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Specification for Screwdrivers

Part 2. Screwdrivers and screwdriver bits for recessed head screws

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The following BSI references relate to the work on this standard:
Committee reference MEE/120/2 Draft for comment 70/30871

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Foreword

This Part of this British Standard has been prepared under the authority of the Mechanical Engineering Industry Standards Committee.

Since the 1955 edition of this British Standard an improved form of cruciform recess has been included in British Standards for wood screws, machine screws and tapping screws. While the improved recess can be driven with the original type of cruciform screwdriver the advantages of the improved recess form cannot be gained without the use of an improved matching screwdriver.

It is still necessary to service equipment containing screws with the original form of recess (which the improved form of screwdriver will not fit) and therefore the original cruciform screwdriver has been retained in this revised standard.

The improved form of screwdriver has been designated Type 1 (patented under a trade name as 'Pozidriv') and the original form of a screwdriver has been designated Type 2 (known in the trade as 'Phillips').

The proprietors of British Patent Number 953795 and 1006509 have expressed the opinion that the form of the improved screwdrivers and bits given in this standard is within the scope of the claims of their Patent Specifications but the British Standards Institution has been assured by the holders of British Patents that licenses to manufacture would be granted to intending manufacturers on reasonable terms.

Other separate Parts of this British Standard deal with screwdrivers for slotted head screws, insulation of screwdrivers, ratchet screwdrivers, spiral ratchet screwdrivers and associated bits.

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Specification for Screwdrivers

Part 2. Screwdrivers and screwdriver bits for recessed head screws

1. Scope

This Part of this British Standard gives details of the dimensions, mechanical properties and performance requirements of hand screwdrivers and bits for recessed head screws.

Two types of screwdriver points are specified, Type 1 to suit the recesses in screws to *BS 450, BS 1210, BS 3155, BS 4174 and BS 4183, and Type 2 to suit the recesses manufactured in the original form.

NOTE. The titles of the British Standards referred to in this standard are listed on the inside back cover.

2. Definitions

For the purposes of this British Standard the following definitions apply.

(1) *Hand screwdriver*. A tool having a handle suitable for gripping in the hand and a point of cruciform section designed for use with recessed head screws (see Fig. 1).

(2) *Screwdriver bit*. A tool having one end suitable for gripping in the jaws or socket of power or hand operated drivers and a point of cruciform section designed for use with recessed head screws

3. Materials

3.1 Blades and bits

Screwdriver blades and bits shall be manufactured from steel which when suitably heat treated satisfies the mechanical and performance requirements of Clauses 4 and 9.

3.2 Handles

3.2.1 *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.

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 %.

3.2.2 *Plastics*. Handles shall be manufactured from suitable material as agreed between the purchaser and the supplier.

3.3 Ferrules

The ferrules, where fitted, shall be manufactured from steel complying with BS 1449: Part 3B, and shall not be less than 0.8 mm thick. The ferrules shall be finished bright.

* BS 450, Amendment No.2, August 1966 states that BA, BSF and BSW threads should become obsolescent and should not be used in new designs.

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4. Heat treatment and hardness

The points of screwdriver blades and bits shall be hardened and tempered for a minimum of one third of the blade length from the tip to enable a hardness value of 60 HRC minimum to be obtained.

All hardness readings shall be taken on flats ground on the blade of the screwdriver or bit parallel with the axis and of sufficient area to give an accurate reading.

Equivalent figures on other hardness scales may be used instead of that given above. See BS 860.

5. Finish

5.1 Blades and bits

Screwdriver blades and bits shall be free from cracks, blemishes or other deleterious defects. The point of each screwdriver blade or bit shall be concentric with the axis. The dimensions and limits of tolerance on the point shall be as given in the appropriate table. The blades shall be ground, polished or plated as agreed between the purchaser and the supplier over the whole length which is visible when assembled.

The bits shall be finished as agreed between the purchaser and the supplier.

5.2 Handles

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

6. Designs and dimensions

The dimensions of the cruciform points shall conform to the requirements of Table 1 and Fig. 2 (Type 1) or of Table 2 and Fig. 3 (Type 2). When a plated finish is used the dimensions shall be met after plating.

The design and dimensions of a typical handle normally fitted to each type of screwdriver shall be as shown in Figs. 4 to 7 and Tables 3 to 6. Alternative forms of handles may be fitted by arrangement between the purchaser and the supplier. The design and dimensions of the driven end of screwdriver bits shall be to suit the appropriate hand or power drivers.

7. Assembly

Screwdriver handles shall be assembled so that they are firmly fixed and lie parallel to and are concentric with the blades. The assembly shall be capable of meeting the torque and bend tests in Clauses 9 and 10.

Ferrules on wood handles shall be securely locked in position.

8. Marking

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

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

9. Torque tests

The tests to be carried out are in two sections, the first being on the screwdriver blade or screwdriver bit with the handle omitted from the test. The second part includes the handle which in this case is used for the application of torque, thus checking the soundness of the grip of the handle on the blade.

9.1 Blades and bits

All general and hard face screwdriver blades and bits shall be capable of passing the following torque test.

The screwdriver blade or bit shall be gripped in a pair of jaws in the tailstock of a torque testing device (see Fig. 9).

The headstock of the machine shall be equipped with a die of the appropriate size (screwdriver point number) and which complies with the requirements of Table 7 and Fig. 8.

The minimum torque specified in Table 8 shall have been applied before fracture of the blade or bit occurs.