

Serrated Lock Washers

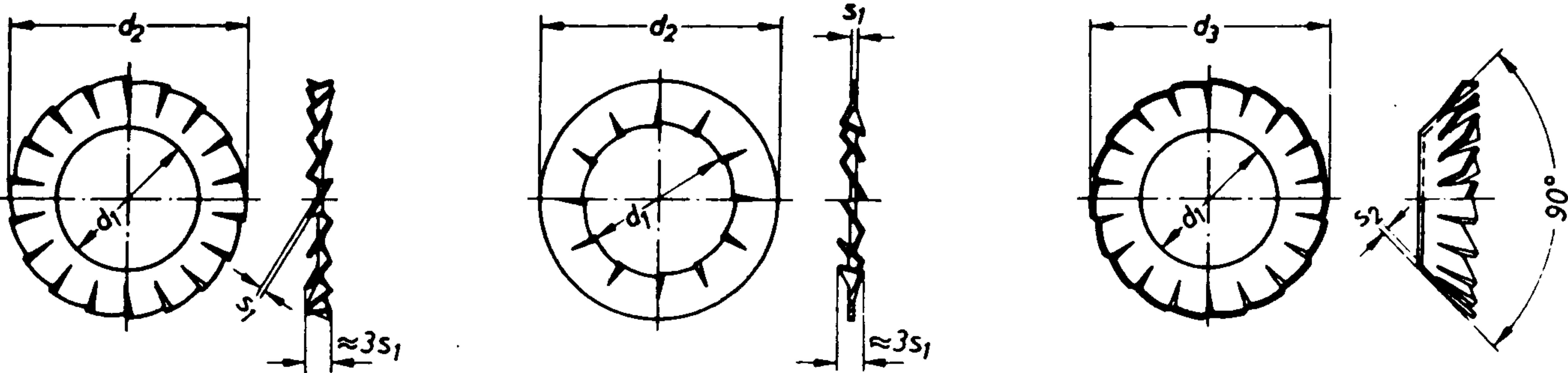
DIN
6798

Fächerscheiben

Dimensions in mm

Details left unspecified are to be designed as appropriate.

Type A serrated externally Type J serrated internally Type V countersunk



Designation of a serrated lock washer Type J with hole diameter $d_1 = 6.4$ mm in spring steel, surface phosphated for protection against rusting (phr):

Serrated lock washer J 6.4 DIN 6798 - phr

If serrated lock washers are required for left-hand threaded bolts, the designation reads, e.g.:

Serrated lock washer J 6.4 left DIN 6798 - phr

d_1	d_2	d_3	s_1	s_2	Number of teeth minimum Type			Weight (7,85 kg/dm ³) kg/1000 pieces ~ Type		For thread diameter
					A	J	V	A and J	V	
H13	H14	≈								
1,7	3,6	—	0,3	—	9	7	—	0,02	—	1,6
1,8	3,8	—	0,3	—	9	7	—	0,02	—	1,7
1,9	4	—	0,3	—	9	7	—	0,025	—	—
2,2	4,5	4,2	0,3	0,2	9	7	10	0,03	0,025	2
2,5	5	—	0,4	0,2	9	7	10	0,04	—	2,3
2,7	5,5	5,1	0,4	0,2	9	7	10	0,045	0,03	2,5
2,8	5,5	—	0,4	0,2	9	7	10	0,05	—	2,6
3,2	6	6	0,4	0,2	9	7	12	0,06	0,04	3
3,7	7	7	0,5	0,25	10	8	12	0,11	0,075	3,5
4,3	8	8	0,5	0,25	11	8	14	0,14	0,1	4
5,1 ¹⁾	9	—	0,5	—	11	8	—	0,22	—	5
5,3	10	9,8	0,6	0,3	11	8	14	0,28	0,2	5
6,4	11	11,8	0,7	0,4	12	9	16	0,36	0,3	6
7,4	12,5	—	0,8	—	14	10	—	0,5	—	7
8,2 ¹⁾	14	—	0,8	—	14	10	—	0,75	—	8
8,4	15	15,3	0,8	0,4	14	10	18	0,8	0,5	8
10,5	18	19	0,9	0,5	16	12	20	1,25	1	10
12,5	20,5	23	1	0,5	16	12	26	1,7	1,5	12
14,5	24	26,2	1	0,6	18	14	28	2,4	2	14
16,5	26	30,2	1,2	0,6	18	14	30	3	2,4	16
19	30	—	1,4	—	18	14	—	5	—	18
21	33	—	1,4	—	20	16	—	6	—	20
23	36	—	1,5	—	20	16	—	7,5	—	22
25	38	—	1,5	—	20	16	—	8	—	24
28	44	—	1,6	—	22	18	—	12	—	27
31	48	—	1,6	—	22	18	—	14	—	30

