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Geometrical product specifications (GPS) — General concepts and requirements for GPS measuring equipment

Spécification géométrique des produits (GPS) — Concepts et exigences généraux pour les équipements de mesure GPS



Reference number ISO 14978:2006(E)

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Foreword

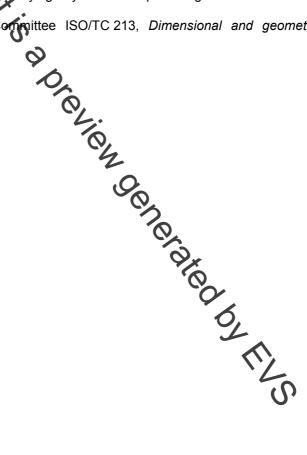
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ISO 14978 was prepared by Technical Committee ISO/TC 213, *Dimensional and geometrical product specifications and verification*.



Introduction

This International Standard is a geometrical product specification (GPS) standard and is to be regarded as a global GPS standard (see ISO/TR 14638). It influences chain links 5 and 6 of all chains of standards in the general GPS matrix.

For more detailed information of the relation of this International Standard to other standards and the GPS matrix model, see Annex C.

This International Standard contains guidance for writing the standards for specific measuring equipment.

This International Standard is intended to give the user a basic understanding of the use of ISO standards for GPS measuring equipment. This International Standard presents and defines general concepts to be used in connection with GPS measuring equipment to avoid multiple repetitions in the ISO standards for specific GPS measuring equipment. This International Standard is also intended as guidance for the manufacturer to evaluate and present specification for characteristics for GPS measurement equipment.

This International Standard should be close at hand when reading and using ISO standards for a specific GPS measuring equipment.

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Geometrical product specifications (GPS) — General concepts and requirements for GPS measuring equipment

1 Scope

This International Standard specifies the general requirements, terms and definitions of characteristics of simple GPS measuring equipment, e.g. micrometers, dial gauges, callipers, surface plates, height gauges, gauge blocks, but not necessarily excluding more complicated equipment. It forms the basis for standards defining and describing the design characteristics and metrological characteristics for measuring equipment. It also gives guidance for the development and content of standards for GPS measuring equipment.

This International Standard is intended to ease the communication between manufacturer/supplier and customer/user and to make the specification phase of GPS measuring equipment more accurate. This International Standard is also intended as a tool to be used in companies in the process of defining and selecting relevant characteristics for measuring equipment to be used in the quality assurance of measuring processes, i.e. in calibration and in workpiece measurements.

This International Standard also includes terms which are frequently used in connection with the characterization of specific measuring equipment.

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 efferences, the latest edition of the referenced document (including any amendments) applies.

ISO 1:2002, Geometrical Product Specifications (GPS) — Standard reference temperature for geometrical product specification and verification

ISO 1101:2004, Geometrical Product Specifications (GPS — Geometrical tolerancing — Tolerances of form, orientation, location and run-out

ISO 5459:—¹⁾, Geometrical Product Specifications (GPS) — Geometrical tolerancing — Datums and datum systems

ISO 14253-1:1998, Geometrical Product Specifications (GPS) — Inspection to measurement of workpieces and measuring equipment — Part 1: Decision rules for proving conformance or non-conformance with specifications

ISO/TS 14253-2:1999, Geometrical Product Specifications (GPS) — Inspection by measurement of workpieces and measuring equipment — Part 2: Guide to the estimation of uncertainty in GPS measurement, in calibration of measuring equipment and product verification

ISO/TS 17450-2, Geometrical product specifications (GPS) — General concepts — Part 2: Basic tenets, specifications, operators and uncertainties

International vocabulary of basic and general terms in metrology (VIM), BIPM, IEC, IFCC, ISO, IUPAC, IUPAP, 1987

¹⁾ To be published. (Revision of ISO 5459:1981.)

International vocabulary of basic and general terms in metrology (VIM), BIPM, IEC, IFCC, ISO, IUPAC, IUPAP, 1993

Guide to the expression of uncertainty in measurement (GUM), BIPM, IEC, IFCC, ISO, IUPAC, IUPAP, OIML, 1993^{2}

Terms and definitions 3

For the purposes of this document, the terms and definitions given in ISO 14253-1, ISO/TS 14253-2, ISO/TS 17450-2, VIM and GUM and the following apply.

3.1

measuring equipment

ME

standard, reference material and/or auxiliary apparatus or any combination any instrument, measurement measurement process for carrying out a specified and defined thereof necessary to implement measurement

NOTE 1 This definition is necessarily when that of a measuring instrument [VIM:1993, 4.1] since it includes all the means necessary for producing a measurem result.

The concept measuring equipment fictudes, for example, indicating measuring instruments (3.2) and NOTE 2 material measures (3.3). S

3.2

indicating measuring instrument

measuring equipment that displays an indication

NOTE 1 The display can be analog (continuous or discontinuous) or digital.

Values of more than one quantity can be displayed simulaneously. NOTE 2

NOTE 3 A displaying measuring instrument can also provide a reco

[VIM:1993, 4.6]

EXAMPLES

- Analog mechanical dial gauge a)
- digital calliper, b)
- micrometer. C)

NOTE 4 The examples given in VIM are changed here to examples in length units.

3.3

material measure

Senerated by Fr. device intended to reproduce or supply, in a permanent manner during its use, one or more known values of a given quantity

NOTE 1 The quantity concerned can be called the supplied quantity.

[VIM:1993, 4.2]

Corrected and reprinted in 1995.