SLOVENSKI STANDARD
SIST EN ISO 25178-2:2022

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Nadomešča:

SIST EN ISO 25178-2:2012

Specifikacija geometrijskih veličin izdelka (GPS) - Tekstura površine: ploskovna - 2. del: Izrazi, definicije in parametri teksture površine (ISO 25178-2:2021)

Geometrical product specifications (GPS) - Surface texture: Areal - Part 2: Terms, definitions and surface texture parameters (ISO 25178-2:2021)

Geometrische Produktspezifikation (GPS) - Oberflächenbeschaffenheit: Flächenhaft - Teil 2: Begriffe, Definitionen und Oberflächen-Kenngrößen (ISO 25178-2:2021)

Spécification géométrique des produits (GPS) - État de surface: Surfacique - Partie 2: Termes, définitions et paramètres d'états de surface (ISO 25178-2:2021)

Ta slovenski standard je istoveten z: **EN ISO 25178-2:2022**

ICS:

17.040.20	Lastnosti površin	Properties of surfaces
17.040.40	Specifikacija geometrijskih veličin izdelka (GPS)	Geometrical Product Specification (GPS)

SIST EN ISO 25178-2:2022 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO 25178-2

January 2022

ICS 17.040.20

Supersedes EN ISO 25178-2:2012

English Version

Geometrical product specifications (GPS) - Surface texture: Areal - Part 2: Terms, definitions and surface texture parameters (ISO 25178-2:2021)

Spécification géométrique des produits (GPS) - État de surface: Surfacique - Partie 2: Termes, définitions et paramètres d'états de surface (ISO 25178-2:2021)

Geometrische Produktspezifikation (GPS) - Oberflächenbeschaffenheit: Flächenhaft - Teil 2: Begriffe, Definitionen und Oberflächen-Kenngrößen (ISO 25178-2:2021)

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CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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European foreword

This document (EN ISO 25178-2:2022) 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of an identical text or by endorsement, at the latest by July 2022, and conflicting national standards shall be withdrawn at the latest by July 2022.

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.

This document supersedes EN ISO 25178-2:2012.

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Endorsement notice

The text of ISO 25178-2:2021 has been approved by CEN as EN ISO 25178-2:2022 without any modification.

INTERNATIONAL STANDARD

ISO 25178-2

Second edition
2021-12

Geometrical product specifications (GPS) — Surface texture: Areal —

Part 2: Terms, definitions and surface texture parameters

Spécification géométrique des produits (GPS) — État de surface: Surfacique —

Partie 2: Termes, définitions et paramètres d'états de surface

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ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

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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*, 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 second edition cancels and replaces the first edition (ISO 25178-2:2012), which has been technically revised. The main changes to the previous edition are described in Annex E.

A list of all parts in the ISO 25178 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

This document is a geometrical product specification (GPS) standard and is to be regarded as a general GPS standard (see ISO 14638). It influences the chain link B of the chains of standards on areal 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 the specifications made in accordance with this document, unless otherwise indicated.

For more detailed information of the relation of this document to other standards and the GPS matrix model, see Annex I. An overview of standards on profiles and areal surface texture is given in Annex H.

This document develops the terminology, concepts and parameters for areal surface texture.

Throughout this document, parameters are written as abbreviations with lower-case suffixes (as in Sq or Vmp) when used in a sentence and are written as symbols with subscripts (as in S_q or V_{mp}) when used in formulae, to avoid misinterpretations of compound letters as an indication of multiplication between quantities in formulae. The parameters in lower case are used in product documentation, drawings and data sheets.

Parameters are calculated from coordinates defined in the specification coordinate system, or from derived quantities (e.g. gradient, curvature).

Parameters are defined for the continuous case, but in verification they are calculated on discrete surfaces such as the primary extracted surface.

A short history of the work done on areal surface texture can be found in Annex C.

Geometrical product specifications (GPS) — Surface texture: Areal —

Part 2: Terms, definitions and surface texture parameters

1 Scope

This document specifies parameters for the determination of surface texture by areal methods.

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 16610-1:2015, *Geometrical product specifications (GPS) — Filtration — Part 1: Overview and basic concepts*

ISO 17450-1:2011, *Geometrical product specifications (GPS) — General concepts — Part 1: Model for geometrical specification and verification*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 16610-1:2015 and ISO 17450-1:2011 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 General terms

3.1.1
skin model
<of a workpiece> model of the physical interface of the workpiece with its environment

[SOURCE: ISO 17450-1:2011, 3.2.2]

3.1.2
surface texture
<areal> geometrical irregularities contained in a *scale-limited surface* (3.1.9)

Note 1 to entry: Surface texture does not include those geometrical irregularities contributing to the form or shape of the surface.

3.1.3
mechanical surface
boundary of the erosion, by a sphere of radius *r*, of the locus of the centre of an ideal tactile sphere, also with radius *r*, rolled over the *skin model* (3.1.1) of a workpiece

[SOURCE: ISO 14406:2010, 3.1.1, modified — Notes to entry removed.]

3.1.3.1
electromagnetic surface
surface obtained by the electromagnetic interaction with the *skin model* (3.1.1) of a workpiece

[SOURCE: ISO 14406:2010, 3.1.2, modified — Notes to entry removed.]

3.1.3.2
auxiliary surface
surface, other than mechanical or electromagnetic, obtained by an interaction with the *skin model* (3.1.1) of a workpiece

Note 1 to entry: A mathematical surface (softgauge) is an example of an auxiliary surface.

