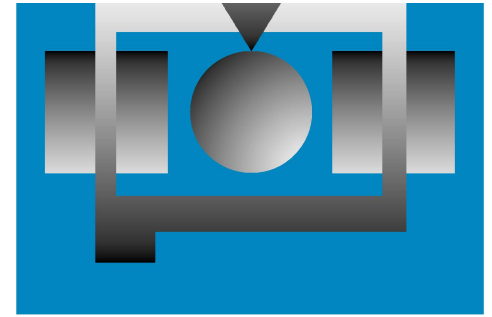




Specialist for pivoting, rolling applications and more

Low coefficient of friction and wear on almost every shaft

iglidur® P210



When to use it?

- When a universal plain bearing for use in a wet environment is required
- When a wear-resistant plain bearing for pivoting applications at medium loads is required
- When edge loads and shocks occur
- When the surface pressure of iglidur® J is insufficient

When not to use it?

- When a universal plain bearing with the largest possible range of dimensions is required
iglidur® G
- When a plain bearing for highly loaded pivoting applications is required
iglidur® Q, iglidur® Q2
- When temperatures are higher than +100°C
iglidur® G, iglidur® J350

EN 09/2023



Ø
4.0-50.0mm



Also available
as:



Bar stock,
round bar
Page 743



Bar stock,
plate
Page 773



tribo-tape liner
Page 781



Guide rings
Page 641



Two hole
flange
bearings
Page 667



Moulded
special parts
Page 696



igubal®
spherical balls
Page 993

Specialist for pivoting, rolling applications and more

Low coefficient of friction and wear on almost
every shaft

This versatile material has already proven its worth in many customer-specific solutions and as a bar stock material. Clip-on or pre-loaded designs as well as vehicle interior applications are possible. Now available in a standard size range from stock.

- Low moisture absorption
- Versatile: performance on many different shafts
- Suitable for high edge pressures
- Lubrication-free
- Maintenance-free

Typical application areas

- Agricultural machines
- Furniture/Industrial design
- Textile industry
- Doors and gates
- Mechanical engineering

Descriptive technical specifications

Wear resistance at +23°C	-		+
Wear resistance at +90°C	-		+
Wear resistance at +150°C	-		+
Slide property	-		+
Wear resistance under water	-		+
Media resistance	-		+
Resistant to edge pressures	-		+
Resistant to shock and impact loads	-		+
Dirt resistance	-		+

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

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

122 3D-CAD, finder and service life calculation ... www.igus.sk/P210

igus

EN 09/2023

General properties

Density	g/cm³	1.40	
Colour		yellow	
Max. moisture absorption at +23°C/50% r.h.	% weight	0.3	DIN 53495
Max. moisture absorption	% weight	0.5	
Coefficient of friction, dynamic, against steel	μ	0.07-0.19	
pv value, max. (dry)	MPa · m/s	0.40	

Mechanical properties

Flexural modulus	MPa	2,500	DIN 53457
Flexural strength at +20°C	MPa	70	DIN 53452
Compressive strength	MPa	50	
Max. permissible surface pressure (+20°C)	MPa	50	
Shore D hardness		75	DIN 53505

Physical and thermal properties

Max. application temperature long-term	°C	+100	
Max. application temperature short-term	°C	+160	
Min. application temperature	°C	-40	
Thermal conductivity	W/m · K	0.25	ASTM C 177
Coefficient of thermal expansion (at +23°C)	K⁻¹ · 10⁻⁵	8	DIN 53752

Electrical properties

Specific transitional resistance	Ωcm	> 10¹²	DIN IEC 93
Surface resistance	Ω	> 10¹¹	DIN 53482

Table 01: Material properties

igidur® P210 plain bearings provide the user with versatile all-round bearings, which have proven to have above average service life, primarily in pivoting applications at medium loads of up to 20MPa.

Moisture absorption

The humidity absorption of iglidur® P210 bearings amounts to about 0.3 % weight in standard climatic conditions. The saturation limit submerged in water is 0.5% weight. This low moisture absorption is well below the values of iglidur® G.

Vacuum

In vacuum, any present moisture is released as vapour. The use in vacuum is only possible to a limited extent.

