SLOVENSKI STANDARD
oSIST prEN ISO 12179:2025

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Specifikacija geometrijskih veličin izdelka (GPS) - Tekstura površine: profilna - Umerjanje kontaktnih (s tipalom) instrumentov (ISO/DIS 12179:2025)

Geometrical product specifications (GPS) - Surface texture: Profile - Calibration of contact (stylus) instruments (ISO/DIS 12179:2025)

Geometrische Produktspezifikation (GPS) - Oberflächenbeschaffenheit: Profil - Kalibrierung von Tastschnittgeräten (ISO/DIS 12179:2025)

Spécification géométrique des produits (GPS) - État de surface: Profil - Étalonnage des instruments à contact (palpeur) (ISO/DIS 12179:2025)

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17.040.40	Specifikacija geometrijskih veličin izdelka (GPS)	Geometrical Product Specification (GPS)

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DRAFT International Standard

ISO/DIS 12179

Geometrical product specifications (GPS) — Surface texture: Profile — Calibration of contact (stylus) instruments

Spécification géométrique des produits (GPS) — État de surface: Profil — Étalonnage des instruments à contact (palpeur)

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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).

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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*.

This third edition cancels and replaces the second edition (ISO 12179:2021), which has been technically revised.

The main changes to the previous edition are as follows:

— Annex C has been amended and 8.2 has been modified accordingly.

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 link G of the chain of standards on profile surface texture.

The ISO GPS matrix model is given in ISO 14638, For more detailed information on the relationship of this document to the GPS matrix model, see Annex F. An overview of standards on profiles and areal surface texture is given in Annex E.

This document introduces calibration of contact (stylus) instruments as defined in ISO 25178-601. The calibration is carried out with the aid of measurement standards.

Geometrical product specifications (GPS) — Surface texture: Profile — Calibration of contact (stylus) instruments

1 Scope

This document specifies the calibration and adjustment of the metrological characteristics of contact (stylus) instruments for the measurement of surface texture by the profile method as defined in ISO 25178-601. The calibration and adjustment is intended to be carried out with the aid of measurement standards.

Annex B specifies the calibration and adjustment of metrological characteristics of simplified operator contact (stylus) instruments which do not conform with ISO 25178-601.

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 10012, *Measurement management systems — Requirements for measurement processes and measuring equipment*

ISO 14253-2, *Geometrical product specifications (GPS) — Inspection by measurement of workpieces and measuring equipment — Part 2: Guidance for the estimation of uncertainty in GPS measurement, in calibration of measuring equipment and in product verification*

ISO 25178-73:2019, *Geometrical product specifications (GPS) — Surface texture: Areal — Part 73: Terms and definitions for surface defects on material measures*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 25178-601, ISO 14253-1, ISO 21920-2, ISO/IEC Guide 98-3 and ISO/IEC Guide 99 and the following 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/

3.1
calibration
operation that, under specified conditions:

a) in a first step, establishes a relation between the quantity values with measurement uncertainties provided by measurement standards and corresponding indications with associated measurement uncertainties; and

b) in a second step, uses this information to establish a relation for obtaining a measurement result from an indication

[SOURCE: ISO/IEC Guide 99:2007, 2.39, modified — Notes to entry removed.]

3.2
task-related calibration
set of operations which establish, under specified conditions, the relationship between values of quantities indicated by a measuring instrument and the corresponding known values of a limited family of precisely defined measurands which constitute a subset of the measuring capabilities of the measuring instrument

3.3
adjustment
adjustment of a measuring system
set of operations carried out on a measuring system so that it provides prescribed indications corresponding to given values of a quantity to be measured

[SOURCE: ISO/IEC Guide 99:2007, 3.11, modified — Notes to entry removed.]

3.4
measurement standard
etalon
realization of the definition of a given quantity, with stated quantity value and associated measurement uncertainty, used as a reference

Note 1 to entry: Measurement standards are also referred to as “calibration specimens”.

[SOURCE: ISO/IEC Guide 99:2007, 5.1, modified — Examples and Notes to entry removed.]

3.5
measurement uncertainty
uncertainty of measurement
uncertainty
non-negative parameter characterizing the dispersion of the quantity values being attributed to a measurand, based on the information used

[SOURCE: ISO/IEC Guide 99:2007, 2.26, modified — Notes to entry removed.]

3.6
metrological traceability
property of a measurement result whereby the result can be related to a reference through a documented unbroken chain of calibrations, each contributing to the measurement uncertainty

[SOURCE: ISO/IEC Guide 99:2007, 2.41, modified — Notes to entry removed.]

3.7
defect
<material measures> part of the measurement standard’s geometrical feature (non-ideal surface) on which the geometrical shape and geometrical dimensions deviate from those on the nominal feature (ideal surface) either by an amount greater than some agreed or stated maximum value, or, in the absence of any such agreed or stated maximum value, by an amount greater than what is typical or characteristic for the processes used in manufacturing the measurement standard

[SOURCE: ISO 25178-73:2019, 3.1.2, modified — Notes to entry removed.]

3.8
residual profile
primary profile obtained by tracing an ideally smooth and flat surface (optical flat)

Note 1 to entry: The residual profile is composed of the deviations of the guide, external and internal disturbances, as well as deviations in profile transmission. The determination of the causes of the deviations is not normally possible without special equipment and a suitable environment.