

Australian Standard™

**Geometrical Product Specifications
(GPS)—Length standards—
Gauge blocks**

This Australian Standard was prepared by Committee ME/27, Engineering Tolerance Systems, Metrology, Surface Quality. It was approved on behalf of the Council of Standards Australia on 31 August 1999 and published on 5 October 1999.

The following interests are represented on Committee ME/27:

Australian Industry Group
The CMM Group
CSIRO Division of Telecommunications and Industrial Physics
Engineering Employers Association, S.A.
Institution of Engineers Australia
National Association of Testing Authorities Australia
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**Geometrical Product Specifications
(GPS)—Length standards—
Gauge blocks**

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PREFACE

This Standard was prepared by the Standards Australia Committee ME/27, Engineering Tolerance Systems, Metrology and Surface Quality to supersede AS 1457—1989, *Gauge blocks and rectangular length bars and their accessories*.

The objective of this Standard is to provide dimensional and accuracy requirements for gauge blocks for use as length standards.

This Standard is identical with and has been reproduced from ISO 3650:1998, *Geometrical Product Specifications (GPS)—Length standards—Gauge blocks*.

This Standard is a Geometrical Product Specification (GPS) Standard and is to be regarded as a General GPS Standard (see ISO/TR 14638, *Geometrical Product Specifications (GPS)—Masterplan*). It influences the chain link 6 of the chain of Standards in size and distance.

For more detailed information on the relation of this Standard to the GPS matrix model, see Annex C.

Gauge blocks are length standards representing specified fractions of the unit of length, the metre of the international system of units (SI). Depending on the kind of application and the required quality, gauge blocks are offered in several grades. The calibration of the gauge blocks, i.e. the measurement of the length value at a specified point of the measuring face and the evaluation of the measurement uncertainty, is the basis for this application of gauge blocks as length standards.

Inch series gauge blocks and accessories are not included in this Standard and for specifications for these items reference may be made to BS 4311, *Specification for gauge blocks and accessories*, Part 2: *Accessories*; and Part 3: *Gauge blocks in use*.

The term ‘informative’ has been used in this Standard to define the application of the annex to which it applies. An ‘informative’ annex is only for information and guidance.

As this Standard is reproduced from an International Standard, the following applies:

- (a) Its number appears on the cover and title page while the International Standard number appears only on the cover.
- (b) In the source text ‘this International Standard’ should read ‘this Australian Standard’.
- (c) A full point substitutes for a comma when referring to a decimal marker.

References to International Standards should be replaced by references to Australian Standards, as follows:

<i>Reference to International Standard</i>		<i>Australian Standard</i>	
ISO		AS	
1	Standard reference temperature for industrial length measurements	—	
1101	Geometrical Product Specifications (GPS)—Geometrical tolerancing—Generalities, definitions, symbols, indication on drawings	—	
6507	Metallic materials—Vickers hardness test	1817	Metallic materials—Vickers hardness test
6507-1	Part 1: Test method		

ISO		AS	
14253	Geometrical Product Specifications (GPS)—Inspection by measurement of workpieces and measuring equipment	—	
14253-1	Part 1: Decision rules for proving conformance or non-conformance with specifications		
VIM	International vocabulary of basic and general terms in metrology	3807	Vocabulary of basic and general terms in metrology

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AUSTRALIAN STANDARD

Geometrical Product Specifications (GPS) — Length standards — Gauge blocks

1 Scope

This International Standard specifies the most important design and metrological characteristics of gauge blocks with a rectangular cross section and a nominal length l_n ranging from 0,5 mm to 1 000 mm.

Limit deviations and tolerances are stated for the calibration grade K and for the grades 0, 1 and 2 for various measuring purposes.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 1:1975, *Standard reference temperature for industrial length measurements*.

ISO 1101:—¹⁾, *Geometrical Product Specifications (GPS) — Geometrical tolerancing — Generalities, definitions, symbols, indication on drawings*.

ISO 6507-1:1997, *Metallic materials — Vickers hardness test — Part 1: Test method*.

ISO 14253-1:1998, *Geometrical Product Specifications (GPS) — Inspection by measurement of workpieces and measuring equipment — Part 1: Decision rules for proving conformance or non-conformance with specifications*.

International vocabulary of basic and general terms in metrology (VIM), BIPM, IEC, IFCC, ISO, IUPAC, IUPAP, OIML, 2nd edition, 1993.

3 Definitions

For the purposes of this International Standard, the definitions given in ISO 14253-1, VIM and the following apply.

3.1

gauge block

material measure of rectangular section, made of wear-resistant material, with one pair of planar, mutually parallel measuring faces, which can be wrung to the measuring faces of other gauge blocks to make composite assemblies, or to similarly finished surfaces of auxiliary plates for length measurements

¹⁾ To be published. (Revision of ISO 1101:1983)