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Indian Standard
SPECIFICATION FOR
EYELETS AND WASHERS (SAIL)
(First Revision)

(Incorporating Amendment Nos. 1 & 2)

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BUREAU OF INDIAN STANDARDS
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NEW DELHI 110002

Price Group 3

Indian Standard
SPECIFICATION FOR
EYELETS AND WASHERS (SAIL)
(First Revision)

Fasteners for Consumer Goods Sectional Committee, CPDC 22

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Indian Standard
SPECIFICATION FOR
EYELETS AND WASHERS (SAIL)
(*First Revision*)

0. FOREWORD

0.1 This Indian Standard (First Revision) was adopted by the Indian Standards Institution on 10 March 1978, after the draft finalized by the Fasteners for Consumer Goods Sectional Committee had been approved by the Consumer Products and Medical Instruments Division Council.

0.2 Sail eyelets are used as reinforcement for edges surrounding a hole in materials, such as tentage, webbing equipment, miscellaneous textiles and leather, rubber and plastics goods where wear and tear is involved in day to day use, when fastened.

0.3 In this standard, various types of associated washers are also given to suit the respective eyelets. The purchaser may ask for any other type of washer in the same size range to suit the eyelets.

0.4 This standard was first issued in 1967. The present revision has been taken up in the light of the comments received on the standard. In this revision dimensions which are considered necessary from the manufacturing point of view have been included. Grommet eyelets and washers have been deleted. These will be covered in a separate standard.

0.5 As various types of sail eyelets and washers are in use, an effort has been made to make the standard as fully representative as possible.

0.6 While preparing this standard, assistance has been derived from the following publications:

DIN 7332-1958 Eyelets for canvas. Deutscher Normenausschuss.

BS 3102 : 1959 Brass eyelets and washers for general purposes.
British Standards Institution.

CIGS/IM/3(b) Eyelets. Ministry of Defence, Government of India.

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0.7 This standard contains clauses which call for agreement between the purchaser and the supplier, and which permit the purchaser to use his option for selection to suit his requirements. These clauses are **5.1, 6.2, 8.1** and **10.1**.

0.8 This edition 2.2 incorporates Amendment No. 1 (August 1979) and Amendment No. 2 (August 1981). Side bar indicates modification of the text as the result of incorporation of the amendments.

0.9 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard covers the material, manufacturing and dimensional requirements of sail eyelets along with their associated washers for use in tentage, tarpaulins, canopies, travel requisites, miscellaneous textiles, leather, rubber and plastics goods.

2. TERMINOLOGY

2.0 For the purpose of this standard, the following definitions shall apply.

2.1 Eyelets — A metallic reinforcement for edges surrounding a hole in materials, such as textiles, leather, rubber, plastics or combination thereof.

2.2 Plain Washer — A washer having a raised circular rib used in conjunction with an eyelet to assist in retaining material (*see* Fig. 2).

2.3 Turnover Washer — A washer with rolled outer edge used in conjunction with an eyelet for retaining the material where greater strength is required than usually obtained by the use of a plain washer (*see* Fig. 3).

*Rules for rounding off numerical values (*revised*).

3. SHAPE AND DIMENSIONS

3.1 The shape and dimensions of sail eyelets shall conform to Fig. 1A and 1B read with Table 1.

3.2 The shape and dimensions of plain washer and turnover washer shall conform to Fig. 2 read with Table 2, and Fig. 3 read with Table 3.

3.3 The starting thickness of sheet or strip shall be as given in Tables 1, 2 and 3. A deviation of ± 0.02 mm shall be allowed for brass sheet or strip. Deviation in aluminium sheet or strip shall be as given in Table 6 of IS : 2676-1964.

3.4 Maximum reduction due to forming shall not exceed 0.05 mm when measured anywhere on the periphery of the lip of the eyelets.

