

Bearing technology | Plain bearings | iglidur® A181

Flange bearing (form F)

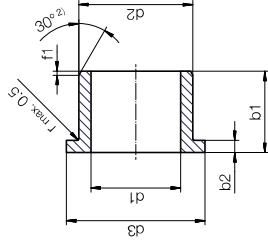


Chamfer in relation to d1

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

²⁾ Thickness < 0.6mm: Chamfer = 20°

i Dimensions according to ISO 3547-1 and special dimensions

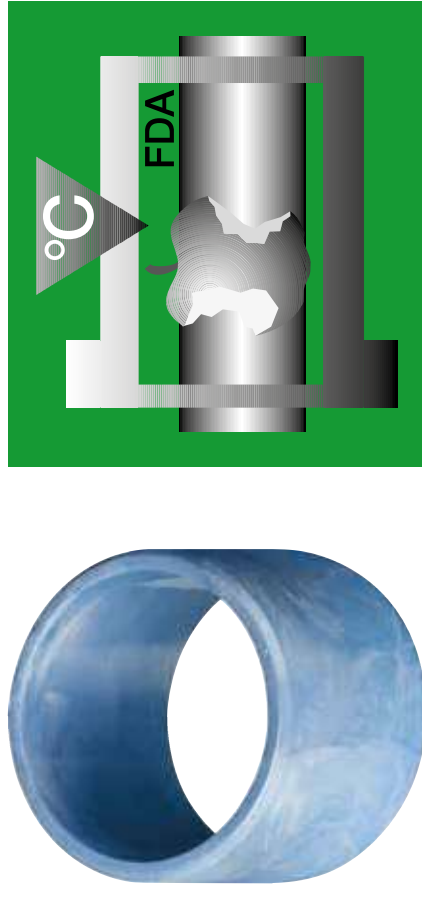


i Order example: **A181FM-0608-04** - no minimum order quantity.

A181 iglidur® material **F** Flange bearing **M** Metric **Ø d1** **Ø d2** **Ø d3** **Ø d4** Total length **b1**

d1	d1 Tolerance ³⁾ [mm]	d2 [mm]	d3 [mm]	b1 h13 [mm]	b2 h14 [mm]	Part No.
6.0	+0.020	8.0	12.0	4.0	1.00	A181FM-0608-04
6.0	+0.068	8.0	12.0	6.0	1.00	A181FM-0608-06
6.0		8.0	12.0	8.0	1.00	A181FM-0608-08
8.0		10.0	15.0	5.5	1.00	A181FM-0810-05
8.0		10.0	15.0	7.5	1.00	A181FM-0810-07
8.0		10.0	15.0	9.5	1.00	A181FM-0810-09
8.0	+0.025	10.0	15.0	10.0	1.00	A181FM-0810-10
10.0	+0.083	12.0	18.0	7.0	1.00	A181FM-1012-07
10.0		12.0	18.0	9.0	1.00	A181FM-1012-09
10.0		12.0	18.0	10.0	1.00	A181FM-1012-10
10.0		12.0	18.0	12.0	1.00	A181FM-1012-12
10.0		12.0	18.0	17.0	1.00	A181FM-1012-17
12.0		14.0	20.0	7.0	1.00	A181FM-1214-07
12.0		14.0	20.0	9.0	1.00	A181FM-1214-09
12.0		14.0	20.0	12.0	1.00	A181FM-1214-12
12.0	+0.032	14.0	20.0	17.0	1.00	A181FM-1214-17
14.0	+0.102	16.0	22.0	12.0	1.00	A181FM-1416-12
14.0		16.0	22.0	17.0	1.00	A181FM-1416-17
15.0		17.0	23.0	9.0	1.00	A181FM-1517-09
15.0		17.0	23.0	12.0	1.00	A181FM-1517-12

³⁾ After press-fit. Testing methods page 57



The endurance runner at higher temperatures in the food sector Compliant with Regulation (EU) No. 10/2011 and FDA guidelines iglidur® A350



When to use it?