¹⁾ Only for hexagon head bolts

Material: Spring steel according to DIN 17222 (Preliminary Standard), grade at manufacturer's choice
CuSn8 (previously SnBz8) according to DIN 17662 or
X 12 CrNi 17 7 (material number 1.4310) according to DIN 17224 (Preliminary Standard)
subject to agreement

Finish: deburred
spring steel hardened to 350 up to 425 HV 30
black

Surface protection: phr = phosphated for protection against rusting according to DIN 50942
electrolytically surface-protected according to DIN 267 Sheet 9

With electrolytically surface-protected serrated lock washers, suitable treatment methods must be adopted to ensure that no hydrogen embrittlement occurs.

Sampling and acceptance are covered by DIN 522 (July 1969 draft)

For toothed lock washers see DIN 6797

Explanations

Compared with the June 1964 issue, the following amendments and additions should be noted:

The sizes for screws with Whitworth thread have been deleted because the corresponding screw standards were withdrawn in 1967.

Sizes 1.7, 1.9 and 2.7 have been included for M 1.6, M 1.8 and M 2.5 screws.

The outside diameters for serrated lock washers of Type V have been changed in some cases and brought into line with the new ISO countersunk screws according to DIN 963 and DIN 964. In future these countersunk screws are to be given preference over countersunk screws according to DIN 63, DIN 87, DIN 88 and DIN 91 as it is intended that after a transition period these standards shall be withdrawn in favour of DIN 963 and DIN 964. The same also applies to recessed head screws according to DIN 7987 and DIN 7988. These standards are to be superseded by DIN 965 and DIN 966 (at present circulating as drafts).

The 5.3 and 8.4 sizes have so far been used for hexagon head screws with widths across flats of 9 and 14 mm as provided hitherto. On completion of the change-over to the internationally recognized widths across flats of 8 and 13 mm consideration was given to deleting sizes 5.3 and 8.4 in favour of 5.1 and 8.2. The Advisory Committee on bolts and screws could not but acknowledge, however, that sizes 5.3 and 8.4 continue to predominate in use, mainly for "non-hexagon head screws". The Committee was therefore not able to decide on the deletion of these sizes, although from the viewpoint of standardization practice it cannot be regarded as good policy to have two toothed lock washers specified for a single screw diameter. Similarly, deletion of sizes 5.1 and 8.2 would lead to difficulties which would affect hexagon head screws, since, owing to the reduced widths across flats for M 5 and M 8, the efficacy of the retaining action would be open to doubt with sizes 5.3 and 8.4.

Corrections have been made to the material data and X 12 CrNi 17 7 has been newly included. Consideration was also given to specifying a stainless steel, but the production difficulties raised by toothed lock washers in stainless steel are very formidable and hence this material should be avoided as far as possible.

For serrated lock washers rust-protected by phosphating, the symbol phr has been adopted on the lines of DIN 50942, whilst for electrolytically surface-protected toothed lock washers the symbols (code) according to DIN 267 Sheet 9 can be used. At the same time attention has been drawn to the fact that with electrolytically surface-protected toothed lock washers suitable treatment methods must be adopted to avoid hydrogen embrittlement.

With regard to sampling and acceptance, reference has been made to the envisaged new version of DIN 522 in order to avoid the need for a separate agreement each time.