

## The cost-effective outdoor all-rounder

No moisture absorption even with high ambient humidity

### igidur® P



#### When to use it?

- When low moisture absorption is fundamental
- When a cost-effective plain bearing for high pressure loads is required
- When high precision in high humidity and moderately high temperatures are required



#### When not to use?

- When the maximum application temperature is above +120°C  
*igidur® K*
- When mechanical reaming of the bore is necessary  
*igidur® M250*
- When the highest wear resistance is required  
*igidur® W300*

# Bearing technology | Plain bearing | iglidur® P



Ø  
3.0 – 95.0mm



Also available as:



Bar stock, round bar  
Page 657

## The cost-effective outdoor all-rounder No moisture absorption even with high ambient humidity

Due to thermal stability and low water absorption, the iglidur® P bearings are among the most dimensionally strong all-round bearings under varying environmental conditions. iglidur® P plain bearings are recommended for pivoting and rotational movements at average loads.

- Low moisture absorption
- High wear resistance
- Suitable for high loads
- Cost-effective
- Lubrication-free
- Standard range from stock
- Maintenance-free

### Typical application areas

- Solar technology
- Mechanical engineering
- Doors and gates
- Railway technology
- Sports and leisure



Bar stock, plate  
Page 683



tribo-tape liner  
Page 691



Piston rings  
Page 584



Two hole flange bearings  
Page 603



Moulded special parts  
Page 624



igubal® spherical balls  
Page 841

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

Online service life calculation  
[www.igus.eu/iglidur-expert](http://www.igus.eu/iglidur-expert)



# Technical data

General properties		Testing method	
Density	g/cm <sup>3</sup>	1.58	
Colour		black	
Max. moisture absorption at +23°C and 50% r.h.	% weight	0.2	DIN 53495
Max. moisture absorption	% weight	0.4	
Coefficient of friction, dynamic, against steel	μ	0.06 – 0.21	
pv value, max. (dry)	MPa · m/s	0.39	
Mechanical properties			
Flexural modulus	MPa	5,300	DIN 53457
Flexural strength at +20°C	MPa	120	DIN 53452
Compressive strength	MPa	66	
Max. recommended surface pressure (+20°C)	MPa	50	
Shore D hardness		75	DIN 53505
Physical and thermal properties			
Max. application temperature long-term	°C	+130	
Max. application temperature short-term	°C	+200	
Min. application temperature	°C	-40	
Thermal conductivity	W/m · K	0.25	ASTM C 177
Coefficient of thermal expansion (at +23°C)	K <sup>-1</sup> · 10 <sup>-5</sup>	4	DIN 53752
Electrical properties			
Specific contact resistance	Ωcm	> 10 <sup>13</sup>	DIN IEC 93
Surface resistance	Ω	> 10 <sup>12</sup>	DIN 53482

Table 01: Material properties

The iglidur® P plain bearings are a cost-effective, maintenance-free bearing solution for the user. Compared to iglidur® G, plain bearings made from iglidur® P are suitable for use with rotational movements and average loads.

### Moisture absorption

Under standard climatic conditions, the moisture absorption of iglidur® P plain bearings is approximately 0.2% weight. The saturation limit in water is 0.4% 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® P have limited use under radioactive radiation. They are resistant to radiation up to an intensity of 5 · 10<sup>2</sup>Gy.

### Resistance to weathering

iglidur® P 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® P 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® P at radial loads. At the maximum recommended surface pressure of 50MPa the deformation is less than 4%.

### Surface pressure, page 41



-40°C up to +130°C



50MPa



## Permissible surface speeds

Plain bearings made from iglidur® P 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 44**

## Temperature

Even with its maximum long-term application temperature of +130°C, the values for iglidur® P do not quite come up to those of iglidur® G. The temperatures prevailing in the bearing system also have an influence on the wear. The wear rises with increasing temperatures. For temperatures over +90°C an additional securing is required.

