

ESD-compatible all-rounder – iglidur® F2

Used to prevent electro-static charges

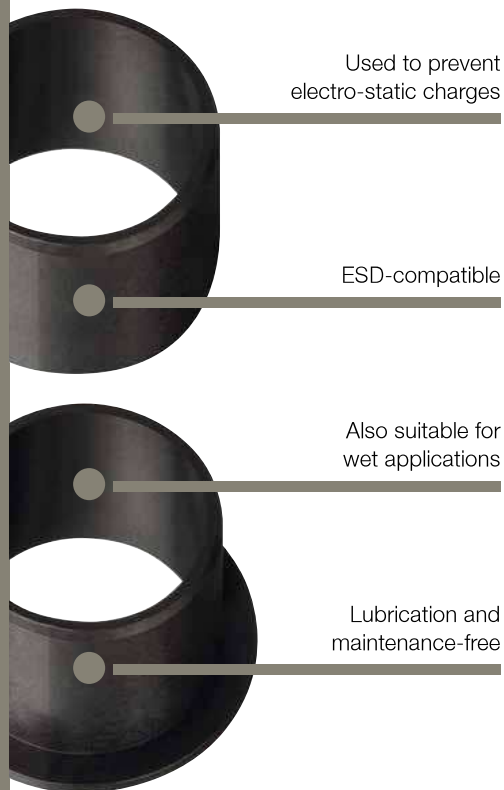
Also suitable for wet applications

Lubrication and maintenance-free

Standard range from stock



Electrically conductive



iglidur® F2 helps to prevent electrostatic charging. Good resistance to media and temperature, suitable even in wet conditions due to low moisture absorption and good universal wear values pave the way for a wide range of applications.



When to use it?

- When the bearing should be electrically discharging
- When a universal bearing is required for a broad application range



When not to use it?

- When a universal bearing without static discharge capacity is required
 - ▶ iglidur® G, page 79
 - ▶ iglidur® P, page 113
- For underwater use
 - ▶ iglidur® H370, page 305
- When extremely high wear resistance is required
 - ▶ iglidur® J, page 141
 - ▶ iglidur® W300, page 153

Typical application areas

- Machine building
- Jig construction
- Industrial handling



Available from stock

Detailed information about delivery time online.



Block pricing online

No minimum order value. From batch size 1.



Max. +120 °C

Min. -40 °C



Ø 5–20 mm

More dimensions upon request



Online product finder

▶ www.igus.eu/iglidur-finder

Material properties

General properties	Unit	iglidur® F2	Testing method
Density	g/cm³	1.52	
Colour		black	
Max. moisture absorption at +23 °C/50 % r.h.	% weight	0.2	DIN 53495
Max. water absorption	% weight	0.4	
Coefficient of sliding friction, dynamic, against steel	μ	0.16–0.22	
pv value, max. (dry)	MPa · m/s	0.31	
Mechanical properties			
Flexural modulus	MPa	7,418	DIN 53457
Flexural strength at +20 °C	MPa	93	DIN 53452
Compressive strength	MPa	61	
Max. recommended surface pressure (+20 °C)	MPa	47	
Shore-D hardness		72	DIN 53505
Physical and thermal properties			
Max. long-term application temperature	°C	+120	
Max. short-term application temperature	°C	+165	
Min. long-term application temperature	°C	-40	
Heat conductivity	W/m · K	0.61	ASTM C 177
Coefficient of thermal expansion (at +23 °C)	K ⁻¹ · 10 ⁻⁶	5	DIN 53752
Electrical properties			
Specific contact resistance	Ωcm	< 10 ⁹	DIN IEC 93
Surface resistance	Ω	< 10 ⁹	DIN 53482

Table 01: Material properties table

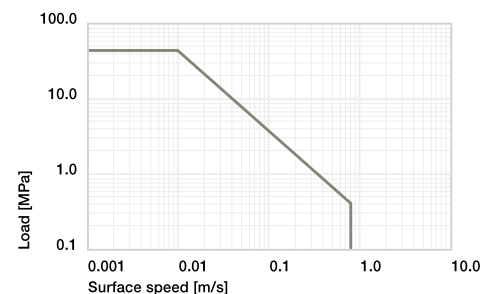


Diagram 01: Permissible pv values for iglidur® F2 bearings with a wall thickness of 1 mm dry running against a steel shaft, at +20 °C, mounted in a steel housing

Moisture absorption

The moisture absorption of iglidur® F2 plain bearings is approximately 0.2 % weight in standard climatic conditions. The saturation limit in water is 0.4 % weight.

