

Brass eyelets and washers for general purposes

Co-operating organizations

The Hardware and Ironmongery Industry Standards Committee, under whose supervision this British Standard was prepared, consists of representatives from the following government departments, and scientific and industrial organizations:

- British Ironfounders' Association
- British Lock and Latch Manufacturers' Association
- British Plastics Federation
- Building Industry Distributors
- Cast Butt Hinge Manufacturers' Association
- Distributors of Builders' Supplies Joint Council
- D.S.I.R. — Building Research Station
- Institution of Municipal Engineers
- London County Council
- Metal Window Association Ltd.
- Ministry of Housing and Local Government
- Ministry of Works
- National Brassfoundry Association
- National General Export Merchants' Group
- National Federation of Building Trades Employers
- National Federation of ironmongers
- Royal Institute of British Architects
- Royal Institution of Chartered Surveyors

The following organizations were directly represented on the committee entrusted with the preparation of this standard:

- British Sail Eyelet Manufacturers Association
- Copper Development Association
- Individual manufacturers

This British Standard, having been approved by the Hardware and Ironmongery Industry Standards Committee and endorsed by the Chairman of the Building Divisional Council, was published under the authority of the General Council on 31 March 1959

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Foreword

This standard makes reference to the following British Standards:

BS 265, *Cold rolled brass sheets, strip and foil, copper content 61.5 per cent minimum and under 64 per cent maximum.*

BS 266, *Cold rolled brass sheets, strip and foil, copper content 64 per cent minimum, 67 per cent maximum.*

BS 267, *Cold rolled brass sheets, strip and foil, copper content within range 68 per cent minimum and 72 per cent maximum.*

BS 1133, *Packaging Code* — Section 7, “*Paper and board wrappers, boxes and containers*” — Section 8, “*Wooden containers*”.

This British Standard was prepared at the request of the Ministry of Defence Engineering Standards Co-ordinating Committee. Its publication should simplify the user's selection of a type and size of eyelet and washer to suit a particular purpose. It should be noted that specialized applications of eyelets are not covered by the specification.

As the publication of this British Standard will cause some problems in tooling for all manufacturers of eyelets, a transition period — expiring on 31st December, 1959 — has been agreed. During that period, eyelets and washers which comply with all the requirements of the specification, other than the dimensional requirements, shall be considered to be British Standard eyelets and washers.

NOTE Where metric equivalents have been given, the figures in British units are to be regarded as the standard. The metric conversions are approximate. More precise conversions should be based on the tables in BS 350, “*Conversion factors and tables*”.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 26, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

1 Scope

This British Standard sets out the main classes and types of brass eyelets with their associated washers, for use on tentage and webbing equipment and on miscellaneous textile, leather, rubber and plastics goods. The materials, quality, dimensions and design of eyelets and washers and the standard method of packaging and labelling are specified. The method of designating eyelets and washers by the use of a simple lettering and numbering system is given.

The Appendix provides notes on the uses to which each type is normally put.

2 Definitions

For the purposes of this British Standard, the following definitions apply:

eyelet

a metal reinforcement for the edges surrounding a hole in materials such as textiles, leather, rubber or plastics

plain washer

a washer, having a raised form, used in conjunction with an eyelet to assist in retaining material

solid ring

a washer, formed from round wire, used with gilding eyelets

turn-over washer

a washer with a rolled outer edge used in conjunction with an eyelet for retaining material, where greater strength is required than is obtained by the use of a plain washer

3 Materials

a) *Brass sheet*. The brass sheet from which eyelets and washers (except solid rings) are formed shall comply with the requirements of one of the following British Standards:

BS 265¹⁾, BS 266²⁾, BS 267³⁾.

b) *Brass wire*. The brass wire from which solid rings are formed shall be of good commercial quality.

4 Quality

a) *General*. Eyelets and washers shall be free from cracks⁴⁾ and other blemishes and shall be suitably stress relieved.

b) *Finish*. Eyelets and washers shall have a bright finish, except where otherwise specified.

5 Notation system

a) *BS Reference numbers*. Eyelets and washers are designated by the BS reference numbers given in Table 1 to Table 13.

NOTE For example, "4A/10" denotes Type 4A, oblong eyelet with round ends, having a width of head of $1\frac{1}{32}$ in. and an overall length of $2\frac{13}{32}$ in.

b) *References to combinations of eyelets and washers*. When washers are ordered *in the same quantity* as the eyelets with which they are intended to work, the eyelets and washers should be designated by:

i) the designation of the type and size of the eyelet (See Sub-clause 5 a). above).

ii) the addition of an oblique stroke, thus: /

and

iii) the addition of the designation of the type, only, of the washer.