**Application temperatures, page 49**

**Additional securing, page 49**

## Friction and wear

The coefficient of friction declines just as the wear resistance with increasing load (diagrams 04 and 05). iglidur® P plain bearings obtain a minimum coefficient of friction on shafts with a surface finish Ra from 0.1 – 0.2µm. Both smoother and rougher shaft surface finish cause the friction to clearly increase.

**Coefficient of friction and surfaces, page 47**

**Wear resistance, page 50**

## Shaft materials

Diagram 06 shows results of testing different shaft materials with plain bearings made from iglidur® P. For rotational movements, the wear of iglidur® P with Cf53 and HR carbon steel shafts is very low. On the other hand, the bearings hard-chromed shafts result in higher wear than other shaft materials even in the low load range. For example at a load of 2MPa, cold rolled steel is six times better than 304 stainless steel. For pivoting movement, hardened shafts and 304 stainless steel perform better than that of a softer unhardened carbon shafts.

**Shaft materials, page 52**

## Installation tolerances

iglidur® P 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
Diluted alkalines	-
Fuels	+
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	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	0.06 – 0.21	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1µm, 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

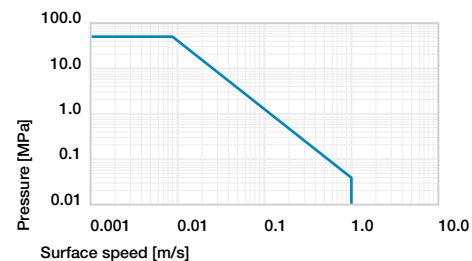


Diagram 01: Permissible pv values for iglidur® P plain bearings with a wall thickness of 1mm, dry operation against a steel shaft, at +20°C, mounted in a steel housing

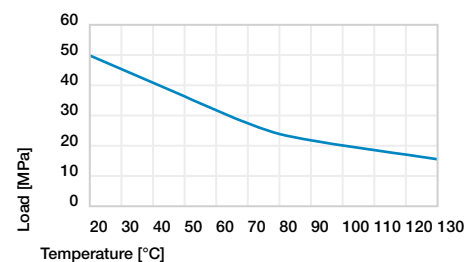


Diagram 02: Maximum recommended surface pressure as a function of temperature (50MPa at +20°C)

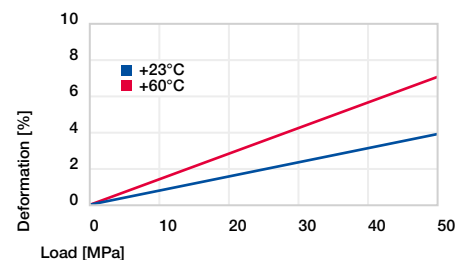


Diagram 03: Deformation under pressure and temperature

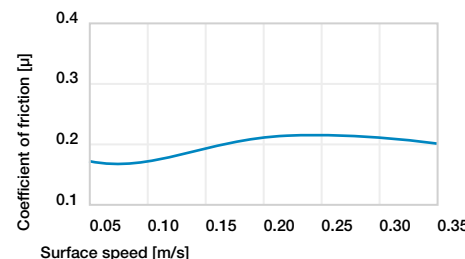


Diagram 04: Coefficient of friction as a function of the surface speed, p = 0.75MPa

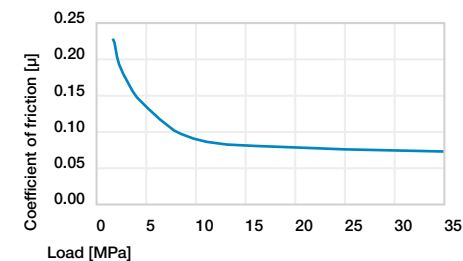


Diagram 05: Coefficient of friction as a function of the load, v = 0.01m/s

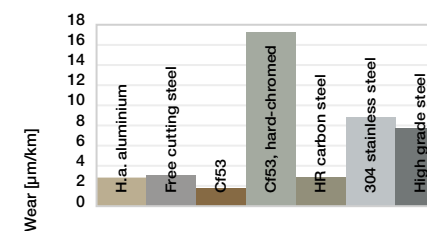


Diagram 06: Wear, rotating with different shaft materials, pressure, p = 1MPa, v = 0.3m/s

