UDC 621.882.54 : 621.882.2 December 1990

# Serrated lock washers with external teeth
for screw and washer assemblies

DIN 6907

Fächerscheiben, außengezahnt, für Kombi-Schrauben

Supersedes December 1972 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.*

Dimensions in mm

## 1 Scope and field of application

Serrated lock washers as specified in this standard are intended for use with screw and washer assemblies as specified in DIN 6900 Part 4. Serrated lock washers are mainly designed to provide electric contact between components coated with varnish, anti-corrosive agents or similar materials, by the tang ends of the washers piercing the coating when such components are joined.

## 2 Dimensions

Details left unspecified are to be selected as appropriate.

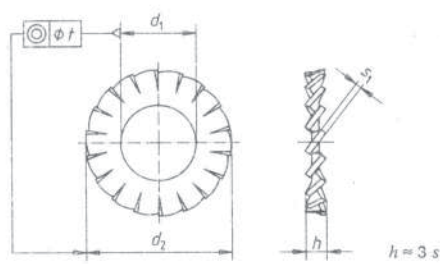



Table.

| Nominal size | $d_1$ min. = nominal size | $d_1$ max. | $d_2$ max. = nominal size | $d_2$ min. | $s_1$ Nominal size | $s_1$ max. | $s_1$ min. | $t$ 2 IT12 | Minimum number of teeth | Approximate mass (7,85 kg/dm³), per 1000 units, in kg | For thread size[4]) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2,25 | 2,25 | 2,35 | 5,5 | 5,32 | 0,4 | 0,44 | 0,36 | 0,2 | 9 | 0,06 | M2,5 |
| 2,7 | 2,7 | 2,8 | 6 | 5,82 | 0,4 | 0,44 | 0,36 | 0,2 | 9 | 0,07 | M3 |
| 3,2 | 3,2 | 3,32 | 7 | 6,78 | 0,5 | 0,54 | 0,46 | 0,24 | 10 | 0,12 | M3,5 |
| 3,6 | 3,6 | 3,72 | 8 | 7,78 | 0,5 | 0,54 | 0,46 | 0,24 | 11 | 0,16 | M4 |
| 4,55 | 4,55 | 4,67 | 9 | 8,78 | 0,6 | 0,65 | 0,55 | 0,24 | 11 | 0,22 | M5 |
| 5,5 | 5,5 | 5,62 | 11 | 10,73 | 0,7 | 0,75 | 0,65 | 0,24 | 12 | 0,39 | M6 |
| 7,4 | 7,4 | 7,55 | 14 | 13,73 | 0,8 | 0,85 | 0,75 | 0,3 | 14 | 0,70 | M8 |
| 9,3 | 9,3 | 9,45 | 18 | 17,73 | 0,9 | 0,95 | 0,85 | 0,3 | 16 | 1,32 | M10 |

Continued on pages 2 and 3

## 3 Technical delivery conditions

### 3.1 Material

Serrated lock washers shall be made of spring steel (FSt) as specified in DIN 17221 or DIN 17222, the grade being at the manufacturer's discretion.

### 3.2 Hardness

Spring steel shall be hardened to 350 to 425 HV 10.

### 3.3 Finish

Serrated lock washers shall be free from scale or burr.

### 3.4 Surface protection

The surface protection shall be at the manufacturer's discretion (e.g. phosphated and oiled as specified in DIN 50942, or blackened and oiled as specified in DIN 50938).

Where electroplating (as specified in DIN 267 Part 9) is required, this shall be indicated in the designation.

## 4 Designation

Designation of a serrated lock washer of nominal size 9,3, made of spring steel (FSt)[1]:

Washer DIN 6907 – 9,3 – FSt

The DIN 4000-3-3 tabular layout of article characteristics shall apply for washers as covered in this standard.

## Appendix A

### Additional washers (6,5) for replacement and maintenance purposes

Thread size M 7 is not included in the international range of threads for screws and nuts and its further use is deprecated. However, with regard to existing documentation and for meeting replacement and maintenance requirements, washers for use with M 7 screw and washer assemblies may still be ordered on the basis of DIN 6907, December 1972 edition. The dimensions of such washers shall be as specified in the table below.

Table A.1.

| Clearance hole diameter, $d_1$ H12 | For thread size | $d_2$ h13 | $h$ ≈ | $s_1$ | Limit deviations | $t$ | Minimum number of teeth | Approximate mass (7,85 kg/dm³), per 1000 units, in kg |
|---|---|---|---|---|---|---|---|---|
| 6,5 | M7 | 12,5 | 2,4 | 0,8 | ± 0,05 | 0,3 | 14 | 0,5 |

[1] FSt steel shall also be used where no material is specified in existing documentation.

## Standards referred to

| | | |
|---|---|---|
| DIN | 267 Part 9 | Fasteners; technical delivery conditions; electroplated fasteners |
| DIN | 4000 Part 3 | Tabular layouts of article characteristics for washers |
| DIN | 6900 Part 4 | Screw and washer assemblies; coarse threaded screws with serrated lock washer |
| DIN | 17 221 | Hot rolled steel for quenched and tempered springs; technical delivery conditions |
| DIN | 17 222 | Cold rolled steel strip for springs; technical delivery conditions |
| DIN | 50 938 | Alkaline blackening of ferrous components; principles and methods of test |
| DIN | 50 942 | Phosphating of metals; methods of test |

## Previous editions

DIN 6907 : 09.66, 12.72.

## Amendments

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

a) The 'Scope and field of application' clause has been included.

b) Specifications for type V washers are no longer included.

c) Washers with $d_1 = 11$ mm for thread size M 12 are no longer included.

d) The dimensions of washers of nominal size 6,5 (for thread size M 7) have been specified in an appendix.

e) Limits of size have been specified.

f) Specifications for surface protection have been included.

g) The standard has been editorially revised.

## International Patent Classification

F 16 B 39/24