NOTE For example, by adding "/4B" to the example given in the NOTE to Sub-clause 5 a) above, the resulting designation "4A/10/4B" denotes an equal quantity of Type 4A, oblong eyelets with round ends and Type 4B, oblong washers with round ends — both eyelets and washers having an overall length of $2\frac{13}{32}$ in. and width of $1\frac{1}{32}$ in.

¹⁾ BS 265, "Cold rolled brass sheets, strip and foil, copper content 61.5 per cent minimum and under 64 per cent maximum".

²⁾ BS 266, "Cold rolled brass sheets, strip and foil, copper content 64 per cent minimum, 67 per cent maximum".

³⁾ BS 267, "Cold rolled brass sheets, strip and foil, copper content within range 68 per cent minimum and 72 per cent maximum".

⁴⁾ Except where noted on the drawings accompanying Table 10 and Table 12.

Similarly, “1A/33/1D” denotes an equal quantity of Type 1A, sail eyelets with flanged lips, and Type 1D; turn-over washers, both eyelets and washers having an outside diameter of 1½ in.

The method described is suitable only when equal quantities of eyelets and washers are concerned. When washers are ordered in quantities different from those of the corresponding eyelets, both the eyelets and the washers should be designated separately.

6 Manufacturer’s certificate

At the purchaser’s request, the manufacturer shall provide a certificate, or quality control report, showing that the product complies with the requirements of this British Standard.

7 Packaging

- a) *Containers.* Eyelets and washers shall be packed in paperboard boxes or cartons unless other packaging is specially ordered.
 - b) *Contents.*
 - i) The quantity of eyelets and/or washers in each container shall be as given in Table 1 to Table 13. Unless otherwise specified, the manufacturer shall determine whether “standard” or “bulk” containers will be used.
 - ii) A “standard” box or carton shall contain equal quantities of both eyelets and washers, except that gilding eyelets and solid rings shall be packed in separate boxes or cartons.
- A “bulk” container shall contain either eyelets or washers but not both.

NOTE Attention is drawn to BS 1133, “*Packaging Code*” which gives general guidance on packaging, and in particular to Section 7, “Paper and board wrappers, boxes and containers”, and Section 8, “Wooden containers”.

8 Marking

Containers of eyelets and/or washers shall be marked with the following:

- a) The manufacturer’s identification mark.
- b) The quantity and BS reference numbers of eyelets and/or washers enclosed.
- c) The number of this British Standard (i.e. BS 3102).

BSI CERTIFICATION MARK

The mark BS 3102 on the product is an indication that the goods purport to comply with the requirements of this British Standard.

The British Standards Institution is the owner of the registered certification trade-mark shown below. The presence of this certification mark on a product is an additional and independent assurance that the product does comply with the requirements of the relevant British Standard. This certification mark may be used by the manufacturer only under licence from the BSI, and particulars of the conditions under which licences are granted may be obtained from the Director, the British Standards Institution, 2 Park Street, London, W.1.



9 Classification

Eyelets and washers are classified as follows:

Class 1 Sail eyelets and washers.

Type 1A Sail eyelets.

Type 1B Long sail eyelets.

Type 1C Plain washers.

Type 1D Turn-over washers.

Class 2 Grommet eyelets and washers.

Type 2A Grommet eyelets.

Type 2B Spur-tooth grommet washers with external teeth only.

Type 2C Spur-tooth grommet washers with external and internal teeth.

Class 3 Gilding eyelets and solid rings.

Type 3A Gilding eyelets.

Type 3B Solid rings.

Class 4 Oblong eyelets and oblong washers.

Type 4A Oblong eyelets with round ends.

Type 4B Oblong washers with round ends.

Type 4C Oblong eyelets with square ends.

Type 4D Oblong Washers with square ends.

10 Dimensions and tolerances

a) *Dimensions.* The dimensions of an eyelet or washer shall be the appropriate series of dimensions given in the relevant one of the Table 1 to Table 13.

b) *Tolerances.* The tolerance on all unqualified fractional dimensions given in Table 1 to Table 13 is $\pm 1/64$ in. (0.40 mm). In addition, all dimensions are subject to the variations resulting from the tolerances allowed in BS 265, BS 266 and BS 267.

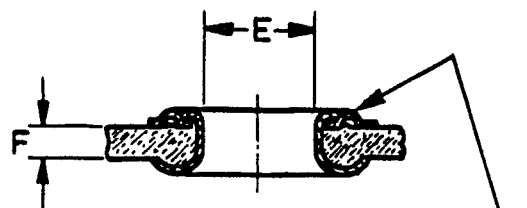
11 Design

a) *General.* The design of an eyelet or washer shall be that illustrated in the figure associated with the relevant table.

NOTE Illustrations showing eyelets closed over their washers are for dimensional purposes only, and are not to be used as a basis for design

b) *Class 1, Sail eyelets.* Class 1 eyelets shall have, at the manufacturer's discretion, either a flanged lip or a radiused lip, except that eyelets in the ranges 1A/27 to 1A/37 and 1B/27 to 1B/35 shall have a flanged lip.

