

<b>STN</b>	<b>Kovové materiály</b> <b>Knoopova skúška tvrdosti</b> <b>Časť 2: Overovanie a kalibrácia skúšobných</b> <b>strojov (ISO 4545-2: 2017)</b>	<b>STN</b> <b>EN ISO 4545-2</b>  42 0376
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Metallic materials - Knoop hardness test - Part 2: Verification and calibration of testing machines (ISO 4545-2:2017)

Táto norma obsahuje anglickú verziu európskej normy.  
This standard includes the English version of the European Standard.

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Supersedes EN ISO 4545-2:2005

English Version

## Metallic materials - Knoop hardness test - Part 2: Verification and calibration of testing machines (ISO 4545- 2:2017)

Matériaux métalliques - Essai de dureté Knoop - Partie  
2: Vérification et étalonnage des machines d'essai (ISO  
4545-2:2017)

Metallische Werkstoffe - Härteprüfung nach Knoop -  
Teil 2: Überprüfung und Kalibrierung der  
Prüfmaschinen (ISO 4545-2:2017)

This European Standard was approved by CEN on 30 November 2017.

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**CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels**

**EN ISO 4545-2:2018 (E)**

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## **European foreword**

This document (EN ISO 4545-2:2018) has been prepared by Technical Committee ISO/TC 164 “Mechanical testing of metals” in collaboration with Technical Committee ECISS/TC 101 “Test methods for steel (other than chemical analysis)” the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by September 2018, and conflicting national standards shall be withdrawn at the latest by September 2018.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN ISO 4545-2:2005.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

### **Endorsement notice**

The text of ISO 4545-2:2017 has been approved by CEN as EN ISO 4545-2:2018 without any modification.

# INTERNATIONAL STANDARD

**ISO**  
**4545-2**

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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*



Reference number  
ISO 4545-2:2017(E)

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## ISO 4545-2:2017(E)



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ISO copyright office  
Ch. de Blandonnet 8 • CP 401  
CH-1214 Vernier, Geneva, Switzerland  
Tel. +41 22 749 01 11  
Fax +41 22 749 09 47  
copyright@iso.org  
www.iso.org

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## ISO 4545-2:2017(E)

### 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](http://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](http://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](http://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*

**koniec náhľadu – text ďalej pokračuje v platenej verzii STN**