

For the rail industry, complies with DIN EN 45545 HL3, R22/R23 Wear-resistant for rail technology iglidur® RW370



When to use it?

- For applications in rail technology where suitability according to DIN EN 45545 is required
- For high wear resistance at low to medium pressures
- When a low coefficient of friction in dry operation is requested
- Low moisture absorption



When not to use?

- When high pressure loads occur and suitability according to DIN EN 45545 is not required
iglidur® G, iglidur® W300
- When short-term temperatures higher than +190°C occur
iglidur® G, iglidur® Z
- When a cost-effective plain bearing for occasional movements is necessary
iglidur® G

Bearing technology | Plain bearing | iglidur® RW370



Ø
6.0 – 20.0mm



Also available
as:



Bar stock,
round bar
Page 685

For the rail industry, complies with DIN EN 45545 HL3, R22/R23 Wear-resistant for rail technology

The first iglidur® material that fulfills the European fire safety standard for rail vehicles is suitable for many wear-stressed applications in railway technology due to its very complete property profile.

- Complies with the European fire protection standard DIN EN 45545 HL3 requirement set R22/R23
- Flame-retardant
- High wear resistance
- Low coefficient of friction
- Lubrication and maintenance-free



Bar stock,
plate
Page 683

Typical application areas

- Door guides and hinges
- Rotating joint
- Entrance staircases
- Seat table mechanisms



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: 75%; background-color: #ccc;"></div>		+
Wear resistance at +90°C	-	<div style="width: 75%; background-color: #ccc;"></div>		+
Wear resistance at +150°C	-	<div style="width: 75%; background-color: #ccc;"></div>		+
Low coefficient of friction	-	<div style="width: 75%; background-color: #ccc;"></div>		+
Low moisture absorption	-	<div style="width: 75%; background-color: #ccc;"></div>		+
Wear resistance under water	-	<div style="width: 75%; background-color: #ccc;"></div>		+
High media resistance	-	<div style="width: 75%; background-color: #ccc;"></div>		+
Resistant to edge pressures	-	<div style="width: 75%; background-color: #ccc;"></div>		+
Suitable for shock and impact loads	-	<div style="width: 75%; background-color: #ccc;"></div>		+
Resistant to dirt	-	<div style="width: 75%; background-color: #ccc;"></div>		+

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

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

Technical data

General properties		Testing method	
Density	g/cm³	1.34	
Colour		beige	
Max. moisture absorption at +23°C and 50% r.h.	% weight	0.25	ISO 175
Max. moisture absorption	% weight	1.2	ISO 62
Coefficient of friction, dynamic, against steel	μ	0.13 – 0.17	
pv value, max. (dry)	MPa · m/s	1.20	
Mechanical properties			
Flexural modulus	MPa	2,997	DIN EN ISO 178
Flexural strength at +20°C	MPa	100	DIN EN ISO 178
Compressive strength	MPa	129	
Max. recommended surface pressure (+20°C)	MPa	75	
Shore D hardness		80	DIN 53505
Physical and thermal properties			
Max. application temperature long-term	°C	+170	
Max. application temperature short-term	°C	+190	
Min. application temperature	°C	-50	
Thermal conductivity	W/m · K	0.22	ASTM C 177
Coefficient of thermal expansion (at +23°C)	K ⁻¹ · 10 ⁻⁵	5	DIN 53752
Electrical properties			
Specific contact resistance	Ωcm	>10 ¹²	DIN IEC 93
Surface resistance	Ω	>10 ¹²	DIN 53482

Table 01: Material properties

iglidur® RW370 was specially developed for the fire protection requirements in railway technology. It fulfils the specification of DIN EN 45545. Plain bearings made of iglidur® RW370 are used primarily in door systems, seat adjustments and joints, as well as hinges.

Moisture absorption

Under standard climatic conditions, the moisture absorption of iglidur® RW370 plain bearings is below 0.25% weight. The saturation limit in water is 1.2% weight.

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® RW370 are resistant up to a radiation intensity of 3 · 10²Gy.

