

iglidur® Q – Fit for High Loads



Excellent wear resistance at high loads

Recommended for extreme p x v values

Maintenance-free

Resistant to dirt

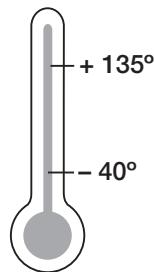
iglidur® Q | Fit for High Loads

iglidur® Q plain bearings were developed especially for extreme loads. At high loads, iglidur® Q ranks among the best iglidur® materials for wear resistance. Under extreme radial loads iglidur® Q plain bearings can achieve the highest p x v values for plain bearings running dry.

3 styles
 > 75 dimensions
 Ø 6–80 mm



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igus® GmbH
 51147 Cologne

Price index



Fit for High Loads

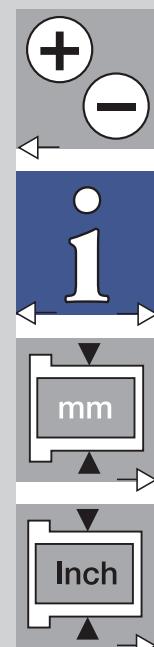


When to use iglidur® Q plain bearings:

- When there are very high loads
- For shock and impact loads
- For oscillating applications
- Excellent wear resistance, especially for extreme loads
- Suitable for extreme p x v values
- Maintenance-free dry running
- Dirt resistant
- Resistant to edge loads

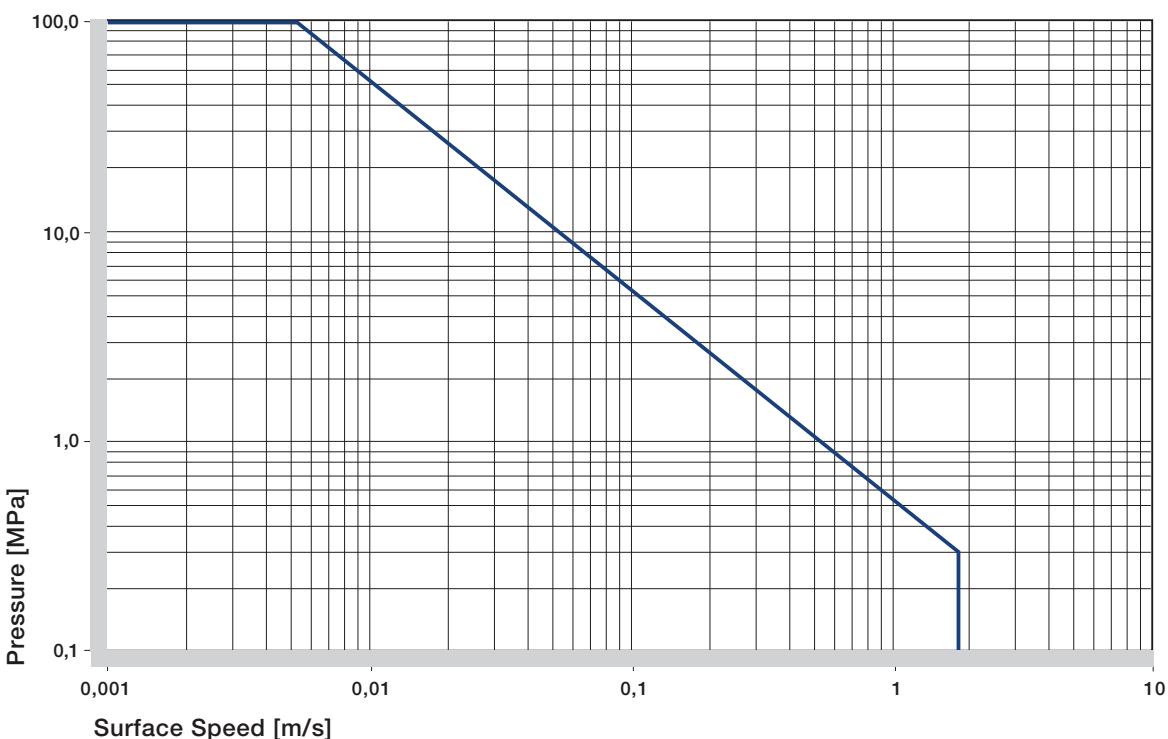
When not to use iglidur® Q plain bearings:

- For underwater applications
 - iglidur® H 370 (chapter 15)
- When temperatures are continuously greater than 135°C
 - iglidur® H (chapter 12), iglidur® X (chapter 6), iglidur® Z (chapter 22)
- When electrically conductive bearings are needed
 - iglidur® F (chapter 11), iglidur® H (chapter 12)

