

Specification for

Surface plates

Committees responsible for this British Standard

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- City of Birmingham Polytechnic
- Department of Trade and Industry (National Engineering Laboratory)
- Department of Trade and Industry (National Measurement Accreditation Service)
- Department of Trade and Industry (National Physical Laboratory)
- Gauge and Tool Makers' Association
- Institution of Production Engineers
- Ministry of Defence

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Foreword

This revision of BS 817 has been prepared under the direction of the General Mechanical Engineering Standards Committee. It supersedes BS 817:1983 which is withdrawn.

BS 817 relates to surface plates, which serve as a working plane for many engineering purposes.

In this revision the tolerances have been given throughout in metric units, including those for the inch sizes of surface plate, and the intended use of each of the four grades of accuracy has been included for information. Account has been taken of the decisions of the International Technical Committee ISO/TC 3 for surface plates. The design of the variation gauge has been modified. The tolerances for variation of the working surface have been reduced and now apply to surface plates of 250 mm × 250 mm and above.

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.

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Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 10, 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 Scope

This British Standard specifies requirements for rectangular or square, cast iron or granite, surface plates ranging from 160 mm × 100 mm to 2 500 mm × 1 600 mm and from 12 in × 12 in to 96 in × 48 in in four grades of accuracy.

It applies to new surface plates, to surface plates in use and to those which, after wear, have been resurfaced as appropriate to their grade and size.

NOTE 1 The inch sizes are given as this information is still required by industry.

NOTE 2 General information on the care and use of surface plates is given in appendix A.

NOTE 3 The titles of the publications referred to in this standard are listed on the inside back cover.

2 Nomenclature and definitions

For the purposes of this British Standard the nomenclature shown in Figure 1 and the following definitions apply.

2.1

surface plate

an iron casting or block of granite with a worked surface which is used as a working plane and a datum

NOTE Surface plates of larger sizes which are mounted on a stand are usually known as surface tables but for the purposes of simplicity in this standard the term "surface plate" has been used throughout.

2.2

deviation from flatness overall of the working surface

the minimum distance separating the two parallel planes between which the working surface can just be contained

2.3

variation of the working surface

the variation in the indicator reading when the working surface is explored with the variation gauge shown in Figure 2

2.4

variation gauge

a freely moving base with three co-planar pads for bearing on the surface being tested, and carrying an indicator measuring variations of that surface through a fourth pad, as shown in Figure 2

3 Classification

Surface plates are classified as grade 0, 1, 2 or 3 according to their accuracy as specified in clause 9.

NOTE Grade 0 is necessary for measurements to a high accuracy. Grade 1 is intended for general inspection purposes. Grade 2 is intended for marking out purposes. Grade 3 is suitable for lower grade marking out or as a general support plate.

