

# Conical spring washers for bolt/nut assemblies

**DIN**  
**6796**

Spannscheiben für Schraubenverbindungen

Supersedes July 1977 edition.

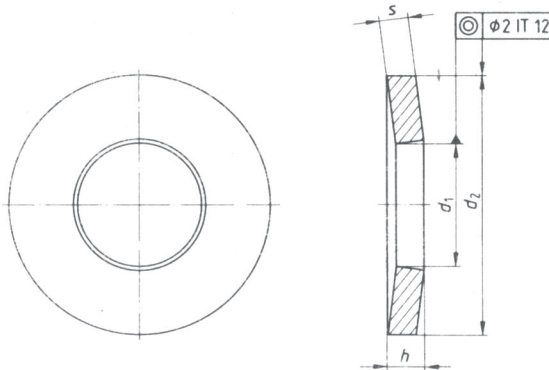
In keeping with current practice in standards published by the International Organization for Standardization (ISO), a comma has been used throughout as the decimal marker.

Dimension in mm

## 1 Scope and field of application

Conical spring washers covered in this standard are deemed to be spring washers designed for use for bolt/nut assemblies involving bolts of property classes 8.8 to 10.9 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



Nominal size	$d_1$	$d_2$	$s$ 3)	$h$		Mass (7,85 kg/dm <sup>3</sup> ) per 1000 units, in kg, ≈	For thread size
	H14	h14		max. 1)	min. 2)		
2 <sup>4)</sup>	2,2	5	0,4	0,6	0,5	0,05	2
2,5 <sup>4)</sup>	2,7	6	0,5	0,72	0,61	0,09	2,5
3 <sup>4)</sup>	3,2	7	0,6	0,85	0,72	0,14	3
3,5 <sup>4)</sup>	3,7	8	0,8	1,06	0,92	0,25	3,5
4	4,3	9	1	1,3	1,12	0,38	4
5	5,3	11	1,2	1,55	1,35	0,69	5
6	6,4	14	1,5	2	1,7	1,43	6
7	7,4	17	1,75	2,3	2	2,53	7
8	8,4	18	2	2,6	2,24	3,13	8
10	10,5	23	2,5	3,2	2,8	6,45	10
12	13	29	3	3,95	3,43	12,4	12
14	15	35	3,5	4,65	4,04	21,6	14
16	17	39	4	5,25	4,58	30,4	16
18	19	42	4,5	5,8	5,08	38,9	18
20	21	45	5	6,4	5,6	48,8	20
22	23	49	5,5	7,05	6,15	63,5	22
24	25	56	6	7,75	6,77	92,9	24
27	28	60	6,5	8,35	7,3	113	27
30	31	70	7	9,2	8	170	30

1) Maximum size at delivery.

2) Minimum size after test for permanent set as specified in DIN 267 Part 26.

3) See DIN 1544 for limit deviations for  $s$  not exceeding 6 mm and DIN 1543 for  $s$  exceeding 6 mm.

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

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### 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 conical spring washer of nominal size 8 made of spring steel (FSt) 1):

Conical spring washer DIN 6796 – 8 – FSt

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

### Standards referred to

DIN 267 Part 26	Fasteners; technical delivery conditions; steel spring washers for bolt/nut assemblies
DIN 1543	Steel flat products; hot rolled plate 3 mm to 150 mm thick; limit deviations, deviations in mass and form tolerances
DIN 1544	Flat steel products; cold rolled steel strip; dimensions, limit deviations and form tolerances
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 6796: 06.71, 07.77.

### Amendments

The following amendments have been made to the July 1977 edition.

- a) The field of application has been modified.
- b) The technical delivery conditions have been summarized in DIN 267 Part 26.
- c) 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 in the assembly. The specification of residual spring forces in DIN 267 Part 26 has made it possible for the first time to assess the performance of spring washers.

Conical spring washers as specified in the present standard are designed for use with bolt/nut assembly involving bolts of property classes 8.8 to 10.9. The efficacy of spring washers is greatly reduced if they are used together with fasteners of property classes less than 8.8, due to indentation.

### International Patent Classification

F 16 B 39/24

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