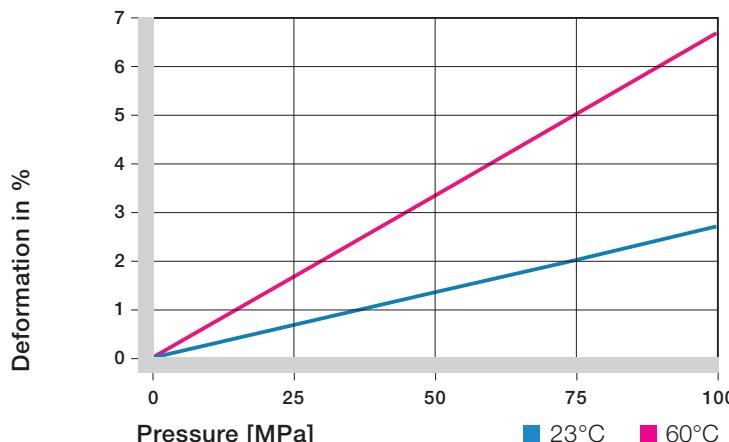
**Material Table**

General Properties	Unit	iglidur® Q	Testing Method
Density	g/cm ³	1,40	
Colour		Black	
Max. moisture absorption at 23°C / 50% r.F.	% weight	0,9	DIN 53495
Max. moisture absorption	% weight	4,9	
Coefficient of friction, dynamic against steel	μ	0,05 - 0,15	
p x v value, max. (dry)	MPa x m/s	0,55	
Mechanical Properties			
Modulus of elasticity	MPa	4.500	DIN 53457
Tensile 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. long term application temperature	°C	135	
Max. short term application temperature	°C	155	
Min. application temperature	°C	-40	
Thermal conductivity	W/m x K	0,23	ASTM C 177
Coefficient of thermal expansion (at 23°C)	K ⁻¹ x 10 ⁻⁵	5	DIN 53752
Electrical Properties			
Specific volume resistance	Ωcm	> 10 ¹⁵	DIN IEC 93
Surface resistance	Ω	> 10 ¹²	DIN 53482

Table 18.1: Material Data



Graph 18.1: Permissible p x v value for iglidur® Q running dry against a steel shaft, at 20°C



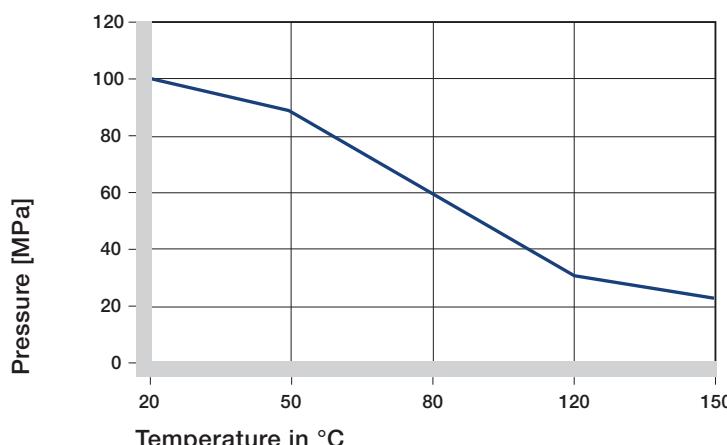
Graph 18.2: Deformation under pressure and temperature

m/s	Rotating	Oscillating	Linear
Continuous	1	0,7	5
Short term	2	1,4	6

Table 18.2: Maximum surface speeds

iglidur® Q	Application Temperature
Minimum	-40 °C
Max., long term	+135 °C
Max., short term	+155 °C

Table 18.3: Temperature limits for iglidur® Q



Graph 18.3: Recommended maximum surface pressure of iglidur® Q as a function of temperature

iglidur® Q	Dry	Grease	Oil	Water
C.o.f. [μ]	0,05–0,15	0,09	0,04	0,04

Table 18.4: Coefficient of friction for iglidur® Q against steel ($R_a = 1 \mu\text{m}$, 50 HRC)

iglidur® Q plain bearings were developed especially for extreme loads. At high loads, iglidur® Q ranks among the best iglidur® materials for wear resistance. Starting at a radial load of 25 MPa even the highly wear resistant iglidur® W300 plain bearings are outmatched. Special solid lubricants are distributed throughout the iglidur® material, allowing maintenance-free dry running applications at any load.

Surface Pressure

iglidur® Q is a material that is used for high loads over 50 MPa. Graph 18.2 shows the elastic deformation of iglidur® Q for radial loads. At the recommended maximum surface pressure of 100 MPa deformation is less than 3% at room temperature.

- ☒ Graph 18.2
- ▶ Surface Pressure, page 1.18

Permissible Surface Speeds

Under extreme radial loads, iglidur® Q plain bearings can achieve the highest $p \times v$ values for plain bearings running dry. Although iglidur® Q plain bearings provide the largest advantages for high loads and low speeds high surface speeds are also possible, due to excellent friction values. The values in table 18.2 show the speeds at which friction can cause temperature to increase to maximum permissible levels.

- ▶ Surface Speed, page 1.26
- ▶ $p \times v$ value, page 1.22

Temperatures

Plain bearings made of iglidur® Q have excellent wear resistance even at high temperatures. The maximum long term application temperature is 135°C. For the short term, the material can withstand 155°C. Because of different environmental influences, the bearing can lose pressfit at lower temperatures. Therefore, it may be necessary to secure the bearings in the housing bore.

Also, notice that the coefficient of friction increases rapidly as temperature increases beginning at approximately 100°C.

