

For high rotational speeds

High performance at lower cost

igidur® L350



When to use it?

- For rotating applications at high speed
- When the highest service life is required
- For high pv values with low loads
- At operating temperatures up to +180°C (long-term, short-term up to max. +210°C)



When not to use?

- When a universal bearing for high temperatures is required
igidur® X
- When medium to high pressures occur
igidur® G, iglidur® Q
- For oscillating applications
igidur® W300, iglidur® J350

Bearing technology | Plain bearing | iglidur® L350



Ø
3.0 – 10.0mm



Also available
as:



Bar stock,
round bar
Page 657

For high rotational speeds High performance at lower cost

iglidur® L350 is extremely long-lasting. Developed for the best coefficient of wear and friction at speeds of 1.5m/s and more, this material outperforms classic plain bearings in high-speed rotation operation.

- Up to 3.5m/s rotating
- Temperature-resistant up to +210°C in continuous use
- Low moisture absorption
- Good price-performance ratio
- Extremely wear-resistant
- Lubrication and maintenance-free
- Standard range from stock



Bar stock,
plate
Page 683

Typical application areas

- Electric motors
- Fans
- Household appliances



tribo-tape liner
Page 691



Piston rings
Page 581



Two hole
flange
bearings
Page 603



Moulded
special parts
Page 624



igubal®
spherical balls
Page 841

Descriptive technical specifications				
Wear resistance at +23°C	-	<div style="width: 80%; background-color: #FFD700;"></div>		+
Wear resistance at +90°C	-	<div style="width: 70%; background-color: #FFD700;"></div>		+
Wear resistance at +150°C	-	<div style="width: 60%; background-color: #FFD700;"></div>		+
Low coefficient of friction	-	<div style="width: 80%; background-color: #FFD700;"></div>		+
Low moisture absorption	-	<div style="width: 80%; background-color: #FFD700;"></div>		+
Wear resistance under water	-	<div style="width: 80%; background-color: #FFD700;"></div>		+
High media resistance	-	<div style="width: 80%; background-color: #FFD700;"></div>		+
Resistant to edge pressures	-	<div style="width: 80%; background-color: #FFD700;"></div>		+
Suitable for shock and impact loads	-	<div style="width: 80%; background-color: #FFD700;"></div>		+
Resistant to dirt	-	<div style="width: 80%; background-color: #FFD700;"></div>		+

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

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

Technical data

General properties		Testing method	
Density	g/cm ³	1.54	
Colour		dark grey	
Max. moisture absorption at +23°C and 50% r.h.	% weight	0.4	DIN 53495
Max. moisture absorption	% weight	1.4	
Coefficient of friction, dynamic, against steel	μ	0.07 – 0.18	
pv value, max. (dry)	MPa · m/s	3.00	
Mechanical properties			
Flexural modulus	MPa	15,882	DIN 53457
Flexural strength at +20°C	MPa	210	DIN 53452
Compressive strength	MPa	210	
Max. recommended surface pressure (+20°C)	MPa	59	
Shore D hardness		80	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	0.61	ASTM C 177
Coefficient of thermal expansion (at +23°C)	K ⁻¹ · 10 ⁻⁵	7	DIN 53752
Electrical properties			
Specific contact resistance	Ωcm	> 10 ⁵	DIN IEC 93
Surface resistance	Ω	> 10 ⁵	DIN 53482

Table 01: Material properties

With iglidur® L350, another lubrication and maintenance-free material is now available, which is designed for continuous high speeds. Due to the low thermal expansion and low moisture absorption, bearings can be manufactured with minimal potential to expand. iglidur® L350 is especially suitable for use in fans, blowers or electric motors – and the costs are also lower.

Moisture absorption

The very low moisture absorption of 0.4% weight in standard climatic conditions and 1.4% weight at maximum water absorption also enables continuous operation in high humidity or in liquid media.

Vacuum

In vacuum, the moisture content is released as vapour. Due to its low moisture absorption, use in a vacuum is possible.

Radiation resistance

Plain bearings made from iglidur® L350 are resistant up to a radiation intensity of 2 · 10²Gy. Higher radiation affects the material and may result in a significant decrease in mechanical properties.

Resistance to weathering

iglidur® L350 plain bearings have not yet been tested for their resistance to weathering. Please consult igus® if you're planning to use them outdoors.