- When FDA compliance is required
- When wear resistance and FDA-compliance are necessary at high loads
- When the bearing is used in acid environments



When not to use?

- When continuous operating temperatures are higher than +180°C
iglidur® A500
- When the maximum wear resistance is necessary
iglidur® J
- When a cost-effective FDA-compliant plain bearing is required
iglidur® A200, iglidur® A180
- For high speeds
iglidur® J

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Also available as:
Ø 4.0 – 50.0 mm



Bar stock, round bar, plate: Page 644



Bar stock, plate: Page 653



Tribo-tape liner: Page 657



Piston rings: Page 662



Two hole flange bearing: Page 581



Modified special parts: Page 602



iglobal® spherical balls: Page 783

The endurance runner at higher temperatures in the food sector: Compliant with Regulation (EU) No. 10/2011 and FDA guidelines

A universal plain bearing for use in the area of food and pharmaceutical industries. Composition of FDA-compliant materials allows the use in areas where other plain bearings cannot be used due to the contact with food. With good tribological and mechanical properties, iglidur® A350 plain bearings are suitable for all-round use in and around food machinery.

- Compliant with Regulation (EU) No. 10/2011
- FDA-compliant
- Temperature-resistant up to +180°C
- Suitable for medium and high loads
- Suitable for pivoting applications
- Lubrication-free
- Standard range from stock
- Suitable for rotating applications
- Maintenance-free

Typical application areas

- Food industry
- Beverage technology
- Medical technology

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

Online service life calculation

www.igus.eu/iglidur-expert

Technical data

General properties

Property	Value	Testing method
Density	1.42 g/cm ³	
Colour	blue	
Max. moisture absorption at +23°C and 50% r.h.	% weight 0.6	DIN 53495
Max. moisture absorption	% weight 1.9	
Coefficient of friction, dynamic, against steel	μ 0.10 – 0.20	
pv value, max. (dry)	MPa · m/s 0.40	

Mechanical properties

Flexural modulus	MPa 2,000	DIN 53457
Flexural strength at +20°C	MPa 110	DIN 53452
Compressive strength	MPa 78	
Max. recommended surface pressure (+20°C)	MPa 60	
Shore D hardness	76	DIN 53505

Physical and thermal properties

Max. application temperature long-term	°C +180	
Max. application temperature short-term	°C +210	
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 ⁻⁶ 8	ASTM C 177

Electrical properties

Specific contact resistance	Ωcm > 10 ¹¹	DIN IEC 93
Surface resistance	Ω > 10 ¹¹	DIN 53482

Table 01: Material properties table

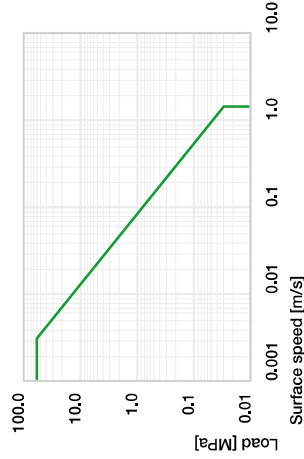


Diagram 01: Permissible pv values for iglidur® A350 plain bearings with a wall thickness of 1mm, dry operation against a steel shaft, at +20°C, mounted in a steel housing

Moisture absorption

The moisture absorption of iglidur® A350 is low and can be ignored when using standard plain bearings. Even when saturated with water, iglidur® A350 does not absorb more than 1.9% weight of water (by weight).

Vacuum

In vacuum, any present moisture is released as vapour. Use in vacuum is only possible with dehumidified iglidur® A350 bearings.

Radiation resistance

Plain bearings made from iglidur® A350 are resistant up to a radiation intensity of 2 · 10²Gy.

UV resistance

iglidur® A350 plain bearings are resistant to UV radiation.