- Graph 18.3
- Application Temperatures, page 1.23

Friction and Wear

Many self-lubricating plain bearings have coefficients of friction that decrease with increasing loads. In many cases, iglidur® Q has the best coefficient of friction of all the iglidur® plain bearings. After a short start-up phase, the coefficient of friction drops to its final result. With these low coefficients of friction, iglidur® Q is the recommended material when extreme loads exist and maximum wear resistance is needed.

Also, the shaft material has a large influence on friction and wear. Very smooth shafts increase the friction of the bearing. For applications with high loads, we recommend hardened and ground surfaces with an average roughness of $R_a = 0.15$ to $0.3 \mu\text{m}$.

- Graphs 18.4 to 18.6
- Coefficients of Friction and Surfaces, page 1.25
- Wear Resistance, page 1.26

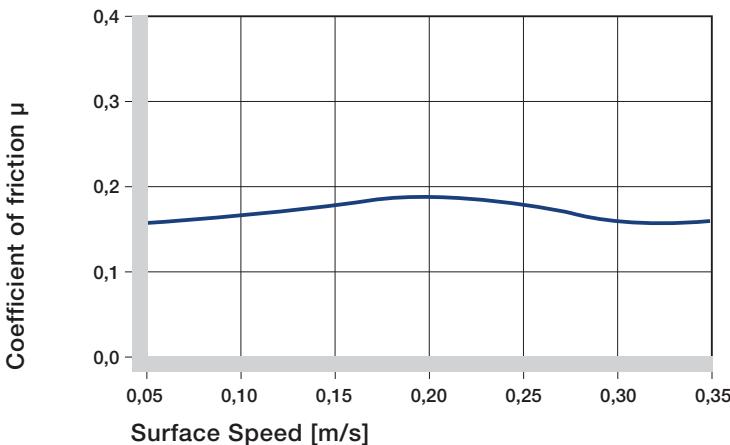
Shaft Materials

Graphs 18.7 and 18.8 show results of testing different shaft materials with plain bearings made of iglidur® Q.

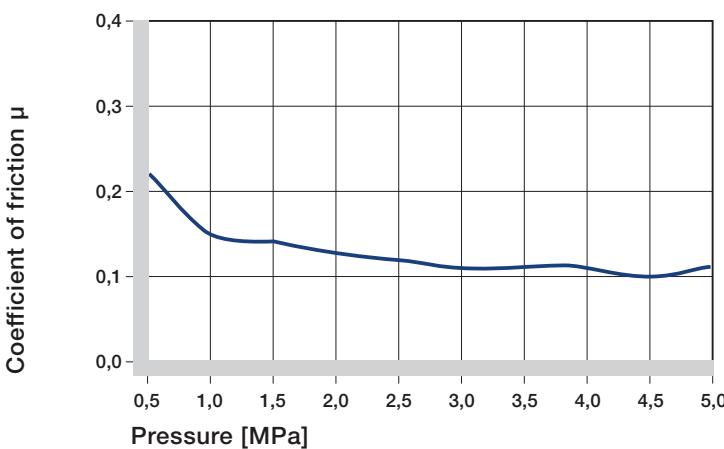
iglidur® Q plain bearings have a higher average wear rate at low loads than bearings made of iglidur® J or iglidur® W300. However, the strength of iglidur® Q is its the wear resistance at heavy loads and in oscillating operation. In oscillating movements iglidur® Q plain bearings perform best against hard-chromed or machined steel shafts.

If the shaft material you plan to use is not contained in this list, please contact us.

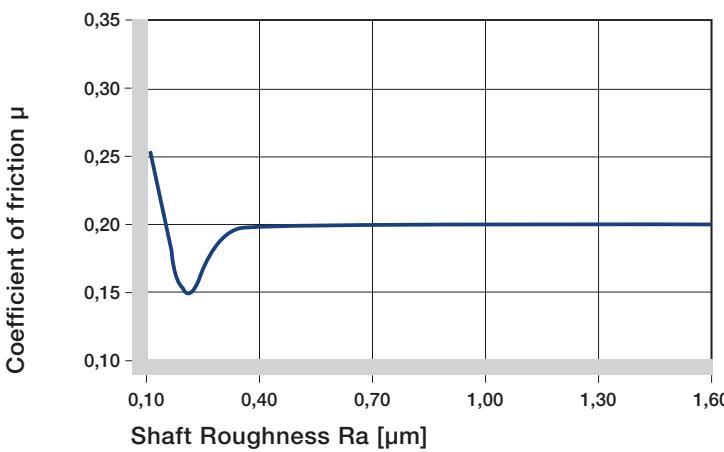
- Graphs 18.7 to 18.10
- Shaft Materials, page 1.28



Graph 18.4: Coefficient of friction as a function of the surface speed; $p = 0.75 \text{ MPa}$ constant



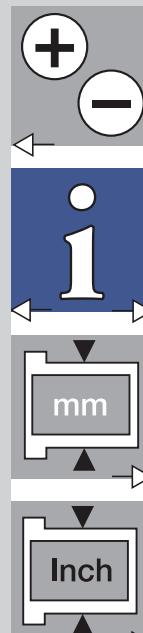
Graph 18.5: Coefficient of friction as a function of the pressure, $v = 0.01 \text{ m/s}$

