></div>	+
Low coefficient of friction	-	<div style="width: 100%; height: 10px; background-color: #8B4513;"></div>	+
Low moisture absorption	-	<div style="width: 100%; height: 10px; background-color: #8B4513;"></div>	+
Wear resistance under water	-	<div style="width: 100%; height: 10px; background-color: #8B4513;"></div>	+
High media resistance	-	<div style="width: 100%; height: 10px; background-color: #8B4513;"></div>	+
Resistant to edge pressures	-	<div style="width: 100%; height: 10px; background-color: #8B4513;"></div>	+
Suitable for shock and impact loads	-	<div style="width: 100%; height: 10px; background-color: #8B4513;"></div>	+
Resistant to dirt	-	<div style="width: 100%; height: 10px; background-color: #8B4513;"></div>	+

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

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

Technical data

General properties		Testing method	
Density	g/cm ³	1.40	
Colour		black	
Max. moisture absorption at +23°C and 50% r.h.	% weight	0.9	DIN 53495
Max. moisture absorption	% weight	4.9	
Coefficient of friction, dynamic, against steel	μ	0.05 – 0.15	
pv value, max. (dry)	MPa · m/s	0.55	
Mechanical properties			
Flexural modulus	MPa	4,500	DIN 53457
Flexural strength at +20°C	MPa	120	DIN 53452
Compressive strength	MPa	89	
Max. recommended surface pressure (+20°C)	MPa	100	
Shore D hardness		83	DIN 53505
Physical and thermal properties			
Max. application temperature long-term	°C	+135	
Max. application temperature short-term	°C	+155	
Min. application temperature	°C	-40	
Thermal conductivity	W/m · K	0.23	ASTM C 177
Coefficient of thermal expansion (at +23°C)	K ⁻¹ · 10 ⁻⁵	5	DIN 53752
Electrical properties			
Specific contact resistance	Ωcm	> 10 ¹⁵	DIN IEC 93
Surface resistance	Ω	> 10 ¹²	DIN 53482

Table 01: Material properties

iglidur® Q plain bearings were developed especially for extreme loads. Under high loads, iglidur® Q figures among the iglidur® materials that display the best wear resistance. From a radial pressure of 25MPa, it outclasses even bearings made from the extremely abrasion-resistant iglidur® W300. Specific solid lubricants, precisely integrated into the material, ensure that the maintenance-free dry operation is guaranteed under any load.

Moisture absorption

Under standard climatic conditions, the moisture absorption of iglidur® Q plain bearings is approximately 0.9% weight. The saturation limit in water is 4.9% weight. This must be taken into account for these types of applications.

Vacuum

In vacuum, any present moisture is released as vapour. Use in vacuum is only possible with dehumidified iglidur® Q bearings.

Radiation resistance

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

Resistance to weathering

iglidur® Q plain bearings are resistant to weathering. The material properties are slightly affected. Discoloration occurs.

Mechanical properties

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

iglidur® Q is a material used when high pv values are reached with high loads. Diagram 03 shows the elastic deformation of iglidur® Q at radial loads. At the maximum recommended surface pressure of 100MPa the deformation is less than 3%.

Surface pressure, page 41



-40°C up to
+135°C



100MPa



Permissible surface speeds

Under extreme radial loads, the iglidur® Q plain bearings can reach the maximum pv values which are possible during dry operation with plain bearings. Although iglidur® Q plain bearings have the greatest advantages under high loads and at low speeds, high surface speeds are also attainable due to the excellent coefficient of friction of these bearings. The given values in table 03 indicate the limits at which an increase up to the continuous permissible temperature occurs. This increase is a result of friction.

Surface speed, page 44

Temperature

Plain bearings made from iglidur® Q retain their excellent wear resistance even at high temperatures. For temperatures over +50°C an additional securing is required. It should also be noted that the coefficient of friction increases considerably at temperatures above approximately +100°C.

Application temperatures, page 49

Additional securing, page 49

Friction and wear

Many plastic bearings feature decreasing coefficient of friction with increasing pressure in dry operation. iglidur® Q goes further than most, under high pressures the material gives excellent low coefficient of friction (diagrams 04 and 05).

Coefficient of friction and surfaces, page 47

Wear resistance, page 50

Shaft materials

Diagram 06 shows results of testing different shaft materials with plain bearings made from iglidur® Q. The strengths offered by iglidur® heavy-duty materials become clear from 30MPa. iglidur® Q stands out in particular. Other heavy-duty materials such as iglidur® Q2 and TX1 only offer the best performances in terms of wear when subjected to even higher loads. iglidur® Q offers strikingly good wear properties on many different shaft materials.