Chemicals

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

+ resistant 0 conditionally resistant – not resistant
All information given at room temperature [+20°C]

Table 02: Chemical resistance

Chemical table, page 1542

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iglidur® A350 plain bearings are made for practically all loads in food and packaging machinery. Even high loads, often seen in lifting equipment, are taken easily and the bearings work flawlessly without any external lubrication.

Mechanical properties

With increasing temperatures, the compressive strength of iglidur® A350 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.

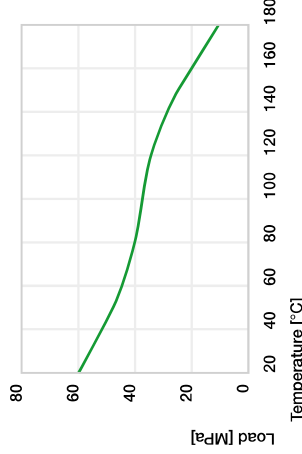


Diagram 02: Maximum recommended surface pressure as a function of temperature (60MPa at +20°C)

Diagram 03 shows the elastic deformation of iglidur® A350 at radial loads. At the maximum recommended surface pressure of 60MPa at room temperature the deformation is less than 5%.

Surface pressure, page 41

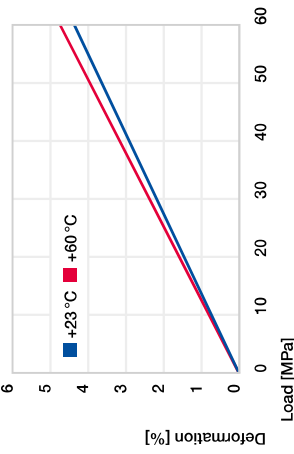


Diagram 03: Deformation under pressure and temperature

Permissible surface speeds

iglidur® A350 plain bearings are suitable for low and medium speeds in rotating and oscillating applications. iglidur® A350 is also excellent for linear movements. In the case of high surface speeds it should be tested whether iglidur® J or iglidur® L250 can be used, as the wear rate of these bearings is lower.

Surface speed, page 44

	rotating	oscillating	linear
long-term	m/s 1.0	0.8	2.5
short-term	m/s 1.2	0.9	3.0

Table 03: Maximum surface speeds

Temperature

Its temperature resistance makes iglidur® A350 the ideal material for plain bearing used in the food area. For temperatures over +140°C an additional securing is required. The wear rate of iglidur® A350 plain bearings rises only little with higher temperatures. Tests have shown good wear results at +100°C on all tested shaft materials.

Application temperatures, page 49

Additional securing, page 49

Friction and wear

The coefficient of friction of iglidur® A350 on a steel shaft is in the mid range (diagrams 04 and 05).

Coefficient of friction and surfaces, page 47

Wear resistance, page 50

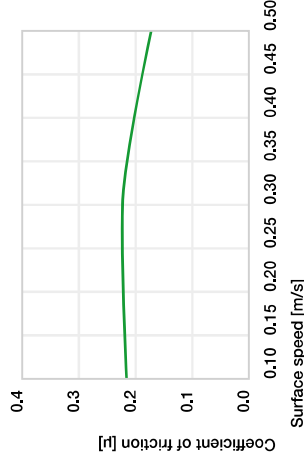


Diagram 04: Coefficient of friction as a function of the surface speed, p = 1MPa

Technical data

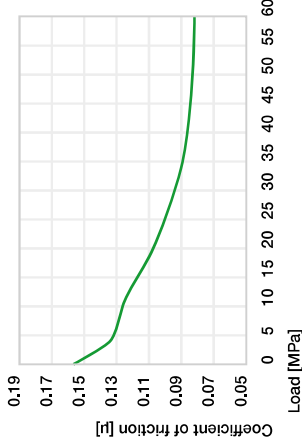


Diagram 05: Coefficient of friction as a function of the load, v = 0.01m/s

Shaft materials

The corrosion-resistant steels are rather considered a natural choice for use in the food industry. The trials were therefore carried out especially on such materials. It has been shown that there is no clear favourite and 304 stainless steel, high grade steel and hard-chromed steel are all suitable. Hard-anodised aluminium is also well suited for both linear and rotational movements.

