

BRITISH STANDARD

Specification for limits and tolerances on plain limit gauges

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Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 12, an inside back cover and a back cover.

Foreword

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*.

Supersession

BS 969:2008 supersedes BS 969:1982, which is withdrawn.

Information about this document

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

The start and finish of text introduced or altered by Corrigendum No. 1 is indicated in the text by tags **[C1]** **[C1]**.

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 notes 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 tolerances and limits for simple forms of limit gauges, such as cylindrical plain plug, ring and gap gauges, for which gauge limits have not been stipulated.

It specifies gauge tolerances for workpiece tolerances in the range between 0.009 mm and 3.200 mm and how gauge limits are related to the workpiece limits. It also specifies types of gauge according to size and minimum workpiece tolerance.

NOTE Where a workpiece tolerance is outside the range 0.009 mm to 3.200 mm, or if it is not possible to conform to Table 2 regarding type of gauge, gauge tolerance and workpiece size, direct measurement should be used.

The gauge tolerances specified are such that the size of any workpiece accepted by a gauge lies within the boundaries constituted by the workpiece limits. Furthermore, the magnitude of the gauge tolerances is consequent upon the amount of the workpiece tolerance only. A wear allowance is provided on all GO gauges, i.e. those that control the maximum material condition of the workpiece.

2 Terms and definitions

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

2.1 maximum material limit of size

dimension defining the maximum material condition of a feature at the maximum limit of size for an external feature and at the minimum limit of size for an internal feature

NOTE A shaft is an example of an external feature and a hole is an example of an internal feature.

2.2 least material limit of size

dimension defining the minimum limit of local size for an external feature or maximum limit of local size for an internal feature

NOTE A shaft is an example of an external feature and a hole is an example of an internal feature.

2.3 GO gauge

gauge that controls the maximum material limit of size of the workpiece

2.4 NOT GO gauge

gauge that controls the least material limit of size of the workpiece

2.5 workpiece tolerance

difference between the high and low limits of size of the workpiece

3 Gauge limits and tolerances

3.1 Gauge limits

Where workpiece limits only are supplied to the gauges manufacturer (i.e. the purchaser does not state the required gauge limits), gauge limits for workpiece tolerances shall be as specified in Table 1 (Annex A gives examples of the application of Table 1. Annex C gives the gauge size limits in imperial units).

NOTE It will be seen that gauge tolerance increases with workpiece tolerance only. To appreciate this apparent disregard of workpiece size, it should be remembered that the size factor plays its proper part when the workpiece tolerance is fixed initially.

3.2 Tolerances on gauge types

The minimum tolerance on gauges shall be as specified in Table 2 (Annex C gives the minimum gauge tolerances in imperial units).

NOTE 1 In most cases it is uneconomical to manufacture, and impractical to use, limit gauges with tolerances on sizes smaller than those specified in Table 2.

NOTE 2 The GO gauges should be of full form and the NOT GO gauges should be designed to make contact at only the two ends of a diameter. The principle and reservations are described in Annex B.

NOTE 3 Recommended gauge designs are given in BS 1044-1.

4 Hardness

The hardness of the gauging surface shall be not less than 700 HV (600 HRC).

NOTE It is recommended that plain plug gauges of less than 6 mm nominal diameter should be suitably tempered on the relieved section to avoid breakage in use.

5 Marking

5.1 Gauges shall be marked with:

- a) the limiting size of the workpiece which the gauge controls;
- b) GO or NOT GO, as appropriate.

5.2 Gauges can also be marked with:

- a) the manufacturer's name or trade mark;
- b) a serial number.