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oSIST prEN ISO 128-2:2019

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Technical product documentation - General principles of representation - Part 2: Basic conventions for lines (ISO/DIS 128-2:2019)

Technische Produktdokumentation (TPD) - Allgemeine Grundlagen der Darstellung - Teil 2: Linien, Grundregeln (ISO/DIS 128-2:2019)

Documentation technique de produits - Principes généraux de représentation - Partie 2: Conventions de base pour les traits (ISO/DIS 128-2:2019)

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Technical product documentation — General principles of representation —

Part 2:
Basic conventions for lines

Documentation technique de produits (TPD) — Principes généraux de représentation —

Partie 2: Conventions de base pour les traits

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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).

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 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 Technical Committee ISO/TC 10, *product documentation*.

This standard combines 6 related former ISO standard parts into a new standard (ISO 128-2).

ISO 128-2 under the general title: General principles of presentation — Part 2: Line Types, consists of the following former ISO 128 parts:

— Former Part 20: Basic conventions for lines

— Former Part 22: Basic Conventions and Applications for Leader Lines and Reference Lines

ISO 128- 2 —Annex A consists of:

— Former Part 21: Preparation of lines by CAD systems

ISO 128- 2 —Annex B and Annex C consists of:

— Former Part 23: Lines on construction drawings

ISO 128- 2 —Annex D and Annex E consists of:

— Former Part 24: Lines on Mechanical Engineering Drawings

ISO 128- 2 —Annex F and Annex G consists of:

— Former Part 25: Lines on Shipbuilding Drawings

ISO 128- 2 — Bibliographies consists of:

— Former Parts 20, 21, 22, and 25, Bibliographies

A list of all parts in the ISO 128 series can be found on the ISO website.

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.

Introduction

ISO 128-2 contains generally applicable rules for the presentation of lines in all kinds of technical product documentation.

The application of lines within drawings of special technical fields varies considerably. Therefore, rules of application specific to technical fields are given in annex B through G of ISO 128-2.

Annex A specifies procedures for the calculation of the most important basic types of non-continuous lines according to types of lines and their line elements.

Technical product documentation — General principles of representation — Part 2: Basic conventions for lines

1 Scope

This part of ISO 128 establishes the types of lines, their designations and their configurations, as well as general rules for draughting of lines used in technical drawings, e.g. diagrams, plans or maps. In addition, this standard specifies general rules on the representation of leader and reference lines and their components as well as on the arrangement of instructions on or at leader lines in technical documents. Annexes have been provided for specific information on mechanical, construction and ship building technical drawings.

For the purpose of this International Standard the term "technical drawing" shall be interpreted in the broadest possible sense encompassing the total package of documentation specifying the product (workpiece, subassembly, assembly).

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 128-3 *Technical drawings — General principles of representation* — Part 3*: Views, sections and cuts*

ISO 129-1:2018, *Technical drawings — Indication of dimensions and tolerances* — Part 1*: General principles*

ISO 1101:2017, *Geometrical product specifications (GPS) — Geometrical tolerancing — Tolerances of form, orientation, location and run-out*

ISO 2203:1973, *Technical drawings — Conventional representation of gears*

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

ISO 3766:2003, *Construction drawings — Simplified representation of concrete reinforcemen*t

ISO 4463-1:1989, *Measurement methods for building — Setting-out and measurement — Part 1: Planning and organization, measuring procedures, acceptance criteria.*

ISO 5261:1995, *Technical drawings — Simplified representation of bars and profile sections*

ISO 6410-1:1993*, Technical drawings — Screw threads and threaded parts — Part 1: General conventions*

IS0 6428:1982, *Technical drawings – Requirements for microcopying*

ISO 7519:1991, *Technical drawings — Construction drawings — General principles of presentation for general arrangement and assembly drawings*

ISO 8048:1984, *Technical drawings — Construction drawings — Representation of views, sections and cuts*

ISO 8560:1986, *Technical drawings — Construction drawings — Representation of modular sizes, lines and grids*

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

ISO 10135:2007, *Geometrical product specifications (GPS) — Drawing indications for moulded parts in technical product documentation (TPD)*

ISO 10110-1:2006, *Optics and photonics — Preparation of drawings for optical elements and systems — Part 1: General*

ISO 11091:1994, *Construction drawings — Landscape drawing practice*

ISO 15787:2016 *Technical product documentation — Heat-treated ferrous parts — Presentation and indications*

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
graphical basic element
continuous graphical object with rounded or squared end shape which is represented in any way (e.g. straight, curved), which has a length and a width

Note 1 to entry see Figure A.1.

