

Specification for

Slotted grub screws

Co-operating organizations

The Mechanical Engineering Industry Standards Committee, under whose supervision this British Standard was prepared, consists of representatives from the following Government departments and scientific and industrial organizations:—

Admiralty*	High Commission of India*
Air Ministry	Institute of Marine Engineers
Associated Officers' Technical Committee	Institute of Petroleum
Association of Consulting Engineers (Incorporated)	Institution of Civil Engineers
British Chemical Plant Manufacturers' Association	Institution of Gas Engineers
British Compressed Air Society	Institution of Heating and Ventilating Engineers
British Electrical and Allied Manufacturers' Association*	Institution of Mechanical Engineers
British Engineers' Association*	Institution of Mechanical Engineers (Automobile Division)
British Gear Manufacturers' Association	Institution of Production Engineers*
British Internal Combustion Engine Manufacturers' Association*	Locomotive and Allied Manufacturers' Association of Great Britain*
British Iron and Steel Federation*	Machine Tool Trades Association*
British Railways, The British Transport Commission*	Ministry of Labour and National Service (Factory Inspectorate)
Crown Agents for Oversea Governments and Administrations*	Ministry of Power
D.S.I.R. — Mechanical Engineering Research Laboratory	Ministry of Supply*
Electricity Council, the Generating Board and the Area Boards in England and Wales	Ministry of Transport and Civil Aviation
Engineering Equipment Users' Association	Ministry of Works
Gas Council	National Coal Board
	National Physical Laboratory (D.S.I.R.)*
	Radio Industry Council*
	War Office

The organizations marked with an asterisk in the above list, together with the following, were directly represented on the Committee entrusted with the preparation of this standard:—

Agricultural Engineers' Association	Institute of Iron and Steel Wire Manufacturers
Bright Bolt and Nut Manufacturers' Association	Institution of Naval Architects
Bright Steel Bar Association	Post Office
British Constructional Steelwork Association	Radio Communication and Electronic Engineering Association
British Cycle and Motor Cycle Industries Association Ltd.	Rolled Thread Screw Association
Cold Headed Heat Treated Bolt Association	Screw Manufacturers Association
Council of British Manufacturers of Petroleum Equipment	Society of Motor Manufacturers and Traders Ltd.
Electronic Engineering Association	Washer Manufacturers Association

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 28 November 1958

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Foreword

This standard makes reference to the following British Standards:

BS 84, *Parallel screw threads of Whitworth form.*

BS 93, *B.A. screw threads.*

BS 1580, *Unified screw threads.*

This British Standard has been prepared under the authority of the Mechanical Engineering Industry Standards Committee and forms one of a series for screwed fasteners.

When first issued in 1938, the standard referred only to dimensions, and related to screws with B.S.W., B.S.F., B.A. and B.S.P.F. (formerly B.S.P.) threads. In revising it to include screws with UNC and UNF threads, the opportunity has also been taken to add provisions for a number of general requirements in accordance with recent British Standards for screwed fasteners.

Screws with B.S.P.F. threads have been omitted as there does not appear to be sufficient demand to warrant their inclusion, and hexagon socket set screws are not included as they are now covered by BS 2470, "*Hexagon socket screws and wrench keys.*"

In view of the fact that this standard now provides for grub screws with Unified threads, every effort has been made to ensure that the dimensions and standard types of points do not conflict with those specified in the American Standard ASA. B18.6.2¹⁾, although more types of points are included in the latter; there are, however, certain differences in terminology and these are explained in Clause 3 of the present standard.

In accordance with BSI policy concerning the introduction of metric standards, this imperial standard has been declared obsolescent. It will be made obsolete in due course.

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 8, 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⁾ ASA B18.6.2. "*Hexagon head cap screws, slotted head cap screws, square head set screws and slotted headless set screws.*"

1 Scope

This British Standard relates to ferrous and non-ferrous slotted grub screws, having UNC, UNF, B.A., B.S.W. or B.S.F. threads.

General dimensions and requirements for material, finish, slots and types of point are given, and tables of standard lengths are also included in Appendix A.

2 Material

The material from which grub screws are manufactured shall have a tensile strength of not less than the following:

Steel	25 tons/sq. in.
Brass	20 tons/sq. in.

If the purchaser requires grub screws to be case-hardened or to be manufactured from steel or brass of a higher tensile strength, or of another material, he shall specify his requirements.

NOTE Unless otherwise required by the purchaser, steel grub screws with cup points (see Appendix C) will be supplied case-hardened.

3 Terminology

The designations used in this standard are in accordance with those in common use in British engineering practice.

It is American practice to use the term “headless set screw,” but the descriptive term “grub screw” is so well established in British engineering that it has been retained for this standard.

Radiused points (see Clause 8) are shown in the American Standard as “oval” or “round” points.

4 Dimensions

The dimensions and tolerances for grub screws shall be as specified in Table 1–Table 3 inclusive and Clauses 5–9 inclusive.

Point dimensions for grub screws with cup points are given in Appendix C.

5 Slots

The slots shall be clean and reasonably free from burrs, and, on visual inspection, shall appear to pass through the centre point of the surface plane of the top of screw.

The depth of slot (Dimension B, Figure 1) shall be measured from the extreme end of the screw to the point at which the slot breaks through.

6 Length of screw

For the purposes of this standard the “length” shall be the distance between the extreme ends of the screw, whatever the type of point.

The permissible tolerance on length shall be as follows:

Length	Major diameter of thread	Tolerance on length
in.	in.	in.
Up to and including $\frac{1}{8}$	All diameters	+ 0 – 0.01
Above $\frac{1}{8}$ up to and including $\frac{1}{2}$	$\left\{ \begin{array}{l} \text{Below } \frac{1}{4} \\ \frac{1}{4} \text{ and over} \end{array} \right.$	$\left\{ \begin{array}{l} + 0 – 0.02 \\ + 0 – \frac{1}{32} \end{array} \right.$
Above $\frac{1}{2}$ up to and including 1	All diameters	+ 0 – $\frac{1}{32}$
Above 1 up to and including 2	All diameters	+ 0 – $\frac{1}{16}$
Over 2	All diameters	+ 0 – $\frac{3}{32}$

NOTE 1 Attention is drawn to the fact that the tolerances on length are expressed in a negative direction.

NOTE 2 Standard lengths are given in Table 4, Table 5 and Table 6 in Appendix A.