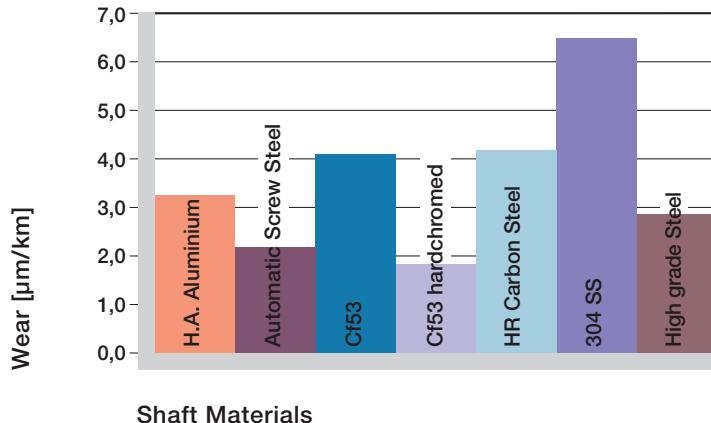


Graph 18.6: Coefficient of friction as a function of the shaft surface

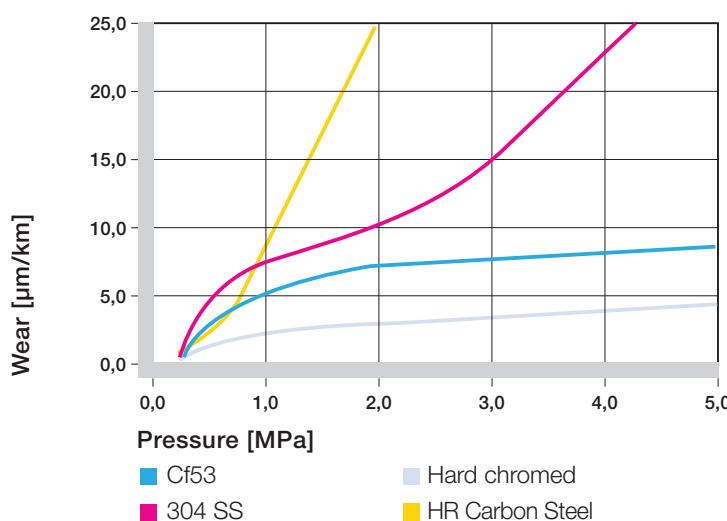
iglidur® Q

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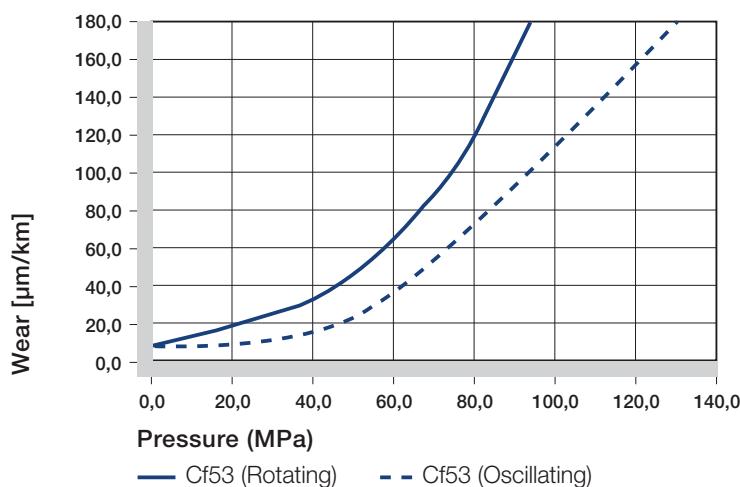




Graph 18.7: Wear of iglidur® Q, rotating application with different shaft materials, $p = 0.75 \text{ MPa}$, $v = 0.5 \text{ m/s}$



Graph 18.8: Wear with different shaft materials for rotating applications



Graph 18.9: Wear for oscillating and rotating applications with a Cf53 hardened and ground steel shaft

Installation Tolerances

iglidur® Q plain bearings are meant to be oversized before pressfit. 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 adjusts to meet our specified tolerances. Please adhere to the catalogue specifications for housing bores and recommended shaft sizes. This will help to ensure optimal performance of plain bearings.

► Testing Methods, page 1.35

Chemical Resistance

iglidur® Q plain bearings have excellent chemical resistance. They are resistant to organic solvents, fuels, oils and greases. The material is only partially resistant to weak acids and weak alkalines. The moisture absorption of iglidur® Q plain bearings is approximately 0.9% in standard atmosphere. The saturation limit in water is 4.9%. This must be taken into account along with any other application conditions.

☒ Graph 18.11

► Chemical Table, pages 70.1 ff.

Radiation Resistance

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

UV Resistance

The tribological properties of iglidur® Q plain bearings stay constant for the most part under weathering effects. However, the material may become slightly brittle.

Vacuum

When used in a vacuum, the iglidur® Q plain bearings release existing moisture as a vapour. Therefore, only dehumidified bearings made of iglidur® Q are suitable for use in a vacuum.

Electrical Properties

iglidur® Q plain bearings are electrically insulating.

