

For continuous direct sunlight

Permanently UV-resistant with properties comparable to iglidur® J

igidur® J UV



When to use it?

- When high UV resistance is required
- When a wear-resistant material is required
- When an optimisation of the long-term mechanical properties is required



When not to use?

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

Bearing technology | Plain bearing | iglidur® J UV



Ø
6.0 – 20.0mm



Also available as:



Bar stock, round bar
Page 657



Bar stock, plate
Page 683



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

For continuous direct sunlight Permanently UV-resistant with properties comparable to iglidur® J

Today, plain bearings appear as special shapes for special uses, in some instances of which they are exposed to UV radiation for long periods of time. igus® has therefore developed a new material: iglidur® J UV.

- UV-stabilised
- Long-term mechanical properties improved
- High wear resistance

Typical application areas

- Solar technology
- Outdoor applications

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.sk/iglidur-finder

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

Technical data

General properties		Testing method	
Density	g/cm ³	1.49	
Colour		black	
Max. moisture absorption at +23°C and 50% r.h.	% weight	0.3	
Max. moisture absorption	% weight	1.3	
Coefficient of friction, dynamic, against steel	μ	0.08 – 0.19	
pv value, max. (dry)	MPa · m/s	0.30	
Mechanical properties			
Flexural modulus	MPa	2,400	
Flexural strength at +20°C	MPa	72	
Compressive strength	MPa	k. A.	
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	0.30	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 ¹³	DIN 53482

Table 01: Material properties

One main advantage of iglidur® J UV plain bearings is the low coefficient of friction in dry operation. The material is resistant to UV radiation and retains its sliding properties.

Moisture absorption

Under standard climatic conditions, the moisture absorption of iglidur® J UV 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.

Vacuum

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

Radiation resistance

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

Resistance to weathering

iglidur® J UV plain bearings are continuously resistant to weathering. The material properties are only slightly affected. Possible discolorations are only superficial.

Mechanical properties

With increasing temperatures, the compressive strength of iglidur® J UV 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.

With a maximum recommended surface pressure of 35MPa, iglidur® J UV plain bearings are not suitable for extreme loads. Diagram 03 shows the elastic deformation of iglidur® J UV at radial loads.

Surface pressure, page 41



-50°C up to +90°C



35MPa



Permissible surface speeds

The low coefficient of friction and the very low stick slip tendency of iglidur® J UV plain bearings are particularly important at very low speeds. However, iglidur® J UV 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

In the case of a permissible long-term application temperature of +90°C, iglidur® J UV will even withstand +120°C for short periods. The wear rises with increasing temperatures. 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 UV a ground surface with an average surface finish $R_a = 0.8\mu\text{m}$ is recommended. Diagrams 06 and 07 show the test results of iglidur® J UV plain bearings running against various shaft materials. When compared to most iglidur® materials, iglidur® J UV 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 UV 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 UV 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	2.2	1.7	12.0

Table 03: Maximum surface speeds

	Dry	Greases	Oil	Water
Coefficient of friction μ	0.08 - 0.19	0.09	0.04	0.04

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

Ø d1 [mm]	Housing		Plain bearing		Shaft	
	H7 [mm]	E10 [mm]	E10 [mm]	h9 [mm]	h9 [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

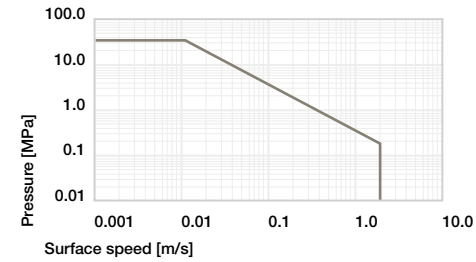


Diagram 01: Permissible pv values for iglidur® J UV plain bearings with a wall thickness of 1mm, dry operation against a steel shaft, at +20°C, mounted in a steel housing

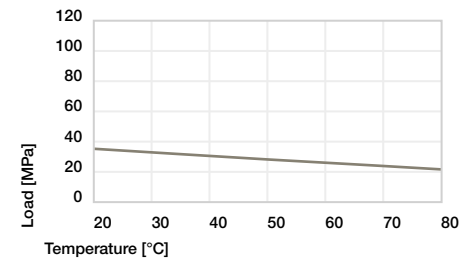


Diagram 02: Maximum recommended surface pressure as a function of temperature (35MPa at +20°C)

