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STN	**Geometrické špecifikácie výrobkov (GPS) Geometrické tolerovanie Základne a sústavy základní (ISO 5459: 2024)**	**STN EN ISO 5459 01 4402**

Geometrical product specifications (GPS) - Geometrical tolerancing - Datums and datum systems (ISO 5459:2024)

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. 12/24

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English Version

Geometrical product specifications (GPS) - Geometrical tolerancing - Datums and datum systems (ISO 5459:2024)

Spécification géométrique des produits (GPS) - Tolérancement géométrique - Références spécifiées et systèmes de références spécifiées (ISO 5459:2024)

Geometrische Produktspezifikation (GPS) - Geometrische Tolerierung - Bezüge und Bezugssysteme (ISO 5459:2024)

This European Standard was approved by CEN on 27 July 2024.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
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EUROPÄISCHES KOMITEE FÜR NORMUNG

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European foreword

This document (EN ISO 5459:2024) 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of an identical text or by endorsement, at the latest by April 2025, and conflicting national standards shall be withdrawn at the latest by April 2025.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

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Endorsement notice

The text of ISO 5459:2024 has been approved by CEN as EN ISO 5459:2024 without any modification.

International Standard

ISO 5459

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

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

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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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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 213, *Dimensional and geometrical product specifications and verification*, collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 290, *Dimensional and geometrical product specification and verification,* in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This third edition cancels and replaces the second edition (ISO 5459:2011), which has been technically revised.

The main changes are as follows:

— update of the Normative references and Bibliography;

— addition of definitions 3.20, 3.20.1 and 3.20.2;

— in Table 1, update of the symbol of the datum feature indicator;

— in Table 1, addition of the symbol of single datum target indicator, moveable datum target indicator, restricted datum feature, indication of a situation feature and datum coordinate system indicator, and addition of a note;

— in Table 2, addition of [SV], [SF] and [SF*xx*], and addition of a note;

— in Clause 6, addition of a paragraph before the example in 6.1, update of 6.2.1 and 6.2.2, replacement of the first paragraph in 6.2.3 and 6.2.4, addition of the last paragraph in 6.3.2 and table titles added in 6.3.2 and subsequent tables renumbered;

— in Clause 7, addition of a note in 7.1, update of 7.2.1, 7.3, 7.4.2.1 and 7.4.2.2, update of the text and figures in 7.4.2.4 up to Figure 22, update of the first paragraph of 7.4.2.6, update of Figure 39, addition of a new rule 11 in 7.4.2.11 and a new rule 12 in 7.4.2.12;

— addition of a new Clause 8;

— in Annex A, update of the text between Figures A.1 and A.2, update of the first paragraph in A.2.1 and of Figure A.4, addition of Notes 1 and 2 in A.2.2.3, and update of the row for the plane in Table A.2;

— addition of a new Clause D.4;

— update of Annex F, addition of new Annexes G to J, update of Annex K giving the relation to the GPS matrix model.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

This document is a geometrical product specification (GPS) standard and is to be regarded as a general GPS standard (see ISO 14638). It influences chain links A to C of the chains of standards on datums.

The ISO GPS matrix model given in ISO 14638 gives an overview of the ISO GPS system of which this document is a part. The fundamental rules of ISO GPS given in ISO 8015 apply to this document and the default decision rules given in ISO 14253-1 apply to the specifications made in accordance with this document, unless otherwise indicated.

For more detailed information on the relationship of this document to other standards and the GPS matrix model, see Annex K.

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

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

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

This document provides tools to express location or orientation constraints, or both, for a tolerance zone. It does not provide information about the relationship between datums or datum systems and functional requirements or applications.

International Standard **ISO 5459:2024(en)**

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

1 Scope

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

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

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

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 128-2:2022, *Technical product documentation (TPD) — General principles of representation — Part 2: Basic conventions for lines*

ISO 1101, *Geometrical product specifications (GPS) — Geometrical tolerancing — Tolerances of form, orientation, location and run-out*

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

ISO 4351, *Geometrical product specifications (GPS) — Association*

ISO 17450-1, *Geometrical product specifications (GPS) — General concepts — Part 1: Model for geometrical specification and verification*

ISO 17450-2, *Geometrical product specifications (GPS) — General concepts — Part 2: Basic tenets, specifications, operators, uncertainties and ambiguities*