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Technical product documentation — Document types

Documentation technique de produits — Types de document

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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.

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The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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ISO 29845 was prepared by Technical Committee ISO/TC 10, *Technical product documentation*, Subcommittee SC 1, *Basic conventions*.

Introduction

The figures in this International Standard are intended only as illustrations to aid the user in understanding the practices elaborated in the text. In some cases, the figures show the level of detail needed for emphasis; in others, they are only complete enough to illustrate a concept or facet thereof. The absence of figures has no bearing on the applicability of the specified requirement or practice.

Technical product documentation — Document types

1 Scope

This International Standard establishes and defines the types of documents required to be in the documentation for the specification of products, equipment and plants at all levels of complexity. It deals with the range of document types used from the conceptual phase to finished product, in all engineering fields.

The purpose of this International Standard is

— to facilitate a structure for (data modelling) product data management systems,

— to facilitate searching and retrieval of documents,

— to establish document types for the purpose of better communication and understanding between parties involved in document interchange, and

— to fulfil the requirement in ISO 7200:2004 regarding document type fields.

NOTE The figures in this International Standard are intended only as illustrations to aid the user in understanding the document types described by the text. Consequently, the figures are simplified in such a way that the content presented in illustrated document types may not always apply all ISO rules regarding the presentation of drawings and other types of documents.

2 Normative references

The following referenced documents are indispensable for the application 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 7200:2004, *Technical product documentation — Data fields in title blocks and document headers*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1 General

3.1.1
document
fixed and structured amount of information that can be managed and interchanged as a unit between users and systems

[ISO 11442:2006, 3.10]

3.1.2
documentation
collection of documents related to a given subject

[IEC 82045-1, 2001]

3.1.3
document type
document defined with respect to its specified content of information, function and form of presentation

NOTE Adapted from IEC 61082-1:2006.

3.1.4
object
entity treated in the process of design, engineering, realisation, operation, maintenance and demolition

[ISO 15519-1:2010, 3.3.2]

3.1.5
product
intended or accomplished result of labour, or of a natural or artificial process

[IEC 82045-1:2001]

NOTE 1 A product usually has a part number, type designation, and/or a name.

NOTE 2 A technical system, building, plant or services can be considered as a product.

3.1.6
drawing
technical information, given on an information carrier, graphically presented in accordance with agreed rules and usually to scale

[ISO 10209-1:1992, 2.11]

3.1.7
model
three-dimensional physical or digital description of the ideal shape of an object

3.1.8
design model
portion of the data set that contains model and supplemental geometry

[ISO 16792:2006, 3.10]

3.1.9
diagram
technical document showing the functions of the objects composing a system and their interrelations using graphical symbols

3.1.10
chart
document of information in the form of a table, graph, or diagram

3.1.11
graph
diagram showing the relation between variable quantities, typically of two variables, each measured along a pair of lines at right angles

3.1.12
list
document in which the information is presented in columns and rows

3.1.13
sketch
drawing prepared freehand or in a CAD system and not necessarily to scale

3.1.14
textual
presentation form using characters, for example in written instructions and descriptions

3.1.15
report
account given of a matter after investigation or consideration

3.2 Document types

3.2.1
part drawing
drawing depicting a single part which cannot be further disassembled and which includes all the necessary information required for the definition of the part

[ISO 10209-1:1992, 3.16]

3.2.2
assembly drawing
drawing representing the relative position and/or shape of a group of assembled parts

[ISO 10209-1:1992, 3.2]

3.2.3
tabular drawing
drawing listing differing variations of a specific configuration using a single, common illustration

3.2.4
fabrication drawing
part drawing of an assembly of fully specified items, permanently joined together

3.2.5
installation drawing
drawing showing the general configuration of an item and the necessary information to install the item relative to its mating structures or associated items

[ISO 10209-1:1992, 3.16]

3.2.6
layout drawing
drawing showing the location of sites, structures, buildings, spaces, elements, assemblies or components

[ISO 10209-1:1992,3.13]

3.2.7
interface drawing
drawing giving information for the assembly and matching of two parts, concerning, for example, their dimensions, configuration limitations, performance and test requirements

[ISO 10209-1:1992, 3.11]

3.2.8
outline drawing
drawing giving the outside peripheral envelope, overall dimensions and mass of an object

NOTE Adapted from ISO 10209-1:1992.

3.2.9
supplier drawing
drawing defining a part developed and owned by an external supplier

3.2.10
illustration drawing
drawing showing figures and sketches for any general purpose which is not covered by the more specific document types

3.2.11
space envelope drawing
drawing showing the maximum space which can occupied for an intended design solution and the geometrically significant interfaces of components and assemblies which are not yet designed in detail

3.2.12
block plan
drawing which identifies a site and locates the outlines of construction works in relation to a town plan or similar document

[ISO 10209-1:1992, 3.3]

3.2.13
site plan
layout drawing giving the position of construction works in relation to the setting out points, the means of access and the general layout of a site

NOTE Adapted from ISO 10209-1:1992.

