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Westfield Fasteners Product Specification:

DIN 137 Wave Washers

This product guide contains the specification for metric sized wave shaped lock washers, a series of standard parts available from Westfield Fasteners. The basis of this specification is the DIN standard DIN 137.

Product Description

Wave profiled spring washer designed to help prevent loosening of bolted joints under vibration. Like other spring type washers, the design is intended to hold the parts of the joint in tension. This particular design is intended for light duty applications.

Scope of the DIN standard.

According to the standard, DIN 137 wave or curved spring lock washers are designed for use with bolt and nut assemblies with property class less than 5.8 tensile strength and are made from spring steel. They are intended to counteract the effect of the joint loosening, but are best suited for applications with shorter bolts that are being subject to thrust. They may not work particularly well with varying radial loads. Refer to figure 1 and table 1 below for dimensions and tolerances for type A washers. Figure 1 can be also be used with table 2 to show these figures for type B.

DIN 137 has been withdrawn as a standard and has not been replaced with a newer equivalent. Off the shelf parts are still being manufactured to this standard though. The final release of DIN 137 only specifies details for the type B variant, and no longer mentioned type A. Despite this, wave washers are still produced to this standard in both type A and type B variants.

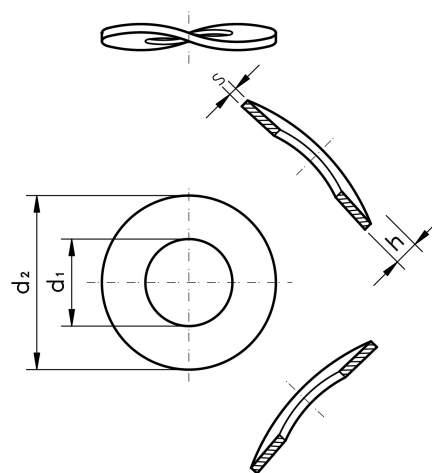


Figure 1: DIN 137 Wave Washer

Variations from DIN 137

The DIN 137 standard specifically mentions 'spring steel' as the material of manufacture. 301 or 1.4310 stainless steel is considered a 'spring steel', but due to the limitations of the material compared to non stainless spring steel, should be subjected to reduced loading.

Table 1: Dimensions & Tolerances according to DIN 137 (Type A)

Nominal Size	1.4	1.6	1.7	2	2.3	2.5	2.6	3	3.5	4	5	6	7	8	10	
d ₁	1.5	1.8	1.8	2.2	2.5	2.6	2.8	3.2	3.7	4.3	5.3	6.4	7.4	8.4	10.5	
d ₂	3.0	4.0	4.0	4.5	5.0	5.5	5.5	6.0	7.0	8.0	10.0	11.0	12.0	15.0	18.0	
s	0.25	0.25	0.25	0.30	0.30	0.30	0.30	0.40	0.40	0.50	0.50	0.50	0.50	0.50	0.80	
h	min.	0.40	0.45	0.45	0.50	0.50	0.55	0.55	0.65	0.70	0.80	0.90	1.10	1.20	1.70	2.00
	max.	0.80	0.90	0.90	1.00	1.00	1.10	1.30	1.40	1.60	1.80	2.20	2.40	3.40	4.00	
To Suit Thread	M1.4	M1.6	M1.7	M2	M2.3	M2.5	M2.6	M3	M3.5	M4	M5	M6	M7	M8	M10	

Table 2: Dimensions & Tolerances according to DIN 137 (Type B)

Nominal Size	3	3.5	4	5	6	7	8	10	12	14	16	18	20	22	24	27	30	33	
d ₁ (H14)	3.2	3.7	4.3	5.3	6.4	7.4	8.4	10.5	13	15	17	19	21	23	25	28	31	34	
d ₂ (js16)	8	8	9	11	12	14	15	21	24	28	30	34	36	40	44	50	56	60	
s	Nom.	0.5	0.5	0.5	0.5	0.8	0.8	1	1.2	1.6	1.6	1.6	1.6	1.8	1.8	2	2.2	2.2	
	Limit Deviation	0.05	0.05	0.05	0.05	0.06	0.06	0.07	0.07	0.08	0.08	0.08	0.08	0.1	0.1	0.1	0.1	0.1	
h	min.	0.8	0.9	1	1.1	1.3	1.5	1.5	2.1	2.5	3	3.2	3.3	3.7	3.9	4.1	4.7	5	5.3
	max.	1.6	1.8	2	2.2	2.6	3	3	4.2	5	6	6.4	6.6	7.4	7.8	8.2	9.4	10	10.6
To Suit Thread	M3	M3.5	M4	M5	M6	M7	M8	M10	M12	M14	M16	M18	M20	M22	M24	M27	M30	M33	

For further details, please refer to the DIN standard document for this item.