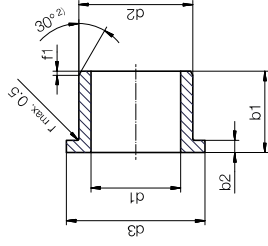


# Bearing technology | Plain bearings | iglidur® Q2

Flange bearing (form F)



<sup>2)</sup> Thickness < 0.6mm: Chamfer = 20°

Chamfer in relation to d1

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

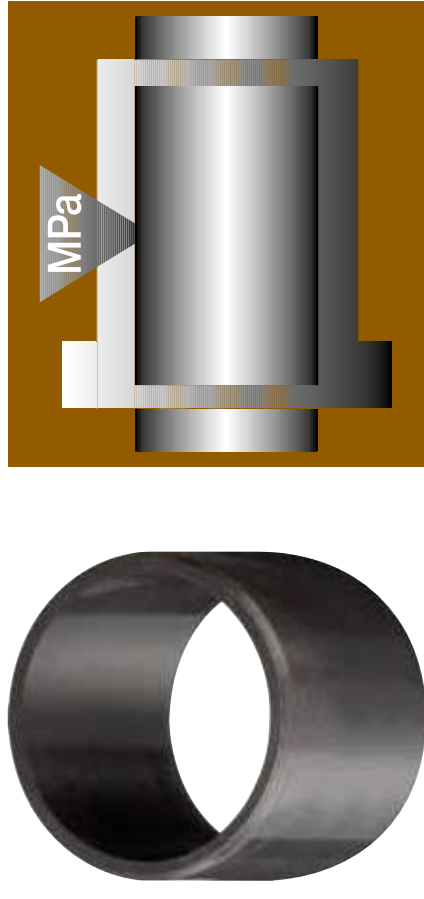
**i** Dimensions according to ISO 3547-1 and special dimensions

**i** Order example: Q2FM-0507-05 - no minimum order quantity.

Q2 iglidur® material F Flange bearing M Metric 05 Inner Ø d1 07 Outer Ø d2 05 Total length b1

d1	d1	d2	d3	b1	b2	Part No.
Tolerance <sup>3)</sup>	d13	h13	h14	h13	-0,14	
5,0	7,0	11,0	5,0	1,00	Q2FM-0507-05	
6,0	+0,020	8,0	12,0	4,0	1,00	Q2FM-0608-04
6,0	+0,068	8,0	12,0	6,0	1,00	Q2FM-0608-06
6,0		8,0	12,0	8,0	1,00	Q2FM-0608-08
8,0		10,0	15,0	3,0	1,00	Q2FM-0810-03
8,0		10,0	15,0	5,5	1,00	Q2FM-0810-05
8,0		10,0	15,0	7,5	1,00	Q2FM-0810-07
8,0		10,0	15,0	9,5	1,00	Q2FM-0810-09
8,0	+0,025	10,0	15,0	10,0	1,00	Q2FM-0810-10
10,0	+0,083	12,0	18,0	7,0	1,00	Q2FM-1012-07
10,0		12,0	18,0	9,0	1,00	Q2FM-1012-09
10,0		12,0	18,0	10,0	1,00	Q2FM-1012-10
10,0		12,0	18,0	12,0	1,00	Q2FM-1012-12
10,0		12,0	18,0	17,0	1,00	Q2FM-1012-17
12,0		14,0	20,0	7,0	1,00	Q2FM-1214-07
12,0		14,0	20,0	9,0	1,00	Q2FM-1214-09
12,0		14,0	20,0	12,0	1,00	Q2FM-1214-12
12,0		14,0	20,0	17,0	1,00	Q2FM-1214-17
14,0		16,0	22,0	5,0	1,00	Q2FM-1416-05
14,0	+0,032	16,0	22,0	12,0	1,00	Q2FM-1416-12
14,0	+0,102	16,0	22,0	17,0	1,00	Q2FM-1416-17
15,0		17,0	23,0	9,0	1,00	Q2FM-1517-09
15,0		17,0	23,0	12,0	1,00	Q2FM-1517-12
15,0		17,0	23,0	17,0	1,00	Q2FM-1517-17
16,0		18,0	24,0	12,0	1,00	Q2FM-1618-12
16,0		18,0	24,0	17,0	1,00	Q2FM-1618-17
18,0		20,0	26,0	12,0	1,00	Q2FM-1820-12

<sup>3)</sup> After press-fit. Testing methods page 57



## 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 bearings | iglidur® Q



Ø 6.0 – 90.0  
mm

Also available  
as:



