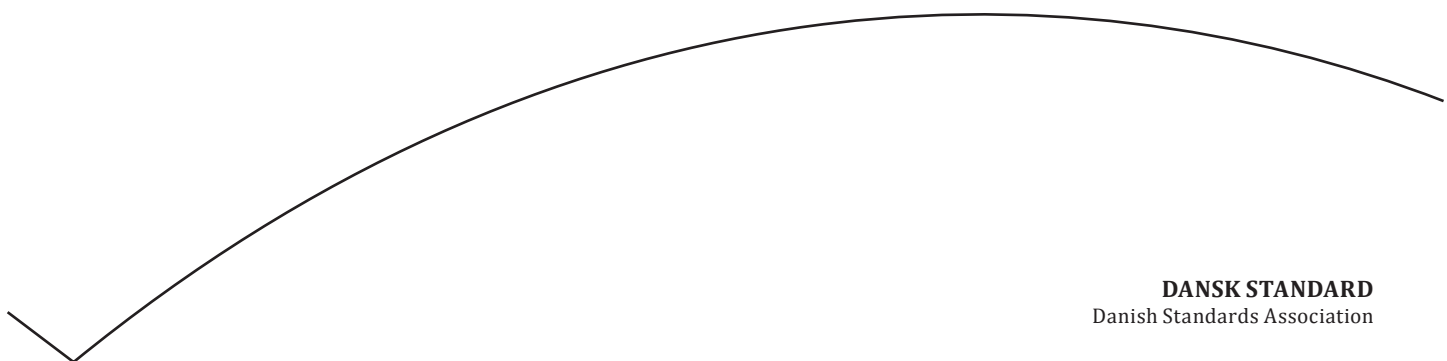


This is a preview of "DS/EN ISO 6412-1:201...". Click here to purchase the full version from the ANSI store.

# Teknisk tegning – Forenklet angivelse af rørledninger – Del 1: Generelle regler og retvinklet projektion

Technical product documentation – Simplified representation of pipelines – Part 1: General rules and orthogonal representation (ISO 6412-1:2017)



**DANSK STANDARD**  
Danish Standards Association

Göteborg Plads 1  
DK-2150 Nordhavn

Tel: +45 39 96 61 01

Tel: +45 39 96 61 01

dansk.standard@ds.dk

www.ds.dk

This is a preview of "DS/EN ISO 6412-1:201...". Click here to purchase the full version from the ANSI store.

DS projekt: M317591  
ICS: 01.100.99; 23.040.01

**Første del af denne publikations betegnelse er:**

**DS/EN ISO, hvilket betyder, at det er en international standard, der har status både som europæisk og dansk standard.**

**Denne publikations overensstemmelse er:**

**IDT med: ISO 6412-1:2017**

**IDT med: EN ISO 6412-1:2018**

**DS-publikationen er på engelsk.**

**Denne publikation erstatter: [DS/EN ISO 6412-1:1994](#)**

---

### **DS-publikationstyper**

Dansk Standard udgiver forskellige publikationstyper.

Typen på denne publikation fremgår af forsiden.

Der kan være tale om:

#### **Dansk standard**

- standard, der er udarbejdet på nationalt niveau, eller som er baseret på et andet lands nationale standard, eller
- standard, der er udarbejdet på internationalt og/eller europæisk niveau, og som har fået status som dansk standard

#### **DS-information**

- publikation, der er udarbejdet på nationalt niveau, og som ikke har opnået status som standard, eller
- publikation, der er udarbejdet på internationalt og/eller europæisk niveau, og som ikke har fået status som standard, fx en teknisk rapport, eller
- europæisk præstandard

#### **DS-håndbog**

- samling af standarder, eventuelt suppleret med informativt materiale

#### **DS-hæfte**

- publikation med informativt materiale

Til disse publikationstyper kan endvidere udgives

- tillæg og rettelserblade

### **DS-publikationsform**

Publikationstyperne udgives i forskellig form som henholdsvis

- fuldttekstpublikation (publikationen er trykt i sin helhed)
- godkendelsesblad (publikationen leveres i kopi med et trykt DS-omslag)
- elektronisk (publikationen leveres på et elektronisk medie)

### **DS-betegnelse**

Alle DS-publikationers betegnelse begynder med DS efterfulgt af et eller flere præfikser og et nr., fx **DS 383**, **DS/EN 5414** osv. Hvis der efter nr. er angivet et **A** eller **Cor**, betyder det, enten at det er et **tillæg** eller et **rettelsesblad** til hovedstandard, eller at det er indført i hovedstandard.

