

The versatile endurance runner

Wear resistance on (almost) all shafts,
very low coefficient of friction

iglidur® J



When to use it?

- For high speeds
- When highest wear resistance at low to medium pressures is required
- Low wear against different shafts
- When a low coefficient of friction in dry operation is requested
- For vibration dampening
- When good chemical resistance is required
- For best performance with soft shaft materials
- Low moisture absorption



When not to use?

- When high pressures occur
iglidur® G, iglidur® W300
- When short-term temperatures higher than +120°C occur
iglidur® G, iglidur® Z
- When a cost-effective plain bearing for occasional movements is necessary
iglidur® G

Bearing technology | Plain bearing | iglidur® J

Technical data



Ø
1.5 –
120.0mm



Also available
as:



Bar stock,
round bar
Page 674

The versatile endurance runner Wear resistance on (almost) all shafts, very low coefficient of friction



Bar stock,
plate
Page 684

One main advantage of iglidur® J plain bearings is the combination of a low coefficient of friction in dry operation and the low stick-slip tendency. With a maximum recommended surface pressure of 35MPa, iglidur® J plain bearings are not suitable for extreme loads.

- Over 250 sizes available from stock
- High wear resistance
- Low coefficient of friction
- Vibration-dampening
- High chemical resistance
- Recommended for soft shafts
- Low moisture absorption



tribo-tape liner
Page 691

Typical application areas

- Automation
- Printing industry
- Beverage industry
- Aerospace engineering
- Cleanroom



Piston rings
Page 584

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	-		+



Two hole
flange
bearings
Page 603



Moulded
special parts
Page 624



igubal®
spherical balls
Page 848

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

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

General properties			Testing method
Density	g/cm ³	1.49	
Colour		yellow	
Max. moisture absorption at +23°C and 50% r.h.	% weight	0.3	DIN 53495
Max. moisture absorption	% weight	1.3	
Coefficient of friction, dynamic, against steel	μ	0.06 – 0.18	
pv value, max. (dry)	MPa · m/s	0.34	
Mechanical properties			
Flexural modulus	MPa	2,400	DIN 53457
Flexural strength at +20°C	MPa	73	DIN 53452
Compressive strength	MPa	60	
Max. recommended surface pressure (+20°C)	MPa	35	
Shore D hardness		74	DIN 53505
Physical and thermal properties			
Max. application temperature long-term	°C	+90	
Max. application temperature short-term	°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	10	DIN 53752
Electrical properties			
Specific contact resistance	Ωcm	> 10 ¹³	DIN IEC 93
Surface resistance	Ω	> 10 ¹²	DIN 53482

Table 01: Material properties

One main advantage of iglidur® J plain bearings is the combination of a low coefficient of friction in dry operation and the low stick-slip tendency.

Resistance to weathering

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

Moisture absorption

Under standard climatic conditions, the moisture absorption of iglidur® J plain bearings is approximately 0.3% weight. The saturation limit in water is 1.3% weight. These values are so low that a moisture expansion need to be considered only in extreme cases.

Mechanical properties

With increasing temperatures, the compressive strength of iglidur® J plain bearings decreases. Diagram 02 shows this inverse relationship. However, at the long-term maximum temperature of +90°C the permissible surface pressure is around 20MPa. The maximum recommended surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this. With a maximum recommended surface pressure of 35MPa, iglidur® J plain bearings are not suitable for extreme loads. Diagram 03 shows the elastic deformation of iglidur® J at radial loads.

Vacuum

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

Surface pressure, page 41

Radiation resistance

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



-50°C up to
+90°C



35MPa



HB



Permissible surface speeds

The low coefficient of friction and the very low stick slip tendency of iglidur® J plain bearings are particularly important at very low speeds. However, iglidur® J can also be used for high speeds of over 1m/s. In both cases the static friction is very low and stick slip does not occur. 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 level is rarely reached due to varying application conditions.