Shaft materials, page 52

	Dry	Greases	Oil	Water
Coef. of friction [μ]	0.10 – 0.20	0.09	0.04	0.04

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



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

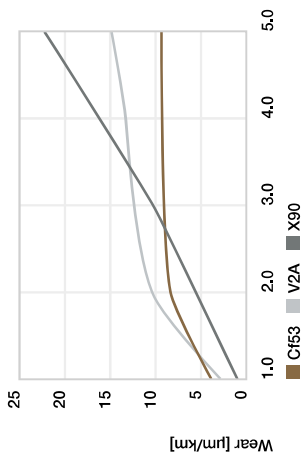


Diagram 07: Wear, rotating with different shaft materials, as a function of the load

Installation tolerances

iglidur® A350 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 F10 tolerances. For particular dimensions the tolerance differs depending on the wall thickness (please see product range table).

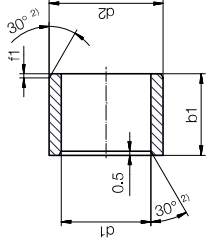
Testing methods, page 57

	Housing	Plain bearing	Shaft
Ø d1 [mm]	H7 [mm]	F10 [mm]	h9 [mm]
0 – 3	+0.000 +0.010	+0.006 +0.046	-0.025 +0.000
> 3 – 6	+0.000 +0.012	+0.010 +0.058	-0.030 +0.000
> 6 – 10	+0.000 +0.015	+0.013 +0.071	-0.036 +0.000
> 10 – 18	+0.000 +0.018	+0.016 +0.086	-0.043 +0.000
> 18 – 30	+0.000 +0.021	+0.020 +0.104	-0.052 +0.000
> 30 – 50	+0.000 +0.025	+0.025 +0.125	-0.062 +0.000
> 50 – 80	+0.000 +0.030	+0.030 +0.150	-0.074 +0.000
> 80 – 120	+0.000 +0.035	+0.035 +0.176	-0.087 +0.000
> 120 – 180	+0.000 +0.040	+0.043 +0.203	-0.000 +0.100

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

Bearing technology | Plain bearings | iglidur® A350

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
f [mm]	0.3	0.5	0.8	1.2

i Dimensions according to ISO 3547-1 and special dimensions

i Order example: **A350SM-0405-06** - no minimum order quantity.

A350 iglidur® material **S** Sleeve bearing **M** Metric **Ø 04** Inner **Ø d1** **Ø 05** Outer **Ø d2** **Ø 06** Total length **b1**

d1	d1 Tolerance ³⁾	d2	b1	h13	Part No.
[mm]	[mm]	[mm]	[mm]	[mm]	
4.0		5.5	4.0	A350SM-0405-04	
4.0		5.5	6.0	A350SM-0405-06	
5.0	+0.010	7.0	5.0	A350SM-0507-05	
5.0	+0.058	7.0	10.0	A350SM-0507-10	
6.0		8.0	6.0	A350SM-0608-06	
6.0		8.0	8.0	A350SM-0608-08	
6.0		8.0	10.0	A350SM-0608-10	
8.0		10.0	8.0	A350SM-0810-08	
8.0		10.0	10.0	A350SM-0810-10	
8.0		10.0	12.0	A350SM-0810-12	
10.0	+0.013	12.0	8.0	A350SM-1012-08	
10.0	+0.071	12.0	10.0	A350SM-1012-10	
10.0		12.0	12.0	A350SM-1012-12	
10.0		12.0	15.0	A350SM-1012-15	
10.0		12.0	20.0	A350SM-1012-20	
12.0		14.0	10.0	A350SM-1214-10	
12.0		14.0	12.0	A350SM-1214-12	
12.0		14.0	15.0	A350SM-1214-15	
12.0		14.0	20.0	A350SM-1214-20	
13.0		15.0	10.0	A350SM-1315-10	
13.0		15.0	20.0	A350SM-1315-20	
14.0	+0.016	16.0	15.0	A350SM-1416-15	
14.0	+0.086	16.0	20.0	A350SM-1416-20	
14.0		16.0	25.0	A350SM-1416-25	
15.0		17.0	15.0	A350SM-1517-15	
15.0		17.0	20.0	A350SM-1517-20	
15.0		17.0	25.0	A350SM-1517-25	
16.0		18.0	15.0	A350SM-1618-15	
16.0		18.0	20.0	A350SM-1618-20	

