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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 32660.1-2016

Metallic materials - Webster hardness test - Part 1: Test method

金属材料 韦氏硬度试验 第1部分：试验方法

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Foreword

GB/T 32660 "metal material Wechsler hardness test" is divided into the following three parts. - Part 1. Test methods; - Part 2. Inspection and calibration of hardness; Part 3. Calibration of standard hardness blocks. This part is part 1 of GB/T 32660. This part is drafted in accordance with the rules given in GB/T 1.1-2009. This part is made by China Iron and Steel Industry Association. This part is headed by the National Steel Standardization Technical Committee (SAC/TC183). This part of the drafting unit. Beijing Nonferrous Metals Research Institute, Shenyang Star Star Experimental Instrument Co., Ltd., Metallurgical Industry Information Standards Institute. This part of the drafters. Zhang Hongju, Li Pu, Zhang Fenglin, Yao Wei, Dong Li, Wang Fusheng, Hou Jie. Metallic materials - Wechsler hardness test Part 1. Test methods

1 Scope

Part 1 of China's standard on the Webster hardness test - the spring loaded, hand held pliers gauge that an inspector closes over an aluminium extrusion on the production line and reads off in a second, which is why it is the hardness test the light alloy industry actually uses for incoming and in-process control. This part specifies the test principle, the testing apparatus, the specimen, the test procedure, the treatment of the test results and the test report. It applies to the Webster hardness test of metallic materials over a range equivalent to 53.0 HRB to 92.2 HRB, 28.0 HRE to 110.0 HRE and 30.2 HRF to 98.5 HRF. The principle is that a hardened indenter is pressed into the surface under the force of a calibrated spring and the depth of the residual indentation is converted, through the mechanism of the instrument, directly into a hardness number on the dial - no optical measurement, no bench, no preparation of a flat parallel specimen beyond a clean surface, which is what makes it a shop floor test rather than a laboratory one. The clauses on the specimen and the test procedure are where the accuracy is won or lost: the standard sets the minimum thickness and the curvature that may be tested, the distance to be kept from an edge and between indentations, the way the instrument must be held so that the load is

applied normal to the surface, and the number of readings to be taken and averaged. GB/T 32660 is published in three parts, this one on the test method, Part 2 on the verification and calibration of the testing machine and Part 3 on the calibration of the standard hardness blocks. Issued on 25 April 2016 and in force since 1 March 2017.

This part of GB/T 32660 specifies the test principle, test apparatus, specimen, test procedure, test results Processing and test report. This part applies to the Wechsler hardness test of metal materials, the measured value range is equivalent to Rockwell hardness 53.0HRB ~ 92.2HRB, 28.0HRE to 110.0HRE and 30.2HRF to 98.5HRF.

2 Normative reference documents

The following documents are indispensable for the application of this document. For dated references, only the dated edition applies to this article Pieces. For undated references, the latest edition (including all modifications) applies to this document.

GB/T 32660.2 Metallic materials - Wechsler hardness test - Part 2. Inspection and calibration of durometers

GB/T 32660.3 Metallic materials - Webster hardness test - Part 3. Calibration of standard hardness blocks Representation and Judgment of Numerical Correction Rule and Limit Value of GB/T 8170

3 Test principle

Will be specified shape of the steel pressure needle, under the action of a certain test force pressed into the sample surface, with the pressure into the depth of the pressure to represent the material Hardness, defined 0.0125mm The press depth is a Wechsler hardness unit. The hardness of the material is related to the depth of the press, and the superficial pressure is applied The higher the degree, the other is low, the expression see (1). $HW = 20 - L/0.0125$ (1) Where. HW

--- Wechsler hardness symbol; L - the depth of the needle pressed into the specimen in millimeters (mm).

4 Hardness value representation

When using aluminum mold with A-type hardness tester with HWA, the use of B-type hardness tester with copper alloy and mild steel with HWB table , The use of C-type hardness tester with pure HWC said, the symbol before the value of the hardness value. Test the aluminum with A-type durometer Gold, the hardness symbol HWA in the A can be omitted, can be expressed as HW. Example. 11HWA or 11HW indicates that the Wechsler hardness value of the aluminum alloy is 11 using an A-type durometer. 9HWB indicates the use of B-type hardness tester measured copper alloy and soft steel Webster's hardness

value of 9. 10HWC indicates that the Hardwood hardness value of pure copper is 10 by using a C-type durometer.

5 Test equipment

5.1 hardness tester The instrument used for the test is the Wechsler durometer. The hardness meter shall comply with the provisions of GB/T 32660.2.

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