

Specification for

Straightedges —

Part 2: Steel or granite straightedges of rectangular section

UDC 621.753.3:[531.717.862 – 032.521 + 531.717.862 – 034.14]

Confirmed February 2012

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This British Standard, having been prepared under the direction of the Mechanical Engineering Standards Committee, was published under the authority of the Executive Board on 29 April 1977

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The following BSI references relate to the work on this standard:
Committee reference MEE/59
Draft for comment 75/70860 DC

ISBN 0 580 09623 8

- Department of Prices and Consumer Protection
- Gauge and Toolmakers' Association
- Individual experts

Amendments issued since publication

Amd. No.	Date of issue	Comments
4128	November 1982	Indicated by a sideline in the margin

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Foreword

This Part of BS 5204 is published under the authority of the Mechanical Engineering Standards Committee.

In accordance with the policy of publishing metric versions of British Standards for engineers' precision measuring equipment, those standards for straightedges have now been revised.

Cast iron straightedges, bow shaped and I-section, previously covered by BS 818 "Cast iron straightedges (bow shaped and I-section)" are the subject of Part 1 of BS 5204. Part 2 of this standard deals with steel and granite straightedges and replaces BS 863 "*Steel straightedges of rectangular section*" which is now withdrawn.

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Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 8, 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 Part of BS 5204 specifies requirements for steel or granite straightedges up to and including 2 m in length, of rectangular section, with or without a bevelled edge, and with both working faces finished straight and parallel. Two grades of accuracy are provided for: grade A and grade B.

Appendices deal with the method of supporting straightedges of rectangular section and methods of testing straightness of a straightedge.

2 References

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

3 Definitions

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

straightness tolerance of working face

the straightness tolerance is the maximum permissible separation of two parallel planes between which the face lies

tolerance on parallelism of working face

the tolerance on parallelism is the maximum permissible variation in width between the surfaces under consideration

4 Material and manufacture

4.1 Steel straightedges. Grade A straightedges shall be made from high quality steel. Their working faces shall be hardened to not less than 500 HV.

Grade B straightedges may be supplied hardened or unhardened. If supplied hardened they shall be made from high quality steel and their working faces shall be hardened to not less than 500 HV. If supplied unhardened they shall be made from cast steel.

NOTE If the purchaser specifically requires grade B straightedges to be hardened he should state this in his enquiry or order. In the absence of such specific requirements the straightedges may be supplied hardened or unhardened at the option of the manufacturer.

Manufacturers are required to take reasonable precautions to ensure that finished straightedges are free from internal stress.

4.2 Granite straightedges. Grade A or grade B straightedges may be made of granite. The rock shall be close grained and of uniform texture, free from flaws and fissures and from inclusions of softer materials. The colour of the granite, which is dependent on the mineral composition, is of no importance, but the colour of any individual straightedge shall be uniform.

Granite straightedges may be supplied with handles and with threaded inserts if required. The positions of the inserts may be specified by the manufacturer or as requested by the customer, but no insert periphery shall be less than 20 mm from any edge.

When threaded inserts are provided they shall be M6 to class 6H tolerance, or in the case of straightedges longer than 1 000 mm, M10 to class 6H tolerance, in accordance with BS 3643-2:1966.

5 Recommended sizes and design

Recommended lengths are 300, 500, 1 000, 1 500 and 2 000 mm.

Minimum sections shall be as shown in Table 1.

Straightedges of intermediate lengths should be ordered only when it is not practicable to adopt one of the recommended lengths. Such straightedges shall comply with the minimum depths and thicknesses given in Table 1 for the next longer recommended length.

The side surfaces may be slightly relieved (I-section) to reduce weight, and long straightedges may be provided with two slots for ease in handling; the centres of these slots should be at points two-ninths of the length from each end of straightedges (see Figure 1).

6 Finish

The working faces shall be finished by grinding or lapping. All sharp edges shall be removed.

7 Points of support for straightedges of 1 m length and over

To ensure minimum deflection on straightedges of 1 m length and over, the positions for supporting the straightedges when used on edge should be located two-ninths of the length from each end (see Appendix A) and shall be marked on one or both side faces by arrows and the word "support" engraved on the face, as shown in Figure 2.

NOTE The attention of manufacturers is drawn to the recommendation in A.2.