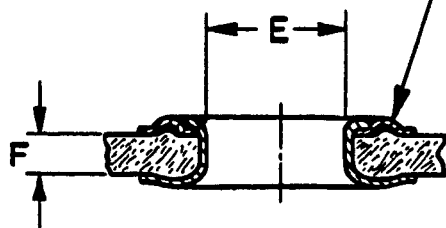
c) *Type 2B. Spur-tooth grommet washers with external teeth only.* The manufacturer shall determine whether 6 or 7 teeth are to be provided for washers with the reference number 2B/3.



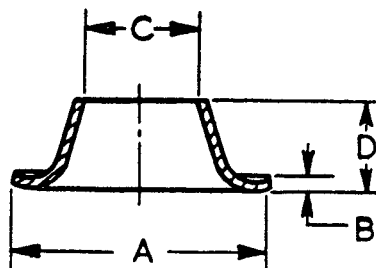
Sail eyelet with
radiused lip (closed)
with plain washer



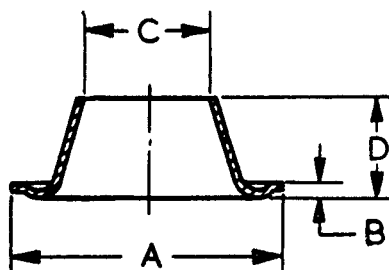
Enlarged detail



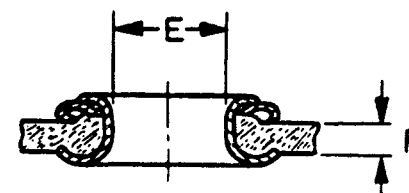
Sail eyelet with
flanged lip (closed)
with plain washer



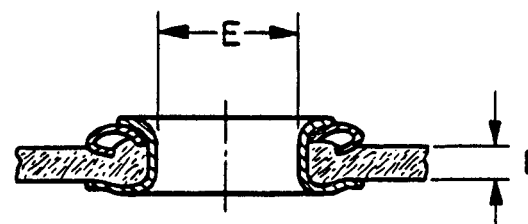
Sail eyelet with
radiused* lip



Sail eyelet with
flanged* lip



Sail eyelet with
radiused lip (closed)
with turn-over washer



Sail eyelet with
flanged lip (closed)
with turn-over washer

Type 1A, Sail eyelet

* See clause 11 b).