▶ Diagram, www.igus.eu/f2-moisture

Vacuum

iglidur® F2 plain bearings outgas in a vacuum. Use in vacuum is only possible with dehumidified bearings.

Radiation resistance

Plain bearings made from iglidur® F2 are resistant to radiation up to an intensity of applications $3 \cdot 10^2$ Gy.

UV resistance

iglidur® F2 plain bearings are partially resistant to UV radiation.

Medium	Resistance
Alcohol	+
Hydrocarbons	-
Greases, oils without additives	+
Fuels	+
Diluted acids	0
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 1478

The prevention of electrostatic charge is an important requirement in many application areas. At the same time other technical application parameters such as wear resistance, media and temperature resistance, suitability in a wet environment, etc., cannot be neglected. iglidur® F2 with its wide range of properties constitutes another universal bearing for numerous "ESD-compatible" applications.

Mechanical properties

With increasing temperatures, the compressive strength of iglidur® F2 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.

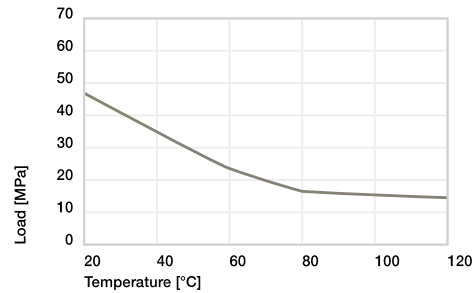


Diagram 02: Permissible maximum surface pressure of iglidur® F2 as a function of temperature (47 MPa at +20 °C)

Diagram 03 shows the elastic deformation of iglidur® F2 at radial loads. A plastic deformation can be negligible up to this value. However, it is also dependent on the service time.

► Surface pressure, page 41

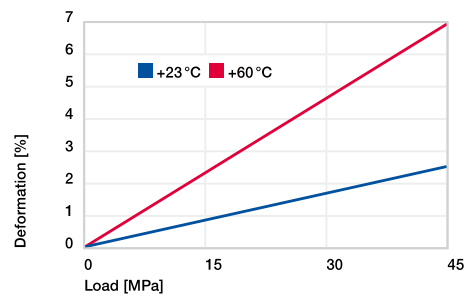


Diagram 03: Deformation under pressure and temperature

Permissible surface speeds

The maximum permitted surface speeds are based on the operation period and the type of motion. A bearing is the most stressed in long-term rotating motions. Here the maximum speed for the iglidur® F2 bearing is 0.8 m/s. The maximum values specified in table 03 are not often attained in practice.

► Surface speed, page 44

m/s	Rotating	Oscillating	Linear
Continuous	0.8	0.7	3
Short-term	1.4	1.1	5

Table 03: Maximum surface speeds

Temperatures

The ambient temperatures strongly influence the features of bearings. With increasing temperatures, the compressive strength of iglidur® F2 bearings decreases. The diagram 02 shows this inverse relationship. At temperatures over +70 °C an additional securing is required.

► Application temperatures, page 49

► Additional securing, page 49

Friction and wear

Coefficient of friction and wear resistance alter with the application parameters (diagrams 04 and 05).

► Coefficients of friction and surfaces, page 47

► Wear resistance, page 50

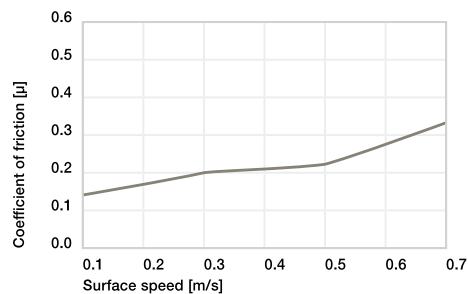


Diagram 04: Coefficient of friction as a function of the surface speed, p = 1.0 MPa

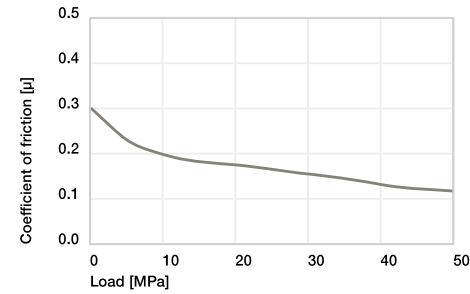


Diagram 05: Coefficient of friction as a function of the pressure, v = 0.01 m/s

Shaft materials

Diagram 06 shows results of testing different shaft materials with plain bearings made from iglidur® F2.

