Technical product documentation (TPD) - Presentation of dimensions and tolerances - Part 1: General principles (ISO 129-1:2018 + ISO 129-1:2018/Amd 1:2020)

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN ISO 129-1:2019 +A1:2021 sisaldab Euroopa standardi EN ISO 129-1:2019 ja selle muudatuse A1:2021 ingliskeelset teksti.	This Estonian standard EVS-EN ISO 129-1:2019+A1:2021 consists of the English text of the European standard EN ISO 129-1:2019 and its amendment A1:2021.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas. Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 09.10.2019, muudatus A1 13.01.2021.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation. Date of Availability of the European standard is 09.10.2019, for A1 13.10.2021.
Muudatusega A1 lisatud või muudetud teksti algus ja lõpp on tekstis tähistatud sümbolitega [A1] [A1]. Standard on kättesaadav Eesti Standardimis-ja Akrediteerimiskeskusest.	The start and finish of text introduced or altered by amendment A1 is indicated in the text by tags [A1] [A1]. The standard is available from the Estonian Centre for Standardisation and Accreditation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

ICS 01.100.01

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO 129-1 + A1

October 2019, January 2021

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English Version

Technical product documentation (TPD) - Presentation of dimensions and tolerances - Part 1: General principles (ISO 129-1:2018 + ISO 129-1:2018/Amd 1:2020)

Documentation technique de produits - Représentation des dimensions et tolérances - Partie 1: Principes généraux (ISO 129-1:2018 + ISO 129-1:2018/Amd 1:2020)

Technische Produktdokumentation (TPD) - Angabe von Maßen und Toleranzen - Teil 1: Grundlagen (ISO 129-1:2018 + ISO 129-1:2018/Amd 1:2020)

This European Standard was approved by CEN on 5 August 2019. Amendment A1 was approved by CEN on 13 December 2020.

EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Ref. No. EN ISO 129-1:2019 E
+ EN ISO 129-1:2019/A1:2021 E

European foreword

The text of ISO 129-1:2018 has been prepared by Technical Committee ISO/TC 10 "Technical product documentation" of the International Organization for Standardization (ISO) and has been taken over as EN ISO 129-1:2019 by CCMC.

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 April 2020, and conflicting national standards shall be withdrawn at the latest by April 2020.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Endorsement notice

The text of ISO 129-1:2018 has been approved by CEN as EN ISO 129-1:2019 without any modification.

A1 Amendment 1 European foreword

The text of ISO 129-1:2018/Amd 1:2020 has been prepared by Technical Committee ISO/TC 10 "Technical product documentation" of the International Organization for Standardization (ISO) and has been taken over as EN ISO 129-1:2019/A1:2021 by Technical Committee CEN/SS F01 "Technical drawings" the secretariat of which is held by CCMC.

This Amendment to the European Standard EN ISO 129-1:2018 shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by July 2021, and conflicting national standards shall be withdrawn at the latest by July 2021.

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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).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the voluntary nature of standards, 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.

This document was prepared by Technical Committee ISO/TC 10, *Technical product documentation*.

This second edition cancels and replaces the first edition (ISO 129-1:2004), which has been technically revised.

The main changes compared to the previous edition are as follows:

— that this document does not cover the application of dimensioning tolerances has been clarified;

— property indicator, surface indicator, developed length and between symbols have been discussed;

— flag notes and textual instructions have been discussed;

— dimensioning repeated features and restricted areas have been clarified.

A list of all parts in the ISO 129 series can be found on the ISO website.

A1 Amendment 1 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.

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Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html. A1

Introduction

This document is intended for all fields of application. See other parts of ISO 129 for information pertaining to specific application areas.

The principles of tolerancing and the interpretation of tolerance presentations are given in the ISO 14405 series.

Figures in this document illustrate the rules and are not intended to show complete representations. It should be understood that third-angle projection could equally well have been used without prejudice to the principles established.

Technical product documentation (TPD) — Presentation of dimensions and tolerances —

Part 1:
General principles

1 Scope

This document establishes the general principles for presentation of dimensions and associated tolerances that apply to 2D technical drawings in all disciplines and trades but which can also be applied to 3D applications.

This document does not cover the application of dimensional tolerances and their meaning. See ISO 14405-1 for tolerancing principles. This document can only be used to describe the nominal model of a drawing, not the non-ideal surface model (skin model) used for tolerancing purposes (for more information on tolerancing specifications, see the list of GPS standards listed as normative reference or as bibliography)

Considering the ISO 14405 series, the presentation of tolerance indication is unambiguous when it is applied to a dimension which is a size and ambiguous when the dimension is not a size.

All rules presented in this document are available for any type of drawing (see ISO 29845).

In addition, this document introduces the concept of property indicators, developed length, between, surface indicators, flag notes and textual instructions.

NOTE 1 All figures are shown in 2D views only.

NOTE 2 Additional information and details for construction engineering are given in ISO 6284.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 128-20, *Technical drawings — General principles of presentation — Part 20: Basic conventions for lines*

ISO 128-22, *Technical drawings — General principles of presentation — Part 22: Basic conventions and applications for leader lines and reference lines*

ISO 128-24:2014, *Technical drawings — General principles of presentation — Part 24: Lines on mechanical engineering drawings*

ISO 3098 (all parts), *Technical product documentation — Lettering*

ISO 10209, *Technical product documentation — Vocabulary — Terms relating to technical drawings, product definition and related documentation*

ISO 14405 (all parts), *Geometrical product specifications (GPS) — Dimensional tolerancing*

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 terms and definitions given in ISO 10209 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

3.1 Elements of dimensioning

3.1.1
centre line
line or set of two perpendicular lines used to represent a median feature, e.g. an axis or a centre plane

3.1.2
dimension line
straight or curved line with terminators at each end or origin and terminator at each end, indicating the size of a feature or the extent of a feature or between two features, or between a feature and an *extension line* (3.1.3), or between two extension lines

3.1.3
extension line
line which is an extension of a feature outline or of a *centre line* (3.1.1)

3.1.4
origin symbol
circle indicating the start of running dimensioning or coordinate dimensioning

3.2 Dimensions

3.2.1
angular dimension
angle of an angular feature of size or angle between two features

Note 1 to entry: In mechanical engineering drawings, angular dimensions are classified as angular sizes or angular distances; see ISO 14405-2.

3.2.2
dimensional value
nominal numerical value expressed in a specific unit relevant to a *linear* or *angular dimension* (3.2.4, 3.2.1)

Note 1 to entry: The tolerance limits and/or permissible deviations are applied to the dimensional value.

3.2.3
developed length
initial length of material prior to forming, e.g. by bending

3.2.4
linear dimension
linear size of a feature of size or a linear distance between two features