Surface speed, page 44

Temperature

iglidur® J plain bearings can be used between -50°C and +90°C; the short-term maximum permissible temperature is +120°C. Wear increases significantly at temperatures above +80°C. For temperatures over +60°C an additional securing is required.

Application temperatures, page 49

Additional securing, page 49

Friction and wear

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

Coefficient of friction and surfaces, page 47

Wear resistance, page 50

Shaft materials

The friction and wear are also dependent, to a large degree, on the shaft material. With increasing shaft surface finish, the coefficient of friction also increases. For iglidur® J a ground surface with an average surface finish $R_a = 0.1 - 0.3\mu\text{m}$ is recommended. Diagrams 06 and 07 show the test results of iglidur® J plain bearings running against various shaft materials. When compared to most iglidur® materials, iglidur® J plain bearings have very low wear results at low loads compared with all shaft materials tested. Also, for increasing loads up to 5MPa, the wear resistance of iglidur® J is excellent. If the shaft material you plan on using is not shown in these test results, please contact us.

Shaft materials, page 52

Installation tolerances

iglidur® J plain bearings are standard bearings for shafts with h tolerance (recommended minimum h9). The bearings are designed for press-fit 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 57

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

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

Table 02: Chemical resistance

Chemical table, page 1636

		Rotating	Oscillating	linear
long-term	m/s	1.5	1.1	8.0
short-term	m/s	3.0	2.1	10.0

Table 03: Maximum surface speeds

	Dry	Greases	Oil	Water
Coefficient of friction μ	0.06 - 0.18	0.09	0.04	0.04

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

	Housing	Plain bearing	Shaft			
	Ø d1 [mm]	H7 [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

Technical data

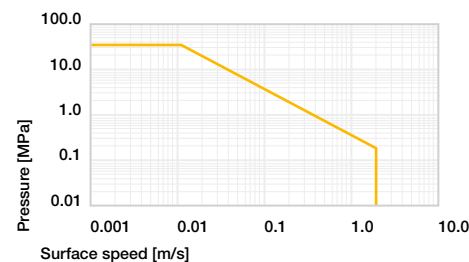


Diagram 01: Permissible pv values for iglidur® J plain bearings with a wall thickness of 1mm, dry operation against a steel shaft, at +20°C, mounted in a steel housing

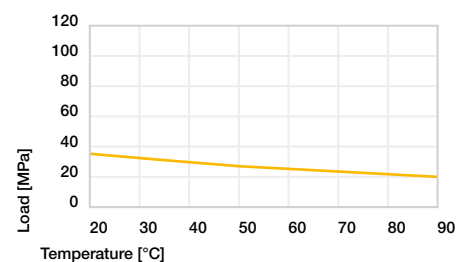


Diagram 02: Maximum recommended surface pressure as a function of temperature (35MPa at +20°C)

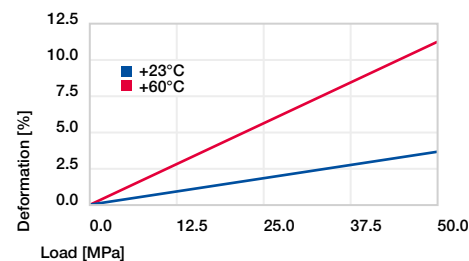


Diagram 03: Deformation under pressure and temperature

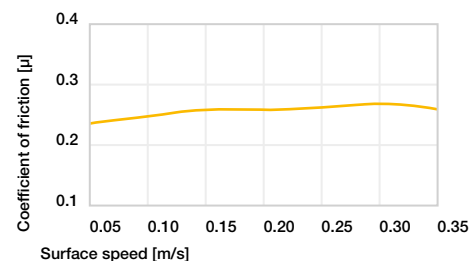


Diagram 04: Coefficient of friction as a function of the surface speed, $p = 0.75\text{MPa}$

