SLOVENSKI STANDARD
oSIST prEN ISO 5459:2008

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Geometrijska specifikacija proizvoda - Geometrijsko toleriranje - Reference in sistemi referenc (ISO/DIS 5459:2008)

Geometrical product specifications (GPS) - Geometrical tolerancing - Datums and datum -systems (ISO/DIS 5459:2008)

Geometrische Produktspezifikation (GPS) - Geometrische Tolerierung - Bezüge und Bezugssysteme (ISO/DIS 5459:2008)

Spécification géométrique des produits (GPS) - Tolérancement géométrique - Références spécifiées et systèmes de références spécifiées (ISO/DIS 5459:2008)

Ta slovenski standard je istoveten z: **prEN ISO 5459**

ICS:

17.040.30	Merila	Measuring instruments

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English Version

Geometrical product specifications (GPS) - Geometrical tolerancing - Datums and datum-systems (ISO/DIS 5459:2008)

Spécification géométrique des produits (GPS) - Tolérancement géométrique - Références spécifiées et systèmes de références spécifiées (ISO/DIS 5459:2008)

Geometrische Produktspezifikation (GPS) - Geometrische Tolerierung - Bezüge und Bezugssysteme (ISO/DIS 5459:2008)

This draft European Standard is submitted to CEN members for third parallel enquiry. It has been drawn up by the Technical Committee CEN/TC 290.

If this draft becomes a European Standard, 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.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Foreword

This document (prEN ISO 5459:2008) 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 document is currently submitted to the third parallel Enquiry.

Endorsement notice

The text of ISO/DIS 5459:2008 has been approved by CEN as a prEN ISO 5459:2008 without any modification.

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Geometrical product specifications (GPS) — Geometrical tolerancing — Datums and datum-systems

Spécification géométrique des produits (GPS) — Tolérancement géométrique — Références spécifiées et systèmes de références spécifiées

[Revision of first edition (ISO 5459:1981)]

ICS 01.100.20; 17.040.10

ISO/CEN PARALLEL ENQUIRY

The CEN Secretary-General has advised the ISO Secretary-General that this ISO/DIS covers a subject of interest to European standardization. **In accordance with the ISO-lead mode of collaboration as defined in the Vienna Agreement, consultation on this ISO/DIS has the same effect for CEN members as would a CEN enquiry on a draft European Standard.** Should this draft be accepted, a final draft, established on the basis of comments received, will be submitted to a parallel two-month FDIS vote in ISO and formal vote in CEN.

To expedite distribution, this document is circulated as received from the committee secretariat. ISO Central Secretariat work of editing and text composition will be undertaken at publication stage.

Pour accélérer la distribution, le présent document est distribué tel qu'il est parvenu du secrétariat du comité. Le travail de rédaction et de composition de texte sera effectué au Secrétariat central de l'ISO au stade de publication.

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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 5459 was prepared by Technical Committee ISO/TC 213, *Dimensional and geometrical product specifications and verification*.

This second edition cancels and replaces the first edition (ISO 5459:1981), which has been technically revised.

Introduction

ISO 5459 is a Geometrical product specification (GPS) standard and is to be regarded as a general GPS standard (see ISO/TR 14638). It influences the chain links 1 to 3 of the chain of standards on datums.

For more detailed information of the relation of this International Standard to the GPS matrix model, see Annex F.

For the definitive presentation (proportions and dimensions) of symbols for geometrical tolerancing, see ISO 7083:1983.

The previous version of ISO 5459 dealt only with planes, cylinders and spheres being used as datums. There is a need to consider all types of surfaces, which are being increasingly used in industry. The definitions of classes of surfaces as given in Annex A are exhaustive and unambiguous.

This edition of ISO 5459 applies new concepts and terms that have not been used in previous ISO GPS standards. These concepts are described in detail in ISO/TR 14638, ISO/TS 17450-1 and ISO/TS 17450-2; therefore, it is recommended to refer to these standards when using ISO 5459.

Geometrical product specifications (GPS) — Geometrical tolerancing — Datums and datum-systems

IMPORTANT — ISO/TC 213 is aware that the illustrations included in this Draft International Standard are not of a quality that is required for use in industry (in terms of full conformity with the standards prepared by ISO/TC 10 and ISO/TC 213). The illustrations will be corrected prior to the Final Draft International Standard (FDIS) stage.

1 Scope

This International Standard specifies terminology, rules and methodology for the indication and understanding of datums and datum-systems in technical product documentation. This International Standard also provides explanations to assist the user in understanding the concepts involved.

