



The media and temperature specialist in the food sector – iglidur® A500

Compliant with EC directive 10/2011 EC

FDA-compliant

Temperature resistant from -100°C to $+250^{\circ}\text{C}$

High chemical resistance

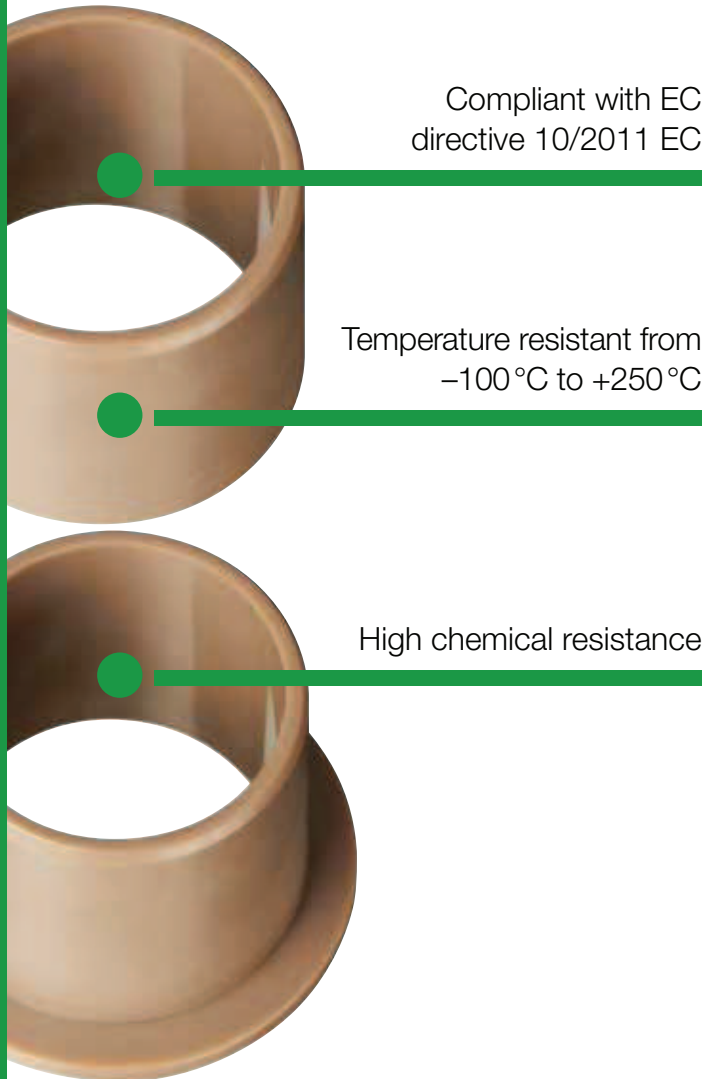
Lubrication and maintenance-free

Standard range from stock



iglidur® A500 | The media and temperature specialist in the food sector

FDA- and EC 10/2011 compliant



Compliant with EC directive 10/2011 EC

Temperature resistant from -100°C to +250°C

High chemical resistance

Polymer bearings made from iglidur® A500 can be exposed to extremely high temperatures and consist of materials suitable for direct contact with food (FDA-compliant).



When to use it?

- When FDA-compliance is required
- When a high chemical resistance is required
- Good abrasion resistance
- Temperature resistant from -100°C to +250°C



When not to use it?

- When extremely high wear resistance is required
 - ▶ iglidur® X6, page 257
 - ▶ iglidur® Z, page 247
- If no resistance to temperature or chemicals is required
 - ▶ iglidur® A180, page 349
 - ▶ iglidur® A200, page 357
- When a cost-effective universal bearing is required
 - ▶ iglidur® G, page 79
 - ▶ iglidur® P, page 113

Typical application areas

- Food industry
- Beverage technology
- Medical technology



Available from stock

Detailed information about delivery time online.



