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Geometrical product specifications (GPS) — General concepts —

Part 2: Basic tenets, specifications, operators, uncertainties and ambiguities

Spécification géométrique des produits (GPS) — Concepts généraux — Partie 2: Principes de base, spécifications, opérateurs, incertitudes et ambiguïtés

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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.

ISO 17450-2 was prepared by Technical Committee ISO/TC 213, *Dimensional and geometrical product specifications and verification*.

This first edition of ISO 17450-2 cancels and replaces ISO/TS 17450-2:2002, which has been technically revised. It also incorporates ISO/TS 17450-2/Cor.1:2004.

ISO 17450 consists of the following parts, under the general title *Geometrical product specifications (GPS) — General concepts*:

— *Part 1: Model for geometrical specification and verification*

— *Part 2: Basic tenets, specifications, operators, uncertainties and ambiguities*

Introduction

This part of ISO 17450 is a Geometrical Product Specifications (GPS) standard and is to be regarded as a global GPS standard (see ISO/TR 14638). It influences all chain links in all chains of standards in the general GPS matrix.

The ISO/GPS Masterplan given in ISO/TR 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 part of ISO 17450 to other standards and to the GPS matrix model, see Annex C.

This part of ISO 17450 covers several fundamental issues common to all the GPS standards developed by ISO/TC 213 and, by presenting GPS's basic tenets and specification and verification processes, explains some of the underlying ideas and indicates the starting point for the standards developed by this technical committee.

It is pointed out that these ideas — and, for that matter, all the other ideas and concepts applied by ISO/TC 213 — are subject to development and refinement, as the TC's recognition and understanding of them further evolves during its ongoing standards work.

Geometrical product specifications (GPS) — General concepts —

Part 2:
Basic tenets, specifications, operators, uncertainties and ambiguities

1 Scope

This part of ISO 17450 defines terms related to specifications, operators (and operations) and uncertainties used in geometrical product specifications (GPS) standards. It presents the basic tenets of the GPS philosophy while discussing the impact of uncertainty on those tenets, and examines the processes of specification and verification as they apply to GPS.

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 14253-2:2011, *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 14660-1:1999, *Geometrical Product Specifications (GPS) — Geometrical features — Part 1: General terms and definitions*

ISO 14978:2006, *Geometrical product specifications (GPS) — General concepts and requirements for GPS measuring equipment*

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

ISO/IEC Guide 98-3:2008, *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 14253-2, ISO 14660-1, ISO 14978, ISO 17450-1, ISO/IEC Guide 98-3, ISO/IEC Guide 99 and the following apply. See Figure A.1 for a concept diagram giving an overview of the relationships between these terms; it is recommended that this figure be consulted first.