Diameter d1 [mm]	Shaft h9 [mm]	iglidur® Q E10 [mm]
up to 3	0-0,025	+0,014 +0,054
> 3 to 6	0-0,030	+0,020 +0,068
> 6 to 10	0-0,036	+0,025 +0,083
> 10 to 18	0-0,043	+0,032 +0,102
> 18 to 30	0-0,052	+0,040 +0,124
> 30 to 50	0-0,062	+0,050 +0,150
> 50 to 80	0-0,074	+0,060 +0,180

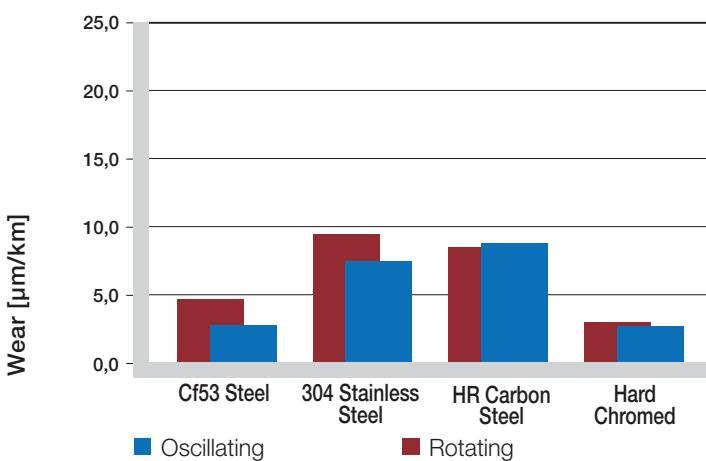
Table 18.5: Essential tolerances for iglidur® Q plain bearings according to ISO 3547-1 after pressfit

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

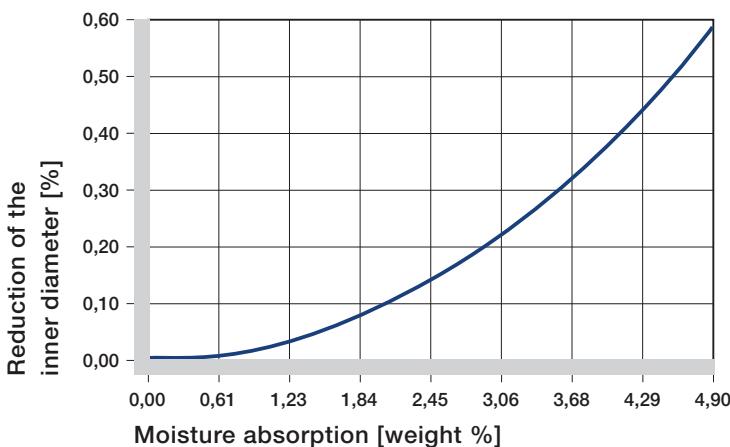
Table 18.6: Chemical resistance of iglidur® Q – detailed list, page 70.1

+ resistant 0 conditionally resistant - not resistant

All data given at room temperature [20°C]



Graph 18.10: Wear for oscillating and rotating applications with different shaft materials at $p = 2 \text{ MPa}$



Graph 18.11: Effect of moisture absorption on iglidur® Q plain bearings

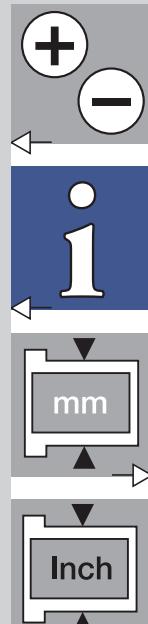
iglidur® Q

Specific volume resistance	$> 10^{15} \Omega\text{cm}$
Surface resistance	$> 10^{12} \Omega$

Table 18.7: Electrical properties of iglidur® Q

iglidur® Q

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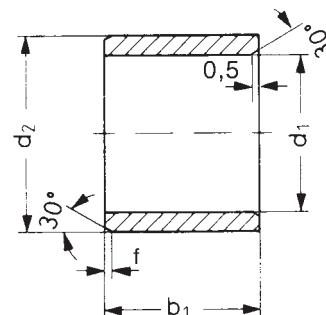
mm

iglidur® Q - Type S

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Fax +49 - 22 03 - 96 49-334

igus® GmbH
51147 Cologne

Internet www.igus.de
E-mail info@igus.de



Data in mm

Structure – part no.
Q S M-0608-10

Dimensions according to ISO 3547-1
and special dimensions

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

Part Number	d1	d1 Tolerance*	d2	b1	h13
QSM-0608-10	6,0	+0,020 +0,068	8,0	10,0	
QSM-0810-08	8,0	+0,025 +0,083	10,0	8,0	
QSM-1012-10	10,0	+0,025 +0,083	12,0	10,0	
QSM-1214-10	12,0	+0,032 +0,102	14,0	10,0	
QSM-1214-20	12,0	+0,032 +0,102	14,0	20,0	
QSM-1618-08	16,0	+0,032 +0,102	18,0	8,0	
QSM-1618-12	16,0	+0,032 +0,102	18,0	12,5	
QSM-1618-20	16,0	+0,032 +0,102	18,0	20,0	
QSM-1820-20	18,0	+0,032 +0,102	20,0	20,0	
QSM-2022-15	20,0	+0,040 +0,124	22,0	15,0	
QSM-2023-15	20,0	+0,040 +0,124	23,0	15,0	
QSM-2023-20	20,0	+0,040 +0,124	23,0	20,0	
QSM-2023-25	20,0	+0,040 +0,124	23,0	25,0	
QSM-2023-30	20,0	+0,040 +0,124	23,0	30,0	
QSM-2528-25	25,0	+0,040 +0,124	28,0	25,0	
QSM-2528-48	25,0	+0,040 +0,124	28,0	48,0	

