UDC 621.882.54 : 621.882.215.1

October 1987

Spring lock washers with square ends for cheese head screws

DIN 7980

Federringe für Zylinderschrauben

Supersedes December 1972 edition.

In keeping with current practice in standards published by I has been used throughout as the decimal marker.

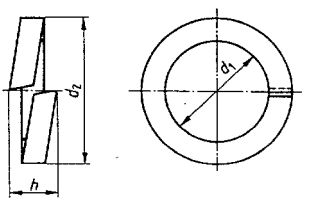
It is intended to withdraw this standard by 1 January 1992, since the spring lock washers it specifies are not suitable for use with cheese head screws now generally manufactured in property classes 8.8 to 12.9.

Dimensions in mm

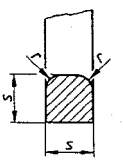
1 Scope and field of application

Spring lock washers with square ends covered in this standard are deemed to be spring washers designed for use for bolt/nut assemblies involving bolts of property classes less than 8.8 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



Washer cross section (enlarged)



The illustration shows a spring lock washer with square ends for cheese head screws with right-hand thread, the position of the square ends being vice versa for cheese head screws with left-hand thread.

Continued on pages 2 and 3

Nominal size	d_1 min.	d_1 max.	d_2 max.	s	s Limit deviations	h min.	h max.	r	Mass (7,85 kg/dm³) per 1000 units, in kg, ≈	For thread size
3[1]	3,1	3,4	5,6	1	± 0,1	2	2,36	0,2	0,105	3
3,5[1]	3,6	3,9	6,1	1	± 0,1	2	2,36	0,2	0,114	3,5
4	4,1	4,4	7	1,2	± 0,1	2,4	2,83	0,2	0,195	4
5	5,1	5,4	8,8	1,6	± 0,1	3,2	3,78	0,2	0,37	5
6	6,1	6,5	9,9	1,6	± 0,1	3,2	3,78	0,3	0,425	6
8	8,1	8,5	12,7	2	± 0,1	4	4,72	0,5	1,05	8
10	10,2	10,7	16	2,5	± 0,15	5	5,9	0,8	1,96	10
12	12,2	12,7	18	2,5	± 0,15	5	5,9	0,8	2,28	12
14	14,2	14,7	21,1	3	± 0,2	6	7,1	1	3,8	14
16	16,2	17	24,4	3,5	± 0,2	7	8,25	1	5,94	16
18	18,2	19	26,4	3,5	± 0,2	7	8,25	1	6,6	18
20	20,2	21,2	30,6	4,5	± 0,2	9	10,6	1	12,3	20
22	22,5	23,5	32,9	4,5	± 0,2	9	10,6	1	13,6	22
24	24,5	25,5	35,9	5	± 0,2	10	11,8	1,6	18,1	24
27	27,5	28,5	38,9	5	± 0,2	10	11,8	1,6	20,6	27
30	30,5	31,7	44,1	6	± 0,2	12	14,2	1,6	32	30
33	33,5	34,7	47,1	6	± 0,2	12	14,2	1,6	35	33
36	36,5	37,7	52,2	7	± 0,25	14	16,5	1,6	52,5	36
42[1][2]	42,5	43,7	60,2	8	± 0,25	16	18,9	2	80	42
48[1][2]	49	50,5	67	8	± 0,25	16	18,9	2	90	48

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 spring lock washer of nominal size 8, made of spring steel (FSt)[1]:

Spring lock washer DIN 7980 – 8 – FSt

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

Spring lock washer DIN 7980 – 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 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 rings
ISO 898 Part 1	Mechanical properties of fasteners; bolts, screws and studs

Previous editions

DIN 7980: 02.56, 12.70, 12.72.

Amendments

The following amendments have been made to the December 1972 edition.

a) The field of application has been modified.
b) A note on the period of validity of this standard has been included.
c) The technical delivery conditions have been summarized in DIN 267 Part 26.
d) The designation now includes a reference to the material to be used.
e) 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 connection, which may be caused, for instance, by the effect of setting in the assembly. The specification of residual spring forces has made it possible for the first time to assess the performance of spring washers.

Owing to the spring forces which may be achieved (see DIN 267 Part 26) by using spring lock washers as covered in the present standard, such washers are only suitable for bolt/nut assemblies involving bolts of property classes less than 8.8. As, however, cheese head screws are generally manufactured in property classes 8.8 to 12.9, the field of application of spring lock washers as specified in this standard is very limited. It is therefore intended to withdraw this standard at a later date without replacement. The user will have to decide in the individual case whether a locking device is at all required, and choose another spring washer (e.g. conical spring washer) where necessary.

International Patent Classification

F 16 B 39/24

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