In the lower region of the load, cutting steel and hard anodised aluminium shafts, as well as HR carbon steel and hard-chromed steel shafts prove to be the most favourable in rotating applications with iglidur® F2 plain bearings with respect to wear.

Diagram 07 shows a significantly less wear in rotation compared to pivoting movements over the entire load range.

► Shaft materials, page 52

iglidur® F2	Dry	Greases	Oil	Water
C. o. f. μ	0.16–0.22	0.1	0.05	0.03

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

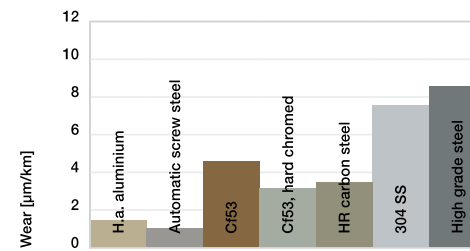


Diagram 06: Wear, rotating with different shaft materials, p = 1 MPa, v = 0.3 m/s

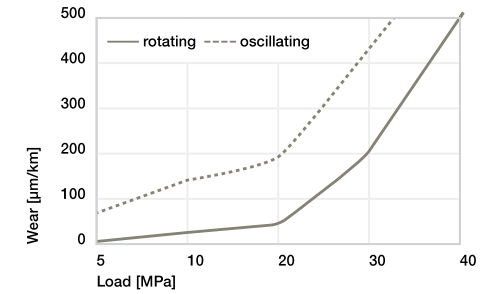


Diagram 07: Wear for oscillating and rotating applications with shaft material Cf53 hardened and ground steel, as a function of the pressure

Installation tolerances

iglidur® H2 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, the inner diameter automatically adjusts to the E10 tolerances.

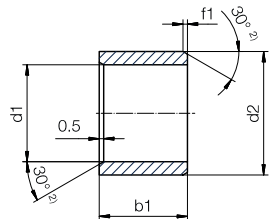
► Testing methods, page 57

Diameter d1 [mm]	Shaft h9 [mm]	iglidur® F2 E10 [mm]	Housing H7 [mm]
up to 3	0–0.025	+0.014 +0.054	0 +0.010
> 3 to 6	0–0.030	+0.020 +0.068	0 +0.012
> 6 to 10	0–0.036	+0.025 +0.083	0 +0.015
> 10 to 18	0–0.043	+0.032 +0.102	0 +0.018
> 18 to 30	0–0.052	+0.040 +0.124	0 +0.021
> 30 to 50	0–0.062	+0.050 +0.150	0 +0.025
> 50 to 80	0–0.074	+0.060 +0.180	0 +0.030
> 80 to 120	0–0.087	+0.072 +0.212	0 +0.035
>120 to 180	0–0.100	+0.085 +0.245	0 +0.040

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

iglidur® F2 | Product range

Sleeve bearing (Form S)



Order key

Type Dimensions [mm]

F2 S M-0608-06

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

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

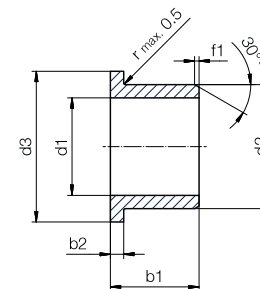
Dimensions [mm]

d1	d1-Tolerance ³⁾	d2	b1 h13	Part No.
5.0	+0.020 +0.068	7.0	10.0	F2SM-0507-10
6.0	+0.020 +0.068	8.0	6.0	F2SM-0608-06
7.0	+0.025 +0.083	9.0	10.0	F2SM-0709-10
8.0	+0.025 +0.083	10.0	10.0	F2SM-0810-10
10.0	+0.025 +0.083	12.0	10.0	F2SM-1012-10
10.0	+0.025 +0.083	12.0	15.0	F2SM-1012-15
12.0	+0.032 +0.102	14.0	12.0	F2SM-1214-12
16.0	+0.032 +0.102	18.0	15.0	F2SM-1618-15
20.0	+0.040 +0.124	23.0	20.0	F2SM-2023-20