Block pricing online

No minimum order value. From batch size 1



max. +250°C
min. -100°C



Ø 4–50 mm

More dimensions on request



Imperial dimensions available

▶ From page 1337



Online product finder

▶ www.igus.eu/iglidur-finder



iglidur® A500 material complies with EC Directive 10/2011 EC and also with FDA (Food and Drug Administration) specifications for repeated contact with food.

Material properties table

General properties	Unit	iglidur® A500	Testing method
Density	g/cm ³	1.28	
Colour		brown	
Max. moisture absorption at +23 °C/50 % r.h.	% weight	0.3	DIN 53495
Max. water absorption	% weight	0.5	
Coefficient of sliding friction, dynamic against steel	μ	0.26–0.41	
pv value, max. (dry)	MPa · m/s	0.28	
Mechanical properties			
Flexural modulus	MPa	3,600	DIN 53457
Flexural strength at +20 °C	MPa	140	DIN 53452
Compressive strength	MPa	118	
Max. permissible surface pressure (+20 °C)	MPa	120	
Shore-D hardness		83	DIN 53505
Physical and thermal properties			
Max. long-term application temperature	°C	+250	
Max. short-term application temperature	°C	+300	
Min. application temperature	°C	-100	
Thermal conductivity	W/m · K	0.24	ASTM C 177
Coefficient of thermal expansion (at +23 °C)	K ⁻¹ · 10 ⁻⁵	9	DIN 53752
Electrical properties			
Specific volume resistance	Ωcm	> 10 ¹⁴	DIN IEC 93
Surface resistance	Ω	> 10 ¹³	DIN 53482

Table 01: Material properties table

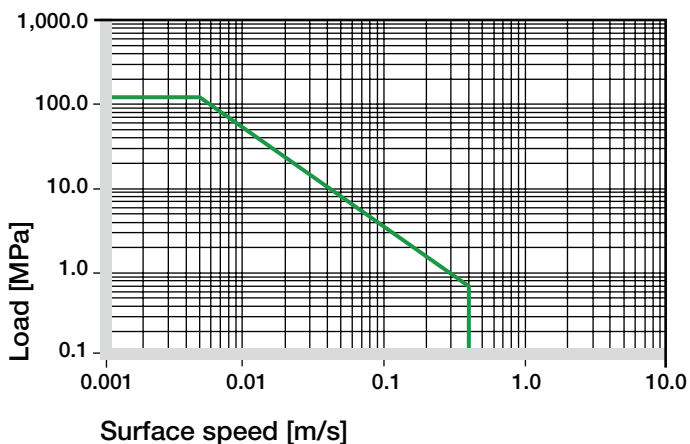


Diagram 01: Permissible pv values for iglidur® A500 bearings with a wall thickness of 1 mm dry running against a steel shaft, at +20 °C, mounted in a steel housing

Moisture absorption

The moisture absorption of iglidur® A500 plain bearings is only 0.5 % weight when saturated.

► Diagram, www.igus.eu/a500-moisture

Vacuum

In a vacuum, iglidur® A500 plain bearings can only be used to a limited degree.

Radiation resistance

The iglidur® A500 bearings are resistant up to a radiation intensity of $2 \cdot 10^5$ Gy.

UV resistance

To a large extent, iglidur® A500 plain bearings are resistant to UV radiation.

Medium	Resistance
Alcohols	+
Hydrocarbons	+
Greases, oils without additives	+
Fuels	+
Diluted acids	+
Strong acids	+
Diluted alkalines	+
Strong alkalines	+

+ resistant 0 conditionally resistant – not resistant

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

Table 02: Chemical resistance

► Chemical table, page 1424

Bearings made from iglidur® A500 can be used at high temperatures and are permitted for use in direct contact with foodstuffs (FDA-compliant). They exhibit an exceptionally good chemical resistance and are suitable for heavy-duty use in machinery for the food industry. Though iglidur® A500 is an extremely soft material, it simultaneously possesses an excellent compressive strength even at high temperatures.

Mechanical properties

With increasing temperatures, the compressive strength of iglidur® A500 plain bearings decreases. The diagram 02 shows this inverse relationship. The permissible maximum surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.