3.2.14
part model
model in which the product described is one single item

3.2.15
assembly model
model in which the product described is an assembly of two or more items

[ISO 16792:2006, 3.3]

3.2.16
installation model
model in which the product described is an installation, showing parts or assemblies and a partial or complete representation of the installation site

[ISO 16792:2006, 3.17]

3.2.17
interference model
model that shows the overall geometry and the space required as well as possible collisions

3.2.18
space envelope model
model showing the maximum space which can occupied for an intended design solution and the geometrically significant interfaces of components and assemblies which are not yet designed in detail

3.2.19
annotated design model
combination of design model, annotation and attributes that describes a product

3.2.20
overview diagram
diagram providing a comprehensive view of an object with low degree of detailing

3.2.21
network map
overview diagram showing a network on a map

[ISO 14617-15:2002, 3.2]

3.2.22
block diagram
overview diagram predominantly using block symbols

[ISO 10209-4:1999, 5.15.8.1]

3.2.23
network diagram
overview diagram which shows the connections between different kinds of installations for transmitting of electricity, fluids (e.g. water, gas) or heating/cooling, sewage system, telecommunications, equipment, etc.

NOTE Adapted from ISO 10209-4:1999.

3.2.24
circuit diagram
diagram providing information about the circuitry of an object(s)

[ISO 15519-1:2010, 3.2.8]

3.2.25
function diagram
diagram providing information about the functional behaviour of a system

[ISO 15519-1:2010, 3.2.7]

3.2.26
process flow diagram
diagram illustrating the configuration of a process system or process plant by means of graphical symbols

[ISO 15519-1:2010, 3.2.6]

3.2.27
piping and instrumentation diagram
P&I diagram
process flow diagram representing the technical realization of a process system by means of graphical symbols for equipment, connections and process measurement and control functions

[ISO 15519-1:2010, 3.2.9]

3.2.28
angular chart
chart showing the relation between the angular position of an object and the function

3.2.29
structure diagram
chart which shows the relation between different objects in a system or a product from different points of view presented graphically as a hierarchical tree

3.2.30
graph
diagram showing the relation between variable quantities, typically of two variables, each measured along a pair of lines at right angles

3.2.31
parts list
list of elements of an object(s)

[ISO 15519-1:2010, 3.2.11]

3.2.32
document list
formally built-up inventory in which all relevant documents for a specific purpose are listed

3.2.33
bill-of-material
BOM
presentation of the constituents in a product structure with the possibility to adopt the level of decomposition to actual need

3.2.34
signal list
list providing information about signals defined as input or output of functional units

3.2.35
coordinate data list
list providing information about certain positions on a part represented in a Cartesian coordinate system

3.2.36
apparatus list
list providing information about the constituent functional components included in a system

3.2.37
connection table
connection table lists the connections on different levels, internal and external, of the installation

3.2.38
standard
document established by consensus and approved by a recognized body, that provides, for common and repeated use, rules, guidelines and characteristics or their results, aimed at the achievement of the optimum degree of order in a given context

[ISO/IEC Guide 2:2004, 3.2]

3.2.39
technical specification
document specifying the requirements for one specific part or for a group of parts with equal characteristics

3.2.40
requirement specification
document compiled and evaluated with the requirements from the markets (customer), authorities, and the company itself

3.2.41
part definition
text-based document that may be supplied with a drawing image of the defined part, specifying property requirements for the part described by the document

3.2.42
calculation sheet
document providing the results of calculations regarding essential product characteristics

3.2.43
process specification
document that defines the type and sequence of steps of a process used to produce a part

3.2.44
assembly instruction
document providing information of how and in what sequence the different part shall be assembled to receive a specific end product

3.2.45
test specification
specification explaining how to perform the test activities according to the test plan

3.2.46
test plan
document describing the scope realization resources and plans for the intended test activities

3.2.47
quality plan
document defining a set of activities planned that helps achieve quality in the project being executed

3.2.48
test report
compilation of tests carried out at a new part, assembly, product or system and documentation of test results

4 Forms of presentation

4.1 General

The forms of presentation identified in Table 1 are the main types of documents used in the field of engineering. The table also shows where the documents are commonly used. However, the document types can also occur in other technical areas than those shown in Table 1 depending on company standards, technical discipline, etc.

Table 1 — Presentation formats

Presentation format	Description	Application[a]
1 Drawing	Graphical presentation depicting the shape, size, etc. of a physical part or assembly, usually to scale	A
2 Model	Three-dimensional physical or digital description of the ideal shape of an object.	A
3 Diagram	Graphical presentation showing the functions of the objects composing a system and their interrelations using graphical elements and symbols	A
4 Chart	Document of information in the form of a table, graph, or diagram.	B, D
5 Graph	Diagram showing the relation between variable quantities, typically of two variables, each measured along a pair of lines at right angles.	B, D
6 List	Document in which the information is presented in columns and rows	A
7 Textual	Presentation form using characters, for example in written instructions and descriptions	A

[a] See Table 2.