3.2
dot
graphical basic element having the length equal to half of the width

Note 1 to entry see Figure A.2.

3.3
line
set of one or more graphical basic element having the length or equal to or more than half of the width

Note 1 to entry see Figure A.3.

3.4
technical drawing
drawing showing a technical installation, process, or product with a view to clarifying their structure and to enable for their construction

[SOURCE: ISO 5127:2017]

4 Types of lines

4.1 General

The line type designation consists of a combination of a basic line type and a subtype, depending of the line width, see clause 4.2.

4.2 Basic types

The basic line types are given in Table 1.

Table 1 — Basic Line Types

No.	Representation	Description
01		continuous line
02		dashed line
03		dashed spaced line
04		long dashed dotted line
05		long dashed double-dotted line
06		long dashed triplicate-dotted line
07		dotted line
08		long dashed short dashed line
09		long dashed double-short dashed line
10		dashed dotted line
11		double-dashed dotted line
12		dashed double-dotted line
13		double-dashed double-dotted line
14		dashed triplicate-dotted line
15		double-dashed triplicate-dotted line

4.3 Line Sub types

The line sub types are given in Table 2.

Table 2 — Line Sub Types

Sub type No.	Representation	Description
.1		Narrow
.2		Wide
.3		Extra wide

4.4 Variations of the basic types of lines

Possible variations of the basic types of lines in accordance with table 1 are given in Table 3.

Table 3 — Line Variations

Representation	Description
	uniform wavy continuous line
	uniform spiral continuous line
	uniform zigzag continuous line
	freehand continuous line
NOTETable 2 contains only variations of the basic type of line No. 01. Variations of the basic types Nos. 02 to 15 are possible and are presented in the same way.	

4.5 Combinations of lines with the same length

4.5.1 Arrangement of two or more lines parallel to each other

For examples see Figure 1.

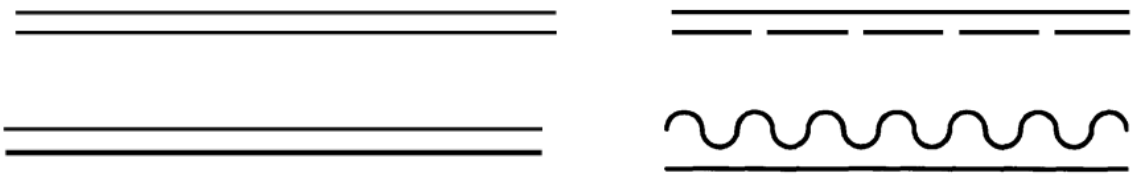

Figure 1

4.5.2 Arrangement of two different types of lines

a) With different line widths superimposed

See Figure 2 a) and b) for examples [Figure 2 a): a continuous and a dotted line; Figure 2 b): a continuous and a dashed spaced line].

a) b)

Figure 2

b) Arranged next to each other.

See Figure 3 for an example (two continuous lines either side of a thick dashed spaced line).

Figure 3

4.5.3 Arrangement of two continuous lines parallel to each other with regularly recurring connecting elements between them

See Figure 4 a) and b) for examples [Figure 4 a): filled circular elements; Figure 4 b): filled trapezoidal elements].

a) b)

Figure 4

4.5.4 Arrangement of regularly recurring geometric pictorial elements in association with continuous lines

a) Without interruption of a continuous line. See Figure 5 for examples.

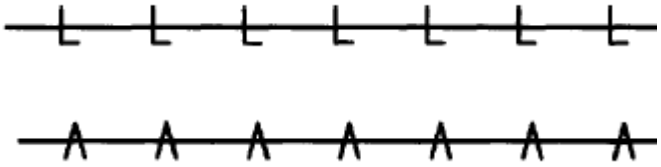

Figure 5

b) With interruption of a continuous line. See Figure 6 for examples

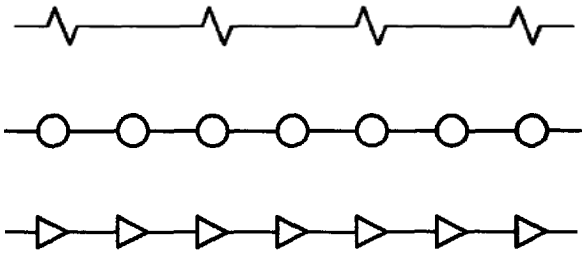

Figure 6