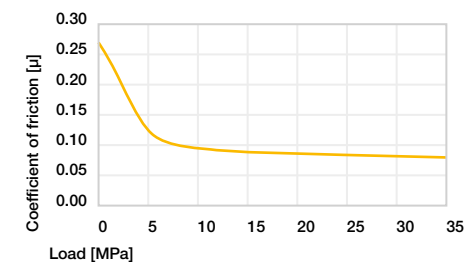


Diagram 05: Coefficient of friction as a function of the load, $v = 0.01\text{m/s}$

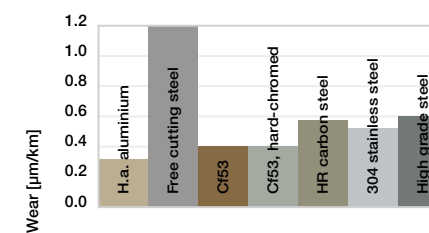


Diagram 06: Wear, rotating with different shaft materials, pressure, $p = 1\text{MPa}$, $v = 0.3\text{m/s}$

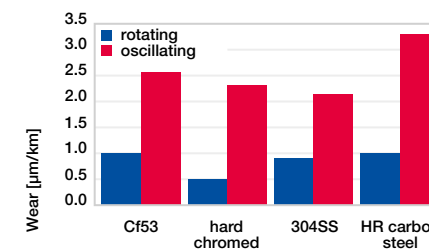



Diagram 07: Wear for rotating and oscillating applications with different shaft materials, $p = 2\text{MPa}$


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d1	d1	d2	b1	Part No.	d1	d1	d2	b1	Part No.
[mm]	Tolerance ³⁾	[mm]	h13	[mm]	[mm]	Tolerance ³⁾	[mm]	[mm]	[mm]
36.0		40.0	45.0	JSM-3640-45	50.0		55.0	20.0	JSM-5055-20
40.0		44.0	20.0	JSM-4044-20	50.0	+0.050	55.0	30.0	JSM-5055-30
40.0	+0.050	44.0	30.0	JSM-4044-30	50.0	+0.150	55.0	40.0	JSM-5055-40
40.0	+0.150	44.0	35.0	JSM-4044-35	50.0		55.0	50.0	JSM-5055-50
40.0		44.0	40.0	JSM-4044-40	50.0		55.0	60.0	JSM-5055-60
40.0		44.0	50.0	JSM-4044-50	55.0		60.0	60.0	JSM-5560-60
42.0	+0.080	46.0	73.0	JSM-4246-73	60.0		65.0	60.0	JSM-6065-60
45.0	+0.240	50.0	20.0	JSM-4550-20	65.0	+0.060	70.0	50.0	JSM-6570-50
45.0	+0.025	50.0	30.0	JSM-4550-30	70.0	+0.180	75.0	60.0	JSM-7075-60
45.0	+0.125	50.0	40.0	JSM-4550-40	75.0		80.0	60.0	JSM-7580-60
45.0		50.0	50.0	JSM-4550-50	80.0		85.0	100.0	JSM-8085-100
					80.0		86.0	60.0	JSM-8086-60
					100.0	+0.072	105.0	100.0	JSM-100105-100
					110.0	+0.212	115.0	60.0	JSM-110115-60

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/J

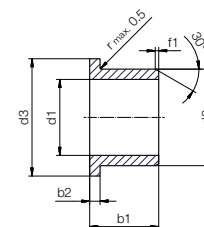
 **Ordering note**
Our prices are scaled according to order quantities, current prices can be found online.

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.

