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BSI Standards Publication

Geometrical product specifications (GPS) — Dimensioning and tolerancing — Cones (ISO 3040:2016)

bsi.

National foreword

This British Standard is the UK implementation of EN ISO 3040:2016. It supersedes BS EN ISO 3040:2012 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee TDW/4, Technical Product Realization.

A list of organizations represented on this committee can be obtained on request to its secretary.

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Geometrische Produktspezifikation (GPS) - Maßeintragung und Toleranzfestlegung - Kegel (ISO 3040:2016)

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European foreword

This document (EN ISO 3040:2016) 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of an identical text or by endorsement, at the latest by November 2016, and conflicting national standards shall be withdrawn at the latest by November 2016.

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Endorsement notice

The text of ISO 3040:2016 has been approved by CEN as EN ISO 3040:2016 without any modification.

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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.

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).

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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 World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

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

This fourth edition cancels and replaces the third edition (ISO 3040:2009), which has been technically revised:

— Clause 6 on the tolerancing of cones has been revised;

— Annex A on former practice from ISO 3040:1990 has been deleted;

— a new informative Annex A with examples has been added.

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Introduction

This International Standard is a geometrical product specification (GPS) standard and is to be regarded as a general GPS standard (see ISO 14638), applicable to a conical feature. It influences chain links A and B of the chain of standards on size, form, orientation, location and run-out.

For more detailed information about the relationship of ISO 3040 to other standards and to the GPS matrix model, see Annex B.

The ISO/GPS matrix model given in ISO 14638 gives an overview of the ISO/GPS system of which this international standard is a part. The fundamental rules of ISO/GPS given in ISO 8015 apply to this international standard and the default decision rules given in ISO 14253-1 apply to specifications made in accordance with this international standard, unless otherwise indicated.

In this International Standard, the figures illustrate the text only and should not be considered as design examples. For this reason, the figures are simplified and are not to scale.

No indications from the previous edition (ISO 3040:2009) have been made obsolete by this edition. Therefore, there is no 'former practice'.

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Geometrical product specifications (GPS) — Dimensioning and tolerancing — Cones

1 Scope

This International Standard specifies graphical indication applicable to a cone (right-angle circular cones) to define its dimensioning or to specify its tolerancing.

For the purposes of this International Standard, the term “cone” relates to right-angle circular cones only (any intersection by a plane perpendicular to the axis of the nominal cone is a circle).

NOTE 1 For simplicity, only truncated cones have been represented in this International Standard. However, this International Standard can be applied to any type of cone within its scope.

NOTE 2 This International Standard is not intended to prevent the use of other methods of dimensioning and tolerancing.

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 1119:2011, *Geometrical product specifications (GPS) — Series of conical tapers and taper angles*

ISO 81714-1, *Design of graphical symbols for use in the technical documentation of products — Part 1: Basic rules*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
rate of taper
C
ratio of the difference in the diameters of two sections of a cone to the distance between them

Note 1 to entry: lt is expressed by the following formula (see also Figure 1).

$$C = \frac{D - d}{L} = 2\tan\left(\frac{\alpha}{2}\right) \tag{1}$$

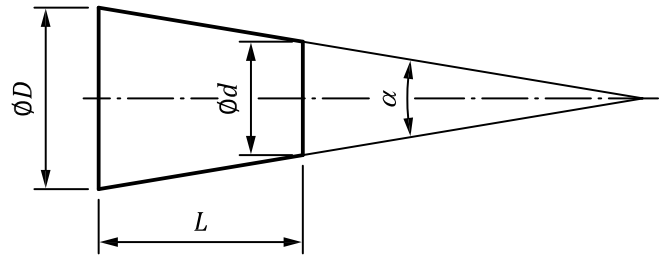


Figure 1

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