



SLOVENSKI STANDARD SIST EN ISO 10360-5:2001

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Geometrical Product Specification (GPS) - Acceptance and reverification tests for coordinate measuring machines (CMM) - Part 5: CMMs using multiple-stylus probing systems (ISO 10360-5:2000)

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Geometrische Produktspezifikation (GPS) - Annahmeprüfung und Bestätigungsprüfung für Koordinatenmeßgeräte (KMG) - Teil 5: KMG mit Mehrfachtastern (ISO 10360-5:2000)

Spécification géométrique des produits (GPS) - Essais de réception et de vérification périodique des machines à mesurer tridimensionnelles (MMT) - Partie 5: MMT utilisant des systèmes de palpée à stylets multiples (ISO 10360-5:2000)

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Geometrical Product Specifications (GPS) - Acceptance and
reverification tests for coordinate measuring machines (CMM) -
Part 5: CMMs using multiple-stylus probing systems (ISO
10360-5:2000)

Spécification géométrique des produits (GPS) - Essais de
réception et de vérification périodique des machines à
mesurer tridimensionnelles (MMT) - Partie 5: MMT utilisant
des systèmes de palpage à stylets multiples (ISO 10360-
5:2000)

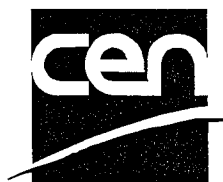
Geometrische Produktspezifikation (GPS) -
Annahmeprüfung und Bestätigungsprüfung für
Koordinatenmeßgeräte (KMG) - Teil 5: KMG mit
Mehrfachtastern (ISO 10360-5:2000)

This European Standard was approved by CEN on 16 November 2000.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Management Centre or to any CEN member.

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 Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION
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EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: rue de Stassart, 36 B-1050 Brussels

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EN ISO 10360-5:2000

Foreword

The text of the International Standard ISO 10360-5:2000 has been prepared by Technical Committee ISO/TC 213 "Dimensional and geometrical product specifications and verification" in collaboration with Technical Committee CEN/TC 290 "Dimensional and geometrical product specifications and verification", 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 2001, and conflicting national standards shall be withdrawn at the latest by June 2001.

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

Endorsement notice

The text of the International Standard ISO 10360-5:2000 was approved by CEN as a European Standard without any modification.

NOTE: Normative references to International Standards are listed in annex ZA (normative).

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Annex ZA (normative)
**Normative references to international publications
 with their relevant European publications**

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

NOTE Where an International Publication has been modified by common modifications, indicated by (mod.), the relevant EN/HD applies.

Publication	Year	Title	EN	Year
ISO 10360-1	2000	Geometrical Product Specifications (GPS) - Acceptance and reverification tests for coordinate measuring machines (CMM) - Part 1: Vocabulary	EN ISO 10360-1	2000
ISO 14253-1	1998	Geometrical Product Specifications (GPS) - Inspection by measurement of workpieces and measuring equipment - Part 1: Decision rules for proving conformance or non-conformance with specifications	EN ISO 14253-1	1998

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STANDARD

ISO
10360-5

First edition
2000-12-15

**Geometrical Product Specifications
(GPS) — Acceptance and reverification
tests for coordinate measuring machines
(CMM) —**

Part 5:

**CMMs using multiple-stylus probing
systems**

*Spécification géométrique des produits (GPS) — Essais de réception et de
vérification périodique des machines à mesurer tridimensionnelles
(MMT)*

Partie 5: MMT utilisant des systèmes de palpation à stylets multiples



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ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.ch
Web www.iso.ch

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ISO 10360-5:2000(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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

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 part of ISO 10360 may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 10360-5 was prepared by Technical Committee ISO/TC 213, *Dimensional and geometrical product specifications and verification*.

ISO 10360 consists of the following parts, under the general title *Geometrical Product Specifications (GPS) — Acceptance and reverification tests for coordinate measuring machines (CMM)*:

- Part 1: Vocabulary
- Part 2: CMMs used for measuring linear size
- Part 3: CMMs with the axis of a rotary table as the fourth axis
- Part 4: CMMs used in scanning measuring mode
- Part 5: CMMs using multiple-stylus probing systems
- Part 6: Estimation of errors in computing Gaussian associated features

Annexes A and B of this part of ISO 10360 are for information only.

Introduction

This part of ISO 10360 is a geometrical product specification (GPS) standard and is to be regarded as a general GPS standard (see ISO/TR 14638). It influences chain link 5 of the chains of standards on size, distance, radius, angle, form, orientation, location, run-out and datums.

For more detailed information on the relation of this part of ISO 10360 to other standards and the GPS matrix model see annex B.

The acceptance and reverification tests described in this part of ISO 10360 are applicable to CMMs that use more than one stylus, or stylus orientation, when measuring a workpiece.

Experience has shown that errors calculated using this part of ISO 10360 are significant and, at times, the dominant errors in the CMM. Owing to the virtually infinite variety of modern CMM probing-system configurations, the tests specified by this part of ISO 10360 have been limited to providing a testing format only. The tests are intended to provide information on the ability of a CMM to measure a feature, or features, using multiple styli, probes or articulated-probe positions.

The situations to which they are applicable include

- multiple styli connected to the CMM probe (e.g. a star),
- installations using an articulating probing system (motorized or manual) that can be prequalified,
- installations using a repeatable probe-changing system,
- installations using a repeatable stylus-changing system, and
- multiple-probe installations.

It is believed that the procedures given in this part of ISO 10360 will be helpful in minimizing probing-system uncertainty components for specific measurement tasks, and that the user will be able to reduce errors by removing contributing elements such as long extensions and styli, then retesting the new configuration set.

The tests in this part of ISO 10360 are sensitive to many errors attributable to both the CMM and the probing system, and are to be performed in addition to the size-measuring test given in ISO 10360-2 (conducted using only one stylus), and in addition to, or instead of, the test of the probing system specified in ISO 10360-2.