

Specification for

Solid and split taper pins

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 Milling Cutter & Reamer Trade Association
 National Physical Laboratory
 North East Coast Institution of Engineers & Shipbuilders
 Society of British Aircraft Constructors Ltd.
 Society of Motor Manufacturers & Traders
 Taper Pin Manufacturers' Association

Amendments issued since publication

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Foreword

This standard makes reference to the following British Standards:—

BS 122, *Milling cutters and reamers*.

BS 240-1, *Methods and tables for Brinell hardness testing*.

BS 970, *Wrought steels*.

The British Standard for solid and split taper pins was first published in 1929. In the first revision issued in 1935, a hardness test on the finished pins was substituted for the tensile test previously specified.

The present revision has been prepared under the authority of Mechanical Engineering Industry Standards Committee primarily to introduce amendments to the requirements relating to the quality of the material and the mechanical tests so that the standard may be in accordance with modern production methods.

The previous edition related to a single class of mild steel pin. In this revision, provision is made for four classes of pins, with appropriate hardness and bend tests. The table of standard sizes of pins has been extended to include larger sizes.

It has been confirmed that the fractional size pins shall be those regarded as British Standard. It is appreciated that number size pins are still largely used and to facilitate a change to the British Standard fractional sizes, a comparison between these and the number sizes is given in Appendix B. The fractional size taper pins tabulated in this Standard are adequate to cover any necessary conversion from the number sizes; for suitable reamers, reference should be made to BS 122, *"Milling cutters and reamers"*. It is strongly recommended that, in future, only fractional size pins be used.

To facilitate the selection of suitable drill sizes, details of the minimum and maximum diameters, calculated in relation to the permissible diametral longitudinal and taper tolerances, have been included in Appendix A.

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Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 9 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.

Obsolescent (by Amendment No. 2). The need for the product covered by this British Standard has been reviewed and it has been decided that, in the interests of rationalization, it should be regarded as obsolescent and not therefore used for new designs. The standard will be withdrawn in due course.

1 General

The pins shall be of one of the four classes A, B, C or D, as may be ordered by the purchaser.

The pins shall be made from the relevant material specified in Clause 2, shall comply with the mechanical tests specified in Clauses 6 and 7, and shall conform to the dimensions and tolerances specified in Clauses 4 and 5 and Table 2 and Table 3.

NOTE The following guidance is given to enable users to select the most suitable class of pin:—

Class A (mild steel) pins are intended for use in the majority of general engineering applications.

Class B (mild steel) pins are higher grade pins intended for use in special applications.

Class C (high tensile steel pins) are intended for applications involving high stresses or where the parts are subject to shock.

Class D (stainless steel) pins.

2 Material

a)

i) *Class A pins.* Class A pins shall be manufactured from bars conforming to specification En. 1A, “Free cutting steel bars for machining”.¹⁾

ii) *Class B pins.* Class B pins shall be manufactured from bars conforming to specification En. 3A, “20” Carbon steel (hot rolled or normalized)” or specification En. 3B, “20” Carbon steel (cold drawn)”.¹⁾

iii) *Class C pins.* Class C pins shall be manufactured from heat-treated steel bars conforming to specification En. 16 (Condition T), “Manganese molybdenum steel”.¹⁾

iv) *Class D pins.* Class D pins shall be manufactured from heat-treated steel bars conforming to specification En. 57, “High tensile chromium-nickel rust resisting steel”.¹⁾

b) *Tests for chemical composition and mechanical properties.* If, to confirm their compliance with the appropriate specification in BS 970¹⁾, the purchaser requires the taper pins to be tested for chemical composition or mechanical properties (other than Brinell hardness or bend tests) he shall state this in his enquiry and order.

3 Manufacture

a) All pins shall be supplied in a bright condition and shall be free from rough edges, cracks and other defects. Any small pip resulting from a parting-off operation shall not be considered a defect.

b) The large end of both solid and split taper pins shall be domed or, at the option of the manufacturer, may be in the form of a truncated cone (see Figure 7).

c) The small end of solid taper pins shall be machined, but may be of any suitable form, at the option of the manufacturer.

d) The small end of split taper pins may be plain, dimpled or slotted, at the option of the manufacturer.

e) Split taper pins shall be split, not sawn [see clause 5 d)].

4 Dimensions

a) Solid and split taper pins shall conform to the dimensions given in Table 2 and Table 3.

b) The nominal size of a solid or split taper pin shall be the nominal fractional diameter at the large end.

c) The taper shall be 1 in 48 ($\frac{1}{48}$ in. per foot or 0.0208 in. per inch), on diameter.

5 Limits of tolerance on dimensions

a) *Large diameter.*

For nominal sizes up to and including $\frac{7}{32}$ in.	+ 0.000 in.
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– 0.002 in.

For nominal sizes $\frac{1}{4}$ in. and above	+ 0.000 in.
	– 0.004 in.

b) *Lengths.*

Up to and including 2 in. ± 0.015 in.

Above 2 in. up to and including 6 in. ± 0.040 in.

Above 6 in. ± 0.100 in.

c) *Taper.*

± 0.000 5 in. per inch.

d) *Split.* The length of the split (“C” Figure 6 shall be not less than 20 per cent of the nominal length of the pin.

¹⁾ BS 970, “Wrought steels”.