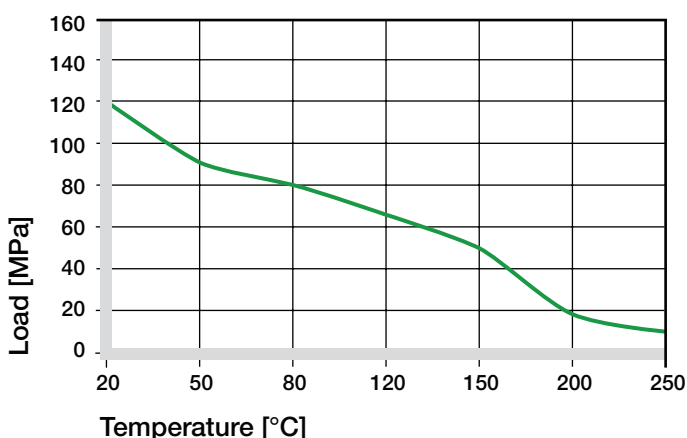


Diagram 02: Permissible maximum surface pressure as a function of temperature (120 MPa at +20°C)

Diagram 02 shows the maximum permissible surface pressure of the bearing dependent on the temperature. This combination of high stability and high flexibility acts very positively with vibrations and edge loads. As the wear of the bearing rapidly escalates from pressures of 10 to 20 MPa, we recommend a particularly accurate testing of the application above these limits.

► Surface pressure, [page 41](#)

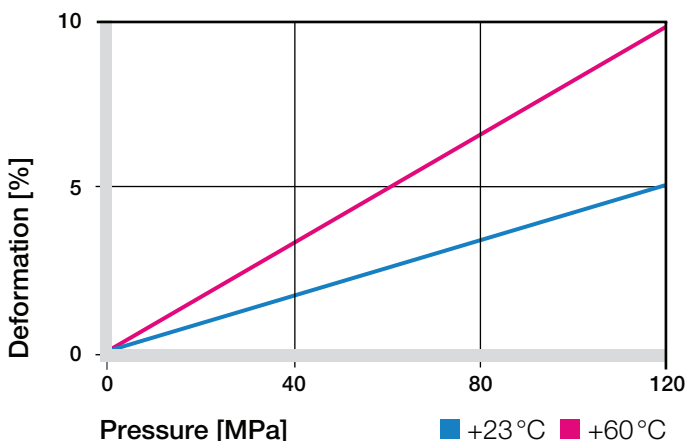


Diagram 03: Deformation under pressure and temperature

Permissible surface speeds

iglidur® A500 also permits high surface speeds due to the high temperature resistance. The coefficient of friction rises however by these high rotatory speeds leading to a higher heating up of the bearing. Tests show that bearings made from iglidur® A500 have a better wear resistance and higher permitted pv values in pivoting applications.

► Surface speed, [page 44](#)

m/s	Rotating	Oscillating	Linear
Continuous	0.6	0.4	1
Short-term	1	0.7	2

Table 03: Maximum surface speeds

Temperatures

The short-term permitted maximum application temperature is +300°C. With increasing temperatures, the compressive strength of iglidur® J500 plain bearings decreases. The diagram 02 shows this inverse relationship. The temperatures prevailing in the bearing system also have an influence on the bearing wear. At temperatures over +130°C an additional securing is required.

► Application temperatures, [page 49](#)

► Additional securing, [page 49](#)

Friction and wear

The coefficient of friction is dependent on the load that acts on the bearing (diagrams 04 and 05).

