



The classic endurance runner up to 30MPa Excellent wear resistance on (virtually) all shafts **igidur® W300**



When to use it?

- When especially high service life is necessary
- When low coefficient of dynamic friction and high wear resistance are required
- For use on 304 stainless steel shafts
- For harsh environments and rough shafts
- Dirt-resistant



When not to use?

- For high loads starting at 50MPa
igidur® Q
- When continuous operating temperatures are higher than +90°C
igidur® H, iglidur® X
- For very wet environments
igidur® P
- When a cost-effective plain bearing is required
igidur® G

Bearing technology | Plain bearings | iglidur® W300



Also available as:
Ø 2,0 – 120,0mm



Bar stock, round bar:
Page 638



Bar stock, plate:
Page 581



tribo-tape liner:
Page 657



Piston rings:
Page 562



Two hole flange bearing:
Page 581



Moulded special parts:
Page 602



iglobal® spherical balls:
Page 787



The classic endurance runner up to 30MPa: Excellent wear resistance on (virtually) all shafts

iglidur® W300 gives excellent wear resistance, even in harsh environments or when used with rough shafts. Of all iglidur® materials, iglidur® W300 is the most resistant to these conditions.

- Over 400 sizes available from stock
- Very long service life
- Low coefficient of friction
- Very wear-resistant
- Suitable for applications with soft shafts
- Lubrication-free
- Maintenance-free

Typical application areas

- Automation
- Printing industry
- Woodworking
- Mechatronics
- Test engineering and quality assurance

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

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

Technical data

General properties	Testing method
Density	1,24 g/cm ³
Colour	yellow
Max. moisture absorption at +23°C and 50% r.h.	1,3 % weight
Max. moisture absorption	6,5 % weight
Coefficient of friction, dynamic, against steel	μ 0,08 – 0,23
pv value, max. (dry)	MPa · m/s 0,23
Mechanical properties	
Flexural modulus	MPa 3,500
Flexural strength at +20°C	MPa 125
Compressive strength	MPa 61
Max. recommended surface pressure (+20°C)	MPa 60
Shore D hardness	77
Shore D hardness	77
Physical and thermal properties	
Max. application temperature long-term	°C +90
Max. application temperature short-term	°C +180
Min. application temperature	°C -40
Thermal conductivity	W/m · K 0,24
Coefficient of thermal expansion (at +23°C)	K ⁻¹ · 10 ⁻⁵ 9
Electrical properties	
Specific contact resistance	Ωcm > 10 ¹³
Surface resistance	Ω > 10 ¹²

Table 01: Material properties table

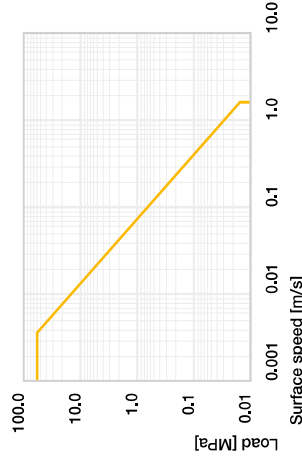


Diagram 01: Permissible pv values for iglidur® W300 plain bearings with a wall thickness of 1mm, dry operation against a steel shaft, at +20°C, mounted in a steel housing

Moisture absorption

Under standard climatic conditions, the moisture absorption of iglidur® W300 plain bearings is approximately 1.3% weight. The saturation limit in water is 6.5% weight. This must be taken into account for these types of applications.

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® W300 are resistant up to a radiation intensity of $3 \cdot 10^2$ Gy.

UV resistance

iglidur® W300 plain bearings are resistant to permanent UV radiation. A slight change in colour will not significantly influence their properties.

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

+ resistant 0 conditionally resistant - not resistant
All information given at room temperature [+20°C]

Table 02: Chemical resistance

Chemical table, page 1542

Bearing technology | Plain bearings | iglidur® W300

iglidur® W300 gives excellent wear resistance, even in harsh environments or when used with rough shafts. This material is the most tolerant of these external effects out of all the iglidur® range.

Mechanical properties

With increasing temperatures, the compressive strength of iglidur® W300 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.

