INTERNATIONAL STANDARD

ISO 1

Second edition
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Geometrical Product Specifications (GPS) — Standard reference temperature for geometrical product specification and verification

Spécification géométrique des produits (GPS) — Température normale de référence pour la spécification géométrique des produits et vérification

Reference number
ISO 1:2002(E)

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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 3.

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 International Standard may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 1 was prepared by Technical Committee ISO/TC 213, *Dimensional and geometrical product specifications and verification*.

This second edition cancels and replaces the first edition (ISO 1:1975), which has been technically revised. Specifically, the following points have changed:

— the standard reference temperature has been modified; consequently, the title has been changed, and

— the footnote, referring to a definition of the metre which no longer exists, has been deleted.

Annex A is for information only.

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 all links in all chains of standards.

For more detailed information on the relationship of this International Standard to other standards and the GPS matrix model, see annex A.

The standard reference temperature is now applied to the GPS specification, i.e. all GPS characteristics are defined and specified at the standard reference temperature. Consequently, when measurements of geometrical features of workpieces and/or metrological characteristics of measuring equipment are carried out, deviations from the standard reference temperature will introduce errors and measurement uncertainties in the measurement result.

The definitions of the units of length and temperature were determined and adopted by the International Committee of Weights and Measures (CIPM) under the authority of the Convention of the Meter. These definitions are published in the *Procès-verbaux* of the CIPM[4], [5], [6].

This International Standard does not require that all calibrations of metrological characteristics of measuring equipment, workpiece measurements and manufacturing be carried out at the standard reference temperature. Uncertainty in temperature measurement and measurement at temperatures other than the standard reference temperature contribute to the uncertainty assessment of the measurement result and lead to systematic errors in the measurement result. An ISO Technical Report[2] which discusses these issues is being prepared.

Geometrical Product Specifications (GPS) — Standard reference temperature for geometrical product specification and verification

1 Scope

This International Standard specifies the standard reference temperature for geometrical product specification and verification.

2 Standard reference temperature

The standard reference temperature for geometrical product specification and verification is fixed at 20 °C.

Annex A
(informative)

Relation to the GPS matrix model

A.1 General

For full details about the GPS matrix model, see ISO/TR 14638.

A.2 Information about this International Standard and its use

This International Standard is used whenever GPS specifications for workpieces and measuring equipment are given. It constitutes the basis for the evaluation of measurement uncertainty.

A.3 Position in GPS matrix model

This International Standard is a global GPS standard, which influences all links in all chains of standards in the general GPS matrix, as shown in Figure A.1.

Fundamental GPS standards	Global GPS standards						
	General GPS standards						
	Chain link number	**1**	**2**	**3**	**4**	**5**	**6**
	Size						
	Distance						
	Radius						
	Angle						
	Form of line independent of datum						
	Form of line dependent of datum						
	Form of surface independent of datum						
	Form of surface dependent of datum						
	Orientation						
	Location						
	Circular run-out						
	Total run-out						
	Datums						
	Roughness profile						
	Waviness profile						
	Primary profile						
	Surface imperfections						
	Edges						

Figure A.1

A.4 Related International Standards

The related standards are those of the chains of standards indicated in Figure A.1.