► Coefficients of friction and surfaces, [page 47](#)

► Wear resistance, [page 50](#)

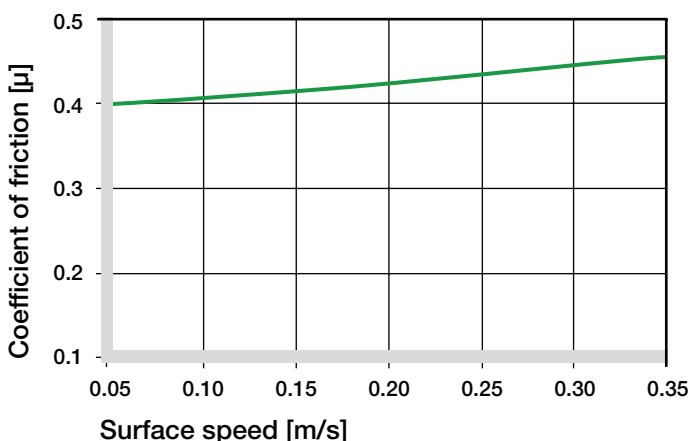


Diagram 04: Coefficient of friction as a function of the surface speed, p = 0.75 MPa

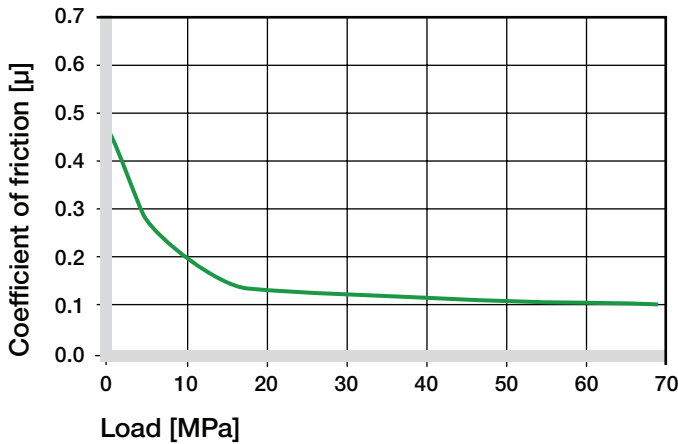


Diagram 05: Coefficient of friction as a function of the pressure, $v = 0.01 \text{ m/s}$

Shaft materials

Diagram 06 displays a summary of the results of tests with different shaft materials conducted with bearings made from iglidur® A500. The combination “iglidur® A500/hard-chromed shaft” clearly stands out in rotating application. Up to about 2.0 MPa, the wear of this combination remains largely independent of load. In pivoting applications with Cf53 shafts, the wear resistance is better than in rotations under equal load.

Please contact us in case the shaft material scheduled by you is not included in these figures.

► Shaft materials, page 52

iglidur® A500	Dry	Greases	Oil	Water
C.o.f. μ	0.26–0.41	0.09	0.04	0.04

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

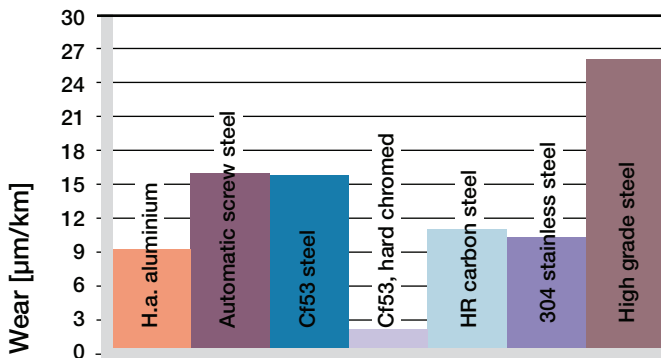


Diagram 06: Wear, rotating with different shaft materials, pressure, $p = 1 \text{ MPa}$, $v = 0.3 \text{ m/s}$

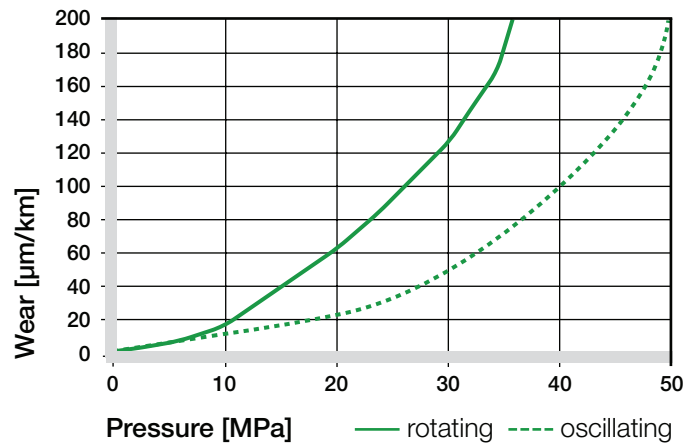


Diagram 07: Wear for oscillating and rotating applications with shaft material Cf53 hardened and ground steel, as a function of the pressure