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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

 Dimensions according to ISO 3547-1 and special dimensions

 **Order example: JFM-0304-03 – no minimum order quantity.**
J iglidur® material F Flange bearing M Metric 03 Inner Ø d1 04 Outer Ø d2 03 Total length b1

d1	d1	d2	d3	b1	b2	Part No.
[mm]	Tolerance ³⁾	[mm]	d13 ³⁾	h13	h13	
3.0	+0.014	4.5	7.5	3.0	0.75	JFM-0304-03
3.0	+0.054	4.5	7.5	4.5	0.75	JFM-0304-045
3.0		4.5	7.5	5.0	0.75	JFM-0304-05
3.0	+0.020	6.0	9.0	10.0	1.50	JFM-0306-10
	+0.080					
4.0		5.5	9.5	3.0	0.75	JFM-0405-03
4.0		5.5	9.5	6.0	0.75	JFM-0405-06
5.0		6.0	10.0	5.0	0.50	JFM-0506-05
5.0	+0.020	7.0	11.0	3.0	1.00	JFM-0507-03
5.0	+0.068	7.0	11.0	5.0	1.00	JFM-0507-05
6.0		8.0	12.0	4.0	1.00	JFM-0608-04
6.0		8.0	12.0	6.0	1.00	JFM-0608-06
6.0		8.0	12.0	8.0	1.00	JFM-0608-08
6.0		8.0	12.0	10.0	1.00	JFM-0608-10
6.0	+0.030	10.0	14.0	10.0	2.00	JFM-0610-10
	+0.105					
8.0		10.0	15.0	3.8	1.00	JFM-0810-038
8.0		10.0	15.0	5.0	1.00	JFM-0810-05
8.0		10.0	15.0	6.0	1.00	JFM-0810-06
8.0		10.0	15.0	7.0	1.00	JFM-0810-07
8.0		10.0	15.0	8.0	1.00	JFM-0810-08
8.0	+0.025	10.0	15.0	9.5	1.00	JFM-0810-09
8.0	+0.083	10.0	15.0	10.0	1.00	JFM-0810-10
8.0		10.0	12.0	16.0	1.00	JFM-081012-16
8.0		10.0	12.5	10.0	1.00	JFM-0810125-10
8.0		10.0	14.0	10.0	1.00	JFM-081014-10
8.0		10.0	16.0	11.0	2.00	JFM-081016-11
8.0		12.0	16.0	6.0	2.00	JFM-0812-06

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

d1	d1	d2	d3	b1	b2	Part No.
[mm]	Tolerance ³⁾	[mm]	d13 ³⁾	h13	h13	
8.0		12.0	16.0	9.0	2.00	JFM-0812-09
10.0		12.0	18.0	5.0	1.00	JFM-1012-05
10.0		12.0	18.0	7.0	1.00	JFM-1012-07
10.0		12.0	18.0	9.0	1.00	JFM-1012-09
10.0		12.0	18.0	10.0	1.00	JFM-1012-10
10.0	+0.025	12.0	18.0	12.0	1.00	JFM-1012-12
10.0	+0.083	12.0	18.0	15.0	1.00	JFM-1012-15
10.0		12.0	18.0	17.0	1.00	JFM-1012-17
10.0		12.0	18.0	18.0	1.00	JFM-1012-18
10.0		12.0	15.0	3.5	1.00	JFM-101215-035
10.0		14.0	17.5	14.0	1.00	JFM-1014-14
10.0		16.0	22.0	16.0	3.00	JFM-1016-16
11.0		13.0	18.0	5.0	1.00	JFM-1113-05
12.0		14.0	20.0	4.0	1.00	JFM-1214-04
12.0		14.0	20.0	5.0	1.00	JFM-1214-05
12.0		14.0	20.0	7.0	1.00	JFM-1214-07
12.0	+0.032	14.0	20.0	9.0	1.00	JFM-1214-09
12.0	+0.102	14.0	20.0	12.0	1.00	JFM-1214-12
12.0		14.0	20.0	15.0	1.00	JFM-1214-15
12.0		14.0	20.0	17.0	1.00	JFM-1214-17
12.0		14.0	18.0	4.5	1.00	JFM-121418-045
12.0		14.0	18.0	10.0	1.00	JFM-121418-10
12.0	+0.050	18.0	24.0	8.0	3.00	JFM-1218-08
12.0	+0.160	18.0	24.0	12.0	3.00	JFM-1218-12
12.0		18.0	22.0	20.0	3.00	JFM-1218-20
14.0	+0.032	16.0	22.0	3.0	1.00	JFM-1416-03
14.0	+0.102	16.0	22.0	10.0	1.00	JFM-1416-10
14.0		16.0	22.0	12.0	1.00	JFM-1416-12