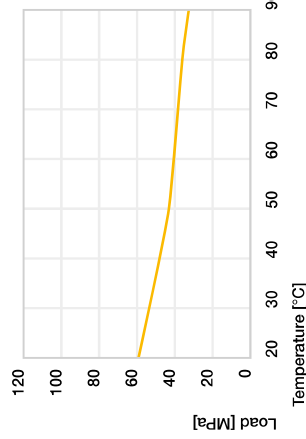


Diagram 02: Maximum recommended surface pressure as a function of temperature (60MPa at +20°C)

iglidur® W300 presents a very high compressive strength in spite of its high elasticity. Diagram 03 shows the elastic deformation of iglidur® W300 at radial loads. At the maximum recommended surface pressure of 60MPa the deformation is less than 3%.

Surface pressure, page 41

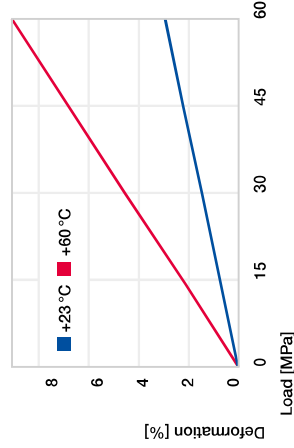


Diagram 03: Deformation under pressure and temperature

Permissible surface speeds

Even at higher surface speeds, the coefficient of friction of iglidur® W300 plain bearings remains the same. In relation to other materials, somewhat higher surface speeds can be attained, for example, up to 1.5m/s rotating and up to 6.0m/s linear. The wear remains low when used for long periods at high speeds, due to exceptional wear resistance. Relatively high speeds can be obtained with iglidur® W300 bearings on hardened shafts with the recommended surface finish.

Surface speed, page 44

	rotating	oscillating	linear
long-term	m/s 1.0	0.7	4.0
short-term	m/s 1.5	1.8	6.0

Table 03: Maximum surface speeds

Temperature

iglidur® W300 plain bearings retain their exceptional wear resistance even up to the highest permissible application temperatures and at the same time resist becoming brittle at low temperatures. For temperatures over +60°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 μ also changes with the load. In contrast to other iglidur® materials, the coefficient of friction of iglidur® W300 remains consistently low at higher rotational speeds.

Coefficient of friction and surfaces, page 47 Wear resistance, page 50



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

Technical data

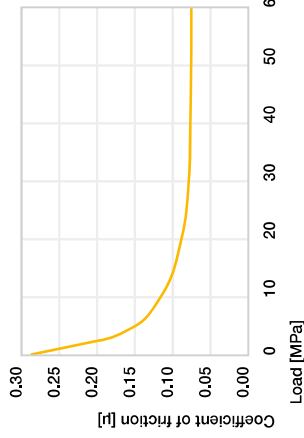


Diagram 05: Coefficient of friction as a function of the load, v = 0.01m/s

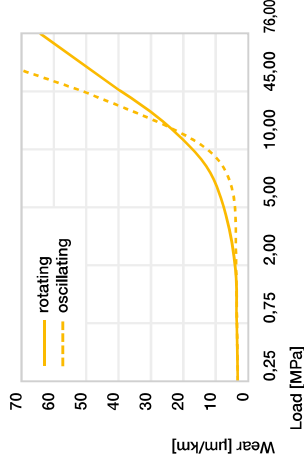


Diagram 07: Wear for oscillating and rotating applications with shaft material C53 hardened and ground steel, as a function of the load

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. Smooth shafts have the danger of stick slip. Squeaking as an effect of stick slip is usually the result of shafts that are too smooth. Shaft surface finish of 0.4 – 0.5μm have proven to be the best. For iglidur® W300, the wear resistance is still excellent with this surface finish as the friction adopts the minimum value. Diagram 06 shows results of testing different shafts. Hardened shafts are preferred for applications for higher loads. If the shaft material you plan on using is not shown in these test results, please contact us.

Shaft materials, page 52

Dry	Greases	Oil	Water
Coeff. of friction [μ]	0.08 – 0.23	0.09	0.04

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



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

Installation tolerances

iglidur® W300 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).

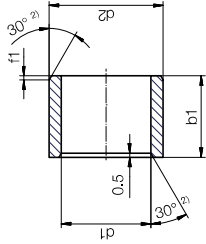
Testing methods, page 57

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

Bearing technology | Plain bearings | iglidur® W300

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
f [mm]	0.3	0.5	0.8	1.2

i Dimensions according to ISO 3547-1 and special dimensions

i Order example: **WSM-0203-03** - no minimum order quantity.