Part Number	d1	d1 Tolerance*	d2	b1	h13
QSM-3034-20	30,0	+0,040 +0,124	34,0	20,0	
QSM-3034-40	30,0	+0,040 +0,124	34,0	40,0	
QSM-3539-15	35,0	+0,050 +0,150	39,0	15,0	
QSM-3539-30	35,0	+0,050 +0,150	39,0	30,0	
QSM-3539-50	35,0	+0,050 +0,150	39,0	50,0	
QSM-4044-40	40,0	+0,050 +0,150	44,0	40,0	
QSM-4044-47	40,0	+0,050 +0,150	44,0	47,0	
QSM-4550-252	45,0	+0,050 +0,150	50,0	25,2	
QSM-4550-50	45,0	+0,050 +0,150	50,0	50,0	
QSM-5055-50	50,0	+0,050 +0,150	55,0	50,0	
QSM-5055-60	50,0	+0,050 +0,150	55,0	60,0	
QSM-6065-50	60,0	+0,060 +0,180	65,0	50,0	
QSM-6570-34	65,0	+0,060 +0,180	70,0	34,0	
QSM-7075-50	70,0	+0,060 +0,180	75,0	50,0	
QSM-8085-60	80,0	+0,060 +0,180	85,0	60,0	

*after pressfit. Testing methods ► page 1.35

Order example

Our price breaks are defined by the order quantity.

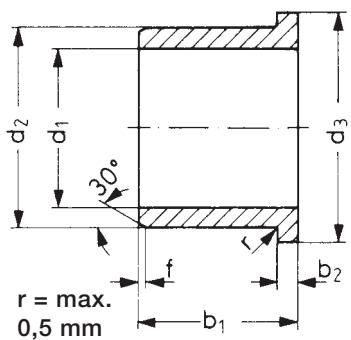
1– 9	25–49	100–199	500– 999	2500–4999
10–24	50–99	200–499	1000–2499	



For the current prices please visit the igus®-Homepage www.igus.de/en
No minimum order quantities, no surcharges.

iglidur® Q | Flange Bearing | mm

igus®



Data in mm

Structure – part no.

Q F M-0608-04



b1	d2	d1	Metric
d1	b2	f	Type
Material			

Dimensions according to ISO 3547-1
and special dimensions

Chamfer in relation to the d1

d1 [mm]:	$\varnothing 1\text{--}6$	$\varnothing 6\text{--}12$	$\varnothing 12\text{--}30$	$\varnothing > 30$
f [mm]:	0,3	0,5	0,8	1,2

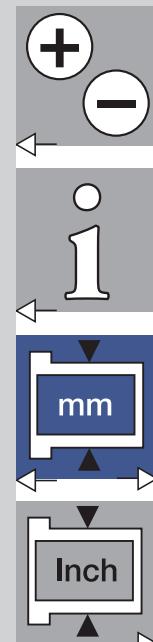
Part Number	d1	d1 Tolerance*	d2	d3	b1	b2
QFM-0608-04	6,0	+0,020 +0,068	8,0	12,0	4,0	1,0
QFM-0810-05	8,0	+0,025 +0,083	10,0	15,0	5,5	1,0
QFM-0810-06	8,0	+0,025 +0,083	10,0	15,0	6,0	1,0
QFM-1012-06	10,0	+0,025 +0,083	12,0	18,0	6,0	1,0
QFM-1012-10	10,0	+0,025 +0,083	12,0	18,0	10,0	1,0
QFM-101215-035	10,0	+0,025 +0,083	12,0	15,0	3,5	1,0
QFM-101215-08	10,0	+0,025 +0,083	12,0	15,0	8,0	1,0
QFM-1214-08	12,0	+0,032 +0,102	14,0	20,0	8,0	1,0
QFM-1214-12	12,0	+0,032 +0,102	14,0	20,0	12,0	1,0
QFM-1214-20	12,0	+0,032 +0,102	14,0	20,0	20,0	1,0
QFM-1416-12	14,0	+0,032 +0,102	16,0	22,0	12,0	1,0
QFM-1618-17	16,0	+0,032 +0,102	18,0	24,0	17,0	1,0
QFM-1820-12	18,0	+0,032 +0,102	20,0	26,0	12,0	1,0
QFM-2023-21	20,0	+0,040 +0,124	23,0	30,0	21,5	1,5
QFM-2528-21	25,0	+0,040 +0,124	28,0	35,0	21,5	1,5
QFM-2730-20	27,0	+0,040 +0,124	30,0	38,0	20,0	1,5
QFM-3034-37	30,0	+0,040 +0,124	34,0	42,0	37,0	2,0
QFM-3539-26	35,0	+0,050 +0,150	39,0	47,0	26,0	2,0
QFM-4044-40	40,0	+0,050 +0,150	44,0	52,0	40,0	2,0
QFM-5055-50	50,0	+0,050 +0,150	55,0	63,0	50,0	2,0
QFM-6065-50	60,0	+0,060 +0,180	65,0	78,0	50,0	2,0
QFM-7075-50	70,0	+0,060 +0,180	75,0	83,0	50,0	2,0