Installation tolerances

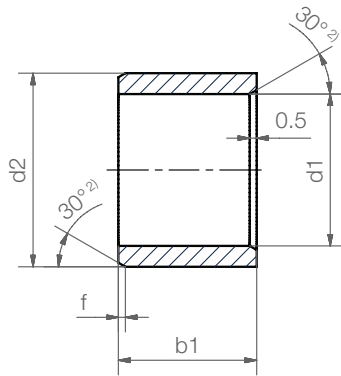
iglidur® A500 plain bearings are standard bearings for shafts with h-tolerance (recommended minimum h9). The bearings are designed for pressfit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, in standard cases the inner diameter automatically adjusts to the F10 tolerances. For particular dimensions the tolerance differs depending on the wall thickness (please see product range table).

► Testing methods, page 57

Diameter d1 [mm]	Shaft h9 [mm]	iglidur® A500 F10 [mm]	Housing H7 [mm]
up to 3	0–0.025	+0.006 +0.046	0 +0.010
> 3 to 6	0–0.030	+0.010 +0.058	0 +0.012
> 6 to 10	0–0.036	+0.013 +0.071	0 +0.015
> 10 to 18	0–0.043	+0.016 +0.086	0 +0.018
> 18 to 30	0–0.052	+0.020 +0.104	0 +0.021
> 30 to 50	0–0.062	+0.025 +0.125	0 +0.025
> 50 to 80	0–0.074	+0.030 +0.150	0 +0.030

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

Sleeve bearing (Form S)



²⁾ 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]

d1	d1-Tolerance ³⁾	d2	b1 h13	Part No.
4.0		5.5	4.0	A500SM-0405-04
4.0		5.5	6.0	A500SM-0405-06
5.0	+0.010	7.0	5.0	A500SM-0507-05
5.0		7.0	10.0	A500SM-0507-10
6.0	+0.058	8.0	6.0	A500SM-0608-06
6.0		8.0	8.0	A500SM-0608-08
6.0		8.0	10.0	A500SM-0608-10
8.0		10.0	6.0	A500SM-0810-06
8.0		10.0	8.0	A500SM-0810-08
8.0		10.0	10.0	A500SM-0810-10
8.0	+0.013	10.0	12.0	A500SM-0810-12
10.0		+0.071	12.0	8.0
10.0	12.0		10.0	A500SM-1012-10
10.0		12.0	12.0	A500SM-1012-12
10.0		12.0	15.0	A500SM-1012-15
10.0		12.0	20.0	A500SM-1012-20
12.0		14.0	10.0	A500SM-1214-10
12.0		14.0	12.0	A500SM-1214-12
12.0		14.0	15.0	A500SM-1214-15
12.0		14.0	20.0	A500SM-1214-20
12.0		15.0	15.0	A500SM-1215-15
13.0	+0.016	15.0	10.0	A500SM-1315-10
13.0	+0.086	15.0	20.0	A500SM-1315-20
14.0		16.0	15.0	A500SM-1416-15
14.0		16.0	16.0	A500SM-1416-16
14.0		16.0	20.0	A500SM-1416-20
14.0		16.0	25.0	A500SM-1416-25
15.0		17.0	15.0	A500SM-1517-15

³⁾ After press-fit. Testing methods ► Page 57



Order key

Type

Dimensions [mm]

A500 S M-04 05-04

iglidur® material	Form S	Metric	Inner-Ø d1	Outer-Ø d2	Length b1
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Dimensions according to ISO 3547-1
and special dimensions