This International Standard defines the specification operator (see ISO/TS 17450-2) used to establish a datum or datum-system. The verification operator (see ISO/TS 17450-2) can take different forms (physically or mathematically) and is not the subject of this International Standard.

NOTE The detailed rules concerning maximum and/or least material requirements for datums are given in ISO 2692.

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 128-24:1999, *Technical drawings — General principles of presentation — Part 24: Lines on mechanical engineering drawings*

ISO 1101:2004, *Geometrical Product Specifications (GPS) — Geometrical tolerancing — Tolerances of form, orientation, location and run-out*

ISO 2692:2006, *Geometrical product specifications (GPS) — Geometrical tolerancing — Maximum material requirement (MMR), least material requirement (LMR) and reciprocity requirement (RPR)*

ISO 14660-1:1999, *Geometrical Product Specifications (GPS) — Geometrical features — Part 1: General terms and definitions*

ISO/TS 17450 (all parts), *Geometrical product specifications (GPS) — General concepts*

3 Terms and definitions

For the purpose of this document, the terms and definitions of ISO 1101, ISO 2692, ISO 14660-1, ISO/TS 17450-1, ISO/TS 17450-2 and the following apply.

3.1
situation feature
point, straight line, plane or helix, from which the location and/or orientation of features can be defined

3.2
datum feature
non-ideal integral feature used for establishing a datum

NOTE A datum feature can be a complete surface, a portion of a complete surface, or a feature of size.

3.3
associated feature (for establishing a datum)
ideal feature which is fitted to the datum feature with a specific association criterion

NOTE 1 The type of the associated feature is generally the same as the type of the nominal integral feature used to establish the datum (see rules W5 and R5).

NOTE 2 The associated feature for establishing a datum simulates the contact between the real surface of the workpiece and other components of an assembly or the fixture used to locate or orientate the workpiece during manufacture or inspection.

3.4
datum
one or more situation features of one or more features associated to datum features, selected to define the location and/or orientation of a tolerance zone or to define the location and/or the orientation of an ideal feature (in the case of complementary requirements, e.g. maximum material requirement)

NOTE 1 A datum is theoretically exact.

NOTE 2 The concept of datums is inherently reliant upon the invariance class concept (see Annex A).

3.5
single datum
datum established from one datum feature taken on a single surface or from one feature of size

NOTE A single surface can be complex, prismatic, helical, cylindrical, revolute, planar or spherical (see Table A.1).

3.6
common datum
datum established from two or more datum features considered simultaneously

NOTE 1 To define a common datum, it is necessary to consider the collection surface created by the considered datum features.

NOTE 2 The collection surface can be complex, prismatic, helical, cylindrical, revolute, planar or spherical (see Table A.1).

3.7
datum-system
datum established from two or more datum features considered in a specific order

NOTE 1 To define a datum-system, it is necessary to consider the collection surface created by the considered datum features.

NOTE 2 The collection surface can be complex, prismatic, helical, cylindrical, revolute, planar or spherical (see Table A.1).

3.8
datum target
portion of a datum feature which can be a point, a line or an area

3.9
collection surface
two or more surfaces considered simultaneously as a single surface

NOTE The invariance class of collection surfaces is used to determine the datums or datum-systems (see 5.3.1).

EXAMPLE Two intersecting planes may be considered together or separately. When the two intersecting planes are considered simultaneously as a single surface, that surface is a collection surface.

3.10
feature of size
geometrical shape defined by a linear or angular dimension which is a size

NOTE The features of size can be a cylinder, a sphere, two parallel opposite surfaces, a cone or a wedge.

[ISO 14660-1:1999, 2.2]

3.11
objective function (for association)
formula that describes the quality of association

NOTE In this International Standard, the term “objective function” refers to “objective function for association”.

3.12
association
operation used to fit ideal feature(s) to non-ideal feature(s) according to a criterion

[ISO/TS 17450-1:2005, 3.2]

3.13
constraint
additional condition to be satisfied while optimizing an objective function

3.14
association criterion
objective function with or without constraints, defined for association

NOTE 1 Several constraints may be defined for an association.

NOTE 2 Association results (associated features) may differ, dependent upon the choice of association criterion.

3.15
integral feature
surface or line on a surface

NOTE An integral feature is intrinsically defined.

[ISO/TS 14660-1:1999, 2.1.1]

3.16
invariance degree (of an ideal feature)
displacement(s) of the ideal feature for which the feature is kept identical in the space

NOTE It corresponds to the degree of freedom used in kinematics.

[ISO/TS 17450-1:2005, 3.16]

3.17
invariance class
a group of ideal features defined by the same invariance degree

[ISO/TS 17450-1:2005, 3.15]

NOTE See Annex A.