*after pressfit. Testing methods ► page 1.35

iglidur® Q – Type F

mm

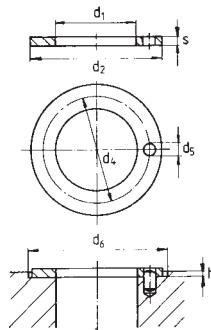
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This futuristic electric scooter uses with iglidur® Q plain bearings. The advantages: no maintenance, lightweight and high load capacity.

Lifetime calculation, CAD files and much more support ► www.igus.de/en/q

18.9



Data in inches

Structure – part no.

Q T M 2842-015



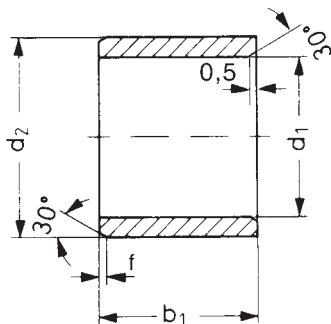
b1
d2
d1
Inch
Type
Material

Part Number	d1	d2	s	d4	d5	h	d6
	+0,3	-0,3	-0,06	-0,12/+0,12-0,375/+0,125	+0,2/-0,2		+0,12
QTM-2842-015	28,0	42,0	1,5	35,0	4,0	1,0	42,0
QTM-3254-015	32,0	54,0	1,5	43,0	4,0	1,0	54,0

*after pressfit. Testing methods ► page 1.35



This futuristic electric scooter uses iglidur® Q plain bearings. The advantages: no maintenance, lightweight and high load capacity.



Data in inches

Structure – part no.

Q S I -0607-04



b1
d2
d1
Inch
Type
Material

Chamfer in relation to the d1

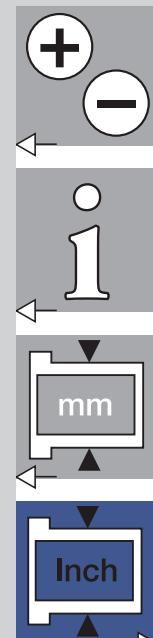
d1 [mm]: Ø 1-6 | Ø 6-12 | Ø 12-30 | Ø > 30

f [mm]: 0,3 | 0,5 | 0,8 | 1,2

iglidur® Q – Type F

inch

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Part Number	d1	d2	b1	d3	b2	d1*		Housing Bore		Shaft Size	
						max.	min.	max.	min.	max.	min.
QSI-0607-04	3/8	15/32	1/4	,3773	,3750	,4691	,4684	,3740	,3731		
QSI-0607-06	3/8	15/32	3/8	,3773	,3750	,4691	,4684	,3740	,3731		
QSI-0607-08	3/8	15/32	1/2	,3773	,3750	,4691	,4684	,3740	,3731		
QSI-0708-08	7/16	17/32	1/2	,4406	,4379	,5316	,5309	,4365	,4355		
QSI-0809-12	1/2	19/32	3/4	,5030	,5003	,5941	,5934	,4990	,4980		
QSI-1011-12	5/8	23/32	3/4	,6280	,6253	,7192	,7184	,6240	,6230		
QSI-1214-08	3/4	7/8	1/2	,7541	,7507	,8755	,8747	,7491	,7479		
QSI-1214-12	3/4	7/8	3/4	,7541	,7507	,8755	,8747	,7491	,7479		
QSI-1214-16	3/4	7/8	1	,7541	,7507	,8755	,8747	,7491	,7479		
QSI-1416-16	7/8	1	1	,8791	,8757	1,0005	,9997	,8741	,8729		
QSI-1618-16	1	1 1/8	1	1,0041	1,0007	1,1255	1,1247	,9991	,9979		
QSI-1618-24	1	1 1/8	1 1/2	1,0041	1,0007	1,1255	1,1247	,9991	,9979		
QSI-1820-24	1 1/8	1 9/32	1 1/2	1,1288	1,1254	1,2818	1,2808	1,1238	1,1226		
QSI-2022-20	1 1/4	1 13/32	1 1/4	1,2548	1,2508	1,4068	1,4058	1,2488	1,2472		
QSI-2022-24	1 1/4	1 13/32	1 1/2	1,2548	1,2508	1,4068	1,4058	1,2488	1,2472		
QSI-2426-24	1 1/2	1 21/32	1 1/2	1,5048	1,5008	1,6568	1,6558	1,4988	1,4972		
QSI-2629-20	1 5/8	1 25/32	1 1/4	1,6297	1,6258	1,7818	1,7808	1,6238	1,6222		
QSI-2831-32	1 3/4	1 15/16	2	1,7547	1,7507	1,9381	1,9371	1,7487	1,7471		
QSI-3235-12	2	2 3/16	3/4	2,0057	2,0011	2,1883	2,1871	1,9981	1,9969		
QSI-3235-16	2	2 3/16	1	2,0057	2,0011	2,1883	2,1871	1,9981	1,9969		
QSI-3235-24	2	2 3/16	1 1/2	2,0057	2,0011	2,1883	2,1871	1,9981	1,9969		
QSI-3235-32	2	2 3/16	2	2,0057	2,0011	2,1883	2,1871	1,9981	1,9969		
QSI-3235-40	2	2 3/16	2 1/2	2,0057	2,0011	2,1883	2,1871	1,9981	1,9969		
QSI-3639-32	2 1/4	2 7/16	2	2,2577	2,2531	2,4377	2,4365	2,2507	2,2489		

