

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



Bar stock, plate
Page 683



tribo-tape liner
Page 691

Typical application areas

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



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/igidur-finder

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

Technical data

General properties		Testing method	
Density	g/cm³	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 ⁻¹ · 10 ⁻⁵	4	DIN 53752
Electrical properties			
Specific contact resistance	Ωcm	> 10 ¹³	DIN IEC 93
Surface resistance	Ω	> 10 ¹²	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 · 10²Gy.

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 O3 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 O4 and O5). 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 O6 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 O2: 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 O3: Maximum surface speeds

	Dry	Greases	Oil	Water
Coefficient of friction µ	0.06 – 0.21	0.09	0.04	0.04

Table O4: Coefficient of friction against steel (Ra = 1µm, 50HRC)

Ø d1 [mm]	Housing		Plain bearing		Shaft	
	H7 [mm]	E10 [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 O5: Important tolerances for plain bearings according to ISO 3547-1 after press-fit

Technical data

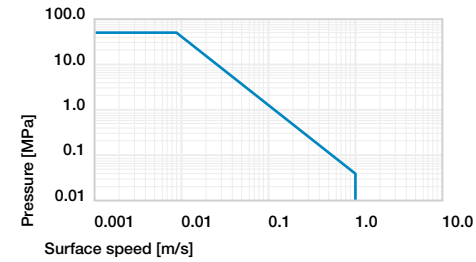


Diagram O1: Permissible pv values for iglidur® P plain bearings with a wall thickness of 1mm, dry operation against a steel shaft, at +20°C, mounted in a steel housing

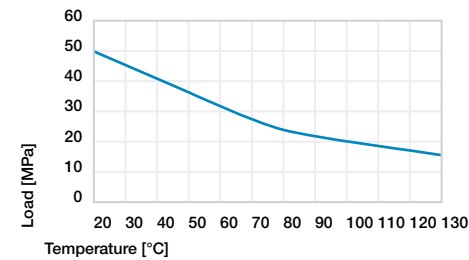


Diagram O2: Maximum recommended surface pressure as a function of temperature (50MPa at +20°C)

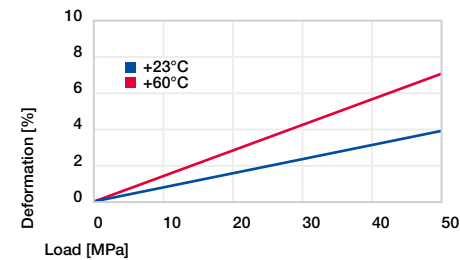


Diagram O3: Deformation under pressure and temperature

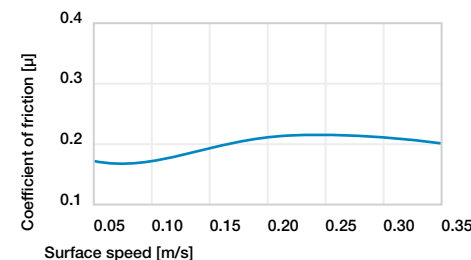


Diagram O4: Coefficient of friction as a function of the surface speed, p = 0.75MPa

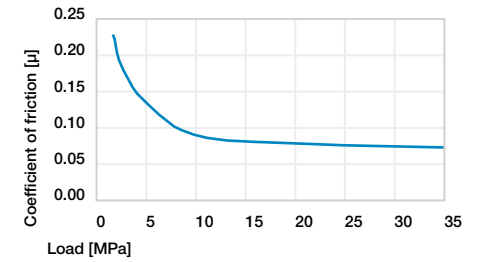


Diagram O5: Coefficient of friction as a function of the load, v = 0.01m/s

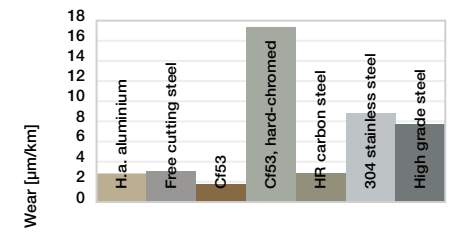


Diagram O6: Wear, rotating with different shaft materials, pressure, p = 1MPa, v = 0.3m/s