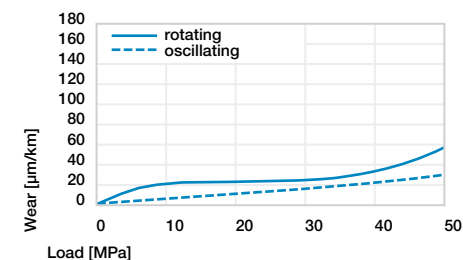
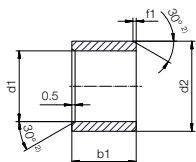


Diagram 07: Wear for oscillating and rotating applications with shaft material Cf53 hardened and ground steel, as a function of the load

# Bearing technology | Plain bearing | iglidur® P

## Sleeve bearing (form S)



<sup>2)</sup> 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

**i** Dimensions according to ISO 3547-1 and special dimensions

**i** Order example: **PSM-0304-03** – no minimum order quantity.  
**P** 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 <sup>3)</sup>	[mm]	h13 [mm]	
3.0	+0.014 +0.054	4.5	3.0	PSM-0304-03
4.0	+0.020 +0.068	5.5	4.0	PSM-0405-04
4.0		5.5	6.0	PSM-0405-06
5.0	+0.068	7.0	5.0	PSM-0507-05
5.0		7.0	10.0	PSM-0507-10
6.0	+0.025 +0.083	8.0	6.0	PSM-0608-06
6.0		8.0	8.0	PSM-0608-08
6.0	+0.083	8.0	10.0	PSM-0608-10
6.0		10.0	8.0	PSM-0810-08
8.0	+0.032 +0.102	10.0	10.0	PSM-0810-10
8.0		10.0	11.5	PSM-0810-11
8.0	+0.102	10.0	12.0	PSM-0810-12
10.0		12.0	8.0	PSM-1012-08
10.0	+0.032 +0.102	12.0	10.0	PSM-1012-10
10.0		12.0	12.0	PSM-1012-12
10.0	+0.032 +0.102	12.0	15.0	PSM-1012-15
10.0		12.0	20.0	PSM-1012-20
12.0	+0.040 +0.124	14.0	10.0	PSM-1214-10
12.0		14.0	12.0	PSM-1214-12
12.0	+0.102	14.0	15.0	PSM-1214-15
12.0		14.0	20.0	PSM-1214-20
12.0	+0.032 +0.102	14.0	25.0	PSM-1214-25
13.0		15.0	10.0	PSM-1315-10
13.0	+0.102	15.0	20.0	PSM-1315-20
14.0		16.0	15.0	PSM-1416-15
14.0	+0.032 +0.102	16.0	20.0	PSM-1416-20
14.0		16.0	25.0	PSM-1416-25
15.0	+0.032 +0.102	17.0	15.0	PSM-1517-15
15.0		17.0	20.0	PSM-1517-20

