SLOVENSKI STANDARD
SIST EN ISO 10360-6:2004

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Specifikacija geometrijskih veličin izdelka - Preskusi za sprejemljivost in ponovno overjanje koordinatnih merilnih strojev (KMS) - 6. del: Ocena napak pri računanju značilnosti Gaussove porazdelitve (ISO 10360-6:2001)

Geometrical Product Specifications (GPS) - Acceptance and reverification tests for coordinate measuring machines (CMM) - Part 6: Estimation of errors in computing Gaussian associated features (ISO 10360-6:2001)

Geometrische Produktspezifikation (GPS) - Annahmeprüfung und Bestätigungsprüfung für Koordinatenmessgeräte (KMG) - Teil 6: Abweichungsabschätzung beim Berechnen zugeordneter Geometrieelemente nach Gauß (ISO 10360-6:2001)

Spécification géométrique des produits (GPS) - Essai de réception et de vérification périodique des machines a mesurer tridimensionnelles (MMT) - Partie 6: Estimation des erreurs dans le calcul des éléments associés Gaussiens (ISO 10360-6:2001)

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This European Standard was approved by CEN on 12 November 2001.

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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 Management Centre has the same status as the official versions.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Foreword

This document (ISO 10360-6:2001) 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 specification 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of an identical text or by endorsement, at the latest by June 2002, and conflicting national standards shall be withdrawn at the latest by June 2002.

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 10360-6:2001 has been approved by CEN as a European Standard without any modifications.

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

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 10360-2	1994	Coordinate metrology - Part 2: Performance assessment of coordinate measuring machines	EN ISO 10360-2	1995
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
ISO 14660-1	1999	Geometrical Product Specifications (GPS) - Geometrical features - Part 1: General terms and definitions	EN ISO 14660-1	1999
ISO 14660-2	1999	Geometrical Product Specifications (GPS) - Geometrical features - Part 2: Extracted median line of a cylinder and a cone, extracted median surface, local size of an extracted feature	EN ISO 14660-2	1999

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

Part 6: Estimation of errors in computing Gaussian associated features

Spécification géométrique des produits (GPS) — Essai de réception et de vérification périodique des machines à mesurer tridimensionnelles (MMT) — Partie 6: Estimation des erreurs dans le calcul des éléments associés gaussiens

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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 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 10360-6 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 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*

Annex A forms a normative part of this part of ISO 10360. Annex B is 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 link 5 of the chains of standards on size, distance, radius, angle, form, orientation, location, run-out and datums.

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

Coordinate measurement technology is widely used in industrial metrology to assess features of a workpiece. A common requirement is to fit an associated feature to a data set consisting of coordinate measurements of a real feature. This fitting is carried out by software.

Software for calculating an associated feature provides values of parameters of the associated feature that are descriptive of the size, shape, location and orientation of the feature. These parameters are useful

— for the purpose of carrying out calculations involving the feature, often in conjunction with other associated features and other information, and

— in determining the extent to which a workpiece satisfies dimensional and positional specifications.

The reliability of information about features that is determined from associated features is influenced by the quality of the software for computing these features.

The tests defined in this part of ISO 10360 are concerned with assessing the correctness of the parameters of computed associated features as measured by a coordinate measuring machine (CMM) or other coordinate measuring system. Although different criteria may be used to compute associated features, for example, by minimizing the Euclidean or Chebyshev norm of residuals, this test is applicable for software designed for unconstrained Gaussian (least-squares) features.

In the case of reverification tests of CMMs, the software test of this part of ISO 10360 usually does not provide new or different information in comparison with that obtained by an acceptance test, since software is supposed to be stable over time. However, a reverification test of the software may be useful following possible corruption or alteration of the software under test.

For software already in existence, the evaluation of the performance may not be obtained only by fulfilling the requirements of this part of ISO 10360. However, such cases do not necessarily exclude the ability of the software to perform correct computation of measurements.

This part of ISO 10360 is applicable to software submitted for test in respect of the values it provides for the parameters of an associated feature. The test procedure is based on applying the software under test to reference data sets, and comparing the results obtained with reference results.