

## Low-cost all-rounder for fire protection – iglidur® G V0

UL94 V0 rating

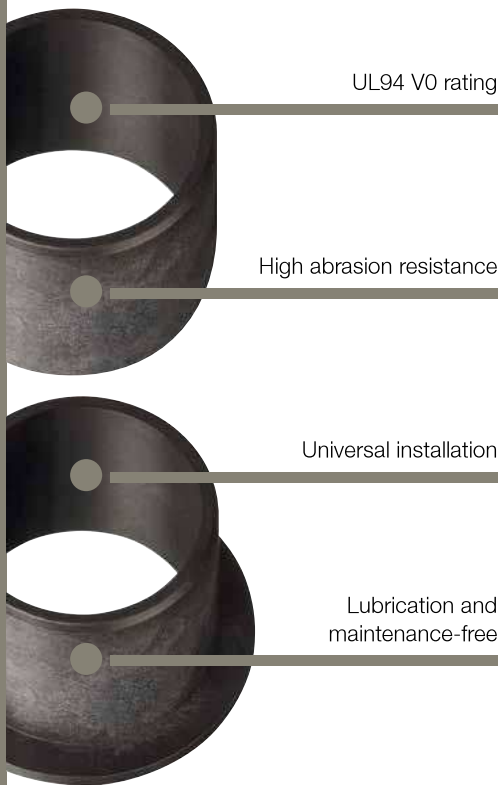
High abrasion resistance

Universal installation

Lubrication and maintenance-free

Standard range from stock





The material achieves the UL94 V0 rating and is therefore ideally suited for applications with stringent fire protection regulations (vehicle and aircraft interiors, building interior systems, etc.). Other properties are similar to the general purpose iglidur® G material.



**When to use it?**

- When you need a UL94 V0 classified bearing for normal environmental conditions
- When you need an economic UL94 V0 classified bearing



**When not to use it?**

- When you need a UL94 V0 classified bearing for high-temperature applications
  - ▶ iglidur® X, page 245
- When you need a standard bearing without having to meet special fire codes
  - ▶ iglidur® G, page 79

**Typical application areas**

- Passenger seats
- Elevators
- Escalators
- Switch cabinets
- Hinges



**Available from stock**

Detailed information about delivery time online.



**Block pricing online**

No minimum order value. From batch size 1.



**Max. +130 °C**  
**Min. -40 °C**



**Ø 6–40 mm**

More dimensions upon request



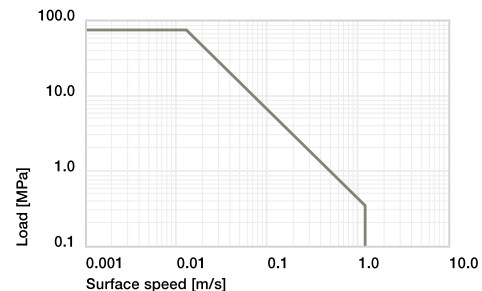
**Online product finder**

▶ [www.igus.eu/iglidur-finder](http://www.igus.eu/iglidur-finder)

**Material properties**

General properties	Unit	iglidur® G V0	Testing method
Density	g/cm³	1.53	
Colour		black	
Max. moisture absorption at +23 °C/50 % r.h.	% weight	0.7	DIN 53495
Max. water absorption	% weight	4.0	
Coefficient of sliding friction, dynamic, against steel	μ	0.07–0.20	
pv value, max. (dry)	MPa · m/s	0.5	
Mechanical properties			
Flexural modulus	MPa	7,900	DIN 53457
Flexural strength at +20 °C	MPa	140	DIN 53452
Compressive strength	MPa	100	
Max. recommended surface pressure (+20 °C)	MPa	75	
Shore-D hardness		80	DIN 53505
Physical and thermal properties			
Max. long-term application temperature	°C	+130	
Max. short-term application temperature	°C	+210	
Min. long-term application temperature	°C	-40	
Heat conductivity	W/m · K	0.25	ASTM C 177
Coefficient of thermal expansion (at +23 °C)	K <sup>-1</sup> · 10 <sup>-6</sup>	9	DIN 53752
Electrical properties			
Specific contact resistance	Ωcm	> 10 <sup>12</sup>	DIN IEC 93
Surface resistance	Ω	> 10 <sup>11</sup>	DIN 53482

**Table 01: Material properties table**



**Diagram 01: Permissible pv values for iglidur® G V0 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® G V0 plain bearings is approximately 0.7 % weight in standard climatic conditions. The saturation limit submerged in water is 4 % weight. This must be taken into account along with other environmental influences.

▶ Diagram, [www.igus.eu/gv0-moisture](http://www.igus.eu/gv0-moisture)

**Vacuum**

iglidur® G V0 plain bearings outgas in a vacuum. Use in vacuum is only possible with dehumidified bearings.

**Radiation resistance**

Plain bearings made from iglidur® G V0 are resistant to radiation up to an intensity of 3 · 10<sup>2</sup> Gy.

**UV resistance**

iglidur® G V0 plain bearings are permanently resistant to UV radiation.