Bar stock,  
round bar:  
Page 629



Bar stock,  
plate:  
Page 551



tribo-tape  
liner:  
Page 657



Piston rings:  
Page 559



Two hole  
flange bearing:  
Page 581



Moulded  
special parts:  
Page 602



spherical balls:  
Page 783

## 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
- Sheet metal industry
- Agricultural machines
- Railway technology
- Doors and gates

### Descriptive technical specifications

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

Online product finder  
[www.igus.eu/iglidur-finder](http://www.igus.eu/iglidur-finder)



Online service life calculation  
[www.igus.eu/iglidur-expert](http://www.igus.eu/iglidur-expert)

# Technical data

## General properties

Density	g/cm <sup>3</sup>	1.40	Testing method
Colour		black	
Max. moisture absorption at +23°C and 50% r.h.	% weight	0.9	DIN 53456
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	
<b>Mechanical properties</b>			
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
<b>Physical and thermal properties</b>			
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 <sup>-1</sup> · 10 <sup>-6</sup>	5	DIN 53752
<b>Electrical properties</b>			
Specific contact resistance	Ωcm	> 10 <sup>15</sup>	DIN IEC 93
Surface resistance	Ω	> 10 <sup>12</sup>	DIN 53482

Table 01: Material properties table

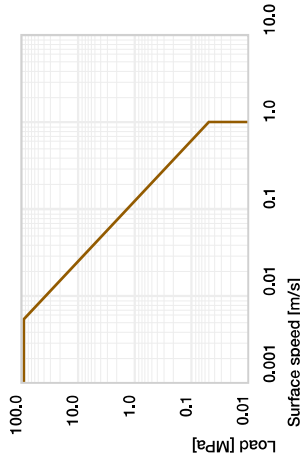


Diagram 01: Permissible pv values for iglidur® Q plain bearings with a wall thickness of 1mm, dry operation against a steel shaft, at +20°C, mounted in a steel housing

### 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 · 10<sup>6</sup>Gy.

### UV resistance

The tribological properties of iglidur® Q plain bearings stay constant for the most part under weathering effects.

Chemicals	Resistance
Alcohols	+ up to 0
Hydrocarbons	+
Greases, oils without additives	+
Fuels	+
Diluted acids	0 up to -
Strong acids	-
Diluted alkalines	+
Strong alkalines	0
	+ resistant
	0 conditionally resistant
	- not resistant

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

Table 02: Chemical resistance

Chemical table, page 1542

# Bearing technology | Plain bearings | iglidur® Q

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.

## 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.

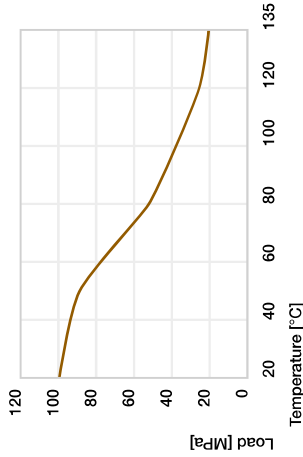


Diagram 02: Maximum recommended surface pressure as a function of temperature (100MPa at +20°C)

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

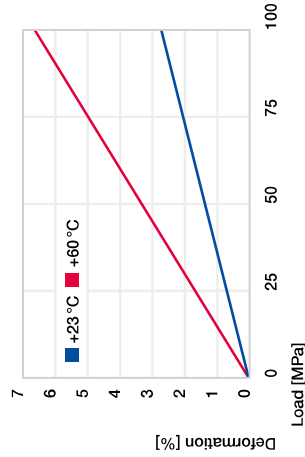


Diagram 03: Deformation under pressure and temperature

## 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

	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

## 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

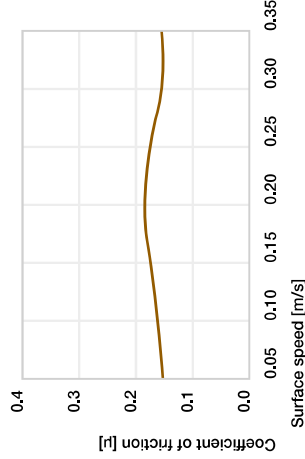


Diagram 04: Coefficient of friction as a function of the surface speed, p = 0.75MPa

