CCS N 71

NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 230.3-2022

Metallic materials - Rockwell hardness test - Part 3: Calibration of reference blocks

Issued on: July 11, 2022 **Implemented on: February 1, 2023**

Issued by: State Administration for Market Regulation, China National Standardization Administration

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foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for Standardization Work Part 1.Structure and Drafting Rules for Standardization Documents"

drafting.

This document is part 3 of GB/T 230 "Rockwell Hardness Tests for Metallic Materials". GB/T 230 has issued the following parts.

--- Part 1.Test methods;

--- Part 2.Inspection and calibration of hardness testers and indenters;

--- Part 3.Calibration of standard hardness blocks.

This document replaces GB/T 230.3-2012 "Rockwell hardness test for metallic materials - Part 3.Standard hardness blocks (A, B, C, D, E,

F, G, H, K, N, T scale) ", compared with GB/T 230.3-2012, the main technical changes are as follows.

--- Ambient temperature requirements for standard machine and standard indenter

inspection and calibration have been added (see 5.1.1);

--- Increased measurement system resolution and expanded uncertainty requirements (see 5.2.5);

--- Added Table 2 to Table 4 (see 5.3.3);

--- Modified the total test force holding time (see 6.5, 5.4 of the.2012 edition);

--- Modified the formula (1) (see 6.3, 5.3 of the.2012 edition);

--- Modified the formula (3) (see 8.1, 7.1 of the.2013 edition);

--- Deleted the formula (4) (see 7.1 of the.2012 edition);

--- Increased the requirements for the uncertainty statement of the calibration certificate [see 10.1g)];

--- Added Appendix A (see Appendix A).

This document is modified to adopt ISO 6508-3.2015 "Rockwell hardness test for metallic materials - Part 3.Calibration of standard hardness blocks".

Compared with ISO 6508-3.2015, this document has made the following structural adjustments.

---Appendix A corresponds to Appendix C in ISO 6508-3.2015;

---Appendix B corresponds to Appendix A in ISO 6508-3.2015;

---Appendix C corresponds to Appendix B in ISO 6508-3.2015.

There are technical differences between this document and ISO 6508-3.2015, and the clauses involved in these differences have been adopted in its outer margins.

Positions are indicated by a single vertical line (|). The specific technical differences and their reasons are as follows.

--- ISO 6508.1 is replaced by GB/T 230.1, which adopts the revised international standard (see Chapter 1, 5.3.3, 6.1, C.2);

--- ISO 6508.2 is replaced by GB/T 230.2, which adopts the modified international standard (see Chapter 1, 5.2.1, 5.4.2);

--- Replace ISO 376 with JJG144 to adapt to my country's technical conditions (see 5.2.3).

The following editorial changes were made to this document.

--- Deleted the note of B.1.

Please note that some contents of this document may refer to patents. The issuing agency of this document assumes no responsibility for identifying patents.

Introduction

GB/T 230 "Rockwell Hardness Test of Metallic Materials" aims to standardize the test method of Rockwell hardness, the inspection of test equipment and the

The calibration of the block consists of three parts.

--- Part 1.Test methods. The purpose is to determine the procedures and methods to be followed in the Rockwell hardness test.

--- Part 2.Inspection and calibration of hardness testers and indenters. The purpose is to determine the technical requirements and inspections that the Rockwell hardness tester needs to meet,

Calibration method.

--- Part 3.Calibration of standard hardness blocks. The purpose is to determine the technical requirements and calibration methods that Rockwell standard hardness blocks need to meet.

Rockwell hardness test for metal materials

Part 3.Calibration of standard hardness blocks

1 Scope

This document specifies the standard hardness block (hereinafter referred to as

Called the standard block) calibration method.

It is worth noting that tungsten carbide alloy ball indenters are regarded as standard Rockwell hardness indenters. Only when meeting GB/T 230.1-2018

The steel ball indenter can only be used in the case required by Record A.

This document is applicable to the calibration of Rockwell hardness standard hardness blocks.

2 Normative references

The contents of the following documents constitute the essential provisions of this document through normative references in the text. Among them, dated references

For documents, only the version corresponding to the date is applicable to this document; for undated reference documents, the latest version (including all amendments) is applicable to

this document.

GB/T 230.1-2018 Rockwell hardness test for metallic materials - Part 1.Test method (ISO 6508-1.2016, MOD)

GB/T 230.2-2022 Rockwell hardness test for metallic materials - Part 2.Inspection and calibration of hardness testers and indenters

(ISO 6508-2.2015, MOD)

JJG144 Standard force measuring instrument

3 Terms and Definitions

This document does not have terms and definitions that need to be defined.

4 Manufacture of standard blocks

4.1 Standard blocks shall be specially manufactured. Attention should be paid to the process used to manufacture the standard block so that the standard block can obtain the necessary homogeneity, organization

Uniformity of stability and surface hardness.

4.2 The thickness of each standard block should not be less than 6mm. In order to minimize the effect of changes in hardness as the number of indentations increases, it is advisable to use

Use thicker standard blocks.

4.3 The standard block should be non-magnetic. If steel standard blocks are used, the manufacturer should ensure that the standard blocks have been

After demagnetization treatment.

4.4 The flatness of the surface of the standard block should not exceed 0.01mm, and the supporting surface of the standard block should have no protrusions. The parallelism of the standard block should be less than

Or equal to 0.02mm/50mm.

4.5 The test surface and support surface of the standard block should not have defects such as dents, scratches, scales, etc. that affect the indentation measurement. rough test surface

The maximum allowable value of the roughness parameter Ra is 0.0003mm; the maximum allowable value of the surface roughness parameter Ra of the supporting surface is 0.0008mm, which is taken as

Sample length l=0.80mm (see 3.1.9 of GB/T 3505-2009).

4.6 In order to be able to check whether any material is removed from the standard block in