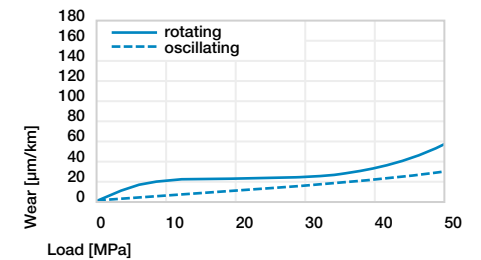
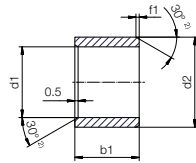


Diagram O7: Wear for oscillating and rotating applications with shaft material Cf53 hardened and ground steel, as a function of the load

Bearing technology | Plain bearing | iglidur® P

Sleeve bearing (form S)



²⁾ 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



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.	d1	d1	d2	b1	Part No.
[mm]	Tolerance ³⁾	[mm]	h13		[mm]	Tolerance ³⁾	[mm]	h13	
3.0	+0.014 +0.054	4.5	3.0	PSM-0304-03	15.0		17.0	20.0	PSM-1517-20
4.0		5.5	4.0	PSM-0405-04	15.0		17.0	25.0	PSM-1517-25
4.0		5.5	6.0	PSM-0405-06	16.0		18.0	15.0	PSM-1618-15
5.0	+0.020	7.0	5.0	PSM-0507-05	16.0	+0.032	18.0	20.0	PSM-1618-20
5.0	+0.068	7.0	10.0	PSM-0507-10	16.0	+0.102	18.0	42.0	PSM-1618-42
6.0		8.0	6.0	PSM-0608-06	18.0		20.0	15.0	PSM-1820-15
6.0		8.0	8.0	PSM-0608-08	18.0		20.0	20.0	PSM-1820-20
6.0		8.0	10.0	PSM-0608-10	18.0		20.0	25.0	PSM-1820-25
8.0		10.0	8.0	PSM-0810-08	18.0		20.0	33.0	PSM-1820-33
8.0		10.0	10.0	PSM-0810-10	20.0		22.0	22.0	PSM-2022-22
8.0		10.0	11.5	PSM-0810-11	20.0		22.0	30.0	PSM-2022-30
8.0	+0.025	10.0	12.0	PSM-0810-12	20.0		22.0	48.0	PSM-2022-48
10.0	+0.083	12.0	8.0	PSM-1012-08	20.0		22.0	51.0	PSM-2022-51
10.0		12.0	10.0	PSM-1012-10	20.0		23.0	10.0	PSM-2023-10
10.0		12.0	12.0	PSM-1012-12	20.0		23.0	15.0	PSM-2023-15
10.0		12.0	15.0	PSM-1012-15	20.0		23.0	20.0	PSM-2023-20
10.0		12.0	20.0	PSM-1012-20	20.0		23.0	25.0	PSM-2023-25
12.0		14.0	10.0	PSM-1214-10	20.0		23.0	30.0	PSM-2023-30
12.0		14.0	12.0	PSM-1214-12	22.0	+0.040 +0.124	24.0	42.0	PSM-2224-42
12.0		14.0	15.0	PSM-1214-15	22.0		24.0	45.0	PSM-2224-45
12.0		14.0	20.0	PSM-1214-20	22.0		25.0	15.0	PSM-2225-15
12.0		14.0	25.0	PSM-1214-25	22.0		25.0	20.0	PSM-2225-20
13.0	+0.032 +0.102	15.0	10.0	PSM-1315-10	22.0		25.0	25.0	PSM-2225-25
13.0		15.0	20.0	PSM-1315-20	22.0		25.0	30.0	PSM-2225-30
14.0		16.0	15.0	PSM-1416-15	22.0		25.0	45.0	PSM-2225-45
14.0		16.0	20.0	PSM-1416-20	23.0		25.0	37.0	PSM-2325-37
14.0		16.0	25.0	PSM-1416-25	23.0		25.0	58.0	PSM-2325-58
15.0		17.0	15.0	PSM-1517-15	23.0		25.0	68.0	PSM-2325-68

