First edition
2011-04-15

Geometrical product specifications (GPS) — Inspection by measurement of workpieces and measuring equipment —

Part 3: Guidelines for achieving agreements on measurement uncertainty statements

Spécification géométrique des produits (GPS) — Vérification par la mesure des pièces et des équipements de mesure —

Partie 3: Lignes directrices pour l'obtention d'accords sur la déclaration des incertitudes de mesure

Reference number
ISO 14253-3:2011(E)

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Published in Switzerland

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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 14253-3 was prepared by Technical Committee ISO/TC 213, *Dimensional and geometrical product specifications and verification*.

This first edition of ISO 14253-3 cancels and replaces ISO/TS 14253-3:2002, which has been technically revised.

ISO 14253 consists of the following parts, under the general title *Geometrical product specifications (GPS) — Inspection by measurement of workpieces and measuring equipment*:

— *Part 1: Decision rules for proving conformance or non-conformance with specifications*

— *Part 2: Guidance for the estimation of uncertainty in GPS measurement, in calibration of measuring equipment and in product verification*

— *Part 3: Guidelines for achieving agreements on measurement uncertainty statements*

— *Part 4: Background on functional limits and specification limits in decision rules* [Technical Specification]

Introduction

This part of ISO 14253 is a geometrical product specification (GPS) International Standard and is to be regarded as a global GPS Standard (see ISO/TR 14638). It influences links 4, 5 and 6 of 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 part of ISO 14253 is a part. The fundamental rules of ISO/GPS given in ISO 8015 apply to this part of ISO 14253 and the default decision rules given in ISO 14253-1 apply to specifications made in accordance with this part of ISO 14253, unless otherwise indicated.

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

ISO 14253-1 provides decision rules for proving conformance or non-conformance with specifications of workpieces and measuring equipment when taking into account the uncertainty of measurement. ISO 14253-2 provides instructions for preparing uncertainty budgets for determining measurement uncertainty as defined in the *Guide to the Expression of Uncertainty in Measurement* (*GUM*). However, the possibility still exists that disagreement between customer and supplier can occur on the estimated measurement uncertainty.

It is becoming increasingly common for suppliers to have in place a quality system providing satisfactory assurance to the customer that the latter is receiving a product which conforms to specifications. This avoids the need for costly duplicate inspections.

For this reason, the most common case of disagreement over a measurement uncertainty statement or an uncertainty budget involves the customer questioning the supplier's uncertainty budget. The customer may also question the measured value of a characteristic of a workpiece or of measuring equipment, thus indirectly questioning the total uncertainty budget (see ISO 14253-1).

In a rarer case of disagreement, the supplier may question the customer's uncertainty budget when the customer rejects a workpiece or measuring equipment (see ISO 14253-1:1998, 6.2).

In addition to those mentioned, there are other cases of disagreement, as well as other motivations that may lead to discussion of stated uncertainties.