Radiation resistance

Plain bearings made from iglidur® P210 have limited use under radioactive radiation. They are resistant up to a radiation intensity of 3 - 10² Gy.

Resistance to weathering

igidur® P210 plain bearings are continuously resistant to weathering. The material properties are only slightly affected. Possible discolourations are only superficial.

Mechanical properties

With increasing temperatures, the compressive strength of iglidur® P210 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® P210 as a function of radial pressure. At the recommended maximum surface pressure of 50MPa the deformation is less than 3% at room temperature.

Surface pressure, page 45



-40°C up to
+100°C



50MPa



HB



HB



RoHS II



RoHS II



ISO 35474

igus

EN 09/2023

Lubrication-free made easy ... from stock ... no minimum order quantity 123

Permissible surface speeds

Plain bearings made from iglidur® P210 are maintenance-free, they are developed for low to medium surface speeds. The maximum values given in table 03 can only be achieved at a very low surface pressure. The maximum speed given is the speed at which an increase up to the continuous use temperature occurs due to friction.

Surface speed, page 48

Temperature

Also thanks to its maximum long-term application temperature of +100°C, iglidur® P210 is suitable for a wide range of applications. If even higher temperatures are required, iglidur® G is also available with a max. long-term application temperature of +130°C. The temperatures prevailing in the bearing system also have an influence on the wear. The wear rises with increasing temperatures. For temperatures over +50°C an additional securing is required.

Application temperatures, page 53

Additional securing, page 53

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 51

Wear resistance, page 54

Shaft materials

Diagram 06 shows results of testing different shaft materials with plain bearings made from iglidur® P210. For rotational movements at radial loads below 1 MPa, iglidur® P210 has generally very low wear. Wear is only significantly higher in combination with HR carbon steel shafts. Generally, rotational wear will be higher than for a pivoting application of equal load. This is only reversed at loads above 25 MPa (diagram 07).

Shaft materials, page 56

Installation tolerances

igidur® P210 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, 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 61

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

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

Table 02: Chemical resistance

Chemical table, page 1170

		Rotating	Oscillating	linear
Long-term	m/s	1.0	0.7	3.0
Short-term	m/s	2.0	1.4	4.0

Table 03: Maximum surface speeds

	Dry	Greases	Oil	Water
Coefficient of friction μ	0.07-0.19	0.09	0.04	0.04

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

	Housing		Plain bearings		Shaft	
Ø d1 [mm]	H7 [mm]		E10 [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

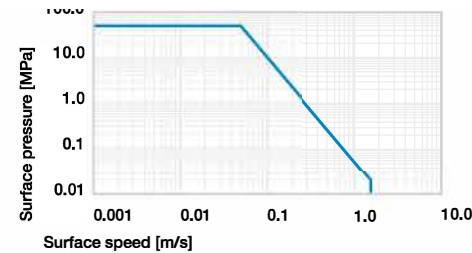


Diagram 01: Permissible pv values for iglidur® P210 with a wall thickness of 1mm dry operation against a steel shaft at +20°C, mounted in a steel housing

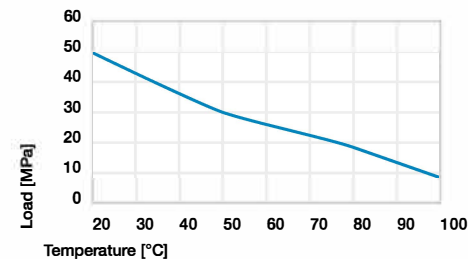


Diagram 02: Maximum recommended surface pressure as a function of temperature (50MPa at +20°C)

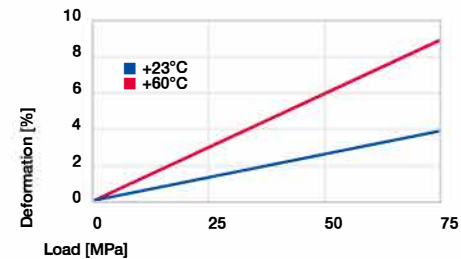


Diagram 03: Deformation under pressure and temperature

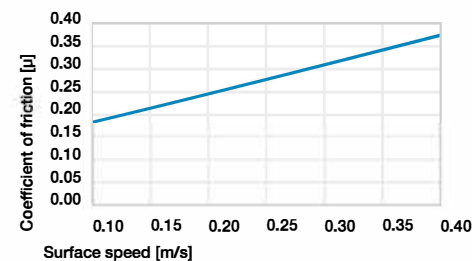


Diagram 04: Coefficient of friction as a function of the surface speed, p = 1 MPa

