ICS 77.040.10 SLOVENSKÁ TECHNICKÁ NORMA September 2018

STN	**Kovové materiály Vickersova skúška tvrdosti Časť 1: Skúšobná metóda (ISO 6507-1: 2018)**	**STN EN ISO 6507-1 42 0374**

Metallic materials - Vickers hardness test - Part 1: Test method (ISO 6507-1:2018)

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

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 08/18

Obsahuje: EN ISO 6507-1:2018, ISO 6507-1:2018

Oznámením tejto normy sa ruší
STN EN ISO 6507-1 (42 0374) z júna 2006

126856

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN ISO 6507-1

March 2018

ICS 77.040.10 Supersedes EN ISO 6507-1:2005

English Version

Metallic materials - Vickers hardness test - Part 1: Test method (ISO 6507-1:2018)

Matériaux métalliques - Essai de dureté Vickers - Partie 1: Méthode d'essai (ISO 6507-1:2018)

Metallische Werkstoffe - Härteprüfung nach Vickers - Teil 1: Prüfverfahren (ISO 6507-1:2018)

This European Standard was approved by CEN on 18 January 2018.

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Ref. No. EN ISO 6507-1:2018 E

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European foreword

This document (EN ISO 6507-1:2018) 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of an identical text or by endorsement, at the latest by September 2018, and conflicting national standards shall be withdrawn at the latest by September 2018.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.

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Endorsement notice

The text of ISO 6507-1:2018 has been approved by CEN as EN ISO 6507-1:2018 without any modification.

INTERNATIONAL STANDARD

ISO 6507-1

Fourth edition
2018-01

Metallic materials — Vickers hardness test —

Part 1: Test method

Matériaux métalliques — Essai de dureté Vickers —

Partie 1: Méthode d'essai

Reference number
ISO 6507-1:2018(E)

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Published in Switzerland

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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).

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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 fourth edition cancels and replaces the third edition (ISO 6507-1:2005), which has been technically revised.

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

— requirements for testing hardmetals and other cemented carbides have been added;

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

— resolution requirements for the measuring system have been defined;

— the lower test force limit of the Vickers microhardness test has been expanded to 0,009 807 N;

— requirements for the periodic (weekly or daily) verifications of the testing machine are normative, and the maximum permissible bias value has been revised. Requirements for the maximum permissible error in measuring a reference indentation have been revised;

— recommendations for inspection and monitoring of the indenter have been added;

— requirements have been added for the approach velocity of the indenter prior to contact with the sample surface;

— the timing requirements for the test force application and the duration at maximum test force have been revised to indicate target time values;

— Figure 2, which illustrates the requirements for the minimum distance between indentations, has been added, but the requirements have not changed;

— requirements have been added to the test report for reporting the test date and any hardness conversion method used;

— Annex D has been revised;

— Annexes E, F and G have been added concerning Vickers hardness measurement traceability, the CCM — Working group on hardness and adjustment of Köhler illumination systems.

A list of all parts in the ISO 6507 series can be found on the ISO website.

INTERNATIONAL STANDARD **ISO 6507-1:2018(E)**

Metallic materials — Vickers hardness test —

Part 1: Test method

1 Scope

This document specifies the Vickers hardness test method for the three different ranges of test force for metallic materials including hardmetals and other cemented carbides (see Table 1).

Table 1 — Ranges of test force

Ranges of test force, F N	Hardness symbol	Designation
$F \geq 49{,}03$	≥HV 5	Vickers hardness test
$1{,}961 \leq F < 49{,}03$	HV 0,2 to <HV 5	Low-force Vickers hardness test
$0{,}009\,807 \leq F < 1{,}961$	HV 0,001 to <HV 0,2	Vickers microhardness test

The Vickers hardness test is specified in this document for lengths of indentation diagonals between 0,020 mm and 1,400 mm. Using this method to determine Vickers hardness from smaller indentations is outside the scope of this document as results would suffer from large uncertainties due to the limitations of optical measurement and imperfections in tip geometry.

A periodic verification method is specified for routine checking of the testing machine in service by the user.

For specific materials and/or products, particular International Standards exist.

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 6507-2:2017, *Metallic materials — Vickers hardness test — Part 2: Verification and calibration of testing machines*

ISO 6507-3, *Metallic materials — Vickers hardness test — Part 3: Calibration of reference blocks*

