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Geometrical product specifications (GPS) - General concepts - Part 1: Model for geometrical specification and verification (ISO/TS 17450-1:2005)

Spécification géométrique des produits (GPS) - Concepts généraux - Partie 1: Modèle pour la spécification et la vérification géométriques (ISO/TS 17450-1:2005)

Geometrische Produktspezifikation (GPS) - Grundlagen - Teil 1: Modell für die geometrische Spezifikation und Prüfung (ISO/TS 17450-1:2005)

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Foreword

The text of ISO/TS 17450-1:2005 has been prepared by Technical Committee ISO/TC 213 “Dimensional and geometrical product specifications and verification” of the International Organization for Standardization (ISO) and has been taken over as CEN ISO/TS 17450-1:2007 by Technical Committee CEN/TC 290 “Dimensional and geometrical product specification and verification” the secretariat of which is held by AFNOR.

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Endorsement notice

The text of ISO/TS 17450-1:2005 has been approved by CEN as a CEN ISO/TS 17450-1:2007 without any modification.

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Introduction

This part of ISO/TS 17450 is a Geometrical Product Specification (GPS) document and is to be regarded as a global GPS document (see ISO/TR 14638). It influences all chain links of the chains of standards.

For more detailed information on the relationship of this part of ISO/TS 17450 to other standards and to the GPS matrix model, see annex E.

In a market environment of increased globalization, the exchange of technical product information is of high importance and the need to express unambiguously the geometry of mechanical workpieces of vital urgency. Consequently, codification associated with the macro- and micro-geometry of workpiece specifications must be unambiguous and complete if the functional geometrical variation of parts is to be limited; in addition, the language ought to be applicable to CAX systems.

The aim of ISO/TC 213 is to provide the tools for a global and “top-down” approach to GPS. These tools are the basis of new standards for a common language for geometrical definition, able to be used by design (assemblies and individual workpieces), manufacturing and inspection, including for description of the measurement procedure, regardless of the media (e.g. paper drawing, numerical drawing or exchange file) used. These tools are based on the characteristics of features, as well as on the constraints between the features and on feature operations, used for the creation of different geometrical features.

Geometrical product specifications (GPS) — General concepts —

Part 1: Model for geometrical specification and verification

1 Scope

This part of ISO/TS 17450 provides a model for geometrical specification and verification and defines the corresponding concepts. It also explains the mathematical basis of the concepts associated with the model.

2 Normative references

The following referenced documents are indispensable for the application 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 14660-1:1999, *Geometrical Product Specifications (GPS) — Geometrical features — Part 1: General terms and definitions*

International Vocabulary of Basic and General Terms in Metrology (VIM). BIPM, IFCC, IEC, ISO, IUPAC, IUPAP, OIML, 2nd edition, 1993

3 Terms and definitions

For the purposes of the present document, the terms and definitions given in ISO 14660-1 and VIM, and the following apply.

3.1
associated feature
ideal feature established from a non-ideal surface model (skin model) or from a real surface through an association operation

NOTE The relationship between this term and ISO 14660-1 is given in Figure 1.

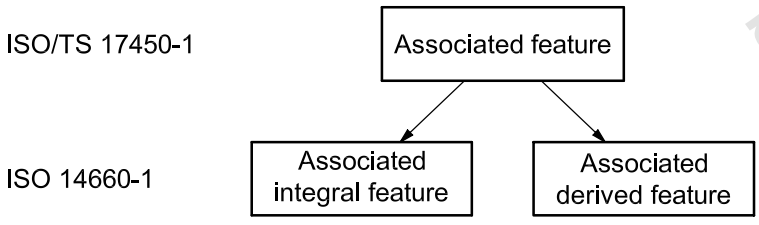

Figure 1 — Relationships of the term associated feature