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МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ

Hardmetals — Rockwell hardness test (scale A) —

Part 2 :
Preparation and calibration of standard test blocks

Métaux durs — Essai de dureté Rockwell (échelle A) —

Partie 2: Préparation et étalonnage des blocs de référence

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 3738-2 was prepared by Technical Committee ISO/TC 119, *Powder metallurgy.*

Users should note that all International Standards undergo revision from time to time and that any reference made herein to any other International Standard implies its latest edition, unless otherwise stated.

Hardmetals — Rockwell hardness test (scale A) —

Part 2 :
Preparation and calibration of standard test blocks

1 Scope and field of application

This part of ISO 3738 specifies the preparation and calibration of hardmetal primary standard test blocks, secondary standard test blocks and working standard test blocks from master standard test blocks to be used for the verification of Rockwell hardness testing machines (scale A) and indenters for testing hardmetals.

This document should be read in conjunction with ISO 3738-1.

2 Reference

ISO 3738-1, *Hardmetals — Rockwell hardness test (scale A) — Part 1 : Test method.*

3 Symbols and designations

Table 1

Symbol	Designation
s_1	Standard deviation of hardness determinations on the first surface of a primary standard test block
s_2	Standard deviation of hardness determinations on the test surface of a primary standard test block
s_p	Mean standard deviation of hardness determinations on a primary standard test block.

Standard deviations shall be calculated using the equation

$$s = \sqrt{\frac{1}{n-1}\sum_{i=1}^{n}(x_i - \bar{x})^2}$$

4 Preparation of standard test blocks

4.1 All standard test blocks referred to in this part of ISO 3738 shall comprise hardmetals composed substantially of tungsten carbide and cobalt without other carbides or with less than a total of 1 % (m/m) of other carbides (e.g. of titanium, tantalum, niobium). The composition and structure shall be chosen to give the desired hardness. Free carbon and eta-phase shall be absent.

4.2 Standard test blocks shall have a nominal diameter of 45 mm and a nominal thickness of 8 mm. The bottom face shall be chamfered 0,8 mm by 45°.

4.3 Every standard test block shall be ground on both flat faces. The face on which indentations are to be made shall have a surface finish of $R_a \leqslant 0{,}2$ µm, and may be polished.

The maximum deviation in flatness of the surfaces shall not exceed 0,010 mm. The bottom of the blocks shall not be convex.

The maximum deviation in parallellism shall not exceed 0,020 mm per 50 mm.

5 Master standard test blocks

5.1 Two sets of five master standard test blocks each shall be retained by the Cemented Carbide Producers Association (CCPA), USA, and one set shall be retained by the Secretariat of ISO/TC 119.

One of the sets retained in the USA shall be used for calibrating primary standard test blocks.

5.2 The markings and internationally agreed hardnesses and standard deviations of three sets of the five master test blocks are given in tables 2a), 2b) and 2c).

Table 2a) — Set one retained by CCPA

Marking	Hardness	Standard deviation
2 series I	85,70	0,07
6 series II	88,64	0,07
8 series III	91,08	0,06
2 series IV	91,59	0,04
8 series V	92,80	0,05