d1	d1 Tolerance ³⁾	d2	b1	h13	Part No.
[mm]	[mm]	[mm]	[mm]	[mm]	
16.0		18.0	25.0	A350SM-1618-25	
18.0	+0.016	20.0	15.0	A350SM-1820-15	
18.0	+0.086	20.0	20.0	A350SM-1820-20	
18.0		20.0	25.0	A350SM-1820-25	
20.0		23.0	10.0	A350SM-2023-10	
20.0		23.0	15.0	A350SM-2023-15	
20.0		23.0	20.0	A350SM-2023-20	
20.0		23.0	25.0	A350SM-2023-25	
20.0		23.0	30.0	A350SM-2023-30	
22.0		25.0	15.0	A350SM-2225-15	
22.0		25.0	20.0	A350SM-2225-20	
22.0		25.0	25.0	A350SM-2225-25	
22.0		25.0	30.0	A350SM-2225-30	
24.0		27.0	15.0	A350SM-2427-15	
24.0		27.0	20.0	A350SM-2427-20	
24.0	+0.020	27.0	25.0	A350SM-2427-25	
24.0	+0.104	27.0	30.0	A350SM-2427-30	
24.0		28.0	30.0	A350SM-2428-30	
25.0		28.0	15.0	A350SM-2528-15	
25.0		28.0	20.0	A350SM-2528-20	
25.0		28.0	25.0	A350SM-2528-25	
25.0		28.0	30.0	A350SM-2528-30	
28.0		32.0	20.0	A350SM-2832-20	
28.0		32.0	25.0	A350SM-2832-25	
28.0		32.0	30.0	A350SM-2832-30	
30.0		34.0	20.0	A350SM-3034-20	
30.0		34.0	25.0	A350SM-3034-25	
30.0		34.0	30.0	A350SM-3034-30	
30.0		34.0	40.0	A350SM-3034-40	

³⁾ After press-fit. Testing methods page 57

Product range

d1	d1 Tolerance ³⁾	d2	b1	h13	Part No.
[mm]	[mm]	[mm]	[mm]	[mm]	
32.0		36.0	20.0	A350SM-3236-20	
32.0		36.0	30.0	A350SM-3236-30	
32.0		36.0	40.0	A350SM-3236-40	
35.0		39.0	20.0	A350SM-3539-20	
35.0	+0.025	39.0	30.0	A350SM-3539-30	
35.0	+0.125	39.0	40.0	A350SM-3539-40	
35.0		39.0	50.0	A350SM-3539-50	
40.0		44.0	20.0	A350SM-4044-20	
40.0		44.0	30.0	A350SM-4044-30	
40.0		44.0	40.0	A350SM-4044-40	

³⁾ After press-fit. Testing methods page 57

d1	d1 Tolerance ³⁾	d2	b1	h13	Part No.
[mm]	[mm]	[mm]	[mm]	[mm]	
40.0		44.0	50.0	A350SM-4044-50	
45.0		50.0	20.0	A350SM-4550-20	
45.0		50.0	30.0	A350SM-4550-30	
45.0		50.0	40.0	A350SM-4550-40	
45.0	+0.025	50.0	50.0	A350SM-4550-50	
50.0	+0.125	55.0	20.0	A350SM-5055-20	
50.0		55.0	30.0	A350SM-5055-30	
50.0		55.0	40.0	A350SM-5055-40	
50.0		55.0	50.0	A350SM-5055-50	
50.0		55.0	60.0	A350SM-5055-60	



