

The classic endurance runner up to 30 MPa – iglidur® W300

Over 400 dimensions available from stock

For especially long service life

Low coefficient of friction

Extremely high wear resistance

Also suitable for soft shafts

Resistant to dirt

Lubrication and maintenance-free



Excellent wear resistance on (virtually) all shafts

For especially high service life

Low coefficient of friction

Extremely high wear resistance

Also suitable for soft shafts

Dirt resistant

The iglidur® W300 material 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.



When to use it?

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



When not to use it?

- For high loads starting at 50 MPa
 - ▶ iglidur® Q, page 423
- When constant temperatures exceed +90 °C
 - ▶ iglidur® H, page 313
 - ▶ iglidur® X, page 245
- For very wet environments
 - ▶ iglidur® P, page 113
- When an economical bearing is required
 - ▶ iglidur® G, page 79

Typical application areas

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



Available from stock

Detailed information about delivery time online.



Block pricing online

No minimum order value. From batch size 1.



Max. +90 °C

Min. -40 °C



Ø 2–120 mm

More dimensions upon request



Imperial dimensions available

▶ From page 1391



Online product finder

▶ www.igus.eu/iglidur-finder

Material properties

General properties	Unit	iglidur® W300	Testing method
Density	g/cm ³	1.24	
Colour		yellow	
Max. moisture absorption at +23 °C/50 % r.h.	% weight	1.3	DIN 53495
Max. water absorption	% weight	6.5	
Coefficient of sliding 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	DIN 53457
Flexural strength at +20 °C	MPa	125	DIN 53452
Compressive strength	MPa	61	
Max. recommended surface pressure (+20 °C)	MPa	60	
Shore-D hardness		77	DIN 53505
Physical and thermal properties			
Max. long-term application temperature	°C	+90	
Max. short-term application temperature	°C	+180	
Min. long-term application temperature	°C	-40	
Heat conductivity	W/m · K	0.24	ASTM C 177
Coefficient of thermal expansion (at +23 °C)	K ⁻¹ · 10 ⁻⁶	9	DIN 53752
Electrical properties			
Specific contact resistance	Ωcm	> 10 ¹³	DIN IEC 93
Surface resistance	Ω	> 10 ¹²	DIN 53482

Table 01: Material properties table

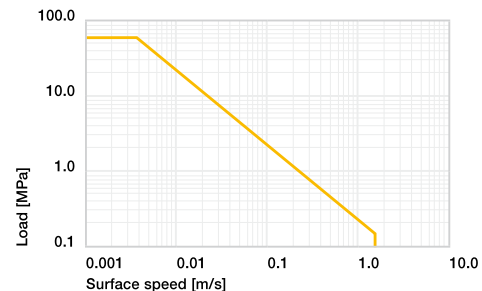


Diagram 01: Permissible pv values for iglidur® W300 bearings with a wall thickness of 1 mm dry running against a steel shaft, at +20 °C, mounted in a steel housing

Moisture absorption

The moisture absorption of iglidur® W300 bearings amounts to about 1.3% weight in standard climatic conditions. The saturation limit submerged in water is 6.5% weight. This must be taken into account for these types of applications.

▶ Diagram, www.igus.eu/w300-moisture

Vacuum

iglidur® W300 plain bearings outgas in a vacuum. 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 permanently resistant to UV radiation. A slight change in colour will not significantly influence their properties.

Medium	Resistance
Alcohol	+ to 0
Hydrocarbons	+
Greases, oils without additives	+
Fuels	+
Diluted acids	0 to -
Strong acids	-
Diluted alkalines	+
Strong alkalines	0

+ resistant 0 conditionally resistant – not resistant

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

Table 02: Chemical resistance

▶ Chemical table, page 1478

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. The diagram 02 shows this inverse relationship. The recommended maximum surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.