d1	d1	d2	b1	Part No.
[mm]	Tolerance <sup>3)</sup>	[mm]	h13 [mm]	
15.0	+0.032 +0.102	17.0	20.0	PSM-1517-20
15.0		17.0	25.0	PSM-1517-25
16.0	+0.032 +0.102	18.0	15.0	PSM-1618-15
16.0		18.0	20.0	PSM-1618-20
16.0	+0.032 +0.102	18.0	25.0	PSM-1618-25
16.0		18.0	42.0	PSM-1618-42
18.0	+0.040 +0.124	20.0	15.0	PSM-1820-15
18.0		20.0	20.0	PSM-1820-20
18.0	+0.040 +0.124	20.0	25.0	PSM-1820-25
18.0		20.0	33.0	PSM-1820-33
20.0	+0.040 +0.124	22.0	22.0	PSM-2022-22
20.0		22.0	30.0	PSM-2022-30
20.0	+0.040 +0.124	22.0	48.0	PSM-2022-48
20.0		22.0	51.0	PSM-2022-51
20.0	+0.040 +0.124	23.0	10.0	PSM-2023-10
20.0		23.0	15.0	PSM-2023-15
20.0	+0.040 +0.124	23.0	20.0	PSM-2023-20
20.0		23.0	25.0	PSM-2023-25
20.0	+0.040 +0.124	23.0	30.0	PSM-2023-30
22.0		24.0	42.0	PSM-2224-42
22.0	+0.040 +0.124	24.0	45.0	PSM-2224-45
22.0		25.0	15.0	PSM-2225-15
22.0	+0.040 +0.124	25.0	20.0	PSM-2225-20
22.0		25.0	25.0	PSM-2225-25
22.0	+0.040 +0.124	25.0	30.0	PSM-2225-30
22.0		25.0	45.0	PSM-2225-45
23.0	+0.040 +0.124	25.0	37.0	PSM-2325-37
23.0		25.0	58.0	PSM-2325-58
23.0	+0.040 +0.124	25.0	68.0	PSM-2325-68

<sup>3)</sup> After press-fit. Testing methods, page 57

136 3D CAD, finder and service life calculation ... [www.igus.eu/P](http://www.igus.eu/P)



## Product range

d1	d1	d2	b1	Part No.
[mm]	Tolerance <sup>3)</sup>	[mm]	h13 [mm]	
24.0	+0.040	27.0	15.0	PSM-2427-15
24.0		27.0	20.0	PSM-2427-20
24.0	+0.124	27.0	25.0	PSM-2427-25
24.0		27.0	30.0	PSM-2427-30
25.0	+0.040	28.0	15.0	PSM-2528-15
25.0		28.0	20.0	PSM-2528-20
25.0	+0.124	28.0	25.0	PSM-2528-25
25.0		28.0	30.0	PSM-2528-30
25.0	+0.040	28.0	35.0	PSM-2528-35
26.0		30.0	25.0	PSM-2630-25
28.0	+0.124	32.0	20.0	PSM-2832-20
28.0		32.0	25.0	PSM-2832-25
28.0	+0.040	32.0	30.0	PSM-2832-30
30.0		34.0	20.0	PSM-3034-20
30.0	+0.040	34.0	25.0	PSM-3034-25
30.0		34.0	30.0	PSM-3034-30
30.0	+0.040	34.0	40.0	PSM-3034-40
30.0		34.0	45.0	PSM-3034-45
32.0	+0.050	36.0	20.0	PSM-3236-20
32.0		36.0	30.0	PSM-3236-30
32.0	+0.150	36.0	40.0	PSM-3236-40
35.0		39.0	20.0	PSM-3539-20
35.0	+0.050	39.0	30.0	PSM-3539-30

<sup>3)</sup> After press-fit. Testing methods, page 57

d1	d1	d2	b1	Part No.
[mm]	Tolerance <sup>3)</sup>	[mm]	h13 [mm]	
35.0	+0.050	39.0	40.0	PSM-3539-40
35.0		39.0	50.0	PSM-3539-50
40.0	+0.150	44.0	20.0	PSM-4044-20
40.0		44.0	30.0	PSM-4044-30
40.0	+0.060	44.0	40.0	PSM-4044-40
40.0		44.0	50.0	PSM-4044-50
40.0	+0.180	44.0	58.0	PSM-4044-58
45.0		50.0	20.0	PSM-4550-20
45.0	+0.060	50.0	30.0	PSM-4550-30
45.0		50.0	40.0	PSM-4550-40
45.0	+0.150	50.0	50.0	PSM-4550-50
45.0		50.0	60.0	PSM-4550-60
60.0	+0.060	65.0	50.0	PSM-6065-50
60.0		65.0	60.0	PSM-6065-60
65.0	+0.180	70.0	50.0	PSM-6570-50
75.0		80.0	80.0	PSM-7580-80
90.0	+0.072	95.0	100.0	PSM-9095-100
95.0		100.0	100.0	PSM-95100-100

