SLOVENSKI STANDARD
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Kovinski materiali – Preskus trdote po Vickersu – 2. del: Preverjanje in umerjanje naprav za preskušanje (ISO 6507-2:2005)

Metallic materials - Vickers hardness test - Part 2: Verification and calibration of testing machines (ISO 6507-2:2005)

Metallische Werkstoffe - Härteprüfung nach Vickers - Teil 2: Prüfung und Kalibrierung der Prüfmaschinen (ISO 6507-2:2005)

Matériaux métalliques - Essai de dureté Vickers - Partie 2: Vérification et étalonnage des machines d'essai (ISO 6507-2:2005)

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Ta slovenski standard je istoveten z: **EN ISO 6507-2:2005**

ICS:

77.040.10 Mehansko preskušanje kovin Mechanical testing of metals

SIST EN ISO 6507-2:2006 **en**

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO 6507-2

December 2005

ICS 77.040.10

Supersedes EN ISO 6507-2:1997

English Version

Metallic materials - Vickers hardness test - Part 2: Verification and calibration of testing machines (ISO 6507-2:2005)

Matériaux métalliques - Essai de dureté Vickers - Partie 2: Vérification et étalonnage des machines d'essai (ISO 6507-2:2005)

Metallische Werkstoffe - Härteprüfung nach Vickers - Teil 2: Prüfung und Kalibrierung der Prüfmaschinen (ISO 6507-2:2005)

This European Standard was approved by CEN on 14 December 2005.

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This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

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Ref. No. EN ISO 6507-2:2005: E

Foreword

This document (EN ISO 6507-2:2005) has been prepared by Technical Committee ISO/TC 164 "Mechanical testing of metals" in collaboration with Technical Committee ECISS/TC 1 "Steel - Mechanical testing", 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of an identical text or by endorsement, at the latest by June 2006, and conflicting national standards shall be withdrawn at the latest by June 2006.

This document supersedes EN ISO 6507-2:1997.

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

Endorsement notice

The text of ISO 6507-2:2005 has been approved by CEN as EN ISO 6507-2:2005 without any modifications.

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INTERNATIONAL STANDARD

ISO 6507-2

Third edition
2005-12-15

Metallic materials — Vickers hardness test —

Part 2: Verification and calibration of testing machines

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Matériaux métalliques — Essai de dureté Vickers —
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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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.

ISO 6507-2 was prepared by Technical Committee ISO/TC 164, *Mechanical testing of metals*, Subcommittee SC 3, *Hardness testing*.

iTeh STANDARD PREVIEW

This third edition cancels and replaces the second edition (ISO 6507-2:1997), which has been technically revised.

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ISO 6507 consists of the following parts, under the general title *Metallic materials — Vickers hardness test*:

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— *Part 1: Test method*

— *Part 2: Verification and calibration of testing machines*

— *Part 3: Calibration of reference blocks*

— *Part 4: Tables of hardness values*

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Metallic materials — Vickers hardness test —

Part 2:
Verification and calibration of testing machines

1 Scope

This part of ISO 6507 specifies a method of verification of testing machines for determining Vickers hardness in accordance with ISO 6507-1.

It specifies a direct verification method for checking the main functions of the machine operation, and an indirect method suitable for the overall checking of the machine. The indirect method may be used on its own for periodic routine checking of the machine in service.

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

This part of ISO 6507 is also applicable to portable hardness testing machines.

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2 Normative references

The following referenced documents are indispensable for the application 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, *Metallic materials — Calibration of force-proving instruments used for the verification of uniaxial testing machines*

ISO 3878, *Hardmetals — Vickers hardness test*

ISO 6507-1:2005, *Metallic materials — Vickers hardness test — Part 1: Test method*

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

3 General conditions

Before a Vickers hardness testing machine is verified, the machine 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 sliding in its guide;

b) the indenter-holder is firmly mounted in the plunger;

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

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d) if the measuring system is integral with the machine

— the change from removing the test force to measuring mode does not influence the readings,

— illumination does not affect the readings,

— the centre of the indentation is in the centre of the field of view, if necessary.

The illumination device of the measuring microscope shall produce uniform lighting of the whole observed field and maximum contrast between the indentation and the surrounding surface.

4 Direct verification

4.1 General

4.1.1 Direct verification should be carried out at a temperature of (23 ± 5) °C. If the verification is made outside this temperature range, this shall be reported in the verification report.

4.1.2 The instruments used for verification and calibration shall be traceable to national standards.

4.1.3 Direct verification involves:

a) calibration of the test force;

b) verification of the indenter;

c) calibration of the measuring system;

d) verification of the testing cycle.

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4.2 Calibration of the test force

4.2.1 Each test force used within the working range of the testing machine shall be measured. Whenever applicable, this shall be done at not less than three positions of the plunger uniformly spaced throughout its range of movement during testing.

4.2.2 Three readings shall be taken for each test force at each position of the plunger. Immediately before each reading is taken, the plunger shall have been moved in the same direction as during testing.

4.2.3 The test force shall be measured by one of the following two methods:

— by means of an elastic proving device in accordance with ISO 376:2004, class 1, or

— by balancing against a force, accurate to ± 0,2 %, applied by means of calibrated masses or another method with the same accuracy.

4.2.4 Each measurement of the force shall be within the tolerances of the nominal value of the test force, as given in Table 1.

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Table 1

Ranges of the test force, F N	Tolerances %
$F \geqslant 1{,}961$	± 1,0
$0{,}098\ 07 \leqslant F < 1{,}961$	± 1,5

4.3 Verification of the indenter

4.3.1 The four faces of the square-based diamond pyramid shall be polished and free from surface defects.

4.3.2 The verification of the shape of the indenter can be made by direct measurement or by measurement of its projection on a screen.

4.3.3 The angle between the opposite faces at the vertex of the diamond pyramid shall be 136° ± 0,5° (see Figure 1).

NOTE The angle between the opposite faces may also be determined by the angle between the opposite edges; this value is 148,11° ± 0,76°.

4.3.4 The angle between the axis of the diamond pyramid and the axis of the indenter-holder (normal to the seating surface) shall be less than 0,50°. The four faces shall meet at a point; the maximum permissible length of the line of conjunction between opposite faces is given in Table 2 (see also Figure 2).

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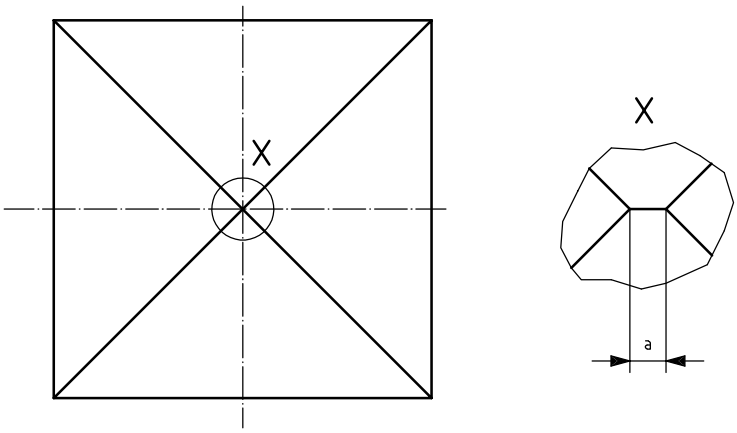
Figure 1 — Angle of the diamond pyramid



Key

a = length of line of conjunction

Figure 2 — Line of conjunction on the top of the indenter (schematic)

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