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

iglidur® F2 | Product range

Flange bearing (Form F)



Order key

Type Dimensions [mm]

F2 F M-0608-06

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

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 d13	b1 h13	b2 -0.14	Part No.
6.0	+0.020 +0.068	8.0	12.0	6.0	1.0	F2FM-0608-06
8.0	+0.025 +0.083	10.0	15.0	10.0	1.0	F2FM-0810-10
10.0	+0.025 +0.083	12.0	18.0	10.0	1.0	F2FM-1012-10
12.0	+0.032 +0.102	14.0	20.0	12.0	1.0	F2FM-1214-12
16.0	+0.032 +0.102	18.0	24.0	17.0	1.0	F2FM-1618-17
20.0	+0.040 +0.124	23.0	30.0	21.5	1.5	F2FM-2023-21

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

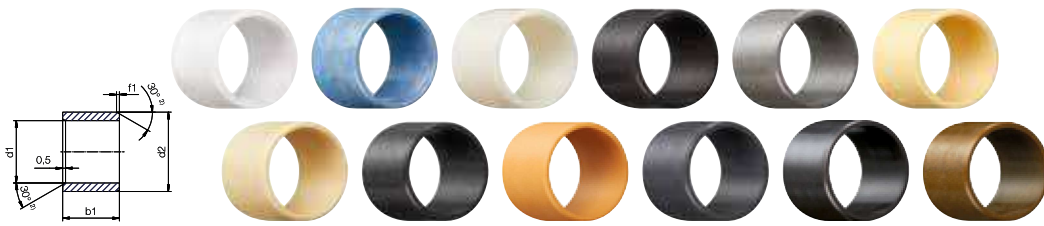
i Couldn't find your size?

Do you need another length, other dimensions or tolerances? You need a particular design or alternative for your application? Please call us. igus® listens to your needs and provides you a solution very quickly.

@ Even more dimensions from stock

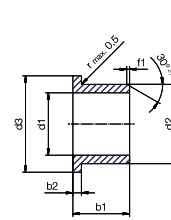
More than 300 dimensions are now available. Search online for your required bearing.

► www.igus.eu/iglidur-specialbearings



Dimensions sleeve Abmessungen zylindrisch [mm]

Part No. Art.-Nr.	d1	d1 tolerance d1-Toleranz	d2	b1 h13
A180SM-0810-15	8.0	+0.025 +0.083	10.0	15.0
A350SM-1416-12	14.0	+0.016 +0.068	16.0	12.0
C500SM-3034-30	30.0	+0.020 +0.104	34.0	30.0
F2SM-1214-15	12.0	+0.032 +0.102	14.0	15.0
F2SM-1618-20	16.0	+0.032 +0.102	18.0	20.0
GSM-0406-06	4.0	+0.020 +0.068	6.0	6.0
GSM-0810-36	8.0	+0.025 +0.083	10.0	36.0
GSM-120125-78	120.0	+0.072 +0.212	125.0	78.0
GSM-1214-45	12.0	+0.032 +0.102	14.0	45.0
GSM-1820-30	18.0	+0.032 +0.102	20.0	30.0
GSM-1822-15	18.0	+0.032 +0.102	22.0	15.0
GSM-2021-095	20.0	+0.020 +0.072	21.0	9.5
JSM-0814-08	8.0	+0.040 +0.130	14.0	8.0
JSM-1216-06	12.0	+0.050 +0.0160	16.0	6.0
JSM-1218-10	12.0	+0.050 +0.0160	18.0	10.0
JSM-1315-06	13.0	+0.050 +0.0160	15.0	6.0
JSM-1620-20	16.0	+0.050 +0.0160	20.0	20.0
JSM-6065-100	60.0	+0.060 +0.180	65.0	100.0
MSM-1620-10	16.0	+0.050 +0.0160	20.0	10.0
P210SM-1214-04	12.0	+0.032 +0.102	14.0	4.0
PSM-0608-05	6.0	+0.020 +0.068	8.0	5.0
PSM-0812-10	8.0	+0.040 +0.130	12.0	10.0
PSM-3236-15	32.0	+0.050 +0.150	36.0	15.0
Q2SM-1012-04	10.0	+0.025 +0.083	12.0	4.0
Q2SM-4246-52	42.0	+0.050 +0.150	46.0	52.0
X6SM-1416-22	14.0	+0.016 +0.086	16.0	22.0
X6SM-1618-12	16.0	+0.016 +0.086	18.0	12.0
X6SM-2023-15	20.0	+0.020 +0.104	23.0	15.0
ZSM-2225-35	22.0	+0.020 +0.104	25.0	35.0
ZSM-6065-25	60.0	+0.030 +0.150	65.0	25.0
ZSM-9095-100	90.0	+0.036 +0.176	95.0	100.0