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

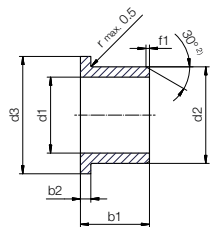
Discount scaling		
1 – 9	50 – 99	500 – 999
10 – 24	100 – 199	1,000 – 2,499
25 – 49	200 – 499	2,500 – 4,999

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# Bearing technology | Plain bearing | iglidur® P

## Flange bearing (form F)



<sup>2)</sup> 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

**i** Dimensions according to ISO 3547-1 and special dimensions

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

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

d1	d1	d2	d3	b1	b2	Part No.
[mm]	Tolerance <sup>3)</sup>	[mm]	d13 <sup>3)</sup>	[mm]	[mm]	
4.0		5.5	9.5	4.0	0.75	<b>PFM-0405-04</b>
5.0	+0.020	6.0	10.0	3.0	0.50	<b>PFM-0506-03</b>
5.0	+0.068	7.0	11.0	5.0	1.00	<b>PFM-0507-05</b>
6.0		8.0	12.0	4.0	1.00	<b>PFM-0608-04</b>
6.0		8.0	12.0	6.0	1.00	<b>PFM-0608-06</b>
6.0		8.0	12.0	8.0	1.00	<b>PFM-0608-08</b>
7.0		9.0	15.0	4.0	1.00	<b>PFM-0709-04</b>
8.0		10.0	15.0	5.5	1.00	<b>PFM-0810-05</b>
8.0	+0.025	10.0	15.0	7.5	1.00	<b>PFM-0810-07</b>
8.0	+0.083	10.0	15.0	9.5	1.00	<b>PFM-0810-09</b>
8.0		10.0	15.0	10.0	1.00	<b>PFM-0810-10</b>
8.0		10.0	12.0	10.0	1.00	<b>PFM-081012-10</b>
8.0		10.0	15.0	15.0	1.00	<b>PFM-0810-15</b>
10.0	+0.032	12.0	18.0	5.0	1.00	<b>PFM-1012-05</b>
10.0	+0.102	12.0	18.0	7.0	1.00	<b>PFM-1012-07</b>
10.0		12.0	18.0	9.0	1.00	<b>PFM-1012-09</b>
10.0	+0.025	12.0	18.0	10.0	1.00	<b>PFM-1012-10</b>
10.0	+0.083	12.0	18.0	12.0	1.00	<b>PFM-1012-12</b>
10.0		12.0	18.0	17.0	1.00	<b>PFM-1012-17</b>
12.0		14.0	20.0	7.0	1.00	<b>PFM-1214-07</b>
12.0		14.0	18.0	8.0	1.00	<b>PFM-121418-08</b>
12.0		14.0	20.0	9.0	1.00	<b>PFM-1214-09</b>
12.0	+0.032	14.0	20.0	10.0	1.00	<b>PFM-1214-10</b>
12.0	+0.102	14.0	20.0	12.0	1.00	<b>PFM-1214-12</b>
12.0		14.0	20.0	15.0	1.00	<b>PFM-1214-15</b>
12.0		14.0	20.0	17.0	1.00	<b>PFM-1214-17</b>
14.0		16.0	22.0	4.0	1.00	<b>PFM-1416-04</b>

