

Spring lock washers with square ends or tang ends

DIN
127

Federringe; aufgebogen oder glatt mit rechteckigem Querschnitt

Supersedes December 1970 edition.

In keeping with current practice in standards published by the International Organization for Standardization (ISO), a comma has been used throughout as the decimal marker.

It is recommended that DIN 128 be used instead of the present standard, which is to be withdrawn by 1 January 1992 (see Explanatory notes).

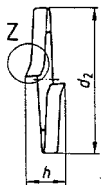
Dimensions in mm

1 Scope and field of application

Spring lock washers covered in this standard are deemed to be spring washers designed for use with bolt/nut assemblies involving fasteners of property class 5.8 or less, as specified in ISO 898 Part 1. They are intended to counteract the effect of setting which results in bolt/nut assemblies working loose (see DIN 267 Part 26). They do not effectively prevent loosening of the assembly under varying radial load and are designed for use with short bolts predominantly subject to thrust.

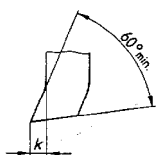
2 Dimensions

Type A, with tang ends
(size 3 and larger)

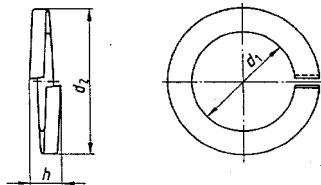


Tang ends for type A

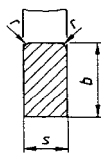
Z



Type B, with square ends



Washer cross section (enlarged)



The tang ends shall be produced to dimension k without kinking by bending both ends in a zone extending one-tenth of the circumference from either end.

The illustrations show spring lock washers for screws with right-hand thread, the position of the tang ends being vice versa for bolts with left-hand thread.

Continued on pages 2 and 3

Nominal size	d_1		d_2	b		s		h				k	r	Mass (7,85 kg/dm ³) per 1000 units, in kg,	For thread size
	min.	max.	max.	Limit deviations	Limit deviations	Type A		Type B		min.	max.				
						min.	max.	min.	max.						
2 ¹⁾	2,1	2,4	4,4	0,9 ± 0,1	0,5 ± 0,1	-	-	1	1,2	-	0,1	0,033	2		
2,2 ¹⁾²⁾	2,3	2,6	4,8	1 ± 0,1	0,6 ± 0,1	-	-	1,2	1,4	-	0,1	0,050	2,2		
2,5 ¹⁾	2,6	2,9	5,1	1 ± 0,1	0,6 ± 0,1	-	-	1,2	1,4	-	0,1	0,053	2,5		
3 ¹⁾	3,1	3,4	6,2	1,3 ± 0,1	0,8 ± 0,1	1,9	2,1	1,6	1,9	0,15	0,2	0,11	3		
3,5 ¹⁾	3,6	3,9	6,7	1,3 ± 0,1	0,8 ± 0,1	1,9	2,2	1,6	1,9	0,15	0,2	0,12	3,5		
4	4,1	4,4	7,6	1,5 ± 0,1	0,9 ± 0,1	2,1	2,5	1,8	2,1	0,15	0,2	0,18	4		
5	5,1	5,4	9,2	1,8 ± 0,1	1,2 ± 0,1	2,7	3,2	2,4	2,8	0,15	0,2	0,36	5		
6	6,1	6,5	11,8	2,5 ± 0,15	1,6 ± 0,1	3,6	4,2	3,2	3,8	0,2	0,3	0,83	6		
7 ¹⁾	7,1	7,5	12,8	2,5 ± 0,15	1,6 ± 0,1	3,6	4,2	3,2	3,8	0,2	0,3	0,93	7		
8	8,1	8,5	14,8	3 ± 0,15	2 ± 0,1	4,6	5,4	4	4,7	0,3	0,5	1,6	8		
10	10,2	10,7	18,1	3,5 ± 0,2	2,2 ± 0,15	5	5,9	4,4	5,2	0,3	0,5	2,53	10		
12	12,2	12,7	21,1	4 ± 0,2	2,5 ± 0,15	5,8	6,8	5	5,9	0,4	1	3,82	12		
14	14,2	14,7	24,1	4,5 ± 0,2	3 ± 0,15	6,8	8	6	7,1	0,4	1	6,01	14		
16	16,2	17	27,4	5 ± 0,2	3,5 ± 0,2	7,8	9,2	7	8,3	0,4	1	8,91	16		
18	18,2	19	29,4	5 ± 0,2	3,5 ± 0,2	7,8	9,2	7	8,3	0,4	1	9,73	18		
20	20,2	21,2	33,6	6 ± 0,2	4 ± 0,2	8,8	10,4	8	9,4	0,4	1	15,2	20		
22	22,5	23,5	35,9	6 ± 0,2	4 ± 0,2	8,8	10,4	8	9,4	0,4	1	16,5	22		
24	24,5	25,5	40	7 ± 0,25	5 ± 0,2	11	13	10	11,8	0,5	1,6	26,2	24		
27	27,5	28,5	43	7 ± 0,25	5 ± 0,2	11	13	10	11,8	0,5	1,6	28,7	27		
30	30,5	31,7	48,2	8 ± 0,25	6 ± 0,2	13,6	16,1	12	14,2	0,8	1,6	44,3	30		
36	36,5	37,7	58,2	10 ± 0,25	6 ± 0,2	13,6	16,1	12	14,2	0,8	1,6	67,3	36		
39 ¹⁾²⁾	39,5	40,7	61,2	10 ± 0,25	6 ± 0,2	13,6	16,1	12	14,2	0,8	1,6	71,7	39		
42 ¹⁾²⁾	42,5	43,7	68,2	12 ± 0,25	7 ± 0,25	15,6	18,4	14	16,5	0,8	2	111	42		
45 ¹⁾²⁾	45,5	46,7	71,2	12 ± 0,25	7 ± 0,25	15,6	18,4	14	16,5	0,8	2	117	45		
48 ¹⁾²⁾	49	50,5	75	12 ± 0,25	7 ± 0,25	15,6	18,4	14	16,5	0,8	2	123	48		
52 ¹⁾²⁾	53	54,5	83	14 ± 0,25	8 ± 0,25	18	21,2	16	18,9	1	2	182	52		
56 ¹⁾²⁾	57	58,5	87	14 ± 0,25	8 ± 0,25	18	21,2	16	18,9	1	2	193	56		
60 ¹⁾²⁾	61	62,5	91	14 ± 0,25	8 ± 0,25	18	21,2	16	18,9	1	2	203	60		
64 ¹⁾²⁾	65	66,5	95	14 ± 0,25	8 ± 0,25	18	21,2	16	18,9	1	2	218	64		
68 ¹⁾²⁾	69	70,5	99	14 ± 0,25	8 ± 0,25	18	21,2	16	18,9	1	2	228	68		
72 ¹⁾²⁾	73	74,5	103	14 ± 0,25	8 ± 0,25	18	21,2	16	18,9	1	2	240	72		
80 ¹⁾²⁾	81	82,5	111	14 ± 0,25	8 ± 0,25	18	21,2	16	18,9	1	2	262	80		
90 ¹⁾²⁾	91	92,5	121	14 ± 0,25	8 ± 0,25	18	21,2	16	18,9	1	2	290	90		
100 ¹⁾²⁾	101	102,5	131	14 ± 0,25	8 ± 0,25	18	21,2	16	18,9	1	2	318	100		

