

OBSOLESCE
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Specification for

Metal washers —

For general engineering purposes

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Bright Steel Bar Association	Post Office
British Constructional Steelwork Association	Rolled Thread Screw Association
British Cycle & Motor Cycle Industries Association Limited	Screw Manufacturers' Association
Council of British Manufacturers of Petroleum Equipment	Society of Motor Manufacturers & Traders Limited
Electronic Engineering Association	Washer Manufacturers' Association
Heat Treated Bolt Association	Individual firms
Institute of Iron & Steel Wire Manufacturers	

This British Standard, having been approved by the Mechanical Engineering Industry Standards Committee and endorsed by the Chairman of the Engineering Divisional Council, was published under the authority of the General Council on 1 September 1961

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Foreword

This standard makes reference to the following British Standards:

BS 15, *Structural steel*.

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

BS 309, *Whiteheart malleable iron castings*.

BS 310, *Blackheart malleable iron castings*.

BS 1449, *Steel plate, sheet and strip*.

This British Standard has been prepared under the authority of the Mechanical Engineering industry Standards Committee.

Tables for plain washers have hitherto been included in standards for bolts, screws and nuts, but it has been felt for some time that these provisions did not adequately represent either users' requirements or current manufacturing practice. The present standard, which is intended to supersede these existing tables,¹⁾ accordingly provides for metal washers in a greater variety of diameters and thicknesses and is based upon what experience has shown to be the greatest popular demand.

At first sight this may appear contrary to normal standardization procedure, but it is hoped that by establishing a standard series of metal washers which should meet most general engineering requirements, the demand for an unnecessary multiplicity of specials can in fact be eliminated.

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 14 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⁾ Tables of washers which are superseded by this standard are contained in the following British Standards:

BS 57, "*B.A. screws, bolts, nuts and plain washers*".

BS 325, "*Black cup and countersunk bolts, nuts and washers*".

BS 916, "*Black bolts, screws and nuts*".

BS 1083, "*Precision hexagon bolts, screws, nuts and plain washers*".

BS 1768, "*Unified precision hexagon bolts, screws, nuts (UNC and UNF threads) and plain washers — normal series*".

BS 1769, "*Unified black hexagon bolts, screws, nuts and plain washers — heavy series*".

BS 1981, "*Unified machine screws and machine screw nuts*".

BS 2466, "*Black taper washers*".

BS 2708, "*Unified black square and hexagon bolts, screws and nuts (UNC and UNF threads) and plain washers — normal series*".

Part 1: Bright metal washers

1 Scope

Part 1 of this British Standard relates to bright metal washers for use with standard fasteners and for other general purposes.

Dimensions are given for large and small washers: one grade of thickness is specified for those intended for use with B.A. and American Number size fasteners and two grades of thickness are specified for washers for use with Unified, B.S.W. and B.S.F. fasteners. In addition, tables of dimensions for bright washers for automobile use are included in this part of the standard.

General requirements for material and finish of bright washers are also given.

2 Material

Steel washers shall be made from En2 cold rolled steel in the hard condition in accordance with BS 1449, "*Steel plate, sheet and strip*".

Brass washers shall be made from material in the hard condition in accordance with BS 265, "*Cold rolled brass sheet, strip and foil copper content 61.5 per cent minimum and under 64 per cent maximum*".

If the purchaser requires the washers to be manufactured from steel or brass in any other condition, or of another material, he shall specify his requirements in his enquiry or order.

3 Finish

The washers shall be reasonably flat and free from burrs. Standard washers will normally be supplied unchamfered.

If chamfered washers are required this should be specified by the purchaser in his enquiry or order.

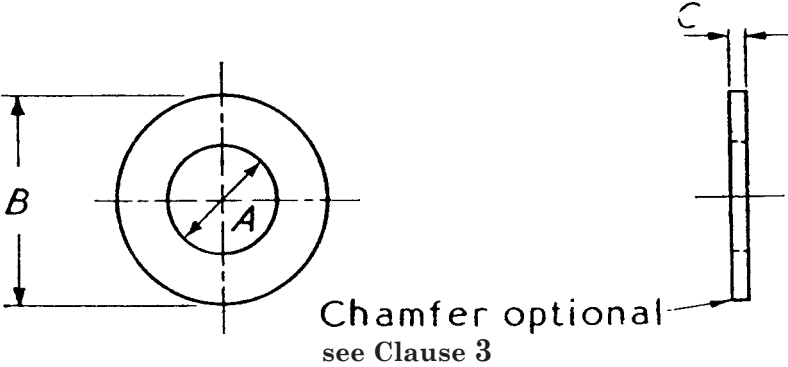
4 Coating

If the washers are required to have a protective or decorative finish, this shall be specified by the purchaser in his enquiry or order.

5 Dimensions

The dimensions of bright washers shall be in accordance with Table 1 to Table 6 inclusive.

Table 1 — Small bright washers for use with B.A. and American Number size fasteners

 Chamfer optional see Clause 3							
1		2	3	4	5	6	
B.A. No.	American No. size	Diameter of hole <i>A</i>		Outside diameter <i>B</i>		Thickness ^a <i>C</i>	
		max.	min.	max.	min.		
		in	in	in	in	S.W.G.	in
8	2	0.099	0.094	0.185	0.180	25	0.020
7	3	0.111	0.106	0.208	0.203	24	0.022
6	4	0.123	0.118	0.233	0.228	23	0.024
5	5	0.140	0.135	0.268	0.263	23	0.024
4	6	0.157	0.152	0.301	0.296	22	0.028
3	8	0.177	0.172	0.341	0.336	22	0.028
2	10	0.202	0.197	0.391	0.386	21	0.032
1	12	0.228	0.223	0.443	0.438	20	0.036
0	—	0.256	0.251	0.500	0.495	19	0.040
NOTE The sizes shown in heavy type are those which are designated “Preferred” in BS 57, “B.A. screws, bolts, nuts and plain washers”.							
^a Subject to the normal manufacturing tolerances on the sheet or strip as specified in the appropriate British Standards.							