SLOVENSKI STANDARD
oSIST prEN ISO 10360-102:2025

01-april-2025

Specifikacija geometrijskih veličin izdelka (GPS) - Preskusi za sprejemljivost in ponovno overjanje koordinatnih merilnih strojev (KMS) - 102. del: Slovnica simbolov za meroslovne značilnosti (ISO/DIS 10360-102:2025)

Geometrical Product Specifications (GPS) - Acceptance and reverification tests for coordinate measuring systems (CMS) - Part 102: Grammar of symbols for metrological characteristics (ISO/DIS 10360-102:2025)

Geometrische Produktspezifikation (GPS) - Annahmeprüfung und Bestätigungsprüfung für Koordinatenmesssysteme (KMS) - Teil 102: Regeln für die Verwendung von Symbolen (Formelzeichen) für messtechnische Merkmale (ISO/DIS 10360□102:2025)

Spécification géométrique des produits (GPS) - Essais de réception et de vérification périodique des systèmes à mesurer tridimensionnels (SMT) - Partie 102: Grammaire des symboles pour les caractéristiques métrologiques (ISO/DIS 10360-102:2025)

Ta slovenski standard je istoveten z: **prEN ISO 10360-102**

ICS:

17.040.30	Merila	Measuring instruments
17.040.40	Specifikacija geometrijskih veličin izdelka (GPS)	Geometrical Product Specification (GPS)

oSIST prEN ISO 10360-102:2025 **en,fr,de**

DRAFT International Standard

ISO/DIS 10360-102

Geometrical product specifications (GPS) — Acceptance and reverification tests for coordinate measuring systems (CMS) —

Part 102: Grammar of symbols for metrological characteristics

ICS: 17.040.40

ISO/TC **213**

Secretariat: **BSI**

Voting begins on:
2025-02-13

Voting terminates on:
2025-05-08

This document is circulated as received from the committee secretariat.

ISO/CEN PARALLEL PROCESSING

Reference number
ISO/DIS 10360-102:2025(en)

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Published in Switzerland

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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 documents 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).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

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*.

A list of all parts in the ISO 10360 series can be found on the ISO website.

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

The ISO 10360 series of documents is widely used in industry for the acceptance and the reverification testing of CMSs (coordinate measuring systems). It includes several documents addressing different CMS technologies. These documents are designed to ensure the highest possible degree of internal consistency in spite of their diversity.

This and other documents of the ISO 10360 series with Part numbers in excess of 100 (e.g. ISO 10360-102) describe the commonalities of the ISO 10360 series. The purpose is to provide a reference for the development of future ISO 10360 documents and the revision of existing ISO 10360 documents as well as to disclose the commonalities to the public and to improve awareness and understanding overall.

The ISO 10360 series of documents defines metrological characteristics – typically error parameters – and their specifications (MPEs or MPLs, maximum permissible errors or limits) of CMSs. Symbols are associated to them for convenience and ease of reference. The association of symbols to corresponding metrological characteristics and their specifications is conventional and any is valid in principle, provided that it is unambiguous (i.e. the correspondence is one-to-one) and in conformity to the requirements of ISO 80000-1. In practice, the increasing number of ISO 10360 documents and of metrological characteristics therein would result in a chaos of symbols without a systematic rule in assigning and interpreting them.

The symbols in the ISO 10360 series of documents follow an underlying grammar named G3, to create valid and consistent symbols. Annex B recalls the evolution of the symbols of the ISO 10360 series and the underlying grammar generations. Mastering the details of such grammar is the responsibility of standard makers; familiarizing themselves with it (by understanding its foundations, goals and main characteristics) is important for standard users too, to avoid confusion (symbols are sometimes long and complex) and to take advantage in reading, interpreting and comparing.

Annex A provides a complete set of grammar rules for the G3 symbols and is intended mainly for standard makers for defining new symbols of metrological characteristics and their specifications in Parts of the ISO 10360 series of documents.

Geometrical product specifications (GPS) — Acceptance and reverification tests for coordinate measuring systems (CMS) —

Part 102:
Grammar of symbols for metrological characteristics

1 Scope

This document defines the grammar of symbols used in the ISO 10360 series of documents to identify metrological characteristics of coordinate measuring systems (CMSs) and their specifications.

This document does not provide the meaning of these symbols, neither of whole symbols nor of their components. These meanings are defined in the ISO 10360 documents introducing them.

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 10360-1, *Geometrical product specifications (GPS) — Acceptance and reverification tests for coordinate measuring machines (CMM) — Part 1: Vocabulary*

ISO 14978, *Geometrical product specifications (GPS) — General concepts and requirements for GPS measuring equipment*

ISO 80000-1, *Quantities and units — Part 1: General*

ISO/IEC Guide 99, *International vocabulary of metrology — Basic and general concepts and associated terms (VIM)*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

NOTE 1 “Coordinate Measuring Machine (CMM)” is defined in ISO 10360-1.

NOTE 2 “Maximum permissible Error (MPE)” is defined in ISO/IEC Guide 99.

NOTE 3 “Maximum permissible Limit (MPL)” is defined in ISO 14978.

3.1
grammar of symbols
G3
grammar of the symbols, defined in this document, associated with the metrological characteristics of CMSs and their specifications as defined in ISO 10360 series of documents

3.2
G3 symbol
symbol compliant with G3

3.3
symbol component
component
portion of a G3 symbol that expresses a self-contained component of the meaning of the G3 symbol

Note 1 to entry: Symbol components are separated by punctuation.

Note 2 to entry: G3 symbols of metrological characteristics and their specifications are made of an ordered sequence of symbol components.

3.4
test value symbol component
test value component
symbol component that identifies the value obtained in the test of a CMS capturing the metrological characteristic with which the G3 symbol is associated

Note 1 to entry: Test value symbol components are indicated in green in this document for convenience.

3.5
procedure symbol component
procedure component
symbol component that identifies the procedural details of the metrological characteristic with which the G3 symbol is associated

Note 1 to entry: Procedure symbol components are indicated in red in this document for convenience.

3.6
technology symbol component
technology component
symbol component that identifies the CMS type (or technology) with which the metrological characteristic's G3 symbol is associated

Note 1 to entry: Technology symbol components are indicated in blue in this document for convenience.

3.7
specification symbol component
specification component
symbol component that identifies a specification

Note 1 to entry: G3 symbols of metrological characteristics do not have a specification symbol component.

Note 2 to entry: Specification symbol components are indicated in magenta in this document for convenience.

3.8
symbol component word
word
<of a G3 symbol component> smallest portion of a symbol component that carries a unit of meaning

Note 1 to entry: Note to entry: A symbol component may contain one or more words.

4 Objectives

The G3 has the following objectives:

— to maintain consistency of symbols throughout the ISO 10360 series of documents, and underpin one-to-one correspondence between metrological characteristics and their specifications, and G3 symbols;