International Standard

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Geometrical product specifications (GPS) — Partition —

Part 2: Nominal model

Spécification géométrique des produits (GPS) — Partition —

Partie 2: Modèle nominal

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Foreword

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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).

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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 links B, C and E of all the chains of standards in the ISO GPS matrix model.

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 ISO GPS matrix model, see Annex A.

This document applies the concepts from ISO 18183-1[1)] in specifying the partition of the nominal model.

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Geometrical product specifications (GPS) — Partition —

Part 2:
Nominal model

1 Scope

This document specifies the methods used to partition 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 18183-1[2)], *Geometrical product specifications (GPS) — Partition — Part 1: Vocabulary and basic concepts*

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 an inherent and necessary part of nominal model generation in solid and geometrical modelling (such as CAD), see later in this clause for details, whereas in the more traditional generation of drawings 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. Human intelligence will not be required for the interpretation of the specification and calculation of the required set of partitioned features for the verification. This document gives such rules for the nominal model.

These operations are already in practice; this document just uses the concepts of selection, simplification and subdivision operations to define partitioned features in the specification. Furthermore, by the duality principle they shall also be used to define the associated partitioned features in the verification (see ISO 18183-3 for more details).

Both the drawings and geometrical models are inherently composed of surfaces, edges, blend edges and vertices. These provide an initial partition of the nominal model through the single surface concept. For example, Figure 1 shows two views of a simple three-dimensional geometrical product, composed of eight two-dimensional surfaces, several one-dimensional edges and 12 zero-dimensional vertices. These surfaces, edges and vertices provide an inherent subdivision of the nominal model into features. The eight blend

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