

Geometrical product specifications (GPS) - Dimensional tolerancing - Part 2: Dimensions other than linear sizes (ISO 14405-2:2011)

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN ISO 14405-2:2011 sisaldab Euroopa standardi EN ISO 14405-2:2011 ingliskeelset teksti.	This Estonian standard EVS-EN ISO 14405-2:2011 consists of the English text of the European standard EN ISO 14405-2:2011.
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English Version

**Geometrical product specifications (GPS) - Dimensional
tolerancing - Part 2: Dimensions other than linear sizes (ISO
14405-2:2011)**

Spécification géométrique des produits (GPS) -
Tolérancement dimensionnel - Partie 2: Dimensions autres
que les tailles linéaires (ISO 14405-2:2011)

Geometrische Produktspezifikation (GPS) - Geometrische
Tolerierung - Teil 2: Andere als lineare Maße (ISO 14405-
2:2011)

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Foreword

This document (EN ISO 14405-2:2011) 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.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by June 2012, and conflicting national standards shall be withdrawn at the latest by June 2012.

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Endorsement notice

The text of ISO 14405-2:2011 has been approved by CEN as a EN ISO 14405-2:2011 without any modification.

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Introduction

This part of ISO 14405 is a geometrical product specification (GPS) standard and is to be regarded as a general GPS standard (see ISO/TR 14638). In the general GPS matrix, it influences chain link 1 in the distance and radius chains of standards and chain links 1, 2 and 3 in the angle chain of standards.

The ISO/GPS Masterplan given in ISO/TR 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 dimensions other than linear sizes, the requirement is ambiguous when applied to the real workpiece. It is the presence of form and angular deviations on all real workpieces that makes these requirements ambiguous, i.e. there is a specification ambiguity.

It has to be realized that this specification ambiguity can only be avoided for features of size toleranced in accordance with ISO 14405-1. For all other dimensions, geometrical tolerancing should be used in order to control the specification ambiguity.

For more detailed information on the relation of this part of ISO 14405 to other standards and to the GPS matrix model, see Annex B.

Geometrical product specifications (GPS) — Dimensional tolerancing —

Part 2: Dimensions other than linear sizes

1 Scope

This part of ISO 14405 illustrates the use of geometrical tolerancing for dimensions that are not linear sizes to avoid the ambiguity that the use of \pm tolerances on these dimensions causes. Both linear and angular dimensions, except size of features of size are covered.

Dimensional tolerancing can be indicated by \pm tolerancing or geometrical tolerancing.

The ambiguity caused by using \pm tolerances for dimensions other than linear sizes (for individual tolerances and general tolerances according to, e.g. ISO 2768-1 and ISO 8062-3) is explained in Annex A.

NOTE 1 The figures, as shown in this part of ISO 14405, merely illustrate the text and are not intended to reflect actual usage. The figures are consequently simplified to indicate only the relevant principles.

NOTE 2 For indications of size tolerances, see the following:

- ISO 14405-1 for linear size;
- ISO 2538 for wedges;
- ISO 3040 for cones.

NOTE 3 The rules for geometrical tolerancing are given in ISO 1101.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the cited editions apply. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 129-1:—¹⁾, *Technical drawings — Indication of dimensions and tolerances — Part 1: General principles*

ISO 286-1:2010, *Geometrical product specifications (GPS) — ISO code system for tolerances on linear sizes — Part 1: Basis of tolerances, deviations and fits*

ISO 2538:1998, *Geometrical Product Specifications (GPS) — Series of angles and slopes on prisms*

ISO 1101:—²⁾, *Geometrical Product Specifications (GPS) — Geometrical tolerancing — Tolerances of form, orientation, location and run-out*

1) To be published. (Revision of ISO 129-1:2004)

2) To be published. (Revision of ISO 1101:2004)

ISO 8015:2011, *Geometrical product specifications (GPS) — Fundamentals — Concepts, principles and rules*

ISO 13715:2000, *Technical drawings — Edges of undefined shape — Vocabulary and indications*

ISO 14405-1:2010, *Geometrical product specifications (GPS) — Dimensional tolerancing — Linear sizes*

ISO 14660-1:1999, *Geometrical Product Specifications (GPS) — Geometrical features — Part 1: General terms and definitions*

ISO 14660-2:1999, *Geometrical Product Specifications (GPS) — Geometrical features — Part 2: Extracted median line of a cylinder and a cone, extracted median surface, local size of an extracted feature*

ISO 17450-1:—³⁾, *Geometrical product specifications (GPS) — General concepts — Part 1: Model for geometrical specification and verification*

ISO 17450-2:—⁴⁾, *Geometrical product specifications (GPS) — General concepts — Part 2: Basic tenets, specifications, operators, uncertainties and ambiguities*

3 Terms and definitions

For the purpose of this document, the terms and definitions given in ISO 129-1, ISO 1101, ISO 8015, ISO 13715, ISO 14405-1, ISO 14660-1, ISO 14660-2, ISO 17450-1, ISO 17450-2 and the following apply.

The term “drawing” is used in this part of ISO 14405 as a synonym for the 2D drawing, the 3D model and other representations of the workpiece.

3.1
± tolerancing
tolerancing using dimension and indication of limit deviations, dimension limit values or unilateral dimension limit

NOTE The sign \pm should not be understood in a way that the limit deviations are always symmetrical to the nominal size.

3.2
linear size
dimension in length units characterizing a feature of size

3.3
angular size
dimension in angle units characterizing a feature of size

3.4
distance
dimension between two geometrical features which are not considered as a feature of size

NOTE 1 Distance can be between two integral features or an integral feature and a derived feature or two derived features.

NOTE 2 Linear distance and angular distance exist.

3.4.1
linear distance
distance in length units

3) To be published. (Revision of ISO/TS 17450-1:2005)

4) To be published. (Revision of ISO/TS 17450-2:2002)