

**Tehnilised joonised. Torustike lihtsustatud
kujutamine. Osa 1: Üldreeglid ja ortogonaalne
kujutamine**

Technical drawings - Simplified representation of
pipelines - Part 1: General rules and orthogonal
representation

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN ISO 6412-1:1999 sisaldab Euroopa standardi EN ISO 6412-1:1994 ingliskeelset teksti.

Standard on kinnitatud Eesti Standardikeskuse 12.12.1999 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.

Standard on kättesaadav Eesti standardiorganisatsioonist.

This Estonian standard EVS-EN ISO 6412-1:1999 consists of the English text of the European standard EN ISO 6412-1:1994.

This standard is ratified with the order of Estonian Centre for Standardisation dated 12.12.1999 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.

The standard is available from Estonian standardisation organisation.

ICS 01.100.99, 23.040.01

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EUROPEAN STANDARD

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English version

**Technical drawings - Simplified representation of
pipelines - Part 1: General rules and orthogonal
representation (ISO 6412-1:1989)**

Dessins techniques - Représentation simplifiée
des tuyaux et lignes de tuyauteries - Partie 1:
Règles générales et représentation orthogonale
(ISO 6412-1:1989)

Technische Zeichnungen - Vereinfachte
Darstellung von Rohrleitungen - Teil 1:
Allgemeine Regeln und orthogonale Darstellung
(ISO 6412-1:1989)

This European Standard was approved by CEN on 1994-10-14. CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

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CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

Foreword

This European Standard was taken over by CEN from the work of ISO/TC 10 "Technical drawings, product definition and related documentation" of the international Standards Organization (ISO).

The Technical Board had decided to submit the final draft for Formal Vote. The result was positive.

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 1995, and conflicting national standards shall be withdrawn at the latest by April 1995.

According to the CEN/CENELEC Internal Regulations, the following countries are bound to implement this European Standard: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom.

Endorsement notice

The text of the International Standard ISO 6412-1:1989 was approved by CEN as a European Standard without any modification.

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INTERNATIONAL STANDARD

ISO
6412-1

First edition
1989-10-15

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Technical drawings — Simplified representation of pipelines —

Part 1 : General rules and orthogonal representation

*Dessins techniques — Représentation simplifiée des tuyaux et lignes du tuyauteries —
Partie 1 : Règles générales et représentation orthogonale*



Reference number
ISO 6412-1 : 1989 (E)

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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 6412-1 was prepared by Technical Committee ISO/TC 10, *Technical drawings*.

ISO 6412 consists of the following parts, under the general title *Technical drawings — Simplified representation of pipelines*:

- *Part 1: General rules and orthogonal representation*
- *Part 2: Isometric projection*

Annex A of this part of ISO 6412 is for information only.

Introduction

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

This part of ISO 6412 deals, therefore, 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 part of ISO 6412, 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.

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Technical drawings — Simplified representation of pipelines —

Part 1 : General rules and orthogonal representation

1 Scope

This part of ISO 6412 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 shall be used whenever pipes or pipelines have to be represented in a simplified manner.

For the purposes of this part of ISO 6412, the figures illustrate the text only and should not be considered as design examples.

NOTE — This part of ISO 6412 might also be of some use for the representation of similar installations, such as ventilation or air-conditioning systems; in such cases, the term "duct", etc. should be substituted for the term "pipe".

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 6412. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 6412 are encouraged to investigate the possibility of applying the most recent editions of the standards listed below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 128 : 1982, *Technical drawings — General principles of presentation*.

ISO 129 : 1985, *Technical drawings — Dimensioning — General principles, definitions, methods of execution and special indications*.

ISO 406 : 1987, *Technical drawings — Tolerancing of linear and angular dimensions*.

ISO 1219 : 1976, *Fluid power systems and components — Graphic symbols*.

ISO 3098-1 : 1974, *Technical drawings — Lettering — Part 1: Currently used characters*.

ISO 3461-2 : 1987, *General principles for the creation of graphical symbols — Part 2: Graphical symbols for use in technical product documentation*.

ISO 3545 : 1981, *Steel tubes and tubular shaped accessories with circular cross-section — Symbols to be used in specifications*.

ISO 4067-1 : 1984, *Technical drawings — Installations — Part 1 : Graphical symbols for plumbing, heating, ventilation and ducting*.

ISO 5261 : 1981, *Technical drawings for structural metal work*.

ISO 5455 : 1979, *Technical drawings — Scales*.

ISO 6428 : 1982, *Technical drawings — Requirements for microcopying*.

ISO 7572 : 1983, *Technical drawings — Item lists*.

3 Definitions

For the purposes of ISO 6412, the following definitions apply.

3.1 orthogonal representation: Projection method in which the projectors are at right angles to the projection plane.

3.2 isometric representation: Projection method in which each of the three coordinate axes is inclined at the same angle to the projection plane.

3.3 flow line: Representation of the flow path of the inlet or outlet streams or of material, energy or energy carriers.

4 General principles

In this clause all general principles are specified which are common to the methods of projection and to the pictorial representations, as recommended in this part of ISO 6412.