Mechanical properties

With increasing temperatures, the compressive strength of iglidur® L350 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 03 shows the elastic deformation of iglidur® L350 at radial loads. At the maximum recommended surface pressure of 59MPa at room temperature the deformation is less than 2.5%. A plastic deformation can be negligible up to this value. It is however also dependent on the duty cycle of the load.

Surface pressure, page 41



-100°C up to
+180°C



59MPa



V-0



ISO
35474

Permissible surface speeds

iglidur® L350 has been developed especially for high surface speeds with low loads. Due to the high temperature resistance of iglidur® L350, the limit of the bearing has been increased significantly. In addition, the extremely low wear allows the high acceleration speeds to be reached and maintained. The maximum speeds are shown in table 03.

Surface speed, page 44

Temperature

The iglidur® L350 plain bearings can be used in temperatures up to +210°C for the short-term. Note that a mechanical securing of the bearing is recommended from temperatures of +140°C. Higher temperatures can sometimes cause the plain bearings to lose their press-fit and move in the housing.

Application temperatures, page 49

Additional securing, page 49

Friction and wear

The very low coefficient of friction remains, even at high speeds. Diagram 04 shows this relationship on a steel shaft at 0.75MPa surface pressure.

Coefficient of friction and surfaces, page 47

Wear resistance, page 50

Shaft materials

Diagram 05 compares the wear of a sintered bearing with that of bearings made of the materials iglidur® L500 and L350. At a surface speed of 1.5m/s or more, the wear of the sintered bearing increases exponentially whereas the wear of the iglidur® plain bearings almost remains the same up to a speed of more than 3m/s.

Shaft materials, page 52

Installation tolerances

iglidur® L350 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

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

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

Table 02: Chemical resistance

Chemical table, page 1636

	Rotating	Oscillating	linear
long-term m/s	3.0	1.5	4.0
short-term m/s	4.0	3.0	6.0

Table 03: Maximum surface speeds

	Dry	Greases	Oil	Water
Coefficient of friction μ	0.07 – 0.18	0.06	0.04	0.03

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

\varnothing d1 [mm]	Housing		Plain bearing		Shaft	
	H7 [mm]	F10 [mm]	F10 [mm]	h9 [mm]	h9 [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	+0.036	+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

Technical data

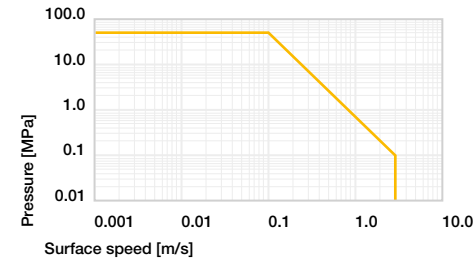


Diagram 01: Permissible pv values for iglidur® L350 plain bearings with a wall thickness of 1mm, dry operation against a steel shaft, at +20°C, mounted in a steel housing

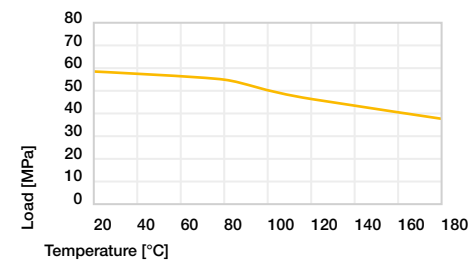


Diagram 02: Maximum recommended surface pressure as a function of temperature (59MPa at +20°C)

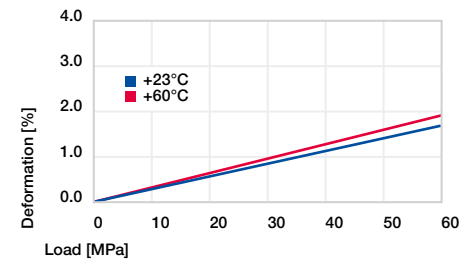


Diagram 03: Deformation under pressure and temperature

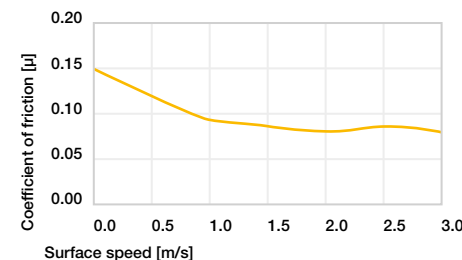


Diagram 04: Coefficient of friction as a function of the surface speed, p = 0.75MPa