1) Test values for the spring force test as described in DIN 267 Part 26 have not as yet been specified for this nominal size.

2) Test values for the test for permanent set as described in DIN 267 Part 26 have not as yet been specified for this nominal size.

3 Technical delivery conditions

DIN 267 Part 26 shall apply with regard to the technical delivery conditions.

Material: FSt = spring steel as specified in DIN 267 Part 26.

4 Designation

Designation of a type A spring lock washer of nominal size 8, made of spring steel (FSt)¹⁾:

Spring lock washer DIN 127 – A 8 – FSt

Where spring lock washers for left-hand thread bolts are required, the letter symbol LH shall be included in the designation:

Spring lock washer DIN 127 – A 8 – LH – FSt

The DIN 4000 – 3 – 3 tabular layout of article characteristics shall apply for spring lock washers covered in this standard.

Standards referred to

DIN 128	Curved and wave spring lock washers
DIN 267 Part 26	Fasteners; technical delivery conditions; steel spring washers for bolt/nut assemblies
DIN 4000 Part 3	Tabular layout of article characteristics for washers and lock washers
ISO 898 Part 1	Mechanical properties of fasteners; bolts, screws and studs

Previous editions

DIN 127 Supplement: 02.37; DIN 127: 04.21, 07.23, 07.29, 01.41, 04.43, 02.56, 01.61, 12.70.

Amendments

The following amendments have been made to the December 1970 edition.

- The field of application has been modified.
- A note on the period of validity of this standard has been included; see Explanatory notes.
- Nominal sizes 2,3, 2,6 and 33 have been deleted.
- The technical delivery conditions have been summarized in DIN 267 Part 26.
- The designation now includes a reference to the material to be used.
- The standard has been editorially revised.

Explanatory notes

By maintaining a sufficiently high preloading in a bolt/nut assembly, spring washers are designed to prevent loosening of the assembly, which may be caused, for instance, by the effect of setting. The specification of residual spring forces given in DIN 267 Part 26 has made it possible for the first time to assess the performance of spring washers.

Spring lock washers complying with DIN 128 are suitable for bolt/nut assemblies involving fasteners of a property class less than 8.8, whilst spring lock washers complying with the present standard are only to be used for bolts of property class 5.8 or less.

As there is no real demand for DIN 127 spring lock washers, DIN 128 washers being more suitable for the proposed application, the responsible committee has decided to withdraw DIN 127 in due course, the proposed transitional period of five years being intended to give manufacturers and users the opportunity to convert to spring lock washers complying with DIN 128.

International Patent Classification

F 16 B 39/24

¹⁾ FSt shall also apply where no material has been specified in existing documentation.