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**Brinell hardness test—Calibration of
reference blocks**

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In the event of any doubts arising as to the contents,
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Foreword

This translation has been made based on the original Japanese Industrial Standard revised by the Minister of Economy, Trade and Industry through deliberations at the Japanese Industrial Standards Committee as the result of proposal for revision of Japanese Industrial Standard submitted by Japan Testing Machinery Association (JTM)/Japanese Standards Association (JSA) with the draft being attached, based on the provision of Article 12 Clause 1 of the Industrial Standardization Law applicable to the case of revision by the provision of Article 14.

Consequently **JIS B 7736:1999** is replaced with this Standard.

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Brinell hardness test—Calibration of reference blocks

Introduction

This Japanese Industrial Standard has been prepared based on **ISO 6506-3:2014**, Edition 3, with some modifications of the technical contents to reflect the local needs and situations in Japan.

The vertical lines on both sides and dotted underlines indicate changes from the corresponding International Standard. A list of modifications with the explanations is given in Annex JB.

1 Scope

This Standard specifies a method for calibration of reference blocks to be used for the indirect verification of Brinell hardness testing machines specified in **JIS B 7724** (hereafter referred to as reference blocks).

NOTE : The International Standard corresponding to this Standard and the symbol of degree of correspondence are as follows.

ISO 6506-3:2014 *Metallic materials—Brinell hardness test—Part 3: Calibration of reference blocks* (MOD)

In addition, symbols which denote the degree of correspondence in the contents between the relevant International Standard and **JIS** are IDT (identical), MOD (modified), and NEQ (not equivalent) according to **ISO/IEC Guide 21-1**.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this Standard. The most recent editions of the standards (including amendments) indicated below shall be applied.

JIS B 0601 *Geometrical Product Specifications (GPS)—Surface texture: Profile method—Terms, definitions and surface texture parameters*

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

JIS B 7724 *Brinell hardness test—Verification of testing machines*

NOTE : Corresponding International Standard: ISO 6506-2 *Metallic materials—Brinell hardness test—Part 2: Verification and calibration of testing machines*

JIS B 7728 *Calibration of force-proving instruments used for the verification of uniaxial testing machines*

NOTE : Corresponding International Standard: ISO 376 *Metallic materials—Calibration of force-proving instruments used for the verification of uniaxial testing machines*

JIS Z 2243 *Brinell hardness test—Test method*

NOTE : Corresponding International Standard: ISO 6506-1 *Metallic materials—Brinell hardness test—Part 1: Test method*

JIS Z 8103 *Glossary of terms used in measurement*

3 Terms and definitions

For the purposes of this Standard, the terms and definitions given in **JIS Z 8103** apply.

4 Manufacture of reference blocks

The manufacture of reference blocks shall be as follows.

- a) The reference blocks shall be manufactured by a process which will give the necessary homogeneity, stability of structure, and uniformity of surface hardness.
- b) Each reference block to be calibrated shall be of a thickness not less than
 - 16 mm for 10 mm balls,
 - 12 mm for 5 mm balls,
 - 6 mm for smaller balls.

12 mm for 10 mm balls can be used only if the hardness of the reference block is greater than 150 HBW.

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

NOTE : For reference, the materials of hardness reference block are given in Annex JA.

- d) The tolerances in flatness of the test surface and the lower surface, and the tolerances in parallelism of the test surface to the lower surface are given in Table 1. The permissible surface roughness of the test surface and the lower surface of the reference block is also given in Table 1. The definition of surface roughness is provided in **JIS B 0601**.

Table 1 Tolerances in flatness and parallelism, and permissible surface roughness

Diameter of ball mm	Tolerance in flatness of the surfaces μm	Tolerance in parallelism μm/50 mm	Permissible surface roughness ^{a)} Ra (μm)	
			Test surface	Lower surface
10	40	50	0.3	0.8
5	30	40	0.2	0.8
2.5	20	30	0.1	0.8
1	20	30	0.05	0.8
Note ^{a)} The cutoff value shall be 0.8 mm.				