# Technical data

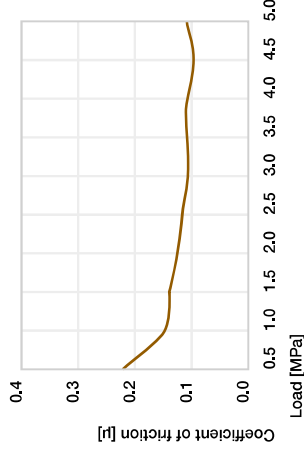


Diagram 05: Coefficient of friction as a function of the load, v = 0.01m/s

## 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

	Dry	Greases	Oil	Water
Coeff. of friction [μ]	0.05	0.15	0.09	0.04

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

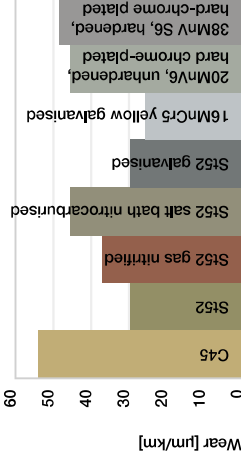


Diagram 06: wear, pivoting with different shaft materials, pressure p = 30MPa, v = 0.01 m/s

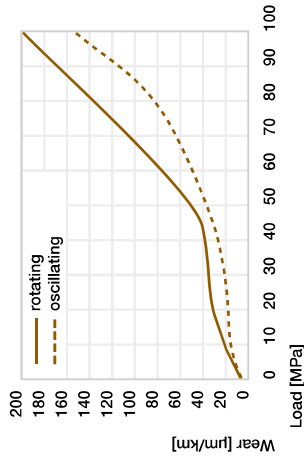


Diagram 07: Wear for oscillating and rotating applications with shaft material Cf53 hardened and ground steel, as a function of the load

## 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).

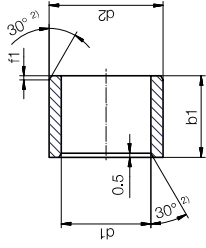
## Testing methods, page 57

Ø d1 [mm]	Housing		Plain bearing		Shaft	
	H7 [mm]	H7 [mm]	E10 [mm]	h9 [mm]	E10 [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

## Bearing technology | Plain bearings | iglidur® Q

Sleeve bearing (form S)



<sup>2)</sup> Thickness < 0.6mm: Chamfer = 20°

Chamfer in relation to 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 according to ISO 3547-1 and special dimensions

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

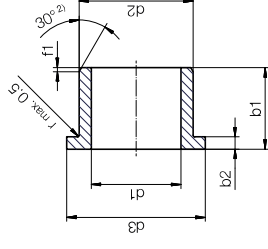
Q iglidur® material S Sleeve bearing M Metric Ø d1 08 Inner Ø d2 10 Total length b1

d1	d1 Tolerance <sup>3)</sup> [mm]	d2	b1	h13 [mm]	Part No.
6.0	+0.020	8.0	10.0	QSM-0608-10	
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	

<sup>3)</sup> After press-fit. Testing methods page 57

## Bearing technology | Plain bearings | iglidur® Q

Flange bearing (form F)



<sup>2)</sup> Thickness < 0.6mm: Chamfer = 20°

Chamfer in relation to 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 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 Ø d1 08 Outer Ø d2 03 Total length b1

d1	d1 Tolerance <sup>3)</sup> [mm]	d2	d3	b1	b2	h13 [mm]	Part No.
6.0	+0.020	8.0	12.0	3.0	1.00	QFM-0608-03	
6.0	+0.068	8.0	12.0	4.0	1.00	QFM-0608-04	
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-101215-06	
10.0		12.0	15.0	8.0	1.00	QFM-101215-08	
10.0		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	
18.0		20.0	26.0	5.0	1.00	QFM-182026-051	
18.0		20.0	26.0	12.0	1.00	QFM-1820-12	

<sup>3)</sup> 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](http://www.igus.eu/Q)



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

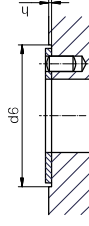
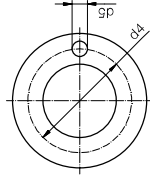
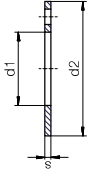
No minimum order value.

No low-quantity surcharges.

Free shipping within Germany for orders above €150.

## Bearing technology | Plain bearings | iglidur® Q

Thrust washer (form T)



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

**i** 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	+0.375	+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 <sup>4)</sup>	4	1	54	1.5	QTM-3254-015

<sup>4)</sup> Design without fixing hole



**Available from stock**

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**Ordering note**

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**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.



## Heavy-duty on soft shafts

For medium to high loads, especially on soft shafts

### iglidur® Q290



**When to use it?**

- If 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**