Shaft materials, page 52

Installation tolerances

iglidur® Q plain bearings are standard bearings for shafts with h tolerance (recommended minimum h9). 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 57

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

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

Table 02: Chemical resistance

Chemical table, page 1636

	Rotating	Oscillating	linear
long-term	m/s 1.0	0.7	5.0
short-term	m/s 2.0	1.4	6.0

Table 03: Maximum surface speeds

	Dry	Greases	Oil	Water
Coefficient of friction μ	0.05 – 0.15	0.09	0.04	0.04

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

\varnothing d1 [mm]	Housing		Plain bearing		Shaft	
	H7 [mm]	E10 [mm]	E10 [mm]	h9 [mm]	h9 [mm]	h9 [mm]
0 – 3	+0.000	+0.010	+0.014	+0.054	-0.025	+0.000
> 3 – 6	+0.000	+0.012	+0.020	+0.068	-0.030	+0.000
> 6 – 10	+0.000	+0.015	+0.025	+0.083	-0.036	+0.000
> 10 – 18	+0.000	+0.018	+0.032	+0.102	-0.043	+0.000
> 18 – 30	+0.000	+0.021	+0.040	+0.124	-0.052	+0.000
> 30 – 50	+0.000	+0.025	+0.050	+0.150	-0.062	+0.000
> 50 – 80	+0.000	+0.030	+0.060	+0.180	-0.074	+0.000
> 80 – 120	+0.000	+0.035	+0.072	+0.212	-0.087	+0.000
> 120 – 180	+0.000	+0.040	+0.085	+0.245	-0.100	+0.000

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

Technical data

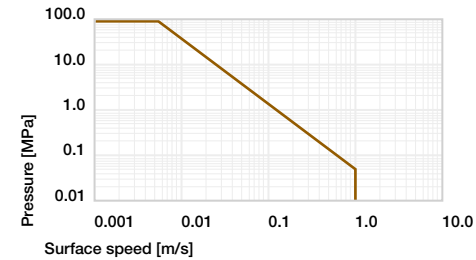


Diagram 01: Permissible pv values for iglidur® Q plain bearings with a wall thickness of 1mm, dry operation against a steel shaft, at +20°C, mounted in a steel housing

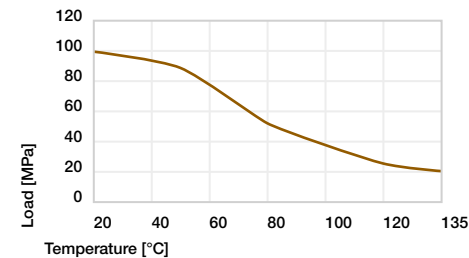


Diagram 02: Maximum recommended surface pressure of as a function of temperature (100MPa at +20°C)

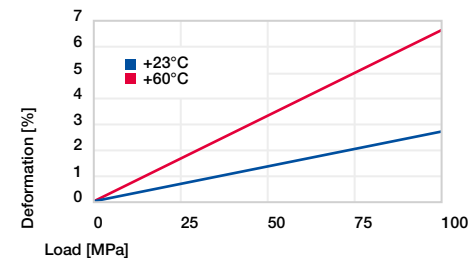


Diagram 03: Deformation under pressure and temperature

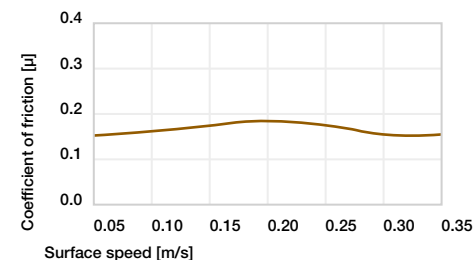


Diagram 04: Coefficient of friction as a function of the surface speed, p = 0.75MPa

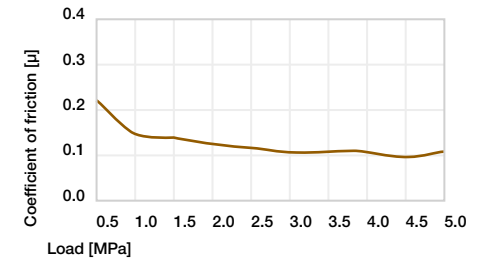


Diagram 05: Coefficient of friction as a function of the load, v = 0.01m/s

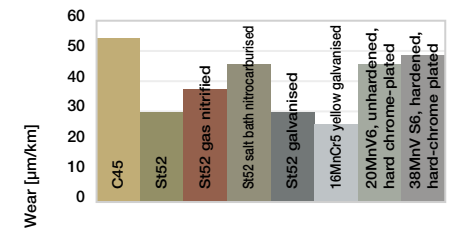


Diagram 06: wear, pivoting with different shaft materials, pressure p = 30MPa, v = 0.01m/s