Imperial dimensions available

► From page 1347

d1	d1-Tolerance ³⁾	d2	b1 h13	Part No.
15.0		17.0	20.0	A500SM-1517-20
15.0		17.0	25.0	A500SM-1517-25
16.0		18.0	15.0	A500SM-1618-15
16.0	+0.016	18.0	20.0	A500SM-1618-20
16.0		+0.086	18.0	25.0
18.0			20.0	15.0
18.0		20.0	20.0	A500SM-1820-20
18.0		20.0	25.0	A500SM-1820-25
20.0		23.0	10.0	A500SM-2023-10
20.0		23.0	15.0	A500SM-2023-15
20.0		23.0	20.0	A500SM-2023-20
20.0		23.0	25.0	A500SM-2023-25
20.0		23.0	30.0	A500SM-2023-30
22.0		25.0	15.0	A500SM-2225-15
22.0		25.0	20.0	A500SM-2225-20
22.0		25.0	25.0	A500SM-2225-25
22.0		25.0	30.0	A500SM-2225-30
24.0	+0.020	27.0	15.0	A500SM-2427-15
24.0		+0.104	27.0	20.0
24.0			27.0	25.0
24.0		27.0	30.0	A500SM-2427-30
25.0		28.0	15.0	A500SM-2528-15
25.0		28.0	20.0	A500SM-2528-20
25.0		28.0	25.0	A500SM-2528-25
25.0		28.0	30.0	A500SM-2528-30
28.0		32.0	20.0	A500SM-2832-20
28.0		32.0	25.0	A500SM-2832-25
28.0		32.0	30.0	A500SM-2832-30

Sleeve bearing (Form S)

Dimensions [mm]

d1	d1-Tolerance ³⁾	d2	b1 h13	Part No.
30.0		34.0	20.0	A500SM-3034-20
30.0	+0.020	34.0	25.0	A500SM-3034-25
30.0	+0.104	34.0	30.0	A500SM-3034-30
30.0		34.0	40.0	A500SM-3034-40
32.0		36.0	20.0	A500SM-3236-20
32.0		36.0	30.0	A500SM-3236-30
32.0		36.0	40.0	A500SM-3236-40
35.0	+0.025	39.0	20.0	A500SM-3539-20
35.0	+0.125	39.0	30.0	A500SM-3539-30
35.0		39.0	40.0	A500SM-3539-40
35.0		39.0	50.0	A500SM-3539-50
40.0		44.0	20.0	A500SM-4044-20

d1	d1-Tolerance ³⁾	d2	b1 h13	Part No.
40.0		44.0	30.0	A500SM-4044-30
40.0		44.0	40.0	A500SM-4044-40
40.0		44.0	50.0	A500SM-4044-50
45.0		50.0	20.0	A500SM-4550-20
45.0		50.0	30.0	A500SM-4550-30
45.0	+0.025	50.0	40.0	A500SM-4550-40
45.0	+0.125	50.0	50.0	A500SM-4550-50
50.0		55.0	20.0	A500SM-5055-20
50.0		55.0	30.0	A500SM-5055-30
50.0		55.0	40.0	A500SM-5055-40
50.0		55.0	50.0	A500SM-5055-50
50.0		55.0	60.0	A500SM-5055-60

³⁾ After press-fit. Testing methods ► Page 57



Couldn'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. iglus® listens to your needs and provides you a solution very quickly.

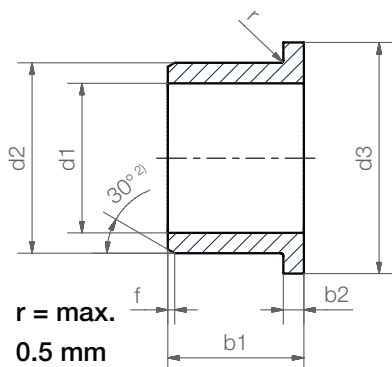


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Flange bearing (Form F)



