

STN	Kovové materiály Prístrojom riadená skúška pre meranie tvrdosti a parametrov materiálu Časť 5: Lineárne elastické dynamické prístrojom riadené skúšanie tvrdosti (DIIT) (ISO 14577-5: 2022)	STN EN ISO 14577-5 42 0375
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Metallic materials - Instrumented indentation test for hardness and materials parameters - Part 5: Linear elastic dynamic instrumented indentation testing (DIIT) (ISO 14577-5:2022)

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. 04/26

Obsahuje: EN ISO 14577-5:2026, ISO 14577-5:2022

142355

Úrad pre normalizáciu, metrológiu a skúšobníctvo Slovenskej republiky, 2026
Slovenská technická norma a technická normalizačná informácia je chránená zákonom č. 60/2018 Z. z. o technickej normalizácii v znení neskorších predpisov.

EUROPEAN STANDARD

EN ISO 14577-5

NORME EUROPÉENNE

EUROPÄISCHE NORM

February 2026

ICS 77.040.10

English Version

**Metallic materials - Instrumented indentation test for
hardness and materials parameters - Part 5: Linear elastic
dynamic instrumented indentation testing (DIIT) (ISO
14577-5:2022)**

Matériaux métalliques - Essai de pénétration
instrumenté pour la détermination de la dureté et de
paramètres des matériaux - Partie 5: Essai
d'indentation élastique linéaire dynamique
instrumenté (DIIT) (ISO 14577-5:2022)

Metallische Werkstoffe - Instrumentierte
Eindringprüfung zur Bestimmung der Härte und
anderer Werkstoffparameter - Teil 5: Lineare
elastische dynamische instrumentierte
Eindringprüfung (DIIT) (ISO 14577-5:2022)

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EN ISO 14577-5:2026 (E)

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European foreword

The text of ISO 14577-5:2022 has been prepared by Technical Committee ISO/TC 164 "Mechanical testing of metals" of the International Organization for Standardization (ISO) and has been taken over as EN ISO 14577-5:2026 by Technical Committee CEN/TC 459/SC 1 "Test methods for steel (other than chemical analysis)" the secretariat of which is held by AFNOR.

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Endorsement notice

The text of ISO 14577-5:2022 has been approved by CEN as EN ISO 14577-5:2026 without any modification.

**INTERNATIONAL
STANDARD**

**ISO
14577-5**

First edition
2022-10

**Metallic materials — Instrumented
indentation test for hardness and
materials parameters —**

Part 5:
**Linear elastic dynamic instrumented
indentation testing (DIIT)**

*Matériaux métalliques — Essai de pénétration instrumenté pour la
détermination de la dureté et de paramètres des matériaux —*

*Partie 5: Essai d'indentation élastique linéaire dynamique
instrumenté (DIIT)*



Reference number
ISO 14577-5:2022(E)

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Published in Switzerland

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ISO 14577-5:2022(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.

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For an explanation of 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 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*.

A list of all parts in the ISO 14577 series can be found on the ISO website.

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Introduction

Hardness has typically been defined as the resistance of a material to permanent penetration by another harder material. The results obtained when performing Rockwell, Vickers and Brinell tests are determined after the test force has been removed. Therefore, the effect of elastic deformation under the indenter has been ignored.

ISO 14577 (all parts) has been prepared to enable the user to evaluate the indentation of materials by considering both the force and displacement during plastic and elastic deformation. By monitoring the complete cycle of increasing and removal of the test force, hardness values equivalent to traditional hardness values can be determined. More significantly, additional properties of the material, such as its indentation modulus and elasto-plastic hardness, can also be determined. All these values can be calculated without the need to measure the indent optically.

This document has been prepared to enable the user to make reliable measurements of indentation hardness and indentation modulus, when dynamic indentation test techniques are used to improve instrumented indentation test techniques.

Metallic materials — Instrumented indentation test for hardness and materials parameters —

Part 5: Linear elastic dynamic instrumented indentation testing (DIIT)

1 Scope

This document specifies the method of linear elastic dynamic instrumented indentation test for determination of indentation hardness and indentation modulus of materials showing elastic-plastic behaviour when oscillatory force or displacement is applied to the indenter while the load or displacement is held constant at a prescribed target value or while the indenter is continuously loaded to a prescribed target load or target depth.

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 14577-1, *Metallic materials — Instrumented indentation test for hardness and materials parameters — Part 1: Test method*

ISO 14577-2, *Metallic materials — Instrumented indentation test for hardness and materials parameters — Part 2: Verification and calibration of testing machines*

ISO 14577-3, *Metallic materials — Instrumented indentation test for hardness and materials parameters — Part 3: Calibration of reference blocks*

ISO 14577-4, *Metallic materials — Instrumented indentation test for hardness and materials parameters — Part 4: Test method for metallic and non-metallic coatings*

ISO/IEC Guide 98-3, *Uncertainty of measurement — Part 3: Guide to the expression of uncertainty in measurement (GUM:1995)*

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