Medium	Resistance
Alcohol	+ to 0
Hydrocarbons	+
Greases, oils without additives	+
Fuels	+
Diluted acids	0 to -
Strong acids	-
Diluted alkalines	+
Strong alkalines	0

**+ resistant 0 conditionally resistant – not resistant**

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

**Table 02: Chemical resistance**

▶ Chemical table, page 1478

iglidur® G V0 is the first iglidur® material with a V0 rating in accordance with UL94 for universal applications at normal temperature ranges. All other iglidur® materials with V0 rating are part of the high-temperature segment. The general mechanical and thermal specifications are largely comparable to the all-rounder, iglidur® G.

## Mechanical properties

With increasing temperatures, the compressive strength of iglidur® G V0 plain bearings decreases. The diagram 02 shows this inverse relationship. However, at the long-term maximum temperature of +130 °C the permissible surface pressure is still around 35 MPa. The recommended maximum surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.

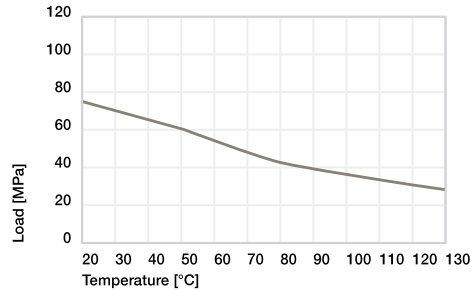


Diagram 02: Permissible maximum surface pressure of as a function of temperature (75 MPa at +20 °C)

Diagram 03 shows the elastic deformation of iglidur® G V0 during radial loading. The plastic deformation is minimal up to a pressure of approximately 100 MPa. However, it is also dependent on the service time.

► Surface pressure, page 41

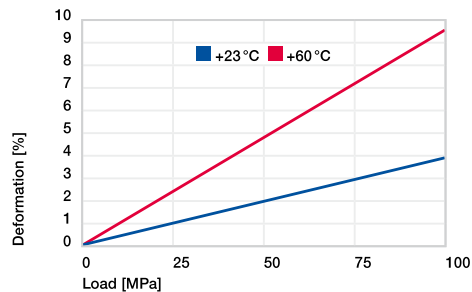


Diagram 03: Deformation under pressure and temperature

## Permissible surface speeds

iglidur® G V0 has been developed for low to medium surface speeds. The maximum values shown in table 03 can only be achieved at low pressures. In practice, though, this temperature level is rarely reached due to varying application conditions.

► Surface speed, page 44

m/s	Rotating	Oscillating	Linear
Continuous	1	0.7	4
Short-term	2	1.4	5

Table 03: Maximum surface speeds

## Temperatures

The ambient temperatures greatly influence the wear performance of plastic bearings. The short-term maximum temperature is +210 °C, this allows the use of iglidur® G V0 plain bearings in heat treating applications in which the bearings are not subjected to additional loading. The temperatures prevailing in the bearing system also have an influence on the bearing wear. With increasing temperatures, the wear increases and this effect is significant when temperatures rise over +120 °C. At temperatures over +100 °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  $\mu$  also changes with the load. The coefficient of friction decreases considerably with increasing pressures, whereas a slight increase in surface speed causes an increase of the coefficient of friction. This relationship explains the excellent results of iglidur® G V0 plain bearings for high loads and low speeds (diagrams 04 and 05).

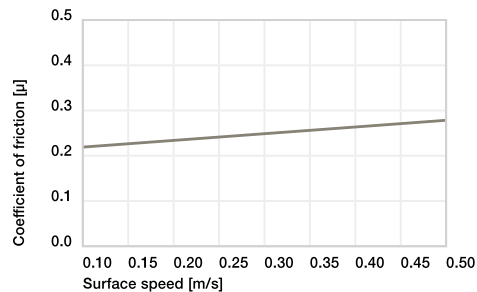


Diagram 04: Coefficient of friction as a function of the surface speed,  $p = 1$  MPa

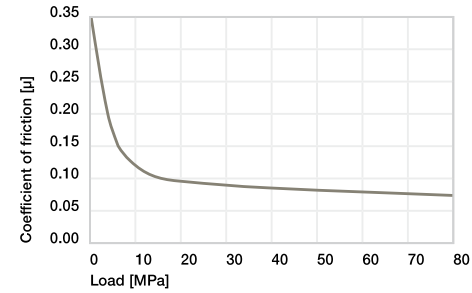


Diagram 05: Coefficient of friction as a function of the pressure,  $v = 0.01$  m/s

► Coefficients 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. Shafts that are too smooth, increase both the coefficient of friction and the wear of the bearing. For iglidur® G V0 a ground surface with an average roughness between 0.6 and 0.8  $\mu\text{m}$  is recommended. Diagram 06 shows results of testing different shaft materials with plain bearings made from iglidur® G V0. It is important to notice that with increasing loads, the recommended hardness of the shaft increases. The "soft" shafts tend to wear more easily and thus affect the clearance of the overall system. If the loads exceed 2 MPa it is important to recognise that the wear rate (the gradient of the curves) clearly decreases with the hard shaft materials. The comparison of rotational movements to oscillating movements shows that iglidur® G V0 provides advantages in oscillating movements (diagram 07). If the shaft material you plan to use is not contained in this list, please contact us.

