

STN	Kovové materiály Vickersova skúška tvrdosti Časť 1: Skúšobná metóda (ISO 6507-1: 2023)	STN EN ISO 6507-1 42 0374
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Metallic materials - Vickers hardness test - Part 1: Test method (ISO 6507-1:2023)

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. 12/23

Obsahuje: EN ISO 6507-1:2023, ISO 6507-1:2023

Oznámením tejto normy sa ruší
STN EN ISO 6507-1 (42 0374) zo septembra 2018

137868

Úrad pre normalizáciu, metrológiu a skúšobníctvo Slovenskej republiky, 2024
Slovenská technická norma a technická normalizačná informácia je chránená zákonom č. 60/2018 Z. z. o technickej normalizácii
v znení neskorších predpisov.

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN ISO 6507-1

October 2023

ICS 77.040.10

Supersedes EN ISO 6507-1:2018

English Version

**Metallic materials - Vickers hardness test - Part 1: Test
method (ISO 6507-1:2023)**

Matériaux métalliques - Essai de dureté Vickers - Partie
1: Méthode d'essai (ISO 6507-1:2023)

Metallische Werkstoffe - Härteprüfung nach Vickers -
Teil 1: Prüfverfahren (ISO 6507-1:2023)

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EN ISO 6507-1:2023 (E)

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European foreword

This document (EN ISO 6507-1:2023) has been prepared by Technical Committee ISO/TC 164 "Mechanical testing of metals" in collaboration with Technical Committee CEN/TC 459/SC 1 "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of an identical text or by endorsement, at the latest by April 2024, and conflicting national standards shall be withdrawn at the latest by April 2024.

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 6507-1:2023 has been approved by CEN as EN ISO 6507-1:2023 without any modification.

INTERNATIONAL STANDARD

ISO
6507-1

Fifth edition
2023-10

Metallic materials — Vickers hardness test —

Part 1: Test method

*Matériaux métalliques — Essai de dureté Vickers —
Partie 1: Méthode d'essai*



Reference number
ISO 6507-1:2023(E)

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Published in Switzerland

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ISO 6507-1:2023(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 document 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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This document was prepared by Technical Committee ISO/TC 164, *Mechanical testing of metals*, Subcommittee SC 3, *Hardness testing*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 459, *ECISS - European Committee for Iron and Steel Standardization*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This fifth edition of ISO 6507-1, together with ISO 4545-1:2023, cancels and replaces ISO 4516:2002, ISO 4545-1:2017 and ISO 6507-1:2018, which have been technically revised.

The main changes are as follows:

- Scope revised to include testing on metallic coatings and other inorganic coatings;
- added [7.6](#) - Metallic and other inorganic coatings;
- requirements have been added to the test report for reporting the surface curvature, if the curvature correction is applicable;
- added [Annex H](#) to cover coatings specific requirements;
- updated references.

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

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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 hard metals and other cemented carbides (see [Table 1](#)), metallic coatings and other inorganic coatings.

Table 1 — Ranges of test force

Ranges of test force, <i>F</i> N	Hardness symbol	Designation
$F \geq 49,03$	$\geq HV\ 5$	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.

The Vickers hardness specified in this document is also applicable for metallic and other inorganic coatings including electrodeposited coatings, autocatalytic coatings, sprayed coatings and anodic coatings on aluminium.

This document is applicable to measurements normal to the coated surface and to measurements on cross-sections, provided that the characteristics of the coating (smoothness, thickness, etc.) permit accurate readings of the diagonal of the indentation.

This document is not applicable for coatings with thickness less than 0,030 mm when testing normal to the coating surface. This standard is not applicable for coatings with thickness less than 0,100 mm when testing a cross-section of the coating. ISO 14577-1 can be used for the determination of hardness from smaller indentations.”

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

For specific materials and/or products, relevant 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 6507-2:2018, *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*

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