
**Technical product documentation —
Simplified representation of
pipelines —**

Part 1:
**General rules and orthogonal
representation**

*Documentation technique de produits — Représentation simplifiée
des tuyaux et lignes de tuyauteries —*

Partie 1: Règles générales et représentation orthogonale





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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 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 drawings*, Subcommittee SC 10, *Process plant documentation*.

This second edition cancels and replaces the first edition (ISO 6412-1:1989), which has been technically revised.

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

- the normative references were updated;
- the document went under editorial revision.

A list of all parts in the ISO 6412 series can be found on the ISO website.

Introduction

Depending on the information it is intended to convey and the form of representation required, a distinction is made between graphical representation by means of orthogonal and that by means of isometric representation.

This document deals with general rules used for both representations (orthogonal and isometric). Rules applicable only to isometric representation are given in ISO 6412-2.

For the purposes of this document, all dimensions and tolerances on the drawings have been stencilled in upright lettering. It should be understood that these indications could just as well be written in free-hand or inclined (italic) lettering without altering the meaning of the indications.

For the presentation of lettering (proportions and dimensions), see [4.4](#).

Technical product documentation — Simplified representation of pipelines —

Part 1: General rules and orthogonal representation

1 Scope

This document specifies rules and conventions for the execution of simplified drawings for the representation of all kinds of pipes and pipelines made of all sorts of materials (rigid and flexible).

It is used whenever it is necessary to represent pipes or pipelines in a simplified manner.

For the purposes of this document, the figures illustrate the text only and should not be considered as design examples.

NOTE This document can also be used for the representation of similar installations, such as ventilation or air-conditioning systems; in such cases, the term "duct", etc. is substituted for the term "pipe".

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 (all parts), *Technical drawings — General principles of presentation*

ISO 129-1, *Technical product documentation (TPD) — Presentation of dimensions and tolerances — Part 1: General principles*

ISO 1219-1, *Fluid power systems and components — Graphical symbols and circuit diagrams — Part 1: Graphical symbols for conventional use and data-processing applications*

ISO 3098-2, *Technical drawings — Lettering — Part 2: Latin alphabet, numerals and marks*

ISO 3545-1, *Steel tubes and fittings — Symbols for use in specifications — Part 1: Tubes and tubular accessories with circular cross-section*

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

ISO 5455, *Technical drawings — Scales*

ISO 6412-2, *Technical product documentation — Simplified representation of pipelines — Part 2: Isometric projection*

ISO 6428, *Technical drawings — Requirements for microcopying*

ISO 7573, *Technical product documentation — Parts lists*

ISO 14617-2, *Graphical symbols for diagrams — Part 2: Symbols having general application*

ISO 14617-3, *Graphical symbols for diagrams — Part 3: Connections and related devices*

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