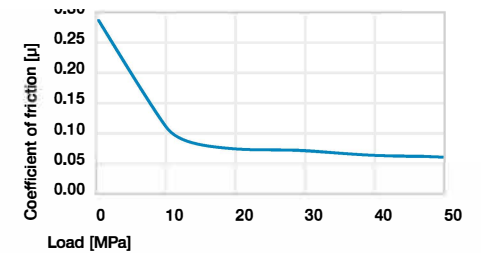


Diagram 05: Coefficient of friction as a function of the pressure, v = 0.01 m/s

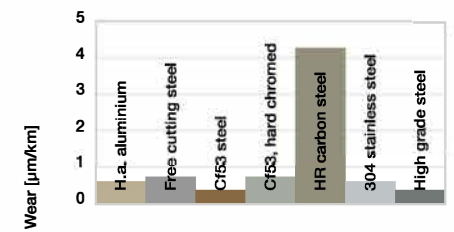


Diagram 06: Wear, rotating with different shaft materials, pressure, p = 1 MPa, v = 0.3 m/s

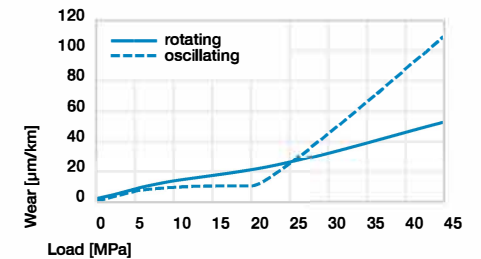
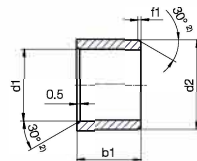


Diagram 07: Wear for oscillating and rotating applications with shaft material C45 hardened and ground steel, as a function of the load



³⁾ Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30	Ø > 30
f1 [mm]	0.3	0.5	0.8	1.2



Dimensions according to ISO 3547-1 and special dimensions



Order example: **P210SM-0405-04** – no minimum order quantity.

P210 iglidur® material **S** Cylindrical **M** Metric **04** Inner Ø d1 **05** Outer Ø d2 **04** Total length b1

d1	d1	d2	b1	Part No.
[mm]	Tolerance ³⁾	[mm]	h13 [mm]	
4.0		5.5	4.0	P210SM-0405-04
4.0		5.5	6.0	P210SM-0405-06
5.0		7.0	5.0	P210SM-0507-05
5.0	+0.020	7.0	10.0	P210SM-0507-10
6.0	+0.068	8.0	6.0	P210SM-0608-06
6.0		8.0	8.0	P210SM-0608-08
6.0		8.0	10.0	P210SM-0608-10
8.0		10.0	8.0	P210SM-0810-08
8.0		10.0	10.0	P210SM-0810-10
8.0		10.0	12.0	P210SM-0810-12
10.0	+0.025	12.0	8.0	P210SM-1012-08
10.0	+0.083	12.0	10.0	P210SM-1012-10
10.0		12.0	12.0	P210SM-1012-12
10.0		12.0	15.0	P210SM-1012-15
10.0		12.0	20.0	P210SM-1012-20
12.0		14.0	10.0	P210SM-1214-10
12.0		14.0	12.0	P210SM-1214-12
12.0		14.0	15.0	P210SM-1214-15
12.0		14.0	20.0	P210SM-1214-20
13.0		15.0	10.0	P210SM-1315-10
13.0		15.0	20.0	P210SM-1315-20
14.0	+0.032	16.0	15.0	P210SM-1416-15
14.0	+0.102	16.0	20.0	P210SM-1416-20
14.0		16.0	25.0	P210SM-1416-25
15.0		17.0	15.0	P210SM-1517-15
15.0		17.0	20.0	P210SM-1517-20
15.0		17.0	25.0	P210SM-1517-25
16.0		18.0	15.0	P210SM-1618-15
16.0		18.0	20.0	P210SM-1618-20

