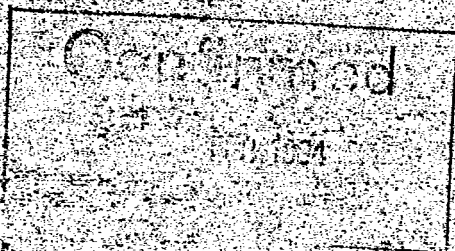


BRITISH STANDARD 2559 : Part 1 : 1971

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SPECIFICATION FOR SCREWDRIVERS

Part 1. Screwdrivers for slotted head screws



BRITISH STANDARDS INSTITUTION

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BS 2559 : Part 1 : 1971

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The Institution desires to call attention to the fact that this British Standard does not purport to include all the necessary provisions of a contract.

This standard makes reference to the following British Standards:

- BS 450. Machine screws and machine screw nuts (B.S.W. and B.S.F. threads).
- BS 768. Slotted grub screws.
- BS 860. Tables for comparison of hardness scales.
- BS 885. Brass tubes for general purposes. 70/30 arsenical brass, aluminium brass.
- BS 891. Method for Rockwell hardness test. Part 1. Testing of metals.
- BS 970. Wrought steels in the form of blooms, billets, bars and forgings. Part 5. Carbon and alloy spring steels for the manufacture of hot formed springs*.
- BS 1210. Wood screws.
- BS 1449. Steel plate, sheet and strip.
- BS 1981. Unified machine screws and machine screw nuts.
- BS 4174. Self-tapping screws and metallic drive screws.
- BS 4183. Machine screws and machine screw nuts—metric series.
- BS 4219. Slotted grub screws—metric series.
- BS 4500. ISO limits and fits.

*In course of preparation.

British Standards are revised, when necessary, by the issue either of amendment slips or of revised editions. It is important that users of British Standards should ascertain that they are in possession of the latest amendments or editions.

The following BSI references relate to the work on this standard:
Committee reference MEE/120/2 Draft for comment 70/634

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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:

Associated Offices Technical Committee
 Association of Consulting Engineers
 Association of Mining Electrical and Mechanical Engineers
 British Chemical Plant Manufacturers' Association
 British Compressed Air Society
 British Electrical and Allied Manufacturers' Association
 British Gear Manufacturers' Association
 British Internal Combustion Engine Manufacturers' Association
 British Mechanical Engineering Confederation
 British Pump Manufacturers' Association
 British Steel Industry
 Crown Agents for Oversea Governments and Administrations
 Department of Employment and Productivity (H.M. Factory Inspectorate)
 Department of the Environment
 Department of Trade and Industry
 Department of Trade and Industry—National Engineering Laboratory
 Electricity Council, the Central Electricity Generating Board
 and the Area Boards in England and Wales
 Engineering Equipment Users' Association
 Gas Council
 Institution of Civil Engineers
 Institution of Gas Engineers
 Institution of Heating and Ventilating Engineers
 Institution of Mechanical Engineers
 Institution of Mechanical Engineers (Automobile Division)
 Institution of Plant Engineers
 *Institution of Production Engineers
 Locomotive and Allied Manufacturers' Association of Great Britain
 London Transport Executive
 Machine Tool Trades Association
 *Ministry of Defence, Army Department
 *Ministry of Defence, Navy Department
 National Coal Board
 National Physical Laboratory (Department of Trade and Industry)
 Royal Institute of British Architects
 Telecommunications Engineering Manufacturing Association
 Water Tube Boilermakers' Association

The Government departments and scientific and industrial 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 British Standard.

British Furniture Manufacturers' Federated Associations
 British Railways Board
 British Woodwork Manufacturers' Association
 Engineers Allied Hand Tool Makers' Association
 Federation of British Hand Tool Manufacturers
 Furniture Industry Research Association
 Incorporated British Institute of Certified Carpenters
 Light Trades Tool Association
 National Union of Furniture Trade Operatives
 Society of British Aerospace Companies Ltd.
 Rolled Thread Screw Association
 Co-opted manufacturers

BRITISH STANDARD SPECIFICATION FOR

SCREWDRIVERS

Part 1. Screwdrivers for slotted head screws

FOREWORD

This Part of this British Standard has been prepared under the authority of the Mechanical Engineering Industry Standards Committee and in accordance with the BSI's policy of producing fully metric standards. It supersedes BS 2559: 1955 which has been withdrawn.

Despite the many developments which have taken place in the application of screwing and locking devices, the slotted head screw is still extensively used with screwdrivers of substantially the same form as those of earlier days. This kind of screwdriver has a solid blade with a handle rigidly attached to the tang, thus ensuring direct manual operation.

Work on the standardization of screwdriver blades has been carried out within ISO, and consideration has been given to this work in the formulation of this standard (see Appendix A).

The dimensions of the tip of the blade are more closely controlled than previously. The minimum torque values to which the screwdrivers are subjected have been slightly increased and this reflects the improvement in screwdriver manufacture since 1955. The opportunity has been taken to delete the Cabinet London-pattern screwdriver as this is now little used, and to introduce the stubby type of screwdriver which has achieved increasing acceptance.

The blade dimensions shown in the tables have been chosen to suit the various types of screws tabulated in the Scope clause and therefore, although this Part of this standard is in metric units, the screwdrivers are suitable for use with inch and metric sizes of screws.

It is emphasized that the screwdrivers specified in this standard which have plastics handles are not intended to be used as if they were fully insulated tools. They are not intended to give any degree of protection against electric shock, and they should not be used on live electric circuits.