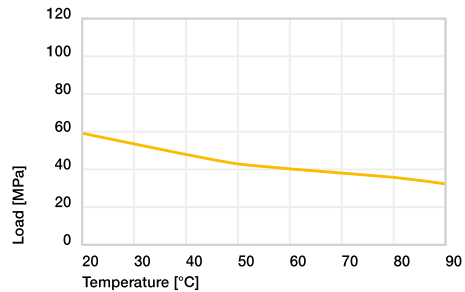


Diagram 02: Recommended maximum surface pressure of as a function of temperature (60 MPa at +20 °C)

iglidur® W300 presents a very high compression strength in spite of its high elasticity. Diagram 03 shows the elastic deformation of iglidur® W300 under radial loads.

At the permissible maximum surface pressure of 60 MPa the deformation is less than 3%.

► Surface pressure, page 41

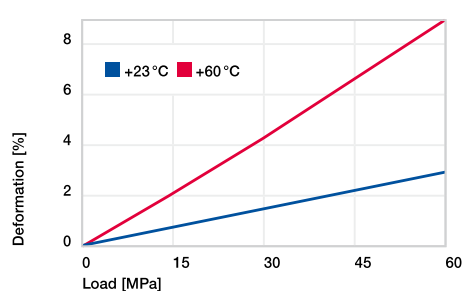


Diagram 03: Deformation under pressure and temperature

Permissible surface speeds

Even at higher surface speeds, the coefficients of friction for iglidur® W300 do not increase. Therefore, compared to other materials, higher surface speeds can be obtained, for example, up to 1.5 m/s rotating and up to 5 m/s linear. The bearing 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

m/s	Rotating	Oscillating	Linear
Continuous	1	0.7	4
Short-term	1.5	1.8	6

Table 03: Maximum surface speeds

Temperatures

iglidur® W300 bearings maintain their exceptional wear resistance even up to the highest permissible application temperatures and at the same time resist becoming brittle at low temperatures. At 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 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.

► Coefficients of friction and surfaces, page 47

► Wear resistance, page 50

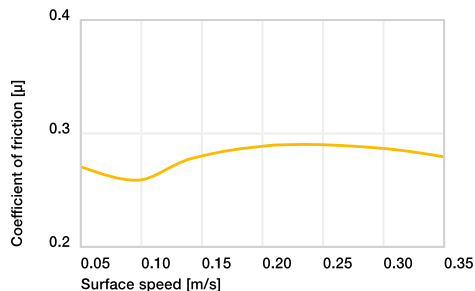


Diagram 04: Coefficient of friction as a function of the surface speed, p = 0.75 MPa

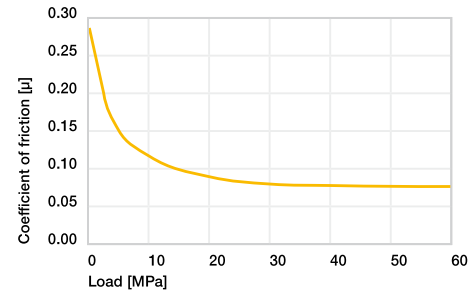


Diagram 05: Coefficient of friction as a function of the pressure, v = 0.01 m/s

Shaft materials

Friction and wear are to a large extent also highly dependent on the shaft materials. 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 roughnesses of 0.4 to 0.5 μm have proven to be the best. Tests with iglidur® W300 have shown the wear resistance at this roughness is very high, while the friction reduces to the lowest 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

iglidur® W300	Dry	Greases	Oil	Water
C. o. f. μ	0.08–0.23	0.09	0.04	0.04

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

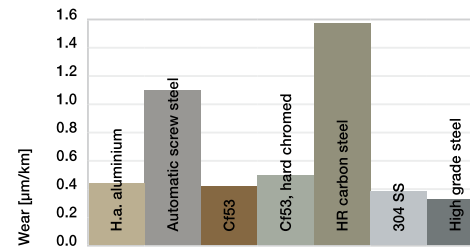


Diagram 06: Wear, rotating with different shaft materials, p = 1 MPa, v = 0.3 m/s