²⁾ 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]

d1	d1- Tolerance ³⁾	d2	d3	b1	b2	Part No.
			d13	h13	-0.14	
4.0		5.5	9.5	4.0	0.75	A500FM-0405-04
4.0		8.0	12.0	6.0	2.0	A500FM-0408-06
6.0	+0.010	8.0	12.0	4.0	1.0	A500FM-0608-04
6.0	+0.058	8.0	12.0	6.0	1.0	A500FM-0608-06
6.0		8.0	12.0	8.0	1.0	A500FM-0608-08
8.0		10.0	15.0	5.5	1.0	A500FM-0810-05
8.0		10.0	15.0	7.5	1.0	A500FM-0810-07
8.0		10.0	15.0	9.5	1.0	A500FM-0810-09
8.0		10.0	15.0	10.0	1.0	A500FM-0810-10
10.0	+0.013	12.0	18.0	7.0	1.0	A500FM-1012-07
10.0	+0.071	12.0	18.0	9.0	1.0	A500FM-1012-09
10.0		12.0	18.0	12.0	1.0	A500FM-1012-12
10.0		12.0	18.0	15.0	1.0	A500FM-1012-15
10.0		12.0	18.0	17.0	1.0	A500FM-1012-17
12.0		14.0	20.0	7.0	1.0	A500FM-1214-07
12.0		14.0	20.0	9.0	1.0	A500FM-1214-09
12.0		14.0	20.0	12.0	1.0	A500FM-1214-12
12.0		14.0	20.0	13.0	1.0	A500FM-1214-13
12.0	+0.016	14.0	20.0	15.0	1.0	A500FM-1214-15
12.0	+0.086	14.0	20.0	17.0	1.0	A500FM-1214-17
14.0		16.0	22.0	12.0	1.0	A500FM-1416-12
14.0		16.0	22.0	17.0	1.0	A500FM-1416-17
15.0		17.0	23.0	9.0	1.0	A500FM-1517-09

³⁾ After press-fit. Testing methods ► Page 57



Order key

Type

Dimensions [mm]

A500 F M-0405-04

iglidur® material	Form F	Metric	Inner-Ø d1	Outer-Ø d2	Length b1
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Dimensions according to ISO 3547-1
and special dimensions



Imperial dimensions available

► From page 1373

d1	d1- Tolerance ³⁾	d2	d3	b1	b2	Part No.
			d13	h13	-0.14	
15.0		17.0	23.0	12.0	1.0	A500FM-1517-12
15.0		17.0	23.0	17.0	1.0	A500FM-1517-17
16.0		18.0	24.0	12.0	1.0	A500FM-1618-12
16.0	+0.016	18.0	24.0	17.0	1.0	A500FM-1618-17
18.0	+0.086	20.0	26.0	12.0	1.0	A500FM-1820-12
18.0		20.0	26.0	17.0	1.0	A500FM-1820-17
18.0		20.0	26.0	22.0	1.0	A500FM-1820-22
20.0		23.0	30.0	11.5	1.5	A500FM-2023-11
20.0		23.0	30.0	16.5	1.5	A500FM-2023-16
25.0		28.0	35.0	11.5	1.5	A500FM-2528-11
25.0	+0.020	28.0	35.0	16.5	1.5	A500FM-2528-16
25.0	+0.104	28.0	35.0	21.5	1.5	A500FM-2528-21
20.0		23.0	30.0	21.5	1.5	A500FM-2023-21
30.0		34.0	42.0	16.0	2.0	A500FM-3034-16
30.0		34.0	42.0	26.0	2.0	A500FM-3034-26
30.0		34.0	42.0	40.0	2.0	A500FM-3034-40
35.0		39.0	47.0	16.0	2.0	A500FM-3539-16
35.0		39.0	47.0	26.0	2.0	A500FM-3539-26
35.0	+0.025	39.0	47.0	40.0	2.0	A500FM-3539-40
40.0	+0.125	44.0	52.0	30.0	2.0	A500FM-4044-30
40.0		44.0	52.0	40.0	2.0	A500FM-4044-40
45.0		50.0	58.0	50.0	2.0	A500FM-4550-50

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