Dimensions with flange Abmessungen mit Bund [mm]

Part No. Art.-Nr.	d1	d1 tolerance d1-Toleranz	d2	d3	b1 h13	b2
GFM-060710-06	6.0	+0.010 +0.040	7.0	10.0	6.0	0.5
GFM-0812-16	8.0	+0.040 +0.130	12.0	16.0	16.0	2.0
GFM-101115-03	10.0	+0.013 +0.046	11.0	15.0	3.0	1.0
GFM-1012-11	10.0	+0.025 +0.083	12.0	18.0	11.0	1.0
GFM-1012-25	10.0	+0.025 +0.083	12.0	18.0	25.0	1.0
GFM-1719-07	17.0	+0.032 +0.102	19.0	25.0	7.0	1.0
GFM-2527-12	25.0	+0.040 +0.124	27.0	32.0	12.0	1.0
GFM-2527-15	25.0	+0.040 +0.124	27.0	32.0	15.0	1.0
GFM-3034-12	30.0	+0.040 +0.124	34.0	42.0	12.0	2.0
GFM-303440-07	30.0	+0.040 +0.124	34.0	40.0	7.0	2.0
H1FM-0405-06	4.0	+0.010 +0.058	5.5	9.5	6.0	0.8
J350FM-6065-50	60.0	+0.030 +0.150	65.0	73.0	50.0	2.0
J3FM-081418-15	8.0	+0.025 +0.083	14.0	18.0	15.0	2.0
JFM-040810-15	4.0	+0.020 +0.068	8.0	10.0	15.0	2.0
JFM-0810-03	8.0	+0.025 +0.083	10.0	15.0	3.0	1.0
JFM-121419-06	12.0	+0.032 +0.102	14.0	19.0	6.0	1.0
JFM-121622-20	12.0	+0.050 +0.0160	16.0	22.0	20.0	2.0
JFM-2023-07	20.0	+0.040 +0.124	23.0	30.0	7.0	1.5
PFM-1214-08	12.0	+0.032 +0.102	14.0	8.0	20.0	1.0
PFM-1618-08	16.0	+0.032 +0.102	18.0	8.0	24.0	1.0
P210FM-0405-06	4.0	+0.020 +0.068	5.5	9.5	6.0	0.8
Q290FM-8085-100	80.0	+0.060 +0.180	85.0	93.0	100.0	2.5
Q2FM-101219-13	10.0	+0.025 +0.083	12.0	19.0	13.0	1.0
Q2FM-1013-05	10.0	+0.025 +0.083	13.0	20.0	5.0	1.0
Q2FM-2023-07	20.0	+0.040 +0.124	23.0	30.0	7.0	1.5
QFM-101215-04	10.0	+0.025 +0.083	12.0	15.0	4.0	1.0
QFM-121418-06	12.0	+0.032 +0.102	14.0	18.0	6.0	1.0
WFM-2023-08	20.0	+0.040 +0.124	23.0	30.0	8.0	1.5
XFM-1214-50	12.0	+0.016 +0.086	14.0	50.0	20.0	1.0
X6FM-0608-04	6.0	+0.010 +0.058	8.0	12.0	4.0	1.0
ZFM-1012-25	10.0	+0.013 +0.071	12.0	18.0	25.0	1.0
ZFM-2023-075	20.0	+0.020 +0.104	23.0	30.0	7.5	1.5



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