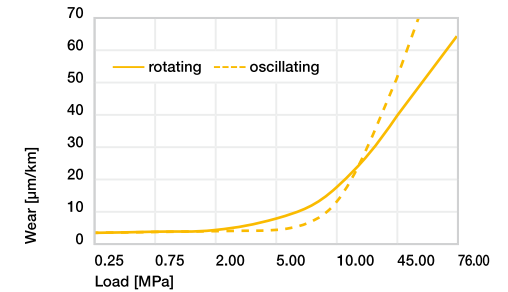


Diagram 07: Wear for oscillating and rotating applications with shaft material Cf53 hardened and ground steel, as a function of the pressure

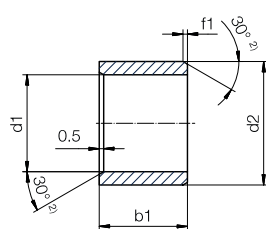
Installation tolerances

iglidur® W300 plain bearings are standard bearings for shafts with h-tolerance (recommended minimum h9). The bearings are designed for pressfit 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 specific dimensions the tolerance differs depending on the wall thickness (please see the product range table).

► Testing methods, page 57

Diameter d1 [mm]	Shaft h9 [mm]	iglidur® W300 E10 [mm]	Housing H7 [mm]
up to 3	0–0.025	+0.014 +0.054	0 +0.010
> 3 to 6	0–0.030	+0.020 +0.068	0 +0.012
> 6 to 10	0–0.036	+0.025 +0.083	0 +0.015
> 10 to 18	0–0.043	+0.032 +0.102	0 +0.018
> 18 to 30	0–0.052	+0.040 +0.124	0 +0.021
> 30 to 50	0–0.062	+0.050 +0.150	0 +0.025
> 50 to 80	0–0.074	+0.060 +0.180	0 +0.030
> 80 to 120	0–0.087	+0.072 +0.212	0 +0.035
>120 to 180	0–0.100	+0.085 +0.245	0 +0.040

Table 05: Important tolerances for plain bearings according to ISO 3547-1 after pressfit



Order key

Type	Dimensions [mm]
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W S M-0203-03

iglidur® material	Form S	Metric	Inner-Ø d1	Outer-Ø d2	Length b1
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Dimensions according to ISO 3547-1 and special dimensions



Imperial dimensions available

► From page 1419

²⁾ Thickness < 1 mm: chamfer = 20°

Chamfer in relation to the d1

d1 [mm]: Ø 1-6 | Ø 6-12 | Ø 12-30 | Ø > 30

f [mm]: 0.3 | 0.5 | 0.8 | 1.2

Dimensions [mm]

d1	d1- Tolerance ³⁾	d2	b1 h13	Part No.
2.0		3.5	3.0	WSM-0203-03
2.5		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	5.5	10.0	WSM-0405-10
5.0		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	+0.010 +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	+0.025	9.0	12.5	WSM-0709-125
8.0	+0.083	10.0	6.0	WSM-0810-06
8.0		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

d1	d1- Tolerance ³⁾	d2	b1 h13	Part No.
8.0		10.0	13.8	WSM-0810-13
8.0		10.0	15.0	WSM-0810-15
8.0		10.0	16.0	WSM-0810-16
8.0		10.0	20.0	WSM-0810-20
8.0		10.0	21.0	WSM-0810-21
9.0		11.0	6.0	WSM-0911-06
10.0		12.0	4.0	WSM-1012-04
10.0	+0.025	12.0	6.0	WSM-1012-06
10.0	+0.083	12.0	8.0	WSM-1012-08
10.0		12.0	9.0	WSM-1012-09
10.0		12.0	10.0	WSM-1012-10
10.0		12.0	12.0	WSM-1012-12
10.0		12.0	15.0	WSM-1012-15
10.0		12.0	17.0	WSM-1012-17
10.0		12.0	20.0	WSM-1012-20
10.0		12.0	25.5	WSM-1012-25.5
11.0		13.0	8.0	WSM-1113-08
12.0		14.0	4.0	WSM-1214-04
12.0		14.0	5.0	WSM-1214-05
12.0		14.0	6.0	WSM-1214-06
12.0		14.0	8.0	WSM-1214-08
12.0	+0.032	14.0	10.0	WSM-1214-10
12.0	+0.102	14.0	12.0	WSM-1214-12
12.0		14.0	15.0	WSM-1214-15
12.0		14.0	20.0	WSM-1214-20
12.0		14.0	25.0	WSM-1214-25
13.0		15.0	7.0	WSM-1315-07
13.0		15.0	10.0	WSM-1315-10

