JIS

JAPANESE
INDUSTRIAL
STANDARD

Translated and Published by
Japanese Standards Association

JIS B 7726 : 2017

(JTM/JSA)

Rockwell hardness test — Verification and calibration of testing machines and indenters

ICS 19.060 ; 77.040.10

Reference number : JIS B 7726 : 2017 (E)

Date of Establishment: 1952-11-25

Date of Revision: 2017-08-21

Date of Public Notice in Official Gazette: 2017-08-21

Investigated by: Japanese Industrial Standards Committee

Standards Board for ISO area

Technical Committee on Basic Engineering

JIS B 7726 : 2017, First English edition published in 2017-10

Translated and published by: Japanese Standards Association
Mita MT Building, 3-13-12, Mita, Minato-ku, Tokyo, 108-0073 JAPAN

In the event of any doubts arising as to the contents,
the original JIS is to be the final authority.

Printed in Japan HN

Contents

Page

Introduction ····· 1
1 Scope ····· 1
2 Normative references ····· 2
3 Terms and definitions ····· 2
4 Symbols and definitions ····· 2
5 General conditions ····· 3
6 Direct verifications of testing machine ····· 3
6.1 General ····· 3
6.2 Calibration and verification of test force ····· 3
6.3 Calibration and verification of depth-measuring system ····· 4
6.4 Calibration of testing cycle ····· 5
6.5 Verification of machine hysteresis ····· 5
7 Indirect verifications of testing machine ····· 6
7.1 General ····· 6
7.2 Procedure of indirect verification ····· 6
7.3 Repeatability ····· 7
7.4 Bias ····· 8
7.5 Uncertainty of measurement ····· 8
8 Calibration and verification of Rockwell hardness indenters ····· 9
8.1 General ····· 9
8.2 Diamond indenter ····· 9
8.3 Ball indenter ····· 12
8.4 Marking ····· 13
9 Intervals between direct and indirect calibrations and verifications ····· 14
10 Verification report/calibration certificate ····· 14
Annex A (normative) Repeatability of testing machines ····· 16
Annex B (informative) Uncertainty of measurement of calibration results of hardness testing machines ····· 18
Bibliography ····· 27
Annex JA (informative) Comparison table between JIS and corresponding International Standard ····· 28

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 7726**:2010 is replaced with this Standard.

Attention is drawn to the possibility that some parts of this Standard may conflict with patent rights, applications for a patent after opening to the public or utility model rights. The relevant Minister and the Japanese Industrial Standards Committee are not responsible for identifying any of such patent rights, applications for a patent after opening to the public or utility model rights.

Rockwell hardness test — Verification and calibration of testing machines and indenters

Introduction

This Japanese Industrial Standard has been prepared based on **ISO 6508-2** : 2015, Edition 3, with some modifications of the technical contents in order to correspond to the needs of users in Japan.

The portions with continuous sidelines or dotted underlines are the matters in which the contents of the corresponding International Standard have been modified. A list of modifications with the explanations is given in Annex JA.

1 Scope

This Standard specifies two separate methods of verification of testing machines (direct and indirect) for determining Rockwell hardness in accordance with **JIS Z 2245**.

This Standard is applicable to stationary and portable Rockwell hardness and Rockwell superficial hardness testing machines (hereafter referred to as testing machines) related to metal materials.

NOTE 1 Attention is drawn to the fact, in **ISO 6508-1** : 2015, that the use of tungsten carbide composite for ball indenters (hereafter referred to as hardmetal ball) is considered to be the standard type of Rockwell indenter ball. Steel indenter balls may continue to be used only when complying with **ISO 6508-1**, Annex A. This Standard is intended to adopt hardmetal balls as the standard indenter at the time of next revision.

NOTE 2 Attention is drawn to the fact that the result obtained with hardmetal balls may be significantly different from the result obtained with a steel balls.

NOTE 3 Rockwell hardnesses are classified into Rockwell regular hardness and Rockwell superficial hardness in **ISO 6508-1** while they are respectively described as "Rockwell hardness" and "Rockwell superficial hardness" in this Standard.

NOTE 4 The International Standard corresponding to this Standard and the symbol of degree of correspondence are as follows.

ISO 6508-2 : 2015 *Metallic materials — Rockwell hardness test — Part 2 : Verification and calibration of testing machines and indenters* (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**.