Resistance to weathering

iglidur® RW370 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® RW370 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® RW370 at radial loads. A possible deformation could be, among others, dependant on the duty cycle of the load.

Surface pressure, page 41



-50°C up to
+170°C



75MPa



V-0



Bearing technology | Plain bearing | iglidur® RW370

Permissible surface speeds

Although the typical applications of iglidur® RW370 plain bearings are generally in the area of intermittent operation, the maximum attainable speeds can be quite high, depending on the type of motion. The speeds stated in table 03 are limit values for the lowest bearing loads. With higher loads, the permitted speed drops with the extent of the load due to the limitations by the pv value.

Surface speed, page 44

Temperature

The short-term permissible temperature limit is +190°C, which allows the use of iglidur® RW370 plain bearings in all applications involving elevated ambient temperatures. With increasing temperatures, the compressive strength of iglidur® RW370 plain bearings decreases. When considering temperatures, the additional frictional heat in the bearing system must be taken into account. For temperatures over +120°C an additional securing is required.

Application temperatures, page 49

Additional securing, page 49

Friction and wear

The excellent coefficient of friction level of iglidur® RW370 in dry operation decreases with speed, to a value of 1.1 m/s. Diagram 04 shows this with respect to a steel shaft. Above a speed of 1.25 m/s the coefficient of friction increases significantly as the load limit of the material is reached.

Coefficient of friction and surfaces, page 47

Wear resistance, page 50

Shaft materials

Diagrams 06 and 07 display a summary of the results of tests with different shaft materials conducted with plain bearings made from iglidur® RW370. At a surface pressure of 0.3 m/s and 1 MPa, shafts made of hard-anodised aluminium and hard-chromed Cf53 are the most suitable glide surfaces. Shafts made from 304 stainless steel or high grade steel also show good results. 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® RW370 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	+ up to 0
Diluted acids	+
Diluted alkalines	+
Fuels	+ up to 0
Greases, oils without additives	+
Hydrocarbons	-
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	0.9	0.6	2.5
short-term m/s	1.0	0.8	2.6

Table 03: Maximum surface speeds

	Dry	Greases	Oil	Water
Coefficient of friction μ	0.13 - 0.17	0.09	0.04	0.04

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

Ø d1 [mm]	Housing		Plain bearing		Shaft	
	H7 [mm]	F10 [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	+0.036	+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

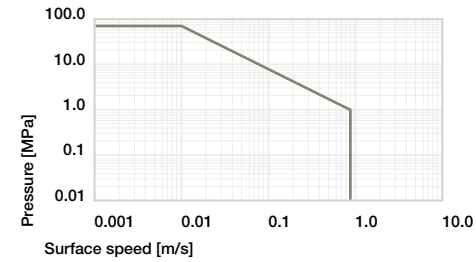


Diagram 01: Permissible pv values for iglidur® RW370 plain bearings with a wall thickness of 1 mm, dry operation against a steel shaft, at +20°C, mounted in a steel housing

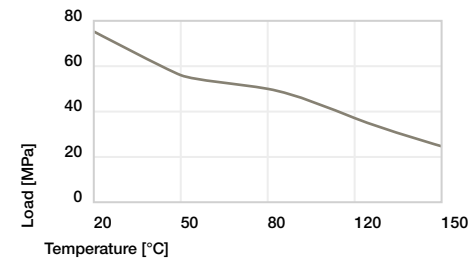


Diagram 02: Maximum recommended surface pressure as a function of temperature (75 MPa at +20°C)

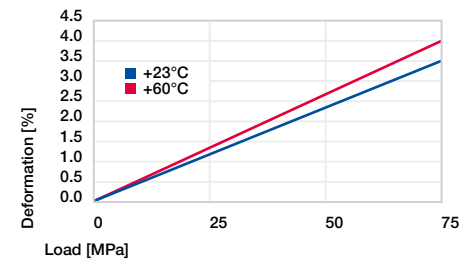


Diagram 03: Deformation under pressure and temperature

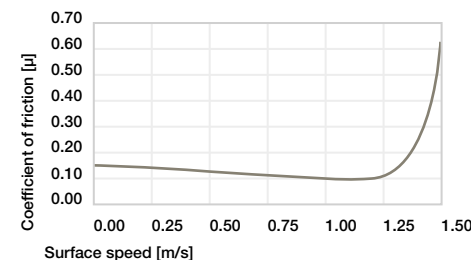


Diagram 04: Coefficient of friction as a function of the surface speed, p = 1 MPa

