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Metallic materials — Knoop hardness test —

Part 2: Verification and calibration of testing machines

Matériaux métalliques — Essai de dureté Knoop —
Partie 2: Vérification et étalonnage des machines d'essai

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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 164, *Mechanical testing of metals*, Subcommittee SC 3, *Hardness testing*.

This second edition cancels and replaces the first edition (ISO 4545-2:2005), which has been technically revised.

The main changes compared to the previous edition are as follows:

— all references have been removed of indentation diagonals <0,020 mm;

— the requirements for the calibration and verification of the measuring system have been revised;

— the requirements for the maximum permissible error in measuring a reference indentation have been revised;

— the recommendations for inspection and monitoring of the indenter have been moved to ISO 4545-1;

— Annex A has been revised.

A list of all parts in the ISO 4545 series can be found on the ISO website.

Metallic materials — Knoop hardness test —

Part 2: Verification and calibration of testing machines

1 Scope

This document specifies the method of verification and calibration of testing machines for determining Knoop hardness for metallic materials in accordance with ISO 4545-1.

A direct method of verification and calibration is specified for the testing machine, indenter, and the diagonal length measuring system. An indirect verification method using reference blocks is specified for the overall checking of the machine.

If a testing machine is also to be used for other methods of hardness testing, it will be verified independently for each method.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 376:2011, *Metallic materials — Calibration of force-proving instruments used for the verification of uniaxial testing machines*

ISO 4545-1, *Metallic materials — Knoop hardness test — Part 1: Test method*

ISO 4545-3, *Metallic materials — Knoop hardness test — Part 3: Calibration of reference blocks*

3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— IEC Electropedia: available at http://www.electropedia.org/

— ISO Online browsing platform: available at https://www.iso.org/obp

4 General conditions

Before a Knoop hardness testing machine is verified, it shall be checked to ensure that it is properly set up in accordance with the manufacturer's instructions.

Especially, it should be checked that

a) the plunger holding the indenter is capable of moving freely without any friction or excessive side play,

b) the indenter is firmly mounted in the plunger,

c) the test force can be applied and removed without shock, vibration, or overload, and in such a manner that the readings are not influenced, and