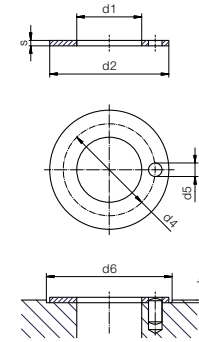
Bearing technology | Plain bearing | iglidur® J

d1	d1	d2	d3	b1	b2	Part No.	d1	d1	d2	d3	b1	b2	Part No.
[mm]	Tolerance ³⁾	[mm]	d13 ³⁾	h13	h13		[mm]	Tolerance ³⁾	[mm]	[mm]	[mm]	[mm]	
14.0		16.0	22.0	17.0	1.00	JFM-1416-17	25.0		28.0	35.0	14.5	1.50	JFM-2528-14.5
14.0		18.0	22.0	20.0	2.00	JFM-141822-20	25.0	+0.040	28.0	35.0	21.5	1.50	JFM-2528-21
14.0		18.0	25.0	24.0	2.00	JFM-141825-24	25.0	+0.124	28.0	39.0	5.0	1.50	JFM-252839-05
15.0	+0.032	17.0	23.0	4.0	1.00	JFM-1517-04	25.0		28.0	39.0	7.5	1.50	JFM-252839-075
15.0	+0.102	17.0	23.0	5.5	1.00	JFM-1517-055	25.0	+0.065	32.0	38.0	20.0	4.00	JFM-2532-20
15.0		17.0	23.0	9.0	1.00	JFM-1517-09	25.0	+0.195	32.0	38.0	25.0	4.00	JFM-2532-25
15.0		17.0	23.0	12.0	1.00	JFM-1517-12	28.0		32.0	35.0	7.0	2.00	JFM-283235-07
15.0		17.0	23.0	17.0	1.00	JFM-1517-17	28.0		32.0	39.0	20.0	2.00	JFM-283239-20
15.0	+0.050	21.0	27.0	20.0	3.00	JFM-1521-20	30.0	+0.040	32.0	40.0	12.0	1.00	JFM-303240-12
16.0	+0.160	18.0	24.0	6.0	1.00	JFM-1618-06	30.0	+0.124	34.0	42.0	16.0	2.00	JFM-3034-16
16.0	+0.032	18.0	24.0	12.0	1.00	JFM-1618-12	30.0		34.0	42.0	20.0	2.00	JFM-3034-20
16.0	+0.102	18.0	24.0	16.0	1.00	JFM-1618-16	30.0		34.0	42.0	26.0	2.00	JFM-3034-26
16.0	+0.102	18.0	24.0	17.0	1.00	JFM-1618-17	30.0	+0.080	38.0	44.0	20.0	4.00	JFM-3038-20
16.0	+0.050	22.0	28.0	12.0	3.00	JFM-1622-12	30.0	+0.240	38.0	44.0	30.0	4.00	JFM-3038-30
16.0	+0.160	22.0	28.0	15.0	3.00	JFM-1622-15	30.0	+0.065	38.0	44.0	36.0	4.00	JFM-3038-36
17.0		19.0	25.0	9.0	1.00	JFM-1719-09	30.0	+0.195	38.0	44.0	36.0	4.00	JFM-3038-36
17.0		19.0	25.0	21.0	1.00	JFM-1719-21	35.0		39.0	47.0	12.0	2.00	JFM-3539-12
18.0		20.0	26.0	4.0	1.00	JFM-1820-04	35.0		39.0	47.0	16.0	2.00	JFM-3539-16
18.0	+0.032	20.0	26.0	12.0	1.00	JFM-1820-12	35.0		39.0	47.0	26.0	2.00	JFM-3539-26
18.0	+0.102	20.0	26.0	17.0	1.00	JFM-1820-17	40.0		44.0	52.0	20.0	2.00	JFM-4044-20
18.0		20.0	26.0	22.0	1.00	JFM-1820-22	40.0	+0.050	44.0	52.0	30.0	2.00	JFM-4044-30
18.0		21.0	25.0	12.0	1.00	JFM-1821-12	40.0	+0.150	44.0	52.0	40.0	2.00	JFM-4044-40