Available from stock

Detailed information about delivery time online.

www.igus.eu/24



Online ordering

including delivery times, prices, online tools

www.igus.eu/A350



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

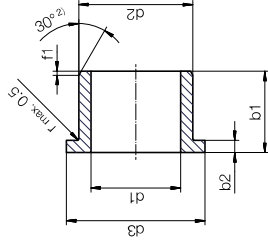
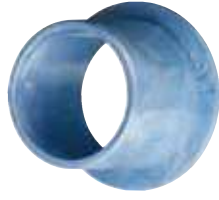
No minimum order value.

No low-quantity surcharges.

Free shipping within Germany for orders above €150.

Bearing technology | Plain bearings | iglidur® A350

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
f [mm]	0.3	0.5	0.8	1.2

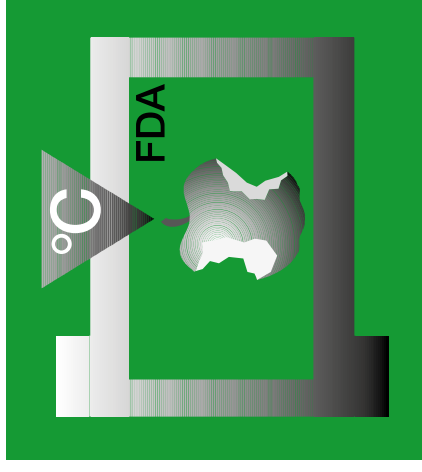
i Dimensions according to ISO 3547-1 and special dimensions

i Order example: **A350FM-0507-05** - no minimum order quantity.

A350 iglidur® material **F** Flange bearing **M** Metric **Ø5** Inner **Ø1** **Ø7** Outer **Ø2** **Ø5** Total length **b1**

d1	d2	d3	b1	b2	Part No.	
Tolerance ³⁾						
[mm]	[mm]	[mm]	h13	h13 -0,14	[mm]	
5,0	7,0	11,0	5,0	1,00	A350FM-0507-05	
6,0	+0,010	8,0	12,0	4,0	1,00	A350FM-0608-04
6,0	+0,058	8,0	12,0	6,0	1,00	A350FM-0608-06
6,0		8,0	12,0	8,0	1,00	A350FM-0608-08
8,0		10,0	15,0	5,5	1,00	A350FM-0810-05
8,0		10,0	15,0	7,5	1,00	A350FM-0810-07
8,0		10,0	15,0	9,5	1,00	A350FM-0810-09
10,0	+0,013	10,0	15,0	10,0	1,00	A350FM-0810-10
10,0		12,0	18,0	7,0	1,00	A350FM-1012-07
10,0	+0,071	12,0	18,0	9,0	1,00	A350FM-1012-09
10,0		12,0	18,0	10,0	1,00	A350FM-1012-10
10,0		12,0	18,0	12,0	1,00	A350FM-1012-12
10,0		12,0	18,0	17,0	1,00	A350FM-1012-17
12,0		14,0	20,0	7,0	1,00	A350FM-1214-07
12,0		14,0	20,0	9,0	1,00	A350FM-1214-09
12,0		14,0	20,0	12,0	1,00	A350FM-1214-12
12,0	+0,016	14,0	20,0	17,0	1,00	A350FM-1214-17
14,0	+0,086	16,0	22,0	12,0	1,00	A350FM-1416-12
14,0		16,0	22,0	17,0	1,00	A350FM-1416-17
15,0		17,0	23,0	9,0	1,00	A350FM-1517-09

³⁾ After press-fit. Testing methods page 57



The media and temperature specialist in the food sector Compliant with Regulation (EU) No. 10/2011 and FDA guidelines iglidur® A500



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?

- When the highest wear resistance is required
iglidur® X6, iglidur® Z
- When no resistance to temperature or chemicals is required
iglidur® A180, iglidur® A200
- When a cost-effective universal plain bearing is required
iglidur® G, iglidur® P