³⁾ After press-fit. Testing methods, page 61

d1	d1	d2	b1	Part No.
[mm]	Tolerance ³⁾	[mm]	h13 [mm]	
16.0		18.0	25.0	P210SM-1618-25
18.0	+0.032	20.0	15.0	P210SM-1820-15
18.0	+0.102	20.0	20.0	P210SM-1820-20
18.0		20.0	25.0	P210SM-1820-25
20.0		23.0	10.0	P210SM-2023-10
20.0		23.0	15.0	P210SM-2023-15
20.0		23.0	20.0	P210SM-2023-20
20.0		23.0	25.0	P210SM-2023-25
20.0		23.0	30.0	P210SM-2023-30
22.0		25.0	15.0	P210SM-2225-15
22.0		25.0	20.0	P210SM-2225-20
22.0		25.0	25.0	P210SM-2225-25
22.0		25.0	30.0	P210SM-2225-30
24.0		27.0	15.0	P210SM-2427-15
24.0		27.0	20.0	P210SM-2427-20
24.0	+0.040	27.0	25.0	P210SM-2427-25
24.0	+0.124	27.0	30.0	P210SM-2427-30
25.0		28.0	15.0	P210SM-2528-15
25.0		28.0	20.0	P210SM-2528-20
25.0		28.0	25.0	P210SM-2528-25
25.0		28.0	30.0	P210SM-2528-30
28.0		32.0	20.0	P210SM-2832-20
28.0		32.0	25.0	P210SM-2832-25
28.0		32.0	30.0	P210SM-2832-30
30.0		34.0	20.0	P210SM-3034-20
30.0		34.0	25.0	P210SM-3034-25
30.0		34.0	30.0	P210SM-3034-30
30.0		34.0	40.0	P210SM-3034-40

126 3D-CAD, finder and service life calculation ... www.igus.sk/P210



EN 09/2023

d1	d1	d2	b1	Part No.
[mm]	Tolerance ³⁾	[mm]	h13 [mm]	
32.0		36.0	20.0	P210SM-3236-20
32.0		36.0	30.0	P210SM-3236-30
32.0		36.0	40.0	P210SM-3236-40
35.0		39.0	20.0	P210SM-3539-20
35.0	+0.050	39.0	30.0	P210SM-3539-30
35.0	+0.150	39.0	40.0	P210SM-3539-40
35.0		39.0	50.0	P210SM-3539-50
40.0		44.0	20.0	P210SM-4044-20
40.0		44.0	30.0	P210SM-4044-30
40.0		44.0	40.0	P210SM-4044-40

³⁾ After press-fit. Testing methods, page 61

d1	d1	d2	b1	Part No.
[mm]	Tolerance ³⁾	[mm]	h13 [mm]	
40.0		44.0	50.0	P210SM-4044-50
45.0		50.0	20.0	P210SM-4550-20
45.0		50.0	30.0	P210SM-4550-30
45.0		50.0	40.0	P210SM-4550-40
45.0	+0.050	50.0	50.0	P210SM-4550-50
50.0	+0.150	55.0	20.0	P210SM-5055-20
50.0		55.0	30.0	P210SM-5055-30
50.0		55.0	40.0	P210SM-5055-40
50.0		55.0	50.0	P210SM-5055-50
50.0		55.0	60.0	P210SM-5055-60



Available from stock

Detailed information about delivery time online.

www.igus.sk/24



Order online

including delivery times, prices, online tools

www.igus.sk/P210



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.

Lubrication-free made easy ... from stock ... no minimum order quantity 127



HENNICH s.r.o. - LIN-TECH
Račianska 188, 831 53 Bratislava 34

Telefón: +421 (0)2 5020 2520
E-mail: lintech@hennlich.sk

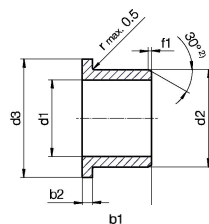
www.hennlich.sk/lin-tech



HENNICH s.r.o. - LIN-TECH
Račianska 188, 831 53 Bratislava 34

Telefón: +421 (0)2 5020 2520
E-mail: lintech@hennlich.sk

www.hennlich.sk/lin-tech



^{a)} Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30	Ø > 30
f1 [mm]	0.3	0.5	0.8	1.2



Dimensions according to ISO 3547-1 and special dimensions



Order example: **P210FM-0608-04** – no minimum order quantity.