W300 iglidur® material **S** Sleeve bearing **M** Metric **Ø2** Inner **Ø1** Outer **Ø2** Outer **Ø3** Total length **b1**

d1	d1 Tolerance ³⁾	d2	b1	h13	Part No.
[mm]	[mm]	[mm]	[mm]	[mm]	
2.0	+0.010	3.5	3.0	WSM-0203-03	
2.0	+0.014	4.0	1.8	WSM-0204-018	
2.5	+0.014	4.0	3.0	WSM-0204-03	
3.0	+0.054	4.5	3.0	WSM-0304-03	
3.0		4.5	5.0	WSM-0304-05	
3.0		4.5	6.0	WSM-0304-06	
4.0		5.5	4.0	WSM-0405-04	
4.0		5.5	6.0	WSM-0405-06	
4.0	+0.020	5.5	8.0	WSM-0405-08	
4.0	+0.068	7.0	5.0	WSM-0507-05	
5.0		7.0	8.0	WSM-0507-08	
5.0		7.0	10.0	WSM-0507-10	
6.0	+0.058	7.0	14.0	WSM-0607-14	
6.0		8.0	6.0	WSM-0608-06	
6.0		8.0	8.0	WSM-0608-08	
6.0	+0.020	8.0	9.5	WSM-0608-09	
6.0	+0.068	8.0	10.0	WSM-0608-10	
6.0		8.0	11.8	WSM-0608-11	
6.0		8.0	13.8	WSM-0608-13	
7.0		9.0	9.0	WSM-0709-09	
7.0		9.0	12.0	WSM-0709-12	
7.0		9.0	12.5	WSM-0709-125	
8.0	+0.025	10.0	6.0	WSM-0810-06	
8.0	+0.083	10.0	8.0	WSM-0810-08	
8.0		10.0	10.0	WSM-0810-10	
8.0		10.0	12.0	WSM-0810-12	
8.0		10.0	13.8	WSM-0810-13	

³⁾ After press-fit. Testing methods page 57

Product range

d1	d1 Tolerance ³⁾	d2	b1	h13	Part No.
[mm]	[mm]	[mm]	[mm]	[mm]	
14.0		16.0	7.3	WSM-1416-07	
14.0		16.0	10.0	WSM-1416-10	
14.0		16.0	15.0	WSM-1416-15	
14.0		16.0	20.0	WSM-1416-20	
14.0		16.0	25.0	WSM-1416-25	
14.0		16.0	33.0	WSM-1416-33	
15.0		17.0	10.0	WSM-1517-10	
15.0		17.0	15.0	WSM-1517-15	
15.0		17.0	20.0	WSM-1517-20	
15.0		17.0	25.0	WSM-1517-25	
16.0		18.0	7.0	WSM-1618-07	
16.0		18.0	8.0	WSM-1618-08	
16.0	+0.032	18.0	11.5	WSM-1618-11	
16.0	+0.102	18.0	12.0	WSM-1618-12	
16.0		18.0	15.0	WSM-1618-15	
16.0		18.0	20.0	WSM-1618-20	
16.0		18.0	25.0	WSM-1618-25	
16.0		18.0	30.0	WSM-1618-30	
16.0		18.0	35.0	WSM-1618-35	
18.0		20.0	12.0	WSM-1820-12	
18.0		20.0	15.0	WSM-1820-15	
18.0		20.0	20.0	WSM-1820-20	
18.0		20.0	25.0	WSM-1820-25	
18.0		20.0	33.0	WSM-1820-33	
18.0		20.0	35.0	WSM-1820-35	
19.0		22.0	28.0	WSM-1922-28	
20.0		22.0	11.5	WSM-2022-11	
20.0		22.0	12.0	WSM-2022-12	
20.0		22.0	15.0	WSM-2022-15	
20.0		22.0	20.0	WSM-2022-20	
20.0		22.0	30.0	WSM-2023-30	
20.0		23.0	8.0	WSM-2023-08	
20.0		23.0	10.0	WSM-2023-10	
20.0		23.0	12.0	WSM-2023-12	
20.0		23.0	15.0	WSM-2023-15	
20.0	+0.040	23.0	20.0	WSM-2023-20	
20.0	+0.124	23.0	25.0	WSM-2023-25	
20.0		23.0	30.0	WSM-2023-30	
20.0		24.0	15.0	WSM-2224-15	
22.0		24.0	20.0	WSM-2224-20	
22.0		24.0	30.0	WSM-2224-30	
22.0		24.0	35.0	WSM-2224-35	
22.0		24.0	45.0	WSM-2224-45	
22.0		25.0	15.0	WSM-2225-15	
22.0		25.0	20.0	WSM-2225-20	
22.0		25.0	25.0	WSM-2225-25	

