SLOVENSKI STANDARD
SIST-TS CEN ISO/TS 14253-4:2014

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Specifikacija geometrijskih veličin izdelka - Kontrola z merjenjem obdelovancev in merilna oprema - 4. del: Merila za izbiro funkcionalnih omejitev ter omejitev pri odločanju (ISO/TS 14253-4:2010)

Geometrical product specifications (GPS) - Inspection by measurement of workpieces and measuring equipment - Part 4: Background on functional limits and specification limits in decision rules (ISO/TS 14253-4:2010)

Geometrische Produktspezifikation (GPS) - Prüfung von Werkstücken und Messgeräten durch Messen - Teil 4: Aspekte zur Auswahl von Entscheidungsregeln (ISO/TS 14253-4:2010)

Spécification géométrique des produits (GPS) - Vérification par la mesure des pièces et des équipements de mesure - Partie 4: Informations de base sur les limites fonctionnelles et les limites de spécification dans les règles de décision (ISO/TS 14253-4:2010)

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17.040.40	Specifikacija geometrijskih veličin izdelka (GPS)	Geometrical Product Specification (GPS)

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Geometrical product specifications (GPS) - Inspection by measurement of workpieces and measuring equipment - Part 4: Background on functional limits and specification limits in decision rules (ISO/TS 14253-4:2010)

Spécification géométrique des produits (GPS) - Vérification par la mesure des pièces et des équipements de mesure - Partie 4: Informations de base sur les limites fonctionnelles et les limites de spécification dans les règles de décision (ISO/TS 14253-4:2010)

Geometrische Produktspezifikationen (GPS) - Prüfung von Werkstücken und Messgeräten durch Messen - Teil 4: Grundlagen für Funktionsgrenzen und Spezifikationsgrenzen in Entscheidungsregeln (ISO/TS 14253-4:2010)

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Foreword

This document (CEN ISO/TS 14253-4:2010) has been prepared by Technical Committee ISO/TC 213 "Dimensional and geometrical product specifications and verification" in collaboration with 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 14253-4:2010 has been approved by CEN as a CEN ISO/TS 14253-4:2010 without any modification.

TECHNICAL SPECIFICATION

ISO/TS 14253-4

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

Part 4: Background on functional limits and specification limits in decision rules

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

Partie 4: Informations de base sur les limites fonctionnelles et les limites de spécification dans les règles de décision

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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.

In other circumstances, particularly when there is an urgent market requirement for such documents, a technical committee may decide to publish other types of document:

— an ISO Publicly Available Specification (ISO/PAS) represents an agreement between technical experts in an ISO working group and is accepted for publication if it is approved by more than 50 % of the members of the parent committee casting a vote;

— an ISO Technical Specification (ISO/TS) represents an agreement between the members of a technical committee and is accepted for publication if it is approved by 2/3 of the members of the committee casting a vote.

An ISO/PAS or ISO/TS is reviewed after three years in order to decide whether it will be confirmed for a further three years, revised to become an International Standard, or withdrawn. If the ISO/PAS or ISO/TS is confirmed, it is reviewed again after a further three years, at which time it must either be transformed into an International Standard or be withdrawn.

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ISO/TS 14253-4 was prepared by Technical Committee ISO/TC 213, *Dimensional and geometrical product specifications and verification*.

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 specifications (GPS) standard and is to be regarded as a global GPS standard (see ISO/TR 14638). It influences the chain links 3, 4, 5 and 6 of all chains of general GPS standards.

For more detailed information on the relation of this part of ISO 14253 to other standards and the GPS matrix model, see Annex A.

The decision rules given in ISO 14253-1, which apply unless otherwise specified, are designed to ensure that workpieces and measuring equipment are within the specification and that disputes over whether workpieces and measuring equipment are within the specification can be avoided.

In order for the decision rules to work as designed, it is important to first give proof of conformance. In other words, the user/buyer of the product in question should always require the manufacturer/supplier/seller of the product to provide proof of conformance with the product.

If subsequent incoming inspection proves nonconformance, uncertainty budgets can be examined according to ISO 14253-3 for mutual assurance of their validity. If it is concluded that both uncertainty budgets are valid, the only conclusion is that one or the other or both measurement results are unrepresentative for the measurement process in question.

If, for some reason, the user of the product does not want the supplier to provide the first proof, but instead relies on incoming inspection, the user should reduce the functional limits by the measurement uncertainty of the incoming inspection to arrive at the contractual specification limits that are communicated to, and negotiated and agreed with, the supplier.

A separate problem is that of the reseller, who purchases product from a manufacturer and resells it to the user. The decision rules given in ISO 14253-1 will function correctly if the reseller requires the manufacturer of the product to provide proof of conformance and subsequently provides that proof to the user. If the reseller for some reason decides to prove conformance to the user independently, there will be cases where neither conformance nor nonconformance can be proven, so the reseller can neither return nor resell the product based on the original specification. Consequently, this approach is not recommended.

The decision rules in ISO 14253-1 are also based on a number of assumptions. When these assumptions are not true, these decision rules may not be economically optimal. This part of ISO 14253 outlines these assumptions and discusses why they are the theoretically ideal assumptions.

For workpieces, only the creator of the specification (the designer) can be expected to know whether the assumptions are true. Therefore, any deviations from the ISO 14253-1 decision rules can only be initiated and documented by the specification owner.

For measuring equipment, a specification may be based on a standard, written unilaterally by the manufacturer or purchaser of the equipment or written in cooperation between the manufacturer and the purchaser of the equipment. If the specification is based on an ISO standard, and the standard does not indicate other decision rules, the rules of ISO 14253-1 apply. In other cases, the decision rules can only be documented by the specification author(s).

It must be recognized that the decision rules, whether they are given implicitly or explicitly, are part of the specification.

It must further be recognized that the issues involved in choosing the optimal set of decision rules are complicated and that it is unrealistic to expect that simple rules can suit every circumstance. Parties should ensure access to competent technical resources before deviating from the ISO 14253-1 decision rules.