d1	d1	d2	d3	b1	b2	Part No.
[mm]	Tolerance <sup>3)</sup>	[mm]	d13 <sup>3)</sup>	[mm]	[mm]	
14.0		16.0	22.0	8.0	1.00	<b>PFM-1416-08</b>
14.0	+0.032	16.0	22.0	12.0	1.00	<b>PFM-1416-12</b>
14.0	+0.102	16.0	22.0	17.0	1.00	<b>PFM-1416-17</b>
14.0		16.0	24.0	25.0	1.00	<b>PFM-141624-25</b>
14.0	+0.050	20.0	25.0	10.0	3.00	<b>PFM-1420-10</b>
15.0	+0.160	17.0	23.0	9.0	1.00	<b>PFM-1517-09</b>
15.0		17.0	23.0	12.0	1.00	<b>PFM-1517-12</b>
15.0		17.0	23.0	17.0	1.00	<b>PFM-1517-17</b>
15.0		17.0	23.0	22.0	1.00	<b>PFM-1517-22</b>
15.0		18.0	24.0	32.0	1.50	<b>PFM-151824-32</b>
16.0	+0.032	18.0	24.0	12.0	1.00	<b>PFM-1618-12</b>
16.0	+0.102	18.0	24.0	17.0	1.00	<b>PFM-1618-17</b>
16.0		18.0	24.0	40.0	1.00	<b>PFM-161824-40</b>
17.0		19.0	25.0	25.0	1.00	<b>PFM-1719-25</b>
18.0		20.0	26.0	12.0	1.00	<b>PFM-1820-12</b>
18.0		20.0	26.0	17.0	1.00	<b>PFM-1820-17</b>
18.0		20.0	26.0	22.0	1.00	<b>PFM-1820-22</b>
20.0		23.0	30.0	11.5	1.50	<b>PFM-2023-11</b>
20.0		23.0	28.0	15.0	1.50	<b>PFM-202328-15</b>
20.0		23.0	30.0	16.5	1.50	<b>PFM-2023-16</b>
20.0		23.0	30.0	21.5	1.50	<b>PFM-2023-21</b>
20.0	+0.040	23.0	30.0	30.0	1.50	<b>PFM-2023-30</b>
20.0	+0.124	27.0	32.0	22.0	1.50	<b>PFM-2427-22</b>
25.0		28.0	35.0	11.5	1.50	<b>PFM-2528-11</b>
25.0		28.0	35.0	16.5	1.50	<b>PFM-2528-16</b>
25.0		28.0	35.0	21.5	1.50	<b>PFM-2528-21</b>
30.0		34.0	42.0	16.0	2.00	<b>PFM-3034-16</b>

<sup>3)</sup> After press-fit. *Testing methods, page 57*

## Product range

d1	d1	d2	d3	b1	b2	Part No.
[mm]	Tolerance <sup>3)</sup>	[mm]	d13 <sup>3)</sup>	[mm]	[mm]	
30.0		34.0	42.0	26.0	2.00	<b>PFM-3034-26</b>
30.0	+0.040	34.0	42.0	30.0	2.00	<b>PFM-3034-30</b>
30.0	+0.124	34.0	42.0	37.0	2.00	<b>PFM-3034-37</b>
35.0		39.0	47.0	16.0	2.00	<b>PFM-3539-16</b>
35.0	+0.050	39.0	47.0	26.0	2.00	<b>PFM-3539-26</b>
40.0	+0.150	44.0	52.0	30.0	2.00	<b>PFM-4044-30</b>
40.0		44.0	52.0	40.0	2.00	<b>PFM-4044-40</b>

<sup>3)</sup> After press-fit. *Testing methods, page 57*

d1	d1	d2	d3	b1	b2	Part No.
[mm]	Tolerance <sup>3)</sup>	[mm]	d13 <sup>3)</sup>	[mm]	[mm]	
45.0	+0.050	50.0	58.0	50.0	2.00	<b>PFM-4550-50</b>
50.0	+0.150	55.0	63.0	50.0	2.00	<b>PFM-5055-50</b>
60.0		65.0	73.0	40.0	2.00	<b>PFM-6065-40</b>
60.0	+0.060	65.0	73.0	50.0	2.00	<b>PFM-6065-50</b>
70.0	+0.180	75.0	83.0	50.0	2.00	<b>PFM-7075-50</b>
80.0		85.0	93.0	100.0	2.50	<b>PFM-8085-100</b>