³⁾ After press-fit. Testing methods page 57

Bearing technology | Plain bearings | iglidur® W300

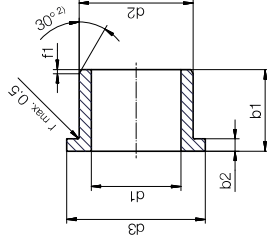
d1	d2	b1	Part No.
Tolerance ³⁾	d13	h13	
[mm]	[mm]	[mm]	
50.0	55.0	40.0	WSM-5055-40
+0.050	55.0	50.0	WSM-5055-50
+0.150	55.0	55.0	WSM-5055-55
50.0	55.0	60.0	WSM-5055-60
55.0	60.0	40.0	WSM-5560-40
+0.060	60.0	60.0	WSM-5560-60
+0.180	65.0	30.0	WSM-6065-30
60.0	65.0	60.0	WSM-6065-60

³⁾ After press-fit. Testing methods page 57

d1	d2	b1	Part No.
Tolerance ³⁾	d13	h13	
[mm]	[mm]	[mm]	
65.0	70.0	60.0	WSM-6570-60
+0.060	75.0	60.0	WSM-7075-60
+0.180	80.0	100.0	WSM-7580-100
80.0	85.0	20.0	WSM-8085-20
80.0	85.0	100.0	WSM-8085-100
+0.072	95.0	100.0	WSM-9095-100
+0.212	105.0	100.0	WSM-100105-100

Bearing technology | Plain bearings | iglidur® W300

Flange bearing (form F)



²⁾ Thickness < 0.6mm: Chamfer = 20°

Chamfer in relation to d1

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

i Dimensions according to ISO 3547-1 and special dimensions

i Order example: WFM-0204-03 - no minimum order quantity.

W300 iglidur® material F Flange bearing M Metric Ø d1 04 Outer Ø d2 03 Total length b1

d1	d2	b1	b2	Part No.
Tolerance ³⁾	d13	h13	-0,14	
[mm]	[mm]	[mm]	[mm]	
2.5	4.0	6.5	3.0	0.75 WFM-0204-03
3.0	4.5	7.5	3.0	0.75 WFM-0304-03
3.0	4.5	7.5	5.0	0.75 WFM-0304-05
4.0	5.5	9.5	3.0	0.75 WFM-0405-03
4.0	5.5	9.5	4.0	0.75 WFM-0405-04
4.0	5.5	9.5	6.0	0.75 WFM-0405-06
5.0	6.0	10.0	8.0	0.50 WFM-0606-08
5.0	7.0	11.0	4.0	1.00 WFM-0507-04
5.0	7.0	11.0	5.0	1.00 WFM-0607-05
6.0	8.0	12.0	4.0	1.00 WFM-0608-04
6.0	8.0	12.0	6.0	1.00 WFM-0608-06
6.0	8.0	12.0	8.0	1.00 WFM-0608-08
6.0	8.0	12.0	10.0	1.00 WFM-0608-10
6.0	8.0	12.0	15.0	1.00 WFM-0608-15
7.0	9.0	15.0	10.0	1.00 WFM-0709-10
7.0	9.0	15.0	12.0	1.00 WFM-0709-12
8.0	10.0	15.0	2.7	1.00 WFM-0810-02
8.0	10.0	15.0	4.0	1.00 WFM-0810-04
8.0	10.0	15.0	5.0	1.00 WFM-0810F-05
8.0	10.0	15.0	5.5	1.00 WFM-0810-05
8.0	10.0	15.0	7.5	1.00 WFM-0810-07
8.0	10.0	15.0	9.5	1.00 WFM-0810-09
8.0	10.0	15.0	10.0	1.00 WFM-0810-10
8.0	10.0	15.0	23.0	1.00 WFM-0810-23
8.0	10.0	15.0	30.0	1.00 WFM-0810-30
10.0	12.0	18.0	4.0	1.00 WFM-1012-04
10.0	12.0	18.0	5.0	1.00 WFM-1012-05

³⁾ After press-fit. Testing methods page 57



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.