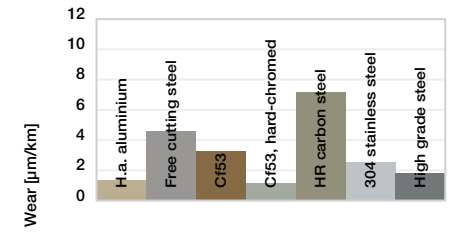


Diagram 05: Wear, rotating with different shaft materials, pressure, p = 1 MPa, v = 0.3 m/s

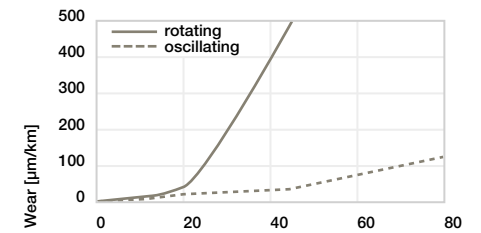
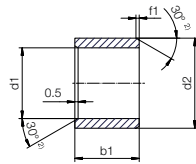


Diagram 06: Wear for oscillating and rotating applications with shaft material Cf53 hardened and ground steel, as a function of the load

Bearing technology | Plain bearing | iglidur® RW370

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 6–12	Ø 12–30
f1 [mm]	0.5	0.8

i Order example: RW370SM-0608-06 – no minimum order quantity.
RW370 iglidur® material S Sleeve bearing M Metric 06 Inner Ø d1 08 Outer Ø d2 06 Total length b1

d1	d1 Tolerance ³⁾	d2	b1 h13	Part No.
[mm]		[mm]	[mm]	
6.0	+0.010 +0.058	8.0	6.0	RW370SM-0608-06
8.0	+0.013 +0.071	10.0	10.0	RW370SM-0810-10
10.0		12.0	10.0	RW370SM-1012-10
12.0		14.0	12.0	RW370SM-1214-12
16.0	+0.016 +0.086	18.0	15.0	RW370SM-1618-15
20.0	+0.020 +0.104	23.0	20.0	RW370SM-2023-20

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

i Available from stock
Detailed information about delivery time online.
www.igus.eu/24

i Online ordering
Including delivery times, prices, online tools
www.igus.eu/RW370

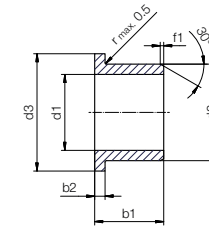
i Ordering note
Our prices are scaled according to order quantities, current prices can be found online.

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® RW370

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 6–12	Ø 12–30
f1 [mm]	0.5	0.8

i Order example: RW370FM-0608-06 – no minimum order quantity.
RW370 iglidur® material F Flange bearing M Metric 06 Inner Ø d1 08 Outer Ø d2 06 Total length b1

d1	d1 Tolerance ³⁾	d2	d3 d13 ³⁾	b1 h13	b2 h13	Part No.
[mm]		[mm]	[mm]	[mm]	[mm]	
6.0	+0.010 +0.058	8.0	12.0	6.0	1.00	RW370FM-0608-06
8.0	+0.013 +0.071	10.0	15.0	9.5	1.00	RW370FM-0810-09
10.0		12.0	18.0	9.0	1.00	RW370FM-1012-09
12.0		14.0	20.0	12.0	1.00	RW370FM-1214-12
16.0	+0.016 +0.086	18.0	24.0	12.0	1.00	RW370FM-1517-12
20.0	+0.020 +0.104	23.0	30.0	21.5	1.50	RW370FM-2023-20

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

i Available from stock
Detailed information about delivery time online.
www.igus.eu/24

i Online ordering
Including delivery times, prices, online tools
www.igus.eu/RW370

i 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.