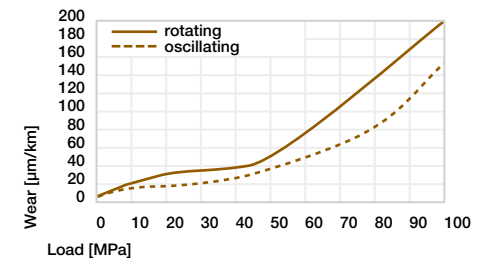
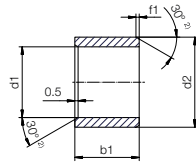


Diagram 07: Wear for oscillating and rotating applications with shaft material Cf53 hardened and ground steel, as a function of the load

Bearing technology | Plain bearing | iglidur® Q

Sleeve bearing (form S)



²⁾ Thickness < 0.6mm: Chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30	Ø > 30
f1 [mm]	0.3	0.5	0.8	1.2

i Dimensions according to ISO 3547-1 and special dimensions

🔑 Order example: **QSM-0608-10** – no minimum order quantity.

Q iglidur® material **S** Sleeve bearing **M** Metric **06** Inner Ø d1 **08** Outer Ø d2 **10** Total length b1

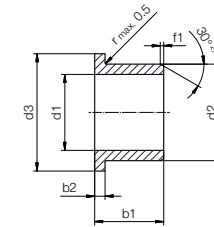
d1	d1	d2	b1	Part No.
[mm]	Tolerance ³⁾	[mm]	h13	
6.0	+0.020	8.0	10.0	QSM-0608-10
	+0.068			
8.0	+0.025	10.0	8.0	QSM-0810-08
10.0	+0.083	12.0	10.0	QSM-1012-10
12.0		14.0	10.0	QSM-1214-10
12.0		14.0	20.0	QSM-1214-20
16.0	+0.032	18.0	8.0	QSM-1618-08
16.0	+0.102	18.0	12.5	QSM-1618-12
16.0		18.0	20.0	QSM-1618-20
18.0		20.0	20.0	QSM-1820-20
20.0		22.0	15.0	QSM-2022-15
20.0		23.0	15.0	QSM-2023-15
20.0		23.0	20.0	QSM-2023-20
20.0		23.0	25.0	QSM-2023-25
20.0	+0.040	23.0	30.0	QSM-2023-30
25.0	+0.124	28.0	25.0	QSM-2528-25
25.0		28.0	48.0	QSM-2528-48
30.0		34.0	20.0	QSM-3034-20
30.0		34.0	35.0	QSM-3034-35
30.0		34.0	40.0	QSM-3034-40

³⁾ After press-fit. *Testing methods, page 57*

d1	d1	d2	b1	Part No.
[mm]	Tolerance ³⁾	[mm]	h13	
35.0		39.0	15.0	QSM-3539-15
35.0		39.0	30.0	QSM-3539-30
35.0		39.0	35.0	QSM-3539-35
35.0		39.0	50.0	QSM-3539-50
40.0		44.0	30.0	QSM-4044-30
40.0	+0.050	44.0	40.0	QSM-4044-40
40.0	+0.150	44.0	47.0	QSM-4044-47
45.0		50.0	25.2	QSM-4550-252
45.0		50.0	50.0	QSM-4550-50
50.0		55.0	50.0	QSM-5055-50
50.0		55.0	60.0	QSM-5055-60
50.0		55.0	80.0	QSM-5055-80
55.0		60.0	50.0	QSM-5560-50
60.0		65.0	50.0	QSM-6065-50
65.0	+0.060	70.0	34.0	QSM-6570-34
70.0	+0.180	75.0	50.0	QSM-7075-50
75.0		80.0	40.0	QSM-7580-40
80.0		85.0	60.0	QSM-8085-60
90.0	+0.072	95.0	50.0	QSM-9095-50
	+0.212			

Bearing technology | Plain bearing | iglidur® Q

Flange bearing (form F)



²⁾ Thickness < 0.6mm: Chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30	Ø > 30
f1 [mm]	0.3	0.5	0.8	1.2

i Dimensions according to ISO 3547-1 and special dimensions

🔑 Order example: **QFM-0608-03** – no minimum order quantity.