Available from stock

Detailed information about delivery time online. www.igus.eu/24



Online ordering

including delivery times, prices, online tools www.igus.eu/W300

Bearing technology | Plain bearings | iglidur® W300

d1	d2	d3	b1	b2	Part No.	
Tolerance [§]		d13	h13	-0,14		
[mm]	[mm]	[mm]	[mm]	[mm]		
15,0	17,0	23,0	20,0	1,00	WFM-1517-20	
16,0	18,0	24,0	9,0	1,00	WFM-1618-09	
16,0	18,0	24,0	12,0	1,00	WFM-1618-12	
16,0	18,0	24,0	17,0	1,00	WFM-1618-17	
17,0	+0,032	19,0	25,0	12,0	1,00	WFM-1719-12
17,0	+0,102	19,0	25,0	18,0	1,00	WFM-1719-18
17,0		19,0	25,0	25,0	1,00	WFM-1719-25
18,0		20,0	26,0	6,0	1,00	WFM-1820-06
18,0		20,0	26,0	12,0	1,00	WFM-1820-12
18,0		20,0	26,0	17,0	1,00	WFM-1820-17
18,0		20,0	26,0	22,0	1,00	WFM-1820-22
20,0		23,0	30,0	11,5	1,50	WFM-2023-11
20,0		23,0	30,0	14,5	1,50	WFM-2023-14
20,0	+0,040	23,0	30,0	16,5	1,50	WFM-2023-16
20,0	+0,124	23,0	30,0	21,5	1,50	WFM-2023-21
24,0		27,0	32,0	10,5	1,50	WFM-2427-10
25,0		28,0	35,0	11,5	1,50	WFM-2528-11
25,0		28,0	31,0	13,5	1,50	WFM-252831-13
25,0		28,0	35,0	16,5	1,50	WFM-2528-16
25,0		28,0	35,0	21,5	1,50	WFM-2528-21
25,0		28,0	32,0	30,0	1,50	WFM-2528-30
28,0		30,0	35,0	36,0	1,00	WFM-2830-36
30,0		34,0	42,0	10,0	2,00	WFM-3034-10
30,0		34,0	42,0	16,0	2,00	WFM-3034-16

[§] 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/W300



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.

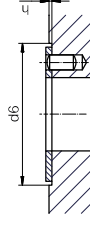
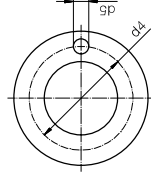
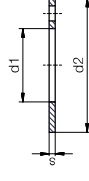
No low-quantity surcharges.

Free shipping within Germany for orders

above €150.

Bearing technology | Plain bearings | iglidur® W300

Thrust washer (form T)



Dimensions according to ISO 3547-1 and special dimensions

Order example: WTM-0509-006 - no minimum order quantity.

W300 iglidur® material T Thrust washer M Metric 05 Inner Ø d1 09 Outer Ø d2 006 Thickness s

d1	d2	d4	d5	h	d6	s	Part No.
+0,25	-0,25	-0,12	+0,375	+0,2/-0,2	+0,12	-0,05	
[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
5	9,5	4	4	0,3	9,5	0,6	WTM-0509-006
6	20	13	1,5	1	20	1,5	WTM-0620-015
8	18	13	1,5	1	18	1,5	WTM-0818-015
10	18	4	4	0,7	18	1	WTM-1018-010
10	18	4	4	1	18	1,5	WTM-1018-015
12	24	18	1,5	1	24	1,5	WTM-1224-015
14	26	20	2	1	26	1,5	WTM-1426-015
15	24	19,5	1,5	1	24	1,5	WTM-1524-015
16	30	23	2	1	30	1,5	WTM-1630-015
18	32	25	2	1	32	1,5	WTM-1832-015
18	44	30	7	1	44	1,5	WTM-1844-015
20	36	28	3	1	36	1,5	WTM-2036-015
22	38	30	3	1	38	1,5	WTM-2238-015
24	42	33	3	1	42	1,5	WTM-2442-015
26	44	35	3	1	44	1,5	WTM-2644-015
28	40	38	4	1	48	1,5	WTM-2840-015
28	48	38	4	1	48	1,5	WTM-2848-015
32	54	43	4	1	54	1,5	WTM-3254-015
38	62	50	4	1	62	1,5	WTM-3862-015
42	66	54	4	1	66	1,5	WTM-4266-015
48	74	61	4	1,5	74	2	WTM-4874-020
52	78	65	4	1,5	78	2	WTM-5278-020
62	90	76	4	1,5	90	2	WTM-6290-020
82	110	4	4	1,5	110	2	WTM-82110-020
102	130	4	4	1,5	130	2	WTM-102130-020
120	150	4	4	1,5	150	2	WTM-120150-020

⁴ Design without fixing hole