► Shaft materials, page 52

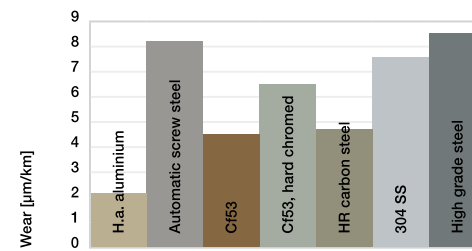


Diagram 06: Wear, rotating with different shaft materials,  $p = 1$  MPa,  $v = 0.3$  m/s

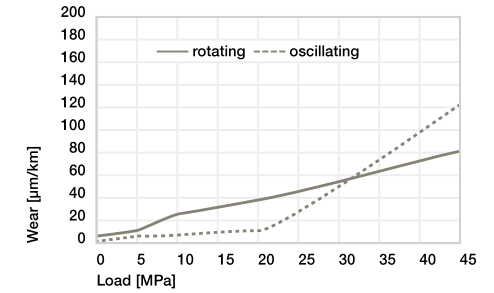


Diagram 07: Wear for oscillating and rotating applications with shaft material Cf53 hardened and ground steel, as a function of the pressure

iglidur® G V0	Dry	Greases	Oil	Water
C. o. f. $\mu$	0.07–0.20	0.09	0.04	0.04

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

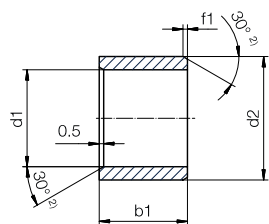
## Installation tolerances

iglidur® G V0 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, the inner diameter automatically adjusts to the E10 tolerances.

► Testing methods, page 57

Diameter d1 [mm]	Shaft h9 [mm]	iglidur® G V0 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



Order key

Type Dimensions [mm]

GV0 S M-0608-06

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

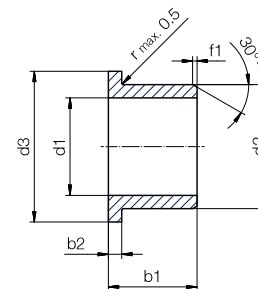
<sup>2)</sup> Thickness < 1 mm: chamfer = 20°

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 <sup>3)</sup>	d2	b1 h13	Part No.
6.0	+0.020 +0.068	8.0	6.0	GV0SM-0608-06
8.0	+0.025 +0.083	10.0	10.0	GV0SM-0810-10
10.0	+0.025 +0.083	12.0	8.0	GV0SM-1012-08
10.0	+0.025 +0.083	12.0	9.0	GV0SM-1012-09
10.0	+0.025 +0.083	12.0	10.0	GV0SM-1012-10
10.0	+0.025 +0.083	12.0	15.0	GV0SM-1012-15
10.0	+0.025 +0.083	12.0	17.0	GV0SM-1012-17
12.0	+0.032 +0.102	14.0	12.0	GV0SM-1214-12
16.0	+0.032 +0.102	18.0	15.0	GV0SM-1618-15
20.0	+0.040 +0.124	23.0	20.0	GV0SM-2023-20
25.0	+0.040 +0.124	28.0	20.0	GV0SM-2528-20
30.0	+0.040 +0.124	34.0	30.0	GV0SM-3034-30
35.0	+0.050 +0.150	39.0	40.0	GV0SM-3539-40
40.0	+0.050 +0.150	44.0	40.0	GV0SM-4044-40

<sup>3)</sup> After press-fit. Testing methods ► Page 57


Order key

Type Dimensions [mm]

GV0 F M-0608-06

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

<sup>2)</sup> 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 <sup>3)</sup>	d2	d3 d13	b1 h13	b2 -0.14	Part No.
6.0	+0.020 +0.068	8.0	12.0	6.0	1.0	GV0FM-0608-06
8.0	+0.025 +0.083	10.0	15.0	10.0	1.0	GV0FM-0810-10
10.0	+0.025 +0.083	12.0	18.0	10.0	1.0	GV0FM-1012-10
11.0	+0.032 +0.102	13.0	20.0	20.0	0.5	GV0FM-111320-20
12.0	+0.032 +0.102	14.0	20.0	12.0	1.0	GV0FM-1214-12
16.0	+0.032 +0.102	18.0	24.0	17.0	1.0	GV0FM-1618-17
20.0	+0.040 +0.124	23.0	30.0	21.5	1.5	GV0FM-2023-21
25.0	+0.040 +0.124	28.0	35.0	21.0	1.5	GV0FM-2528-21
30.0	+0.040 +0.124	34.0	42.0	37.0	2.0	GV0FM-3034-37
35.0	+0.050 +0.150	39.0	47.0	36.0	2.0	GV0FM-3539-36
40.0	+0.050 +0.150	44.0	52.0	40.0	2.0	GV0FM-4044-40

<sup>3)</sup> 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. igus® listens to your needs and provides you a solution very quickly.