Table 1 — Dimensions of Type 1A, Sail eyelets

All dimensions are in inches

1	2	3	4	5	6	7	8	9	10
BS reference number	Thickness of metal before forming (minimum)	A	B	C	D	E	F	Quantity in package [see Clause 7 b) ii)]	
		Outside diameter of flange	Flange formed thickness	Internal diameter of barrel before closing	Overall length	Internal diameter of barrel when closed (minimum)	Thickness of compressed material between eyelet and washer (maximum)	Standard	Bulk
1A/18	0.012	$\frac{3}{8}$	$\frac{1}{32}$	$\frac{3}{16}$	$\frac{11}{64}$	$\frac{13}{64}$	$\frac{5}{64}$	1 gross	25 gross
1A/19	0.012	$\frac{13}{32}$	$\frac{1}{32}$	$\frac{7}{32}$	$\frac{3}{16}$	$\frac{15}{64}$	$\frac{5}{64}$	1 gross	25 gross
1A/20	0.012	$\frac{7}{16}$	$\frac{1}{32}$	$\frac{1}{4}$	$\frac{13}{64}$	$\frac{17}{64}$	$\frac{5}{64}$	1 gross	25 gross
1A/21	0.012	$\frac{1}{2}$	$\frac{1}{32}$	$\frac{1}{4}$	$\frac{7}{32}$	$\frac{9}{32}$	$\frac{5}{64}$	1 gross	25 gross
1A/22	0.012	$\frac{9}{16}$	$\frac{1}{32}$	$\frac{9}{32}$	$\frac{15}{64}$	$\frac{5}{16}$	$\frac{5}{64}$	1 gross	25 gross
1A/23	0.012	$\frac{5}{8}$	$\frac{1}{32}$	$\frac{5}{16}$	$\frac{15}{64}$	$\frac{11}{32}$	$\frac{5}{64}$	1 gross	25 gross
1A/24	0.013	$\frac{11}{16}$	$\frac{1}{32}$	$\frac{11}{32}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{8}$	1 gross	25 gross
1A/25	0.013	$\frac{3}{4}$	$\frac{1}{32}$	$\frac{3}{8}$	$\frac{17}{64}$	$\frac{13}{32}$	$\frac{1}{8}$	1 gross	25 gross
1A/26	0.013	$\frac{13}{16}$	$\frac{1}{32}$	$\frac{13}{32}$	$\frac{9}{32}$	$\frac{7}{16}$	$\frac{1}{8}$	1 gross	25 gross
1A/27	0.015	$\frac{7}{8}$	$\frac{1}{32}$	$\frac{7}{16}$	$\frac{19}{64}$	$\frac{15}{32}$	$\frac{1}{8}$	1 gross	25 gross
1A/28	0.016	$\frac{15}{16}$	$\frac{1}{32}$	$\frac{15}{32}$	$\frac{5}{16}$	$\frac{1}{2}$	$\frac{5}{32}$	1 gross	25 gross
1A/29	0.018	1	$\frac{3}{64}$	$\frac{1}{2}$	$\frac{21}{64}$	$\frac{9}{16}$	$\frac{3}{16}$	1 gross	25 gross
1A/30	0.020	$1\frac{1}{8}$	$\frac{3}{64}$	$\frac{19}{32}$	$\frac{11}{32}$	$\frac{5}{8}$	$\frac{3}{16}$	1 gross	10 gross
1A/31	0.020	$1\frac{1}{4}$	$\frac{3}{64}$	$\frac{21}{32}$	$\frac{3}{8}$	$\frac{11}{16}$	$\frac{3}{16}$	1 gross	10 gross
1A/32	0.022	$1\frac{3}{8}$	$\frac{1}{16}$	$\frac{23}{32}$	$\frac{13}{32}$	$\frac{3}{4}$	$\frac{3}{16}$	$\frac{1}{2}$ gross	10 gross
1A/33	0.024	$1\frac{1}{2}$	$\frac{1}{16}$	$\frac{25}{32}$	$\frac{27}{64}$	$\frac{13}{16}$	$\frac{3}{16}$	$\frac{1}{2}$ gross	—
1A/34	0.026	$1\frac{5}{8}$	$\frac{1}{16}$	$\frac{7}{8}$	$\frac{15}{32}$	$\frac{15}{16}$	$\frac{7}{32}$	$\frac{1}{2}$ gross	—
1A/35	0.029	$1\frac{3}{4}$	$\frac{1}{16}$	$\frac{31}{32}$	$\frac{1}{2}$	1	$\frac{7}{32}$	$\frac{1}{2}$ gross	—
1A/36	0.029	$1\frac{7}{8}$	$\frac{5}{64}$	$1\frac{1}{32}$	$\frac{9}{16}$	$1\frac{1}{8}$	$\frac{7}{32}$	$\frac{1}{2}$ gross	—
1A/37	0.037	2	$\frac{5}{64}$	$1\frac{5}{64}$	$\frac{39}{64}$	$1\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{2}$ gross	—

Table 1 — Dimensions of Type 1A, Sail eyelets Metric equivalents (1 gross = 144)

All dimensions are in mm

1	2	3	4	5	6	7	8
BS reference number	Thickness of metal before forming (minimum)	A	B	C	D	E	F
		Outside diameter of flange	Flange formed thickness	Internal diameter of barrel before closing	Overall length	Internal diameter of barrel when closed (minimum)	Thickness of compressed material between eyelet and washer (maximum)
1A/18	0.31	9.53	0.79	4.76	4.37	5.16	1.98
1A/19	0.31	10.32	0.79	5.56	4.76	5.95	1.98
1A/20	0.31	11.11	0.79	6.35	5.16	6.75	1.98
1A/21	0.31	12.70	0.79	6.35	5.56	7.14	1.98
1A/22	0.31	14.29	0.79	7.14	5.95	7.94	1.98
1A/23	0.31	15.88	0.79	7.94	5.95	8.73	1.98
1A/24	0.33	17.46	0.79	8.73	6.35	9.53	3.18
1A/25	0.33	19.05	0.79	9.53	6.75	10.32	3.18
1A/26	0.33	20.64	0.79	10.32	7.14	11.11	3.18
1A/27	0.38	22.23	0.79	11.11	7.54	11.91	3.18
1A/28	0.41	23.81	0.79	11.91	7.94	12.70	3.97
1A/29	0.46	25.40	1.19	12.70	8.33	14.29	4.76
1A/30	0.51	28.58	1.19	15.08	8.73	15.88	4.76
1A/31	0.51	31.75	1.19	16.67	9.53	17.46	4.76
1A/32	0.56	34.93	1.59	18.26	10.32	19.05	4.76
1A/33	0.61	38.10	1.59	19.84	10.72	20.64	4.76
1A/34	0.66	41.28	1.59	22.23	11.91	23.81	5.56
1A/35	0.74	44.45	1.59	24.61	12.70	25.40	5.56
1A/36	0.74	47.63	1.98	26.19	14.29	28.58	5.56
1A/37	0.94	50.80	1.98	27.38	15.48	31.75	6.35