The application code identifies the technical area in which the presentation format is used.

Table 2 — Application codes

Code	Technical area
A	overall technology
B	construction engineering (building construction and civil engineering
C	mechanical engineering
D	process plant engineering

NOTE The figures in the following subclauses are typical examples of the described document types. The information in the title blocks is identical throughout this International Standard except for the document types and titles.

4.2 Drawing

4.2.1 Part drawing

A part drawing (see Figure 1) depicts a single part which cannot be further disassembled. The drawing includes information required for the definition of the part, e.g. material properties, dimensions, tolerances, surface texture.

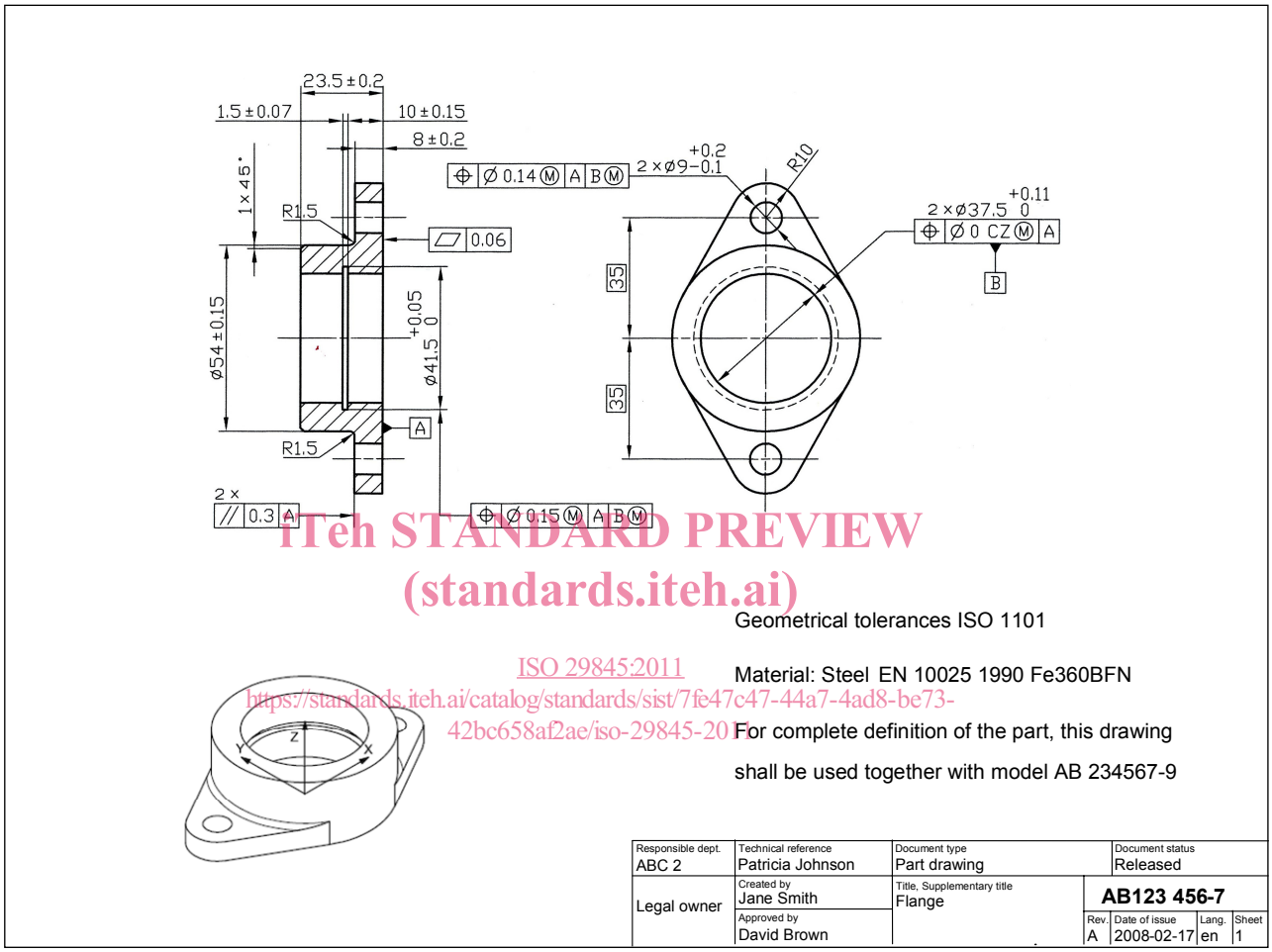

Figure 1 — Part drawing

Examples of part drawings from the construction field include the following:

— a **detail drawing** which can show the appearance and properties of a part as well as its relation to and mounting with other parts;

— a **manufacturing drawing**, e.g. for beams, columns, floor slabs or other structural elements.