P210 iglidur® material **F** With flange **M** Metric **06** Inner Ø d1 **08** Outer Ø d2 **04** Total length b1

d1	d1	d2	d3	b1	b2	Part No.	d1	d1	d2	d3	b1	b2	Part No.
	Tolerance ^{a)}		d13 ^{a)}	h13	h13			Tolerance ^{a)}		d13 ^{a)}	h13	h13	
[mm]	[mm]	[mm]	[mm]	[mm]	[mm]		[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	
6.0		8.0	12.0	4.0	1.00	P210FM-0608-04	15.0		17.0	23.0	17.0	1.00	P210FM-1517-17
6.0	+0.020	8.0	12.0	6.0	1.00	P210FM-0608-06	16.0		18.0	24.0	12.0	1.00	P210FM-1618-12
6.0	+0.068	8.0	12.0	8.0	1.00	P210FM-0608-08	16.0	+0.032	18.0	24.0	17.0	1.00	P210FM-1618-17
8.0		10.0	15.0	5.5	1.00	P210FM-0810-05	18.0	+0.102	20.0	26.0	12.0	1.00	P210FM-1820-12
8.0		10.0	15.0	7.5	1.00	P210FM-0810-07	18.0		20.0	26.0	17.0	1.00	P210FM-1820-17
8.0		10.0	15.0	9.5	1.00	P210FM-0810-09	18.0		20.0	26.0	22.0	1.00	P210FM-1820-22
8.0		10.0	15.0	10.0	1.00	P210FM-0810-10	20.0		23.0	30.0	11.5	1.50	P210FM-2023-11
8.0	+0.025	10.0	16.0	15.0	1.50	P210FM-081016-15	20.0		23.0	30.0	16.5	1.50	P210FM-2023-16
10.0	+0.083	12.0	18.0	7.0	1.00	P210FM-1012-07	20.0		23.0	30.0	21.5	1.50	P210FM-2023-21
10.0		12.0	18.0	9.0	1.00	P210FM-1012-09	25.0	+0.040	28.0	35.0	11.5	1.50	P210FM-2528-11
10.0		12.0	18.0	10.0	1.00	P210FM-1012-10	25.0	+0.124	28.0	35.0	16.5	1.50	P210FM-2528-16
10.0		12.0	18.0	12.0	1.00	P210FM-1012-12	25.0		28.0	35.0	21.5	1.50	P210FM-2528-21
10.0		12.0	18.0	17.0	1.00	P210FM-1012-17	30.0		34.0	42.0	16.0	2.00	P210FM-3034-16
12.0		14.0	20.0	7.0	1.00	P210FM-1214-07	30.0		34.0	42.0	26.0	2.00	P210FM-3034-26
12.0		14.0	20.0	9.0	1.00	P210FM-1214-09	35.0	+0.050	39.0	47.0	16.0	2.00	P210FM-3539-16
12.0		14.0	20.0	12.0	1.00	P210FM-1214-12	35.0	+0.124	39.0	47.0	26.0	2.00	P210FM-3539-26
12.0	+0.032	14.0	20.0	17.0	1.00	P210FM-1214-17	40.0	+0.040	44.0	52.0	30.0	2.00	P210FM-4044-30
14.0	+0.102	16.0	22.0	12.0	1.00	P210FM-1416-12	40.0	+0.124	44.0	52.0	40.0	2.00	P210FM-4044-40
14.0		16.0	22.0	17.0	1.00	P210FM-1416-17	45.0		50.0	58.0	50.0	2.00	P210FM-4550-50
15.0		17.0	23.0	9.0	1.00	P210FM-1517-09							
15.0		17.0	23.0	12.0	1.00	P210FM-1517-12							

^{a)} After press-fit. Testing methods, page 61