SLOVENSKI STANDARD
oSIST prEN ISO 18183-2:2022

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Specifikacija geometrijskih veličin izdelka (GPS) - Razdelitev - 2. del: Nominalni model (ISO/DIS 18183-2:2022)

Geometrical product specifications (GPS) - Partitioning - Part 2: Nominal model (ISO/DIS 18183-2:2022)

Geometrische Produktspezifikation (GPS) - Partition - Teil 2: Nennmodell (ISO/DIS 18183-2:2022)

Spécification géométrique des produits (GPS) - Partition - Partie 2: Modèle nominal (ISO/DIS 18183-2:2022)

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Part 2:
Nominal model

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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*, *Geometrical product specifications and verification*.

A list of all parts in the ISO 18183 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 chain link B, C and E of all chains of standards.

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 relation of this document to other standards and the GPS matrix model see Annex A.

ISO 18183-2 applies the concepts from ISO 18183-1 in specifying the partition of the nominal model.

Geometrical product specifications (GPS) — Partition —

Part 2:
Nominal model

1 Scope

This document applies the methods that can be used in obtain a partition of a nominal model.

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 1101:2017, *Geometrical product specifications (GPS) — Geometrical tolerancing — Tolerances of form, orientation, location and run-out*

ISO 5459:2011, *Geometrical product specifications (GPS) — Geometrical tolerancing — Datums and datum systems*

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

ISO/DIS 18183-1, *Geometrical product specifications (GPS) — Partition — Part 1: Terms, definitions and basic concepts*

ISO/DIS 18183-3, *Geometrical product specifications (GPS) — Partition — Part 3: Methods used for specification and verification*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 18183-1 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/

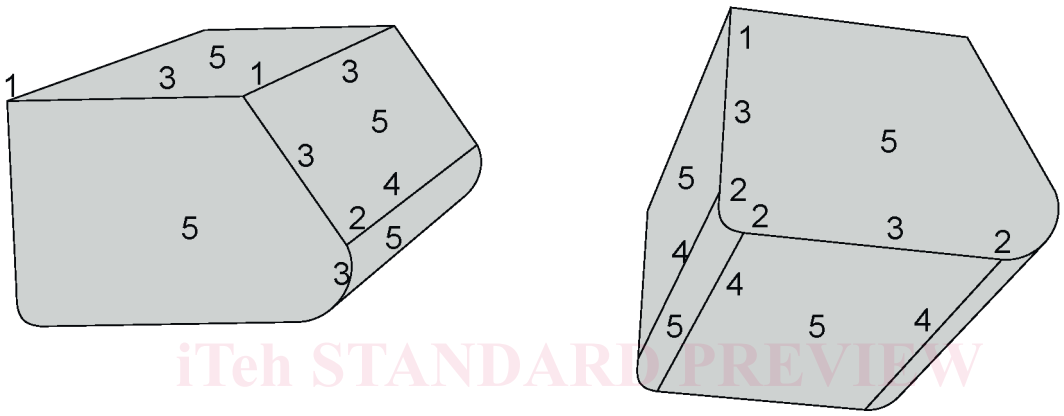
4 Partition concepts

Selection, simplification, and subdivision operations are inherent and a necessary part of nominal model generation in solid and geometrical modelling (such as CAD) [see 4 for details], whereas in the more traditional generation of draw-ings, these operations may be inherent but currently require additional human activity to identify and record the relevant information.

NOTE In the future, smart systems will also be required to identify and record the relevant information, in autonomous manufacturing systems, from the more traditional generation of drawings, solid and geometrical models. This requires that human intelligence be not required for the interpretation of the specification and calculation of the required set of partition features for the verification. This document gives such rules for the nominal model.

These operations are already in practice, this document just defines the terminology. Selection, simplification, and subdivision operations used to define partition features in the specification. Further, by the duality principle, they shall also be used to define the associated partition features in the verification (see Part 3 for more details).

Both the drawings and geometrical models are inherently composed of surfaces, faces, edges, and vertices. These provide an initial partition of the nominal model through the single surface concept. For example, in Figure 1, a simple two-dimensional drawing is composed of a two-dimensional "face," several one-dimensional edges, six zero-dimensional vertices. These faces, edges, and vertices provide an inherent subdivision of the nominal model into features. The four blend vertices in the lower half of the figure creates two blend edges while the two sharp vertices in the top half of the figure create sharp edges.



Key

1 sharp vertex
2 blend vertex
3 edge
4 blend edge
5 face

Figure 1 — Features on two vies of a 3-dimensional geometrical product

NOTE every vertex is a point but not every point is a vertex.

The operations of selection, simplification, and subdivision perform combination of some features or sub-division of some features into sub-features (required to define the required partition). The following give examples of how the operations of selection, simplification, and subdivision can be used to define these sub-features: in comparison to the notation from the more traditional generation of drawings.

EXAMPLE 1 In figure 2 below the faces around the outside of the part are selected (3.2) and simplified (3.4).