3.5 A deviation of ± 0.1 mm shall be allowed on all dimensions wherever deviation is not mentioned.

4. MATERIALS

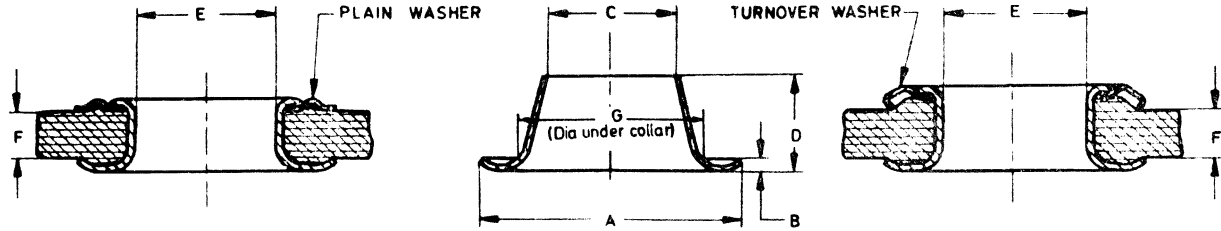
4.1 Eyelets and washers shall be made from the following materials:

- a) Brass sheet or strip conforming to Designation CuZn37 or CuZn30 of IS : 410-1967*.
- b) Aluminium sheet or strip conforming to Designation 31000 of IS : 737-1974†.

4.2 As regards chemical analysis for finding out the conformity of material, manufactured eyelets or washers shall be used.

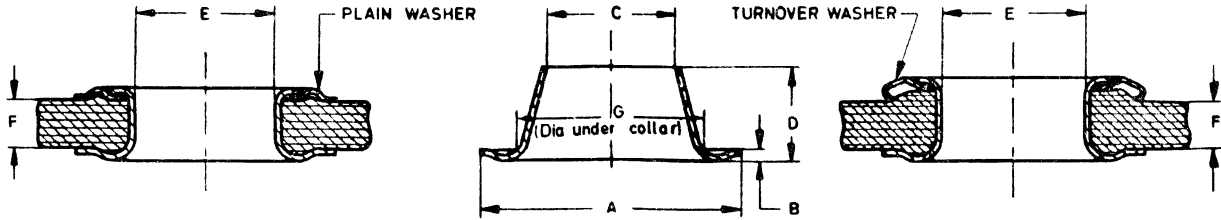
*Specification for rolled brass, plate, sheet, strip and foil (*second revision*).

†Specification for wrought aluminium and aluminium alloys, sheet and strip (for general engineering purposes) (*revised*).



1A EYELET WITH RADIUS LIP

6



1B EYELET WITH FLANGED LIP

FIG. 1 EYELETS AND WASHERS (SAIL)

TABLE 1 DIMENSIONS FOR SAIL EYELETS

(Clauses 3.1 and 5.1 and Fig. 1)

SIZE No.	STARTING THICKNESS OF METAL		OUTSIDE DIA OF FLANGE <i>A</i>	FLANGE FORMED HEIGHT, <i>B</i>	PIERCED DIA, <i>C</i>	OVERALL LENGTH, <i>D</i>	INTERNAL DIA OF BARREL WHEN CLOSED, <i>E, Min</i>	THICK- NESS OF COMPRESSED MATERIAL BETWEEN EYELET AND WASHER, <i>F,</i> <i>Max</i>	OUTSIDE DIAMETER OF BARREL UNDER THE FLANGE, <i>G</i>
	Brass	Aluminium							
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
7 18	0.315	0.40	9.5	1.0	4.8	4.4	5.2	2.0	—
21	0.315	0.45	12.7	1.0	6.3	5.6	7.1	2.0	9.6
24	0.355	0.50	17.5	1.0	8.7	6.3	9.5	3.2	12.7
26	0.40	0.63	20.6	1.2	10.3	7.1	11.1	3.2	—
28	0.45	0.71	23.8	1.4	11.9	7.9	12.7	4.0	17.3
30	0.50	0.80	27.8	1.6	15.1	8.7	15.9	4.8	19.9
30L	0.56	0.90	28.6	1.8	15.1	13.5	16.2	5.5	20.8
32	0.56	0.90	34.9	1.8	18.3	10.3	19.1	4.8	24.0
35	0.71	1.25	44.4	2.5	24.6	12.7	25.4	5.6	31.1

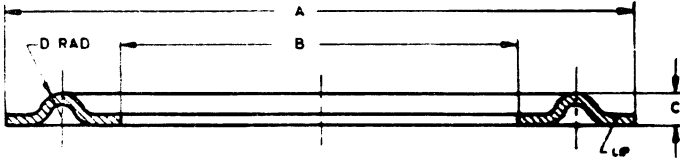


FIG. 2 PLAIN WASHER

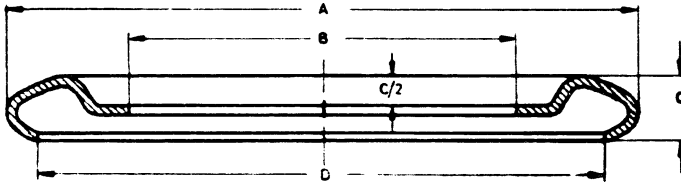


FIG. 3 TURNOVER WASHER

TABLE 2 DIMENSIONS FOR PLAIN WASHERS

(Clause 3.2, and Fig. 2)

All dimensions in millimetres.