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

Product range

d1	d1	d2	b1	Part No.	d1	d1	d2	b1	Part No.
[mm]	Tolerance ³⁾	[mm]	h13		[mm]	Tolerance ³⁾	[mm]	h13	
24.0		27.0	15.0	PSM-2427-15	35.0		39.0	40.0	PSM-3539-40
24.0		27.0	20.0	PSM-2427-20	35.0		39.0	50.0	PSM-3539-50
24.0		27.0	25.0	PSM-2427-25	40.0		44.0	20.0	PSM-4044-20
24.0		27.0	30.0	PSM-2427-30	40.0		44.0	30.0	PSM-4044-30
25.0		28.0	15.0	PSM-2528-15	40.0		44.0	40.0	PSM-4044-40
25.0		28.0	20.0	PSM-2528-20	40.0		44.0	50.0	PSM-4044-50
25.0		28.0	25.0	PSM-2528-25	40.0	+0.050	44.0	58.0	PSM-4044-58
25.0		28.0	30.0	PSM-2528-30	45.0	+0.150	50.0	20.0	PSM-4550-20
25.0	+0.040	28.0	35.0	PSM-2528-35	45.0		50.0	30.0	PSM-4550-30
26.0	+0.124	30.0	25.0	PSM-2630-25	45.0		50.0	40.0	PSM-4550-40
28.0		32.0	20.0	PSM-2832-20	45.0		50.0	50.0	PSM-4550-50
28.0		32.0	25.0	PSM-2832-25	50.0		55.0	20.0	PSM-5055-20
28.0		32.0	30.0	PSM-2832-30	50.0		55.0	30.0	PSM-5055-30
30.0		34.0	20.0	PSM-3034-20	50.0		55.0	40.0	PSM-5055-40
30.0		34.0	25.0	PSM-3034-25	50.0		55.0	50.0	PSM-5055-50
30.0		34.0	30.0	PSM-3034-30	50.0		55.0	60.0	PSM-5055-60
30.0		34.0	40.0	PSM-3034-40	60.0	+0.060	65.0	50.0	PSM-6065-50
30.0		34.0	45.0	PSM-3034-45	60.0	+0.180	65.0	60.0	PSM-6065-60
32.0		36.0	20.0	PSM-3236-20	65.0		70.0	50.0	PSM-6570-50
32.0		36.0	30.0	PSM-3236-30	75.0		80.0	80.0	PSM-7580-80
32.0	+0.050	36.0	40.0	PSM-3236-40	90.0	+0.072	95.0	100.0	PSM-9095-100
35.0	+0.150	39.0	20.0	PSM-3539-20	95.0	+0.212	100.0	100.0	PSM-95100-100
35.0		39.0	30.0	PSM-3539-30					

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



Available from stock

Detailed information about delivery time online.

www.igus.eu/24



Online ordering

Including delivery times, prices, online tools

www.igus.eu/P



Ordering note

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

Discount scaling

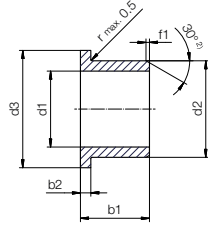
1 – 9	50 – 99	500 – 999
10 – 24	100 – 199	1,000 – 2,499
25 – 49	200 – 499	2,500 – 4,999

No minimum order value.

No low-quantity surcharges.

Free shipping within Germany for orders above €150.

Flange bearing (form F)



²⁾ 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: **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 ³⁾	[mm]	d13 ³⁾	h13	h13	
4.0		5.5	9.5	4.0	0.75	PFM-0405-04
5.0	+0.020	6.0	10.0	3.0	0.50	PFM-0506-03
5.0	+0.068	7.0	11.0	5.0	1.00	PFM-0507-05
6.0		8.0	12.0	4.0	1.00	PFM-0608-04
6.0		8.0	12.0	6.0	1.00	PFM-0608-06
6.0		8.0	12.0	8.0	1.00	PFM-0608-08
7.0		9.0	15.0	4.0	1.00	PFM-0709-04
8.0		10.0	15.0	5.5	1.00	PFM-0810-05
8.0	+0.025	10.0	15.0	7.5	1.00	PFM-0810-07
8.0	+0.083	10.0	15.0	9.5	1.00	PFM-0810-09
8.0		10.0	15.0	10.0	1.00	PFM-0810-10
8.0		10.0	12.0	10.0	1.00	PFM-081012-10
8.0		10.0	15.0	15.0	1.00	PFM-0810-15
10.0	+0.032	12.0	18.0	5.0	1.00	PFM-1012-05
10.0	+0.102	12.0	18.0	7.0	1.00	PFM-1012-07
10.0		12.0	18.0	9.0	1.00	PFM-1012-09
10.0	+0.025	12.0	18.0	10.0	1.00	PFM-1012-10
10.0	+0.083	12.0	18.0	12.0	1.00	PFM-1012-12
10.0		12.0	18.0	17.0	1.00	PFM-1012-17
12.0		14.0	20.0	7.0	1.00	PFM-1214-07
12.0		14.0	18.0	8.0	1.00	PFM-121418-08
12.0		14.0	20.0	9.0	1.00	PFM-1214-09
12.0	+0.032	14.0	20.0	10.0	1.00	PFM-1214-10
12.0	+0.102	14.0	20.0	12.0	1.00	PFM-1214-12
12.0		14.0	20.0	15.0	1.00	PFM-1214-15
12.0		14.0	20.0	17.0	1.00	PFM-1214-17
14.0		16.0	22.0	4.0	1.00	PFM-1416-04

