SLOVENSKI STANDARD
oSIST prEN ISO 17450-4:2015

01-september-2015

Specifikacija geometrijskih veličin izdelka (GPS) - Osnovni pojmi - 4. del: Geometrijske lastnosti (ISO/DIS 17450-4:2015)

Geometrical product specification (GPS) - Basic concepts - Part 4: Geometrical characteristics (ISO/DIS 17450-4:2015)

Geometrische Produktspezifikation (GPS) - Grundlagen - Teil 4: Geometrische Merkmale (ISO/DIS 17450-4:2015)

Spécification géométrique des produits (GPS) - Concepts gnéraux - Partie 4: Caractéristiques géométriques (ISO/DIS 17450-4:2015)

Ta slovenski standard je istoveten z: **prEN ISO 17450-4**

ICS:

17.040.30 Merila Measuring instruments

oSIST prEN ISO 17450-4:2015 **en**

DRAFT INTERNATIONAL STANDARD ISO/DIS 17450-4

ISO/TC **213** Secretariat: **DS**

Voting begins on **2015-06-11** Voting terminates on **2015-09-11**

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

Geometrical product specifications (GPS) — Basic concepts —

Part 4:
Geometrical characteristics for quantifying form, orientation, location and run-out deviation

Spécification géométrique des produits (GPS) — Concepts gnéraux —

Partie 4: Caractéristiques géométriques pour la quantification des écarts de forme, d'orientation, de position et de battement

ICS 17.040.10

ISO/CEN PARALLEL PROCESSING

This draft has been developed within the International Organization for Standardization (ISO), and processed under the **ISO-lead** mode of collaboration as defined in the Vienna Agreement.

This draft is hereby submitted to the ISO member bodies and to the CEN member bodies for a parallel five-month enquiry.

Should this draft be accepted, a final draft, established on the basis of comments received, will be submitted to a parallel two-month approval vote in ISO and formal vote in CEN.

To expedite distribution, this document is circulated as received from the committee secretariat. ISO Central Secretariat work of editing and text composition will be undertaken at publication stage.

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Published in Switzerland

Contents

Page

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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/TC 213, *Dimensional and geometrical product specifications and verifications*.

ISO 17450-4 was prepared by Technical Committee ISO/TC 213, *Dimensional and geometrical product specifications and verification* and by Technical Committee CEN/TC 290, *Dimensional and geometrical product specification and verification* in collaboration.

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

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

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

— *Part 3: Toleranced features*

— *Part 4: Geometrical characteristics for quantifying form, orientation, location and run-out deviations*

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 14638). It influences all chain links in all chains of standards in the general GPS matrix model.

The ISO/GPS Matrix model given in ISO 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 A.

Geometrical product specification (GPS) — Basic concepts — Part 4: Geometrical characteristics for quantifying form, orientation, location and run-out deviations

1 Scope

This part of ISO 17450 gives general rules for building the geometrical characteristics for form, orientation, location and run-out.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 25378:2011, *Geometrical product specifications (GPS) — Characteristics and conditions — Definitions*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 25378:2011 and the following apply.

NOTE "Input feature", "GPS characteristic", "deviated feature" and "reference feature" are terms defined in ISO 25378:2011.

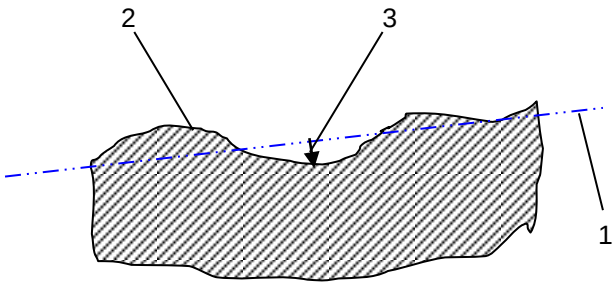
3.1
local geometrical deviation
d(P), $d(P)_{An}$
local signed distance whose direction is defined normal or not to the reference feature, between a point, P, of a reference feature and the point of the input feature, defined in an n-dimensional reference space, A_n

Note 1 to entry: d(P) corresponds to any local geometrical deviation for any location along the reference space A_n while $d(P)_{An}$ corresponds to a particular location on the reference space.

Note 2 to entry: A local geometrical deviation is defined in any point on the reference feature, see Figure 1. A point P of the reference feature can be defined, by its coordinates in the reference space, A_n.

Note 3 to entry: A local geometrical deviation is an ordinate of a point of the variation curve whose abscises are defined in the reference space, A_n.

Note 4 to entry: A local geometrical deviation is equal to zero when the deviated feature crosses the reference feature.



Key

1 Reference feature
2 Deviated feature (input feature)
3 Local geometrical characteristic value

Figure 1 — Local geometrical deviation

3.2
reference space
A_n
set of n curvilinear axes attached to a reference feature which is associated to an n-dimensional input feature

Note 1 to entry: n is equal to 1 for a reference line, or equal to 2 for a reference surface.

Note 2 to entry: the curvilinear axes of the reference space are locally normal to the normal vector in any point P of a reference feature. This normal vector corresponds to the direction of an axis of a local coordinate system (Plücker coordinate system).

3.2.1
areal reference space
A_2
reference space when the reference feature is a surface

Note 1 to entry: reference space for a 2-dimensional reference feature.

3.2.2
linear reference space
A_1
reference space when the reference feature is a line

Note 1 to entry: Reference space for a 1-dimensional reference feature.

3.3
quantifying function
mathematical function using the set of values observed on a variation curve to define a geometrical characteristic as a quantity

Note 1 to entry: A quantifying function can be a rank-order function (See Table 1).

3.4
rank-order characteristic
geometrical characteristic defined mathematically from a homogeneous set of all local geometrical deviations

Note 1 to entry: A rank-order characteristic is defined from a quantifying function. Several kinds of rank-order characteristics exist. The formula describing them are given in Table 1.

3.4.1
maximum (rank-order)
rank-order characteristic (3.4) being the maximum of the set of all local geometrical deviations

Note 1 to entry: See Table 1.

3.4.2
minimum (rank-order)
rank-order characteristic (3.4) being the minimum of the set of all local geometrical deviations

Note 1 to entry: See Table 1.

3.4.3
average (rank-order)
rank-order characteristic (3.4) being the average of the set of all local geometrical deviations

Note 1 to entry: See Table 1.

3.4.4
median (rank-order)
rank-order characteristic (3.4) being the median value of the set of all local geometrical deviations,

Note 1 to entry: The median value splits the population of local geometrical deviations into two equal portions (50 % above and 50 % below). Depending on the repartitioning of the population, the median value and the average value can be identical or different.

Note 2 to entry: See Table 1.

3.4.5
mid-range (rank-order)
rank-order characteristic (3.4) being the mean of the maximum and the minimum of the set of all local geometrical deviations

Note 1 to entry: See Table 1.

3.4.6
range (of rank-order)
rank-order characteristic (3.4) being the difference between the maximum and the minimum of the set of all local geometrical deviations

Note 1 to entry: See Table 1.