19.0		22.0	26.0	23.0	1.00	JFM-1922-23	45.0		50.0	58.0	12.0	2.00	JFM-4550-12
19.0		22.0	26.0	36.0	1.00	JFM-1922-36	45.0		50.0	58.0	20.0	2.00	JFM-4550-20
20.0		23.0	30.0	11.5	1.50	JFM-2023-11	45.0		50.0	58.0	50.0	2.00	JFM-4550-50
20.0	+0.040	23.0	30.0	15.5	1.50	JFM-2023-15.5	50.0		55.0	63.0	11.5	2.00	JFM-5055-11.5
20.0	+0.124	23.0	30.0	16.5	1.50	JFM-2023-16	50.0		55.0	63.0	50.0	2.00	JFM-5055-50
20.0		23.0	30.0	21.5	1.50	JFM-2023-21	55.0		60.0	68.0	50.0	2.00	JFM-5560-50
20.0	+0.065	26.0	32.0	15.0	3.00	JFM-2026-15	60.0	+0.060	65.0	73.0	37.0	2.00	JFM-6065-37
20.0	+0.195	26.0	32.0	20.0	3.00	JFM-2026-20	60.0	+0.180	65.0	73.0	50.0	2.00	JFM-6065-50
20.0		26.0	32.0	25.0	3.00	JFM-2026-25	60.0		70.0	78.0	60.0	2.00	JFM-6570-60
22.0		25.0	32.0	8.0	1.50	JFM-222532-08	70.0		75.0	83.0	50.0	2.00	JFM-7075-50
24.0	+0.040	30.0	36.0	30.0	3.00	JFM-2430-30	90.0		95.0	103.0	100.0	2.50	JFM-9095-100
25.0	+0.124	28.0	35.0	6.0	1.50	JFM-2528-06	100.0	+0.072	105.0	113.0	100.0	2.50	JFM-100105-100
25.0		28.0	35.0	11.5	1.50	JFM-2528-11	110.0	+0.212	115.0	123.0	100.0	2.50	JFM-110115-100
25.0		28.0	35.0	12.0	1.50	JFM-2528-12	120.0		125.0	133.0	100.0	2.50	JFM-120125-100

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

Bearing technology | Plain bearing | iglidur® J

Thrust washer (form T)



i Dimensions according to ISO 3547-1 and special dimensions

i Order example: **JTM-1224-015** – no minimum order quantity.
 J iglidur® material T Thrust washer M Metric 12 Inner Ø d1 24 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	
		+0.12	+0.125				
[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	
12	24	18	1.5	1	24	1.5	JTM-1224-015
12	34	⁴⁾	⁴⁾	1	34	1.5	JTM-1234-015
14	20	⁴⁾	⁴⁾	1	20	1.5	JTM-1420-015
20	36	28	3	1	36	1.5	JTM-2036-015
28	42	35	3	1	42	2	JTM-2842-020
30	39	⁴⁾	⁴⁾	1	39	1.5	JTM-3039-015
56	70	⁴⁾	⁴⁾	0.7	70	1	JTM-5670-010
139	188	⁴⁾	⁴⁾	1.5	188	2	JTM-139188-020

⁴⁾ Design without fixing hole

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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.