SIZE NO.	STARTING THICKNESS OF METAL		OVERALL DIAMETER, A	PIERCED DIAMETER, B	HEIGHT OF FORMED WASHERS, C, Min	RADIUSED FORM (OUTSIDE METAL), D, Min
	Brass	Aluminium				
(1)	(2)	(3)	(4)	(5)	(6)	(7)
18	0.28	0.40	9.5	6.3	0.8	0.4
21	0.28	0.40	12.7	8.7	0.8	0.4
24	0.28	0.40	17.5	11.1	0.8	0.8
26	0.315	0.45	20.6	12.7	0.8	0.8
28	0.315	0.45	23.8	15.1	1.2	0.8

5. MANUFACTURE

5.1 The sail eyelets and washers shall be pressed and drawn to shape and size. The brass eyelets shall be properly annealed to remove stresses developed during manufacture. The eyelets of Size No. 24 and above (see Table 1) shall have a flanged lip unless otherwise specified by the purchaser.

TABLE 3 DIMENSIONS FOR TURNOVER WASHERS

(Clause 3.2, and Fig. 3)

All dimensions in millimetres.

SIZE No.	STARTING THICKNESS OF METAL		OVERALL DIAMETER OF FORMED WASHERS, A	PIERCED DIAMETER, B	HEIGHT OF FORMED WASHER, C, Min	D
	Brass	Aluminium				
(1)	(2)	(3)	(4)	(5)	(6)	(7)
21	0.28	0.40	12.7	8.3	1.6	—
24	0.28	0.40	17.5	10.7	1.6	—
26	0.28	0.40	20.6	12.3	2.0	—
28	0.315	0.45	23.8	14.7	2.4	20.6
30	0.315	0.45	27.8	17.6	2.4	24.6
30L	0.315	0.45	28.6	17.5	2.4	24.6
32	0.40	0.56	34.9	21.0	2.8	30.2
35	0.50	0.80	44.4	27.4	3.8	38.10

6. WORKMANSHIP AND FINISH

6.1 Sail eyelets and washers shall be well drawn-out, symmetrical to the centre line and shall be free from burrs, cracks, splits, wrinkles, dents and other defects.

6.2 Brass eyelets and washers shall be finished bright. Aluminium eyelets and washers shall be chemically passivated in alkaline chromate bath if required by the purchaser.

7. TOLERANCE

7.1 A tolerance of ± 0.4 mm shall be allowed on all dimensions wherever not specified.

8. SAMPLING

8.1 Sampling and acceptance criteria shall be as agreed to between the purchaser and the supplier. A recommended scheme for the same is given in Appendix A.

9. TEST

9.1 The sail eyelets, when subjected to practical test in a manner consistent with their general use, shall roll over and close without distortion, cracking, splitting, and shall securely grip the material over which they are used.

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10. PACKING

10.1 The sail eyelets and washers shall be packed as agreed to between the purchaser and the supplier.

11. MARKING

11.1 The packets containing sail eyelets and washers shall be clearly and indelibly marked with the manufacturer's name, initials or trade-mark and size.

11.1.1 Each packet of sail eyelets and washers may also be marked with the ISI Certification Mark.

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act and the Rules and Regulations made thereunder. The ISI mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

A P P E N D I X A

(*Clause 8.1*)

SAMPLING SCHEME AND CRITERIA FOR CONFORMITY FOR SAIL EYELETS AND WASHERS

A-1. SCALE OF SAMPLING

A-1.1 Lot — In any consignment, all the eyelets manufactured from the same material under similar conditions of manufacture shall be grouped together to constitute a lot.

A-1.1.1 For ascertaining the conformity of the lot to the requirements of this specification, test samples shall be examined from each lot separately and shall be drawn at random from the lot in accordance with IS : 4905-1968*.

A-2. For workmanship and finish (*see 6.1 and 6.2*), test (*see 9*) and dimensional requirements, the sampling plan with inspection level III and acceptance quality level 2.5 percent given in Tables 1 and 2 respectively of IS : 2500 (Part I)-1973† shall be followed.

*Methods for random sampling.

†Sampling inspection tables: Part I Inspection by attributes and by count of defects (*first revision*).

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