³⁾ After press-fit. Testing methods ► Page 57

Dimensions [mm]

d1	d1- Tolerance ³⁾	d2	b1 h13	Part No.
13.0		15.0	15.0	WSM-1315-15
13.0		15.0	20.0	WSM-1315-20
14.0		16.0	7.25	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	+0.032	18.0	8.0	WSM-1618-08
16.0	+0.102	18.0	11.5	WSM-1618-11
16.0		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
16.0		18.0	45.0	WSM-1618-45
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-2022-30
20.0		23.0	8.0	WSM-2023-08
20.0		23.0	10.0	WSM-2023-10
20.0	+0.040	23.0	12.0	WSM-2023-12
20.0	+0.124	23.0	15.0	WSM-2023-15
20.0		23.0	20.0	WSM-2023-20
20.0		23.0	23.0	WSM-2023-23
20.0		23.0	25.0	WSM-2023-25
20.0		23.0	30.0	WSM-2023-30
22.0		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

³⁾ After press-fit. Testing methods ► Page 57

Dimensions [mm]

d1	d1- Tolerance ³⁾	d2	b1 h13	Part No.	d1	d1- Tolerance ³⁾	d2	b1 h13	Part No.
40.0		44.0	40.0	WSM-4044-40	55.0		60.0	40.0	WSM-5560-40
40.0		44.0	50.0	WSM-4044-50	55.0		60.0	60.0	WSM-5560-60
45.0		50.0	20.0	WSM-4550-20	60.0		65.0	30.0	WSM-6065-30
45.0		50.0	30.0	WSM-4550-30	60.0	+0.060	65.0	60.0	WSM-6065-60
45.0		50.0	40.0	WSM-4550-40	65.0	+0.180	70.0	60.0	WSM-6570-60
45.0	+0.050	50.0	50.0	WSM-4550-50	70.0		75.0	60.0	WSM-7075-60
50.0	+0.150	55.0	20.0	WSM-5055-20	75.0		80.0	100.0	WSM-7580-100
50.0		55.0	30.0	WSM-5055-30	80.0		85.0	20.0	WSM-8085-20
50.0		55.0	40.0	WSM-5055-40	80.0		85.0	100.0	WSM-8085-100
50.0		55.0	50.0	WSM-5055-50	90.0	+0.072	95.0	100.0	WSM-9095-100
50.0		55.0	55.0	WSM-5055-55	100.0	+0.212	105.0	100.0	WSM-100105-100
50.0		55.0	60.0	WSM-5055-60					

³⁾ After press-fit. Testing methods ► Page 57



Couldn't find your size?