Q iglidur® material **F** Flange bearing **M** Metric **06** Inner Ø d1 **08** Outer Ø d2 **03** Total length b1

d1	d1	d2	d3	b1	b2	Part No.
[mm]	Tolerance ³⁾	[mm]	d13 ³⁾	h13	h13	
6.0		8.0	12.0	3.0	1.00	QFM-0608-03
6.0	+0.020	8.0	12.0	4.0	1.00	QFM-0608-04
6.0	+0.068	8.0	12.0	8.0	1.00	QFM-0608-08
8.0		10.0	15.0	5.5	1.00	QFM-0810-05
8.0		10.0	15.0	6.0	1.00	QFM-0810-06
10.0	+0.025	12.0	15.0	3.5	1.00	QFM-101215-035
10.0	+0.083	12.0	18.0	6.0	1.00	QFM-1012-06
10.0		12.0	15.0	8.0	1.00	QFM-101215-08
10.0		12.0	18.0	10.0	1.00	QFM-1012-10
12.0		14.0	20.0	8.0	1.00	QFM-1214-08
12.0		14.0	20.0	12.0	1.00	QFM-1214-12
12.0	+0.032	14.0	20.0	20.0	1.00	QFM-1214-20
14.0	+0.102	16.0	22.0	12.0	1.00	QFM-1416-12
16.0		18.0	24.0	17.0	1.00	QFM-1618-17

³⁾ After press-fit. *Testing methods, page 57*

🚚 Available from stock
Detailed information about delivery time online.
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🖥️ Online ordering
Including delivery times, prices, online tools
www.igus.eu/Q

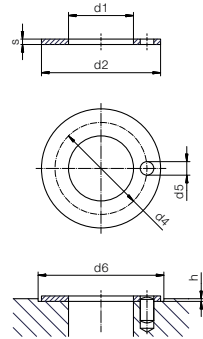
🛒 Ordering note
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Discount scaling		
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10 - 24	100 - 199	1,000 - 2,499
25 - 49	200 - 499	2,500 - 4,999

No minimum order value.
No low-quantity surcharges.
Free shipping within Germany for orders above €150.

Bearing technology | Plain bearing | iglidur® Q

Thrust washer (form T)



i Dimensions according to ISO 3547-1 and special dimensions

? Order example: **QTM-2842-015** – no minimum order quantity.
Q iglidur® material T Thrust washer M Metric 28 Inner Ø d1 42 Outer Ø d2 015 Thickness s

d1	d2	d4	d5	h	d6	s	Part No.
+0.25	-0.25	-0.12 +0.12	+0.375 +0.125	+0.2/-0.2	+0.12	-0.05	
[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	
28	42	35	4	1	42	1.5	QTM-2842-015
32	54	⁴⁾	4	1	54	1.5	QTM-3254-015

⁴⁾ Design without fixing hole

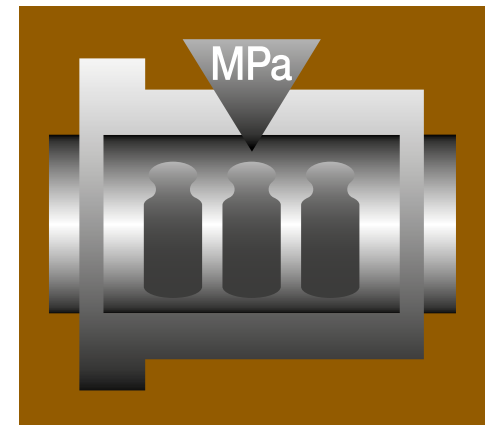
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🛒 Ordering note
Our prices are scaled according to order quantities, current prices can be found online.

Discount scaling		
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10 – 24	100 – 199	1,000 – 2,499
25 – 49	200 – 499	2,500 – 4,999

No minimum order value.
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Heavy-duty on soft shafts For medium to high loads, especially on soft shafts iglidur® Q290



When to use it?

- When a long-lasting plain bearing is required for tough operating conditions (agricultural equipment, construction machinery, etc.) with medium to high dynamic loads on "soft" shafts



When not to use?

- When permanent static loads higher than 55MPa occur
iglidur® G, iglidur® Q, iglidur® Q2
- When an very wear-resistant plain bearing is required on "soft" shafts for minor loads
iglidur® J, iglidur® J3
- When continuous operating temperatures are higher than +140°C
iglidur® J350, iglidur® Z