DS-betegnelse angives på forsiden.

### **Overensstemmelse med anden publikation:**

Overensstemmelse kan enten være IDT, EQV, NEQ eller MOD

- **IDT:** Når publikationen er identisk med en given publikation.
- **EQV:** Når publikationen teknisk er i overensstemmelse med en given publikation, men præsentationen er ændret.
- **NEQ:** Når publikationen teknisk eller præsentationsmæssigt ikke er i overensstemmelse med en given standard, men udarbejdet på baggrund af denne.
- **MOD:** Når publikationen er modificeret i forhold til en given publikation.

This is a preview of "DS/EN ISO 6412-1:201...". Click here to purchase the full version from the ANSI store.

EUROPÄISCHE NORM

February 2018

ICS 01.100.99; 23.040.01

Supersedes EN ISO 6412-1:1994

English Version

## Technical product documentation - Simplified representation of pipelines - Part 1: General rules and orthogonal representation (ISO 6412-1:2017)

Documentation technique de produits -  
Représentation simplifiée des tuyaux et lignes

de tuyauteries - Partie 1: Règles générales et  
représentation orthogonale (ISO 6412-1:2017)

This European Standard was approved by CEN on 22 October 2017.

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 CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

This is a preview of "DS/EN ISO 6412-1:201...". [Click here to purchase the full version from the ANSI store.](#)

## Contents

Page

European foreword .....	3
-------------------------	---

This is a preview of "DS/EN ISO 6412-1:201...". Click here to purchase the full version from the ANSI store.

## European foreword

This document ([EN ISO 6412-1:2018](#)) has been prepared by Technical Committee ISO/TC 10 "Process plant documentation".

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 August 2018, and conflicting national standards shall be withdrawn at the latest by August 2018.

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.

This document supersedes [EN ISO 6412-1:1994](#).

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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

### Endorsement notice

The text of [ISO 6412-1:2017](#) has been approved by CEN as [EN ISO 6412-1:2018](#) without any modification.

This is a preview of "DS/EN ISO 6412-1:201...". [Click here to purchase the full version from the ANSI store.](#)

Second edition  
2017-12-04

---

---

# **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 : Règles générales et représentation orthogonale*



Reference number  
ISO 6412-1:2017(E)

© ISO 2017

This is a preview of "DS/EN ISO 6412-1:201...". [Click here to purchase the full version from the ANSI store.](#)



**COPYRIGHT PROTECTED DOCUMENT**

© ISO 2017, Published in Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office  
Ch. de Blandonnet 8 • CP 401  
CH-1214 Vernier, Geneva, Switzerland  
Tel. +41 22 749 01 11  
Fax +41 22 749 09 47  
copyright@iso.org  
www.iso.org



This is a preview of "DS/EN ISO 6412-1:201...". Click here to purchase the full version from the ANSI store.

## Contents

	Page
<b>Foreword</b> .....	<b>iv</b>
<b>Introduction</b> .....	<b>v</b>
<b>1 Scope</b> .....	<b>1</b>
<b>2 Normative references</b> .....	<b>1</b>
<b>3 Terms and definitions</b> .....	<b>2</b>
<b>4 General principles</b> .....	<b>2</b>
4.1 Overview .....	2
4.2 Representation of pipes .....	2
4.3 Scale.....	2
4.4 Lines.....	2
4.4.1 Line thickness.....	2
4.4.2 Types of line.....	3
4.4.3 Spacing of lines.....	3
4.5 Lettering .....	3
4.6 Dimensioning .....	4
4.7 Tolerances .....	5
<b>5 Crossings and connections</b> .....	<b>5</b>
<b>6 Representation of equipment</b> .....	<b>6</b>
6.1 General .....	6
6.2 Fittings .....	6
6.3 Supports and hangers.....	7
6.4 Additional provisions .....	8
6.5 Adjoining apparatus .....	8
6.6 Direction of flow .....	8
6.7 Flanges .....	8
<b>7 Examples</b> .....	<b>9</b>
<b>Bibliography</b> .....	<b>11</b>

## 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](http://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](http://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](http://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](http://www.iso.org/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](http://www.iso.org/iso/6412) series can be found on the ISO website.

This is a preview of "DS/EN ISO 6412-1:201...". [Click here to purchase the full version from the ANSI store.](#)

## 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](#).

This is a preview of "DS/EN ISO 6412-1:201...". [Click here to purchase the full version from the ANSI store.](#)

This is a preview of "DS/EN ISO 6412-1:201...". Click here to purchase the full version from the ANSI store.

# 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*