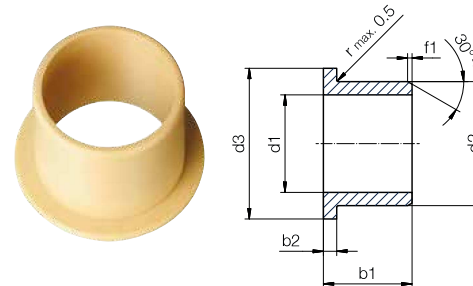
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► www.igus.eu/iglidur-specialbearings



²⁾ Thickness < 1 mm: chamfer = 20°

Chamfer in relation to the d1

d1 [mm]: Ø 1-6 | Ø 6-12 | Ø 12-30 | Ø > 30

f [mm]: 0.3 | 0.5 | 0.8 | 1.2

Dimensions [mm]

d1	d1- Tolerance ³⁾	d2	d3	b1 h13	b2 -0.14	Part No.
2.5		4.0	6.5	3.0	0.75	WFM-0204-03
3.0	+0.014	4.5	7.5	3.0	0.75	WFM-0304-03
3.0	+0.054	4.5	7.5	5.0	0.75	WFM-0304-05
4.0	+0.020	5.5	9.5	3.0	0.75	WFM-0405-03
4.0	+0.068	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	+0.010	6.0	10.0	8.0	0.50	WFM-0506-08
5.0	+0.040					
5.0		7.0	11.0	4.0	1.00	WFM-0507-04
5.0		7.0	11.0	5.0	1.00	WFM-0507-05
6.0	+0.020	8.0	12.0	4.0	1.00	WFM-0608-04
6.0	+0.068	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	5.5	1.00	WFM-0810-05
8.0		10.0	15.0	7.5	1.00	WFM-0810-07
8.0	+0.025	10.0	15.0	9.5	1.00	WFM-0810-09
8.0	+0.083	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
8.0		10.0	15.0	5.0	1.00	WFM-081015-05
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



Order key

Type Dimensions [mm]

W F M-0204-03

iglidur® material	Form F	Metric	Inner-Ø d1	Outer-Ø d2	Length b1
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Dimensions according to ISO 3547-1 and special dimensions



Imperial dimensions available

► From page 1441

d1	d1- Tolerance ³⁾	d2	d3	b1 h13	b2 -0.14	Part No.
10.0		12.0	18.0	6.0	1.00	WFM-1012-06
10.0		12.0	18.0	7.0	1.00	WFM-1012-07
10.0	+0.025	12.0	18.0	9.0	1.00	WFM-1012-09
10.0	+0.083	12.0	18.0	10.0	1.00	WFM-1012-10
10.0		12.0	18.0	12.0	1.00	WFM-1012-12
10.0		12.0	18.0	15.0	1.00	WFM-1012-15
10.0		12.0	18.0	17.0	1.00	WFM-1012-17
12.0		14.0	20.0	4.0	1.00	WFM-1214-04
12.0		14.0	20.0	4.4	1.00	WFM-1214-044
12.0		14.0	20.0	6.0	1.00	WFM-1214-06
12.0		14.0	20.0	7.0	1.00	WFM-1214-07
12.0		14.0	20.0	9.0	1.00	WFM-1214-09
12.0		14.0	20.0	10.0	1.00	WFM-1214-10
12.0		14.0	20.0	11.0	1.00	WFM-1214-11
12.0		14.0	20.0	12.0	1.00	WFM-1214-12
12.0		14.0	20.0	15.0	1.00	WFM-1214-15
12.0	+0.032	14.0	20.0	17.0	1.00	WFM-1214-17
12.0	+0.102	14.0	20.0	20.0	1.00	WFM-1214-20
13.0		15.0	22.0	6.0	1.00	WFM-1315-06
14.0		16.0	22.0	4.0	1.00	WFM-1416-04
14.0		16.0	22.0	5.0	1.00	WFM-1416-05
14.0		16.0	22.0	8.0	1.00	WFM-1416-08
14.0		16.0	22.0	12.0	1.00	WFM-1416-12
14.0		16.0	22.0	17.0	1.00	WFM-1416-17
14.0		16.0	22.0	29.0	1.00	WFM-1416-29
15.0		17.0	23.0	9.0	1.00	WFM-1517-09
15.0		17.0	23.0	12.0	1.00	WFM-1517-12
15.0		17.0	23.0	17.0	1.00	WFM-1517-17