*after pressfit. Testing methods ► page 1.35

Order example

Our price breaks are defined by the order quantity.

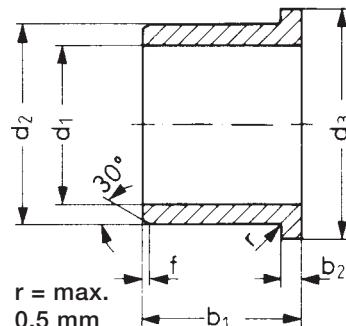
1–9	25–49	100–199	500–999	2500–4999
10–24	50–99	200–499	1000–2499	

For the current prices please visit the igus®-Homepage www.igus.co.uk

No minimum order quantities, no surcharges.



iglidur® Q - Type F



Data in inches

Structure – part no.

Q F I -0607-04



b1	d2
d1	Inch
Type	
Material	

Chamfer in relation to the d_1

d1 [mm]:	$\emptyset 1-6$	$\emptyset 6-12$	$\emptyset 12-30$	$\emptyset > 30$
f [mm]:	0,3	0,5	0,8	1,2

Part Number	d1	d2	b1	d3	b2	d1*		Housing Bore		Shaft Size	
						max.	min.	max.	min.	max.	min.
QFI-0607-04	3/8	15/32	1/4	,687	,046	,3773	,3750	,4691	,4684	,3740	,3731
QFI-0607-08	3/8	15/32	1/2	,687	,046	,3773	,3750	,4691	,4684	,3740	,3731
QFI-0809-04	1/2	19/32	1/4	,875	,046	,5030	,5003	,5941	,5934	,4990	,4980
QFI-0809-08	1/2	19/32	1/2	,875	,046	,5030	,5003	,5941	,5934	,4990	,4980
QFI-0809-12	1/2	19/32	3/4	,875	,046	,5030	,5003	,5941	,5934	,4990	,4980
QFI-1011-12	5/8	23/32	3/4	,937	,046	,6280	,6253	,7192	,7184	,6240	,6230
QFI-1012-08	5/8	3/4	3/4	1,000	,062	,6290	,6263	,7510	,7500	,6250	,6240
QFI-1214-08	3/4	7/8	1/2	1,125	,062	,7541	,7507	,8755	,8747	,7491	,7479
QFI-1214-12	3/4	7/8	3/4	1,125	,062	,7541	,7507	,8755	,8747	,7491	,7479
QFI-1214-16	3/4	7/8	1	1,125	,062	,7541	,7505	,8755	,8747	,7491	,7479
QFI-1416-12	7/8	1	3/4	1,250	,062	,8791	,8757	1,0005	,9997	,8741	,8729
QFI-1416-16	7/8	1	1	1,250	,062	,8791	,8757	1,0005	,9997	,8741	,8729
QFI-1618-08	1	1 1/8	1/2	1,375	,062	1,0041	1,0007	1,1255	1,1247	,9991	,9979
QFI-1618-16	1	1 1/8	1	1,375	,062	1,0041	1,0007	1,1255	1,1247	,9991	,9979
QFI-1618-24	1	1 1/8	1 1/2	1,375	,062	1,0041	1,0007	1,1255	1,1247	,9991	,9979
QFI-1820-12	1 1/8	1 9/32	3/4	1,562	,078	1,1288	1,1254	1,2818	1,2808	1,1238	1,1226
QFI-1820-24	1 1/8	1 9/32	1 1/2	1,562	,078	1,1288	1,1254	1,2818	1,2808	1,1238	1,1226
QFI-2022-20	1 1/4	1 13/32	1 1/4	1,687	,078	1,2548	1,2508	1,4068	1,4058	1,2488	1,2472
QFI-2022-24	1 1/4	1 13/32	1 1/2	1,687	,078	1,2548	1,2508	1,4068	1,4058	1,2488	1,2472
QFI-2426-24	1 1/2	1 21/32	1 1/2	2,000	,078	1,5048	1,5008	1,6568	1,6558	1,4988	1,4972
QFI-2831-32	1 3/4	1 15/16	2	2,375	,093	1,7547	1,7507	1,9381	1,9371	1,7487	1,7471
QFI-3235-32	2	2 3/16	2	2,625	,093	2,0057	2,0011	2,1883	2,1871	1,9981	1,9969
QFI-3639-32	2 1/4	2 7/16	2	2,750	,093	2,2577	2,2531	2,4377	2,4365	2,2507	2,2489

*after pressfit. Testing methods ► page 1.34 f.