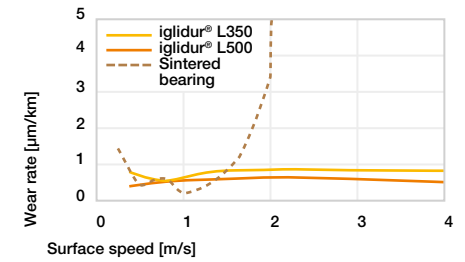


Diagram 05: Rotating wear against Cf53, p = 0.25MPa, T = +23°C

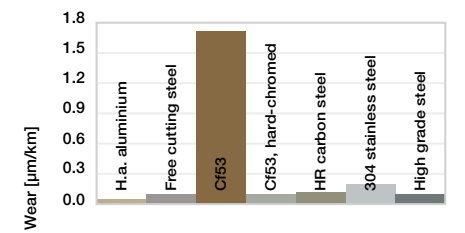


Diagram 06: Wear, rotating with different shaft materials, p = 1MPa, v = 0.3m/s

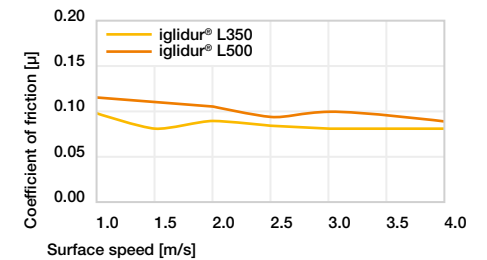
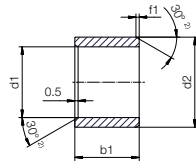


Diagram 07: Rotating coefficient of friction - "High speed" against Cf53, p = 1MPa (except for iglidur® L250), T = +23°C

Bearing technology | Plain bearing | iglidur® L350

Sleeve bearing (form S)



²⁾ Thickness < 0.6mm: Chamfer = 20°

i Dimensions according to ISO 3547-1 and special dimensions

Chamfer in relation to d1

d1 [mm]	Ø 1–6	Ø 6–12
f1 [mm]	0.3	0.5



Order example: **L350SM-0304-03** – no minimum order quantity.

L350 iglidur® material **S** Sleeve bearing **M** Metric **03** Inner Ø d1 **04** Outer Ø d2 **03** Total length b1

d1	d1	d2	b1	Part No.
[mm]	Tolerance ³⁾	[mm]	h13 [mm]	
3.0	+0.006 +0.046	4.5	3.0	L350SM-0304-03
4.0		5.5	4.0	L350SM-0405-04
5.0	+0.010 +0.058	7.0	5.0	L350SM-0507-05
6.0		8.0	6.0	L350SM-0608-06
8.0	+0.013 +0.071	10.0	10.0	L350SM-0810-10
10.0		12.0	10.0	L350SM-1012-10

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/L350



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

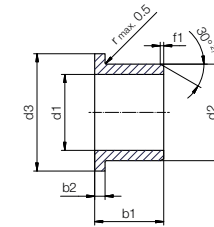
No minimum order value.

No low-quantity surcharges.

Free shipping within Germany for orders above €150.

Bearing technology | Plain bearing | iglidur® L350

Flange bearing (form F)



²⁾ Thickness < 0.6mm: Chamfer = 20°

i Dimensions according to ISO 3547-1 and special dimensions

Chamfer in relation to d1

d1 [mm]	Ø 1–6	Ø 6–12
f1 [mm]	0.3	0.5



Order example: **L350FM-0304-05** – no minimum order quantity.

L350 iglidur® material **F** Flange bearing **M** Metric **03** Inner Ø d1 **04** Outer Ø d2 **05** Total length b1

d1	d1	d2	d3	b1	b2	Part No.
[mm]	Tolerance ³⁾	[mm]	d13 ³⁾ [mm]	h13 [mm]	h13 [mm]	
3.0	+0.006 +0.046	4.5	7.5	5.0	0.75	L350FM-0304-05
4.0		5.5	9.5	6.0	0.75	L350FM-0405-06
5.0	+0.010 +0.058	7.0	11.0	7.0	1.00	L350FM-0507-07
6.0		8.0	12.0	8.0	1.00	L350FM-0608-08
8.0	+0.013 +0.071	10.0	15.0	9.0	1.00	L350FM-0810-09
10.0		12.0	18.0	9.0	1.00	L350FM-1012-09

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



Available from stock

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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.

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