d1	d1	d2	d3	b1	b2	Part No.
[mm]	Tolerance ³⁾	[mm]	d13 ³⁾	h13	h13	
14.0		16.0	22.0	8.0	1.00	PFM-1416-08
14.0	+0.032	16.0	22.0	12.0	1.00	PFM-1416-12
14.0	+0.102	16.0	22.0	17.0	1.00	PFM-1416-17
14.0		16.0	24.0	25.0	1.00	PFM-141624-25
14.0	+0.050	20.0	25.0	10.0	3.00	PFM-1420-10
14.0	+0.160	17.0	23.0	9.0	1.00	PFM-1517-09
15.0		17.0	23.0	12.0	1.00	PFM-1517-12
15.0		17.0	23.0	17.0	1.00	PFM-1517-17
15.0		17.0	23.0	22.0	1.00	PFM-1517-22
15.0		18.0	24.0	32.0	1.50	PFM-151824-32
16.0	+0.032	18.0	24.0	12.0	1.00	PFM-1618-12
16.0	+0.102	18.0	24.0	17.0	1.00	PFM-1618-17
16.0		18.0	24.0	17.0	1.00	PFM-1618-17
16.0		18.0	24.0	40.0	1.00	PFM-161824-40
17.0		19.0	25.0	25.0	1.00	PFM-1719-25
18.0		20.0	26.0	12.0	1.00	PFM-1820-12
18.0		20.0	26.0	17.0	1.00	PFM-1820-17
18.0		20.0	26.0	22.0	1.00	PFM-1820-22
20.0		23.0	30.0	11.5	1.50	PFM-2023-11
20.0		23.0	28.0	15.0	1.50	PFM-202328-15
20.0		23.0	30.0	16.5	1.50	PFM-2023-16
20.0		23.0	30.0	21.5	1.50	PFM-2023-21
20.0	+0.040	23.0	30.0	30.0	1.50	PFM-2023-30
20.0	+0.124	27.0	32.0	22.0	1.50	PFM-2427-22
24.0		28.0	35.0	11.5	1.50	PFM-2528-11
25.0		28.0	35.0	16.5	1.50	PFM-2528-16
25.0		28.0	35.0	21.5	1.50	PFM-2528-21
30.0		34.0	42.0	16.0	2.00	PFM-3034-16

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

Product range

d1	d1	d2	d3	b1	b2	Part No.
[mm]	Tolerance ³⁾	[mm]	d13 ³⁾	h13	h13	
30.0		34.0	42.0	26.0	2.00	PFM-3034-26
30.0	+0.040	34.0	42.0	30.0	2.00	PFM-3034-30
30.0	+0.124	34.0	42.0	37.0	2.00	PFM-3034-37
35.0		39.0	47.0	16.0	2.00	PFM-3539-16
35.0	+0.050	39.0	47.0	26.0	2.00	PFM-3539-26
40.0	+0.150	44.0	52.0	30.0	2.00	PFM-4044-30
40.0		44.0	52.0	40.0	2.00	PFM-4044-40

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

d1	d1	d2	d3	b1	b2	Part No.
[mm]	Tolerance ³⁾	[mm]	d13 ³⁾	h13	h13	
45.0	+0.050	50.0	58.0	50.0	2.00	PFM-4550-50
50.0	+0.150	55.0	63.0	50.0	2.00	PFM-5055-50
60.0		65.0	73.0	40.0	2.00	PFM-6065-40
60.0	+0.060	65.0	73.0	50.0	2.00	PFM-6065-50
70.0	+0.180	75.0	83.0	50.0	2.00	PFM-7075-50
80.0		85.0	93.0	100.0	2.50	PFM-8085-100



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