

BS 817:2008



BSI Standards Publication

Specification for surface plates

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Summary of pages

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Foreword

Publishing information

This British Standard is published by BSI and came into effect on 30 November 2008. It was prepared by Technical Committee TDW/4, *Technical product realization*. A list of organizations represented on this committee can be obtained on request to its secretary.

Supersession

This British Standard supersedes BS 817:1988, which is withdrawn.

Information about this document

This British Standard has been revised to bring it up to date.

The tolerances are given in metric units, including those for the inch sizes of surface plate, and the intended use of plates of each of the four grades of accuracy specified is included for information.

Presentational conventions

The provisions of this standard are presented in roman (i.e. upright) type. Its requirements are expressed in sentences in which the principal auxiliary verb is "shall".

Commentary, explanation and general informative material is presented in smaller italic type, and does not constitute a normative element.

Contractual and legal considerations

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with a British Standard cannot confer immunity from legal obligations.

1 Scope

This British Standard specifies the construction, and dimensions and tolerances, for rectangular and square surface plates for use as working planes for engineering purposes, made of cast iron or granite, in two size ranges, from 160 mm × 100 mm to 2 500 mm × 1 600 mm and from 12 in × 12 in to 96 in × 48 in, and in four grades of accuracy.

The standard is applicable to new surface plates and to plates that are being resurfaced after they have become worn.

In addition to the definitive requirements, this standard also requires the items detailed in Clause 4 to be documented. For compliance with this standard, both the definitive requirements and the documented items have to be met.

NOTE 1 The inch sizes are given as this information is still required by industry. Attention is drawn to the fact that metric dimensions are not necessarily direct conversions of the imperial dimensions.

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

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

BS 1133-19, *Packaging code — Section 19: Use of desiccants in packaging*

BS EN 1561:1997, *Founding — Grey cast irons*

3 Terms and definitions

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

NOTE The components of a surface plate are illustrated in Figure 1, which also gives the nomenclature.

3.1 surface plate

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 simplicity the term “surface plate” is used throughout this standard.

3.2 deviation from flatness of the working surface

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

3.3 variation of the working surface

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

NOTE See 3.4 and Figure 2.

3.4 variation gauge

freely moving base with three coplanar pads for bearing on the surface being tested, and carrying an indicator measuring variations of that surface through a fourth pad

NOTE This is as shown in Figure 2.

4 Information to be supplied and items to be agreed

4.1 Information to be supplied by the purchaser

The following information to be supplied by the purchaser shall be fully documented. For compliance with the standard both the definitive requirements specified throughout the standard and the following documented items shall be satisfied:

- a) the size of the plate, if other than one of the nominal sizes specified in Table 1 (see 7.1);
- b) if a particular working height is required (see Note to 7.4);
- c) if projections are required on cast iron surface plates smaller than 400 mm × 250 mm or 12 in × 12 in or on granite surface plates (see 7.5);
- d) if handles are required on the surface plate (see 7.7).

4.2 Items to be agreed between the contracting parties

The following items to be agreed between the contracting parties are specified in the clauses referred to and shall be fully documented. For compliance with the standard both the definitive requirements specified throughout the standard and the following documented items shall be satisfied:

- a) the number of primary supporting feet, and the manner of setting, if more than three primary supporting feet are required (see 7.3);
NOTE Large plates for special purposes might need to be supported on more than three primary feet.
- b) the tolerances on the lengths of the sides if the purchaser requires the sides to be finished straight, parallel and mutually square (see 7.6).

5 Classification

Surface plates shall be classified as Grade 0, 1, 2 or 3 according to their accuracy as specified in Clause 10.

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.

6 Materials

6.1 Cast iron plates

6.1.1 General

Close-grained cast iron not inferior to material designation EN-GJL-100 (number: EN-JL1020) in BS EN 1561:1997, Table 1, shall be used. The castings, when inspected visually, shall be free from blowholes or porous patches that might affect stability or accuracy.

NOTE The plugging of blowholes or porous patches in the working surface with material of a similar composition is permitted provided that such a repair does not affect stability or accuracy.

Figure 1 Components of a surface plate