Note 2 to entry: Other physical measurement principles, such as tunnelling microscopy or atomic force microscopy, can also serve as an auxiliary surface. See Figure 1 and Annex G.

3.1.4
specification coordinate system
system of coordinates in which surface texture parameters are specified

Note 1 to entry: If the nominal form of the surface is a plane (or portion of a plane), it is common (practice) to use a rectangular coordinate system in which the axes form a right-handed Cartesian set, the *x*-axis and the *y*-axis also lying on the nominal surface, and the z-axis being in an outward direction (from the material to the surrounding medium). This convention is adopted throughout the rest of this document.

3.1.5
primary surface
surface portion obtained when a surface portion is represented as a specified primary mathematical model with specified *nesting index* (3.1.6.4)

Note 1 to entry: In this document, an S-filter is used to derive the primary surface. See Figure 1.

[SOURCE: ISO 16610-1:2015, 3.3, modified — Note 1 to entry added.]

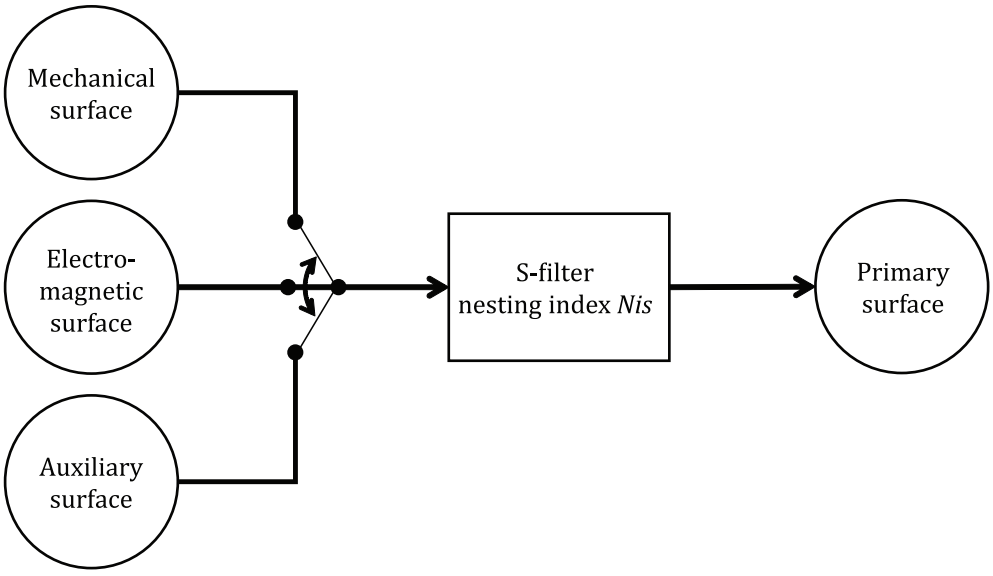

Figure 1 — Definition of primary surface

3.1.5.1
primary extracted surface
finite set of data points sampled from the *primary surface* (3.1.5)

[SOURCE: ISO 14406:2010, 3.7, modified — Notes to entry removed.]

3.1.6
surface filter
filtration operator applied to a surface

3.1.6.1
S-filter
surface filter (3.1.6) which removes small-scale lateral components from the surface, resulting in the *primary surface* (3.1.5)

3.1.6.2
L-filter
surface filter (3.1.6) which removes large-scale lateral components from the *primary surface* (3.1.5) or *S-F surface* (3.1.7)

Note 1 to entry: When the L-filter is not tolerant to form, it needs to be applied on an S-F surface; when it is tolerant to form, it can be applied either on the primary surface or on an S-F surface.

3.1.6.3
F-operation
operation which removes form from the *primary surface* (3.1.5)

Note 1 to entry: Some F-operations (such as association) have a very different action to that of filtration. Though their action can limit the larger lateral scales of a surface, this action is very fuzzy. It is represented in Figure 2 using the same convention as for a filter.

Note 2 to entry: Some L-filters are not tolerant to form and require an F-operation first as a prefilter before being applied.

Note 3 to entry: An F-operation can be a filtration operation such as a robust Gaussian filter.

3.1.6.4
nesting index
N_{is}, N_{ic}, N_{if}
number or set of numbers indicating the relative level of nesting for a particular primary mathematical model

[SOURCE: ISO 16610-1:2015, 3.2.1, modified — definition revised and notes to entry removed.]

3.1.7
S-F surface
surface derived from the *primary surface* (3.1.5) by removing the form using an *F-operation* (3.1.6.3)

Note 1 to entry: Figure 2 illustrates the relationship between the S-F surface and the S-filter and F-operation.

Note 2 to entry: If filtered with N_{is} nesting index to remove the shortest wavelengths from the surface, the surface is equivalent to a "primary surface". In this case, N_{is} is the areal equivalent of the λs cut-off. See key reference 4 in Figure 2 and Annex G.

Note 3 to entry: If filtered with N_{ic} nesting index to separate longer from shorter wavelengths, the surface is equivalent to a "waviness surface". In this case, N_{ic} is the areal equivalent of the λc cut-off. See key reference 5 in Figure 2 and Annex G.

Note 4 to entry: The concepts of "roughness" or "waviness" are less important in areal surface texture than in profile surface texture. Some surfaces can exhibit roughness in one direction and waviness in the perpendicular direction. That is why the concepts of S-L surface and S-F surface are preferred in this document.