Other types of screwdrivers and bits, including fully insulated, cross point, etc., will be the subjects of further Parts of this standard.

SPECIFICATION

1. SCOPE

This Part of this British Standard relates to general purpose screwdrivers intended for use with slotted head screws of the types specified in the following standards:

BS 450. Machine screws and machine screw nuts (B.S.W. and B.S.F. threads).

BS 768. Slotted grub screws.

BS 1210. Wood screws.

BS 1981. Unified machine screws and machine screw nuts.

BS 4174. Self-tapping screws and metallic drive screws.

BS 4183. Machine screws and machine screw nuts—metric series.

BS 4219. Slotted grub screws—metric series.

The types of screwdriver specified are known as:

Cabinet

London-pattern

Engineers' (including stubby type)

Light duty

Extra-light duty

Internationally agreed blade shapes are shown in Appendix A.

Apart from tables of dimensions for each type of screwdriver, details of blade material and hardness, handle material and fitting, and of ferrules are given. Torque and bend tests, to ensure the quality of the material and workmanship, are specified.

NOTE. The titles of the British Standards referred to in this standard are listed on page 2.

2. NOMENCLATURE

For the purposes of this Part of this British Standard, the nomenclature shown in Fig. 1 shall apply.

The nominal size of a screwdriver shall be the length of the blade.

NOTE. Fig. 1 shows a Cabinet screwdriver but the terms given also apply to other types.

3. DIMENSIONS

The dimensions of the screwdrivers are given in Tables 1 to 6, tolerances extracted from BS 4500.

4. ASSEMBLY

When the blade and handle is assembled the tang shall be central in the diameter of the handle. The blade shall lie parallel with the axis and shall be held securely by the handle.

When the tang of an Engineers' screwdriver goes through the handle it shall be pinned through the ferrule with 3.15 mm diameter steel wire and the handle shall be capped (see Fig. 4).

The handles on London-pattern screwdrivers shall be fitted in such a manner that the edge of the blade is flush with the diameter of the ferrule.

5. BLADES

5.1 Material. The screwdriver blades shall be manufactured from steel conforming to the requirements of BS 970 : Part 5, Specification 735 A 50* or from steels having equivalent mechanical properties.

5.2 Heat treatment and hardness. After the appropriate heat treatment, the hardness shall be within the following range on the Rockwell C hardness scale (see BS 891 : Part 1):

48 HRC to 56 HRC.

The screwdriver blades shall be within the above hardness values for a distance from the end of the blade, of at least three times the breadth of the screwdriver blade. The hardness readings shall be taken on a flat surface. Equivalent readings on other hardness scales may be used if desired (see BS 860).

5.3 Accuracy and finish. The blades shall be ground and polished or plated as agreed between purchaser and supplier, over the whole of the length which is visible when assembled. The point of each screwdriver blade shall be square with the axis of the blade. The dimensions and limits of tolerance on the point shall be as given in the appropriate table. The included angle of the cannell at the point shall be 10° nominal.

The blade and tang shall be free from all deleterious defects.

6. HANDLES

6.1 Material

6.1.1 Wood. Wood handles for screwdrivers shall be manufactured from beech or other suitable hardwood. The wood shall be straight grained and free from deleterious defects.

6.1.2 Plastics. Handles may be manufactured from suitable material as agreed between purchaser and supplier.

6.2 Moisture content. The moisture content of the timber from which the handles are manufactured, as determined by any suitable process, shall not be less than 10 % and not more than 15 %.

* In place of EN 47 of BS 970 : 1955.

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6.3 Form. The form of handle normally fitted to each type of screwdriver shall be that shown in Figs. 2 to 7. Alternative forms of handle may be fitted by arrangement between purchaser and supplier.

6.4 Finish. All types of handles shall be smoothly finished and free from deleterious defects.

7. FERRULES

7.1 Material. The ferrules fitted to London-pattern screwdrivers shall be manufactured from 70/30 brass. A suitable material is specified in BS 885. These ferrules shall be not less than 1.6 mm thick.

The ferrules fitted to other types of screwdrivers shall be manufactured from steel complying with BS 1449, and shall not be less than 0.8 mm thick.

7.2 Finish. Ferrules shall be bright.

8. MARKING

Each screwdriver shall be plainly and indelibly marked with the manufacturer's name or official trade mark in order that the origin of the tool may always be identified.

NOTE. Attention is drawn to certification facilities offered by BSI; see the back cover of this standard.

9. TORQUE TESTS

Each screwdriver shall be capable of passing the following test:

The point of the screwdriver blade to be tested shall be placed in the slot of a test disc. The width of the test slot shall correspond to the dimensions shown in the relevant tables, and shall be subject to a tolerance of C11 (see BS 4500). The length of the test slot will be sufficient to accommodate the widest blade of the given thickness *C*. The depth of the test disc slot shall be equal to the depth of the screw slot of the appropriate width. The test disc must have sufficient strength not to deform, and must have a hardness of at least 64 HRC.

The test torque load shall be applied approximately to the middle of the handle and shall be applied at right angles to the axis of the tool. The test force on the blade shall be steadily increased to the indicated test torque (see Tables 1-6), the screwdriver point being fully located in the test disc slot. After the application of the torque appropriate to the type and size of the screwdriver under test (see tables) there shall be no sign of permanent deformation or fracture, or any other damage which could influence the usability of the tool. The handle of the screwdriver should have remained securely attached to the blade. It is the intention of this test to apply a known torsional load through the handle of the screwdriver while the blade is positively located in a slot and therefore any apparatus which will enable this to be done can be employed.