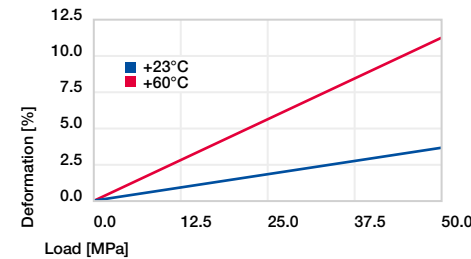


Diagram 03: Deformation under pressure and temperature

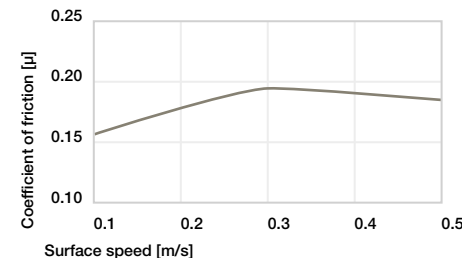


Diagram 04: Coefficient of friction as a function of the surface speed, $p = 0.75\text{MPa}$

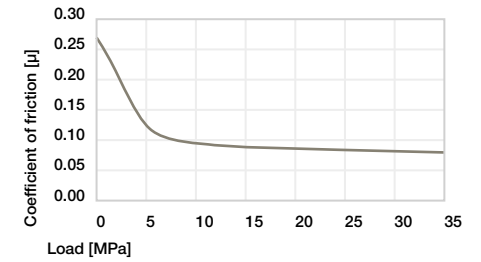


Diagram 05: Coefficient of friction as a function of the pressure, $v = 0.01\text{m/s}$

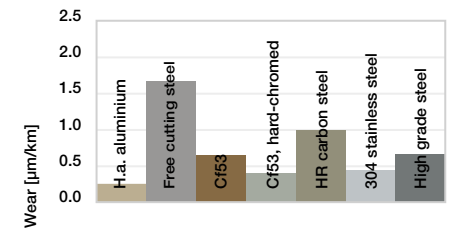


Diagram 06: Wear, rotating with different shaft materials, pressure, $p = 1\text{MPa}$, $v = 0.3\text{m/s}$

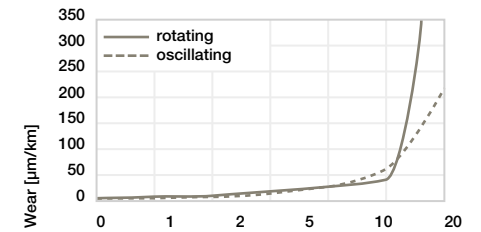
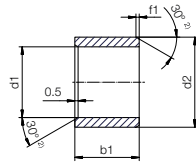


Diagram 07: Wear for rotating and oscillating applications with different shaft materials, $p = 2\text{MPa}$

Bearing technology | Plain bearing | iglidur® J UV

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	Ø 12-30
f1 [mm]	0.3	0.5	0.8



Order example: JUVSM-0608-08 – no minimum order quantity.

J UV iglidur® material S Sleeve bearing M Metric 06 Inner Ø d1 08 Outer Ø d2 08 Total length b1

d1	d1	d2	b1	Part No.
[mm]	Tolerance ³⁾	[mm]	h13 [mm]	
6.0		8.0	8.0	JUVSM-0608-08
8.0	+0.020 +0.068	10.0	12.0	JUVSM-0810-12
10.0	+0.025 +0.083	12.0	12.0	JUVSM-1012-12
12.0	+0.030 +0.102	14.0	12.0	JUVSM-1214-12
16.0	+0.030 +0.102	18.0	15.0	JUVSM-1618-15
20.0	+0.040 +0.124	23.0	20.0	JUVSM-2023-20

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



Available from stock

Detailed information about delivery time online.

www.igus.sk/24



Online ordering

Including delivery times, prices, online tools

www.igus.sk/JUV



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

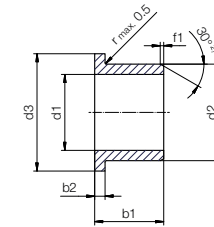
No minimum order value.

No low-quantity surcharges.

Free shipping within Germany for orders above €150.

Bearing technology | Plain bearing | iglidur® J UV

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	Ø 12-30
f1 [mm]	0.3	0.5	0.8



Order example: JUVFM-0608-08 – no minimum order quantity.

J UV iglidur® material F Flange bearing M Metric 06 Inner Ø d1 08 Outer Ø d2 08 Total length b1

d1	d1	d2	d3	b1	b2	Part No.
[mm]	Tolerance ³⁾	[mm]	d13 ³⁾ [mm]	h13 [mm]	h13 [mm]	
6.0		8.0	12.0	8.0	1.00	JUVFM-0608-08
8.0	+0.020 +0.068	10.0	15.0	9.5	1.00	JUVFM-0810-09
10.0	+0.025 +0.083	12.0	18.0	12.0	1.00	JUVFM-1012-12
12.0	+0.030 +0.102	14.0	20.0	12.0	1.00	JUVFM-1214-12
16.0	+0.030 +0.102	18.0	24.0	17.0	1.00	JUVFM-1618-17
20.0	+0.040 +0.124	23.0	30.0	21.5	1.50	JUVFM-2023-21

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



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