Australian Standard™

AS 1816.3

Metallic materials—Brinell hardness test

Method 3: Calibration of reference blocks

PREFACE

This Standard was prepared by Standards Australia Committee MT-006, Mechanical Testing of Metals to supersede (in part) AS 1816—1990, *Metallic materials—Brinell hardness test*.

This Standard is identical with and has been reproduced from ISO 6506-3:1999.

This Standard is Method 3 of a series of Standards covering the Rockwell hardness testing of metallic materials.

The series comprises the following Methods:

AS	
1816	Metallic materials—Brinell hardness test
1816.1	Method 1: Test method (ISO 6506-1:1999, MOD)
1816.2	Method 2: Verification and calibration of testing machines
1816.3	Method 3: Calibration of reference blocks

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

(a) Its number does not appear on each page of text and its identity is shown only on the title page.

(b) In the source text, 'this part of ISO 6506' 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 Australian Standards, as follows:

Reference to International Standard		*Australian Standard*	
ISO		AS	
376	Metallic materials—Calibration of force-proving instruments used for verification of uniaxial testing machines	—	
3878	Hardmetals—Vickers hardness test	1817	Metallic materials—Vickers hardness testing
4287	Geometrical Product Specifications (GPS)—Surface texture: Profile method—Terms, definitions and surface texture parameters	—	
6506	Metallic materials—Brinell hardness test	1816	Metallic materials—Brinell hardness test
6506-1	Part 1: Test method	1816.1	Method 1: Test method (ISO 6501-1:1999, MOD)
6506-2	Part 2: Verification and calibration of testing machines	1816.2	Method 2: Verification and calibration of testing machines

INTRODUCTION

The force values in this part of ISO 6506 were calculated from kilogram force values. They were introduced before the SI-system was adopted. It was decided to keep the values based on the old units for this part of ISO 6506 but for the next revision it will be necessary to consider the advantage of introducing rounded values of test force and possible consequences on the hardness scales.

Attention is drawn to the fact that in this part of ISO 6506, only the use of the hardmetal ball indenter is specified.

The designation of the Brinell hardness is HBW and should not be confused with the former designation HB, or HBS when a steel ball indenter was used.

1 Scope

This part of ISO 6506 specifies a method for the calibration of reference blocks which are intended for use in the indirect verification of Brinell hardness testing machines as described in ISO 6506-2.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of ISO 6506. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of ISO 6506 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 376, *Metallic materials — Calibration of force-proving instruments used for the verification of uniaxial testing machines.*

ISO 3878, *Hardmetals — Vickers hardness test.*

ISO 4287*, Geometrical Product Specifications (GPS) — Surface texture: Profile method — Terms, definitions and surface texture parameters.*

ISO 6506-1, *Metallic materials — Brinell hardness test — Part 1: Test method.*

ISO 6506-2:1999, *Metallic materials — Brinell hardness test — Part 2: Verification and calibration of testing machines.*

3 Manufacture of reference blocks

3.1 The block shall be specially manufactured for use as a hardness reference block.

NOTE Attention is drawn to the need to use a manufacturing process which will give the necessary homogeneity, stability of structure and uniformity of surface hardness.

3.2 Each metal block to be calibrated shall be of a thickness no less than

— 16 mm for 10 mm balls;

— 12 mm for 5 mm balls;

— 6 mm for smaller balls.

3.3 The reference blocks shall be free of magnetism. It is recommended that the manufacturer ensure that the blocks, if of steel, have been demagnetized at the end of the manufacturing process.

3.4 The flatness of the two surfaces and the parallelism of the reference block shall be in accordance with Table 1.

