International Standard

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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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Contents

Page

Foreword ... **iv**
Introduction ... **v**
1 Scope ... **1**
2 Normative references ... **1**
3 Terms and definitions ... **1**
4 Conditions of use ... **3**
4.1 Components and configurations of the contact (stylus) instrument ... 3
4.2 Calibration of a configuration ... 3
4.3 Place of calibration ... 3
4.4 Defects ... 3
5 Measurement standards ... **3**
6 Contact (stylus) instrument metrological characteristics ... **6**
6.1 General ... 6
6.2 Residual profile calibration ... 6
6.3 Vertical profile component calibration ... 7
6.4 Horizontal profile component calibration ... 7
6.5 Profile coordinate system calibration ... 7
6.6 Total contact (stylus) instrument calibration ... 7
7 Calibration ... **7**
7.1 Preparation for calibration ... 7
7.2 Evaluation of the residual profile ... 8
7.3 Calibration of the vertical profile component ... 8
7.3.1 Overall objective ... 8
7.3.2 Procedure ... 8
7.4 Calibration of the horizontal profile component ... 9
7.4.1 Overall objective ... 9
7.4.2 Procedure ... 9
7.5 Calibration of the profile coordinate system ... 9
7.5.1 Overall objective ... 9
7.5.2 Procedure ... 9
7.6 Calibration of the total contact (stylus) instrument ... 9
7.6.1 Overall objective ... 9
7.6.2 Procedure ... 9
7.7 Other calibrations ... 10
8 Measurement uncertainty ... **10**
8.1 Information from the calibration certificate for a measurement standard ... 10
8.2 Measurement uncertainty during calibration of a measuring instrument ... 10
9 Contact (stylus) instrument calibration certificate ... **11**
10 General information ... **11**
Annex A (normative) **Calibration of instruments measuring parameters of the motifs method** ... **12**
Annex B (normative) **Calibration of simplified operator instruments for the measurements of surface texture** ... **14**
Annex C (informative) **Example — Roughness measurement standard parameter Ra** ... **15**
Annex D (informative) **Concept diagram** ... **18**
Annex E (informative) **Overview of profile and areal standards in the GPS matrix model** ... **19**
Annex F (informative) **Relationship to the GPS matrix model** ... **20**
Bibliography ... **21**

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Foreword

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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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This document was prepared by Technical Committee ISO/TC 213, *Dimensional and geometrical product specifications and verification,* in 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 12179:2021), which has been technically revised.

The main changes are as follows:

— the example estimation of measurement uncertainty has been amended in Annex C;

— 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.

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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 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 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 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.

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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 specified within this document is intended to be carried out with the aid of measurement standards.

NOTE 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, *Quality management — Requirements for measurement management systems*

ISO 12085, *Geometrical Product Specifications (GPS) — Surface texture: Profile method — Motif parameters*

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/IEC 17025:2017, *General requirements for the competence of testing and calibration laboratories*

ISO 21920-2, *Geometrical product specifications (GPS) — Surface texture: Profile — Part 2: Terms, definitions and surface texture parameters*

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

ISO 25178-601, *Geometrical product specifications (GPS) — Surface texture: Areal — Part 601: Design and characteristics of contact (stylus) instruments*

ISO/IEC Guide 98-3, *Uncertainty of measurement — Part 3: Guide to the expression of uncertainty in measurement (GUM:1995)*

ISO/IEC Guide 99:2007, *International vocabulary of metrology — Basic and general concepts and associated terms (VIM)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 25178-601, 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/

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